

Knowledge Café: A web based knowledge sharing platform

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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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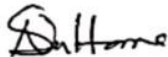
APPROVAL

This Project titled “Knowledge Café: A web based knowledge sharing platform”, submitted by “Md. Niamulhuda Nahid”, ID No: **212-15-14704** 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 16.07.2024.

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DECLARATION

I hereby declare that, this project has been done by me under the supervision of **Md. Sadekur Rahman, Assistant Professor, Department of CSE, Daffodil International University** and Co-supervision of **Dewan Mamun Raza, Assistant Professor, Department of CSE, Daffodil International University**. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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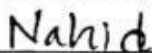


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ABSTRACT

The Knowledge Cafe is an online place where people can share what they know and connect with their community. The platform has two types of users: ordinary users and administrators. People have to make an account and then sign in to use the website's tools and services. The user dashboard displays comments from various people. You can show you like their posts, leave a comment, and share their posts. People can create new posts by asking questions and including pictures that match the questions. They can modify or remove their posts and search for other posts to get answers to their questions. One great thing about the Knowledge Cafe is the quiz. People can answer six questions with choices to choose from. After the quiz, people can see how well they did and do the quiz again if they want. Also, users can ask for a quiz about a topic they want to learn about. The website has a section called "Happy Queriers" where users who are happy share their feedback. Admins have power over this part. Administrators can do more things and make more decisions on the website. They can change or delete the posts that users put, so the platform has useful and essential information. Administrators manage the "Happy Queriers" section, along with other important sections like "Popular Topics" and "Resources," to collect helpful information for users. The Knowledge Cafe is a place where people can ask questions, get answers, and chat with others who like the same things. The platform helps people continue learning and sharing knowledge by talking to other users and sharing content they choose. In the future, we could make it easier to find things, give users their own pages, send them notifications, add fun games, provide spaces to chat with others, and create a tool for admins to see how people use the site. The Knowledge Cafe is a place on the internet where people can learn new things and talk about their ideas with others.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In today's world, it's very important to share information on websites and apps. It helps people share information and stay in touch with their local area. These websites allow people to ask questions, exchange thoughts, and collaborate to find solutions. The internet has grown fast, and now people from all different backgrounds can use it to share and learn. Sites like Stack Overflow, Quora, and Reddit have shown how it's important for people to share what they know with others. Even though there are many places to share what you know, it can still be hard to get people to join in, keep the information organized, and make sure it's accurate. Many people struggle to find the correct information because there is a lot of content made by other users to look through. Ensuring that users can do what they want while still controlling the content is a problem that keeps happening. We need a platform that can solve these problems and make it more enjoyable for users with quizzes and quick feedback. I created a website called "Knowledge Cafe" to help with these issues. It allows people to create an account, access their account and see their own customized homepage. The dashboard allows users to view, like, comment on, and share posts. People can write, edit, and delete their own messages to be more involved in the community. The search tool helps people find posts easily. It helps them find what they are looking for. In addition, the platform has a quiz option that allows users to take quizzes with multiple-choice questions, see their scores, and take the quizzes again to improve their performance. Users can also ask for a quiz about something they like. The "Happy Queriers" section shows comments from users, and the admin can manage them. Administrators can control what users put online and can edit or delete it to make sure the content is appropriate. They also take care of important things to keep the platform useful and current. The "Knowledge Cafe" is a place where people can come to share and learn new information in a fun and fair way. It will help fix the problems that people who use it and the people in charge often have.

1.2 Problem Statement

On my website, I want to build a lively community where people can share what they know, ask questions, and connect with each other. However, there are many ways to make it easier for users to participate and keep track of content so they have a better experience. Right now, people can make an account, log in, make and take care of posts, join quizzes, and connect with other people's posts. Admins can control what users post and the different parts of the community. Even though these features are good, there are some things that need to be fixed in order to make the user experience better and improve the quality of content.

Challenges Identified:

- Limited advanced search capabilities restrict users from easily finding relevant posts.
- Absence of user profiles limits personalized user interactions and recognition of contributions.
- Lack of a notification system hinders real-time engagement with the platform.
- Missing gamification elements like user rankings and badges reduce motivation for active participation.

Proposed Enhancements:

- Implement advanced search filters to allow users to find posts by category, date, and popularity.
- Introduce detailed user profiles to showcase individual contributions and activity.
- Develop a notification system to keep users updated on new interactions and content.

These challenges and implementing the proposed enhancements, I can significantly improve user engagement and content management on the Knowledge Cafe platform. This will lead to a more interactive, rewarding, and high-quality user experience.

1.3 Motivation and Objectives

The main reason for making Knowledge Cafe is to provide a place where people can share knowledge, get answers to their questions, and improve their learning with the help of others in the community. I want to make a fun and educational place where people can talk to each other, share posts, and take quizzes.

1. Foster a collaborative knowledge-sharing community.
2. Enable users to find answers to their queries quickly.
3. Provide a structured platform for users to create and manage their content.
4. Encourage user engagement through interactive features like quizzes and comments.
5. Ensure effective content management Through permitting admin oversight and control.

The objectives of Knowledge Cafe are to enhance user experience, ensure efficient content management, and foster community engagement. Simply specifying clear features for both users and admins, I aim to create a well-organized and user-friendly platform.

1. Develop a seamless user authentication process.
2. Create a user-friendly dashboard for managing posts and comments.
3. Implement a robust search functionality for easy query resolution.
4. Design an engaging quiz feature to test and improve users' knowledge.
5. Provide admin controls for managing user posts and community feedback.
6. Curate and manage popular topics and educational resources.
7. Introduce future enhancements to improve user interaction and platform functionality.

1.4 Project Scope

I am working on a project to make a website called Knowledge Cafe. It will allow people to share what they know, ask questions, take quizzes, and connect with others who also want to learn. The project will have the following features:

1 User Authentication and Profiles

- Users can sign up and log in to access the platform.
- Each user has a profile where they can manage their posts, comments, and quiz scores.

2 Community Interaction

- Users can view, like, comment on, and share posts created by other users.
- Admins can manage user-generated content, including editing and deleting posts.

3 Post Creation and Management

- Users can create posts by asking questions or sharing knowledge.
- They can also upload images related to their queries.
- Users have the ability to edit or delete their own posts.

4 Search Functionality

- Users can search for posts based on keywords or topics.

5 Quiz Feature

- Users can take quizzes consisting of multiple-choice questions.
- They can view their scores and retake quizzes if desired.

6 Admin Controls

- Admins have the authority to manage user posts, comments, and quizzes.
- They can curate content, edit testimonials, and oversee the overall functioning of the platform.

1.5 Project Outcome

The outcome of my project, Knowledge Cafe, is a comprehensive website aimed at fostering a community-driven environment for knowledge sharing and learning. Through its various features and functionalities, users can engage with each other, participate in quizzes, and access resources to enhance their understanding of different topics.

1. **User Engagement:** I designed the platform to encourage active participation from users through permitting them to like, comment on, and share posts created by others. This fosters a sense of community and facilitates discussions on various subjects.

2. **Personalized Experience:** Users have the freedom to create, edit, and delete their own posts, providing them with a personalized space to share their queries and insights. Additionally, the ability to search for specific topics ensures that users can find relevant content tailored to their interests.
3. **Interactive Quizzes:** I incorporated a quiz feature with multiple-choice questions to offer users a fun and interactive way to test their knowledge. After completing a quiz, users can view their scores and even restart the exam to improve their performance.
4. **Admin Control:** As the administrator, I have the authority to manage user-generated content, ensuring that the platform maintains a high standard of quality and relevance. This includes editing and deleting posts, as well as curating the Happy Queriers section and resources available to users.
5. **Community Feedback:** The Happy Queriers section serves as a space for users to share their positive experiences and feedback. I can edit or delete content in this section to highlight the most compelling testimonials and reviews.
6. **Curated Content:** I curated sections such as Popular Topics and Resources to provide users with easy access to valuable information on trending subjects and educational materials. This helps streamline the learning process and empowers users to expand their knowledge base efficiently.

1.6 Report Organization

This report is structured into several comprehensive chapters, each dedicated to a specific aspect of the "Knowledge Cafe" project. The organization of the report is as follows:

Chapter 1: Introduction

This chapter sets the stage for the project by providing a detailed background study, outlining the research problem, and presenting the motivation and objectives. It also defines the scope of the project, describes the expected outcomes, and provides an overview of the report's structure. The sections in this chapter include:

1. **Introduction:** An overview of the project and its significance.
2. **Problem Statement:** A clear definition of the problem being addressed.

3. Motivation and Objectives: The reasons behind the project and the goals to be achieved.
4. Project Scope: The boundaries and extent of the project.
5. Project Outcome: The anticipated results and benefits of the project.
6. Report Organization: An outline of the report structure.
7. Summary: A brief summary of the introduction chapter.

Chapter 2: Literature Review

This chapter delves into existing research and related works that form the basis for the project. It provides an introduction to the topic, examines similar platforms and technologies, and concludes with a summary. The sections include:

1. Introduction: An overview of the literature review.
2. Related Works: Detailed analysis of existing works and how they relate to the project.
3. Summary: A summary of the findings from the literature review.

Chapter 3: Methodology

This chapter explains the methodology employed in the project. It encompasses the requirement analysis, proposed methodology and system design, data collection methods, business process modeling, and various diagrams illustrating the system's architecture. The sections include:

1. Introduction: An overview of the methodology.
2. Requirement Analysis: Identifying the needs and requirements for the project.
3. Proposed Methodology/System Design: The approach and design of the system.
4. Data Collection/Input Output Analysis: Methods of data collection and analysis.
5. Business Process Modeling: Diagrammatic representation of business processes.
6. Flowchart: Flowchart illustrating the system's workflow.
7. ER Diagram: Entity-Relationship diagram depicting the database structure.
8. Class Diagram: Class diagram showing the object-oriented design.
9. MVC Diagram: Model-View-Controller diagram for the system architecture.

10. Project Management and Financial Analysis: Management strategies and financial considerations.
11. Summary: A summary of the methodology chapter.

Chapter 4: Requirement Analysis and Design Specification

This chapter provides a detailed analysis and design specification of the system. It covers the front-end and back-end design and discusses the interaction design and user experience (UX). The sections include:

1. Front-End Design: Design and layout of the user interface.
2. Back-End Design: Design and structure of the server-side components.
3. Interaction Design and User Experience (UX): Principles and practices for enhancing user interaction and experience.

Chapter 5: Implementation and Testing

This chapter describes the implementation phase of the project, detailing how the database and front-end design were implemented. It also covers the testing procedures and presents the results and reports of the testing phase. The sections include:

1. Implementation of Database: Steps and processes involved in setting up the database.
2. Implementation of Front-End Design: Development of the front-end interface.
3. Testing Implementation: Methods and strategies used for testing the system.
4. Test Results and Reports: Documentation of the testing outcomes and analysis.

Chapter 6: Impact on Society, Environment, and Sustainability

1. This chapter explores the broader impacts of the project on society and the environment, addressing ethical aspects and sustainability considerations. The sections include:
 2. Impact on Society: How the project benefits or affects society.
 3. Impact on Environment: Environmental considerations and impacts.
 4. Ethical Aspects: Ethical issues and considerations related to the project.
 5. Sustainability Plan: Strategies for ensuring the long-term sustainability of the project.

Chapter 7: Conclusion and Future Work

This chapter provides a comprehensive discussion and conclusion of the project, summarizing the key findings and achievements. It also outlines potential areas for further development and future work. The sections include:

1. Discussion and Conclusion: A detailed discussion and final thoughts on the project.
2. Scope for Further Developments: Suggestions and plans for future enhancements and expansions of the project.

Each chapter is meticulously designed to build upon the previous ones, providing a thorough understanding of the "Knowledge Cafe" project from inception to completion.

1.7 Summary

I made a website called Knowledge Cafe where users and admins can communicate with each other. I can create an account, log in, and see and talk with other users' comments on my dashboard. I can like, comment on, and share posts. Also, I can make, change, and delete my own posts. I can look for things I like and take quizzes to see what I know. Also, there's a part for positive comments from satisfied customers, where I can share my own and the people in charge can control them. Administrators can manage what users post, answer happy questions, and other parts of the site such as trending topics and resources. Overall, the Knowledge Cafe wants to help me learn and connect with others by sharing knowledge and interacting with the community.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In six important papers, experts discuss community projects, the impact of research on society, ways to organize knowledge, and new ideas to address problems in society. In their paper, Rayburn, Punzalan, and Thomer study how GRASAC changed from a password-protected system to a system that anyone can access. They looked at the problems that happen during the growth of infrastructure and put them into three groups: working together problems, data problems, and system problems. The study shows how important it is for Indigenous communities to have access to digital technology to share their cultural knowledge and heritage items. Machin-Mastromatteo's paper talks about how researchers are being asked to have a positive impact on society, especially by starting projects that help communities and social causes. It shows how hard it is to measure the effect of something on society and says that the value of it depends on people's opinions. The paper talks about how it can be hard for researchers to make a difference in society with their work. It also suggests some important rules for doing research that helps society. In their paper, Basak and Bhaumik discuss a plan for using social technology to connect rural and urban areas and share knowledge. They show how the SKM platform helps rural artisans and others work together better, so they don't feel left out of the market and can build lively online communities. The paper by Gonzalez-Barahona and others talks about how a community can work together to create educational materials. The paper supports using free software development ideas to make educational materials more collaborative. This would let teachers and students work together to make learning materials. Sharma and other researchers wrote a paper called "PlantCare: Community-Driven Agri-Aid" that explains a new platform to help Indian farmers take care of their plants and diagnose plant diseases. The goal is to help farmers by giving them tools and information to protect their crops. This will happen through community meetings and using AI technology to help them learn and make better choices. Finally, Zhang talks about how the IEEE Transactions on Services Computing (TSC) helps people share knowledge and come up with new ideas in the community. TSC Cloud is a way to help make publishing and collaborating easier for researchers,

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engineers, and business leaders in the services computing field. It involves working together as a community to improve how things are published and how people connect with each other.

2.2 Related Works

I used specific technologies to make sure my Knowledge Cafe website works well for medical purposes. We carefully picked the right technologies to give users the best experience.

Table 2.1: Technology Descriptions

HTML5 (JSX) [16]:	HTML stands for Hypertext Markup Language which allows the user to make and structure sections, paragraphs, headings, titles, line breaks, add media, links, blockquotes, etc. for websites and applications.
CSS [17]:	Stands for Cascading Style Sheets which is a simple design language intended to simplify the method of constructing this website presentable. It's designed to enable the separation of presentation and content,
Node.js and Express.js [18]:	Node.js serves as a back-end runtime environment, while Express.js simplifies server-side development, offering a fast and minimalist framework for building web and mobile applications.
JavaScript [19]:	JavaScript, as a versatile programming language, enables the creation of interactive and dynamic elements on web pages, facilitating enhanced user engagement and a more responsive user experience.
MongoDB [20]:	MongoDB, a flexible NoSQL database, organizes and manages data in a document-based structure, providing robust querying capabilities for efficient storage and retrieval of property profiles and rental information.

Reddit hosts various communities (subreddits) where users can discuss topics, ask questions, and share information[7].

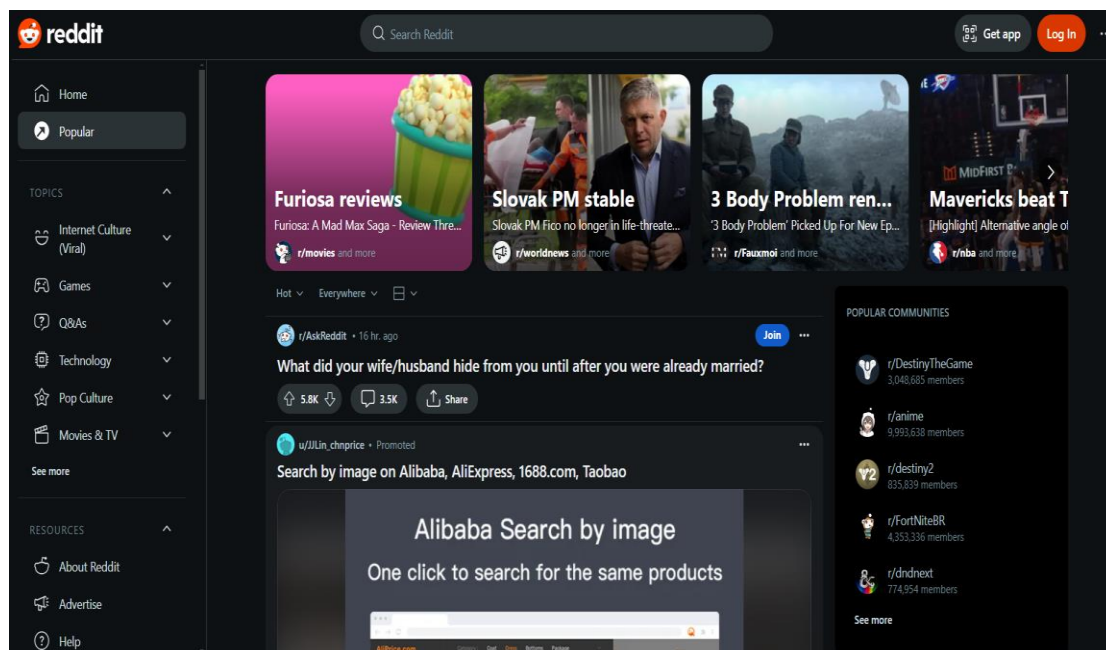


Figure 2.1: Reddit

Stack Overflow is a question and answer site for professional and enthusiast programmers [8].

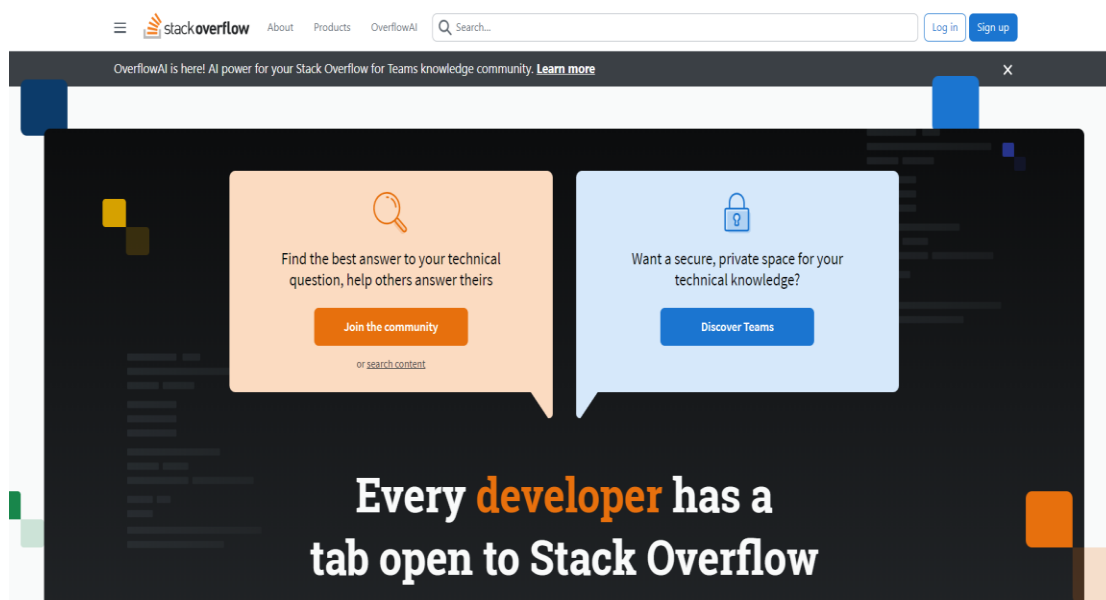


Figure 2.2: Stack

Medium is a blogging platform where users can write and share articles on a wide range of topics, including tutorials and guides. [9].

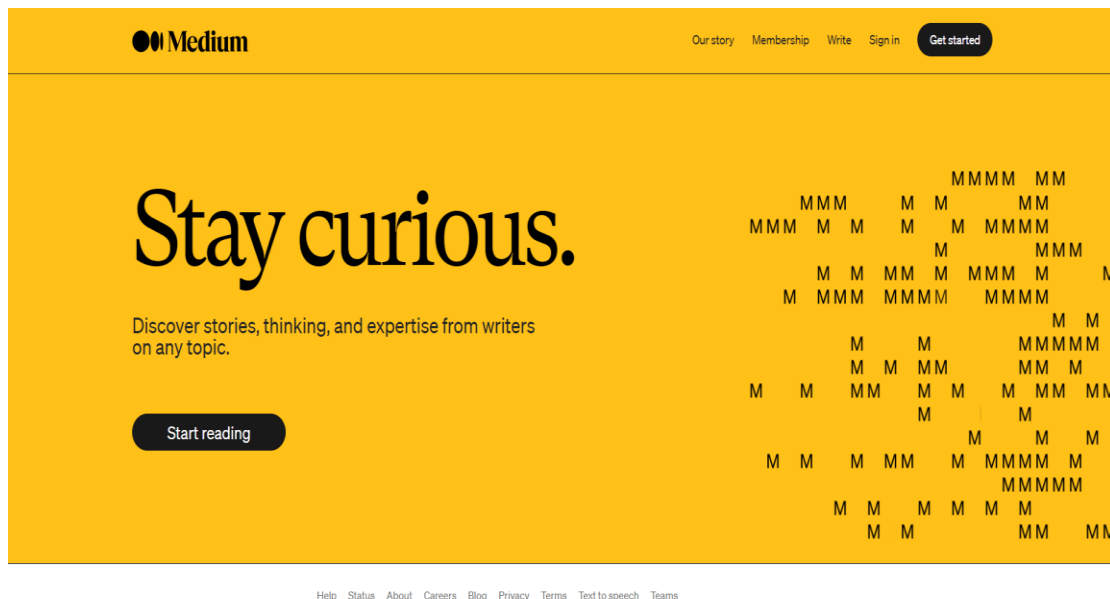


Figure 2.3: Medium

Myhealth1st offers online appointment booking services for healthcare providers across various specialties[10].

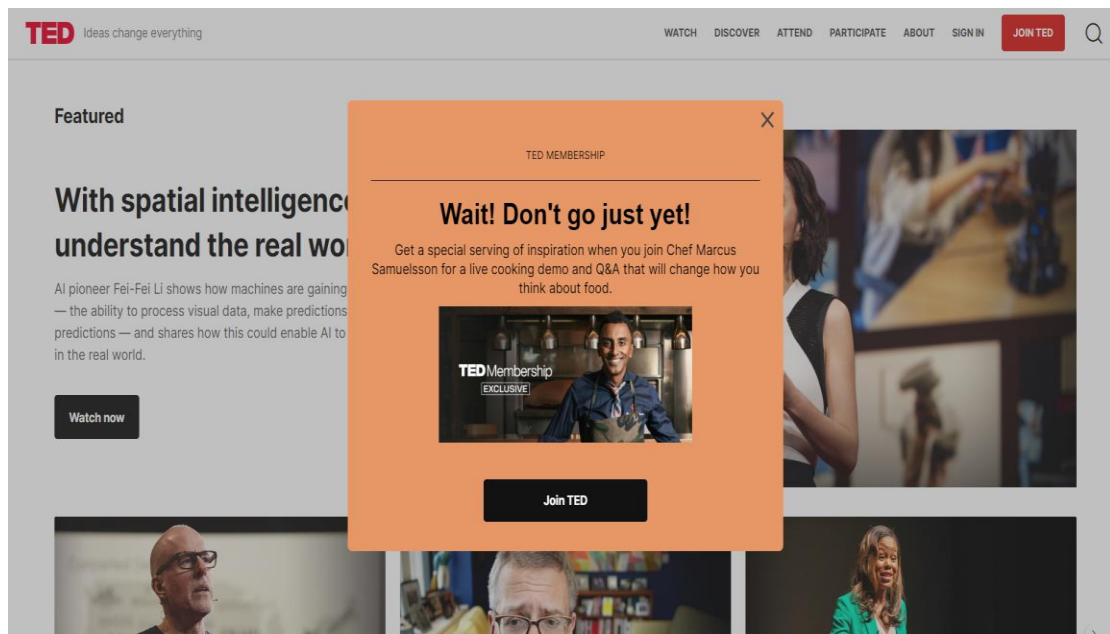


Figure 2.4: Myhealth1st

Khan Academy offers educational resources, including videos and exercises, covering a wide range of subjects. [11].

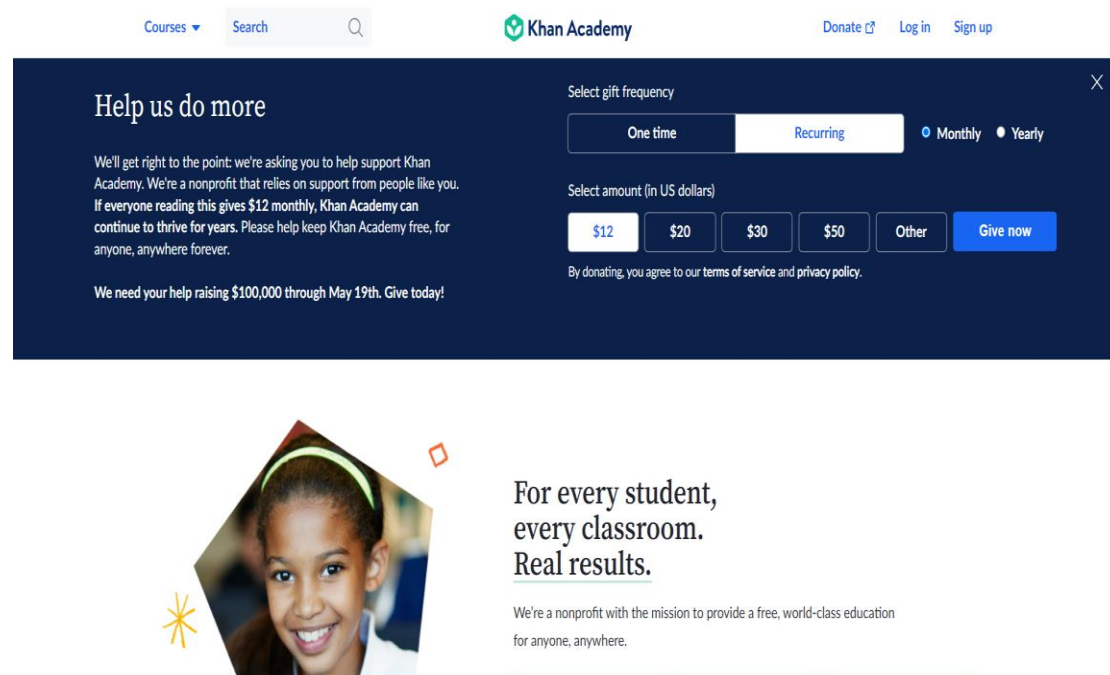


Figure 2.5: Khan Academy

Coursera provides online courses from universities and institutions worldwide, covering diverse topics and disciplines[12].



Figure 2.6: Coursera

Quizziz offers interactive quizzes and assessments for learning and entertainment purposes[13].

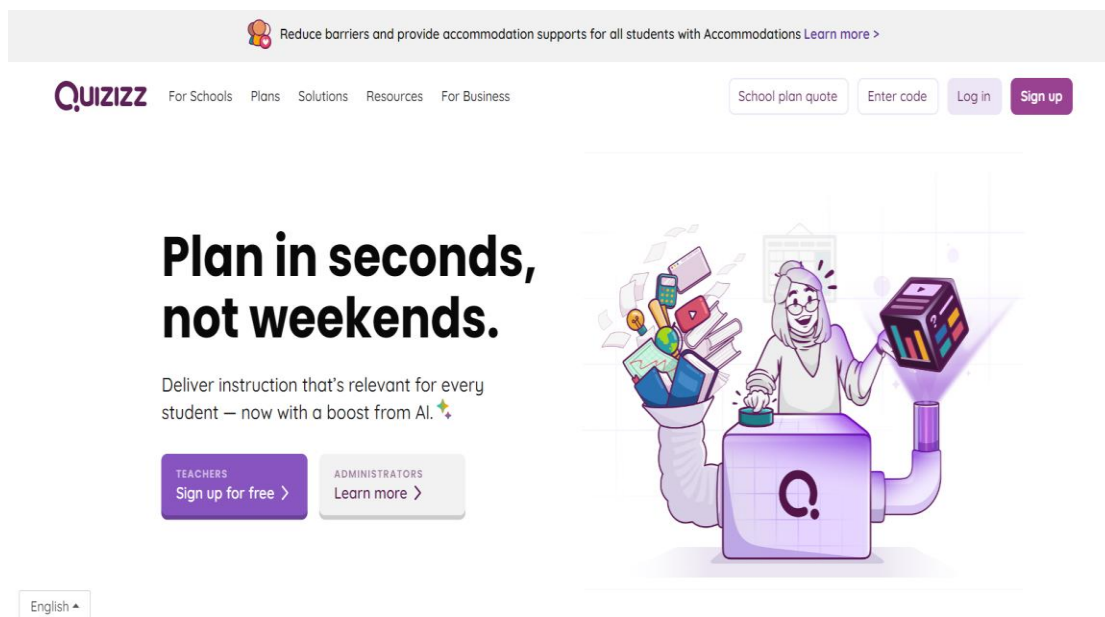


Figure 2.7: Quizziz

HackerRank provides coding challenges and competitions to help developers improve their coding skills and prepare for interviews[14].

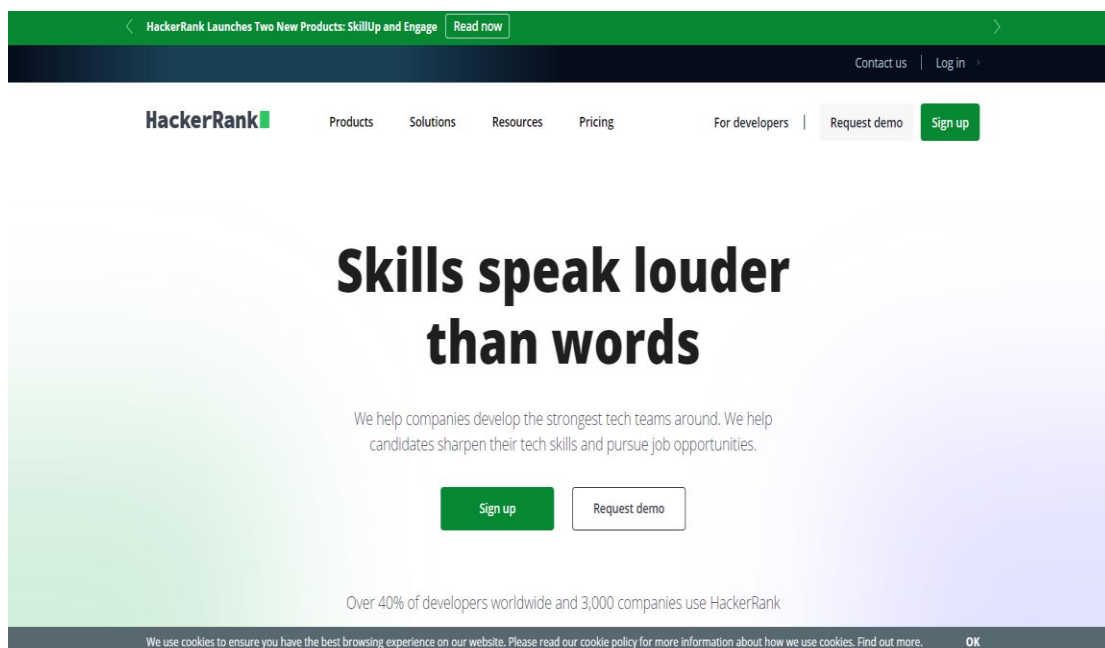


Figure 2.8: HackerRank

WikiHow offers a vast collection of how-to guides and tutorials on various topics, contributed by users worldwide[15].

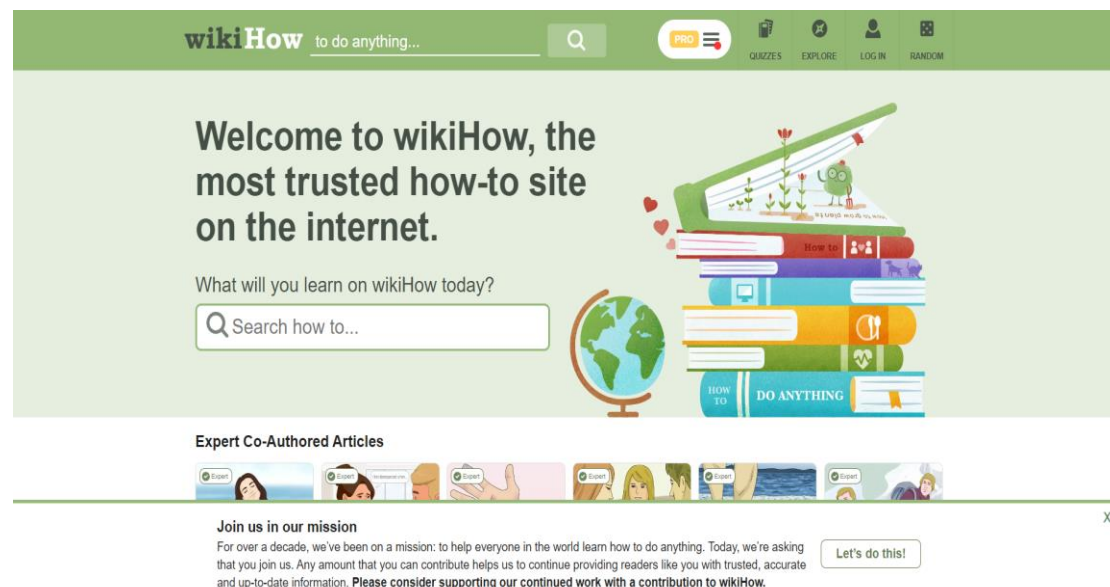


Figure 2.9: WikiHow

2.3 Terminologies

In "Knowledge Cafe," I made a place where people can share information and connect with others in the community. I give users control over their content by letting them make, change, and remove posts. I help people learn by giving them quizzes so they can see how much they know and keep track of their progress. People can find the information they need by searching for posts that are related to their questions. The platform helps people feel like they are part of a group by letting them like, comment, and share posts. This helps people talk and work together. Admin controls make sure that the content is good and fits the topic. They can also manage what users post and organize resources. Adding a "Happy Queriers" section shows that users are happy and makes them want to participate more. I want to make Knowledge Cafe better by adding better search options and user profiles. This will make it a great place for people to share their knowledge.

CHAPTER 3

METHODOLOGY

3.1 Introduction

In this chapter, I outline the methodology employed in the development and implementation of the Knowledge Cafe platform. The methodology is designed to ensure the effective creation and deployment of features catering to user needs and administrative functionalities.

1. Requirement Analysis: Conducted thorough research to understand user requirements and expectations from the platform.
2. Prototyping: Developed initial prototypes to visualize the user interface and gather feedback for iterative improvements.
3. Agile Development: Utilized agile methodologies to iteratively develop and test features, ensuring continuous improvement and adaptation to changing needs.
4. User Testing: Conducted rigorous testing with real users to validate functionality, usability, and user experience.
5. Feedback Incorporation: Incorporated user feedback to refine and enhance features, ensuring alignment with user preferences.
6. Security Implementation: Employed robust security measures to safeguard user data and prevent unauthorized access.
7. Scalability Planning: Implemented scalable architecture to accommodate future growth and increasing user demands.

This methodology provides a structured framework for the development and deployment of the Knowledge Cafe platform, ensuring the delivery of a high-quality and user-centric solution.

3.2 Requirement Analysis

In order to develop an effective knowledge-sharing platform like Knowledge Cafe, I conducted a thorough requirement analysis to identify the key features and functionalities necessary to meet the needs of users and administrators.

1. **User Authentication:** Users need to sign up and log in securely to access the platform.
2. **Dashboard:** A user-friendly dashboard should display posts, comments, and options to create, edit, or delete posts.
3. **Post Management:** Users should be able to create, edit, and delete their own posts, along with liking, commenting on, and sharing posts.
4. **Search Functionality:** Users should be able to search for posts related to their queries efficiently.
5. **Quiz Section:** Implement a quiz section with multiple-choice questions, along with the ability to view scores and retake quizzes.
6. **Community Engagement:** Include a section for testimonials or happy queriers, along with features for administrators to manage user-generated content and resources effectively.

By analyzing these requirements, I can ensure that the Knowledge Cafe platform meets the expectations of users and administrators, fostering a dynamic and engaging environment for knowledge exchange.

3.3 Proposed Methodology/System Design

I thought about important things to make the Knowledge Cafe website easy to use and helpful for sharing knowledge and engaging with the community. The method includes designing the system and figuring out the best way to meet what the user needs.

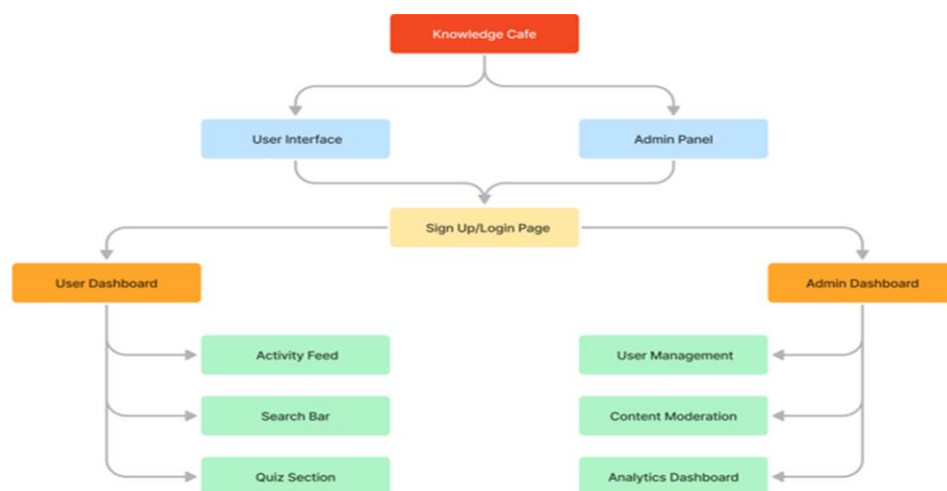


Figure 3.1: Proposed Methodology

1. User-Centered Design

- Conduct user research to understand the needs and preferences of the target audience.
- Create user personas and user journey maps to guide the design process.
- Prioritize features and functionalities based on user feedback and requirements.

2. Agile Development

- Adopt an agile development methodology to iteratively build and refine the website.
- Divide the project into manageable sprints with clear objectives and timelines.
- Regularly solicit feedback from users and stakeholders to incorporate changes and improvements.

3. Responsive Web Design

- Ensure the website is responsive and accessible across various devices and screen sizes.
- Implement a mobile-first approach to prioritize usability on smartphones and tablets.
- Use flexible layouts and fluid grids to accommodate different viewing environments.

4. Scalable Architecture

- Design a scalable architecture to accommodate future growth and increasing user demand.
- Utilize cloud-based infrastructure and scalable databases to handle large volumes of data and traffic.
- Implement caching mechanisms and load balancing to optimize performance and reliability.

5. Security Measures

- Implement robust security measures to protect user data and prevent unauthorized access.
- Utilize encryption techniques for secure transmission of sensitive information.

- Conduct regular security audits and updates to mitigate potential vulnerabilities.
- Continuous Improvement
- Monitor website performance and user engagement metrics using analytics tools.

I want to create a strong and user-friendly platform that encourages sharing knowledge, talking to others, and getting better all the time by using this plan and design.

3.4 Data Collection/Input Output Analysis

For the Knowledge Cafe website, data collection and input-output analysis played a crucial role in understanding user requirements and designing the system architecture. The process involved several steps:

1. User Requirements Gathering: I conducted surveys and interviews to collect data on user preferences, expectations, and challenges related to knowledge-sharing platforms.
2. Content Analysis: I analyzed existing knowledge-sharing websites to identify common features, user interactions, and content types.
3. Stakeholder Consultation: I engaged with stakeholders, including potential users and subject matter experts, to gather insights and feedback on the proposed functionalities and features
4. Prototyping and Feedback: I developed prototypes of the website and collected feedback from users through usability testing sessions and feedback forms.
5. Input-Output Mapping: Based on the gathered data and feedback, I mapped out the input and output elements of the system, including user interactions, database operations, and content management processes.
6. Iterative Development: The data collected during the analysis phase informed the iterative development process, where I continuously refined and updated the system based on user feedback and evolving requirements.

I made sure that the Knowledge Cafe website was designed to give users what they need and expect, and to make it easy to share knowledge and engage with the community.

3.5 Business Process Modeling

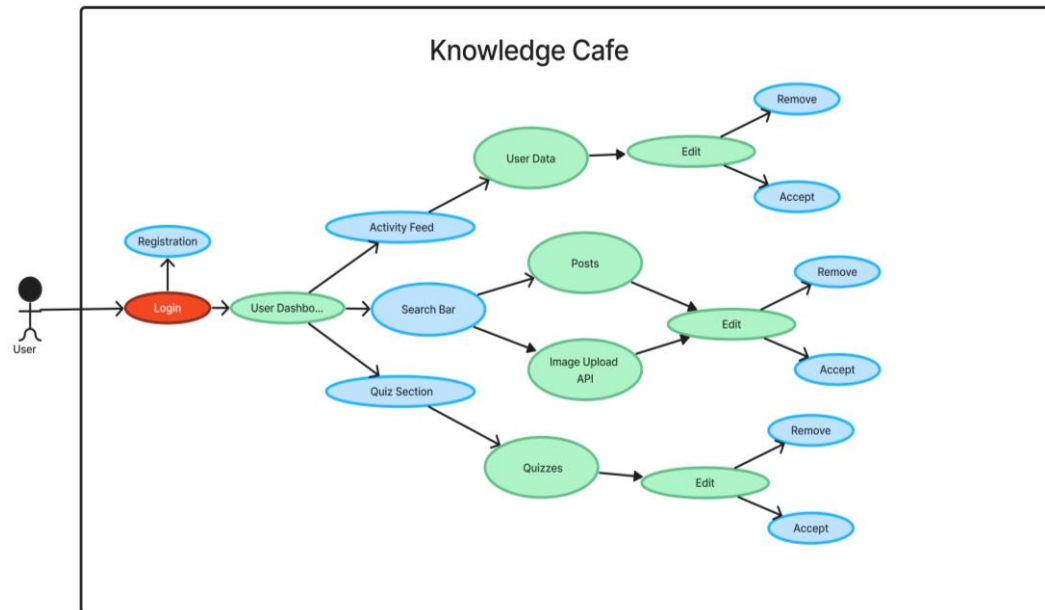


Figure: 3.2 Business Process Model User

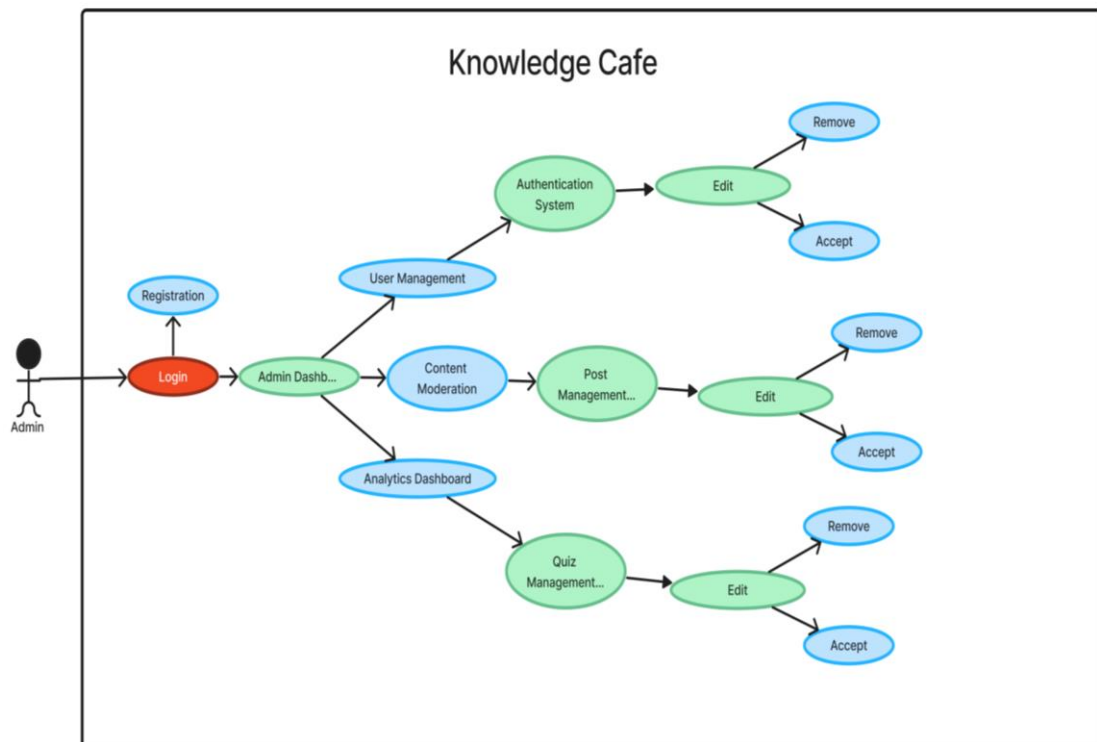


Figure: 3.3 Business Process Model Admin

3.6 Flowchart

Flowcharts are pictures that show how things are done. They help people understand and make decisions. They show the way and connections to help people do complicated tasks easily.



Figure: 3.4 Flowchart of Knowledge Cafe

3.7 ER Diagram

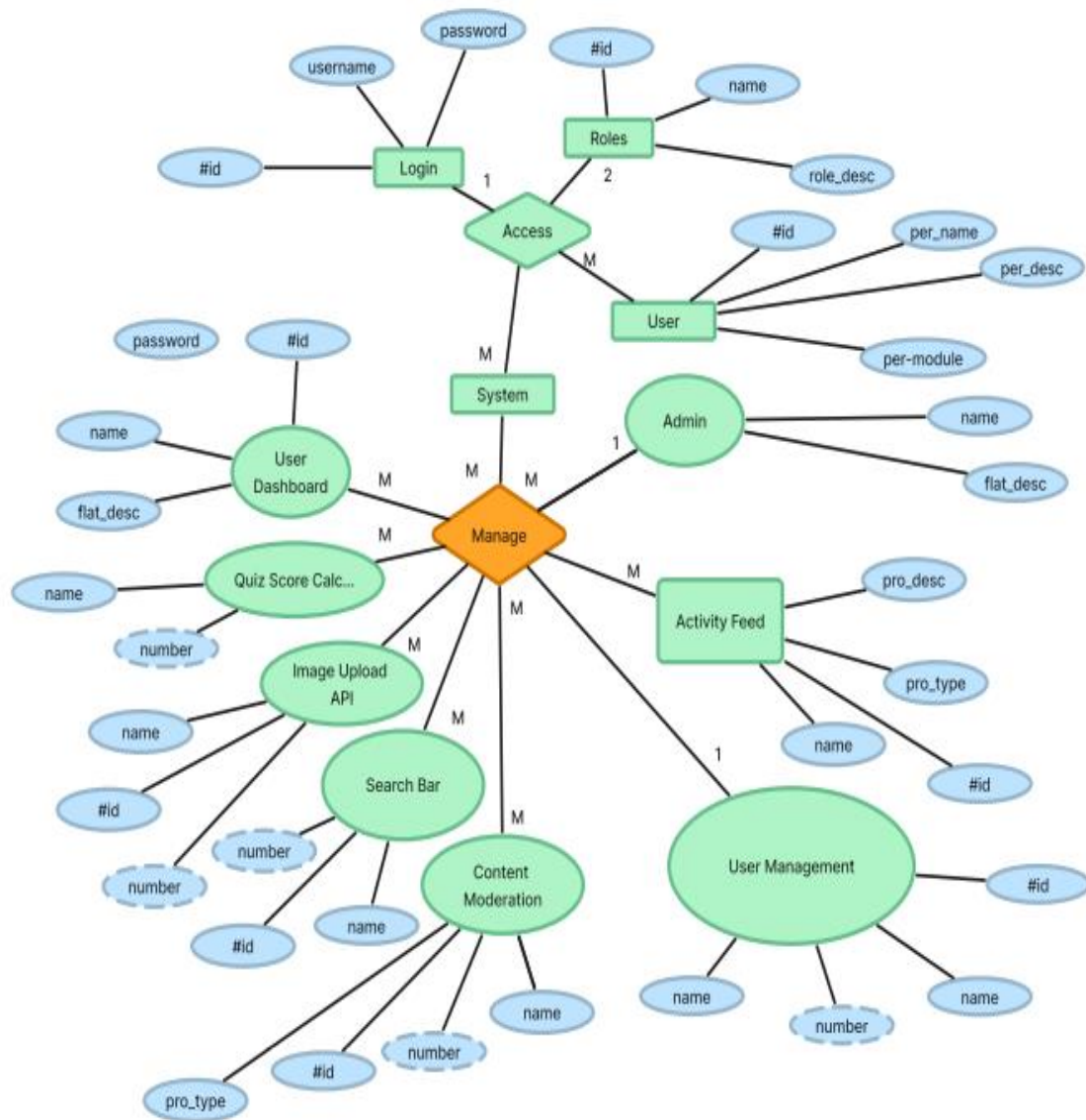


Figure 3.5: ER Diagram

3.8 Class Diagram

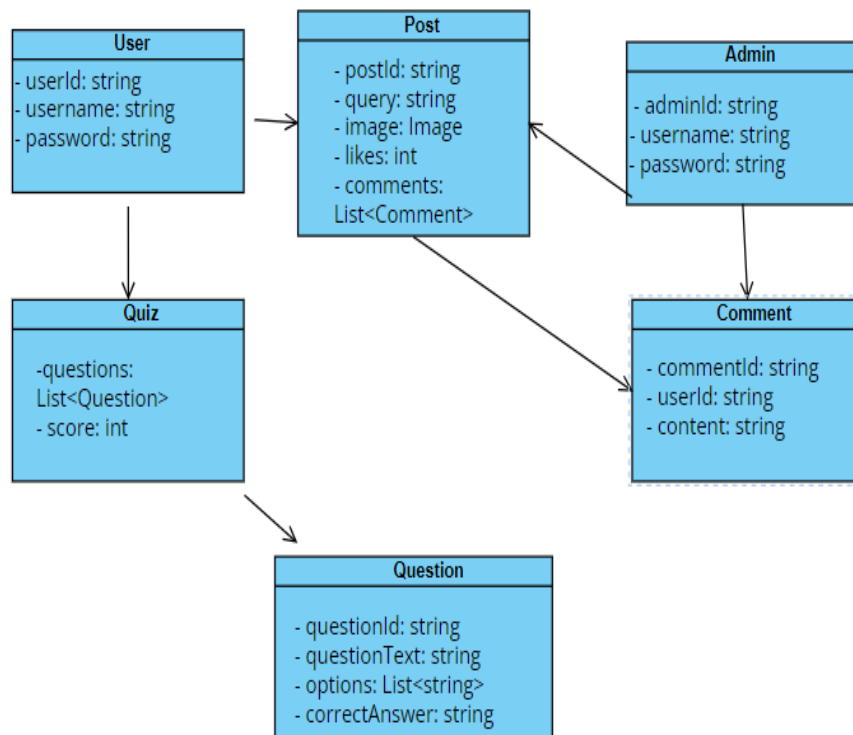


Figure: 3.6 Class Diagram

3.9 MVC Diagram

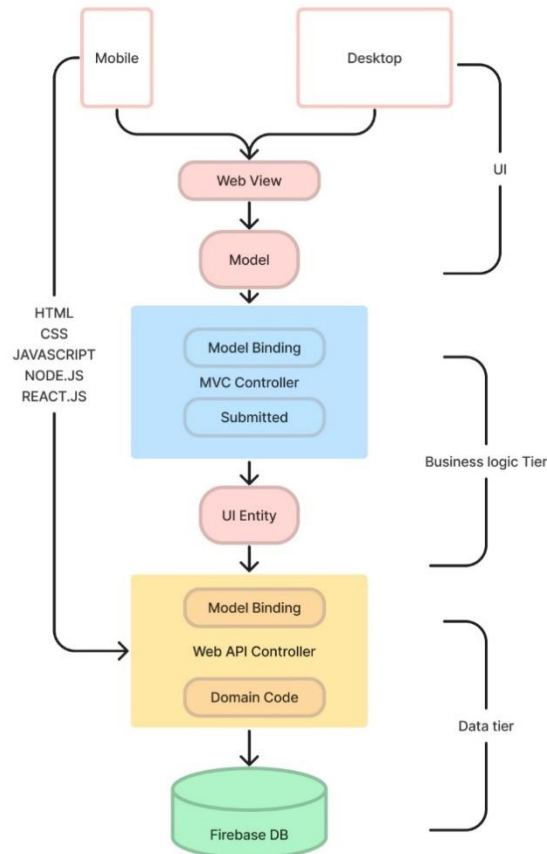


Figure: 3.7: MVC Diagram

3.10 Project Management and Financial Analysis

I have used a organized method to make sure the Knowledge Cafe runs smoothly and works well. I used project management tools to keep track of how the project was going, set goals at each stage, and made sure we used our resources well. We looked at the project's finances to make sure it stayed on budget and gave good results. Planning and scheduling: Deciding what the project will involve, making a schedule, and assigning resources.

1. Budgeting: Estimated costs and secured necessary funding.

2. Risk Management: Identified potential risks and developed mitigation strategies.
3. Monitoring and Control: Regularly reviewed progress against milestones and adjusted plans as necessary.
4. Financial Tracking: Kept detailed records of expenditures to ensure financial accountability.

3.11 Summary

To begin with, I conducted comprehensive research to understand the requirements of a knowledge-sharing platform. This involved analyzing similar websites, gathering user feedback, and identifying essential features. Based on this research, I designed the website architecture, focusing on usability and functionality.

The development process was divided into several key stages:

1. Planning: Defined the website's objectives, user roles, and core features.
2. Design: Created wireframes and mockups to visualize the user interface and user experience.
3. Development: Utilized modern web development technologies to build the platform. Implemented authentication systems for user and admin roles, post creation and management features, and interactive elements such as quizzes and comment sections.
4. Testing: Conducted thorough testing to identify and fix bugs, ensuring the website operates smoothly across different devices and browsers.
5. Deployment: Launched the website and monitored its performance, making necessary adjustments based on user feedback.
6. To enhance user engagement, I integrated features such as liking, commenting, sharing, and searching for posts. The admin panel was designed to allow easy management of user-generated content and site resources

CHAPTER 4

REQUIREMENT ANALYSIS AND DESIGN SPECIFICATION

4.1 Front-End Design

I worked on making the front-end design of the Knowledge Cafe easy for users to use and understand. I made a website that works well on all kinds of devices using HTML, CSS, and JavaScript. The design makes it easy for people to find and use features like making posts, searching, and doing quizzes. I made a neat and up-to-date design, with clear parts for important subjects, helpful things, and comments from users. We put buttons for liking, sharing, and commenting in easy-to-find spots to encourage people to join in and interact. Furthermore, I added those to keep the posts and comments up-to-date and engaging. The quiz part has multiple choice questions. After you answer, you get your score right away. In simple words, the front-end design is made to give users a good experience and make it easy for them to use. It also encourages them to join in and share what they know.

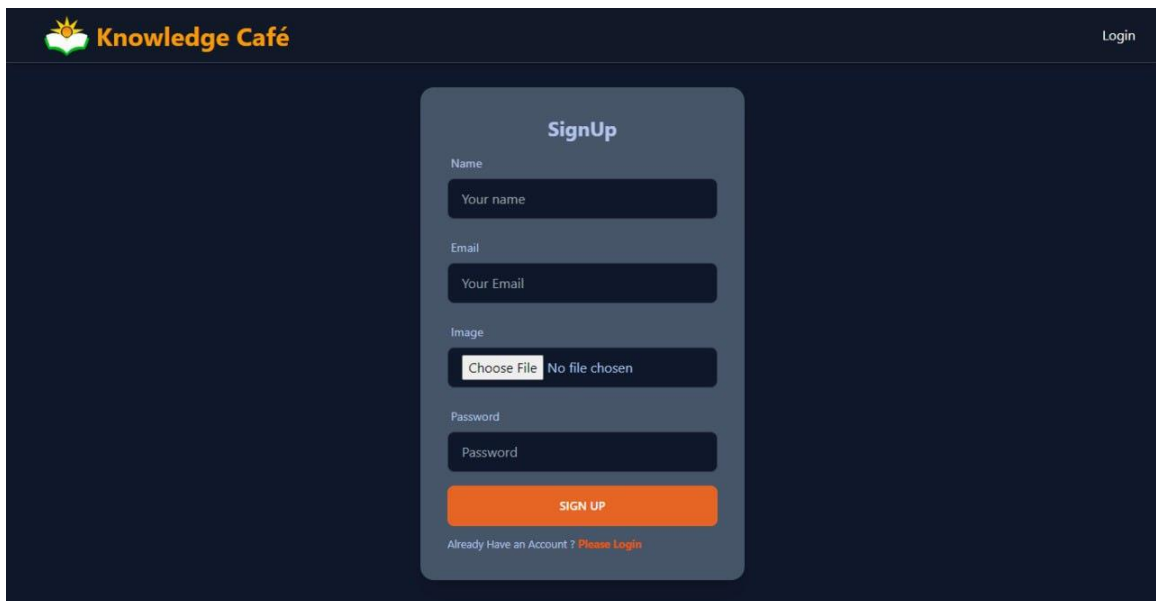


Figure: 4.1 Sign up page

Login:

The login in Knowledge Cafe makes sure that only authorized people can access their own accounts safely. When you get to the login page, you need to type in your email and password that you used to sign up. The system checks if the login information is correct by comparing it with the database. It uses encryption to keep important

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information safe. When you log in successfully, you will be taken to your dashboard. There, you can see and do things like look at posts, comment on them, and take quizzes. If you put the wrong information, you will get an error message. It will tell you to fix your details or use the forgot password option. When you login, there's an option to stay logged in called "Remember Me" so you don't have to log in every time. Using session management techniques keeps the user's information safe while they are using the website. I make sure that user accounts and personal information are kept safe from unauthorized access, so that everyone in the Knowledge Cafe community can log in easily and securely.

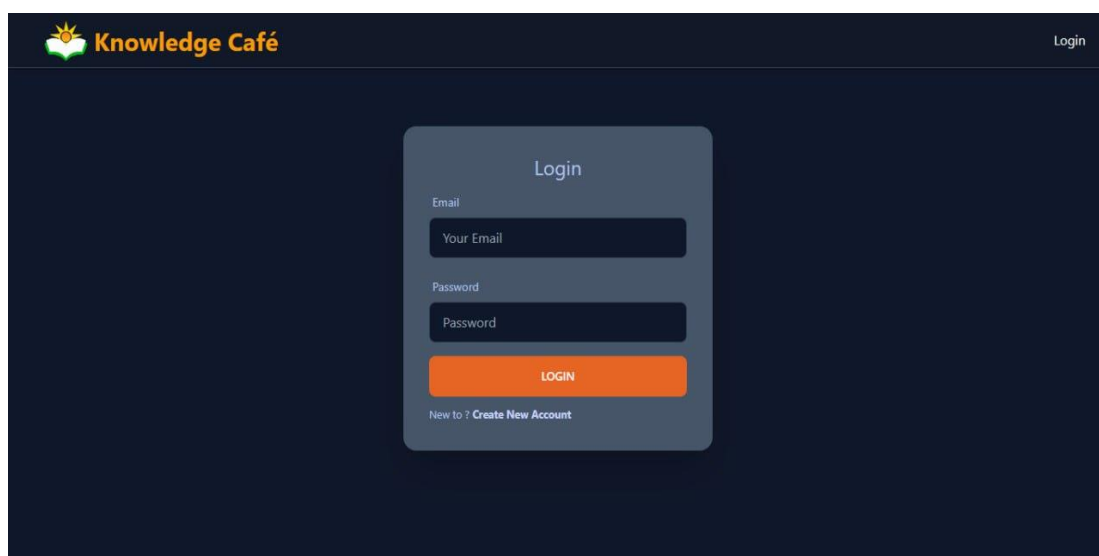


Figure: 4.2 Login page

Home page:

The "Knowledge Cafe" homepage is an interactive place where you can ask questions, exchange ideas, and connect with a lively group of people. Join to take part in quizzes, and like, comment, and share posts. Discover things people like to talk about and helpful tools, and have fun learning together with others to find the answers you need.

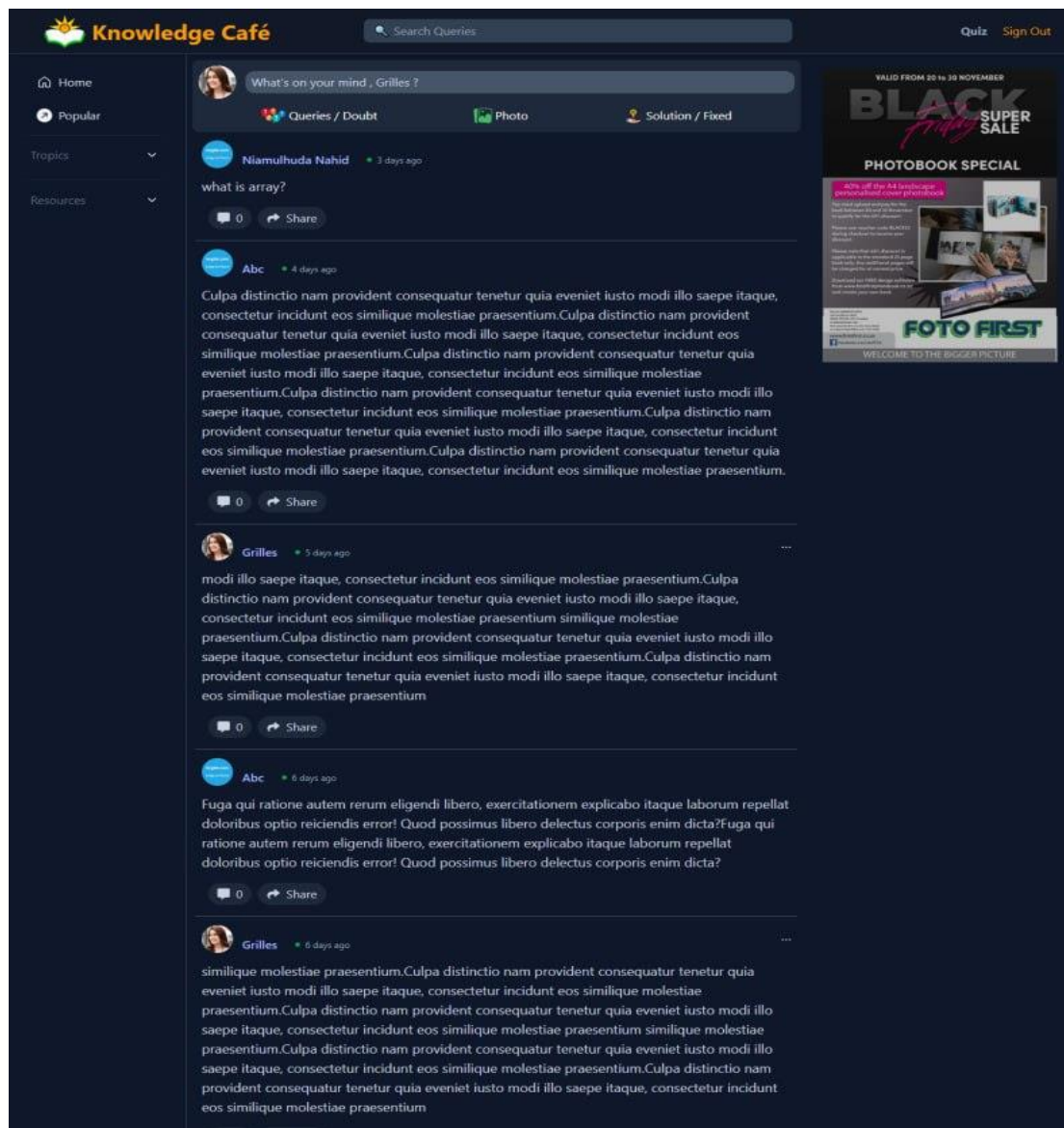


Figure: 4.3 Front page

Specification of services:

Knowledge Cafe provides different services that are customized to help people share information and connect with others in their community. Users can do many things like making, changing, and removing posts, joining in quizzes, and talking with other users by leaving comments, liking posts, and sharing them. The platform helps users find information they are interested in and access resources chosen by the admin team. Admins can manage the content that users create. They can change or remove posts and also control the Happy Queriers section, popular topics, and other resources. Additionally, Knowledge Cafe focuses on making it easy for users to log in, find their way around the website, and use it on different devices. The platform wants to create a lively community where people can ask questions and share their knowledge to help

each other. With these rules, Knowledge Cafe aims to be a helpful and easy-to-use platform for sharing knowledge and learning.

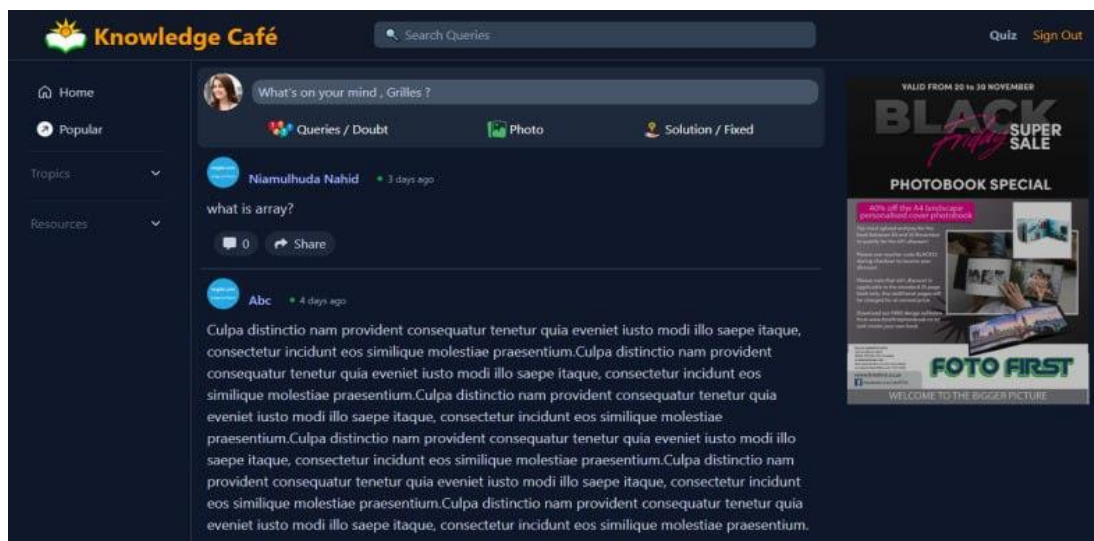


Figure: 4.4 Specification of services

User Section:

In the "Knowledge Cafe ," when I want to share my thoughts or seek help, I click on "Create Post." I write a concise 30-word passage about my query or problem, add an image if needed, and then post it for others to see and respond to.

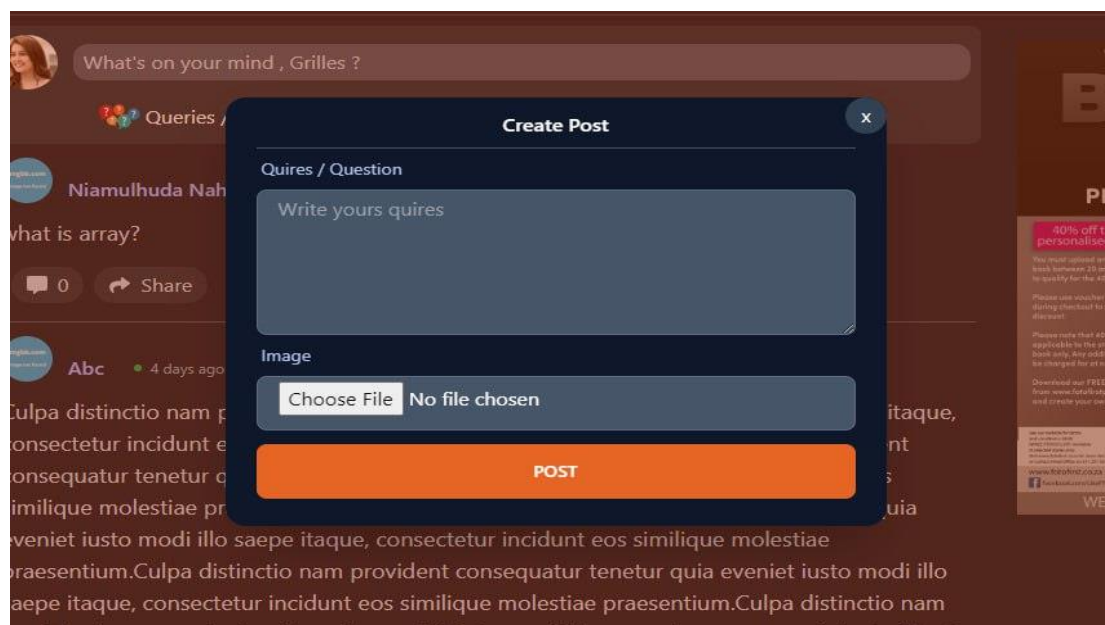


Figure: 4.5 Create Post

In the Knowledge Cafe, I added a quiz to make it more fun and help people learn more. When I am given a quiz, I answer multiple-choice questions about different

things I am interested in. These questions are made to see if I understand and know about those topics. After I finish the quiz, I can see my score right away, so I can see how well I did. If I don't like my results, I can take the quiz again to try to do better. The quiz helps me learn and see how I'm doing. Also, it makes learning more fun and rewarding by adding a game-like feature to the platform.

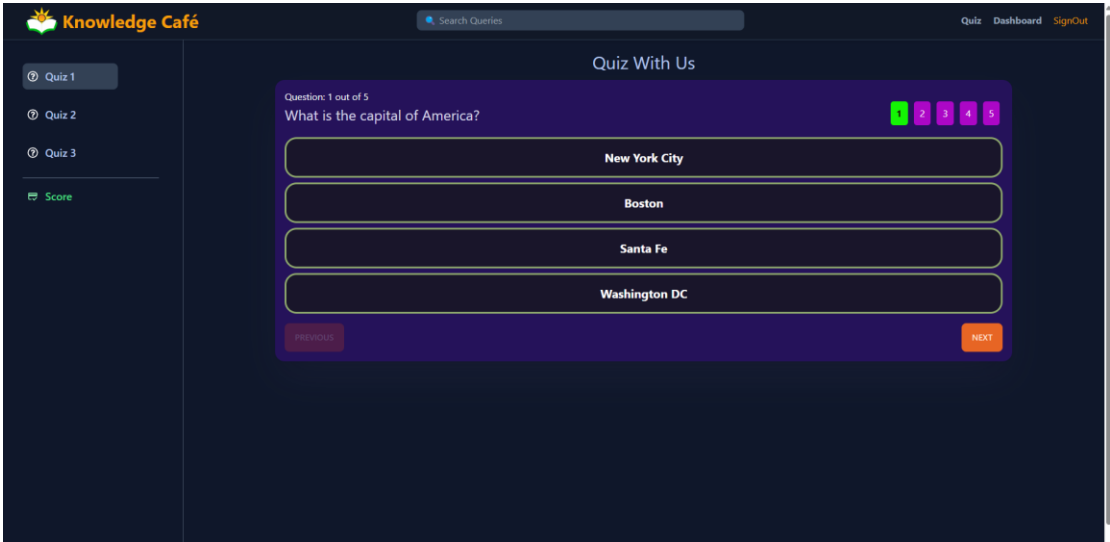


Figure: 4.6 User giving quiz

After taking the quiz, users can see how well they did right away. They look at their score to see how well they understood the material. When they get low scores, they look at what they need to do better. When they get high scores, it makes them feel good about themselves. People can look at wrong answers to help them learn better. This feedback loop helps users see how they are doing, find out what they are good at and what they need to work on, and get better over time.

The screenshot shows the 'Knowledge Café' interface with the 'RANKING' section. It displays a table with 8 rows of quiz results. The table has columns for NAME, DATE, TIME, QUESTION, HIGH SCORE, and PERCENT.

	NAME	DATE	TIME	QUESTION	HIGH SCORE	PERCENT
1	Abc	Thu May 16 2024	11:11:34 PM	6	6	100 %
2	Grilles	Mon May 13 2024	10:33:34 PM	6	5	83 %
3	Grilles	Tue May 14 2024	12:55:48 AM	6	3	50 %
4	Abc	Thu May 16 2024	11:09:51 PM	6	3	50 %
5	Niamulhuda Nahid	Wed Jun 05 2024	10:33:42 PM	5	2	40 %
6		Tue Jun 11 2024	2:02:55 AM	5	2	40 %
7	Niamulhuda Nahid	Tue Jun 11 2024	2:11:19 AM	5	2	40 %
8	Niamulhuda Nahid	Wed Jun 05 2024	10:32:33 PM	5	1	20 %

Figure 4.7: Quiz Result

4.2 Back-End

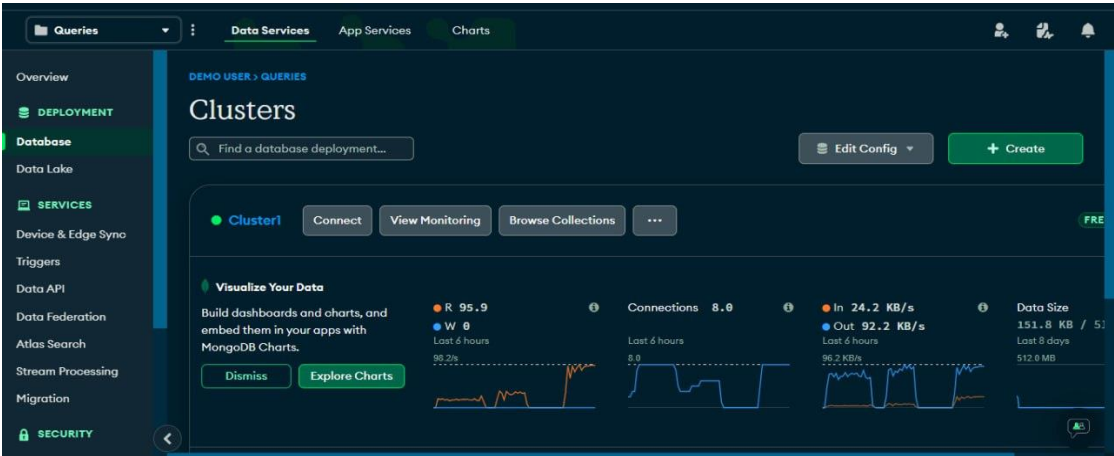


Figure: 4.10 User Details

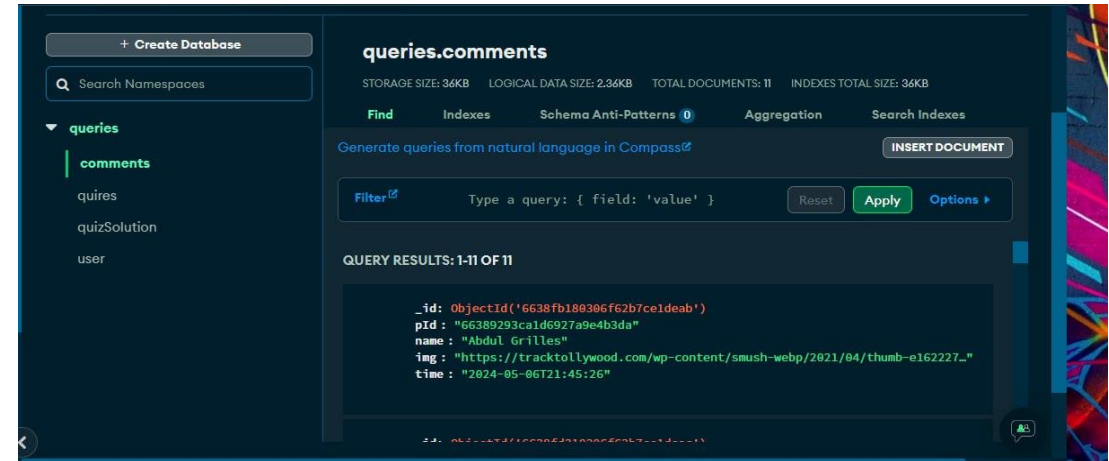


Figure: 4.11 Sign-in-method

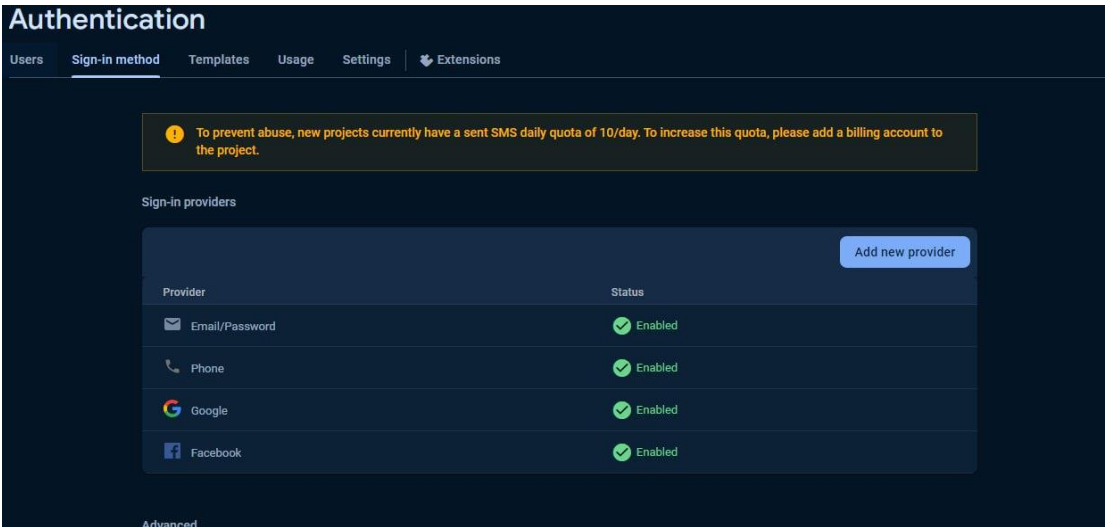


Figure: 4.12 Authentication

4.3 Interaction Design and User Experience (UX)

I want the doctor appointment booking system to be easy for people to use, so I am designing it to be simple and straightforward. The website should be easy for people to use to book appointments with their favorite doctors. To make it easy to use, the UI will have clear and easy-to-find buttons for managing reservations, scheduling appointments, and learning more about the service. It is easy for users to find available appointments on the date they want and in the medical department they need because the layout puts the most important information first. I want to make it easier for people to find and book appointments, so that they have a better experience and are happier when using the service.

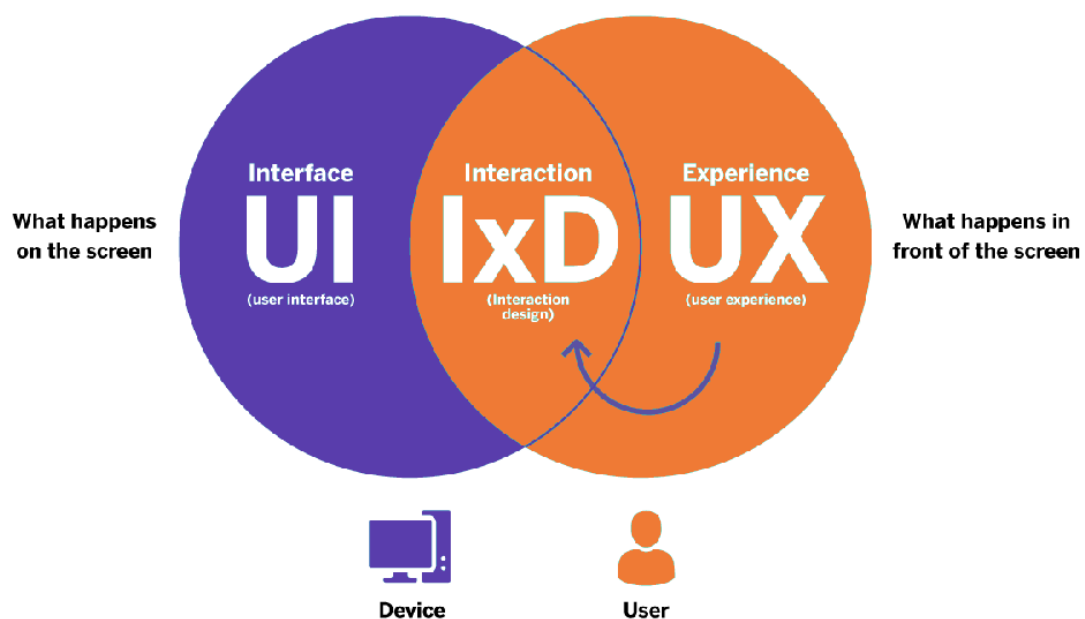


Figure: 4.13: Interaction Design and User Experience (UX)

I'll employ a modern, professional design with accessible features, fostering trust and ensuring usability for all users. Consistent branding will reinforce credibility, enhancing the overall user experience.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In the implementation of the quiz feature on my website, I'm focused on ensuring smooth functionality and efficient data management through the database. The database plays a crucial role in storing and organizing quiz-related information, including questions, options, correct answers, and user responses.

To implement the quiz database, I've structured it to accommodate the following key components:

1. Questions Table: This table stores information about each quiz question, including the question text and unique identifiers.
2. Options Table: Here, I store the possible options for each question. Each option is linked to its corresponding question through foreign keys.
3. Answers Table: This table records the correct answers for each question. It maintains the association between questions and their correct options.
4. User Responses Table: Upon completion of the quiz, user responses are stored in this table. It tracks which option the user selected for each question.
- 5.

To enhance the user experience, I implement features such as:

1. Score Calculation: Upon submission of the quiz, the system calculates the user's score by comparing their responses with the correct answers stored in the database.
2. Score History: I maintain a record of users' quiz scores, allowing them to track their progress over time.
3. Quiz Restart: Users have the option to restart the quiz, which involves resetting their responses in the database.

Furthermore, I prioritize security measures to safeguard the integrity of quiz data. This includes implementing measures such as input validation to prevent malicious attacks and unauthorized access to the database.

5.2 Implementation of Front-end Design

I made a fun and easy-to-use design for the quiz feature on the Knowledge Cafe website. When people take a quiz, I make sure it's easy and simple for them the whole time. First, I make the quiz look nice and easy to use. I use HTML, CSS, and JavaScript to create a neat and up-to-date design that shows the quiz questions and choices in a simple and orderly way. Each question shows up one by one, and users can choose their answers using radio buttons or checkboxes. I use things like hover effects and animations to make it more fun for people to use. These little details make the quiz more fun to use and also show users what to do while they answer the questions. Furthermore, I add things to make it easier to use and access. For instance, I make sure the quiz works on all kinds of devices, like computers, tablets, and phones. I also make sure that everyone can use the quiz, even if they have disabilities, by following rules for making the web accessible. To make it better for the user, I add a timer to show how long the quiz takes and a progress bar to show how much of the quiz is done. These things make you feel like you need to hurry up and do the quiz on time. At the end, I made the quiz results page so that users can see how they did right away. I show you your total score and the right answers to each question so you can see what you got wrong and learn from it.

5.3 Testing Implementation

Making sure the quiz on Knowledge Cafe works well and is easy to use is very important. I carefully check every part of the quiz to make sure it works well. First, I check each part of the quiz to make sure they work by themselves. This includes checking how the questions are made to make sure they are different, important, and correct. I also make sure that when users submit an answer, they can choose it and send it without any problems. After each part is tested by itself, I start testing how they work together. This means checking how the different sections of the quiz work together. For instance, I make sure that the scoring system calculates scores correctly by looking at how users answer each question. Integration testing also involves making sure that new features on the website work well with other parts, like logging in and creating posts. After checking how everything works together, I test to see how easy it is for people to take the quiz. I create different situations that users might experience while they are taking the quiz, like moving between questions, changing

their answers, or running into problems. This helps me find any problems with how easy a website or app is to use or any mistakes in how it looks that need to be fixed. Finally, I do another test to make sure that any changes to the quiz feature don't make new problems or mess up how it works now. I check the quiz feature regularly after making changes to the code. I do this by using automatic tests and by testing it myself. I make sure the quiz on Knowledge Cafe works well and is fun for users. It helps them test their knowledge and learn in a fun way.

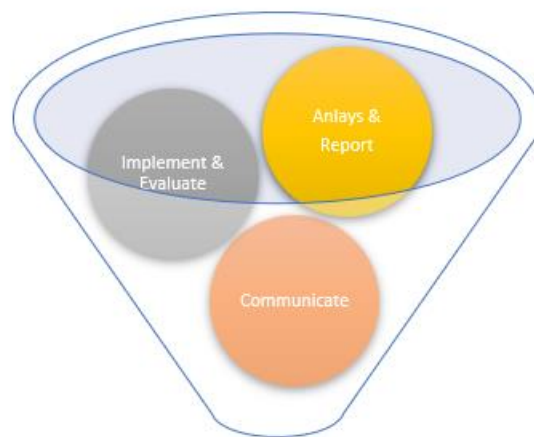


Figure: 5.1: Testing Implementation

5.4 Test Results and Reports

In the quiz section, I can see a lot of information about how well I did. After I finish a quiz, I get a detailed report that shows my scores and where I can do better. This report shows not just my total score, but also how I did on each individual question. It shows the questions I got right and the ones I got wrong, so I can see what I'm good at and what I need to work on. Also, the report might have explanations for the right answers, which will help me understand the ideas better. With this detailed feedback, I can see how I am doing and work on getting better in the areas I need to. The reports help me see how well I'm doing compared to before and track how much I've learned. Also, the Test Results and Reports part might have pictures like charts or graphs to help me understand the information quickly. Usually, this feature helps me to see what I know, make goals to get better, and start learning a lot.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

Answering quizzes on the Knowledge Cafe can really help society by encouraging people to keep learning and remember what they have learned. When I do quizzes, I'm not just learning quietly; I'm also making sure I understand and remember the information. This process makes me want to keep asking questions and learning about new things. When I take part in quizzes, I am helping myself and also supporting the idea that people should keep learning throughout their lives. Also, quizzes encourage users to compete in a friendly way. I want to do better than others and get higher scores, so I'm motivated to spend more time and work harder on learning. I like how quizzes make me want to do my best and improve myself. It helps me grow and get better. Also, quizzes on the Knowledge Cafe are helpful for testing and comparing how much people know. By doing quizzes often, I can see how I am doing and figure out where I need to work harder. This self-assessment helps me figure out what I need to learn and how to plan my studying better, so I can learn more effectively. Also, the quizzes in the Knowledge Cafe are for everyone and are designed to be helpful to many different ways of learning. I can find quizzes that I like, whether they are multiple choice or short answer. This means that everyone, no matter where they come from or how they learn, can join in and gain from the learning. Overall, the quizzes on the Knowledge Cafe are good for society because they encourage people to keep learning, create friendly competition, help people assess themselves, and make learning inclusive and accessible to everyone.

6.2 Impact on Environment

I know that my website can affect the environment, so I'm careful with it. While my digital platform doesn't have a physical presence like traditional industries, we still need to think about the environment. One important thing to consider is how much energy the website uses to run and keep it working. Website hosting servers need electricity to work. The electricity they use usually comes from sources that can't be renewed, which adds to the pollution and harm to the environment. Also, making and getting rid of electronic gadgets like computers, smartphones, and servers that people

use to go on my website can harm the environment by using up resources and creating electronic trash. To lessen these effects, I promise to use servers powered by renewable energy as much as I can for my website and make it use less energy. I also tell people to use energy-saving devices and recycle old electronics in a responsible way to help the environment. Also, I try to encourage people to care about the environment and use resources wisely on my website. I hope to inspire visitors to do things that are good for the environment in their everyday lives. I want to do things that will help the environment and make the planet healthier with my website.

6.3 Ethical Aspects

In my website, "Knowledge Cafe," I follow important rules to make sure it is fair and right for everyone. First, keeping personal information private and safe is very important. I make sure that I keep user information safe and don't give it to anyone else unless the user says it's okay. Being open about how we use data and making sure it's safe is really important for gaining users' trust. Secondly, creating a community where everyone feels respected and included is very important to Knowledge Cafe's beliefs. I make sure to check content to stop false information, mean comments, or unfair treatment from spreading. Creating a positive conversation and giving different people a chance to share their thoughts are important for keeping the internet a good place. Also, I focus on giving users the freedom to make their own choices and take action. This means letting people have control over their information, giving them clear choices about saying yes or no, and respecting what they decide about joining quizzes, posting things, and talking to others. Finally, I understand how important it is to keep getting better and to take responsibility for my actions. Regularly checking and updating rules, listening to and acting on what users say, and being clear about any changes or problems are important ways to follow ethical standards. I want to make sure that people feel safe, respected, and encouraged to share and talk with each other online by following these rules.

6.4 Sustainability Plan

I promise to keep Knowledge Cafe going strong and environmentally friendly. To do this, I will use different ways to help the environment and to use resources responsibly. I will start by making the server run better and use less energy to reduce

our impact on the environment. I want to use servers that use less energy and use smart cooling systems to reduce how much energy we use. Furthermore, I will focus on using renewable energy whenever we can to run our business, which will help lessen our impact on the environment. Also, I will encourage our users to work together online and use less paper to help the environment. I will teach people about the importance of using less paper and encourage them to use digital options instead, when they can. Additionally, I will start programs to recycle old electronics in our company so we can get rid of them the right way. This will also help our team members be more responsible with what they use. When it comes to managing things, I will focus on promoting ways to help the environment and find ways for people to live in a way that doesn't harm the planet. By sharing information about how to be more eco-friendly and promoting sustainable products and projects, I will help our community make smarter choices that are good for the environment and for them.

CHAPTER 7

CONCLUSION AND FUTURE WORK

7.1 Discussion and Conclusion

In summary, the "Knowledge Cafe" is a place where I can connect with other people to share information, find answers to questions, and improve my learning. The discussion forums give me a place to talk more about topics I like, have important conversations, and work together to solve problems. When I join in conversations, I share what I know and learn new things from others' different viewpoints. I can use the quizzes on the platform to see how much I understand and to keep track of how I'm getting better over time. This helps me keep learning and improving my skills. Also, the materials selected by the administrator help me learn better by giving me access to useful resources and information. The platform has features that let me like, comment, and share, and it makes me feel like I'm part of a group. It also makes me want to talk with others in a friendly way. As an admin, I need to make sure the content on the platform is good and helpful for users. This will make the user experience better. I help make sure people follow the rules and use polite language when they share their ideas on our website. This helps create a good atmosphere for everyone to learn and work together. The "Happy Queriers" section shows how well the platform meets user needs and makes them happy. "Knowledge Cafe" helps me learn new things, meet people who are similar to me, and continue learning for the rest of my life. The platform helps people share information and connect with others who want to learn and grow intellectually.

7.2 Scope for Further Developments

In society, there's a lot of potential to make the Knowledge Cafe better for users and add more features. One way to make things better is to improve the quiz part. Right now, people can take quizzes and see their scores. But if we add different types of questions like fill-in-the-blank or true/false, it can make the quizzes more interesting and meaningful. Furthermore, adding a leaderboard could make users want to compete with each other and try to do better in the quizzes. This could make them more interested and involved. Another way to improve is the user profile feature. Right now, users can make and control their posts. But if they have personalized

profiles, it could make the community part of the platform even better. By letting people personalize their profiles with pictures, short descriptions, and links to their social media, the Knowledge Cafe can help users feel more connected to each other and create a stronger sense of who they are. Additionally, improving the search function could make the platform easier to use. We are adding new search options, like searching by topic, date, or user, to help you find posts that are important to you more easily. Creating a tagging system for posts can help sort and arrange content, making it easier for people to find and learn new things. Apart from the changes for users, we can also improve the tools for administrators. Giving admins a dashboard to see how many people are looking at, liking, and commenting on posts would help improve the platform. Basically, if we keep working on improving these areas, the Knowledge Cafe can become even better for sharing knowledge and interacting with the community.

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