

Design & development of web base project management system

BY

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FINAL YEAR DESIGN PROJECT REPORT

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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DAFFODIL INTERNATIONAL UNIVERSITY

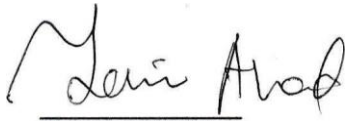
DHAKA, BANGLADESH

July 2024

APPROVAL

This Project titled "Design & development of web base project management system", submitted by Md. Shakib Hossen, ID No:202-15-3843 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 26-01-2024.

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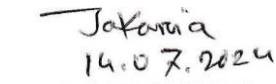
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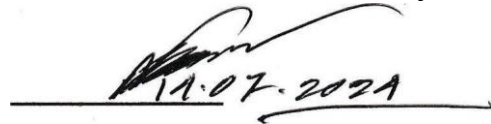
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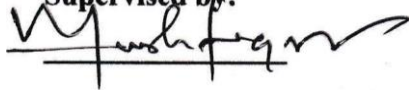
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DECLARATION

We hereby declare that this project has been done by us under the supervision of Mushfiqur Rahman, Lecturer (Sr. Scale), Department of Computer Science and Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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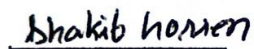
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Finally, we must acknowledge with due respect the constant support and patience of our parents.

ABSTRACT

This project is a revolutionary solution for efficient project management in academic institutions. It serves as a centralized hub, streamlining the entire project lifecycle from submission to assessment. Students can upload project materials easily, while faculty members can access submitted projects with ease. The dashboard offers advanced features like version control and real-time progress tracking, allowing them to manage their academic endeavors more effectively. It also provides a suite of tools for faculty members, including commenting and grading functionalities, enabling data-driven decision-making and continuous improvement of instructional strategies. It also integrates cutting-edge technologies like plagiarism detection. This transformative solution empowers students and faculty to achieve academic excellence and drive innovation in teaching and learning. As educational institutions embrace digital transformation, the project is a vital tool for fostering collaboration, accountability, and enriching the educational experience for all learner.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In today's academic landscape, effective management and varsity project submission play a key role in students' academic journey. To streamline this process and enhance collaboration between students, faculty advisors, and administrators, we introduce a comprehensive web-based project management system designed specifically for varsity project submissions. Our project management system serves as a centralized platform where students, faculty advisors and administrators can seamlessly interact, communicate and manage the entire lifecycle of varsity projects. Each user is assigned a distinct role student, faculty advisor, and administrator. Our system ensures transparency, accountability, and efficiency throughout the project submission process.

1.2 Motivation

This project is a project that aims to create a more efficient, interconnected, and empowered educational experience. This project is not just a technological innovation but also a testament to the dedication to academic advancement and empowering students, faculty, and administrators. As we navigate the challenges and complexities of software development, let us keep our vision clear and our spirits high, knowing that our efforts will yield a transformative solution that elevates the standards of project management in academic institutions.

The project's purpose is to streamline processes, enhance collaboration, and foster a culture of academic excellence. As we document our journey in this project report, let us capture not only the technical details but also the passion, dedication, and unwavering belief in the power of technology to transform education for the better. Together, we can forge ahead with determination and enthusiasm, knowing that our project has the potential to make a lasting impact on the way projects are managed and executed in universities.

With our collective efforts and unwavering commitment, we can turn our vision into reality and leave a legacy that will inspire future generations of students, faculty, and administrators to strive for excellence in everything they do.

1.3 Objectives

The main goals of this Project are:

- Develop a user-friendly interface for easy navigation and interaction.
- Implement user registration and authentication mechanisms to ensure security and access control.
- Facilitate seamless project submission and management processes for students, faculty, and administrators.
- Ensure robust data security and privacy measures to safeguard sensitive project information.
- Integrate the system with existing university systems and databases for seamless interoperability.
- Conduct thorough testing and evaluation to identify and address any system issues or bugs.
- Provide comprehensive documentation and training materials to support users in navigating the system effectively.
- Gather user feedback to continuously improve and enhance system functionality and user experience.

1.4 Expected Outcomes

The expected outcomes this project :

- **Efficiency Improvement:** Processes will be streamlined, making project submission and management faster and easier.
- **Enhanced Collaboration:** The system will promote teamwork and idea sharing among students, faculty, and administrators.
- **Real-Time Updates:** Project progress will be visible to everyone involved, ensuring transparency and alignment.

- **Security Measures:** Measures will be in place to protect project information, ensuring it's only accessed by authorized users.
- **Resource Optimization:** Faculty time and project materials will be used more effectively, maximizing their impact.
- **Accountability Enhancement:** Clear responsibilities will help everyone stay on track, leading to better adherence to deadlines and goals.

1.5 Project Management and Finance

Project Management:

- **Getting Started:** Begin by figuring out what the project is about and what needs to be done.
- **Planning:** Make a detailed plan that lists all the tasks, when they need to be done, and who will do them.
- **Doing the Work:** Put the plan into action, making sure everyone knows what they're supposed to do.
- **Keeping Track:** Keep an eye on how things are going, making sure everything stays on track and fixing any problems that come up.
- **Finishing Up:** When everything's done, wrap up the project, making sure everything is complete and everyone is happy.
- **Dealing with Problems:** Be ready to handle any unexpected issues that pop up, finding solutions and keeping things moving forward.
- **Making Sure Things Are Good:** Check that the work meets the required standards and that everyone is satisfied with the outcome.
- **Leading the Team:** Guide and support the team, keeping them motivated and helping them work together effectively.
- **Learning and Improving:** Take time to review what went well and what could be done better, so future projects can be even more successful.

Finance:

- **Money Matters:** Finance is all about managing money, whether it's for individuals, businesses, or organizations.
- **Budgeting:** It's important to plan how you'll use your money, setting aside funds for different needs like bills, savings, and spending.
- **Investing:** Some people choose to put their money into investments like stocks, bonds, or real estate, hoping to make it grow over time.
- **Borrowing:** Sometimes you might need to borrow money to buy things like a car or a house. You'll need to pay back what you borrow plus interest.
- **Seeking Advice:** Sometimes it's helpful to seek advice from financial professionals, like financial advisors or accountants, to help you make smart financial choices.

1.6 Report Layout

Developing a thorough report layout for "Design & development of web base project management system" entails organizing several parts to highlight the specifics of the project, its stages of development, its features, and its results. An outline for the report layout may be seen below:

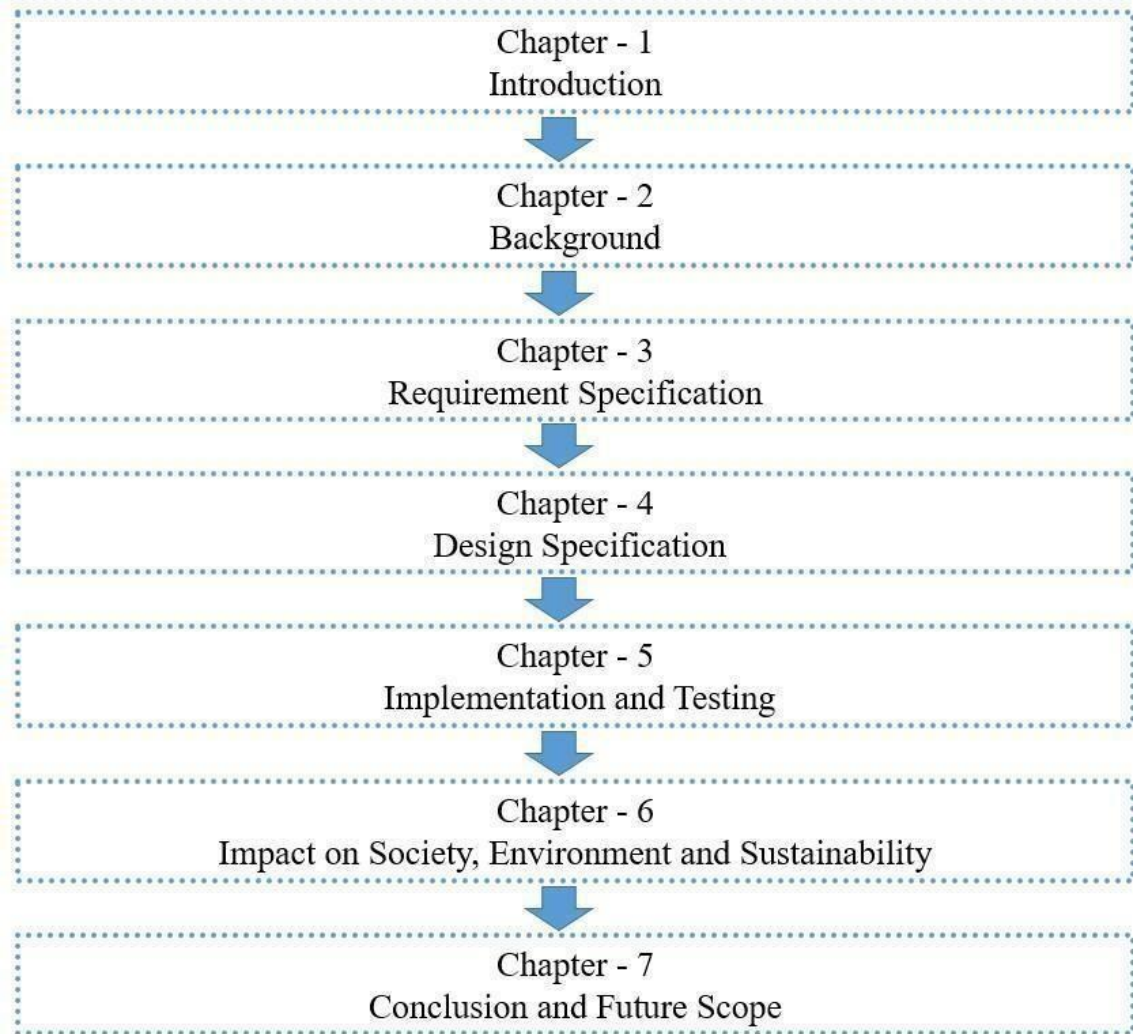


Figure 1.6.1: Report Layout of this Project.

CHAPTER 2

Background

2.1 Terminologies

✦ User Roles:

- Students: Submit projects and seek guidance.
- Faculty: Supervise and guide students.
- Administrators: Manage system functionality and user accounts.
- Submission Process: Involves project proposal submission, supervisor selection, material upload, and feedback reception.
- System Functionality: Includes user registration, authentication, dashboard, version control, and real-time progress tracking.
- Features: Collaboration tools, notification systems, plagiarism detection, peer review mechanisms, data encryption, access control, and confidentiality.
- Security Measures: Encompass data encryption, access control, and confidentiality.
- Integration and Compatibility: Integrates with existing university systems and ensures compatibility across different platforms.
- Testing and Evaluation: Involves system testing, user acceptance testing (UAT), and evaluation criteria.
- Documentation and Training: Provides user manuals and training materials.

2.2 Related Work

- **Literature Review:** Summarize existing research, theories, and best practices related to project management systems, web development, and educational technology.
- **Existing Systems:** Discuss similar web-based project management systems or platforms used in educational institutions. Highlight their features, strengths, and limitations.
- **Case Studies:** Present case studies or examples of successful implementations of project management systems in academic settings. Analyze their impact on collaboration, efficiency, and project outcomes.
- **Research Findings:** Review any relevant studies or research findings related to project management in universities, online collaboration tools, or user experience in web-based systems.
- **Industry Trends:** Explore current trends and advancements in web-based project management systems, such as integration with AI, machine learning, or blockchain technology.
- **Challenges and Solutions:** Identify common challenges faced in implementing project management systems in educational contexts and proposed solutions or strategies to address them.
- **Gap Analysis:** Identify gaps or areas where existing literature or systems fall short in addressing the specific needs or objectives of your project.
- **Contributions:** Highlight how your project builds upon or improves existing work in the field, emphasizing its unique features, innovations, or contributions to the domain of web-based project management systems for universities.

2.3 Comparative Analysis a breakdown

for a comparative analysis:

- **Platform Analysis Overview:** The analysis covers various aspects of the platform, including features, user interface, security measures, personalization, customer support, market position, and user reviews.
- **Key Features:** Notable features include project submission, collaboration tools, notification systems, version control, and real-time progress tracking.
- **User Interface (UI):** UI design is evaluated for usability, aesthetics, and accessibility to ensure a positive user experience.
- **Security Measures:** Security measures include data encryption, access control, confidentiality, and compliance with regulations like GDPR and HIPAA.
- **Personalization and Recommendation Systems:** Personalization features aim to enhance user experience, while recommendation systems suggest resources based on user preferences.
- **Customer Support and Engagement:** Customer support channels and engagement features, such as forums and community portals, are assessed for effectiveness.
- **User Reviews:** User reviews and testimonials provide insights into user satisfaction & improvement.

2.4 Scope of the Problem

The project context involves understanding the university environment and challenges faced in managing student projects. Identifying specific challenges, such as inefficient submission processes or lack of collaboration tools, is crucial. Defining the scope of the problem helps focus efforts on addressing core issues. Stakeholder perspectives, including students, faculty, administrators, and IT personnel, are considered to understand the problem. Objective alignment is ensured by addressing the identified challenges within the defined scope. Feasibility considerations are made considering resources, time constraints, and technical capabilities. Potential impacts include improved efficiency, enhanced collaboration, and better project outcomes. The rationale for inclusion is justified.

2.5 Challenges

The scope of a project is a crucial aspect of project management, defining the extent and boundaries of the challenges or issues addressed. It involves defining the project context, identified challenges, scope boundaries, stakeholder perspectives, objective alignment, feasibility considerations, potential impacts, and rationale for inclusion. The project context provides background information on the university environment and the challenges faced in managing student projects. Identified challenges include inefficient submission processes, lack of collaboration tools, and difficulty tracking progress. Scope boundaries specify what is included and excluded from the project, focusing efforts and resources on addressing core issues. Stakeholder perspectives ensure a comprehensive understanding of the problem and its impact. Objective alignment ensures the project aims to address the identified challenges within the defined scope.

CHAPTER 3 Requirement Specification

3.1 Business Process Modeling

Mapping the flow of travel management processes is part of the project business process modeling. The platform's features are visualized, making it easier to plan and optimize workflows for better user experiences.

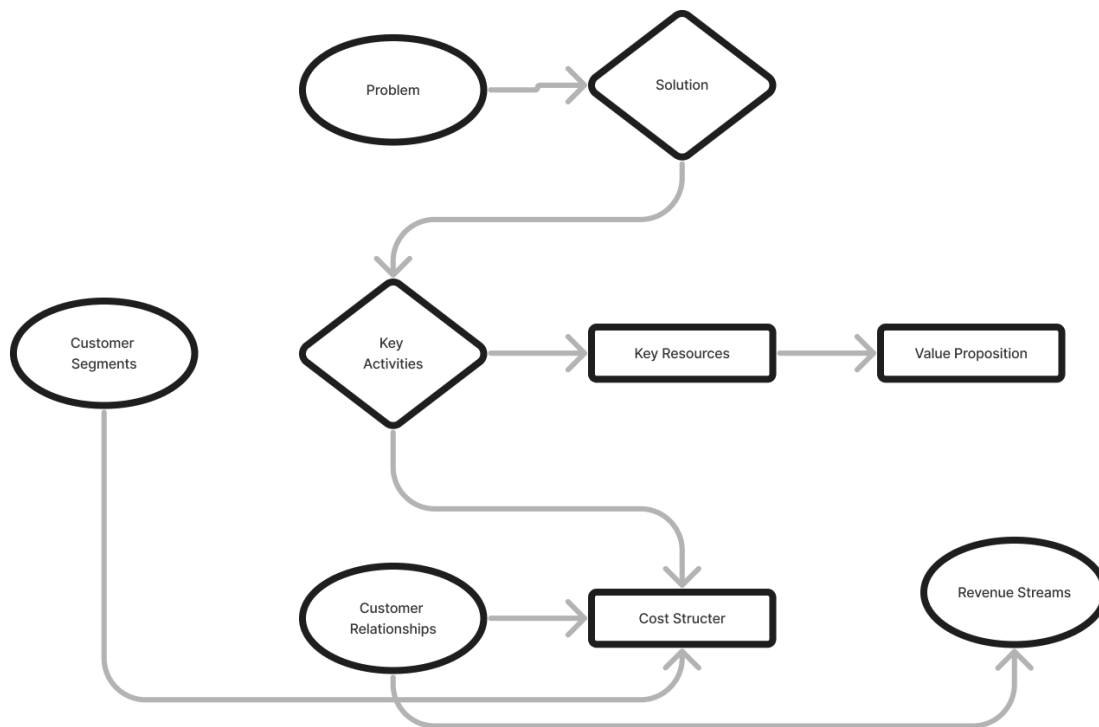


Figure 3.1.1: Business Process Modelling

3.2 Requirement Collection and Analysis

Requirement collection and analysis for the "Design & Development of Web-Based Project Management System" project involved gathering and analyzing the needs, preferences, and expectations of stakeholders to inform the design and development process. Here's an overview of the requirement collection and analysis process:

- Identify key stakeholders like students, faculty, administrators, and IT staff. Understand their roles, responsibilities, and objectives.
- Use interviews, surveys, focus groups, and workshops. Engage stakeholders in open discussions to understand their needs and preferences. Evaluate current travel management procedures to find inadequacies, obstructions, and potential opportunities for automation or improvement.
- Identify specific features and functionalities required in the system.
- Capture non-functional requirements defining system quality attributes and constraints.
- Prioritize requirements based on importance, urgency, and feasibility. Validate requirements through feedback sessions.
- Analyze gathered requirements to identify dependencies and gaps. Document requirements using standardized templates.
- Develop prototypes or mockups to visualize and validate requirements. Solicit feedback on prototypes to refine design.
- Establish a change management process to manage changes to requirements.
- Maintain open channels with stakeholders. Keep stakeholders informed about progress and decisions related to requirements.
- Allows flexibility and adaptation to changing needs. Continuously gathers feedback. Refines requirements based on stakeholder expectations and market trends.

3.3 Use Case Modeling and Description

Use Case Modelling for this project covers situations such as booking management, reporting, itinerary creation, user registration, and so on. Every instance describes how system administrators, organizers, and consumers interact with one another, outlining certain features and user roles in the platform's process.

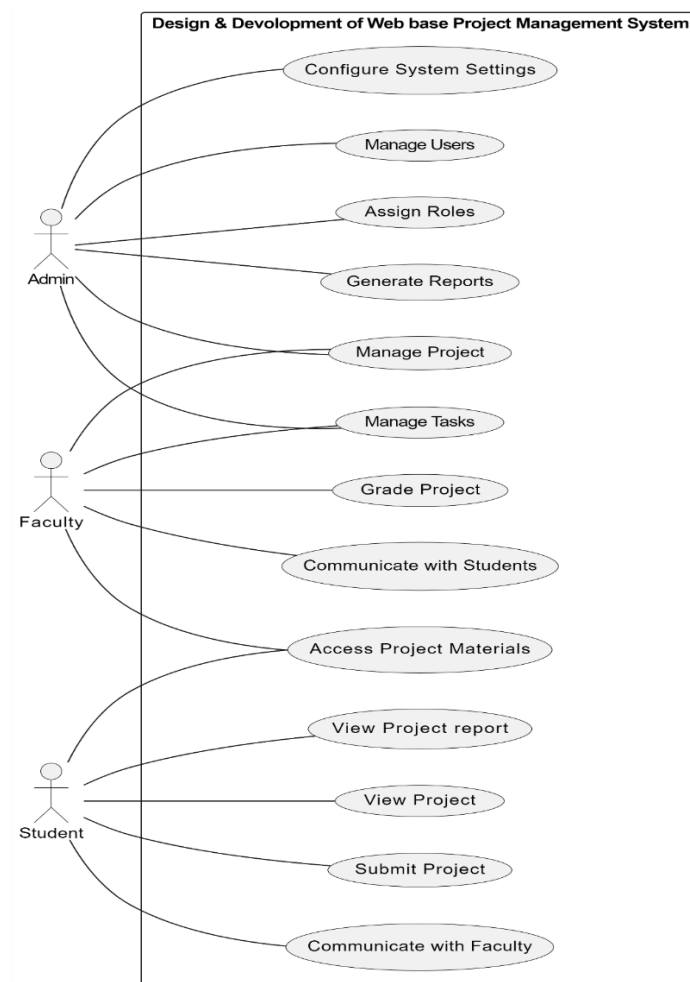


Figure 3.3.1: Use Case Diagram.

3.4 Logical Data Model & flow-chart

logical data model:

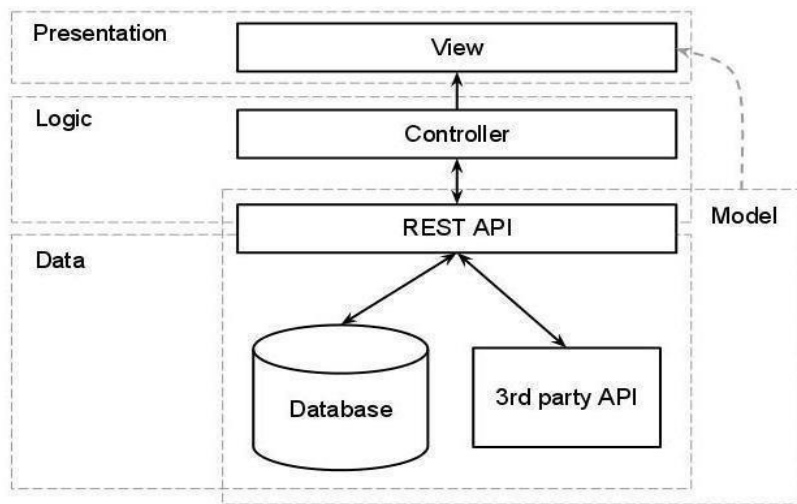


Figure 3.4.1: Logical Data Modeling.

3.4.1 flow-chart logical
flow-chart:

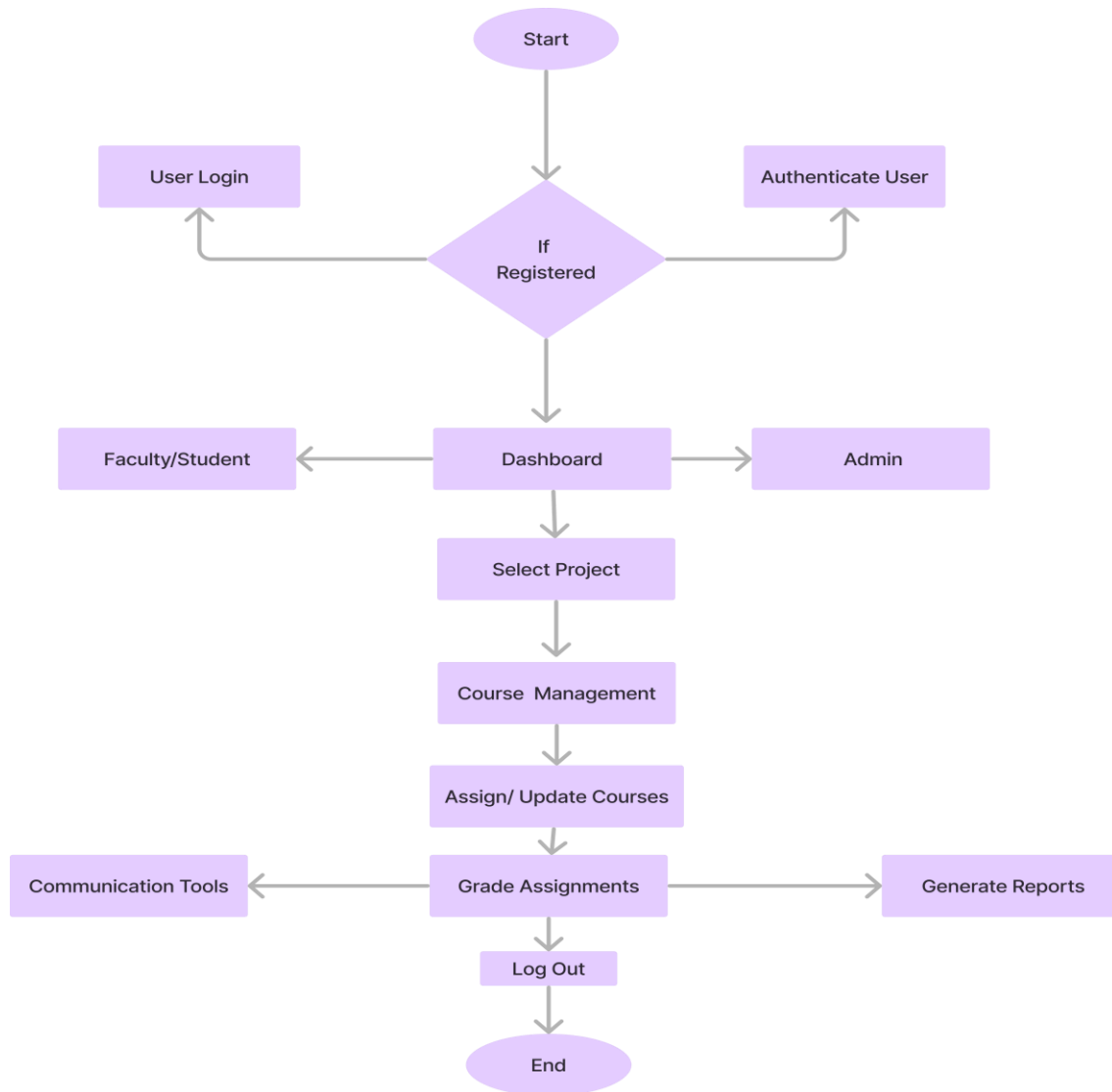


Figure 3.4.1.1: Flow Chart Data Modeling.

3.5 Design Requirement

Design requirements for this project encompass various aspects to ensure an effective and user-friendly system:

- **User Authentication and Authorization:** Support for secure access and specific permissions for different user roles.
- **Project Submission and Management:** Enables students to submit proposals, upload materials, and select supervisors.
- **Supervisor Selection and Allocation:** Allows students to select supervisors from a list or search for specific supervisors.
- **Real-Time Collaboration Tools:** Includes messaging, file sharing, and task assignment for communication and coordination.
- **Progress Tracking and Reporting:** Allows tracking of project progress, milestones, and tasks.
- **Feedback and Review Mechanisms:** Allows supervisors to provide feedback and review project submissions.
- **Notification and Alert System:** Sends notifications for important events like project deadlines, supervisor feedback, or system updates.
- **Data Security and Privacy Measures:** Adheres to strict data security and privacy standards.
- **User Interface and Experience (UI/UX):** Provides a user-friendly interface with intuitive navigation and clear labeling.
- **Scalability and Compatibility:** Ensures compatibility with different web browsers, operating systems, and devices.

CHAPTER 4

Design Specification

4.1 Front-end Design

The front-end using React, HTML, CSS, and JavaScript, should focus on a user-centric approach to ensure a seamless and intuitive user experience. This includes considerations for usability, accessibility, and responsiveness across different devices and screen sizes. React's component-based architecture was used to modularize the codebase, resulting in a scalable and maintainable UI. CSS media queries were used to implement responsive design, ensuring the UI adapts seamlessly to various viewport sizes. Data visualization techniques were employed to present project-related information visually appealing. Interactivity was highlighted through JavaScript for dynamic content updates, form validation, and user interaction. Performance optimization strategies were discussed, with cross-browser compatibility being a key consideration. Future enhancements to the frontend design could include new features, improved functionality, or user feedback. This comprehensive overview of the front-end design process can provide a comprehensive understanding of the system's user experience

4.2 Back-end Design

The Back-end design of this project involves using Spring Boot, which is a framework for building Java-based web applications, and PostgreSQL, a powerful open-source relational database. With Spring Boot, you can rapidly develop and deploy robust backend services, handling tasks like user authentication, data processing, and business logic. PostgreSQL serves as the database management system, storing and managing project-related data efficiently and securely. It provides features such as data integrity, transactions, and scalability, ensuring reliable storage and retrieval of project information. Together, Spring Boot and PostgreSQL form the backbone of your web-based project management system, enabling seamless communication between the frontend and database while ensuring performance, reliability, and scalability.

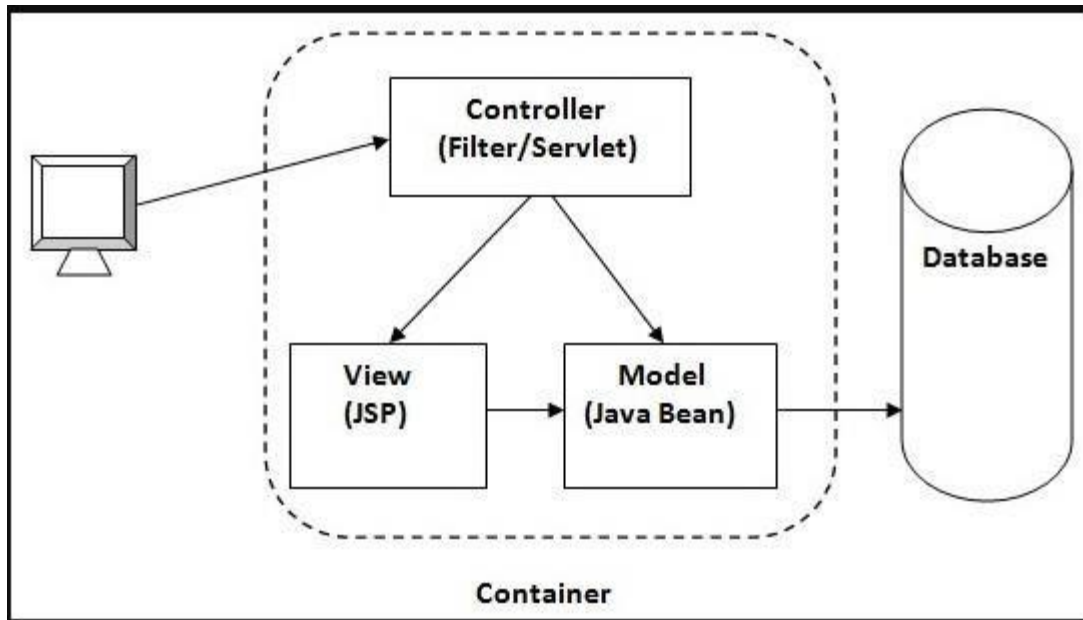


Figure 4.2.1: MVC Architecture.

4.3 Interaction Design and User Experience (UX)

Optimizing user interactions and guaranteeing a smooth and intuitive experience across the platform are the main goals of the interaction design and user experience (UX) for "Design & development of web base project management system":

Interaction Design:

- Users can easily sign up for an account by providing basic details.
- They can then log in securely using their credentials to access the system.
- Users are directed to a user-friendly dashboard.
- Students submit projects via a straightforward form, including project details and file uploads.
- They can also select project supervisors from a list or search for specific ones.
- Students and supervisors collaborate seamlessly in real-time.
- Supervisors provide feedback and review project submissions. Students receive prompt notifications about comments and revisions needed.
- Notifications keep users informed about deadlines, feedback, and system updates.

User Experience (UX):

- Ensure intuitive layouts and clear labeling for easy navigation
- Consistency in design elements like buttons, menus, and forms for a cohesive user experience.
- Optimize system for seamless access across different devices and screen sizes.
- Implement accessibility features for all users, including those with disabilities.
- Incorporate feedback mechanisms to inform users about successful actions and errors.
- Conduct user testing to gather feedback and refine the user experience.

4.4 Implementation Requirements

The following technical, operational, and developmental elements are included in the implementation requirements for "Design & development of web base project management system":

Front End Technologies

- HTML
- CSS
- JS

Back End Technologies

- Spring Boot
- PostgreSQL

Tools

- IntelliJ Idea
- Web Browser
- Visual Studio Code (*IDE*)
- Postman

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

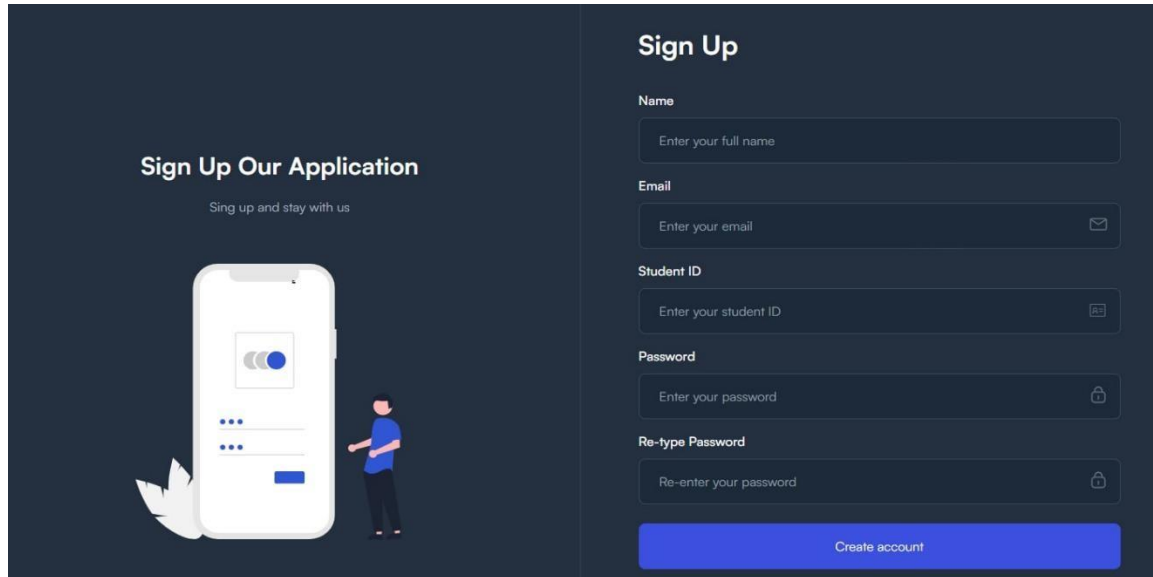
By those Database Tables, the application can effectively store, manage, and retrieve data, providing a reliable foundation for the application's functionality and ensuring data integrity, security, and performance.

[illegible]

Figure 5.1.1: Database Architecture.

5.2 Implementation of Front-end Design

The front-end design of this project focuses on creating an intuitive and responsive.



The image displays a registration page design. On the left, there is a dark blue background with the text "Sign Up Our Application" and "Sing up and stay with us". Below this text is an illustration of a white smartphone with a person standing next to it. On the right, there is a "Sign Up" form with the following fields: "Name" (with placeholder "Enter your full name"), "Email" (with placeholder "Enter your email" and an envelope icon), "Student ID" (with placeholder "Enter your student ID" and an ID card icon), "Password" (with placeholder "Enter your password" and a lock icon), and "Re-type Password" (with placeholder "Re-enter your password" and a lock icon). A blue "Create account" button is at the bottom of the form.

Figure 5.2.1: Registration page Design.

This is the registration page. There are 3 users who will register with their first name, last name, id, email and password. The password must be 8 characters and 1 big letter.

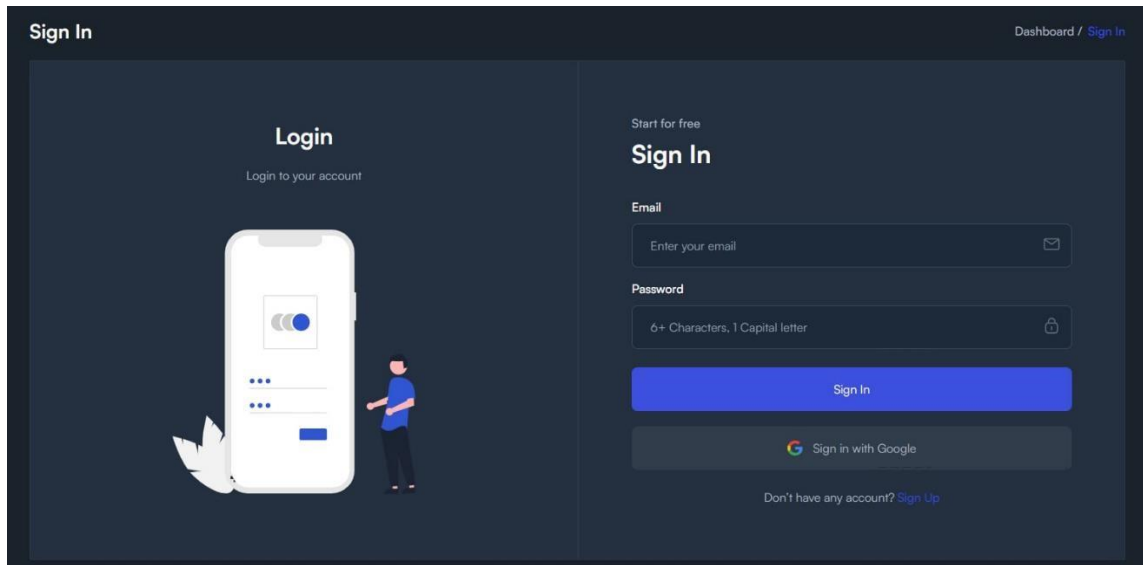


Figure 5.2.2: Log -In Page Design.

This is the page. There are 3 users who can log in with their username and password, before logging in they need to register.

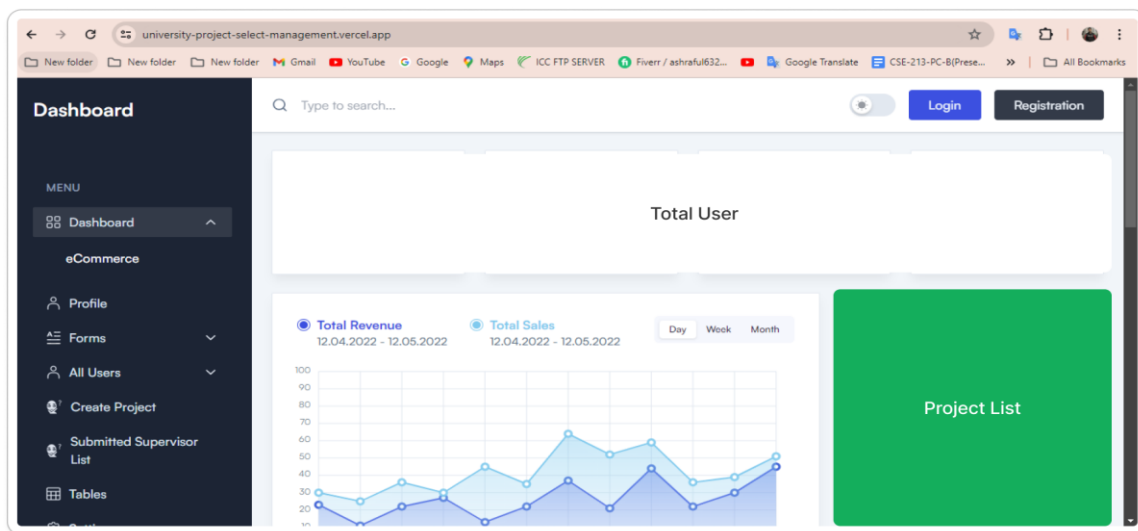


Figure 5.2.3: Dashboard Design.

This page is admin dashboard And in this page show many options to control this website.

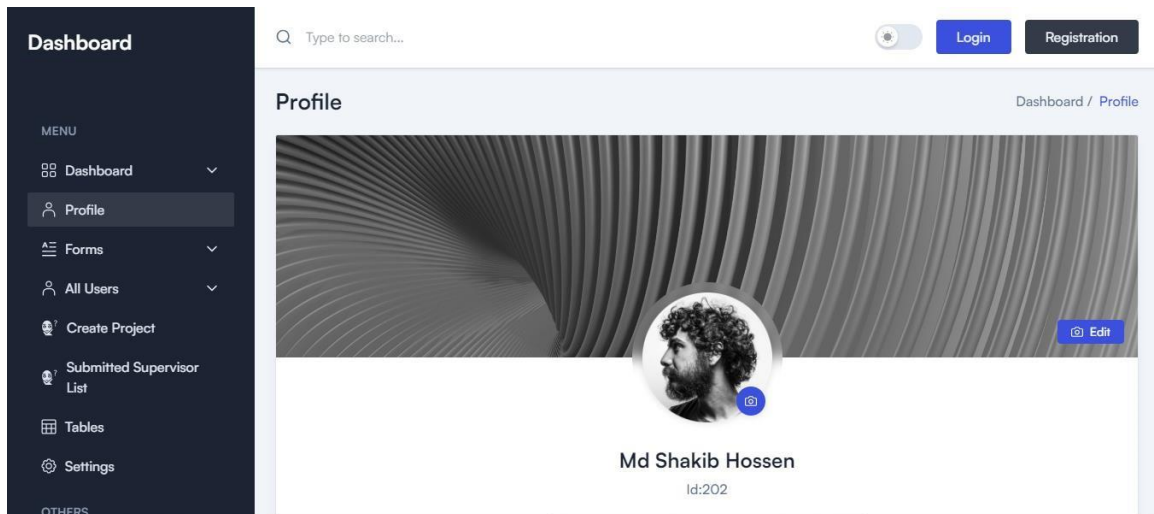


Figure 5.2.4: Profile Design

This the profile design 3 User's profile will show they can add their required information to their profile

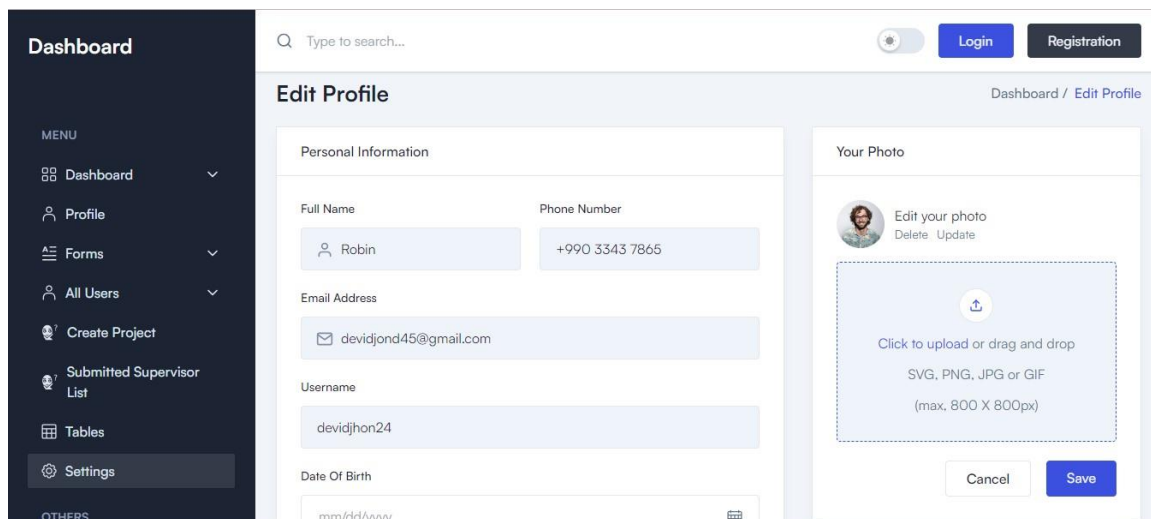


Figure 5.2.5: Profile Setting Design.

This page is profile setting page. This is the profile setting page. Here students can edit their profile.

Dashboard

MENU

- Dashboard
- Profile
- Forms
- All Users
- Create Project
- Submitted Supervisor List
- Tables
- Settings

OTHERS

Search: Type to search...

Login Registration

Dashboard / Create Project

Create Project

Submit your project

Student Id

Title

Title

Object

Object

Mythology

Object

Figure 5.2.6: Create Project Design.

This page is project create page. Here the student will prove their project. Title, object, mythology of the project will be added.

Dashboard

MENU

- Dashboard
- Profile
- Forms
- All Users
- Create Project
- Submitted Supervisor List
- Tables
- Settings

OTHERS

Search: Type to search...

Login Registration

Dashboard / Create Project

Select Supervisor

Object

Mythology

Object

PPT

PPT

Select Supervisor

Select...

Submit

Figure 5.2.7: Select Supervisor Design.

This page is project create page of my project. Here the student will add their supervisor name.

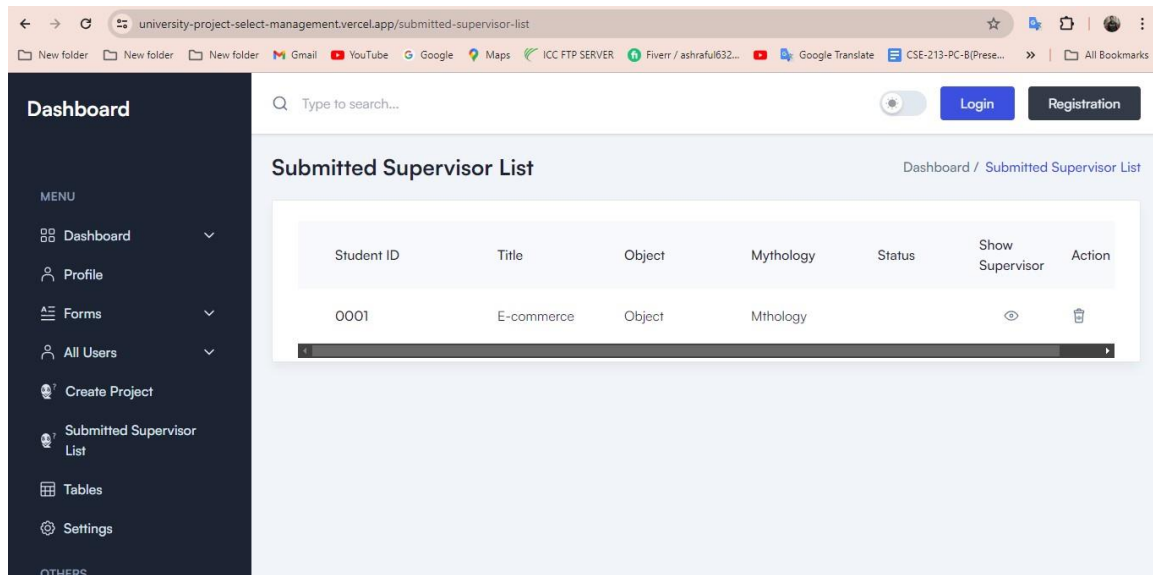


Figure 5.2.8: Submitted supervisor list Design.

This page is Submitted supervisor list page for Admin. Project management system. Here the Admin will select supervisor name for student project.

5.3 Testing Implementation

For the project, various types of testing are essential to ensure the system's quality and reliability. Here are the main testing types: Testing Types:

- Unit Testing: Verifies correctness of code at the smallest unit level.
- Integration Testing: Verifies interactions and interfaces between different system components.
- System Testing: Validates compliance with specified requirements.
- User Acceptance Testing (UAT): Involves end-users testing the system to meet their requirements.
- Regression Testing: Ensures no adverse effects of recent code changes or updates.
- Performance Testing: Evaluates system's responsiveness, scalability, and stability under various workload conditions.
- Compatibility Testing: Ensures system functions correctly across different platforms and operating systems.
- Accessibility Testing: Ensures system is accessible to users with disabilities and complies with accessibility standards.

Testing Environments:

- Development Environment Overview: Used for writing, debugging, and testing code changes. Includes development tools, IDEs, version control systems, and local servers.
Staging Environment: Test integration and overall system functionalities in an environment mirroring the production environment.
- User Testing Environment: Used for integration testing to validate interactions between different modules or components. Provides a controlled environment for testing integration points and data flows.

Automation:

- Automated Testing: Use configuration management tools like Postman Puppet to automate the configuration and provisioning of testing environments.

- CI/CD :Nessus into the CI/CD pipeline to scan for security vulnerabilities, perform penetration testing, and validate compliance with security standards automatically.

5.4 Test Results and Reports

Test results and reports are crucial for the "Design & Development of Web-Based Project Management System" project, providing valuable insights into the system's performance, functionality, and quality. The report should include a summary of test execution, test coverage analysis, test results details, defect tracking, performance metrics, security findings, user feedback, and conclusion and recommendations. The report should also include screenshots or logs to illustrate test results and errors encountered during execution. Defect tracking should be documented, and performance metrics should be included to visualize trends and identify bottlenecks. Security findings should be summarized, and user feedback should be incorporated to inform future enhancements. The report should conclude with a summary of key findings, conclusions, and recommendations for further improvement.

CHAPTER 6

Impact on Society, Environment, and Sustainability

6.1 Impact on Society

The implementation of this project holds significant potential for impacting society in several positive ways:

Enhanced trip Efficiency Centralized platform for project submission, supervision, and collaboration empowers students to take ownership of their learning experiences.

‡ 6.2 Impact on the Environment

It can positively benefit the environment in several ways:

- The platform's digitization of trip planning and management procedures eliminates the need for printed tickets, itineraries, and other paperwork, conserving paper and cutting down on waste.
- Optimal Travel Planning: By cutting down on pointless travel and improving routes, the platform's capacity to simplify travel arrangements and optimize routes may help lower fuel usage and carbon emissions.
- Encouraging Sustainable Travel Practices: The platform may support sustainable tourism practices by recommending eco-friendly travel choices, such as more environmentally friendly means of transportation or sustainable lodging, through personalized suggestions.
- Reduced Travel and Remote Work: The platform may indirectly enhance remote work choices by streamlining coordination and minimizing the need for frequent business travel and commuting, which will ultimately lower carbon emissions.
- Data-Driven Sustainability Measures: By leveraging data analytics, the platform may provide travel trends insights, assisting companies and organizations in making wellinformed decisions that minimize environmental effects and maximize resource

6.3 Ethical Aspects

Certainly, the development and implementation of this project. Involve various ethical considerations:

- **Privacy and Data Protection:** Adherence to strict policies and data protection measures to protect user data.
- **Fairness and Equity:** Design the system to promote fairness and equity, avoiding discrimination or bias.
- **Informed Consent:** Obtain user consent before collecting personal or sensitive information.
- **Transparency and Accountability:** Maintain transparency in system operations and decision-making processes.
- **Integrity and Reliability:** Implement measures to prevent data manipulation, unauthorized access, or malicious activities.
- **Ethical Use of Technology:** Use technology responsibly and ethically considering potential impacts on users, society, and the environment.
- **User Autonomy and Empowerment:** Empower users to make informed decisions and exercise autonomy over their actions.
- **Ethical Oversight and Governance:** Establish ethical oversight mechanisms and governance structures to monitor system ethical implications and address ethical concerns.
- By addressing these ethical aspects, the "Design & Development of Web-Based Project Management System" project can ensure that the system respects the rights and dignity of users, and contributes positively to society.

6.4 Sustainability Plan

Design the system with scalability and flexibility in mind to accommodate future growth and changes in user needs. Ensure that the system architecture and infrastructure can scale efficiently to handle increased usage and data volumes over time.

Integration with Existing Systems:

- Explore opportunities for integrating the project management system with existing university systems and workflows, such as learning management systems (LMS), student information systems (SIS), and administrative platforms. Seamless integration enhances interoperability and reduces duplication of efforts.
- Financial Sustainability: Develop a sustainable funding model for the project to cover ongoing operational costs, including server hosting, software licenses, and personnel salaries. Explore options for generating revenue, such as subscription fees, sponsorships, or partnerships with educational institutions or industry partners.
- Continuous Improvement: Prioritize continuous improvement and innovation to enhance the functionality, usability, and effectiveness of the project management system. Regularly solicit user feedback, conduct usability testing, and prioritize feature enhancements based on user needs and emerging trends.
- Monitoring and Evaluation: Establish key performance indicators (KPIs) and metrics to monitor the performance and impact of the project management system over time. Conduct regular evaluations and assessments to measure progress towards project goals and identify areas for improvement.
- Compliance and Governance: Ensure compliance with relevant regulations, standards, and policies governing data privacy, security, and accessibility. Establish governance structures and protocols to ensure ethical conduct, accountability, and transparency in the management of the project.
- Documentation and Knowledge Management: Maintain comprehensive documentation of the project management system, including technical specifications, user guides, and best practices. Establish protocols for knowledge management and succession planning.

CHAPTER 7

Conclusion and Future Scope

7.1 Discussion and Conclusion

This project was developed to streamline university project management processes. Utilizing technologies like Spring Boot, PostgreSQL, React, HTML, CSS, and JavaScript, the system aims to enhance collaboration between students and faculty members. It features real-time collaboration features and intuitive user interfaces, fostering a conducive environment for academic collaboration and innovation. The system prioritizes user experience (UX) and accessibility, making it accessible to all stakeholders, including those with disabilities. It offers features like project submission, supervisor selection, realtime progress tracking, and feedback mechanisms. The project team acknowledges the importance of ongoing maintenance, updates, and support to ensure the system remains relevant and effective. Future enhancements will be informed by user feedback and emerging technologies. The system represents a significant step forward in improving university project management processes.

In conclusion, our development of Project marks a significant milestone in improving academic processes. Through iterative improvement and strategic foresight, I have laid the foundation for a dynamic platform that not only streamlines project management but also fosters a culture of collaboration and innovation. As we look to the future, our commitment extends to further refinements in usability, security and scalability, ensuring the system adapts to evolving academic needs. Powered by user feedback and technological advances, we envision our system as a catalyst for academic excellence, driving transformational change in university project submission practices.

7.2 Scope for Further Developments

Presents several prospects for additional development and improvement:

- Create a dedicated mobile application for easy access and management of projects.
- I will introduce a messaging system in the future for the benefit of all students and teachers
- Incorporate Gamification Elements: incentivize student engagement.
- Automate repetitive tasks and provide personalized recommendations.
- The system will be updated regularly based on user needs and preferences.
- I will establish an era of food educational institutions through my system
- I will plan to increase the space so that many projects can be kept and all students can learn something by watching others' projects.

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Appendix A Course Outcomes, Complex Engineering Problems (EP) and Complex Engineering Activities (EA) Addressing

Title: Design & Development of Web-Based Project Management System

Student ID: 202-15-3843

CO Description for FYDP

CO	CO Descriptions	PO
Phase -I		
CO1	Integrate recently gained and previously acquired knowledge to identify a web based travel management problem for the Final Year Design Project (FYDP)	PO1
CO2	Analyze different aspects of the goals in designing a solution for this FYDP	PO2
CO3	Explore diverse problem domains through a literature review, delineate the issues, and establish this goals for the FYDP	PO4
CO4	Perform economic evaluation and cost estimation and employ suitable project management procedures throughout the development life cycle of the FYDP	PO11
Phase -II		
CO5	Design and develop technical solutions and system components or processes that meet specified requirements, ensuring compliance with public health and safety standards, as well as considering cultural, socioeconomic, and environmental factors in this FYDP	PO3
CO6	Choose and apply appropriate methodologies, resources, and contemporary engineering and IT technologies to address complex engineering processes, encompassing prediction and modeling, while adhering to relevant constraints in this FYDP	PO5
CO7	Analyze societal, health, safety, legal, and cultural considerations, along with associated responsibilities, in the context of professional engineering practice and the resolution of this problem, employing logical reasoning guided by contextual understanding.	PO6
CO8	Comprehend and evaluate the enduring sustainability and impact of professional engineering endeavors in addressing intricate engineering challenges within social and environmental frameworks.	PO7
CO9	Implement ethical principles and adhere to professional standards and norms in this FYDP	PO8
CO10	Capable of operating proficiently both individually and as a team member or leader across diverse teams and interdisciplinary settings in this FYDP.	PO9

CO11	Proficiently communicate with the engineering community and broader society regarding complex engineering endeavors, including the ability to comprehend and generate comprehensive reports and design documentation, as well as provide and receive clear instructions throughout this FYDP.	PO10
CO12	Acknowledge the importance of self-directed and life-long learning within the evolving landscape of technology, and possess the readiness and capability to engage in lifelong learning endeavors.	PO12

Addressing CO (1 to 8), Knowledge Profile (K), Attainment of Complex Engineering Problems (EP), and Attainment of Complex Engineering Activities (EA)

Addressing CO (1 to 8), Knowledge Profile (K), Attainment of Complex Engineering Problems (EP):

SN	EP Definition	Attainment	CO	Justification (with Knowledge Profile)	References
1.	EP1: Depth of Knowledge required	Yes	CO1, CO2, CO3, CO5, CO6, CO7 and CO8	The project covers Engineering Fundamentals (K3) through process modeling, data design, and front-end development, showcasing strong engineering principles application. The project tackles Specialist Knowledge (K4) by integrating front-end and back-end design, interaction design, and user experience (UX), utilizing HTML, CSS, SCSS, JQuery, Vue JS for the front end, and PHP frameworks like Laravel for the back end, demonstrating expertise in web-based travel management system development.	Page no: [12,14 16,21], Section: [3.1, 3.3, 3.4, 5.1, 5.2] Page no: [17-24], Section: [4.1, 4.2, 4.3, 5.1, 5.2, 5.3]

				The project applies engineering practice & design (K5) by integrating design requirements like user interface, security, scalability, customization, compatibility, accessibility, and reliability, ensuring a robust and user-centric travel management	Page no: [12-16], Sction: [3.1, 3.3,
				system aligned with design principles. The project addresses engineering practice & technology (K6) by employing HTML, CSS, SCSS, JQuery, Vue JS, PHP, Laravel, MySQL, and Maria DB, emphasizing safe, scalable development with Laravel's MVC framework and Composer. The project covers research literature K8 by reviewing analogous platforms, UI/UX studies, security protocols, personalization algorithms, and industry trends, enabling informed decision-making for integrating innovative features into this system.	3.4, 3.5] Page no: [17-20], Section: [4.1, 4.2, 4.3, 4.4] Page no: [8-10], Section: [2.2, 2.3]
2.	EP2: Range of Conflicting Requirements	Yes	CO2, and CO7	The project confronts EP-2 by addressing challenges like integrating diverse features while maintaining user experience, balancing security with functionality, scalability, realtime data synchronization, evolving industry standards, privacy regulations compliance, and implementing effective recommendation systems through careful planning, flexible development, and continuous adaptation.	Page no: [11] Section: [2.4, 2.5]

3.	EP3: Depth of analysis required	Yes	CO2, and CO6	The project tackles EP-3 by prioritizing solutions like contemporary front-end design for enhanced user experience and selecting Laravel for streamlined back-end development, addressing challenges such as user interaction optimization, platform accessibility, and scalability to provide a superior web-based travel management system.	Page no: [17-20], Section: [4.2, 4.3, 4.4]
4.	EP4: Familiarity of Issues	Yes	CO8	The project fulfills EP-4 by integrating insights from travel management into development, optimizing processes, enhancing user experience, ensuring data security, and contributing to industry efficiency and effectiveness, bridging Computer Science and Engineering with the travel domain for impact beyond CSE boundaries.	Page no: [8-11], Section: [2.2, 2.4]
5.	EP5: Extends of application codes	No	CO5	N/A	N/A
6.	EP6: Extends of stakeholders involved and conflicting requirements	No	CO8	N/A	N/A
7.	EP7: Interdependence	Yes	CO5	The project meets CEP, EP-7 by addressing high-level problems across stages, ensuring data integrity, security, and performance in database implementation, optimizing user experience through intuitive front-end design, and conducting comprehensive testing.	Page no: [21-23], Section: [5.1, 5.2]

Addressing CO11 with Complex Engineering Activities (EA) [Some or all of the following]:

SN	EA Definition	Attainment	CO	Justification	References
1.	EA1: Range of resources	Yes	CO11	The development of this system leverages a skilled team across domains, meticulous financial resource allocation for infrastructure, marketing, and development, and utilizes tools like XAMPP, Visual Studio Code, and various programming languages, frameworks, and databases for effective execution.	Page no: [20], Section: [4.4]
2.	EA2: Level of interaction	No		N/A	N/A
3.	EA3: Innovation	No		N/A	N/A

4.	EA4: Consequences for society and the environment	Yes		This projects emphasizes social impact and environmental sustainability by enhancing trip efficiency, promoting sustainable travel practices, and ensuring ethical considerations such as strong security, privacy, and transparent business practices, fostering societal well-being and environmental stewardship.	Page no: [26-31], Section: [6.1, 6.2, 6.4]
5.	EA- Familiarity 5:	Yes		The Comparative Analysis for this project , security, personalization, and customer engagement, enriching market understanding and informing strategic decisions for enhanced competitiveness and value proposition.	Page no: [7-10], Section: [2.1, 2.3]

Addressing CO (4, 9, 10, and 12):

SN	COs	Attainment	Justification	References
1	CO4	Yes	The project captures CO4 by integrating financial management practices, including budgeting, resource allocation, cost management, and risk mitigation, ensuring efficient fund distribution, monitoring expenditures, and identifying optimization areas while maintaining quality.	Page no: [4-5], Section: [1.5]
2	CO9	Yes	The project upholds ethical practices by prioritizing user privacy, maintaining transparency in data usage, providing fair suggestions, respecting cultural sensitivities, and promoting accessibility, fostering trust, transparency, and integrity among stakeholders.	Page no: [28], Section: [6.3]
3	CO10	No	N/A	N/A

4	CO12	Yes	The project's implementation phase emphasizes lifelong learning through diverse testing protocols, automated frameworks, and CI/CD pipelines, ensuring ongoing improvement and adaptation to emerging tech trends, with results analysis refining the platform for enhanced effectiveness.	Page no: [21-25], Section: [5.1, 5.4]
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