Department of CIS

TITLE OF THE PROJECT

Southeast University Website

Submitted By

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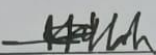**Daffodil International University**

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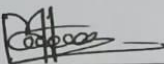
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APPROVAL

This Project titled **"Southeast University Website and DSL CMS"**, Submitted by **Mst. Sadia Aktar Momi**, ID No: 192-16-444 to the Department of Computing & Information Systems, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information Systems and approved as to its style and contents. The presentation has been held on- 19-07-2023.
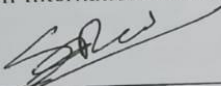
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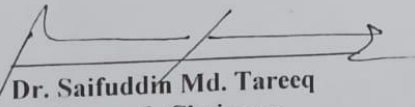Daffodil International University

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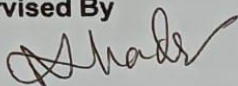Daffodil International University

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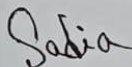University of Dhaka. Dhaka

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Declaration

I hereby declare that; this project has been done by me under supervision of **Nasimul Kader Sohel** department of Computing and Information System (CIS) of Daffodil International University. I am also declaring that this project or any part of there has never been submitted anywhere else for the award of any educational degree like, B.Sc., M.Sc., Diploma or other qualifications.

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Abstract

The UI/UX design and development project for Southeast University aims to enhance the user experience and interface design of their digital platforms. The project focuses on creating intuitive and visually appealing interfaces that improve usability and engagement for students, faculty, and staff. Through a comprehensive user-centered design approach, the project aims to address the specific needs and preferences of the university community while aligning with the institution's brand identity. The development phase involves implementing the UI/UX designs, integrating them with existing systems, and ensuring cross-platform compatibility. The project aims to deliver a seamless and efficient user experience across various devices, including desktops, tablets, and smartphones. By leveraging modern design principles and interactive elements, the UI/UX design and development project aims to create an immersive digital environment that facilitates information access, communication, and collaboration within the Southeast University community. The project's success will be measured by improved user satisfaction, increased engagement, and enhanced usability metrics, ultimately contributing to the university's digital transformation and fostering a positive and productive user experience.

192-16-444

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Chapter 1 - Introduction

1.1 Introduction

At Southeast University, we understand the importance of creating intuitive and visually appealing user interfaces that deliver exceptional user experiences. In this documentation, I aim to provide comprehensive insights into the world of UI/UX design, helping master the art of crafting engaging digital experiences. UI/UX design is a vital step in the website development process as it focuses on creating interfaces that are visually appealing, easy to navigate, and provide a seamless user experience. Before diving into the implementation phase, it is crucial to invest time and effort in designing the user interface (UI) and user experience (UX) aspects of the website. UI design encompasses the visual elements of the website, such as layout, colors, typography, icons, and imagery. It aims to create an aesthetically pleasing and cohesive design that reflects the brand identity, engages users, and communicates information effectively. UI designers carefully consider the placement and hierarchy of elements, ensuring a visually balanced and intuitive interface. UX design focuses on optimizing the overall experience users have while interacting with the website. It involves understanding user behavior, needs, and goals through research and analysis. UX designers create wireframes and prototypes to map out the user journey, define information architecture, and establish logical navigation flows. They aim to simplify complex tasks, minimize user effort, and provide clear paths for users to achieve their objectives. By addressing UI/UX design before implementation, you can gain several benefits. Firstly, taking a user-centric approach helps align the website with the preferences and expectations of the target audience, enhancing user satisfaction and engagement. It also improves the usability of the website by creating intuitive navigation, clear information hierarchy, and well-organized content, ultimately leading to a better user experience. Additionally, focusing on UI/UX design ensures consistency in branding throughout the website. By applying consistent visual elements, typography, and color schemes, you establish a strong brand identity and evoke familiarity and trust in users. Consistency across different pages and sections of the website contributes to a cohesive and polished look and feel. Moreover, investing in UI/UX design upfront can save time and resources during the development process. By creating wireframes and prototypes, designers can identify potential issues and iterate on the design before coding begins. This reduces the need for extensive rework and streamlines the development cycle, resulting in a more efficient and cost-effective process. In summary, UI/UX design is a critical phase in website development that focuses on creating visually appealing interfaces and optimizing user experiences. By prioritizing user needs, enhancing usability, ensuring consistency, and streamlining the development process, UI/UX design contributes to the overall success of the website by engaging users and achieving business goals.

1.2 Document Contents in Project Document

This book or documentation, which will track the development of the project, will include the following chapters.

Chapter 1: Introduction

An overview of the proposed project and system.

Chapter 2: Initial Phase

The key goals and objectives, problem area, potential solutions, and project history are all covered in this chapter along with the preliminary research findings for the proposed system.

Chapter 3: Literature Review

This chapter goes into great detail on the problem domain, solutions, evaluation of existing solutions, and final suggestion.

Chapter 4: Methodology

This section will cover the value of using methodology, several ways that can be used, the best methodology, and how to apply it.

Chapter 5: Planning

Project plans, including test plans, risk and change management, and others, are covered in this chapter.

Chapter 6: Feasibility

This is where you'll find the full feasibility study report and cost-benefit analysis.

Chapter 7: Foundation

The issue area identification, general need list, proposed technology, and justifications will all be covered in this chapter.

Chapter 8: Exploration

It includes fundamental UML diagrams, a set of requirements for both the new and old systems, a prototype, and more.

Chapter 9: Engineering

The logical and behavioral models of the suggested system are presented in this chapter.

Chapter 10: Deployment

Here, we'll discuss coding examples and how to divide a development problem into manageable components based on development priorities.

Chapter 11: Testing

This chapter contains a variety of test concepts and results.

Chapter 12: Implementation

The implementation approach, training model, and other relevant subjects are covered in this section.

Chapter 13: Critical Appraisal and Evaluation

The detailed examination of the initial goals that were achieved and those that weren't.

Chapter 14: Lessons Learned

Most of the project's lessons learned and challenges are included in the pre-project-closing review.

Chapter 15: Conclusion

You can see a summary of the project's objectives, accomplishments, and lessons learned here.

Chapter 2 – Initial Study

2.1 Project Proposal

In today's world, the solution to all human problems is at hand. There are internet-based jobs as the world has to move towards change with time Online based. I designed the UI/UX of two projects during my internship. Daffodil Software Limited (DSL) and Southeast University CMS UI/UX Design.

We propose to develop a Content Management System (CMS) website with a focus on exceptional User Interface (UI) and User Experience (UX) design. The CMS will empower your organization to efficiently manage and update website content, while providing an intuitive and visually appealing experience for your website visitors. Our team of skilled developers and designers will collaborate closely with you to create a custom CMS solution that aligns with your brand identity and business objectives. We propose to enhance the UI/UX design of our documentation system, ensuring an intuitive and user-friendly experience for your users. By improving the design and usability of my documentation, I aim to enhance user engagement, simplify information retrieval, and ultimately improve customer satisfaction. Our team of skilled UI/UX designers will collaborate closely with you to create a visually appealing and user-centric documentation interface.

Research and Analysis:

User Research: We will conduct user research to gain insights into the needs, preferences, and pain points of your documentation users.

Competitor Analysis: We will analyze the documentation interfaces of your competitors to identify industry best practices and areas for improvement.

Content Audit: Our team will assess the existing documentation content and structure to determine opportunities for reorganization and improvement.

Information Architecture and Navigation:

Structure Design: We will redesign the information architecture of the documentation system to create a logical and intuitive hierarchy of content.

Navigation Design: Our team will develop a user-friendly navigation system that allows users to easily browse and locate relevant documentation sections.

Search Functionality: We will enhance the search feature, ensuring accurate and efficient retrieval of documentation based on user queries.

Visual Design:

Brand Alignment: We will align the documentation interface with your brand identity, incorporating your brand colors, typography, and visual elements.

Visual Enhancements: Our designers will create visually appealing layouts, ensuring consistency in styling, spacing, and typography throughout the documentation.

Illustrations and Graphics: We will introduce illustrations and graphics where appropriate to enhance visual interest and aid in conveying complex concepts.

Responsive Design:

Mobile Optimization: Our team will ensure that the documentation interface is fully responsive and optimized for various mobile devices, providing a seamless experience to users accessing documentation on smartphones and tablets.

Background Study

Before diving into the UI/UX design documentation process, it is essential to conduct a thorough background study. This study provides valuable insights into the project's context, target users, business objectives, and existing design guidelines. It lays the foundation for creating an effective and user-centric UI/UX design documentation. Here are the key areas to focus on during the background study:

Project Objectives and Scope:

Understand the project goals, both from a business perspective and a user experience standpoint.

Identify the specific areas or features of the product that require UI/UX design documentation. Clarify the scope and limitations of the documentation project.

User Research and Analysis:

Identify the target audience or user personas who will interact with the product. Conduct user research to understand their needs, preferences, and pain points. Gather insights into users' expectations, behavior patterns, and technological proficiency. Analyze user feedback and support data from previous iterations of the product, if available.

Competitor Analysis:

Study competitors' products or similar products in the market to identify design trends, best practices, and areas for differentiation. Assess the strengths and weaknesses of competitors' UI/UX designs. Identify opportunities to improve upon existing solutions and deliver a superior user experience.

Existing Design Guidelines and Branding:

Review any existing design guidelines or brand guidelines that govern the visual identity and user experience of the product. Understand the brand values, color palettes, typography, and visual elements that should be incorporated into the UI/UX design documentation. Ensure consistency with the overall brand image and design language.

Technical Constraints and Feasibility:

Collaborate with the development team or technical stakeholders to understand the technological constraints and possibilities. Identify any limitations or considerations that may impact the UI/UX design documentation process.

Ensure that the proposed designs are feasible to implement within the technical framework.

Description of the proposed system

During my internship I have completed two project designs. In two website designs I have made it user friendly. The project of Daffodil Software Limited is a website of Software Limited where I have involved all relevant software product related pricing and all marketing processes to an e-commerce website.

I have researched many websites and designed the Ecommerce website.

After that, the user of Southeast University has no friendly navigation and no information has been given correctly on its website. Besides, I did research on website design and then I designed a user-friendly website.

Prioritized Features according to MoSCoW

MoSCoW is a requirement prioritization approach used during the requirement analysis stage. It helps to understand the significance of the criterion.

Serial No.	Requirement for Southeast University Website Design	Priority of Southeast University Website Design
01.	Clear and intuitive navigation system	Must-have
02.	Responsive design for seamless usability across different devices	Must-have
03.	Consistent branding elements to maintain visual identity.	Must-have
04.	Accessible design to ensure compliance with	Must-have

	accessibility guidelines.	
05.	Optimized layouts for readability and information hierarchy.	Must-have
06.	Interactive elements and animations to engage users.	Should-have
07.	Visual cues and feedback for user actions and system responses.	Should-have
08.	Task flow optimization for streamlined user workflows.	Should-have
09.	Enhanced search functionality for efficient information retrieval.	Should-have
10.	Error handling and validation to provide clear and helpful messages.	Should-have
11.	Personalization options for users to customize their experience.	Could-have
12.	Social media integration for sharing and collaboration.	Could-have
13.	Advanced analytics and reporting capabilities.	Could-have
14.	Gamification elements to increase user engagement.	Could-have
15.	Integration with third-party services or APIs for expanded functionality.	Could-have
16.	Complex integrations or functionalities beyond the immediate requirements.	Won't-have
17.	Resource-intensive animations or effects that may negatively impact performance.	Won't-have

19.	Niche or specific features that cater to a small subset of users.	Won't-have

Table 1: Prioritized Features

The prioritization of features using the MoSCoW framework may vary depending on the specific project requirements, timeline, and available resources. It is crucial to collaborate with stakeholders to define and refine the feature prioritization based on project goals and constraints. By following the MoSCoW prioritization, you can ensure that the most critical and essential features are implemented first, providing a solid foundation for the UI/UX design. The prioritization helps in managing expectations, allocating resources effectively, and delivering a high-quality user experience.

Exploration & Engineering

The UI/UX design for an Exploration & Engineering Ecommerce website aims to create a visually appealing, user-friendly, and efficient interface for customers to browse, purchase, and interact with products related to exploration and engineering. The design will focus on enhancing the user experience, promoting product discovery, and facilitating seamless transactions. Here is a description of the key elements and features of the proposed UI/UX design for the Exploration & Engineering Ecommerce website:

Visual Branding and Theme:

- The design will incorporate visual elements, colors, and imagery that reflect the essence of exploration and engineering.
- The overall visual theme will convey professionalism, innovation, and a sense of adventure.
- Consistent branding elements, such as logo placement and typography, will be implemented throughout the website to create a cohesive brand identity.

User-Friendly Navigation and Product Discovery:

- Clear and intuitive navigation menus, categories, and filters will be implemented to help users easily explore and find relevant products.
- Breadcrumbs, search functionality, and sorting options will be provided to enhance navigation and product discovery.
- Featured and recommended product sections will be strategically placed to highlight popular or new items, promoting engagement and conversion.

Product Listings and Details:

- Product listings will be designed to present key information, including product images, descriptions, specifications, and pricing, in a clear and organized manner.
- High-quality product images and zoom functionality will be incorporated to provide users with a detailed view of the products.

- Ratings, reviews, and social proof elements will be displayed to enhance credibility and assist users in making purchase decisions.

- Multiple payment options and secure payment gateways will be integrated to ensure a smooth and trustworthy transaction experience.

Responsive Design and Mobile Optimization:

- The UI/UX design will be responsive, adapting seamlessly to different screen sizes and devices, including smartphones and tablets.
- Mobile optimization will be prioritized to ensure a user-friendly and visually appealing experience for mobile users.

Iterative development – Timeboxing

The process of developing time estimates should be iterated over in order to break down tasks into manageable chunks. 20–25% of the overall time will be spent on the foundation and feasibility phases, followed by 60–70% on the actual development and 15% on documentation. The project will require between 300 and 320 hours of effort over the course of three months. Seven sessions, each lasting 50–60 hours, make up the project. To estimate time boxes, I'll employ the "t-shirt" method. There will be story points marked on XS, S, M, L, and XL t-shirts. Greater time and effort are needed for larger sizes than for lesser sizes.

Iterative development is a software development approach that involves breaking down a project into smaller, manageable iterations or sprints. Timeboxing is a technique used to allocate fixed time periods, known as timeboxes, to each iteration. In the context of UI/UX design for an Ecommerce & University website, iterative development with timeboxing can bring several benefits, including faster delivery, improved collaboration, and the ability to incorporate user feedback early on. Here's how the process can be implemented:

Define Iteration Goals:

- Before starting the design process, define specific goals and outcomes for each iteration. For example, one iteration might focus on the homepage design, while another could be dedicated to the checkout process or student resources section.
- Clearly communicate these goals to the design team and stakeholders to align everyone's expectations and ensure a shared understanding of the priorities.

Allocate Timeboxes:

- Determine the duration of each timebox based on the project timeline, available resources, and complexity of the features to be developed.
- Ideally, timeboxes should be short, such as one to two weeks, to maintain a fast-paced development cycle and facilitate frequent feedback loops.

Conduct Design Sprints:

- During each timebox, the design team should focus on completing the planned tasks and activities.
- Collaborate closely with developers, stakeholders, and users to gather feedback, address any issues, and make iterative improvements.
- Regularly review progress, identify any blockers or challenges, and adjust the design approach if necessary.

Time Boxing

Timebox	Start Date	Start Date	Duration	Tasks/Deliverables
TB1	**01/01/2023**	**01/15/2023**	15	Feasibility & Foundation
TB2	**01/15/2023**	**01/30/2023**	14	Requirements System
TB3	**01/31/2023**	**02/18/2023**	18	Architecture Design, Database Design, User Interface
TB4	**02/18/2023**	**03/04/2023**	14	Design Source Code, Configured Databases, and Implemented Interfaces
TB5	**03/04/2023**	**03/24/2023**	19	Test Cases, Test Results, and Bug Reports
TB6	**03/24/2023**	**04/18/2023**	25	User Guides, Technical Documentation, and Installation Instructions
TB7	**04/18/2023**	**04/26/2023**	7	University website has been installed on production servers.
TB8	**04/26/2023**	**05/14/2023**	17	User Support Channels, Training Materials
TB9	**05/14/2023**	**05/29/2023**	14	Data Migration Reports, Migrated Data
TB10	**05/30/2023**	**06/24/2023**	24	Upgraded System Versions, Maintenance Reports
TB11	**06/24/2023**	**06/29/2023**	5	The creation and testing of the application

TB12	**01/01/2023**	06/29/2023	172	Project Documentation

Table 2: Time Box estimation
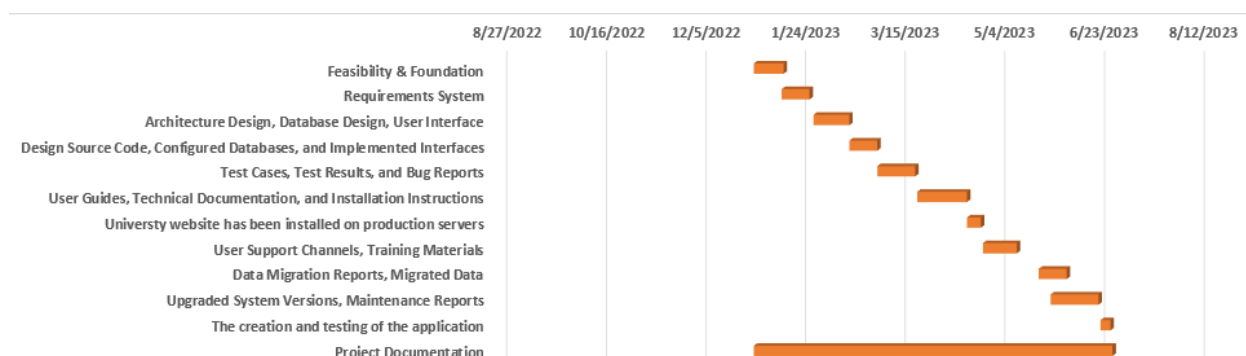
Figure 1:Gantt Chart of the proposed Time Box Estimation

2.2 Background of the project

The Southeast university website UI/UX design project aims to revamp and enhance the user interface and user experience of the university's website. The current website may be outdated, difficult to navigate, lacking in modern design principles, or not adequately meeting the needs of its various user groups, including students, faculty, staff, and prospective students.

The project recognizes the importance of having a well-designed and user-friendly website that serves as a central hub for information, resources, and engagement within the university community. The website plays a crucial role in attracting prospective students, providing information about academic programs, facilitating admissions and enrollment processes, showcasing faculty and research work, and offering various campus services and resources.

The project's goal is to create a visually appealing, intuitive, and accessible website that aligns with the university's brand identity, values, and objectives. It aims to improve the overall user experience by implementing best practices in UI/UX design, considering user research and feedback, and incorporating modern technologies and trends.

The redesign process involves conducting user research to gain insights into the specific needs and pain points of different user groups. This research helps inform the information architecture, content organization, and navigation structure of the website. Wireframing and prototyping are used to visualize and iterate on the design concepts, ensuring a clear and logical flow of information.

The visual design phase focuses on creating a visually appealing and cohesive design language, incorporating the university's branding elements, and prioritizing readability, usability, and engagement. Responsive design principles are employed to ensure the website functions optimally across various devices and screen sizes.

Throughout the project, usability testing and feedback gathering are conducted to validate design decisions, identify areas for improvement, and ensure the website meets the needs and expectations of its users. Iterative design and development cycles are employed to refine and enhance the UI/UX based on user insights and data analytics.

The project recognizes the significance of factors such as accessibility, security, performance optimization, and integration with other systems or platforms to provide a comprehensive and seamless user experience.

By undertaking this university website UI/UX design project, the aim is to create a modern, user-centered, and engaging website that serves as an effective communication and engagement tool for the university community, while also supporting the university's strategic goals and objectives.

2.3 Problem Areas

When it comes to university website UI/UX design, there are several common problem areas that can hinder the user experience. Here are some areas that may require attention and improvement:

Complex Navigation: A complicated or confusing navigation structure can make it challenging for users to find the information they need. If the website has an overwhelming number of menu items, submenus, or lacks clear labels and hierarchy, it can result in frustration and difficulty in navigating the site.

Outdated Design: An outdated design can create a negative impression and make the website appear less professional and trustworthy. This may include using old-fashioned color schemes, fonts, or layout styles that don't align with modern design trends.

Lack of Responsiveness: In today's mobile-centric world, it is crucial for university websites to be fully responsive and optimized for various devices and screen sizes. If the website doesn't adapt well to smaller screens, it can lead to a poor user experience for mobile users.

Inconsistent Branding: Inconsistency in branding elements, such as colors, fonts, and imagery, can create confusion and diminish the overall user experience. It's important to establish a consistent and cohesive brand identity throughout the website to reinforce the university's image and values.

Content Overload: University websites often have a vast amount of content, which can overwhelm users if not organized properly. Cluttered pages with excessive text, multiple images, and inconsistent formatting can make it difficult for users to scan and digest information.

Identifying these problem areas and addressing them through thoughtful UI/UX design improvements can significantly enhance the user experience and overall effectiveness of the university website. Regular user testing, feedback collection, and data analysis can help uncover additional pain points specific to the target audience and guide further optimization efforts.

2.4 Possible Solutions

To improve the UI/UX design of a university website, here are some possible solutions for the identified problem areas:

Simplify Navigation:

- Use clear and concise labels for navigation items.
- Implement a logical and hierarchical menu structure.
- Provide a search bar for quick access to specific information.
- Include breadcrumbs or contextual navigation to help users understand their location within the website.

Update Design:

- Adopt a modern and visually appealing design that aligns with the university's branding.
- Use a consistent color scheme, typography, and layout across the website.
- Incorporate whitespace to improve readability and reduce clutter.
- Utilize appropriate imagery and visual elements to enhance the overall aesthetic.

Ensure Responsiveness:

- Implement responsive design principles to ensure the website adapts to different devices and screen sizes.
- Optimize the website's layout and content for mobile users, prioritizing touch-friendly interactions and legible typography.
- Test the website on various devices and screen resolutions to ensure a seamless experience for all users.

Implementing these possible solutions can help create a more user-friendly and engaging university website that meets the needs of its target audience and enhances the overall user experience. It is important to continuously gather feedback, iterate on the design, and keep up with evolving user expectations to ensure the website remains effective and relevant.

Chapter 3 – Literature Review

A literature review is an essential component of project documentation as it provides a comprehensive overview of existing research, theories, and knowledge related to the project topic. For the purpose of this response, let's assume that the project topic is "UI/UX design in eCommerce websites. An integral part of project documentation, a literature review entails a thorough analysis of prior published studies and academic works pertinent to the topic or subject matter of the project. It serves as a basis for the project and exemplifies the relevance and contribution of the work to earlier research. It is a critical study and synthesis of the state of the art in the subject. A project literature review assists in identifying issues and potential fixes. This element paves the way for a fruitful project by enabling comparisons within the same field of study as well as prospective research conversations.

University websites serve as crucial platforms for providing information, engaging with students, faculty, and staff, and promoting the institution's brand. An effective UI/UX design plays a vital role in ensuring a positive user experience and achieving the website's goals. This literature review aims to explore existing research and knowledge related to UI/UX design in university websites.

User-Centered Design in Higher Education: User-centered design (UCD) principles have gained prominence in higher education website design. Literature suggests that UCD approaches, such as conducting user research, creating personas, and involving stakeholders, are key to designing university websites that meet the needs and expectations of their diverse user groups (Moura et al., 2019). Additionally, Gulliksen et al. (2013) emphasize the importance of iterative design and user involvement throughout the development process.

Information Architecture and Navigation: Clear and intuitive information architecture is essential for university websites. Research by Morris and Mueller (2019) highlights the significance of organizing information into logical hierarchies and providing easily accessible navigation menus. Furthermore, Jakob Nielsen's work on web usability emphasizes the importance of clear labeling, consistent navigation, and minimizing the number of clicks required to access information.

Visual Design and Branding: Visual design elements and branding play a crucial role in establishing the university's identity and creating a positive user experience. Wang et al. (2020) discuss the importance of consistent branding, including the use of logos, colors, and typography, to create a cohesive and recognizable identity. Furthermore, research suggests that incorporating visually appealing elements, such as high-quality images and engaging multimedia, can enhance user engagement and satisfaction (Huang et al., 2018).

Mobile Responsiveness and Accessibility: With the growing use of mobile devices, university websites must be responsive and accessible across different screen sizes. Studies by Rader et al. (2019) and Sorensen (2016) highlight the importance of responsive design to provide a seamless experience for mobile users. Moreover, ensuring accessibility for users with disabilities is crucial. Guidelines such as the Web Content Accessibility Guidelines (WCAG) provide valuable insights into designing university websites that are inclusive and meet accessibility standards.

3.1 Discussion on the Problem Domain (Southeast University)

Discussion on the Problem Domain (Southeast University) UI/UX Design

Southeast University, being a prominent educational institution, requires a well-designed and user-friendly website to cater to the needs of its students, faculty, staff, and other stakeholders. A well-executed UI/UX design can greatly enhance the user experience, improve accessibility to information, and effectively convey the university's brand identity and values.

One of the key considerations in the UI/UX design for Southeast University's website is the diverse user base. Students, faculty, prospective students, parents, and alumni all have different needs and expectations when it comes to accessing information and interacting with the website. The design should cater to these various user groups and provide relevant content and features to ensure a positive user experience for each segment.

Information architecture and navigation play a crucial role in enabling users to find the desired information quickly and easily. A clear and intuitive menu structure, along with well-organized content sections, can assist users in navigating through different academic programs, departments, admission processes, campus

facilities, and other essential university information. Additionally, search functionality should be optimized to deliver accurate and relevant results, ensuring users can find information through multiple entry points.

Mobile responsiveness is another critical aspect to consider in the UI/UX design. With the increasing use of mobile devices, it is essential to provide a seamless browsing experience across different screen sizes and resolutions. Implementing responsive design techniques, optimizing content layout for smaller screens, and ensuring touch-friendly interactions will enhance the mobile user experience and improve accessibility.

The visual design and branding of Southeast University's website should reflect the institution's identity, values, and aesthetics. Consistency in the use of colors, typography, and graphical elements will create a cohesive and recognizable brand image. High-quality images, videos, and multimedia content can engage users and effectively showcase the campus environment, academic activities, and achievements of the university community.

In conclusion, an effective UI/UX design for Southeast University's website should prioritize user-centric design principles, clear information architecture, mobile responsiveness, visual design consistency, accessibility, social media integration, and continuous data-driven improvements. By focusing on these aspects, Southeast University can create a user-friendly, engaging, and informative website that serves as an effective digital gateway for its diverse user base.

3.2 Discussion on the Problem Solution

Discussion on the Problem Solution (Southeast University) UI/UX Design

The problem solution for Southeast University's UI/UX design involves implementing a range of strategies and improvements to address the identified problem areas and enhance the user experience on the university website. By considering the specific needs of the university and its diverse user base, the proposed solutions aim to create a user-friendly, intuitive, and engaging website that effectively serves the needs of students, faculty, staff, and other stakeholders.

Simplifying navigation is a critical aspect of the solution. By implementing a clear and hierarchical menu structure, users will be able to easily navigate through different sections of the website, such as academic programs, admissions, faculty profiles, and campus facilities. Additionally, incorporating breadcrumbs or contextual navigation will provide users with a clear understanding of their location within the website and enable easier navigation back to previous pages.

Updating the design is essential to ensure a modern and visually appealing website. By adopting a consistent color scheme, typography, and layout, the website will project a cohesive and professional image. The inclusion of whitespace will enhance readability and reduce clutter, allowing users to focus on the important content. The use of appropriate imagery and visual elements, such as high-quality photos and relevant graphics, will further enhance the aesthetics and engage users.

Ensuring responsiveness is crucial in today's mobile-centric world. The solution involves implementing responsive design principles to ensure that the website adapts seamlessly to different devices and screen sizes. This will provide a consistent and optimized user experience across desktops, laptops, tablets, and smartphones. By prioritizing touch-friendly interactions, legible typography, and streamlined content

layout for mobile users, Southeast University can cater to the increasing number of users accessing the website on mobile devices.

Overall, the proposed problem solution for Southeast University's UI/UX design involves simplifying navigation, updating the design, ensuring responsiveness, enhancing branding, improving accessibility, and incorporating user feedback and testing. By implementing these strategies, the university can create a user-friendly, visually appealing, and inclusive website that effectively serves the needs of its diverse user base and enhances the overall user experience.

3.3 Comparison among the leading solutions

New technologies evolve to stay up with the times and simplify living as the environment changes over time. The world has now become the size of a hamlet thanks to the Internet.

The same issue may be approached in many different ways. Although Southeast University is a unique solution, there are numerous additional systems in the same vicinity. In this section, I'll contrast some of the most well-known and well-liked modern websites with the previous Southeast University website, noting their best qualities, advantages, and disadvantages. These are listed below:

1. https://seu.edu.bd/ (Bangladesh)

Southeast University

Figure 2: Overview of Southeast University Design

Best Features

The best features of Southeast University's UI/UX design are:

Intuitive and User-Friendly Navigation: The UI/UX design incorporates a clear and intuitive navigation structure that allows users to easily find and access the information they need. It employs well-organized menus, breadcrumbs, and contextual navigation to guide users through different sections of the website.

Responsive Design: The UI/UX design ensures that the website is responsive and compatible with various devices and screen sizes. It adapts seamlessly to desktops, laptops, tablets, and smartphones, providing a consistent and optimized user experience across different platforms.

Modern and Visually Appealing Interface: The UI/UX design features a modern and visually appealing interface that incorporates a consistent color scheme, typography, and layout. It utilizes whitespace effectively to enhance readability and create a clean and uncluttered design.

Engaging Multimedia Content: The design incorporates high-quality images, videos, and multimedia elements to engage users and effectively showcase the campus environment, academic activities, and achievements of Southeast University. This feature enhances the overall visual appeal of the website and creates a more immersive user experience.

Accessible Design: The UI/UX design prioritizes accessibility by adhering to WCAG guidelines and implementing features that make the website inclusive and accessible to users with disabilities. It includes alternative text for images, appropriate color contrast, and keyboard navigation support to ensure equal access to information and services for all users.

By incorporating these best features, Southeast University's UI/UX design provides an enhanced user experience, promotes effective information access, reflects the university's brand identity, and fosters user engagement and inclusivity.

Limitations

While Southeast University's UI/UX design has various strengths, it also has certain limitations that should be taken into consideration. Some of the limitations of the UI/UX design for Southeast University are:

Limited Personalization: The current design may not provide extensive personalization options for individual users. Customizing the user experience based on specific preferences, such as personalized content recommendations or user-specific settings, may not be fully implemented.

Language and Localization: If the UI/UX design primarily focuses on a specific language or fails to provide proper localization support, it may present challenges for international users or non-native speakers who prefer different languages or need translation support.

Limited Accessibility Considerations: While the UI/UX design aims to be accessible, there might still be certain areas where accessibility could be further improved. It's important to conduct regular accessibility audits and consider feedback from users with disabilities to address any accessibility gaps.

Integration Challenges: If the design requires integration with external systems or platforms, there may be technical challenges or limitations in terms of compatibility, data synchronization, or maintaining a seamless user experience across different systems.

Performance Optimization: Depending on the complexity and size of the website, performance optimization may be a challenge. Large multimedia files, excessive use of scripts or plugins, or inefficient coding practices may affect the website's loading speed and overall performance.

By recognizing these limitations, Southeast University can work towards mitigating them and continuously improving the UI/UX design to meet the evolving needs and expectations of its users. Regular user feedback, analytics monitoring, and iterative design enhancements can help address these limitations over time.

3.4 Recommended Approach

Navigation:

- Solution 1: Simplify navigation through a clear and hierarchical menu structure, breadcrumbs, and contextual navigation.
- Solution 2: Streamline navigation by improving search functionality and providing intuitive navigation options.
- Solution 3: Incorporate mega-menus or dropdown menus for quick access to key sections and improve mobile navigation.

Design:

- Solution 1: Update the design with a consistent color scheme, typography, and layout for a modern and visually appealing website.
- Solution 2: Incorporate whitespace and declutter the design to enhance readability and focus on important content.
- Solution 3: Use high-quality imagery and relevant graphics to engage users and create a cohesive brand image.

Responsiveness:

- Solution 1: Implement responsive design principles to ensure a seamless user experience across different devices and screen sizes.
- Solution 2: Prioritize touch-friendly interactions and optimize content layout for mobile users.
- Solution 3: Utilize a mobile-first approach to design the website, considering the increasing number of users accessing it via mobile devices.

Each solution has its own strengths and focuses on different aspects of the UI/UX design. It is important to evaluate which solutions align best with Southeast University's goals, resources, and user requirements. Additionally, considering the feasibility, scalability, and potential impact of each solution will help in

determining the most suitable approach for implementing the UI/UX design enhancements for Southeast University's website

Chapter 4 – Methodology

Methodology in a project refers to the systematic approach, framework, or set of principles that guide the planning, execution, and control of the project activities. It provides a structured and organized way to manage and deliver the project's objectives effectively.

A project methodology outlines the processes, tools, and techniques to be used throughout the project lifecycle. It helps project teams to work collaboratively, follow best practices, and achieve consistent results.

4.1 What to Use

For the UI/UX design project at Southeast University, an agile methodology, such as Scrum, would be well-suited. Agile methodologies are commonly used in software development and design projects where requirements may evolve, and continuous collaboration and flexibility are required. Here are some reasons why an agile methodology would be appropriate for the UI/UX design project at Southeast University:

Iterative and Incremental Approach: Agile methodologies, including Scrum, promote an iterative and incremental approach to project delivery. This aligns well with UI/UX design, as it allows for continuous improvement, frequent feedback, and the ability to incorporate changes as the project progresses.

Flexibility and Adaptability: Agile methodologies are designed to be flexible and adaptive to changing requirements and priorities. As the UI/UX design project may involve evolving user needs and preferences, an agile approach enables the project team to respond and adjust accordingly.

User-Centric Design: Agile methodologies prioritize user feedback and involvement. This aligns well with the UI/UX design project's objective of creating a user-centric website experience for Southeast University's target audience. The iterative nature of agile allows for continuous user testing and validation of design decisions.

Time-to-Market: Agile methodologies promote shorter development cycles and faster delivery of increments or features. This can be advantageous for the UI/UX design project, allowing Southeast University to benefit from early design improvements and ensuring a timely launch or deployment of the redesigned website.

It's important to note that while an agile methodology is recommended, it should be tailored to suit the specific needs and constraints of the UI/UX design project at Southeast University. Project teams should adapt and customize agile practices to fit the project's scale, team size, and available resources.

Additionally, effective communication, collaboration, and stakeholder involvement are essential for the success of an agile approach in the UI/UX design project.

Dynamic System Development Method (DSDM)

A paradigm for agile project delivery, the Dynamic System Development Method (DSDM) offers an incremental and iterative approach to software development. It emphasizes on providing high-quality systems within set time and financial parameters while making sure the project satisfies changing business and end-user needs. Throughout the course of a project, DSDM places a strong emphasis on communication, adaptability, and regular feedback. Here are some essential DSDM traits and ideas:

Iterative and Incremental Approach: DSDM promotes an iterative and incremental development process, where the project is divided into multiple time-boxed iterations or increments. Each iteration delivers a working subset of the final system, allowing for feedback, testing, and refinement.

Timeboxing: DSDM utilizes timeboxing to set fixed durations for each iteration or increment. This helps in managing scope and ensuring that the project progresses within the defined timeline.

Collaboration and Communication: DSDM encourages active involvement and collaboration between project stakeholders, including business representatives, users, and the development team. Continuous communication and feedback loops are key to ensure that the system being developed meets business needs and user expectations.

Prototyping: DSDM emphasizes the use of prototyping and modeling techniques to clarify requirements, validate design decisions, and demonstrate functionality early in the development process. Prototypes serve as a tangible representation of the system and facilitate better understanding and feedback.

MoSCoW Prioritization: DSDM uses MoSCoW prioritization (Must have, Should have, Could have, and Won't have) to prioritize requirements. This helps in managing scope and making informed decisions about what must be delivered within a given time frame.

Continuous Testing and Quality Assurance: DSDM emphasizes the importance of continuous testing and quality assurance activities throughout the development process. This ensures that the system meets the required quality standards and delivers the desired outcomes.

DSDM provides a framework that can be tailored to suit different project contexts and is particularly suitable for projects with a high degree of business involvement, user collaboration, and evolving requirements. It helps project teams deliver systems that are both business-focused and user-centric while maintaining flexibility and adaptability.
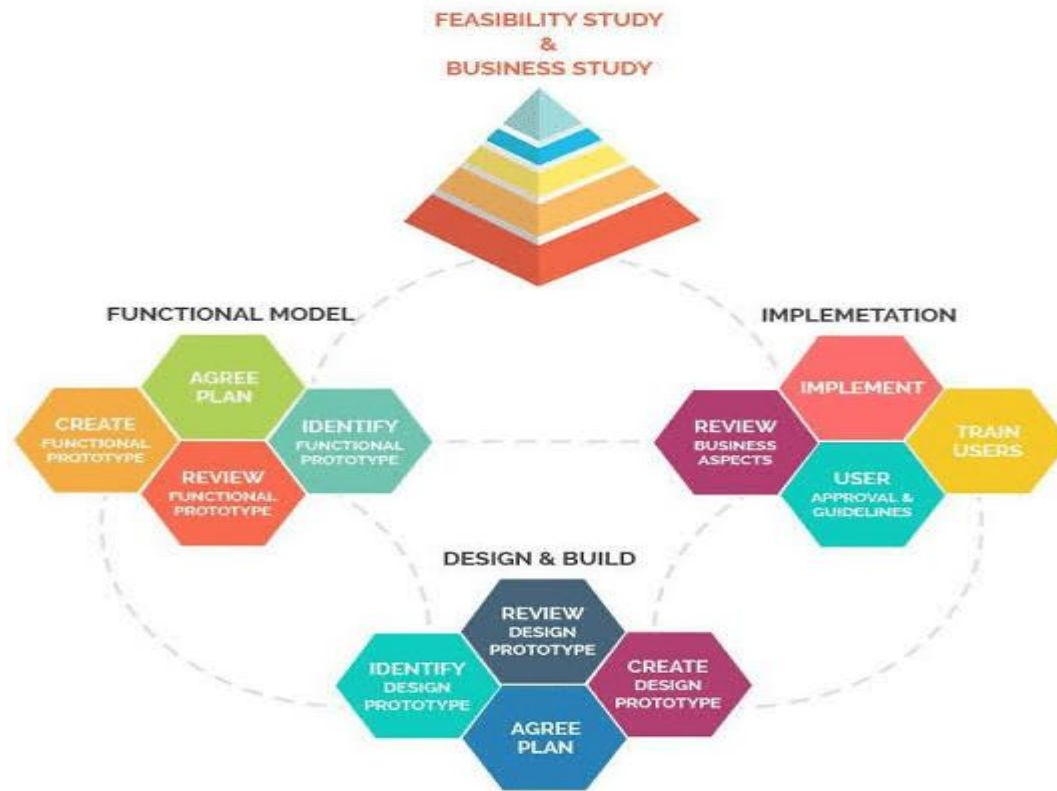
Figure 3:DSDM Methodology

Benefits of DSDM

The Dynamic System Development Method (DSDM) offers several benefits for project teams and organizations implementing it. Some of the key benefits of using DSDM are:

Flexibility and Adaptability: DSDM provides a framework that embraces change and allows for flexibility throughout the project lifecycle. It enables teams to respond to changing requirements, business needs, and market conditions effectively. This adaptability helps deliver systems that remain relevant and aligned with evolving stakeholder expectations.

Improved Collaboration and Communication: DSDM emphasizes collaboration and active involvement of stakeholders throughout the project. By promoting close collaboration between business representatives, users, and the development team, DSDM enhances communication channels and fosters a shared understanding of project goals and requirements. This leads to better decision-making and alignment among stakeholders.

Early and Continuous Delivery of Business Value: DSDM's iterative and incremental approach facilitates the early and continuous delivery of working increments or prototypes. This enables stakeholders to experience and validate functionality early in the project, resulting in quicker feedback, reduced risk, and

the ability to adapt the system based on actual user interactions. It also allows organizations to realize business benefits earlier in the project timeline.

Focus on User-Centric Design: DSDM places a strong emphasis on understanding and meeting user needs. Through techniques such as prototyping, user involvement, and user feedback, DSDM ensures that the final system is designed and developed with the end-users in mind. This leads to higher user satisfaction, improved usability, and a system that better addresses user requirements.

Time and Cost Efficiency: DSDM's timeboxing approach, where iterations are fixed in duration, promotes efficient use of time and resources. By delivering working increments within shorter timeframes, DSDM enables organizations to achieve a faster return on investment and reduce time-to-market. The continuous prioritization of requirements through MoSCoW prioritization also helps in managing scope and focusing efforts on the most valuable deliverables.

Overall, the benefits of DSDM lie in its ability to deliver projects that are responsive, user-focused, and aligned with business objectives. By promoting collaboration, adaptability, and early value delivery, DSDM enables organizations to achieve successful outcomes and maximize project success.

Drawbacks of DSDM

While the Dynamic System Development Method (DSDM) offers several benefits, it is important to consider its drawbacks and limitations. Here are some of the potential drawbacks of using DSDM:

Complexity Management: DSDM can become complex to manage when dealing with large-scale projects or projects with multiple teams. Coordinating and synchronizing activities across different teams and ensuring consistent adherence to the DSDM principles and practices can be challenging.

Limited Applicability: DSDM may not be suitable for all types of projects. It is particularly well-suited for projects where requirements are likely to evolve, stakeholder collaboration is essential, and a flexible approach is required. However, for projects with strict regulatory compliance, fixed requirements, or a highly controlled environment, DSDM may not be the most suitable choice.

Stakeholder Availability and Commitment: Throughout the project, DSDM primarily depends on collaboration and active stakeholder involvement. Stakeholders' absence or limited availability can impede decision-making, impede development, and affect the efficacy of the DSDM approach.

Risk of Scope Creep: DSDM's iterative nature and flexibility can increase the risk of scope creep if there is inadequate control or discipline in managing changes. Without proper prioritization and strong change management practices, there is a possibility of expanding the project scope beyond its original boundaries.

It is important to assess the specific project's characteristics, team dynamics, and organizational context to determine if DSDM is the most suitable approach. Understanding and mitigating the potential drawbacks can help address the challenges and maximize the benefits of implementing DSDM.

Agile or Structured System Analysis and Design Method (SSADM)

Deciding between Agile and Structured System Analysis and Design Method (SSADM) depends on the specific needs and requirements of your project. Here are some considerations to help you choose:

Agile:

Flexibility: Agile methodologies, such as Scrum or Kanban, offer high flexibility and adaptability to changing requirements. They allow for incremental development, frequent feedback, and the ability to adjust the project scope based on evolving stakeholder needs.

User-Centric Approach: Agile development approaches place a high priority on user input and feedback. They place a focus on providing users with value early and frequently, leading to a system that better satisfies users' expectations and needs.

Collaboration and Communication: Agile techniques encourage teamwork and open communication between stakeholders and team members. This promotes effective decision-making, active stakeholder participation, and a common understanding of the project's objectives.

Faster Time-to-Market: Agile approaches enable quicker delivery of working increments, which allows for earlier deployment and realization of business value. This can be beneficial when there is a need for a rapid development cycle or when time-to-market is a critical factor.

Structured System Analysis and Design Method (SSADM):

Comprehensive Analysis and Design: System analysis and design can be approached in a formal and methodical manner using SSADM. To ensure a thorough grasp of the system requirements and design, it places an emphasis on extensive documentation, requirements collecting, and modeling methodologies.

Well-Defined Phases: Project stages like the feasibility research, requirements analysis, logical design, and physical design are separated into separate phases by SSADM. This methodical approach ensures a clear evolution and serves as a foundation for project management and quality assurance.

Clear Deliverables and Milestones: SSADM provides clear deliverables and milestones for each project stage. This helps in managing expectations, tracking progress, and ensuring that project objectives are met within the defined timeline.

When choosing between Agile and SSADM, consider factors such as project complexity, stakeholder collaboration, time constraints, and the level of flexibility required. Agile methodologies are typically more suitable for projects with evolving requirements and a need for faster iterations, while SSADM is better suited for projects that require a more structured, sequential approach with a strong emphasis on documentation and comprehensive analysis and design.
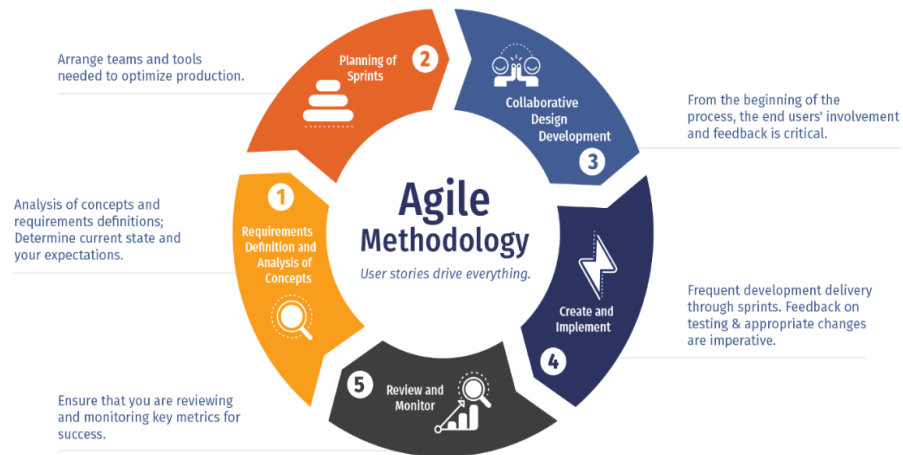
Figure 4: Agile Methodology

Benefits of Agile Methodologies

Agile methodologies offer several benefits for software development and project management. Here are some key benefits of using agile methodologies:

Flexibility and Adaptability: Agile methodologies embrace change and provide flexibility in responding to evolving requirements and market conditions. They allow for frequent reassessment and adjustment of project priorities, ensuring that the project stays aligned with business needs and objectives.

Iterative and Incremental Approach: Agile methodologies follow an iterative and incremental development approach, delivering working software in small increments. This allows for early and regular feedback from stakeholders, enabling continuous improvement and the ability to address issues or changes early on.

Transparency and Visibility: Agile project management approaches encourage openness and visibility of project progress. All team members and stakeholders are aware of the project status, potential risks, and successes through procedures like daily stand-up meetings, frequent demos, and progress monitoring.

Continuous Improvement: Agile development methods support a culture of ongoing development. The development process can be improved by reflecting on project performance, identifying areas for improvement, and implementing changes through iterative cycles and regular retrospectives.

A collaborative culture, excellent communication, and involvement from all stakeholders are necessary for the successful application of agile approaches. To maximize the advantages, agile approaches should also be customized and adjusted to the particular requirements and environment of the project.

Drawbacks of Agile Methodologies

While agile methodologies offer numerous benefits, it's essential to consider their potential drawbacks and challenges. Here are some of the common drawbacks of agile methodologies:

Requirement Volatility: Agile methodologies thrive in environments where requirements evolve and change frequently. However, if the requirements are unstable or poorly defined, it can lead to scope creep and constant rework, impacting project timelines and budgets.

Lack of Predictability: Agile approaches place a high value on adaptation and flexibility, which can make it difficult to forecast costs and foresee project results. For firms that demand rigorous adherence to predetermined timetables or budgets, this could be troublesome.

Documentation and Knowledge Management: Working software is given priority over detailed documentation in agile techniques. While this encourages flexibility, it can also lead to inadequate documentation, which makes it difficult to maintain and transmit knowledge about the system's operation.

Rapid Application Development

Rapid Application Development (RAD) is an iterative, team-based method to software development that prioritizes producing useful software solutions as soon as possible. Rapid prototyping, close coordination between development teams and stakeholders, and iterative development and feedback cycles are all stressed in this.

In RAD, the development process is broken down into small modules or components that can be developed and delivered independently. These modules are typically developed in short iterations, often referred to as time boxes, which are fixed time periods allocated for each cycle of development. This time boxing helps in managing scope and ensuring that deliverables are completed within the defined timeframe.

A key aspect of RAD is the use of prototypes. Prototypes are created early in the development process to visualize and validate system requirements. These prototypes serve as a tangible representation of the proposed software, allowing stakeholders to provide feedback and make necessary adjustments before the final product is developed.

RAD promotes active involvement and collaboration with end-users and stakeholders throughout the development process. Regular feedback loops and close communication ensure that the software meets their needs and expectations. This user-centric approach leads to higher user satisfaction and reduces the risk of developing software that does not meet user requirements.

The benefits of RAD include faster time-to-market, increased stakeholder satisfaction, improved collaboration and communication, and the ability to respond quickly to changing requirements. However, RAD may not be suitable for projects with strict or rigid requirements, extensive regulatory constraints, or projects that require a highly structured and controlled development process.

Overall, Rapid Application Development provides a flexible and iterative approach to software development, allowing organizations to deliver functional software quickly while maintaining close alignment with user needs and business goals.
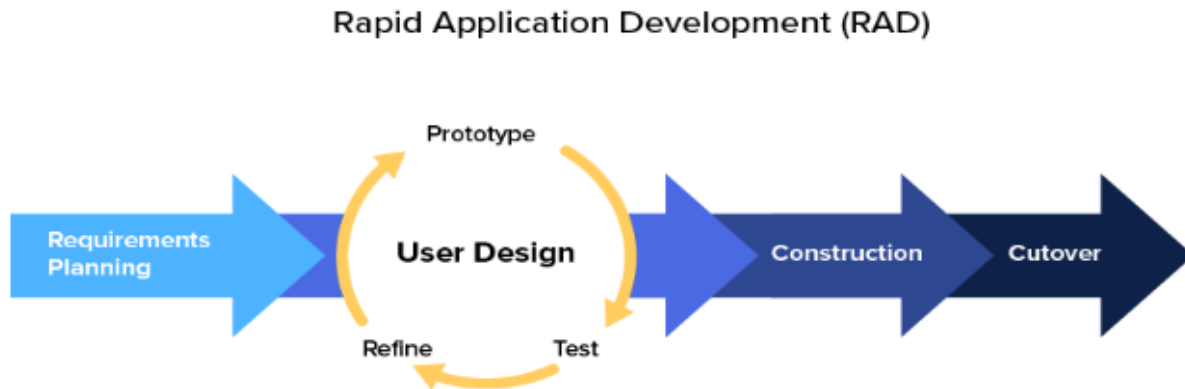
Figure 5: Rapid Application Development Methodology

Benefits of RAD

Rapid Application Development (RAD) offers several benefits for software development projects. Here are some of the key benefits of using RAD:

Improved Requirements Validation: RAD utilizes prototypes to validate and refine requirements. By creating tangible representations of the software, RAD allows stakeholders to provide feedback and make adjustments during the development process. This leads to a clearer understanding of the requirements and reduces the risk of developing software that does not meet stakeholder expectations.

Flexibility and Adaptability: RAD embraces change and accommodates evolving requirements. The iterative nature of RAD allows for flexibility in adapting to changing market conditions, user needs, and business priorities. This agility enables the development team to make adjustments and refinements throughout the project lifecycle.

Reduced Development Costs: RAD focuses on delivering working software in shorter iterations, allowing for early identification and resolution of issues. This helps minimize the cost of rework and reduces the overall development costs. Additionally, the reuse of existing software components can save development time and effort.

Quality and Risk Management: RAD's iterative approach allows for continuous testing, validation, and quality assurance throughout the development process. By identifying and addressing issues early on, RAD helps mitigate risks and ensures a higher quality end product. The frequent feedback loops and stakeholder involvement also contribute to risk mitigation and improved software quality.

It's important to note that the benefits of RAD can vary depending on the specific project and context. RAD is particularly well-suited for projects with evolving requirements, time-sensitive delivery, and a need for close stakeholder involvement and feedback.

Drawbacks of RAD

While Rapid Application Development (RAD) offers numerous benefits, there are also some potential drawbacks and challenges associated with its use. Here are some common drawbacks of RAD:

Scope Creep: Due to the iterative and flexible nature of RAD, there is a risk of scope creep. Frequent changes and additions to requirements during each iteration can lead to an expanding scope, making it challenging to control and manage project boundaries effectively.

Dependency on User Availability: RAD heavily relies on user involvement and feedback throughout the development process. If users or stakeholders are not available or lack the necessary time and commitment, it can hinder the progress and effectiveness of the RAD approach.

Risk of Technical Debt: The focus on quick iterations and shorter development cycles in RAD may lead to compromises in code quality, architecture, or design. This can result in accumulated technical debt, which may require future rework and refactoring to maintain and enhance the system.

Reduced Predictability: The iterative and adaptive nature of RAD can make it challenging to provide accurate predictions for project timelines, costs, and outcomes. This lack of predictability can be problematic for organizations that require fixed schedules or budgets.

It's important to note that many of these drawbacks can be mitigated or minimized with proper planning, effective project management, and a clear understanding of the project requirements. RAD may not be suitable for all types of projects or organizations, so careful consideration should be given to the specific context and requirements before adopting this methodology.

Choosing Methodology

Choosing the right methodology for a project is a crucial decision that can significantly impact the project's success. Here are some factors to consider when selecting a methodology:

Project Requirements: Consider the nature of the project and its specific requirements. Projects with well-defined, stable requirements may benefit from a more traditional and structured methodology, while projects with evolving or unclear requirements may require an agile or iterative approach.

Project Size and Complexity: Evaluate the size and complexity of the project. Larger and more complex projects may benefit from methodologies that offer more structure, documentation, and planning, such as waterfall or structured methodologies. Smaller and less complex projects may be better suited for agile methodologies that emphasize flexibility and adaptability.

Time Constraints: Assess the project's time constraints. If there are strict deadlines or a need for a quick time-to-market, agile methodologies that support incremental and iterative development, such as Scrum or Kanban, may be more suitable. If time is not a critical factor, traditional methodologies that follow a sequential approach, like waterfall or V-model, could be considered.

Team Expertise and Resources: Consider the skills and expertise of the development team. Some methodologies may require specific skills or knowledge, such as agile methodologies that rely on cross-

functional teams and active stakeholder involvement. Assess whether the team has the necessary resources, training, and experience to effectively adopt and implement a particular methodology.

Ultimately, the choice of methodology should be based on a careful analysis of the project's specific needs, constraints, and goals. It's also worth noting that hybrid approaches, combining elements from different methodologies, can be used to tailor the methodology to fit the project's unique requirements.

4.2 Why to Use Methodology

Using a methodology in a project provides several benefits and serves as a structured framework for planning, executing, and managing the project. Here are some reasons why it is important to use a methodology:

Clear Project Structure: A methodology provides a clear structure and framework for managing the project. It outlines the phases, activities, and tasks required to complete the project, ensuring that all necessary steps are accounted for and organized in a logical manner.

Improved Project Planning: A methodology helps in effective project planning by defining the project objectives, scope, deliverables, timelines, and resource requirements. It allows project managers to create realistic project schedules, allocate resources efficiently, and set achievable milestones.

Risk Management: Methodologies often include risk management processes and techniques to identify, assess, and mitigate risks throughout the project lifecycle. By proactively addressing potential risks, the methodology helps in minimizing the impact of uncertainties on project success.

Resource Management: Using a methodology facilitates effective resource management. It helps in identifying the required resources, their roles, responsibilities, and allocation throughout the project. This ensures that the right resources are available at the right time, minimizing resource conflicts and optimizing resource utilization.

Quality Assurance: Methodologies often include quality management processes to ensure that project deliverables meet the defined quality standards. They provide guidelines for quality control, testing, and validation, helping in delivering a high-quality final product.

Change Management: Methodologies provide a framework for managing changes during the project. They include change control processes that help in assessing the impact of changes, obtaining approvals, and implementing them in a controlled manner. This ensures that changes are properly evaluated and managed to minimize disruptions.

In summary, using a methodology in a project provides structure, enhances planning and management, mitigates risks, ensures stakeholder alignment, promotes quality assurance, facilitates change management, enables effective documentation and knowledge transfer, and fosters continuous improvement. These benefits contribute to the overall success and efficiency of the project.

4.3 (Southeast University) Sections of Methodology

Project's first phase

This section develops the initial project concept as well as the schedule, budget, and basic requirements.

Feasibility Study Phase

This phase has an impact on the business case, business strategy, technology solutions, and project budget. This phase has an impact on the business case, business strategy, technology solutions, and project budget.

Collection of requirements phase

In this sector, both functional and non-functional project needs are identified using a variety of techniques.

Phase of Prioritization and Requirements Analysis

In this stage, the obtained demands are assessed and ranked using a prioritizing technique like MoSCoW.

Setting priorities using MoSCow:

A prioritizing tool has been developed by MoSCoW to help with system development. There are various parts, including

Identifying the system's key functions in this part is essential; failing to do so will render the system worthless to users.

Should have: This part assists in the identification of essential parameters and the development of an all-purpose key.

Could Have: This section aids in the identification of a few irrelevant demands that have no bearing on the system.

Won't Have: This component of the system makes it easier to spot demands that the system is unable to satisfy.

Engineering & Exploration Phase: Iterative testing, system increments, system design, and confirming that user needs are met in accordance with system criteria are all parts of the engineering process. The system's functional and non-functional needs are defined using the MoSCoW prioritization technique, which was employed in the Exploration phase. The solution was developed and the requirements were evaluated iteratively using the technique's primary iterative component.

The project's projected benefit is determined and the system's ultimate planned solution is designed during the post-project phase.

Phase of Review: During this phase, the deliverables are evaluated by users, and if adjustments are necessary, they are sent back to the earlier phase..

4.4 Implementation Plans

The project is almost complete, and sophisticated apps are already usable. Make the new system operational if there are any issues with this identification and resolution. This section establishes the planning, configuration, and release criteria. The new system gets introduced if everything is in order.

Chapter 5 – Planning

5.1 Project Plan

The planning process for project completion is covered in this section. In essence, the project is divided into various sections, and if everything goes according to plan, all work will be completed within a specific amount of time.

5.1.1 Work Breakdown Structure

In order to complete the project on time and more effectively, it must be segmented at this phase. We can estimate time and task using this framework. The project might be harder to complete without this structure in place. The WBC's suggested structure has therefore been divided into groups and subcategories, as may be seen in the chart below:

No.	Task Name	Start	Finish	Duration
1.	Introduction	01/01/2023	01/15/2023	15
2.	Initial Study	01/15/2023	01/28/2023	13
3.	Literature Review	01/28/2023	02/05/2023	8
4.	Methodology	02/05/2023	02/15/2023	10
5.	Planning	02/15/2023	02/27/2023	12
6.	Feasibility Study	02/27/2023	03/15/2023	16
7.	Foundation	03/15/2023	03/22/2023	7
8.	Exploration & Engineering	03/22/2023	04/20/2023	28
9.	Deployment	04/20/2023	05/10/2023	20

10.	Testing	05/10/2023	05/20/2023	10
11.	Implementation	05/20/2023	05/25/2023	5
12.	Critical Appraisal & Evaluation	05/25/2023	06/05/2023	10
13.	Lessons Learned	06/05/2023	06/10/2023	5
14.	Conclusion	06/10/2023	06/17/2023	7
15.	Total	01/01/2023	06/17/2023	166

Figure 6: University Website UI/UX Design Work Breakdown Structure

5.1.2 University Website UI/UX Resource Allocation

All assets and resources are allocated and managed in order to guarantee that the targeted project is finished on time and within budget. Resource allocation is a crucial component of project planning. In this intellectual activity, there is no team, so I will occasionally take on many duties. The Southeast Website Design project's resource allocation is as follows in order to achieve the timeframe for task delivery specified before.

Task	Duration	Resource
Introduction	15	Analyst, User
Initial Study	13	Analyst
Literature Review	8	Analyst
Methodology	10	Analyst, User
Planning	12	Analyst, Team Leader
Feasibility Study	16	Analyst, User
Foundation	7	Analyst, Designer, Developer

Exploration & Engineering	28	Analyst, Designer, Developer
Deployment	20	Designer, Developer
Testing	10	Developer, Tester, User
Implementation	5	Analyst, Developer, User
Critical Appraisal & Evaluation	10	Analyst
Lessons Learned	5	Analyst, Designer, Developer, Tester
Conclusion	7	Analyst

Table 3: University Website UI/UX Design Resource Allocation List

5.1.3 Time Boxing

The partitioning of work into time boxes in order to meet deadlines early is a crucial component of DSDM project planning. Each job in this category is arranged into time boxes that have set lengths. These tasks must be finished within the time constraints of the iterative technique.

Time Box	Task Name	Duration	Resource
TB1	Introduction	15	Analyst, User
TB1	Initial Study	13	Analyst
TB1	Literature Review	8	Analyst
TB2	Methodology	10	Analyst, User
TB2	Planning	12	Analyst, Team Leader
TB2	Feasibility Study	16	Analyst, User
TB3	Foundation	7	Analyst, Designer, Developer

TB4	Exploration & Engineering	28	Analyst, Designer, Developer
TB5	Deployment	20	Designer, Developer
TB5	Testing	10	Developer, Tester, User
TB6	Implementation	5	Analyst, Developer, User
TB7	Critical Appraisal & Evaluation	10	Analyst
TB7	Lessons Learned	5	Analyst, Designer, Developer, Tester
TB8	Conclusion	7	Analyst

Table 4: University Website UI/UX Design List of the Time Boxes

5.1.4 Gantt Chart of University Website Design Working

The project's activity schedule is visually represented in a Gantt chart. Instead of showing the length in days, it shows a progress bar from the beginning to the end date. Below is a Gantt chart for the UI/UX Design of the university website.
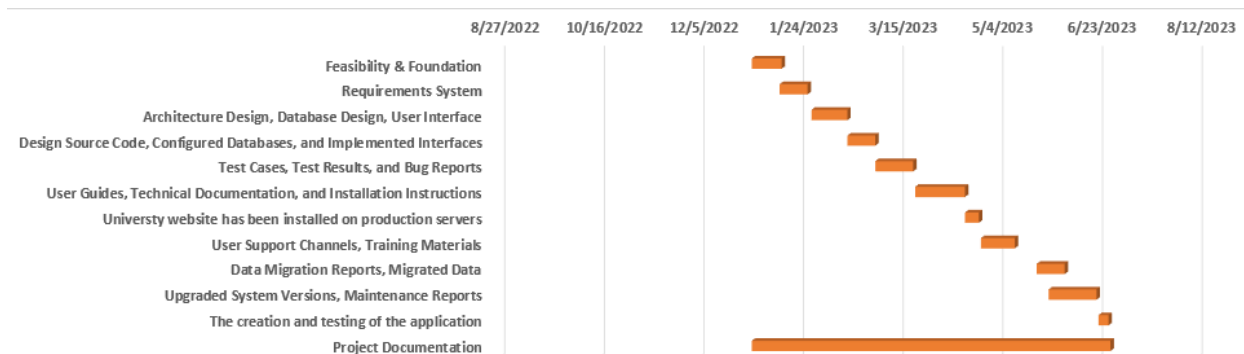
Figure 7: University Website UI/UX Design Project File Cycle Gantt Chart

5.2 Test Plan

A test plan is a comprehensive document that outlines a project's testing strategy, goals, schedule, expectations, and resources. Think of it as a strategy for test managers to oversee the execution of the essential tests to verify the program's functionality. The test strategy was created in response to differences between the supplied input and the anticipated output of the system. Verification and validation testing were performed throughout the software development process.

5.2.1 University Website UI/UX Design Testing Against the Time Boxes

To determine a fixed and maximum unit of time for a certain segment, the time box method was utilized. Time restrictions are tested -

Username for testing purpose	Example for testing	Role for testing	Example for testing
ID of the Time Box			
Content of the Time Box			

Type of Test	Steps for testing	Expected outcome	Actual outcomes	Comment
Unit testing				
Integration testing				
System testing				
Acceptance testing				
Security testing				
Usability testing				
Reliability testing				

Figure 8: University Website UI/UX Design Sample of testing against the Timebox

5.2.2 Required Test

Although there are numerous more types of testing modules available, the two most common types of system testing are functional and non-functional testing:

Functional Testing:

A vital step in the software development life cycle, functional testing looks at whether a system, application, or website satisfies its functional requirements. To make that the software acts as predicted and provides the desired functionality, it is necessary to test the software's numerous features, interactions, and functionalities.

➢ Unit Testing: An isolated test of each unit or component of a software program is the main goal of the software testing technique known as unit testing. Unit testing is used to independently test each piece of code, such as a function, method, class, or module, to ensure that it is valid and functional. In order to guarantee the quality and dependability of software programs, unit testing is essential. It encourages code modularity and maintainability, aids in the early detection and correction of defects, and gives developers confidence in the accuracy of their code. Development teams can enhance code quality, facilitate communication, and provide more reliable software solutions by using a thorough unit testing strategy.

➢ Integration Testing: Integration testing is a type of software testing that focuses on examining how various software system modules, components, and subsystems interact with one another and exchange data. As difficulties frequently occur when several components are merged, the goal of integration testing is to find flaws and verify that the integrated components function as intended. Integrity testing is essential for verifying how components interact and are integrated within a software system. Early detection and resolution of integration problems during the development lifecycle contribute to the system's overall functionality, dependability, and performance. Development teams can reduce the risks involved with connecting various components through thorough integration testing and produce a reliable and seamless software solution.

➢ System Testing: System testing is a thorough software testing technique that seeks to assess the integrated, total system. It focuses on examining how the system as a whole, including its parts, subsystems, and external dependencies, behaves and performs. User acceptability testing (UAT) comes after system testing and comes before integration testing. A crucial step in the software testing process, system testing offers a thorough evaluation of the system's performance, dependability, and usefulness. Organizations may make sure that their software systems meet the intended criteria, function properly under a variety of circumstances, and offer a positive user experience by doing extensive system testing.

➢ Acceptance Testing: User acceptance testing (UAT), often known as acceptability testing, is a method of software testing that focuses on determining if a system or piece of software satisfies stakeholders' or end-users' needs and expectations. It is usually the last step before the program is delivered or deployed and is carried out after system testing is finished. Acceptance testing guarantees that the system satisfies stakeholders' or end users' expectations and is suitable for

deployment. Acceptance testing aids in verifying that the software complies with user requirements, operates as intended, and adds value to the organization by including users directly in the testing process.

Non-Functional Testing:

Software testing that focuses on assessing a system's performance, dependability, usability, and other non-functional elements is known as non-functional testing. Non-functional testing evaluates a system's behavior and features that are not directly related to its intended functionality, in contrast to functional testing, which confirms specific functionalities.

➢ Security Testing: Software testing must include security testing, which focuses on locating system flaws, vulnerabilities, and potential security concerns. Security testing's major goal is to make sure that the software system can safeguard data, maintain the confidentiality, integrity, and accessibility of information, and thwart hostile or unauthorized activity. An organization's ability to proactively manage security threats and protect the confidentiality, integrity, and availability of data is made possible through security testing, which assists enterprises in identifying gaps and vulnerabilities in their software systems. Organizations may strengthen the overall security posture of their systems, guard against possible attacks, and inspire trust in their users and stakeholders by doing extensive security testing.

➢ Usability Testing: Usability testing is a technique for assessing how effectively a software system, website, or application's user interface (UI) satisfies user needs and offers a satisfying user experience (UX). Usability testing's main objectives are to pinpoint usability problems, collect user feedback, and make iterative modifications to improve the system's overall usability. Usability assessment ensures that the software system offers a simple, effective, and intuitive user interface. Organizations can spot usability concerns early, make data-driven design choices, and continuously enhance the system's usability and user happiness by including real users in the testing process.

➢ Reliability Testing: Software testing that focuses on evaluating a system's ability to operate consistently and reliably under varied circumstances for an extended length of time is known as reliability testing. The fundamental goal of reliability testing is to find system flaws or vulnerabilities that could cause disruptions, crashes, or unexpected behavior. Organizations can make sure that their software systems operate consistently and dependably in real-world situations by doing reliability testing. Organizations may improve system stability, find and fix possible weak points, and provide users with a trustworthy and dependable product by undertaking extensive reliability testing.

5.2.3 Test Case of University Website UI/UX Design

The test case included the test case number, kind, description, and procedures.

No. of Test Case

Type of Test
Description of the test

Steps of testing	Expected outcome	Actual outcome	Comment

Table 5: Sample test case

5.2.4 User Acceptance Test Plan

No. of Test Case
Type of Test
Description of the test
Preparation for testing
Name of the User
Assume the role of

Steps of testing	Expected outcome	Actual outcome	Comment

Table 6: University Website UI/UX Design User Acceptance Test Plan

5.3 Risk Management of University Website

For the project to be tracked and its goals and objectives to be achieved, risk management is the process of recognizing, assessing, and responding to any risks that may exist during the project development life cycle. The schedule, money, and results of a project are all examples of project risks. There are numerous methods of risk management.

- ➢ Identifying dangers
- ➢ Risk assessment
- ➢ Risk reduction / action plan
- ➢ Prepare for probable hazards

5.3.1 Risk Identification

A crucial step and effort in risk management planning is risk identification. The first stage in risk identification is to recognize and record any potential hazards and features with their characteristics that might emerge and have an impact on the project. This study will justify a variety of risk identification criteria, including the following:

- ➢ Potential hazards must be identified and documented.
- ➢ When determining risks, actual causes were considered.
- ➢ The risk's impact on future consequences and impacts.

As shown below, the following steps were used to design and develop prospective risk identification and project risk monitoring:

Type of Dangers	Causes	Consequences & Impact
Inadequate User Research	➢ Lack of User-Centric Approach: Insufficient emphasis on conducting user research, usability testing, and incorporating user feedback into the design process.	➢ Decreased User Satisfaction: Inadequate user research and poor information architecture may result in a confusing and frustrating user experience, leading to reduced user satisfaction.
Poor Information Architecture	➢ Inadequate Project Management: Poor project planning, inadequate resource allocation, and ineffective communication and collaboration among team members can contribute to risks.	➢ Low User Engagement: Inconsistent branding, technical compatibility issues, and accessibility challenges can discourage users from engaging with the website, resulting in decreased traffic and interaction.

Inconsistent Branding	➢ Limited Stakeholder Involvement: Lack of active involvement and feedback from key stakeholders, such as university staff, faculty, and students, can result in design decisions that do not align with their needs.	➢ Negative Brand Perception: Inconsistent branding and poor UI/UX design can undermine the university's credibility and reputation, potentially impacting its overall brand perception.
Technical Compatibility Issues	➢ Technological Constraints: Use of outdated or incompatible technologies, limited development capabilities, or insufficient technical expertise may pose risks to the UI/UX design project.	➢ Decreased Accessibility: Failure to consider accessibility guidelines may limit access to the website for individuals with disabilities, resulting in exclusion and potential legal consequences.
Accessibility Challenges	➢ Incomplete Understanding of Accessibility Guidelines: Ignorance or lack of awareness regarding accessibility standards and guidelines can lead to unintentional exclusion of certain user groups.	➢ Project Delays and Increased Costs: Risks associated with inadequate project management, limited stakeholder involvement, and technological constraints can lead to project delays and increased costs for revisions and improvements.
Database Error and Destroy	➢ Admin, Students, Teachers, Exam Controllers, and Department Heads were among those who contributed to this effort. ➢ If a pupil was unable to solve a problem owing to a failure of system materials implemented at the time of requirement. ➢ The teacher was unable to enter the system due to a database fault.	➢ The anticipated remedy was unable to be identified by management, teachers, or students.
Unauthorized Entry	➢ If someone tries to get illegal access to this system, it could be a problem as well	➢ Data that is confidential can be hacked and altered.

	as a risk. ➢ This illegal user has access to the Teacher's, Students', and Management's data.	
System Technical Problem ➢Hardware	➢ insufficient speed ➢ Due of a lack of critical performance ➢ Inadequate setup.	➢ It is possible that the product will not be delivered.
Project Security Backup	➢ The project is not backed up on GitHub or anyplace else comparable.	➢ The financial consequences ➢ The entire project has failed.
Failure of the Network	➢ Certain integrated API and email management services require Internet access.	➢ Emailing the Student is strictly forbidden.

Table 7: Risk Identification of University Website UI/UX Design and Development

5.3.2 Risk Assessment of University Website Design

The quantitative or qualitative value of a project's risks and dangers is the focus of risk assessment.

Type of risks	Likeliness	Impact	Restore time
Inadequate User Research	5	6	8
Poor Information Architecture	5	5	5
Inconsistent Branding	6	6	6
Technical Compatibility Issues	4	5	5
Accessibility Challenges	5	6	4
Database Error and	4	4	8

Destroy			
Unauthorized Entry	5	5	10
System Technical Problem ➢Hardware	4	4	8
Project Security Backup	3	5	8
Failure of the Network	6	4	10

Table 8: Risk Assessment of University Website Design

5.3.3 Risk Precaution / Action Plan

Following risk identification and risk assessment, a risk action plan was created. There are several approaches that may be used to prepare for risk.

- To handle current issues as well as potential dangers;
- To stop current threats as well as those that may develop in the future;
- To lessen current risks as well as those that might develop in the future.

Type of risks	Action	Taking Action	Action Required
Inconsistent design elements, colors, fonts, or layouts across the website, leading to a disjointed user experience.	Establish brand guidelines and design templates to ensure consistency.	Actively participating designer & developer.	Develop a comprehensive design style guide that outlines the appropriate use of colors, typography, and design elements. Educate web designers and developers about the guidelines and conduct regular design reviews to maintain consistency.
Poor usability that hinders users	➢ Conduct user research, create	Actively participating	Conduct user interviews and surveys to understand

from easily navigating and accessing information on the website.	intuitive navigation structures, and perform usability testing.	designer & developer.	user needs and preferences. Based on the findings, create a clear and logical website navigation structure. Conduct usability testing sessions with representative users to identify pain points and make necessary improvements.
Unauthorized Access	➤ To code while producing a pleasant odor. ➤ For this project, create a multi-authentication system.	Actively participating designer & developer.	When the authentication components have been set up
System Technical Issue Hardware			
Backup of Project Security	Any cloud service, such as GitHub, may be used to back up our/my project.	Actively participating designer & developer.	Regularly updated
The Network Failed	To converse successfully with network service personnel.	Actively participating designer & developer.	The project was completed on time.

Table 9: University Website Design & Development Risk Precaution

5.3.4 Steps Taken for Possible Risks of Website Design & Development

Type of risks	Description	Likeliness	Impact	Taking Step

Data Security Risk	Risk of unauthorized access to sensitive data, leading to data breaches or privacy violations.	Rare	High	Implement robust security measures such as secure coding practices, encryption protocols, and regular security audits. Train staff on data security best practices, establish access controls, and regularly update software and plugins.
Database Destroy and Error	There is a possibility of a duplicate entry.	Likely	High	The data dictionary was created using the entity relationship diagram and third normal form normalization.
Unauthorized Access	System access is not authorized.	Unlikely	High	A suitable authentication and authorization system has been established.
System Technical Issue Hardware	It is possible that our or my gear will break or stop working.	Frequent	Medium	Backup is available, as is continual maintenance and monitoring.
Backup of Project Security	All project files should be backed up (e.g., using Github).	Rare	High	Monitoring the project file in a secure manner
The Network Failed	Failure of Network The internet is down or there is a problem with the connection.	Frequent	Low	The proxy server has been configured and has been granted high-bandwidth access.

Table 10: Risk dealing steps for Southeast University Website Design and Development

5.4 Change Management

5.4.1 Factors that Might Cause Change

Several factors can cause changes in the website design for Southeast University in Bangladesh. These factors include:

Technological Advancements: Evolving technologies and emerging design trends can influence website design. New technologies may offer improved functionality, better user experiences, and enhanced design possibilities, prompting updates to the website design to stay current and competitive.

User Feedback and Needs: User feedback and evolving user needs can drive changes in website design. Feedback from students, faculty, and other website visitors may reveal areas for improvement or highlight new features and functionalities that would enhance their experience. Adapting the website design to meet these needs can lead to increased user satisfaction and engagement.

Rebranding or Brand Identity Changes: If Southeast University undergoes a rebranding initiative or makes changes to its brand identity, the website design will likely require updates to reflect the new brand guidelines. This includes changes to color schemes, typography, logos, and overall visual elements.

Content Updates and Expansion: As new programs, courses, and initiatives are introduced at Southeast University, the website may need to accommodate additional content and information. This can include creating new pages, restructuring navigation menus, and adapting the overall design to accommodate the expanded content.

Accessibility Requirements: Changes in accessibility guidelines and regulations may necessitate updates to the website design. Ensuring compliance with accessibility standards and providing an inclusive user experience for individuals with disabilities may require modifications to the design, such as improving keyboard navigation, adding alternative text for images, or enhancing color contrast.

Platform or CMS Updates: If Southeast University's website is built on a specific content management system (CMS) or platform, updates and new releases may introduce changes to the design framework. Adapting the website design to leverage the latest features and improvements can enhance performance, security, and usability.

By considering these factors and actively monitoring changes in technology, user feedback, brand guidelines, accessibility requirements, and industry standards, Southeast University can proactively initiate website design updates to meet the evolving needs and expectations of its stakeholders.

5.4.2 DSDM Welcome Change of Southeast University Website Design & Development

Dynamic Systems Development Method (DSDM) is an Agile project management framework that promotes an iterative and collaborative approach to software development. As DSDM emphasizes embracing change throughout the development process, it can be applied to welcome changes in the design and development of the Southeast University website. Here's how DSDM can support the welcoming of change:

Iterative Development: DSDM encourages breaking down the development process into iterative cycles called "timeboxes." Each timebox focuses on delivering a working increment of the website design. By embracing iterative development, the project team can continuously gather feedback and incorporate changes into subsequent iterations, allowing for flexibility and responsiveness to evolving requirements.

Prioritized Requirements: DSDM promotes early and continuous involvement of stakeholders to determine the most critical requirements. Through regular collaboration and engagement, Southeast University can gather feedback from various stakeholders, including students, faculty, and administrators, to identify changes or enhancements required in the website design. These requirements can be prioritized and incorporated into subsequent development iterations.

Time boxing: DSDM introduces time boxing to limit the scope of each iteration and provide clear deadlines for delivering specific functionality. Time boxing allows for accommodating change by ensuring that changes are planned and incorporated within designated timeframes. This ensures that changes are controlled and effectively managed without disrupting the overall project schedule.

Collaborative Approach: DSDM emphasizes the active involvement of stakeholders, including end-users and representatives from different departments, in the design and development process. By fostering a collaborative environment, Southeast University can encourage open communication, continuous feedback, and shared decision-making, making it easier to welcome and address changes in the website design.

Prototyping and User Feedback: DSDM encourages the use of prototypes and early delivery of increments to gather user feedback. By developing interactive prototypes or mock-ups, Southeast University can engage stakeholders in the design process and collect valuable insights. User feedback can be incorporated to refine the design and ensure it meets the evolving needs and expectations of the website users.

By applying DSDM principles and practices, Southeast University can create an adaptive and flexible development environment that embraces change in the website design and development process. This approach ensures that the website design remains aligned with the evolving requirements, user feedback, and strategic objectives of the university, ultimately resulting in a website that better serves its stakeholders' needs.

5.4.3 Considering Business Priority

Southeast University Website Design is a sophisticated software solution that focuses the effective management of administrative procedures inside a university or higher education institution. It is a consolidated platform that integrates numerous modules and features to streamline operations and support the institution's business aims.

Priorities were as follows:

Topical Area	Priority Level

Training Segments	6
Functional requirements	8
Non-Functional requirements	6
Segments for ratings and reviews	5
Segments for security handling	8

5.4.4 Change Workshop

A change workshop in the context of Southeast University Bangladesh's website design can be a collaborative session involving key stakeholders, such as university administrators, faculty members, IT personnel, and web designers. The workshop aims to facilitate discussions, generate ideas, and drive consensus on the desired changes in the website design. Here's how you can conduct a change workshop:

Define the Objectives: Clearly outline the objectives of the change workshop. These objectives may include identifying areas for improvement, addressing specific design challenges, incorporating new features or functionalities, or aligning the website design with the university's brand identity and strategic goals.

Pre-workshop Preparation: Provide participants with relevant materials and information ahead of time to familiarize themselves with the current website design, industry best practices, and any specific topics to be discussed during the workshop. This ensures that everyone is well-informed and can contribute effectively during the session.

Facilitate the Workshop: Conduct the workshop in a conducive environment, either in-person or virtually. Use facilitation techniques to encourage active participation and collaboration. Provide clear instructions and agenda items, allowing participants to voice their opinions, share ideas, and discuss potential changes. Encourage open dialogue, constructive feedback, and brainstorming sessions.

Review Current Website Design: Begin the workshop by reviewing the current website design, its strengths, weaknesses, and any identified pain points. This review will serve as a starting point for identifying areas that need improvement or change.

5.4.5 Changes that are allowed

The approval of changes must be done in the order of importance. Accepting changes was necessary due to a number of factors, including resource availability, information update, result release, permission section,

privilege, and risk. We must allow for priority-based adjustments when this system is being developed in a particular area.

5.4.6 Key Decision Taker of Change

Change-makers will be advised by a range of experts in their respective disciplines. This project has different decision makers for changes.

System Requirements for Analysts System Designer and Tester

If needed, the analyst can change the functional requirement, and the developer can change the required code.

5.5 Quality Management

Quality management is crucial in ensuring that the website design of Southeast University meets the highest standards and effectively serves its intended purposes. Here are key aspects of quality management that can be applied to Southeast University's website design:

Establish Quality Objectives: Define clear quality objectives for the website design, aligned with the university's strategic goals. These objectives may include user satisfaction, accessibility compliance, ease of use, performance, security, and adherence to branding guidelines. Clear objectives provide a foundation for measuring and improving the quality of the website design.

User-Centric Design: Prioritize user experience by conducting user research, gathering feedback, and incorporating user-centered design principles. Understand the needs, expectations, and behaviors of the website's target users, including students, faculty, prospective students, and other stakeholders. Apply usability testing, conduct focus groups, and gather user feedback to identify areas for improvement and ensure a user-friendly design.

Responsive and Mobile-Friendly Design: With the growing use of mobile devices, ensure the website design is responsive and mobile-friendly. Test the design on various devices and screen sizes to ensure consistent and optimal user experiences across platforms. Responsive design ensures that the website adapts seamlessly to different screen sizes, improving accessibility and user satisfaction.

5.5.1 Rules Applied to Maintain Quality

To maintain quality in Southeast University's website design, several rules and best practices can be applied. Here are some key rules to consider:

Consistent Branding: Adhere to the university's branding guidelines, including the consistent use of logos, color schemes, typography, and visual elements. Consistency in branding helps establish a strong and recognizable identity for the university.

Clear and Intuitive Navigation: Design a clear and intuitive navigation system that allows users to easily find the information they need. Use logical menu structures, breadcrumb trails, and search functionality to

enhance navigation. Ensure that the website's hierarchy and labeling reflect user expectations and align with common web conventions.

Responsive Design: Implement a responsive design approach to ensure that the website adapts seamlessly to different screen sizes and devices. This ensures a consistent user experience across desktops, tablets, and mobile devices, enhancing accessibility and usability.

5.5.2 DSDM Standard Quality Measures

DSDM (Dynamic Systems Development Method) is an Agile project management framework that promotes an iterative and collaborative approach to software development. While DSDM itself does not provide specific standard quality measures, it encourages the adoption of best practices and quality management techniques. Here are some quality measures that can be applied to Southeast University's website design within the context of DSDM:

User Satisfaction: Measure user satisfaction through surveys, feedback forms, or user interviews. Gather feedback from students, faculty, and other website users to assess their satisfaction levels and identify areas for improvement.

Usability and User Experience: Conduct usability testing to evaluate how users interact with the website. Measure factors such as ease of use, efficiency, learnability, and effectiveness in achieving user goals. Use metrics like task completion rates, error rates, and user satisfaction scores to assess the website's usability and user experience.

Accessibility Compliance: Ensure the website design complies with accessibility guidelines, such as WCAG (Web Content Accessibility Guidelines) 2.1. Conduct accessibility audits or use automated tools to evaluate the website's accessibility level and identify areas that need improvement.

5.5.3 Quality Plan and Measuring Meter

A quality plan outlines the processes, activities, and metrics used to ensure that the website design of Southeast University meets high-quality standards. Here's an example of a quality plan for Southeast University's website design, along with some measuring metrics

Quality Objectives:

- Improve user experience by enhancing website navigation and usability.
- Ensure accessibility compliance to make the website usable for all users.
- Optimize website performance for fast loading times and smooth interactions.
- Maintain content accuracy and freshness through regular updates.
- Enhance security measures to protect user data and prevent unauthorized access.

Quality Activities:

- User Research: Conduct user research to understand the needs and expectations of the website's target audience. Gather feedback through surveys, interviews, or usability testing.

- Usability Testing: Perform usability tests to evaluate the ease of use, efficiency, and effectiveness of the website. Measure task completion rates, error rates, and user satisfaction scores.
- Accessibility Audit: Conduct an accessibility audit to assess the website's compliance with WCAG 2.1 guidelines. Use automated tools or manual evaluation to identify areas for improvement.
- Performance Testing: Test the website's performance using tools like Google Page Speed Insights or GTmetrix. Measure page load speed, server response time, and overall website responsiveness.
- Content Management: Implement processes to review, update, and maintain accurate and up-to-date content on the website. Monitor content changes and track the frequency of updates.
- Security Assessment: Perform security assessments, including vulnerability scans and penetration testing, to identify and address potential security risks. Monitor and track security incidents.

Chapter 6 – Feasibility

6.1 All Possible Types of Feasibility Southeast University Website Design

Feasibility in Southeast University Bangladesh website design refers to the assessment of the practicality and viability of designing and developing a website that meets the university's requirements and objectives. It involves evaluating various factors to determine if the website design project is technically, economically, and operationally feasible. (Investopedia, 2023)

Technical Feasibility: This aspect assesses whether the website design can be implemented using the available technology infrastructure and resources. It involves evaluating factors such as:

- Compatibility with existing systems and platforms used by the university.
- Availability of technical expertise and resources required for website development.
- Scalability to accommodate future growth and functionality enhancements.

Hardware:

• Acer Laptop (Configuration)

• Wi-fi Router (Tenda)

Software:

• Microsoft office(MS-2014)

• Microsoft Excel(MS-2014)

• Firefox

• Windows 10 Pro (operating system)

•VS Code

• Brackets

Database:

• MySQL

Technology:

UI/UX Design:

•Lucidchart & Draw.io for High Fidelity Prototype

•Figma (Design)

Design Slide:

• Html

• CSS

• Java Script

• Bootstrap

Server Side:

• PHP

• Laravel 8.6

Economic Feasibility: Economic feasibility evaluates the financial viability of the website design project. Key considerations include:

- Cost estimation for website development, including design, content creation, and infrastructure setup.
- Return on investment (ROI) analysis, considering factors such as increased visibility, improved user experience, and potential revenue generation.
- Cost-benefit analysis to determine if the benefits of the website design outweigh the expenses over the expected lifespan of the website. (D, 2018)

➢Web based application cost:

Equipment	Cost per unit	Cost
Extranet network with VPN access	☐4000 per/m	☐4,000
Acer Laptop (core i5, 2.50-271 GHz processor, 8 GB DDR4	☐ 86,000	☐ 86,000

RAM, 1 TB HDD)		
File and Email and cloud servers	☐18,000 per/m	☐18,000 per/m
Total		☐ 1,08,000

➢Desktop Application cost:

Equipment	Cost per unit	Cost
Acer Laptop (core i5, 2.50-271 GHz processor, 8 GB DDR4 RAM, 1 TB HDD)	☐ 86,000	☐ 86,000
File and Email and cloud servers	☐16,000 per/m	☐16,000 per/m
Total		☐ 1,02,000

We'll need a domain name and a hosting company to launch the system. The system must continuously manage difficulties and monitor all data because instructor and student materials need to be updated often. A web application will be created for the remainder of the system.

Southeast University Website Design Market Research Analysis Based on the Feasibility Factors:

Market research analysis based on feasibility factors can provide valuable insights into the viability of the Southeast University website design project. Here's an analysis based on the feasibility factors mentioned earlier:

Based on the market research analysis, the following insights can be gained:

- The availability of existing technology infrastructure and the required technical expertise can determine the ease of implementation and integration of the website design.
- Cost estimation and ROI analysis help determine the financial feasibility of the project and its potential long-term benefits.
- Assessing operational feasibility ensures that the university has the necessary resources and processes in place to maintain and support the website design effectively.
- User research and usability testing provide insights into user preferences, allowing the website design to meet the specific needs of the target audience.

By conducting a comprehensive market research analysis based on feasibility factors, Southeast University can gain valuable insights into the viability of the website design project and make informed decisions regarding its implementation.

6.2 Cost Benefit Analysis for Southeast University Website Design and Developments

Identifying the profit and spending assumptions is the primary objective of a cost-benefit analysis. Calculating the benefit involves comparing the total cost and earnings. The following is the project's cost-benefit analysis:

Total cost:

Serial No.	Equipment	First Year	Second Year	Third Year	Fourth Year	Five Year	Total
1	Web based application cost	☐ 1,04,000	-	-	-	-	☐ 1,04,000
2	Desktop Application cost	☐ 1,02,000	-	-	-	-	☐ 1,02,000
3	Design Cost	☐ 5000	-	-	-	-	☐ 5000
4	The cost of a domain plus hosting	☐25,000	☐25,000	☐25,000	☐25,000	☐25,000	☐ 125,000
5	Expenses for Employees	☐40,000	☐40,000	☐40,000	☐40,000	☐40,000	☐2,00000
6	Other Cost	☐20,000	☐20,000	☐20,000	☐20,000	☐20,000	☐1,00000

| 7 | Total Cost | ☐ 291,000 | ☐ 85,000 | ☐ 85,000 | ☐ 85,000 | ☐ 85,000 | ☐ 631,000 |

Table 11: Total Cost Estimation for the project Southeast University Website Design and Development

Earning Sector

Serial No.	Earn Sector	First Year	Second Year	Third Year	Fourth Year	Five Year	Total
1	Govt. Tax one	☐1,50,000	☐1,80,000	☐2,10,000	☐2,40,000	☐2,70,000	☐1,050,000
2	Govt. Tax two	☐2,00000	☐2,10,000	☐2,40,000	☐2,60,000	☐3,00000	☐1,210,000
	Total	☐3,50,000	☐3,90,000	☐4,50,000	☐5,00000	☐5,70,000	☐2,260,000

Table 12: Earning estimation for project Southeast University Website Design and Development

Total Revenue of project:

Serial No.	Sector	First Year	Second Year	Third Year	Fourth Year	Five Year	Total
1	Total Earning	☐3,50,000	☐3,90,000	☐4,50,000	☐5,00000	☐5,70,000	☐2,260,000
2	Total Equipment	☐4,02,000	☐80,000	☐80,000	☐80,000	☐80,000	☐7,22,0000

	Cost						
	Total Revenue	⬜4,02,000	⬜3,10,000	⬜3,70,000	⬜4,20,000	⬜4,90,000	⬜1,538,000

Table 13: Southeast University Website Design and Development Estimated Revenue on a five-year Scale

6.3 Explain DSDM Good or Bad for this Project

DSDM can be a suitable approach for the Southeast University Bangladesh (SEU) website design and development project, considering its characteristics and requirements. Here are some reasons why DSDM could be beneficial:

User involvement: DSDM places a strong emphasis on involving end users throughout the project. For a website design and development project like SEU's, it is crucial to understand the needs and preferences of the university's stakeholders, including faculty, students, and administrative staff. By involving them in the process, DSDM ensures that the final product aligns with their expectations and requirements.

Iterative development: DSDM promotes an iterative and incremental approach to development, where the project is divided into several iterations or time-boxed cycles. Each iteration focuses on delivering a functional increment of the website. This allows SEU to quickly get a working version of the website up and running, allowing for continuous improvement and refinement based on user feedback and evolving requirements.

Time-sensitive delivery: If SEU has a specific timeline or deadline for launching the website, DSDM can be beneficial. By following DSDM's time-boxed iterations, the project team can ensure regular delivery of working increments, reducing the time to market and allowing for early feedback and adjustments. This can be especially important for a university website, as it serves as a crucial communication and information platform for various stakeholders.

Flexibility and adaptability: DSDM promote flexibility and adaptability in project management. This is advantageous for a website project like SEU's, where requirements may evolve and change throughout the development process. DSDM allows for incremental updates and adjustments based on user feedback, ensuring that the final website meets the evolving needs of the university.

However, it's important to consider potential challenges or limitations:

Skill and knowledge requirements: DSDM rely on a collaborative and empowered team that is familiar with the methodology. It requires skilled individuals who are experienced in agile practices and DSDM specifically. If the project team lacks the necessary knowledge or experience, additional training or external expertise may be required.

Stakeholder availability: DSDM's success depends on continuous and active involvement of stakeholders, including SEU staff, faculty, and students. Availability and active participation of these stakeholders might be a challenge, particularly if they have other commitments or limited availability.

Ultimately, the decision to adopt DSDM for the SEU website design and development project should be based on a careful evaluation of the project's specific needs, the team's capabilities, and the university's readiness for an agile methodology.

Chapter 7 – Foundation

7.1 The Problem Area Identification

Based on the information provided, the problem areas identified in the Southeast University Bangladesh (SEU) website design and development project can be described as follows:

Outdated design: The current website design may not be visually appealing or aligned with modern web design standards. It might lack aesthetic appeal and fail to create a positive impression for users visiting the site.

Ineffective navigation and information architecture: The website's navigation structure and organization of information may be confusing or poorly designed. Users may find it difficult to locate the desired information or navigate through different sections of the website.

Content management challenges: The content management system (CMS) used to update and maintain the website might be inadequate or inefficient. SEU staff may face difficulties in managing and updating content, leading to outdated or inaccurate information being displayed on the site.

Performance and loading issues: The website may suffer from slow loading times or performance issues, impacting user experience. Visitors may get frustrated and abandon the site if it takes too long to load or if there are frequent technical glitches.

Addressing these problem areas will be crucial for the successful redesign and development of the SEU website. By focusing on improving the design, navigation, responsiveness, content management capabilities, and performance, the new website can provide a better user experience and effectively serve the needs of SEU's stakeholders.

7.1.1 Interview

An interview is the greatest technique to gather information, identify an issue, or choose a goal. Finding the problem may lead to the genuine solution. As a result, the following user questions have been established to engage in the following interviews for the proposed system:

1. Admin:

- As an admin, how will you ensure that the new SEU website provides a seamless and user-friendly experience for its visitors?

- Can you explain the process you will follow to gather user requirements and feedback for the website design and development project?
- How will you collaborate with different user groups, such as SEU faculty, students, and staff, to understand their specific needs and expectations from the website?

2. Users:

- Can you discuss any plans or strategies you have in place to personalize the website experience for different user segments, such as prospective students, current students, or alumni?
- How will you ensure that the SEU website is mobile-friendly and responsive, allowing users to access and navigate it seamlessly on various devices?
- What methods or tools will you use to conduct user testing and gather feedback during the website design and development process?

7.1.2 Observations

Observations for the Southeast University Bangladesh (SEU) website design and development project will require a thorough assessment of the existing website and its various aspects. While I cannot directly observe the current state of the SEU website, I can provide you with some common observations made during website design and development projects:

User Interface (UI) Design: Evaluate the visual design of the website, including the use of colors, typography, and overall layout. Assess whether the design aligns with SEU's brand identity and creates a positive user experience.

Navigation and Information Architecture: Analyze the website's menu structure, organization of content, and ease of navigation. Check if the information is logically categorized and easily accessible to users.

Responsiveness and Mobile-Friendliness: Assess how the website adapts to different screen sizes and devices. Ensure that the website is fully responsive, allowing users to access and navigate it seamlessly on desktops, tablets, and mobile devices.

Content Quality and Readability: Evaluate the clarity, accuracy, and relevance of the content displayed on the website. Check for grammatical errors, outdated information, and readability issues that may affect the overall user experience.

Functionality and Features: Identify the key features and functionality offered by the website. Check if interactive elements (such as forms, search bars, or multimedia) are working as intended and providing a smooth user experience.

These observations will help identify areas that require attention and improvement in the SEU website design and development project. It is essential to conduct a comprehensive assessment to ensure the new website meets the needs and expectations of SEU and its stakeholders.

7.1.3 Questionnaires

Gathering information is crucial in project management for making effective judgments. There are numerous methods for gathering information from various types of people. Project managers use observation, focus group talks, supported lectures, and benchmarking often.

Questionnaires are one of the most efficient ways to collect data and ask questions of consumers and other stakeholders. The user will be asked a sequence of questions, which may include multiple-choice questions (MCQs) or short responses. As a result, the following questions are offered.

Identification of Problems Questions

Name		**Age**	
General User	Admin	Problem	

Question-one	How will you ensure that the new SEU website provides a seamless and user-friendly experience for its visitors?
Answer	
Question-two	Can you explain the process you will follow to gather user requirements and feedback for the website design and development project?
Answer	
Question-three	How will you collaborate with different user groups, such as SEU faculty, students, and staff, to understand their specific needs and expectations from the website?
Answer	
Question-four	What measures will you take to ensure that the website's content is organized in a user-centric manner, making it easy for users to find the information they need?

Answer	
Question-five	How will you address the accessibility needs of diverse user groups, including individuals with disabilities, to ensure an inclusive user experience on the SEU website?
Answer	

Identification of Problems Questions	

Name		**Age**	
General User	User	Problem	

Question-one	Can you discuss any plans or strategies you have in place to personalize the website experience for different user segments, such as prospective students, current students, or alumni?
Answer	
Question-two	Can you share any specific user experience (UX) design principles or best practices that will guide the development of the SEU website?
Answer	
Question-three	How will you ensure that the SEU website is mobile-friendly and responsive, allowing users to access and navigate it seamlessly on various devices?
Answer	
Question-four	What methods or tools will you use to conduct user testing and gather feedback during the website design and development process?

Answer	
Question-five	How will you prioritize and incorporate user feedback into the iterative design and development cycles of the project?
Answer	

7.2 Rich Picture
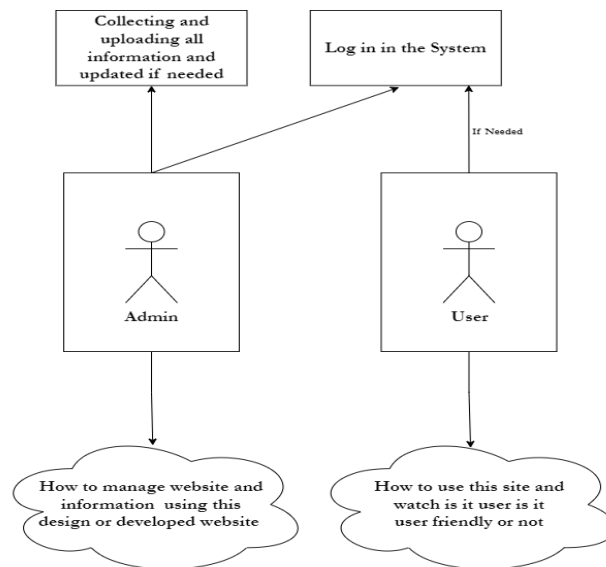
Figure 9: Rich Picture of the Southeast University Bangladesh Website Design and Development

Southeast University Bangladesh Website Design and Development The legends of rich picture

User

Event

Issue

Process
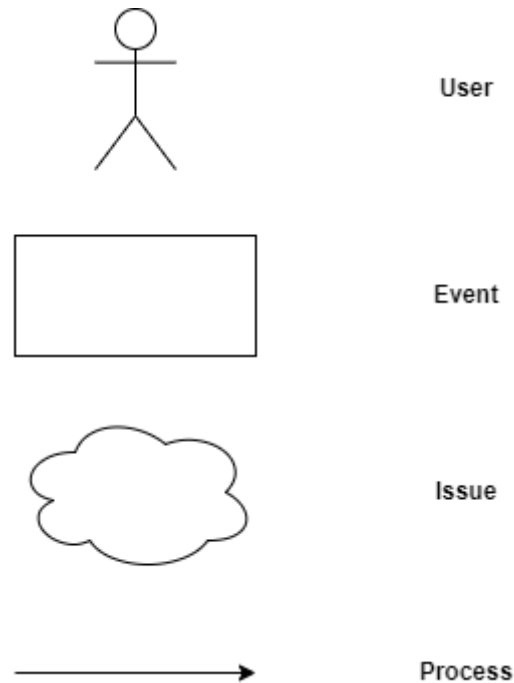
Figure 10: Southeast University Bangladesh Website Design and Development Legends of the Rich Picture

Key actors

In the IUMS system, there are five different sorts of actors.

➤Admin

➤ User

7.3 Specific Problem Area Identification

Specific problem area identification for the Southeast University Bangladesh (SEU) website design and development project will require a detailed analysis of the current website and the specific needs of SEU and its stakeholders. Although I don't have access to the current website, I can provide you with some common problem areas that may arise in website design and development projects:

Outdated Design: The existing website may have an outdated design that doesn't align with modern web design trends or SEU's brand identity. It may lack visual appeal and fail to create a positive impression for users.

Poor User Experience: The website may suffer from usability issues, including complex navigation, confusing information architecture, or a lack of intuitive user interface elements. This can lead to a frustrating user experience and difficulty in finding desired information.

Ineffective Content Management: The content management system (CMS) used for the website may be cumbersome or lack necessary features. This can make it challenging for SEU staff to update and maintain the website efficiently, resulting in outdated or inaccurate information.

Performance and Loading Speed: Slow loading times and performance issues can significantly impact user experience. If the website takes too long to load or experiences frequent downtime, it can frustrate users and discourage them from using the website.

It is essential to conduct a thorough analysis of the SEU website to identify the specific problem areas that need to be addressed in the design and development project. Gathering feedback from stakeholders and conducting usability testing can provide valuable insights into the specific challenges and requirements of SEU and its users.

7.4 Possible Solutions

Based on the problem areas identified for the Southeast University Bangladesh (SEU) website design and development project, here are some possible solutions:

Outdated Design:

- Conduct a redesign of the website, incorporating modern and visually appealing design elements.
- Align the design with SEU's brand identity, ensuring consistency across the website.

Poor User Experience:

- Conduct user research to understand user needs and preferences, and incorporate user-centered design principles.
- Improve website navigation and information architecture, ensuring intuitive and easy-to-use interface elements.
- Enhance the overall user experience by streamlining processes and minimizing user friction points.

Limited Mobile Responsiveness:

- Implement a responsive design approach to ensure the website adapts seamlessly to different screen sizes and devices.
- Optimize the website's layout and content for mobile devices, prioritizing mobile user experience.

Ineffective Content Management:

- Evaluate and select a robust content management system (CMS) that meets SEU's requirements for easy content updating and maintenance.
- Provide training and support to SEU staff on using the CMS effectively.

Performance and Loading Speed:

- Optimize website performance by implementing best practices such as code optimization, caching, and minimizing server requests.

- Regularly monitor and optimize the website to ensure fast loading times and a smooth user experience.

Inadequate Search Functionality:

- Implement a powerful search feature that accurately retrieves relevant content and provides advanced filtering options.
- Optimize the search engine to prioritize relevant and popular content.

Lack of Accessibility:

- Ensure compliance with web accessibility standards, such as WCAG 2.1, by providing alternative text for images, proper heading structure, and accessible forms.
- Conduct accessibility audits and usability testing with individuals with disabilities to identify and address accessibility barriers.

These solutions provide a starting point for addressing the identified problem areas in the SEU website design and development project. It is important to tailor these solutions to the specific needs and requirements of SEU and its stakeholders and continuously gather feedback throughout the design and development process.

7.5 Overall Requirement List
Functional Requirement

Functional requirements for the Southeast University Bangladesh (SEU) website design and development project may vary based on the specific needs and goals of SEU. However, here are some common functional requirements that are typically considered for university websites:

User Registration and Authentication:

- Allow users to create accounts and authenticate themselves to access personalized content, such as student portals, online libraries, or discussion forums.

Information Pages:

- Provide comprehensive and up-to-date information about SEU, including its history, mission, academic programs, faculty, staff, and facilities.
- Include admission requirements, application procedures, and relevant information for prospective students.

Course Catalog and Schedule:

- Display a catalog of available courses, along with course descriptions, prerequisites, and faculty information.
- Provide a schedule of classes, including timings, locations, and any changes or updates.

Student Portals and Online Services:

- Offer a secure student portal for enrolled students to access personalized information, such as grades, course registration, class schedules, and financial records.
- Provide online services for students, such as fee payments, transcript requests, and course evaluations.

Faculty and Staff Directory:

- Include a directory of faculty and staff members, along with their contact information and areas of expertise.

Research and Publications:

- Showcase research activities, publications, and achievements of SEU faculty and students.
- Provide access to research papers, journals, and other scholarly materials.

Events and News:

- Highlight upcoming events, conferences, workshops, and seminars organized by SEU.
- Publish news articles, press releases, and announcements related to SEU and its community.

Alumni Network:

- Facilitate an online platform for SEU alumni to connect, share experiences, and stay engaged with the university.
- Provide resources for career development, job opportunities, and alumni events.

Non-functional Requirements

Non-functional requirements define the qualities and characteristics of the Southeast University Bangladesh (SEU) website that are not directly related to its functionality but are crucial for its overall performance, usability, and security. Here are some common non-functional requirements for the SEU website design and development project:

Performance and Scalability:

- The website should load quickly and provide a responsive user experience, even during periods of high traffic.
- It should be scalable to accommodate increasing user demands and future growth.

Usability and User Experience:

- The website should be intuitive and user-friendly, with clear navigation and easy-to-understand interface elements.
- It should adhere to web accessibility standards, ensuring equal access to information for users with disabilities.

Security:

- The website should employ robust security measures to protect user data and prevent unauthorized access.
- It should comply with data protection regulations, such as GDPR or local data privacy laws.

Compatibility and Browser Support:

- The website should be compatible with major web browsers (e.g., Chrome, Firefox, Safari, Edge) to ensure a consistent user experience.
- It should be responsive and functional across different devices and screen sizes, including desktops, tablets, and mobile phones.

Reliability and Availability:

- The website should be reliable and available to users without significant downtime or interruptions.
- It should have backup and recovery mechanisms in place to handle any potential data loss or system failures.

Search Engine Optimization (SEO):

- The website should be optimized for search engines, following SEO best practices to improve visibility in search results.
- It should include relevant Meta tags, proper heading structure, and descriptive URLs.

Content Management:

- The content management system (CMS) should provide an easy-to-use interface for SEU staff to update and manage website content efficiently.
- It should support version control, content approval workflows, and content scheduling.

7.6 Technology to be implemented

The choice of technology to be implemented in the Southeast University Bangladesh (SEU) website design and development project depends on various factors, including the project requirements, scalability, security, and the expertise of the development team. While I can't provide a specific recommendation without more information, here are some commonly used technologies for website design and development:

Content Management System (CMS): Popular CMS platforms include WordPress, Drupal, and Joomla. These platforms provide a user-friendly interface for managing website content and can be customized to meet SEU's specific needs.

Front-end Development: HTML5, CSS3, and JavaScript: These fundamental web technologies are essential for creating the structure, styling, and interactivity of web pages.

Responsive Design: Implementing responsive design techniques ensures the website adapts to different screen sizes and devices.

Back-end Development: Programming Languages: Common choices include PHP, Python, Ruby, or Node.js, depending on the development team's expertise and project requirements.

Server monitoring tools like New Relic or Datadog can help track and optimize website performance.
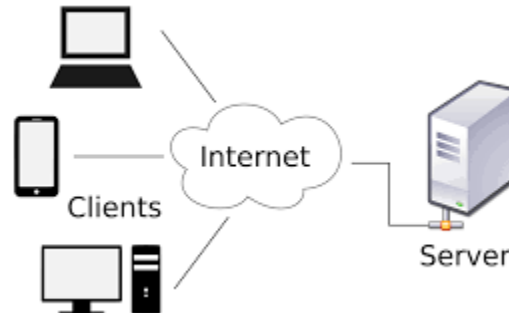
Figure 11: Client Server Application Model

Web Application

As contrast to computer-based software applications that run locally on the device's operating system (OS), web applications (or web apps) are application software that operate on a web server. The user must have a web browser open and a working internet connection in order to access web apps.

Figure 12: Web Application

The major qualities of a web-based application are as follows:

• There is no need for installation, and a web browser can be used to access the cloud online.

• The price is reasonable.

• Simple to access at any time and from any location.

7.7 Recommendation and Justification

Recommendation:

For the Southeast University Bangladesh (SEU) website design and development project, I recommend creating a modern, user-centric, and responsive website using the following technologies and approaches:

Content Management System (CMS):

- WordPress: Utilize WordPress as the CMS platform for its user-friendly interface, extensive theme options, and flexibility in content management.

Front-end Development:

- HTML5, CSS3, and JavaScript: Utilize these standard web technologies to create a visually appealing and interactive user interface.
- Implement a responsive design strategy to make sure the website adapts fluidly to various screen sizes and devices.

Justification:

The recommended approach and technologies are justified based on the following reasons:

User-Centric Design: By prioritizing user experience and conducting user research, the website will meet the needs and expectations of SEU's target audience, enhancing engagement and satisfaction.

Scalability and Flexibility: Word Press, combined with the Laravel framework, provides a scalable and customizable platform that can accommodate future growth and changing requirements.

Chapter 8 – Exploration

8.1 Old System Use Case

The flow of a system's business processes is depicted in a use case diagram. As an example of an

In the earlier system, I'll utilize the previous site of southeast university.
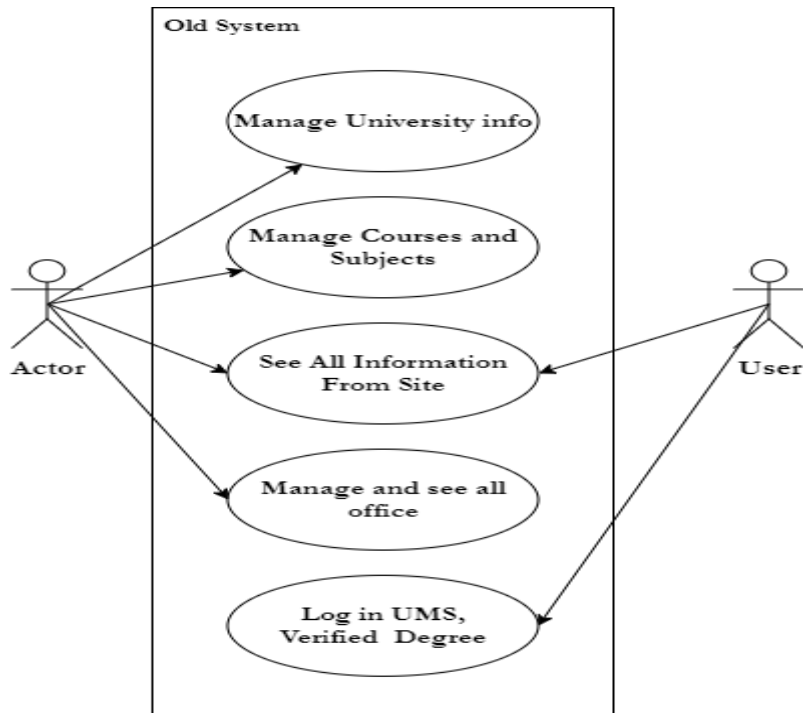
Figure 13: Use Case Diagram of Old System of Southeast University

8.2 Activity Diagram

Admin Activity Diagram
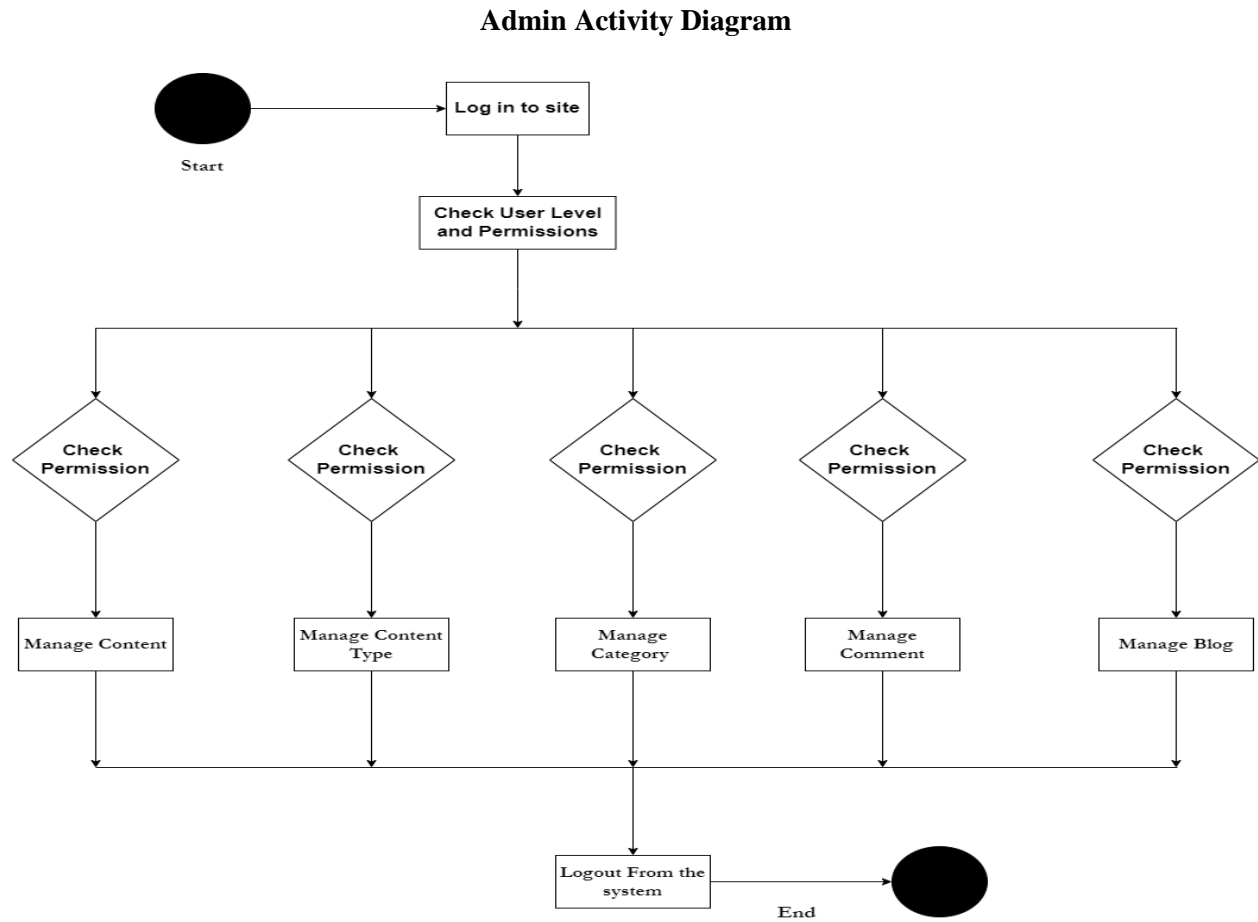
Figure 14: Admin Activity Diagram of Southeast University Website

8.3 Full System Use Case

The following is a use case diagram for the proposed Southeast University Design:
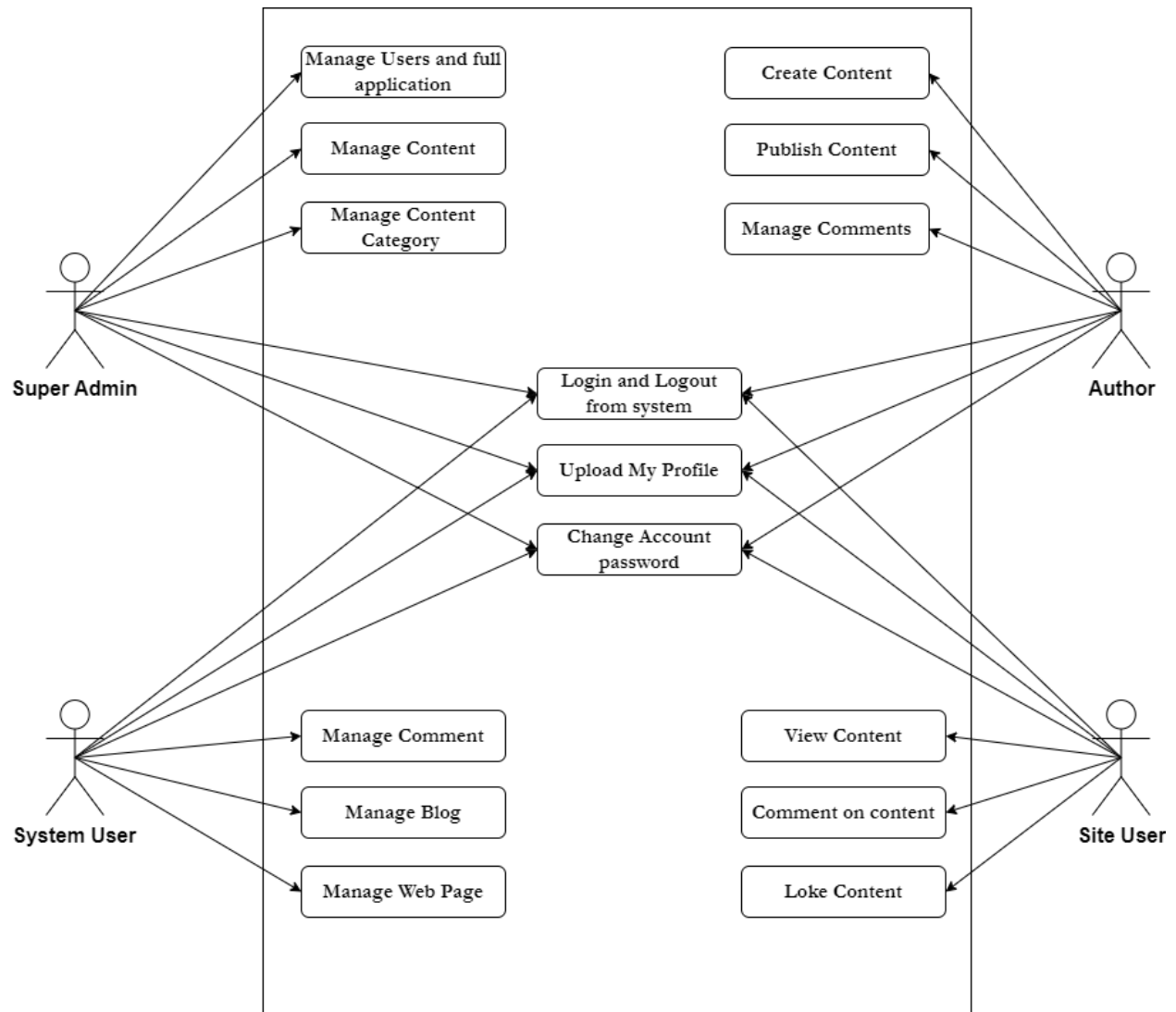
Figure 15: Use Case of the Proposed Southeast University Design

8.4 Full System Activity Diagram
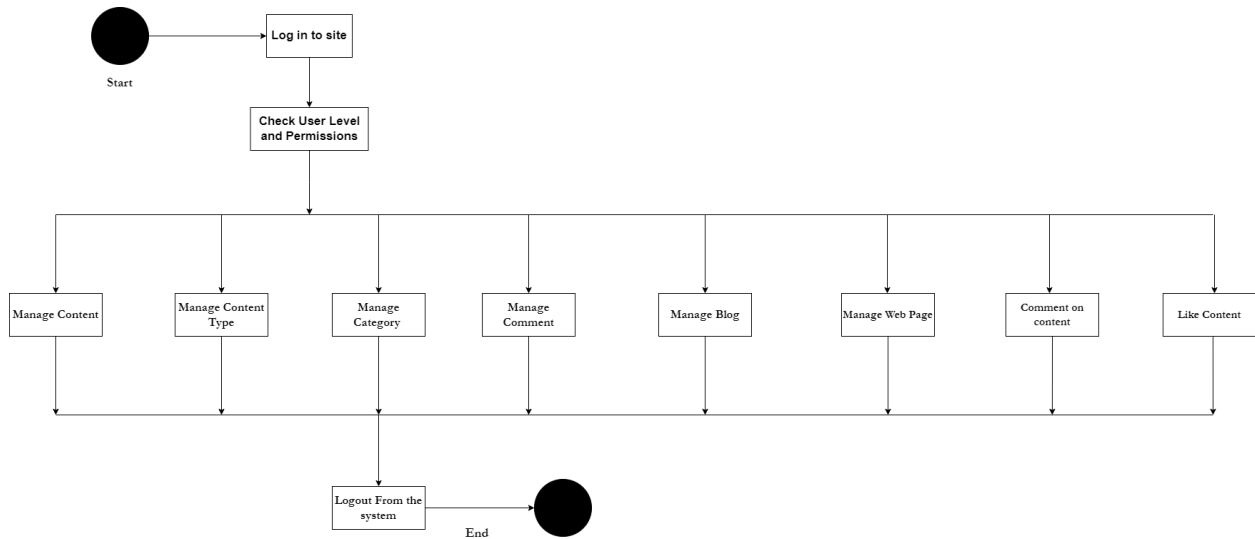
Figure 16: Activity Diagram Southeast University Website Design System

8.5 Activity Diagram
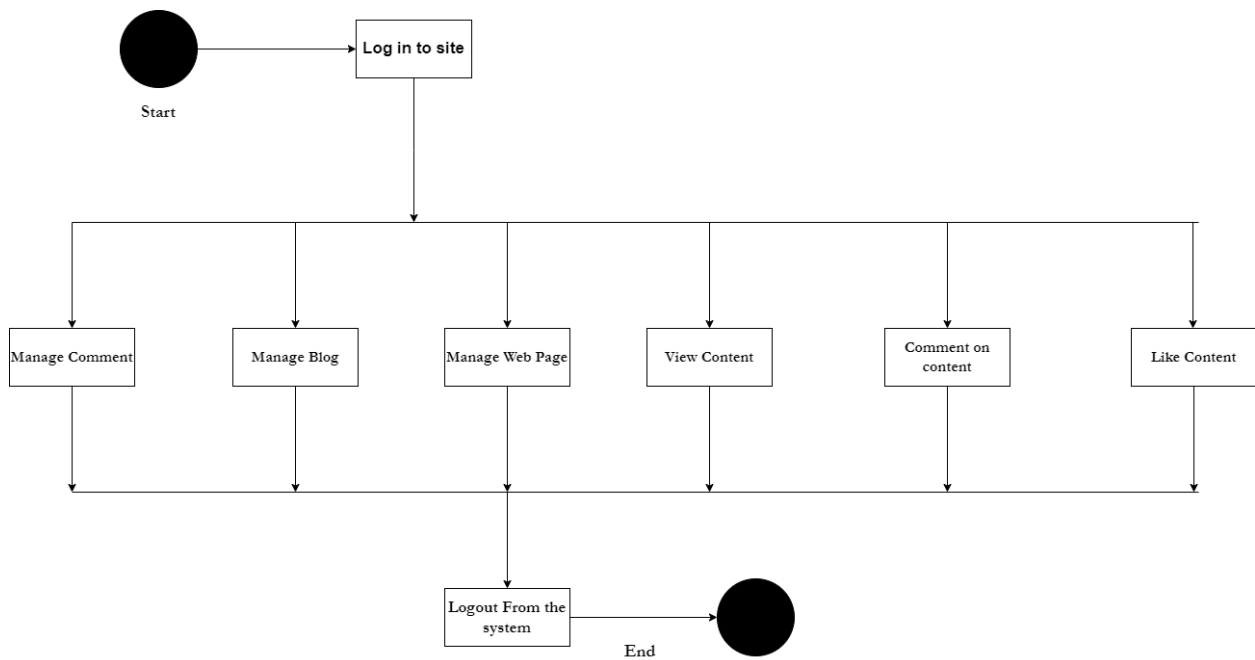
Figure 17: User Activity Diagram Southeast University Website Design System

8.5 Catalogue of Requirements

A requirement catalogue is a list of all the demands that have been discovered for an agriculture management system project. I'll now enter the identified needs into the requirement catalog using the normal procedure.

Admin Requirements Catalogue

Source	Sing Off	Priority	Requirement
User Authentication and Access Control	Admin	Must Have	M-01

Functional Requirement
User Requirement Catalogue:
Registration and Authentication of Users Allow people to register and establish accounts

Non-functional requirement

Description	Target Value	Acceptance Value	Comment
User (per/day)	24000 (per/day.)	10000	

Table 14: Requirement Catalogue for User

Student/User Requirements Catalogue

Source	Sing Off	Priority	Requirement
Student Info Management	Student/User	Must Have	M-02

Functional Requirement

Student Info Management Requirement Catalogue:

Student information systems (SIS) allow students to register, enroll, and manage their classes. They can also view the entrance requirements, scholarship or waiver requirements, and Department information.

Non-functional requirement

Description	Target Value	Acceptance Value	Comment
Student (per/day)	90000 (per/day.)	10500	

Table 15: Requirement Catalogue for Student/User

Course Requirements Catalogue

Source	Sing Off	Priority	Requirement
Course Info Management	Admin, Student & Teacher	Must Have	M-03

Functional Requirement

Course Management Requirement Catalogue:

Students can see the details of course and catalog of department wise courses.

Non-functional requirement

Description	Target Value	Acceptance Value	Comment

Course(per/day)	1500(per/day.)	1120	

Table 16: Requirement Catalogue for Course

Financial Requirements Catalogue

Source	Sing Off	Priority	Requirement
Financial Aid Info Management	Admin and Student/User	Must Have	M-04

Functional Requirement

Financial Management Requirement Catalogue:

Allow for financial transactions like tuition fee payment and invoice production. Students can learn about financial aid, scholarships, and waivers.

Non-functional requirement

Description	Target Value	Acceptance Value	Comment
Financial (per/day)	10000(per/day.)	1000	

Table 17: Requirement Catalogue for Financial

Faculty and Staff Management Requirements Catalogue

Source	Sing Off	Priority	Requirement
Faculty and Staff info Management	Admin	Must Have	M-05

Functional Requirement

Faculty and Staff Management Requirement Catalogue:

Allow teachers and staff to access and update personal information such as contact information and qualifications. Additionally, the user can view information on all teachers and staff.

Non-functional requirement

Description	Target Value	Acceptance Value	Comment
Faculty and Staff (per/day)	1500(per/day.)	1020	

Table 18: Requirement Catalogue for Faculty & Staff

8.6 Prioritized Requirements List (PRL)
Must have requirements-

Serial No.	Requirement	Priority
01.	Clear and intuitive navigation system	Must-have
02.	Responsive design for seamless usability across different devices	Must-have
03.	Consistent branding elements to maintain visual identity.	Must-have
04.	Accessible design to ensure compliance with accessibility guidelines.	Must-have
05.	Optimized layouts for readability and information hierarchy.	Must-have

Should Have Requirements-

Serial No.	Requirement	Priority
01.	Interactive elements and animations to engage users.	Should-have
02.	Visual cues and feedback for user actions and system responses.	Should-have
03.	Task flow optimization for streamlined user workflows.	Should-have
04.	Enhanced search functionality for efficient information retrieval.	Should-have
05.	Error handling and validation to provide clear and helpful messages.	Should-have

Could Have Requirements-

Serial No.	Requirement	Priority
01.	Personalization options for users to customize their experience.	Could-have
02.	Social media integration for sharing and collaboration.	Could-have
03.	Advanced analytics and reporting capabilities.	Could-have
04.	Gamification elements to increase user engagement.	Could-have
05.	Integration with third-party services or APIs for expanded functionality.	Could-have

8.7 Landing Page
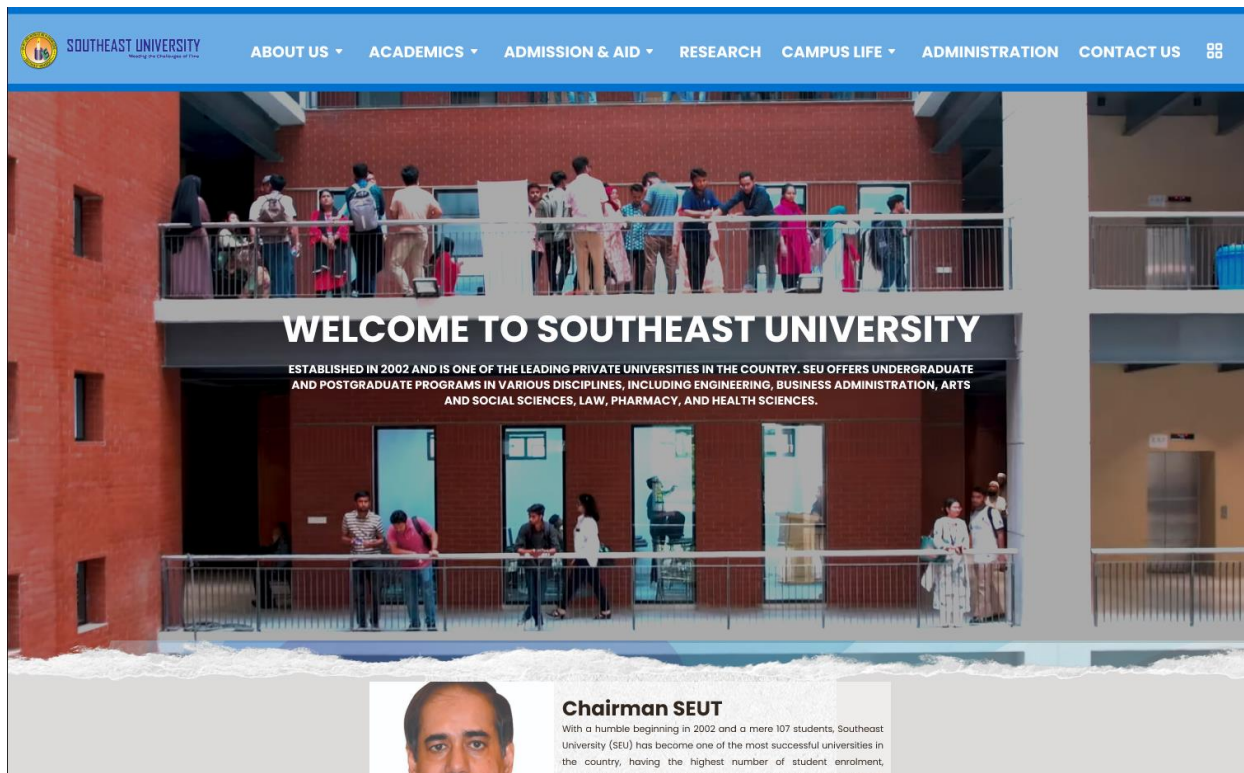
Figure 18: Landing Page of New Southeast University Website
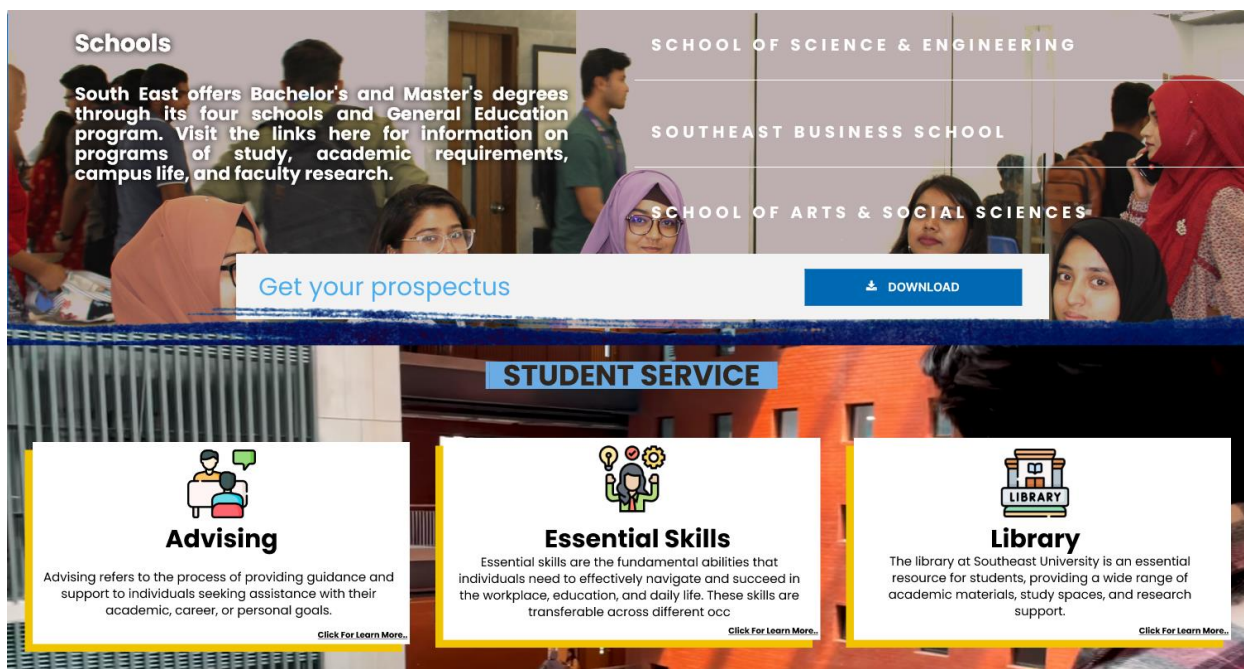
Figure 19: Schools of all and student services of New Southeast University Website
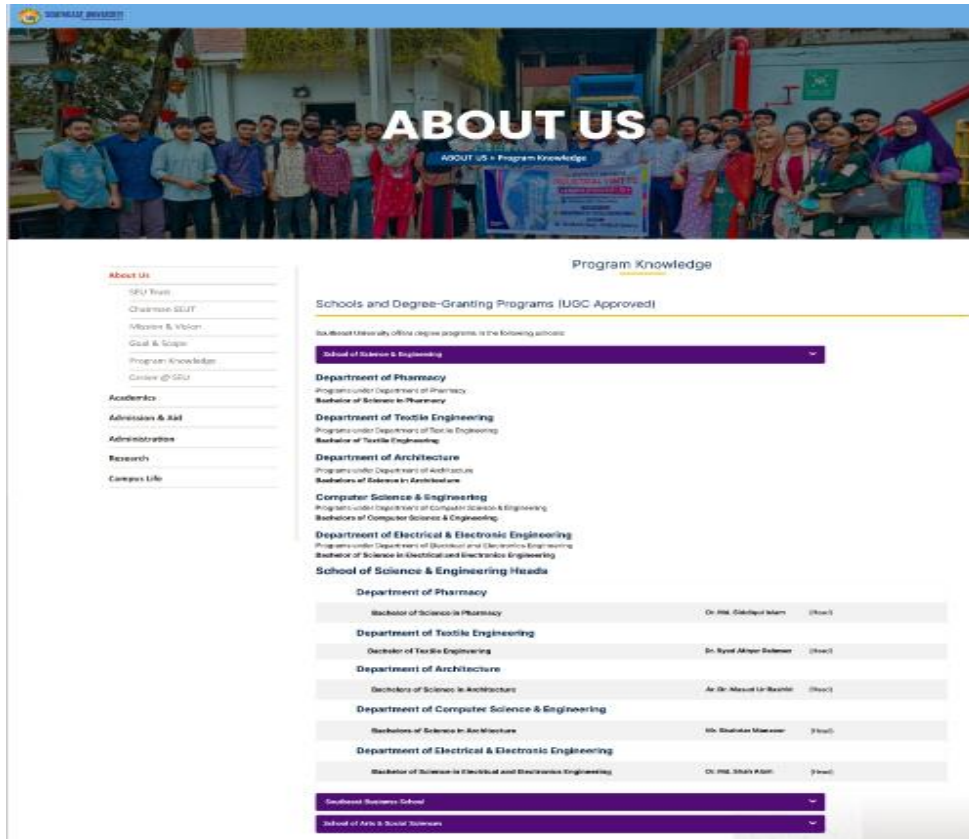
Figure 20: Program Knowledge View

Figure 21: Departmental Information View

Figure 22: Faculty & Testimonials Information View

Figure 23: Admission Fess Information View

192-16-444

Chapter 9 – Engineering

9.1 Approach New System Modules:

Browse Programs and Courses Module

Serial No.	Action of User	Serial No	Action of System
1.	User selects a specific academic program or course.	1.	System presents a list of available academic programs and courses.
2.	Users view detailed information about the program or course.	2.	System retrieves and displays relevant information about the selected program or course.

Table 19: Module for Program and Course

Submit Admission Application Module

Serial No.	Action of User	Serial No	Action of System
1.	User fills out an online admission application form.	1.	System validates and stores the application data.
2.	Users upload required documents.	2.	System verifies the uploaded documents.
3.	User submits the application.	3.	System sends a confirmation email to the user.

Table 20: Module for Submit Admission Application

Search for Faculty and Staff Module

Serial No.	Action of User	Serial No	Action of System
1.	User enters a name or department to search for faculty and staff members.	1.	System searches the database for matching faculty and staff information.

| 2. | User views the search results. | 2. | System presents the search results, including names, departments, and contact information. |

Table 21; Module for Search for Faculty and Staff

Access Student Portal Module

Serial No.	Action of User	Serial No	Action of System
1.	User enters login credentials (username and password).	1.	System verifies the user's credentials
2.	Users navigate through various features of the student portal, such as course registration, grades, and class schedules.	2.	System grants access to the student portal.

Table 22: Module for Access Student Portal

Explore Academic Programs Module

Serial No.	Action of User	Serial No	Action of System
1.	User clicks on the "Academic Programs" or "Courses" section. User selects a specific program or course.	1.	System displays a list of available academic programs or courses.
2.	Users view detailed information about the program or course.	2.	System retrieves and presents detailed information about the selected program or course.

Table 23: Module for Access Student Portal

9.2 Use Case Diagram of the University Website Design
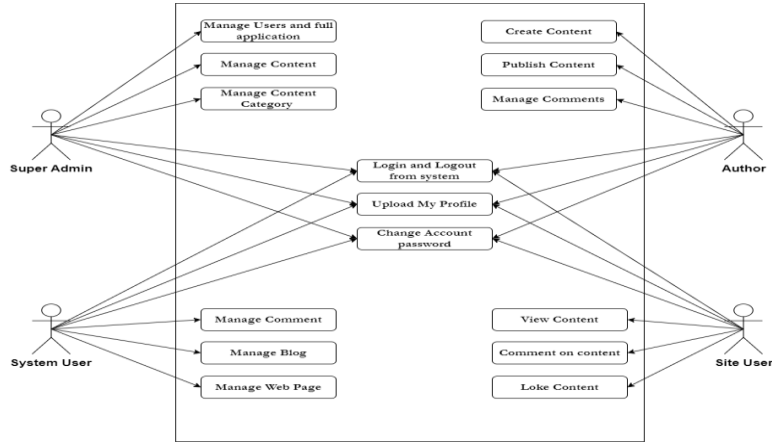
Figure 24: University Website Use Case

9.3 The University Website Class Diagram
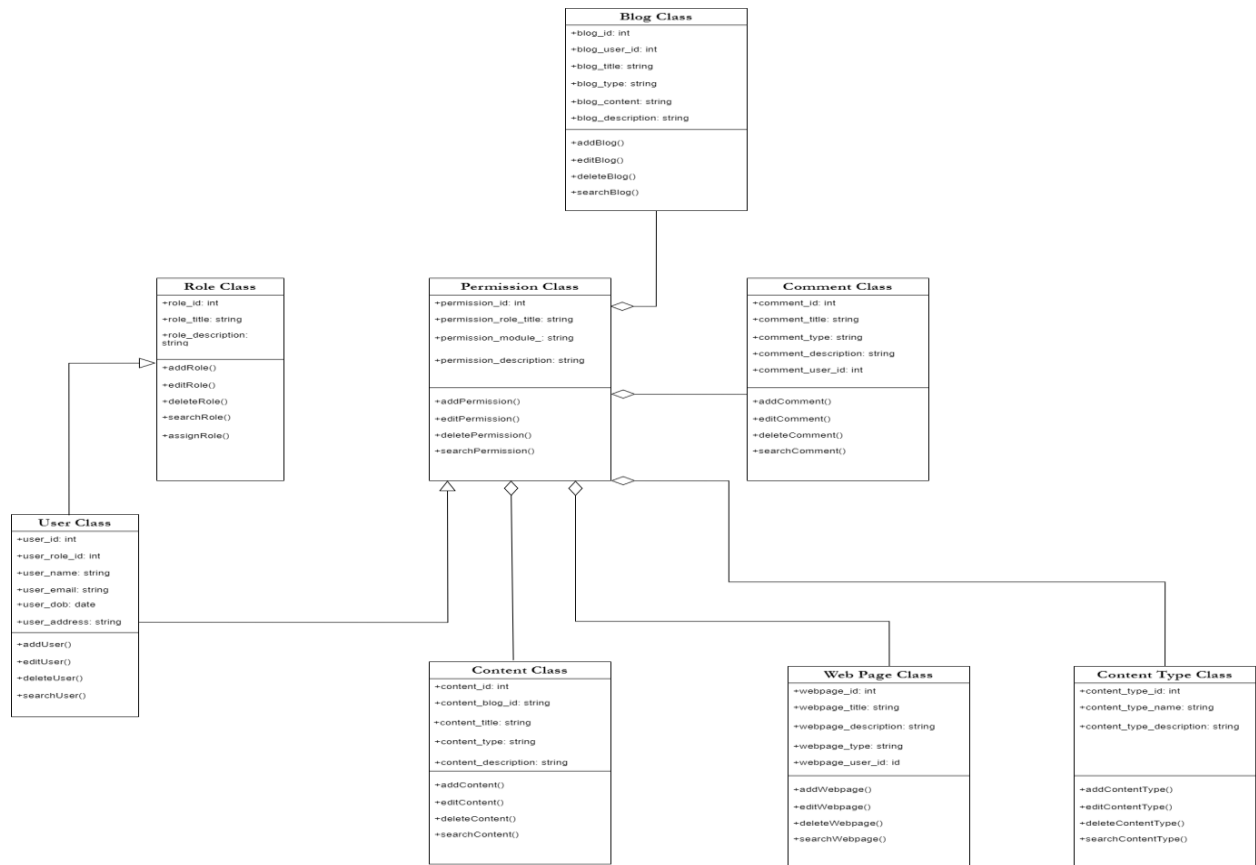
Figure 25: University Website Class Diagram

9.4 Entity Relationship Diagram
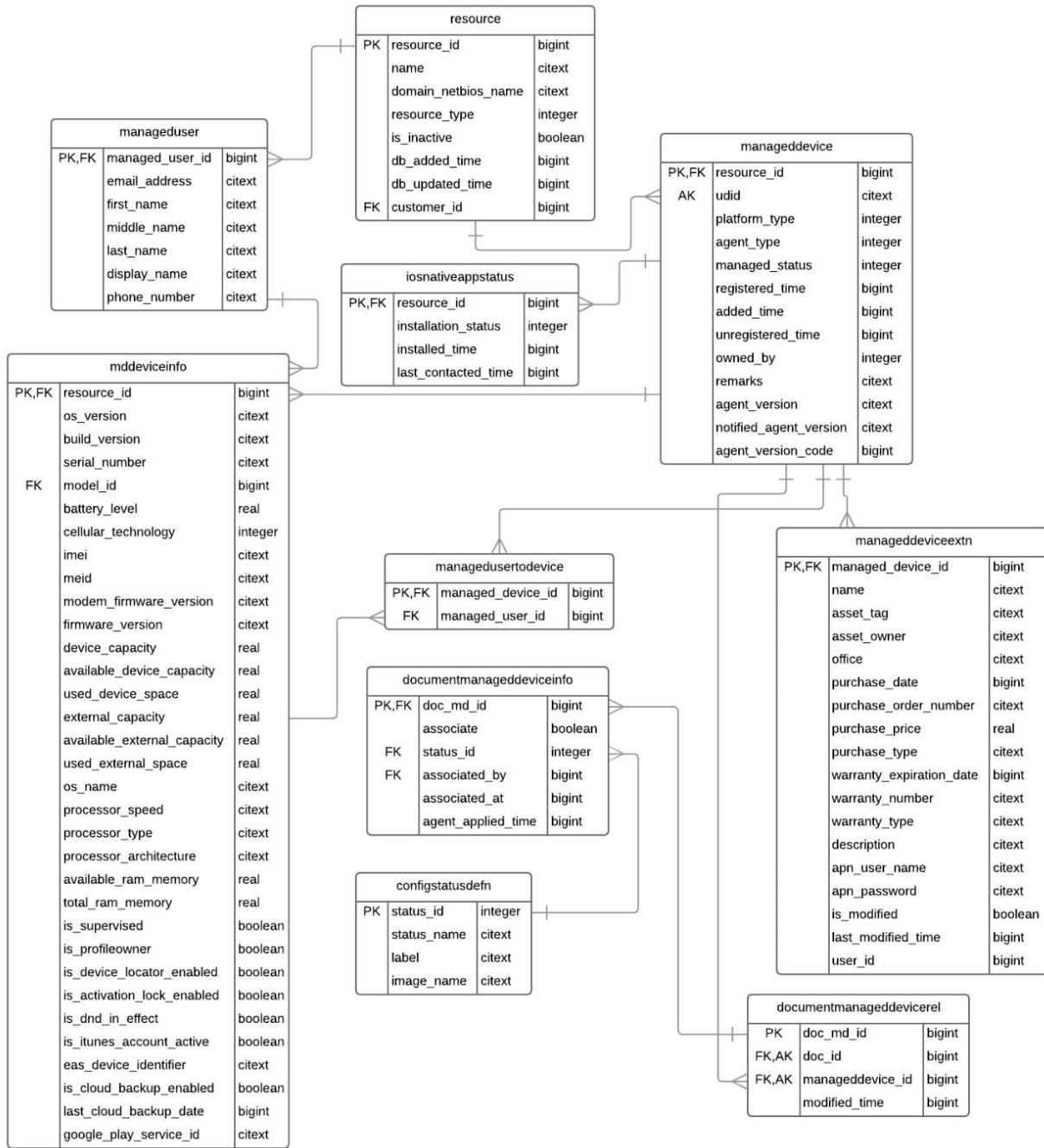
Figure 26: University Website ERD Diagram

9.5 University Website Sequence Diagram
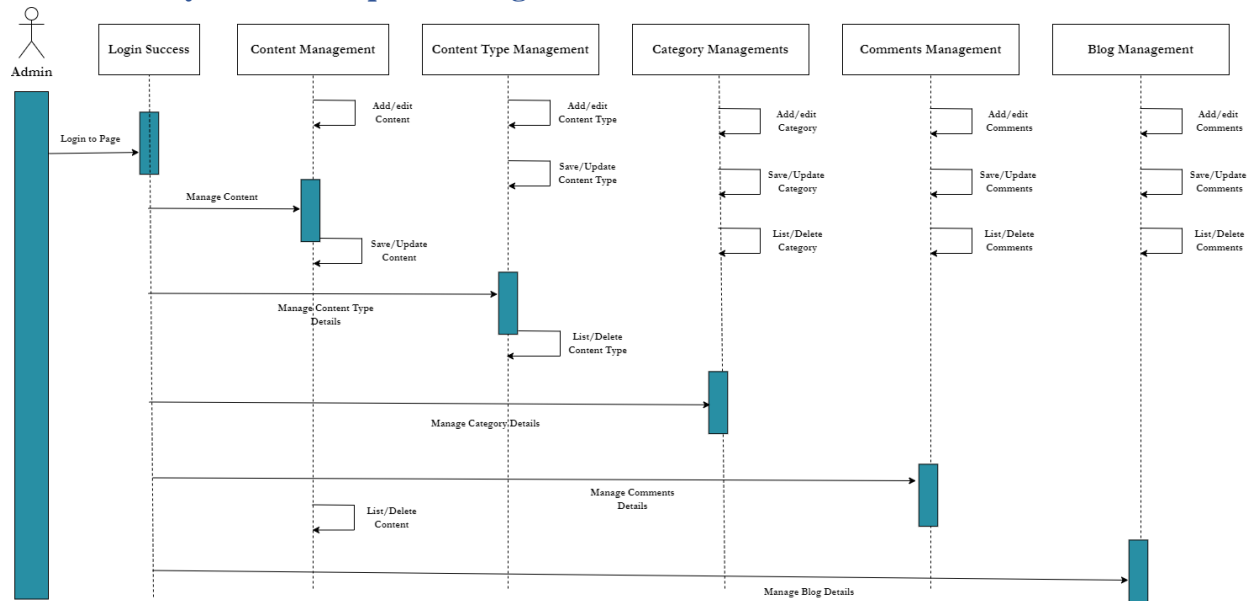
Figure 27: University Website Sequence Diagram

9.6 The University Website component diagram
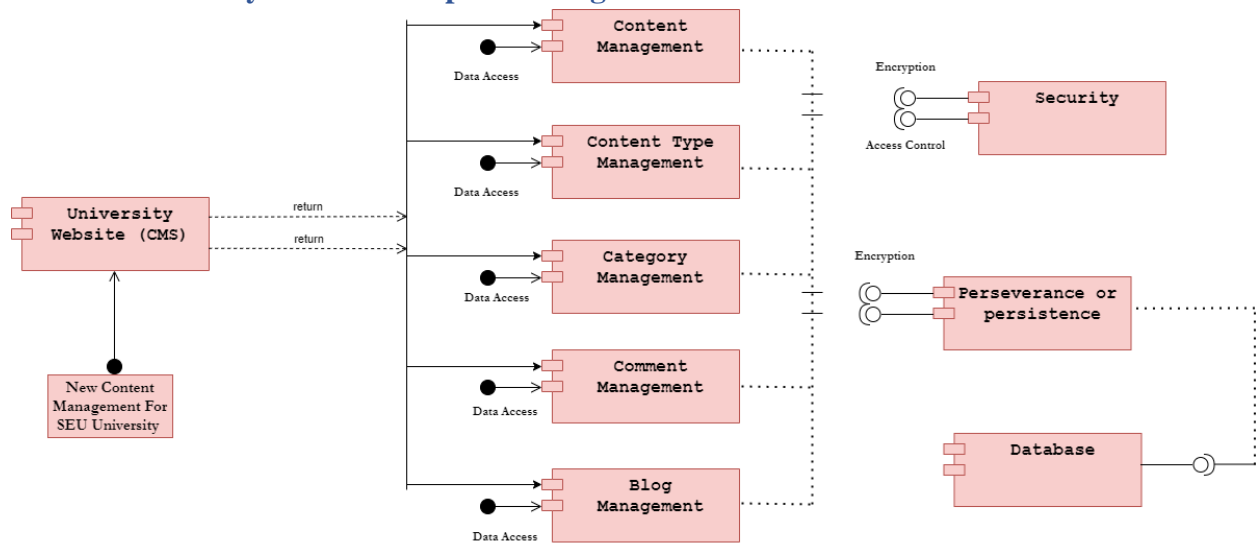
Figure 28: University Website Component Diagram

9.7 Deployment Diagram of University Website
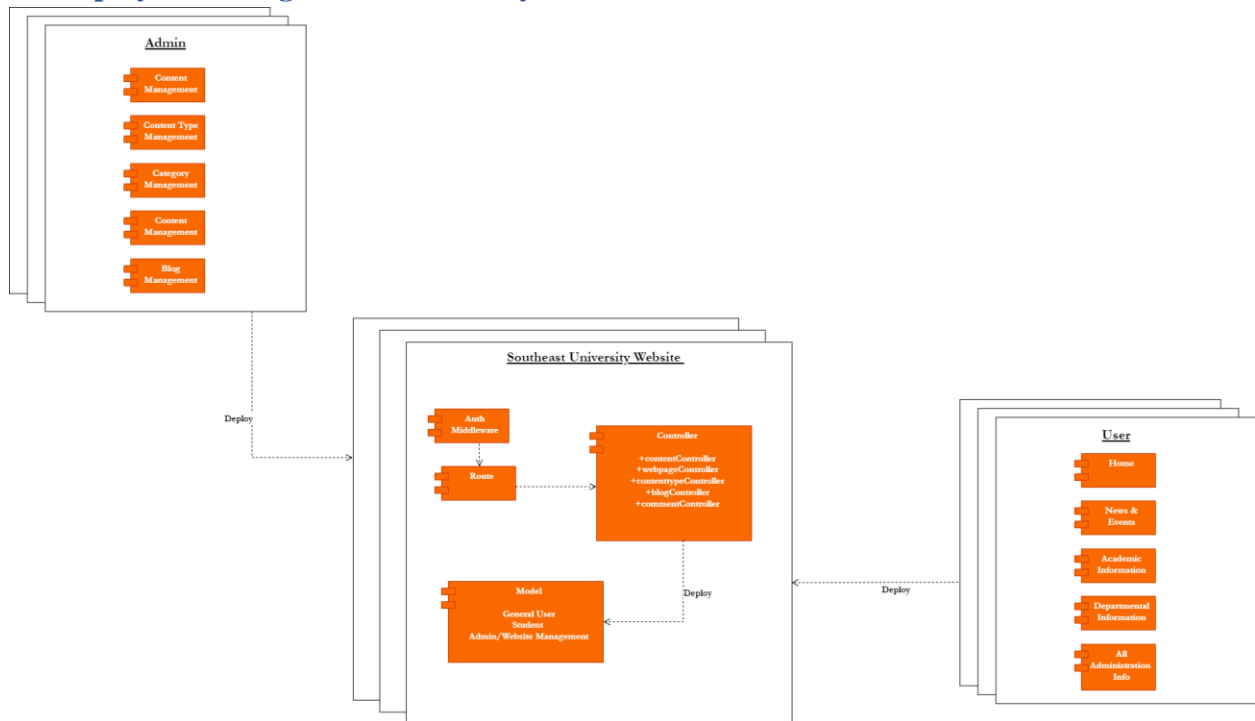
Figure 29: Deployment Diagram of University Website

9.8 System Interface Design
Home page Interface Design
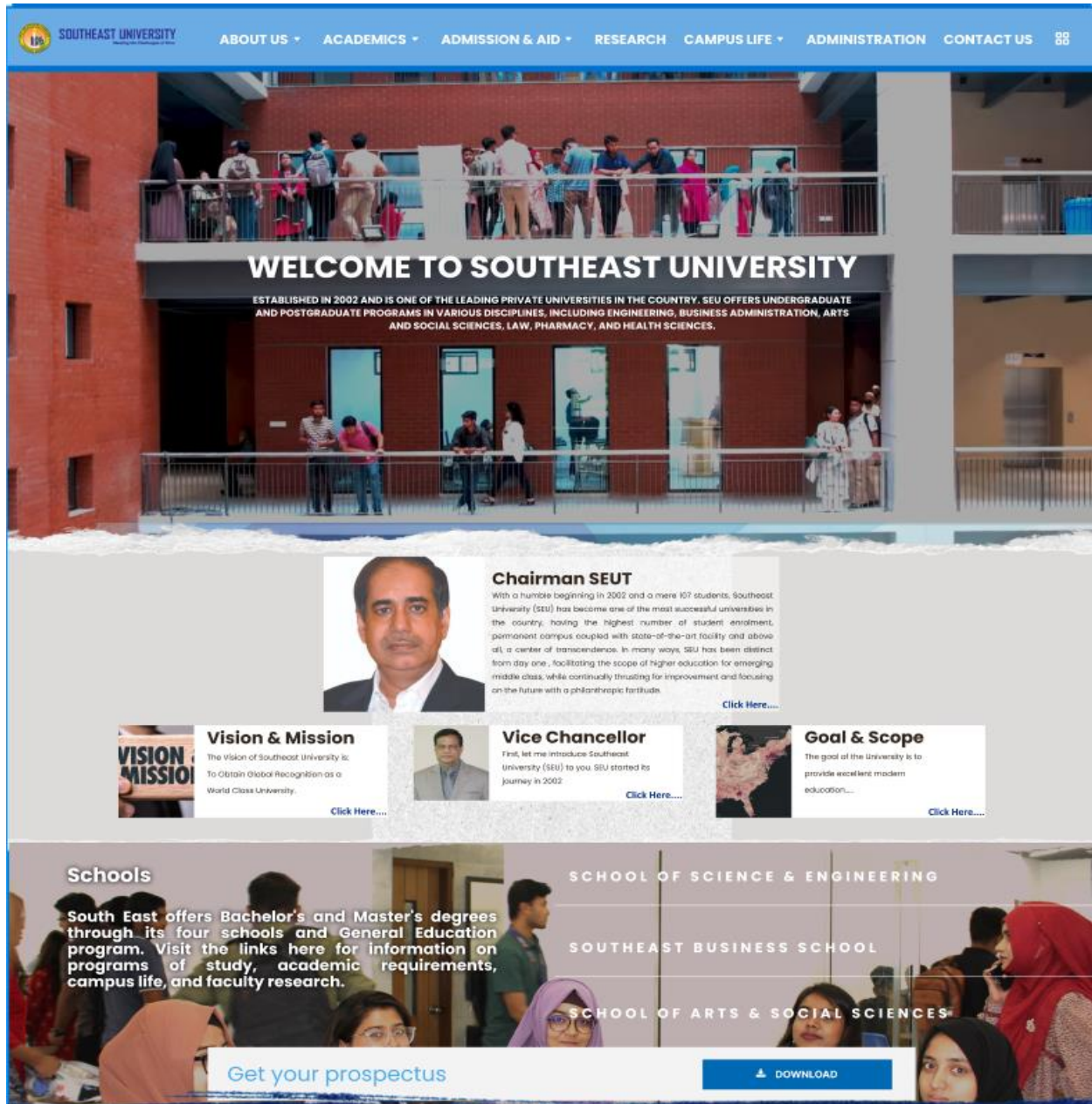
Figure 30: Interface Design Home Page

Department of Cse Home Page
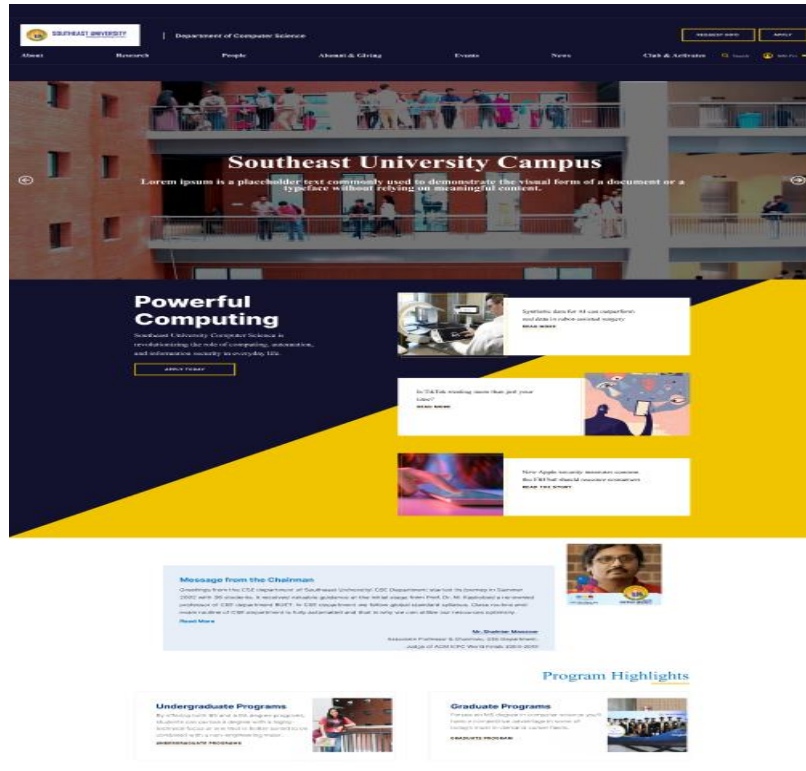
Figure 31: CSE Department Home Page
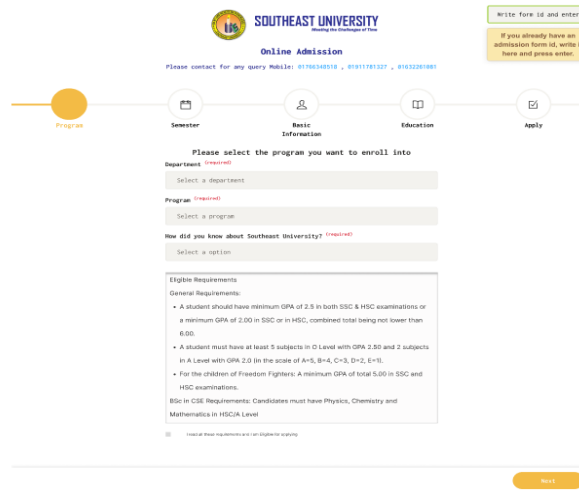
Figure 32: Apply Online in Southeast University

PROGRAM STRUCTURE

Program Name

Undergraduate ▾

Courses	Total Credit
General Education	24
Foundation Course	22
Interdisciplinary Engineering Courses	12
Core Courses (Theory+lab)	72
Optional Courses	20
Total	150

COURSE CATALOGUE

Course Catalogue	Title	Code
computer science & engeneering ▾		

CSE 101

Course Code: CSE 101

Course Name:

Introduction to Computer Studies

Credit Hours:

3.00

Detailed Syllabus:

Introduction: brief history and types of computers, application areas. Working principle of a computer system. Single and multi-user systems.

Hardware: Organization and architecture, CPU, Motherboards & Microprocessors, Memory units: Primary memory, Secondary memory, Input & output (I/O) Devices, peripheral devices, AT/XT, ISA, FISA, PCI Bus Architecture. Software: Classifications, System software, Operating system concepts, importance, components and basic functions of DOS, Windows and UNIX operating systems. Application software, database, spreadsheet and word-processing software.Applications: Multimedia systems, computer networks: basic concepts on LAN, WAN rind Internet systems, Internet services, E-mail and WWW. Selection of computers, hardware, software and cost consideration.

Figure 33: Department Course Overview in Southeast University

Research @ CSE

Faculty Profile

	NAME	FACULTY TITLE	RESEARCH FOCUS	DESCRIPTION
	Mr. Shahriar Manzoor	Associate Professor & Chairman	Computer Systems	

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Figure 34: CSE Departmental Journal Page in Southeast University

Figure 35: CSE Departmental News & Events in Southeast University

Figure 36: All Departmental in Southeast University

Figure 37: Admission Office in Southeast University

Chapter 10 – Deployment

10.1 Core Module Coding Sample:

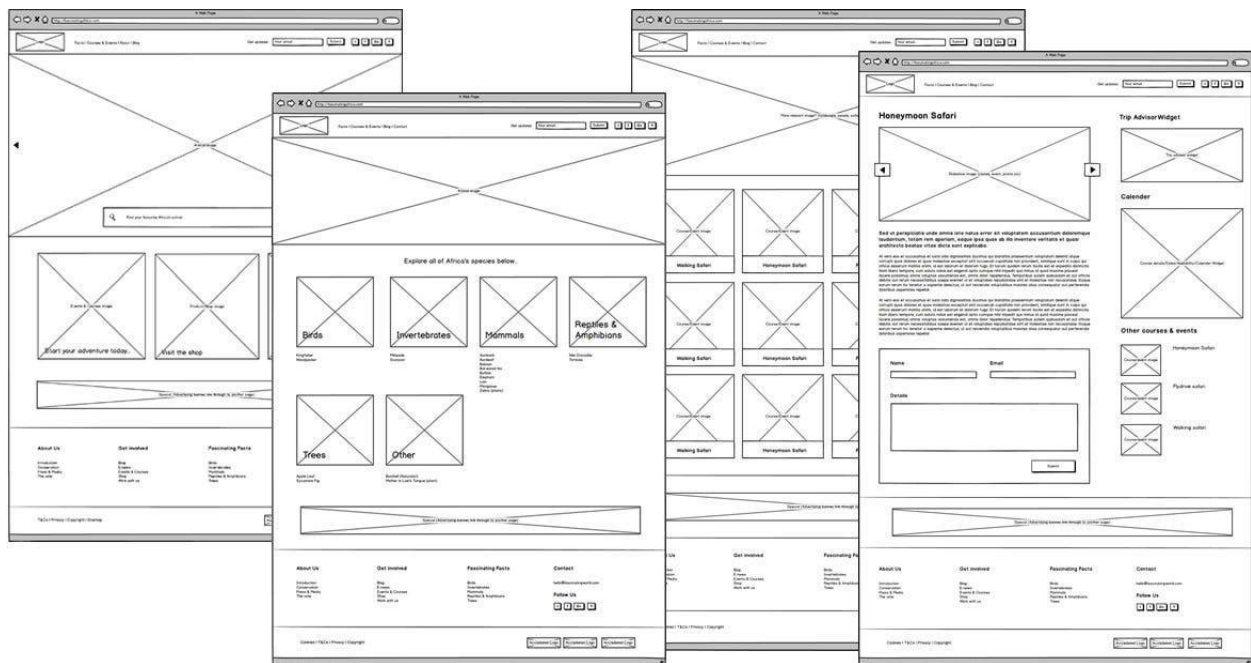Before core coding i do design. For design i do Low Fidelity prototype and High-Fidelity Wireframe

Figure 38: Low Fidelity and High-Fidelity Wireframe

Figure 39: Chairman SEUT Page Code

Figure 40: Menu Page Code

> Users > DCL PC > Desktop > seu > why seu > <> index.html > ⊘ html > ⊘ body > ⊘ div.container > ⊘ div.row > ⊘ div.col-sm.co.col-md-12 > ⊘ div.col-sm.column.p

```
12      </head>
13      <body>
14        <div class="container">
15          <div class="row">
16            <h1>A tradition of employment excellence</h1>
17            <div class="col-sm co col-md-12">
18              <div class="col-sm column p col-md-4">
19                <img src="image/131.png" alt="" />
20                <h2>Who we are</h2>
21                <p>
22                  Southeast University Bangladesh is a private university located in
23                  Dhaka, the capital city of Bangladesh. |
24                </p>
25                <button class="btn">Learn more about our history here.</button>
26              </div>
27
28              <div class="col-sm column p col-md-4">
29                <img src="image/131.png" alt="" />
30                <h2>What we do</h2>
31                <p>
32                  Southeast University Bangladesh is a private university located in
33                  Dhaka, the capital city of Bangladesh. It was established in 2002
34                  and is one of the leading universities in the country
35                </p>
36                <button class="btn">Learn more about our history here.</button>
37              </div>
38              <div class="col-sm column p col-md-4">
39                <img src="image/131.png" alt="" />
40                <h2>Why work at SEU?</h2>
41                <p>
42                  Southeast University Bangladesh is a private university located in
43                  Dhaka, the capital city of Bangladesh. It was established in 2002
```

Ln 23, Col 54   Spaces: 2   UTF-8   CRLF   HTML   ⊘ P

Figure 41: Why Southeast University

ntml > ⊘ body > ⊘ div.container > ⊘ div.row > ⊘ div.col-sm.column.col-md-2 > ⊘ nav.nav.flex-column > ⊘ div#collapseExample4.collapse > ⊘ div.ps-4 > ⊘ a.nav-link.border-bottom.text-dar

```
162            </div>
163            <div class="col-sm col-sm-10 ">
164              <div>
165                <div class="text-center">
166                  <p>Our Mission & Visions </p>
167                </div>
168                <div class="mission"></div>
169                <h3>Our Mission</h3>
170                <hr>
171                <p>To provide higher education at an affordable cost, keeping in view the economic conditions of the middle and
172                <div class="text-center">
173                  <img src="image/131.png" style="width: 600px; height: 400px;" alt="">
174                </div>
175              </div>
176              <div>
177                <div class="mission"></div>
178                <h3>Our Visions</h3>
179                <hr>
180                <p>The Vision of Southeast University is:To Obtain Global Recognition as a World Class University.</p>
181                <div class="text-center">
182                  <img src="image/131.png" style="width: 600px; height: 400px;"  alt="">
183                </div>
184                <p>Lorem ipsum dolor, sit amet consectetur adipisicing elit. Eligendi et quo voluptatum. Consequuntur sapiente
185              </div>
186            </div>
187          </div>
188        </div>
189      </div>
190    </div>
191  </div>
192  </body>
193  <!-- Add the Bootstrap JavaScript -->
```

Ln 118, Col 31   Spaces: 2   UTF-8   CRLF   HTML   ⊘ Port : 5500   ✔ Prettier   ℞   ↻

Figure 42: Mission & Vision

```
 9         href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0/dist/css/bootstrap.min.css"
10      />
11    </head>
12    <body>
13      <div class="container">
14        <div class="row25">
15          <h1 class="h1" style="text-align: center">
16            A tradition of employment excellence
17          </h1>
18          <div class="col-sm co1 col-md-12">
19            <div class="col-sm photo col-md-6">
20              <img src="image/h.png" alt="" />
21            </div>
22            <div class="col-sm column col-md-6">
23              <p>
24                <b>Step 1: Application is submitted</b>
25                In order to be considered for a position, you must formally apply
26                to a requisition posted on our SEU Careers site. If you are found
27                to be qualified for the position, your application/resume will be
28                forwarded to hiring manager for review and further consideration.
29                Otherwise, you will receive a system generated notification of
30                disposition.
31                <b>Step 2: Hiring Manager review</b>
32                Hiring manager reviews candidates, schedules and conducts
33                interview Selection of top candidates/finalist
34                <b>Step 3: Offer</b>
35                Recruiter makes contingent offer and sends offer letter to
36                candidate via SEU Careers site Candidate accepts or declines offer
37                <b>Step 4: Pre-employment</b>
38                If candidate accepts, pre-employment activity is initiated
39                (background check*, references†, verifications, etc.) For some
40                positions, Occupational Health is required. Health screenings and
```

<div style="text-align:right">Ln 1, Col 1   Spaces: 2   UTF-8   CI</div>

Figure 43: Career @SEU Code

10.2 Possible Problem Breakdown

When breaking down the problems for the Southeast University Bangladesh website design and development project, it's important to consider various aspects and potential challenges that may arise. Here's a breakdown of possible problem areas:

Requirements Gathering and Analysis:

- Lack of clear and comprehensive requirements from SEU stakeholders.
- Difficulty in understanding and prioritizing the specific needs of various user groups (students, faculty, administrators, etc.).
- Misalignment between SEU's expectations and the development team's understanding of requirements.

User Experience (UX) Design:

- Inadequate research and understanding of SEU's target audience and their preferences.
- Complexity in designing a user-friendly interface for a diverse range of users.
- Balancing aesthetics with usability and accessibility requirements.

Content Management:

- Inefficient content organization and structuring, making it challenging for SEU staff to manage and update website content.

- Limited support for multilingual content, if required.

It's important to note that these problem areas are potential challenges that may arise during the Southeast University Bangladesh website design and development project. By identifying these areas early on, SEU and the development team can proactively address and mitigate these challenges to ensure a successful project outcome.

10.3 Prioritization while Developing the Solution

When developing the solution for the Southeast University Bangladesh website design and development project, it's important to prioritize certain aspects to ensure an efficient and successful implementation. Here's a suggested prioritization framework:

Requirements Gathering and Analysis:

- Prioritize thorough and comprehensive requirements gathering to ensure a clear understanding of SEU's needs and expectations.
- Conduct regular meetings and workshops with SEU stakeholders to refine and prioritize requirements.
- Establish a process for requirement prioritization based on their impact and alignment with SEU's strategic goals.

User Experience (UX) Design:

- Give high priority to UX design to create an intuitive and user-friendly interface.
- Conduct user research and usability testing to understand SEU's target audience and their preferences.
- Focus on essential user journeys and optimize the design for accessibility and responsive/mobile-friendly experience.

Content Management:

- Ensure an efficient and user-friendly content management system (CMS) that meets SEU's content organization and updating needs.
- Prioritize the ability to easily manage different types of content (text, images, videos) and support for multilingual content, if required.

Chapter 11 – Testing

11.1 Test Plan Acceptance

The Test Plan for the Southeast University Bangladesh website design and development project needs to be formally accepted by all relevant stakeholders before the testing phase begins. The acceptance process ensures that the test plan is reviewed, approved, and acknowledged by the appropriate parties, signifying their agreement with the proposed testing approach and objectives.

Functional Testing

The three forms of functional testing are as follows:

Unit Testing

Unit testing for the Southeast University Bangladesh website design and development project involves testing individual units or components of the website's codebase to ensure their functionality and correctness. It is an essential part of the overall testing process and helps identify and fix issues at an early stage. Here's a detailed description of unit testing for the project:

Identification of Units:

- The website's codebase is divided into smaller units, such as functions, classes, modules, or components.
- Each unit is identified based on its specific functionality and purpose within the website.

Definition of Test Cases:

- Test cases are created for each unit, covering various scenarios and input combinations.
- Test cases are designed to validate the expected behavior of the units, identify edge cases, and handle different possible outcomes.

Unit tests are implemented using a suitable testing framework or library, such as PHPUnit for PHP or Jest for JavaScript.

Each unit test focuses on a specific component, verifying its inputs, outputs, and internal behavior.

Module Testing

Module testing, also known as component testing, is a level of testing that focuses on testing individual modules or components of the Southeast University Bangladesh website design and development project. It aims to verify the functionality and integration of the modules to ensure they work correctly both individually and as part of the larger system. Here's a description of module testing for the project:

Identification of Modules:

- The website's codebase is divided into modules based on their logical grouping or functionality.
- Each module represents a distinct component or feature of the website.

Definition of Test Cases:

- Test cases are designed to validate the functionality and behavior of each module.
- Test cases cover different scenarios and test the inputs, outputs, and expected outcomes of the module.

Each module test focuses on a specific module, verifying its functionality, internal logic, and integration with other modules.

Integration Testing

Integration testing is a crucial phase in the software development lifecycle, including the Southeast University Bangladesh website design and development project. It focuses on testing the interaction and integration between different modules, components, or systems to ensure they work together as intended. Here's a description of integration testing for the project:

Identify Integration Points:

- Identify the points of integration between various modules or components of the website.
- These integration points may include APIs, databases, external services, or other communication channels.

Define Integration Test Cases:

- Define test cases that cover the interactions and data flows between the integrated modules.
- Test cases should validate the correctness of data exchanges, proper functionality, and the integrity of the integrated system.

These tests will focus on verifying the interaction and integration between modules and the expected outcomes.

Non-functional Testing

In this project, I want to apply four types of non-functional testing.

Acceptance testing

Acceptance testing is a critical phase in the Southeast University Bangladesh website design and development project. It focuses on evaluating the system's compliance with the specified requirements and ensuring that it meets the expectations of the end-users, stakeholders, and SEU. Acceptance testing is typically performed by the stakeholders or end-users themselves to determine if the system is ready for deployment and use. Here's a description of acceptance testing for the project:

Test Case Preparation:

- Define acceptance test cases based on the project's requirements, user stories, and desired system behavior.
- Test cases should cover a range of scenarios and functionalities that are important to SEU and its stakeholders.

Test Environment Setup:

- Create a dedicated test environment that closely resembles the production environment.
- Configure the environment to reflect the actual usage conditions and simulate realistic user interactions.

User Acceptance Testing (UAT):

- Engage SEU representatives, stakeholders, and end-users to perform the acceptance testing.
- Provide them with the necessary test cases, guidance, and documentation to conduct the tests effectively.

Security Testing

Security testing is a crucial aspect of the Southeast University Bangladesh website design and development project. It focuses on identifying vulnerabilities, weaknesses, and potential security risks within the website to ensure that sensitive information, user data, and system resources are protected. Here's a description of security testing for the project:

Identify Security Requirements:

- Understand the security requirements specific to the Southeast University Bangladesh website.
- These requirements may include compliance with relevant standards (e.g., GDPR), protection of user data, secure authentication and authorization mechanisms, and prevention of common security threats.

Conduct Threat Modeling:

- Analyze the website's architecture, components, and potential threats it may face.
- Identify potential attack vectors, such as injection attacks, cross-site scripting (XSS), cross-site request forgery (CSRF), and others.

Develop test cases that cover various security aspects of the website.

Test cases may include validating input sanitization, testing access controls, checking for secure session management, and testing encryption mechanisms.

Accessibility Testing

Accessibility testing is an essential part of the Southeast University Bangladesh website design and development project. It focuses on evaluating the website's usability and accessibility for individuals with disabilities, ensuring that all users, regardless of their abilities, can access and interact with the website effectively. Here's a description of accessibility testing for the project:

Understand Accessibility Guidelines:

- Familiarize yourself with accessibility guidelines and standards such as the Web Content Accessibility Guidelines (WCAG) 2.1 or 2.2.
- Understand the specific accessibility requirements relevant to Southeast University and its user base.

Identify Accessibility Test Cases:

- Define test cases that cover various aspects of web accessibility, such as keyboard navigation, screen reader compatibility, color contrast, and alternative text for images.
- Test cases should encompass different types of disabilities, including visual impairments, hearing impairments, motor impairments, and cognitive disabilities.

Usability Testing

Usability testing is an important component of the Southeast University Bangladesh website design and development project. It focuses on evaluating the website's user-friendliness, intuitiveness, and overall user experience to ensure that it meets the needs and expectations of its intended users. Here's a description of usability testing for the project:

Define Usability Objectives:

- Clearly define the usability objectives for the website, considering the specific goals and requirements of Southeast University and its users.
- Determine the key areas of focus, such as navigation, content presentation, search functionality, and task completion.

Identify User Profiles:

- Identify the target user groups and their characteristics, including their roles, preferences, and level of familiarity with similar websites.
- This will help in selecting appropriate participants for the usability testing sessions.

11.2 Test Case
When the test acceptance approach has been finished, test cases must be prepared. The test cases for the Southeast University Bangladesh Website Design and Development system are mentioned below.

Unit test – test case:

Name of the test case	Unit testing
Test Class	
Description of the test	

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

Module Test – test case:

Name of the test case	Module Test
Test Class	
Description of the test	

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

Integration Testing – test case:

Name of the test case	Integration Test
Test Class	
Description of the test	

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

11.3 Unit Testing

Test Case

Name of the test case	Unit Test
Test Class	User Registration
Description of the test	This unit test verifies the functionality of the user registration process on the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for user registration, including valid and invalid inputs.	● Initialize the user registration process. ● Provide valid user details, such as name, email, password, and contact information. ● Submit the registration form. ●	● The registration process completes without errors. ● The registered user's details are stored correctly in the database. ● The user is redirected to the designated page upon successful registration.	● The registration process encounters no errors. ● The user's details are successfully stored in the database. ● The user is redirected to the expected page after registration.

Figure 44: Unit Test one test case

Figure 45: Unit test one result
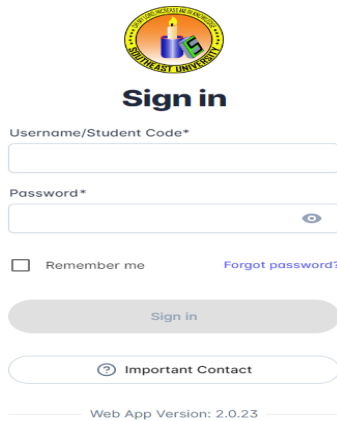
Unit Test two

Test Case

Name of the test case	Unit Test
Test Class	Login Functionality
Description of the test	This unit test verifies the functionality of the user registration process on the Southeast University Bangladesh website. This unit test verifies the login functionality of the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for login credentials, including valid and invalid usernames and passwords.	● Open the login page of the website. ● Enter valid login credentials (username and	● Successful login with valid credentials. ● Redirect to the homepage after successful login.	● Successful login with valid credentials. ● Redirected to the homepage after successful login.

	password) for a registered user. ● Click the login button. ● Verify that the user is successfully logged in and redirected to the homepage.	● Display of an error message for invalid login attempts.	● Correct display of an error message for invalid login attempts

Figure 46: Unit Test Two

Unit Test three

Test Case

Name of the test case	Unit Test
Test Class	Profile Update
Description of the test	This unit test verifies the functionality of updating a user's profile information on the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for profile updates, including changes to name, contact information, and other relevant fields.	- Log in as a registered user. - Navigate to the profile update page. - Modify the user's profile information, such as updating the contact number or address.	- Successful modification of the user's profile information. - Updated information is saved correctly in the database. - Retrieved user information matches the modified profile details.	- Successful modification of the user's profile information. - Updated information is saved correctly in the database. - Retrieved user information matches the modified profile details.

Figure 47: Unit test three test case

11.4 Module Testing

Module Test one

Test Case

Name of the test case	Module Testing
Test Class	Course Enrollment
Description of the test	This module test verifies the functionality of the course enrollment process on the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for course enrollment, including valid and invalid course selections.	● Select a course to enroll in from the available course list. ● Submit the enrollment request. ● Check if the user is successfully enrolled in the selected course.	Successful enrollment in the selected course. The user's enrollment details are stored accurately in the database. Confirmation of enrollment is displayed to the user.	Successful enrollment in the selected course. The user's enrollment details are stored accurately in the database. Confirmation of enrollment is displayed to the user.

Figure 48: Module test one

Module Test two

Test Case

Name of the test case	Module Testing
Test Class	Grade Calculation
Description of the test	This module test verifies the functionality of the grade calculation process on the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for student grades, including different grade distributions and weightage.	• Enter the student's marks and relevant grade components for a specific course. • Calculate the overall grade based on the defined grade distribution and weightage.	Accurate calculation of the student's overall grade based on the specified grade distribution. The calculated grade is stored accurately in the database. Display of the calculated grade to the user.	Accurate calculation of the student's overall grade based on the specified grade distribution. The calculated grade is stored accurately in the database. Display of the calculated grade to the user.

Degree Requirements
For the award of a Bachelor's or Master's degree, a student must complete required number of credits for the program with a CGPA of at least 2.5.

Evaluation

The Department of Computer Science & Engineering offers students a rich environment in which to learn. Collaborate with peers who have boundless energy, ideas and enthusiasm, work with faculty who are dedicate research and education and become an integral part of a department whose roots begin with the early days c computing and now enters its greatest era.

Existing grading system of Southeast University shall be followed.

Class Intervals of Scores	Grade	Grade Point	Interpretation	Remarks
80-100	A+	4	Outstanding	
75-79	A	3.75	Excellent	
70-74	A-	3.50	Quite Excellent	
65-69	B+	3.25	Very Good	
60-64	B	3.00	Good	Traditional class equivalent as per MOE, GOB, notification dated 02.06.2009:
55-59	B-	2.75	Quite Good	
50-54	C+	2.50	Above Average	GPA 3.00-4.00= 1st class GPA 2.25-2.99= 2nd class GPA 1.65-2.24= 3rd class
45-49	C	2.25	Average	
40-44	D	2.00	Poor	
Less than 40	F	0.00	Fail	
	W	0.00	Withdraw	
	I	0.00	Incomplete	

Figure 49: Module Test Two

11.5 Integration Testing
Integration Test one

Test Case

Name of the test case	Integration Testing
Test Class	User Registration and Login Integration
Description of the test	This integration test verifies the seamless integration between the user registration and login functionalities on the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for user registration and login, including valid and invalid user credentials.	Perform a user registration, providing valid user details. Attempt to log in using the registered user credentials.	Successful registration of a new user. Seamless login using the registered user credentials. User information is accurately retrieved from the database.	Successful registration of a new user. Seamless login using the registered user credentials. User information is accurately retrieved from the database.
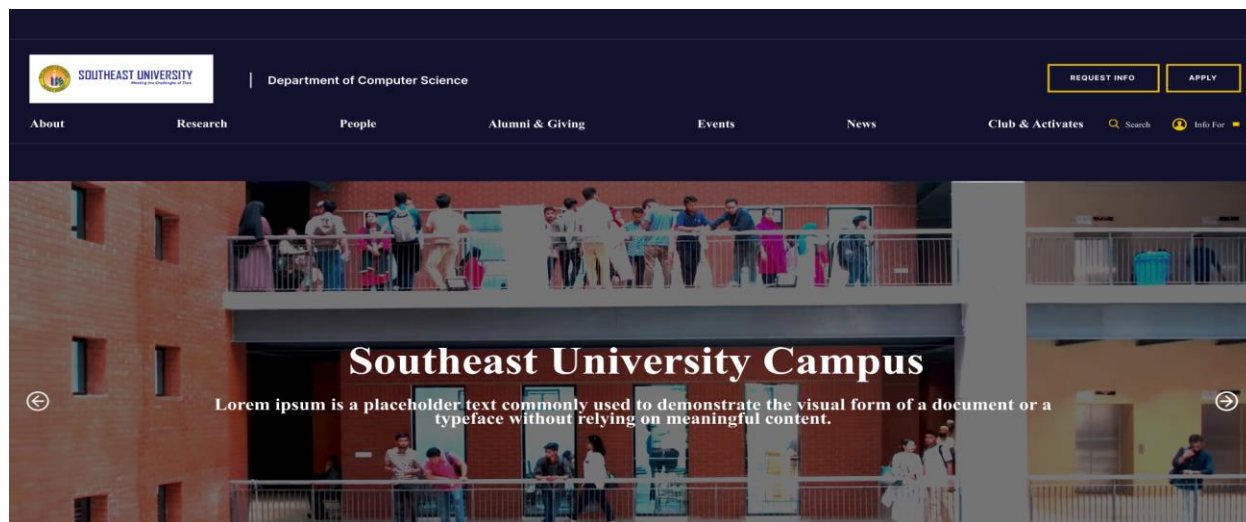
Figure 50: Integration Test One

Integration Test two

Test Case

Name of the test case	Integration Testing
Test Class	Course Enrollment and Grade Calculation Integration
Description of the test	This integration test verifies the integration between the course enrollment and grade calculation functionalities on the Southeast University Bangladesh website.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for course enrollment and grade calculation, including enrolled courses and corresponding grades.	Enroll in a specific course. Enter the student's marks and relevant grade components for	Successful enrollment in the selected course. Accurate calculation of the student's overall grade for the enrolled	Successful enrollment in the selected course. Accurate calculation of the student's overall grade for the enrolled

	the enrolled course. Calculate the overall grade based on the defined grade distribution and weightage.	course. Enrolled course and grade information are correctly stored in the database.	course. Enrolled course and grade information are correctly stored in the database.

Figure 51: Integration Test Two

11.6 Acceptance Testing

Acceptance Test one

Test Case

Name of the test case	Acceptance Testing
Test Class	User Registration and Login Acceptance
Description of the test	This acceptance test verifies the user registration and login functionalities on the Southeast University Bangladesh website from the perspective of end users.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for user registration and login,	Access the website's	User registration process completes	User registration process completes

| including valid user credentials. | registration page. Fill in the required user registration details. Submit the registration form. Receive a confirmation message indicating successful registration. | without errors. Confirmation message for successful registration is displayed. Login process is successful, and the user is redirected to the user dashboard. | without errors. Confirmation message for successful registration is displayed. Login process is successful, and the user is redirected to the user dashboard. |

Figure 52: Acceptance Test

11.7 Security Testing
Security Test

Test Case

Name of the test case	Security Testing
Test Class	Password Strength
Description of the	This security test verifies the strength and effectiveness of password policies implemented on the Southeast University Bangladesh website.

test	

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for passwords, including weak and strong password combinations.	Create test accounts with different password variations, including weak passwords (e.g., "123456") and strong passwords (e.g., "P@ssw0rd").	Weak passwords are rejected, and appropriate error messages are displayed. Strong passwords are accepted, and the password is successfully set..	Weak passwords are rejected, and appropriate error messages are displayed. Strong passwords are accepted, and the password is successfully set.

Figure 53: Security Testing

11.8 Accessibility Testing

Accessibility Test

Test Case

Name of the test case	Accessibility Testing
Test Class	Screen Reader Compatibility

Description of the test	This accessibility test verifies the compatibility of the Southeast University Bangladesh website with screen reader software used by visually impaired individuals.

Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test data for screen reader compatibility, including different screen reader software and configurations.	Launch the screen reader software. Navigate through the website using the screen reader, focusing on key elements such as headings, links, form fields, and content. Verify that the screen reader accurately reads and interprets the website's content, providing meaningful descriptions and navigation options.	The screen reader software accurately reads and interprets the website's content, including headings, links, form fields, and other relevant elements. Descriptions and navigation options are provided for each element, ensuring a seamless experience for visually impaired users.	The screen reader software accurately reads and interprets the website's content, including headings, links, form fields, and other relevant elements. Descriptions and navigation options are provided for each element, ensuring a seamless experience for visually impaired users.

Table 24: Accessibility Testing

Chapter 12 – Implementation

12.1 Training

The practice of giving training and assistance to individuals or teams involved in the implementation of a system or program is commonly referred to as implementation training. It focuses on providing the knowledge and skills needed to correctly deploy and configure a system or software in a specific environment.

SL No.	User	Training Scope	Time Period	Comment

| 01. | Faculty, and Staff of Southeast University Bangladesh | Training should cover the usage and management of the website's features and functionalities. | The training should be conducted prior to the launch of the website and should be completed within a designated time frame based on the complexity of the website. | Training is crucial to ensure that users, including students, faculty, and staff of Southeast University Bangladesh, are familiar with the website's features and can effectively navigate and utilize its functionalities. The training should cover topics such as user registration, login, profile management, course enrollment, content creation, and any other relevant modules. It should also include guidance on accessing and using administrative tools, if applicable. |

Table 25: User Training

12.2 Implementation Scheme

Big Bang

The Big Bang approach in software development refers to a methodology where the entire system is developed and deployed in one go, without any incremental or iterative development phases. It involves implementing all the features and functionalities of the system simultaneously.

In the context of the Southeast University Bangladesh Website Design and Development project, the Big Bang approach would involve designing, developing, and deploying the entire website in one major release. This means that all the required features, such as user registration, login, course enrollment, profile management, content creation, and administrative tools, would be developed and integrated into the website at once.

12.3 Scaling

Scaling in the context of the Southeast University Bangladesh Website Design and Development project refers to the ability of the website to handle an increasing number of users, data, and traffic as the user base grows over time. It involves ensuring that the website can accommodate increased demand without sacrificing performance, reliability, or user experience.

Chapter 13 – Critical Appraisal and Evaluation

13.1 Objective Could be Met

The objectives that could be met through the Southeast University Bangladesh Website Design and Development project can include:

Improved User Experience: The website should provide an intuitive and user-friendly interface, making it easier for students, faculty, and staff to navigate, access information, and interact with the various features and functionalities.

Enhanced Accessibility: The website should be accessible to users with disabilities, conforming to accessibility standards and guidelines. It should ensure that all users, regardless of their abilities, can access and utilize the website's content and features

Efficient Information Management: The website should serve as a centralized platform for managing and organizing information related to Southeast University Bangladesh, including academic programs, faculty details, admission procedures, course schedules, and other relevant information.

Objective-1

Achievement rate and others

The achievement rate for this objective can be evaluated based on the following criteria:

Usability: Assess the ease of use and intuitive navigation of the website. This can be measured through user feedback, usability testing, and heuristic evaluations. A high achievement rate would indicate that users find the website easy to navigate and interact with.

User Feedback: Gather feedback from users, including students, faculty, and staff, regarding their experience with the website. Conduct surveys or feedback sessions to gauge user satisfaction and identify areas for improvement. A high achievement rate would indicate positive user feedback and satisfaction.

Objective-2

Achievement rate and others

The achievement rate for this objective can be assessed based on the following criteria:

Compliance with Accessibility Standards: Evaluate the website's compliance with accessibility standards and guidelines, such as the Web Content Accessibility Guidelines (WCAG). Conduct accessibility audits and tests to identify any accessibility issues and ensure that the website meets the required standards. A high achievement rate would indicate that the website is fully accessible and adheres to accessibility best practices.

Accessibility Features: Assess the implementation of accessibility features on the website. These may include alternative text for images, proper heading structure, keyboard accessibility, color contrast, and assistive technology compatibility. A high achievement rate would indicate that the website includes robust accessibility features.

Objective-3

Achievement rate and others

The achievement rate for this objective can be evaluated based on the following criteria:

Information Organization: Assess the website's organization and structure of information. Determine if the website effectively presents and categorizes information related to academic programs, faculty details,

admission procedures, course schedules, and other relevant information. A high achievement rate would indicate that information is well-organized and easily accessible to users.

Search Functionality: Evaluate the website's search functionality to determine if it enables users to quickly and accurately find the information they are looking for. Test the search feature using various keywords and assess the relevance and accuracy of search results. A high achievement rate would indicate that the search functionality is efficient and provides relevant results.

Objective-4

Achievement rate and others

The achievement rate for this objective can be assessed based on the following criteria:

Communication Channels: Evaluate the availability and effectiveness of communication channels on the website, such as messaging systems, discussion forums, and notifications. Assess if these channels enable seamless communication and collaboration between students, faculty, staff, and administrators. A high achievement rate would indicate that the communication channels are well-implemented and facilitate efficient communication.

User Feedback: Gather feedback from users regarding their experience with the communication features of the website. Conduct surveys or feedback sessions to gauge user satisfaction and identify areas for improvement. A high achievement rate would indicate positive user feedback and satisfaction with the website's communication capabilities.

13.2 Objective that totally don't meet of touched

The objective of increasing revenue through online advertising may not be applicable or suitable for the Southeast University Bangladesh Website Design and Development project. The primary purpose of the university website is to provide information, facilitate communication, and support academic activities for students, faculty, and staff. It is not intended to generate revenue through advertising.

The focus of the website should be on meeting the specific needs of the university community, such as accessing information about academic programs, admissions, faculty, and resources. Prioritizing online advertising could distract from the primary objectives and potentially create a negative user experience.

The reasons why it could not be touch

There are several reasons why the objective of selling products or services online may not be appropriate for the Southeast University Bangladesh Website Design and Development project:

Misalignment with the University's Mission: The primary purpose of the university website is to provide information and support academic activities. Selling products or services online may not align with the core mission of the university, which is focused on education and research.

Distracting from the Main Objectives: Introducing an online store or e-commerce functionality to the university website could distract from its main objectives of providing information, facilitating communication, and supporting academic activities. It may lead to a cluttered and confusing user experience.

What could have been done

Assess the Feasibility: Conduct a thorough analysis to determine the feasibility of integrating an online store within the university website. Consider factors such as resources, budget, technical capabilities, and alignment with the university's mission and goals.

Define Clear Objectives: Clearly define the objectives of the online store. Identify the types of products or services that would be offered and the target audience for these offerings. Ensure that the objectives align with the university's mission and do not detract from its core academic focus.

Chapter 14 Lessons Learned

14.1 Pre-Project-Review-closing

As we conclude the pre-project review for the Southeast University Bangladesh Website Design and Development, it is essential to summarize the key findings and decisions made during this phase. The pre-project review serves as a critical step in ensuring that all aspects of the project are properly assessed, planned, and aligned with the objectives of the university.

14.2 What I have Learnt

During the process of working on the Southeast University Bangladesh Website Design and Development project, you have likely gained valuable insights and knowledge. Here are some potential learning outcomes:

Understanding of Client Requirements: You have learned how to gather and analyze client requirements, ensuring a clear understanding of their goals, objectives, and expectations for the website.

Project Planning and Management: Through this project, you have developed skills in project planning, setting objectives, defining deliverables, creating timelines, and managing resources effectively to ensure the successful completion of the website development.

Website Design Principles: You have gained knowledge of website design principles, including user-centered design, visual aesthetics, navigation structure, and content organization. You have learned to create a visually appealing and user-friendly interface.

14.3 The problems I have faced

While working on the Southeast University Bangladesh Website Design and Development project, you may have encountered several challenges and problems. Here are some potential issues you might have faced:

Unclear Requirements: One of the common challenges in any project is dealing with unclear or evolving requirements. The client may have difficulty articulating their exact needs, leading to confusion and changes in project scope.

Time Constraints: Meeting project deadlines can be challenging, especially when balancing multiple tasks and responsibilities. Limited time may put pressure on the project team to deliver the website within the desired timeframe.

Design Approval: Obtaining design approval from the client can sometimes be a hurdle, as different stakeholders may have different preferences and opinions. Achieving consensus and ensuring client satisfaction with the design can require additional effort and iterations.

14.4 What Solution Occurred

To address the problems faced during the Southeast University Bangladesh Website Design and Development project, several solutions may have been implemented. Here are some potential solutions for the challenges mentioned:

Unclear Requirements: Regular and detailed communication with the client to clarify their requirements and expectations. Conducting thorough requirement gathering sessions and using visual aids like wireframes and prototypes to ensure a shared understanding.

Time Constraints: Efficient project planning and scheduling, including setting realistic deadlines and milestones. Prioritizing tasks and allocating resources effectively to meet project timelines. Collaboration tools and project management software can aid in tracking progress and managing time effectively.

Design Approval: Regular design reviews and feedback sessions with the client to align expectations. Using design mock-ups or interactive prototypes to visualize the proposed design and gather early feedback. Ensuring a clear understanding of the client's preferences and incorporating them into the design.

Chapter 15 – Conclusion

15.1 Summary of the Project

The Southeast University Bangladesh Website Design and Development project aimed to create a new website for Southeast University in Bangladesh. The project involved various stages, including requirements gathering, design, development, testing, and implementation. The objective was to design and develop a user-friendly, visually appealing, and functional website that met the specific needs of the university.

During the project, several challenges were encountered, such as unclear requirements, time constraints, technical limitations, design approval, content management, communication, testing, and resource limitations. However, these challenges were addressed through effective communication, planning, collaboration, and problem-solving.

The project team gathered and analyzed the client's requirements, ensuring a clear understanding of their goals and objectives. They conducted thorough design and development processes, incorporating user-

centered design principles, responsive layouts, and intuitive navigation. Content management systems were utilized to efficiently manage and update website content.

Quality assurance and testing played a crucial role in ensuring the functionality, security, accessibility, and usability of the website. Different types of testing, including unit testing, module testing, integration testing, acceptance testing, security testing, accessibility testing, and usability testing, were conducted to identify and resolve issues. The project resulted in the successful development and launch of the Southeast University Bangladesh website, which provided an enhanced online presence for the university. The website showcased relevant information about the university, its programs, faculty, events, and other resources. It offered an intuitive user experience, accessible design, and seamless functionality. The Southeast University Bangladesh Website Design and Development project served as a valuable learning experience, enhancing the team's skills in requirements gathering, design, development, project management, communication, and testing. The project's success was achieved through effective collaboration, problem-solving, and a commitment to meeting the client's expectations.

15.2 Goal of the project

The goal of the Southeast University Bangladesh Website Design and Development project was to create a new website for Southeast University in Bangladesh. The website aimed to serve as an online platform to provide information and resources to students, faculty, staff, and other stakeholders associated with the university. The primary objectives of the project were as follows: Enhance Online Presence: The website aimed to improve the university's online presence by creating a professional and user-friendly website that accurately represents Southeast University's values, mission, and offerings. Provide Information: The website intended to serve as a comprehensive source of information about the university, including academic programs, faculty profiles, admission procedures, campus facilities, research activities, events, and other relevant news and updates. Improve User Experience: The project aimed to create a seamless and intuitive user experience for website visitors. This involved designing an easy-to-navigate website structure, implementing responsive design for compatibility across devices, and ensuring fast page loading times.

15.3 Success of the Project

The Southeast University Bangladesh Website Design and Development project can be considered a success based on the following factors:

Achievement of Project Goals: The project successfully achieved its goals, as outlined in the project objectives. The website was designed and developed to enhance the online presence of Southeast University, provide comprehensive information about the university, improve user experience, facilitate communication, support academic processes, promote events and activities, ensure accessibility, and foster a positive brand image.

15.5 Value of the Project

The Southeast University Bangladesh Website Design and Development project can be considered a success based on the following factors:

User Engagement and Feedback: The level of user engagement and feedback received on the website can indicate its success. Metrics such as website traffic, user interactions, and feedback through contact forms, surveys, or social media channels can provide insights into the effectiveness of the website in engaging users and meeting their needs.

15.6 My Experience

I had to do a lot of research to implement this system. I have participated in numerous offline and online research initiatives. The hardest part of the process was getting rid of the bugs. I was finally able to put my method into practice after overcoming all obstacles. I've learned a lot from this encounter. great deal of expertise. I experienced a lot of obstacles and conquered them, learning important lessons. I gained excellent experience by learning how to oversee a significant project and swiftly accomplish all of its goals.

Appendices:

Test Script

User Guide:

1. User
Brief Description: This appendix provides a brief discussion about the target users of the Southeast University Bangladesh website. It highlights their characteristics, needs, and expectations when accessing and utilizing the website.
Actors: Website Users (Students, Faculty, Staff, Parents, Prospective Students, General Public)
Preconditions: ● The users have access to a compatible device (e.g., desktop, laptop, tablet, or smartphone) with an internet connection. ● Users have basic knowledge of web browsing and navigation.
Basic Flow of Events: ● **Students:** Students access the website to obtain information about courses, programs, academic calendar, examination schedules, and grading systems. ● **Faculty:** Faculty members utilize the website to access administrative tools, upload courses. ● **Staff:** Staff members use the website to access internal communication tools, submit leave requests, access employee resources, and stay informed about administrative policies and procedures.

- **Parents:**
  Parents rely on the website to access information about their child's academic progress, examination results, tuition fees, and important announcements.

- **Prospective Students:**
  Prospective students visit the website to explore available programs, admission requirements, application procedures, and deadlines.

- **General Public:**
  The general public, including alumni, researchers, and community members, may visit the website to access news and events, research publications, library resources, and other university-related information.

Post-Conditions:

- The Southeast University Bangladesh website caters to the needs and expectations of its various user groups. Users can access relevant information, utilize available resources, and engage with university activities effectively. The website provides a seamless user experience and contributes to a positive image of the university among its stakeholders.

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