MIND MAZE

A PROJECT REPORT
for
Mini Project-I (K24MCA18P)
Session (2024-25)

Submitted by

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CERTIFICATE

Certified that **Ridhi Rajput 202410116100165, Roopsi Srivastava 202410116100173** have carried out the project work having "**Mind Maze"** (**Mini Project-I, K24MCA18P**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU) (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

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Mind Maze
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ABSTRACT

MindMaze is a web-based platform designed to make learning engaging and efficient through a variety of quizzes. It focuses on three key areas: Computer Applications, Quantitative Aptitude, and Logical Reasoning, making it an ideal tool for students, competitive exam aspirants, and anyone looking to test and enhance their knowledge. The platform is built to be simple and user-friendly, ensuring that learners of all levels can navigate it with ease. Questions are curated to cover a wide range of topics and are structured to adapt to varying levels of difficulty, providing a balanced challenge for users. With the ability to track progress, users can monitor their performance, identify their strengths, and work on areas that need improvement.

MindMaze is more than just a quiz platform—it's a personalized learning experience. By focusing on knowledge reinforcement and skill-building, it encourages users to think critically and solve problems effectively.

Whether you're preparing for exams or simply want to enhance your reasoning and analytical skills, MindMaze offers a productive and focused environment for learning. It's a platform that transforms traditional learning into a dynamic and rewarding experience, helping users achieve their goals at their own pace.

Keywords: Quiz for Students, Educational Quizzes, Reasoning Quiz, Free Quiz Platform, Online Learning Quiz

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Ridhi Rajput

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CHAPTER 1

INTRODUCTION

1.1 Overview

In the present world, education has transformed greatly and online learning environment has become important for human learning. Quiz are one of the most effective methods to engage the students as not only they test the knowledge but also make the learning process more engaging. Students are always engaged and tend to perform well in a certain subject when they are having fun while learning.

MindMaze was created to overcome the differences between the modern, attractive and fun way of learning and the conventional methods of teaching. It is a quiz-based platform which focuses on the logical reasoning, quantitative aptitude and the computer applications. The goal of the platform is to help the users to find themselves in the interesting environment that will allow the user to test their skills, track their progress, and, finally, enjoy the learning process.

The idea behind MindMaze is that it should not only be a conventional quiz platform but a platform that is engaging like a game; users will want to return to the platform to learn more. The project seeks to enrich the existing educational technology field in that learning can be made more appealing and exciting while offering quality content.

1.2 Problem Statement

Although there are many online quiz platforms, many of them fail to leave a long-lasting impression. Many of these websites are either too simplistic or lack features that make them interesting for users. They often fail to offer customized experiences or real-time feedback, and thus, users may find themselves struggling to understand areas for improvement.

MindMaze addresses these challenges by offering an interactive quiz platform that not only engages users with quizzes across various subjects but also enhances the enjoyment of learning. Through the provision of quizzes that adjust to the user's skill level, the delivery of immediate feedback, and the monitoring of progress, MindMaze seeks to transform the learning process into a pleasurable and rewarding experience.

1.3 Objectives of the Project

The main goal of MindMaze is to create a quiz platform that the users would really like to use. The project looks to:

- •Improve the learning process through enjoyment and return visits to interact further.
- •Enable learning with quizzes that adapt to the user's performance.
- •Offer instant feedback to help the users identify their strengths and where they need improvement.
- •Monitor users' progress, thereby providing them with a sense of accomplishment and encouraging them to persist in their learning endeavors.

1.4 Scope of the Study

MindMaze is to be used by people who intend to upgrade their skills in the areas of Computer Applications, Quantitative Aptitude, and Logical Reasoning. With a range of quizzes targeted at various skill levels, this will help users test their skills and track their improvement through time.

The main focus of this project is on the development of the quiz platform, while at the same time ensuring that it is engaging and interactive. Although the initial launch will focus on these three subjects, later versions of the platform may expand to include other areas of learning.

1.5 Methodology

This has been a very structured development of MindMaze such that the platform, when being used, is effective as well as enjoyable and engaging:

1. Requirement Analysis: This stage is taken on to understand the need in relation to an interactive quiz platform—feedback tracking progress and user-friendly.

2. System Design: It includes developing an attractive platform easy to navigate with interactive features to add to the fun that comes with taking quizzes.

3. Development: A platform will be developed that will integrate all of the components into a single experience using web technologies like HTML, CSS, JavaScript, PHP, and MySQL.

4. Testing: The platform will be tested to ascertain whether it works as anticipated and offers an enjoyable experience to users; the feedback of the users will be incorporated into the development process.

5. Deployment: After full development and testing, the platform will be released for public use with regular updates that will improve its functionality.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this chapter, we explore the current literature, platforms, and technologies that have led to the development of MindMaze. The idea is to understand the current landscape of quiz-based learning systems and see where MindMaze would like to fill in those gaps. Analysis of the existing solutions will better help us position our platform for an engaging and effective learning experience.

2.2 Online Learning and Assessment Tools

With the rapid expansion of e-learning, online tools for assessment are now quite integral to education. Kahoot and Quizizz are some of the most recent innovations that have helped change the way quizzes happen and are interactive and also scalable. What makes this tool so popular is being user-friendly and engaging by using gamified features, thus reaching learners.

Most of these tools lack features for the really personalized experience. Like even though Kahoot and Quizizz are effective in groups, individual learning speeds are not accounted for there, nor does it fully track progress so that an improvement process can be carried further. MindMaze seems to fill this gap because personalized quizzes with adaptation based on users' performance and a detailed follow up of the learning process with time is its goal.

2.3 Role of Gamification in Education

Gamification has turned out to be the game-changer in education. It makes learning much more engaging and fun through points, levels, and rewards. In fact, researches prove that gamification will enhance motivation, increase retention rates, and improve performance. Thus, it is through the success of Duolingo that the gamification for languages could inspire a project like MindMaze.

MindMaze uses all these concepts by including features that make quizzes more of a challenge or a game, thus keeping the users engaged. Adaptive difficulty, instant feedback, and tracking performance ensure that the website is both interactive and rewarding for the user.

2.4 Adaptive Learning Systems

Coursera and Edmodo, which are adaptive learning systems, have revolutionized online learning by tailoring content according to the needs of users. These sites evaluate performance and behavior in the user for customized content, which means learners progress at their own pace.

MindMaze integrates adaptive learning through the modification of the difficulty level of its quizzes based on user performance. For example, when a user repeatedly gives the right answers, the platform will increase the complexity of the next questions. In case users start facing problems, the platform will provide simpler questions to make them more confident.

2.5 **Existing Quiz Platforms**

Several quiz platforms were analyzed to identify their strengths and limitations:

- Kahoot: Offers gamified quizzes but lacks features for personalized learning or tracking long-term progress.
- Quizizz: Allows for individual and group participation but provides limited analytics and adaptive features.
- Google Forms: Simple and widely used but doesn't provide any interactive or gamified features.
- MindMaze combines the best features of these platforms while addressing their shortcomings. It aims to create a more interactive and personalized experience with detailed feedback and progress tracking.

CHAPTER 3

PROJECT OBJECTIVE

1. Primary Objective

MindMaze's ultimate aim is developing this cool online quiz platform, where people can level up their skills in Computer Applications, Quantitative Aptitude, and Logical Reasoning. They really want to add interesting stuff and smart learning methods into it, making it effective with an intent for fun learning.

2. Specific Objectives

A. Interactivity and engagement

- To make the platform user-friendly and enjoyable by integrating gamification elements such as points, badges, and leaderboards.
- To encourage regular participation by giving instant feedback and performance tracking.

B. Personalisation

- To offer quizzes that adapt to users' performance levels, ensuring challenges are neither too easy nor too difficult.
- To provide users with tailored recommendations for areas of improvement based on their quiz results.

C. Knowledge Enhancement

- To create an outlet to practice the critical skills involved for better learning for school, competitive exams, or for one's profession.
- To curate a wide range of quizzes covering fundamental and advanced topics in the focus areas.

D. Accessibility and Convenience

- To ensure the website reaches out to all devices, which comprise desktops, tablets, and smartphones.
- To provide an intuitive interface that caters to users of all technical skill levels.

E. Scalability

- To establish a strong system that can accept even more users and, in the long run, a greater quiz database.

3. Compatibility with User Requirements

This is an application built with the user in mind. MindMaze wants to be that go-to spot for anybody gearing up for exams or just looking to better themselves by making learning fun, efficient, and interactive.

4. Outcome-Oriented Approach

The project, therefore, highlights measurable outcomes including: With intriguing features, there is better user retention. Improves learning due to adaptive and personal quizzing. A growing database of quizzes to cater to diverse learning requirements.

CHAPTER – 4

HARDWARE AND SOFTWARE REQUIREMENTS

1. Hardware Requirements

A. Server Requirements:

•**Processor:** A multi-core processor (e.g., Intel i5 or equivalent) to handle multiple requests and ensure smooth performance.

•**RAM:** Minimum of 8 GB RAM to support the web server, database server, and any additional services running concurrently.

•**Storage:** At least 100 GB of SSD storage for fast data access and retrieval. This will accommodate the operating system, web server, database, and any media files (images, videos) used in quizzes.

•**Network:** A reliable internet connection with a minimum bandwidth of 10 Mbps for hosting the website and ensuring quick access for users.

B. Client Requirements:

•**Processor:** A dual-core processor (e.g., Intel i3 or equivalent) for users accessing the website.

•**RAM:** Minimum of 4 GB RAM to ensure smooth browsing and interaction with the quiz platform.

•**Storage:** At least 10 GB of free disk space for browser cache and temporary files.

•**Display**: A monitor with a minimum resolution of 1366 x 768 pixels for optimal viewing of the website.

•**Input Devices:** A keyboard and mouse for user interaction with the website.

2. Software Requirements

A. Server-Side Software:

•**Operating System:** A server operating system such as Ubuntu Server, CentOS, or Windows Server to host the web application.

•**Web Server:** Apache or Nginx to serve the web pages and handle HTTP requests.

•**Database Management System**: MySQL for managing quiz data, user information, and performance metrics.

•**PHP:** PHP version 7.4 or higher for server-side scripting and dynamic content generation.

B. Client-Side Software:

•**Web Browser:** Latest versions of popular web browsers such as Google Chrome, Mozilla Firefox, Safari, or Microsoft Edge to ensure compatibility with modern web standards.

•**Operating System:** Any modern operating system (Windows, macOS, Linux) that supports the latest web browsers.

C. Development Tools:

•**Code Editor/IDE:** A code editor such as Visual Studio Code, Sublime Text, or an Integrated Development Environment (IDE) like PhpStorm for writing and managing code efficiently.

•**Version Control System**: Git for version control to manage code changes and collaborate with other developers.

•**Local Server Environment:** XAMPP for local development and testing of the PHP application before deployment.

D. Additional Software:

•**Graphics Software:** Software like Adobe Photoshop or GIMP for creating and editing images used in the quizzes.

•**Testing Tools:** Tools such as Postman for API testing and browser developer tools for debugging and optimizing the website.

•**Security Software**: SSL certificate for securing data transmission between the server and users, ensuring user privacy and data integrity.

CHAPTER – 5

PROJECT FLOW

The following is the detailed flow of the project, broken down into stages:

1. User Registration and Login

• **Registration**: For new users, an account needs to be created using basic details such as a username, email, and password. Information is validated on the client side through JavaScript and then stored safely in the database.

• **Login**: A logged-in existing user inputs his credentials and the site authenticates him at its server side using PHP that verifies data input against his database record.

• **Creation of Session**: Once authentication is successful, a session for the user is set up, thereby tracking everything he does on the site before logging out.

2. Homepage Navigation

Once successfully logged in, users can be redirected to the Homepage where they may be allowed to choose the following:

• **Select a Quiz:** Users will browse through available quiz categories or search for specific topics.

• **View Profile:** They access their performance history, such as completed quizzes and scores.

• **Log Out:** They end their session and return to the login page.

3. Quiz Selection and Participation

• **Quiz Listing:** Quizzes are categorized, such as Computer Applications, Mathematical Reasoning and Quantitative Aptitude number of questions.

• **Quiz Instructions:** Before the quiz starts, clear instructions are displayed to the user, such as the number of questions and scoring rules.

• **Quiz Interface: A**ll the questions appear together at the same page.
Each question is dynamically retrieved from the database using PHP.

4. **Answer Submission and Validation**

•**Answer Submission**: As soon as the user answers each question, his responses are saved in the system.

•**Validation:** The system checks the user's responses against the correct answers in the database. Scores are generated according to the number of correct answers.

5. **Displaying Results**

• **Immediate Feedback:** The system automatically creates a results page after the quiz is submitted, showing the Total Score.

• **Result Storage**: The results are stored in the database under the account of the user for later reference.

6. **Administrator Panel**

• **Login:** Administrators log in through a secure interface with credentials.

• **Quiz Management**: Admins can do the following:
- Add, update, or delete quizzes.
- Edit or update questions and answers.
- Categorize quizzes and manage difficulty levels.

• **User Management:** Admins monitor user activity and performance, as well as handle user queries and feedback.

7. **Logout and Session Termination**

•Users can log out at any time, ending their session. Upon logging out, they are redirected to the homepage or login screen.

Entity Relationship Diagram

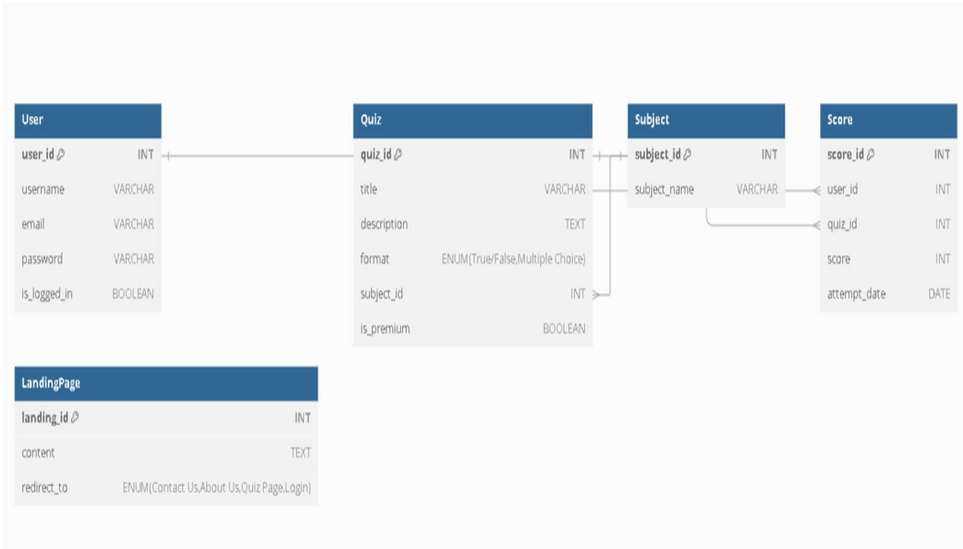

Fig: 5.1

FLOW CHART

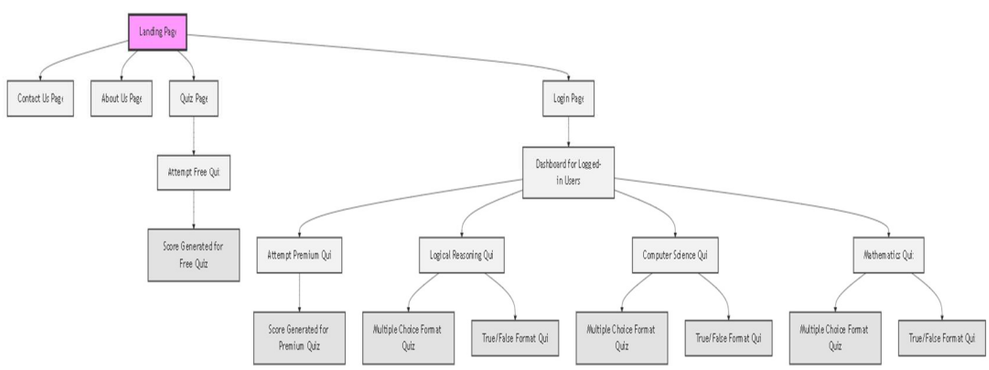

Fig:5.2

Class Diagram

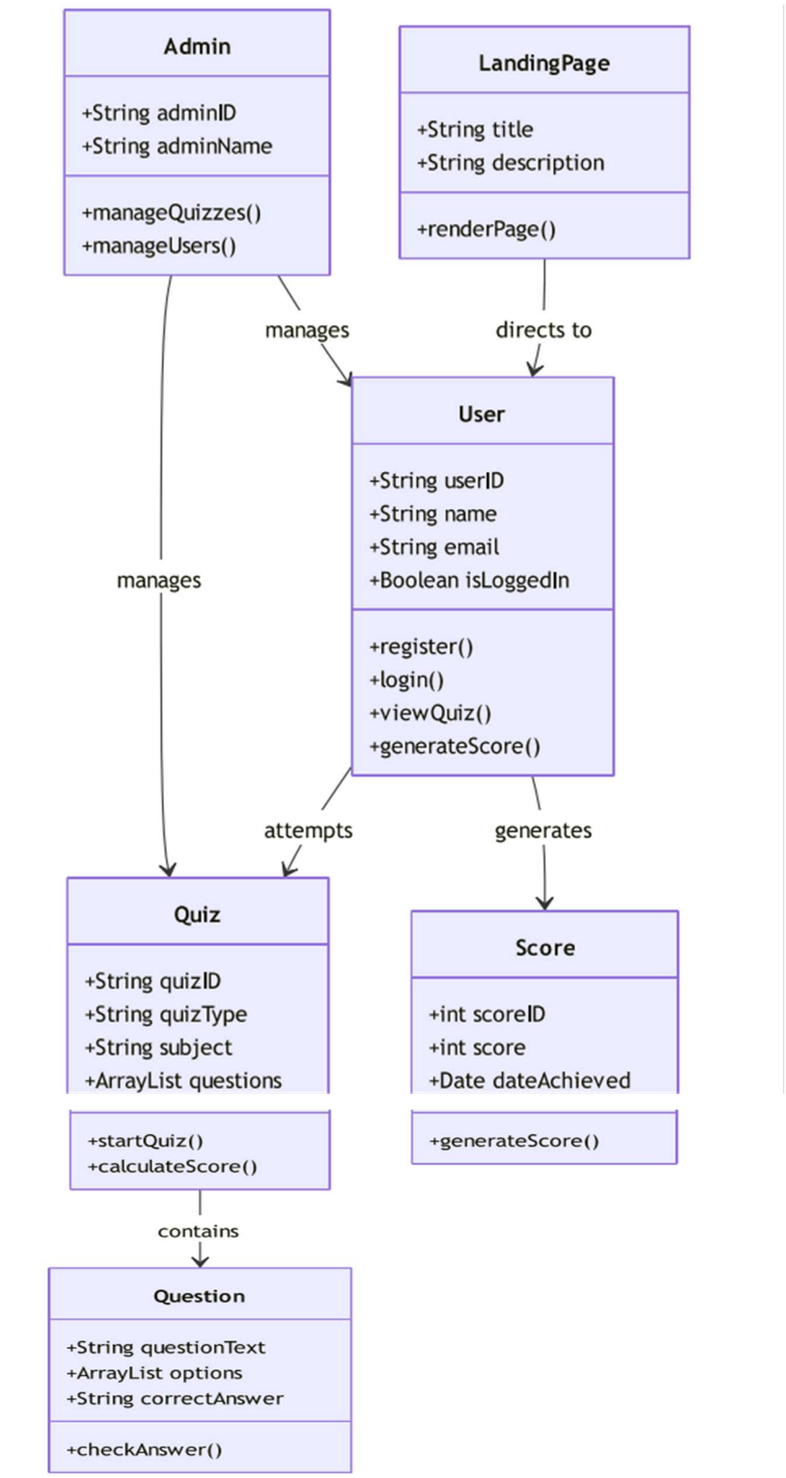

Fig: 5.3

CHAPTER – 6

PROJECT OUTCOME

6.1 Features

1. Functional and Interactive Platform

The project produced a fully functional web-based quiz system. This enabled users to register, log in, choose quizzes, participate in them, and view results without any form of hindrance. The interface was intuitive and interactive; therefore, it could be accessed by all users regardless of their technical expertise.

2. Robust Backend Development

The back-end system used PHP and MySQL to assure handling and processing of the data in an efficient manner. In addition, the user database and quiz questions as well as results were held safe with the server-side logic allowing smooth interaction between frontend and back-end.

3. Scalability

The site will allow for multiple users with several quizzes running in tandem without compromising performance. With such scalability, the number of users and content will grow in the future without degrading the performance.

4. Team Member's Experience in Web Development Technologies

The project gave the team practical experience in web development technologies:

- Frontend development: HTML, CSS, and JavaScript.
- Backend development: PHP server-side logic.
- Database management: MySQL. Understanding relational database design, queries, and optimization techniques.

This experience helped them better understand real-world software development and teamwork.

5. Contribution to Education and Assessment

The Quiz Website serves as a valuable tool for educational purposes, offering:

- A platform for learners to test their knowledge across various topics.
- A system for instructors or administrators to create and manage quizzes efficiently.
- Real-time results, promoting self-assessment and motivation among users.

6. Improved User Experience

Features like a clear navigation structure, quiz instructions, error handling, and immediate result generation enhanced the overall user experience. The platform's responsiveness and compatibility with various devices made it accessible to a broader audience.

7. Learning Outcome for the Team

The project helped team members strengthen their skills in:

- Project planning and execution, following a structured workflow.
- Problem-solving and debugging issues during development.
- Coordinating responsibilities between frontend and backend development to ensure seamless integration.
- Understanding the importance of user feedback and iterative improvement in software development.

8. Security Measures Implemented

The project implemented basic security protocols to protect user data and prevent common vulnerabilities like SQL injection and XSS (cross-site scripting). These measures enhanced the reliability and trustworthiness of the platform.

9. Successful Completion of Academic Requirements

The project fulfilled the academic requirements of a mini-project, demonstrating technical competence, teamwork, and project management skills. It provided an opportunity to present a well-structured system to peers and instructors, receiving valuable feedback and recognition.

10. Potential for Future Development

The Quiz Website lays a strong foundation for future improvements and enhancements, such as:

- Adding features like quiz timers, leaderboards, and multimedia questions.
- Integrating advanced analytics for administrators to monitor user performance trends.

6.2 User Interface

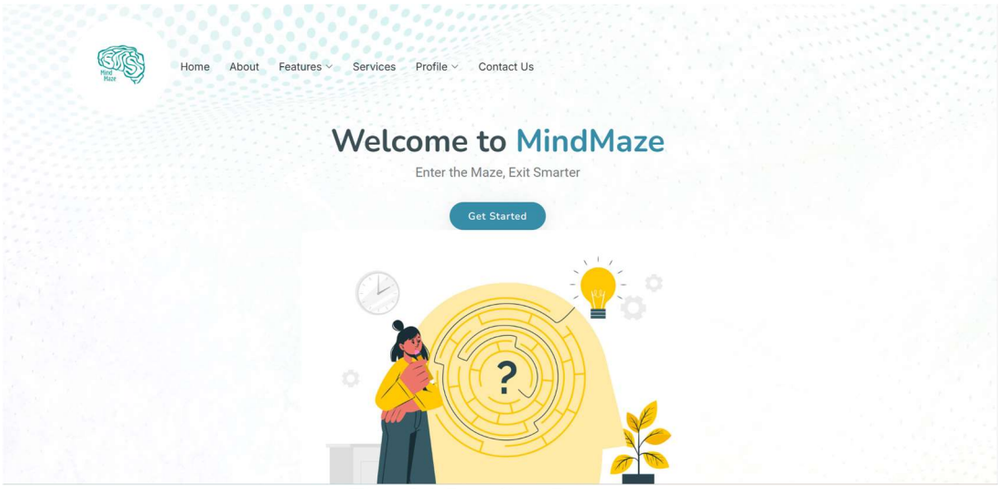

Fig. 6.1 Landing Page

Landing page(Fig. 6.1), in our quiz website is an interface that offers wide variety of features. Such as:-Home , About , Features, Services, Profile, Contact Us. Users can also few types of quizzes even without logging in. Users can practise various types of quizzes including true/false and mcq from logical reasoning, computer science and mathematics subject.

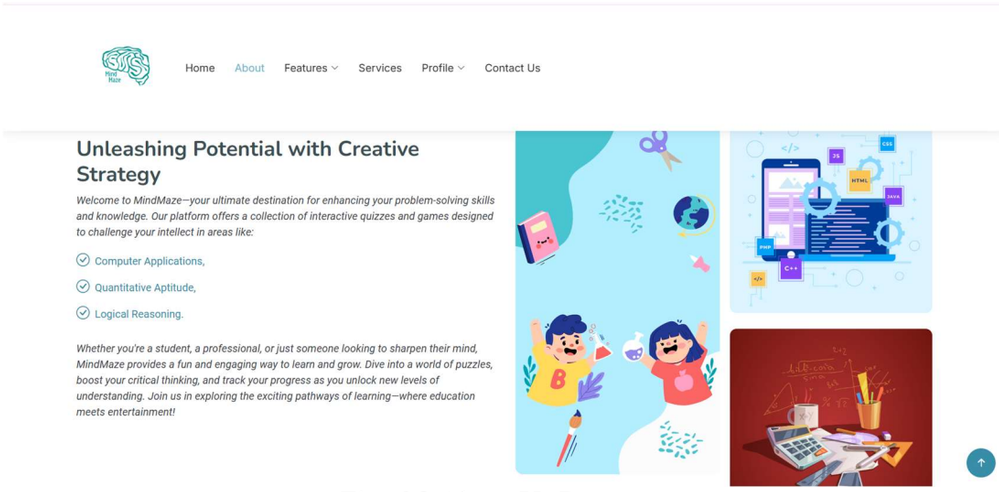

Fig: 6.2 About Us Page

In about section(Fig: 6.2) the user will be able to know that it is designed to offer a dynamic and engaging experience for quiz enthusiasts. Whether user id here to here to test your knowledge, or to gain experience, this website offers something for everyone in logical reasoning , mathematics and computer science subject.

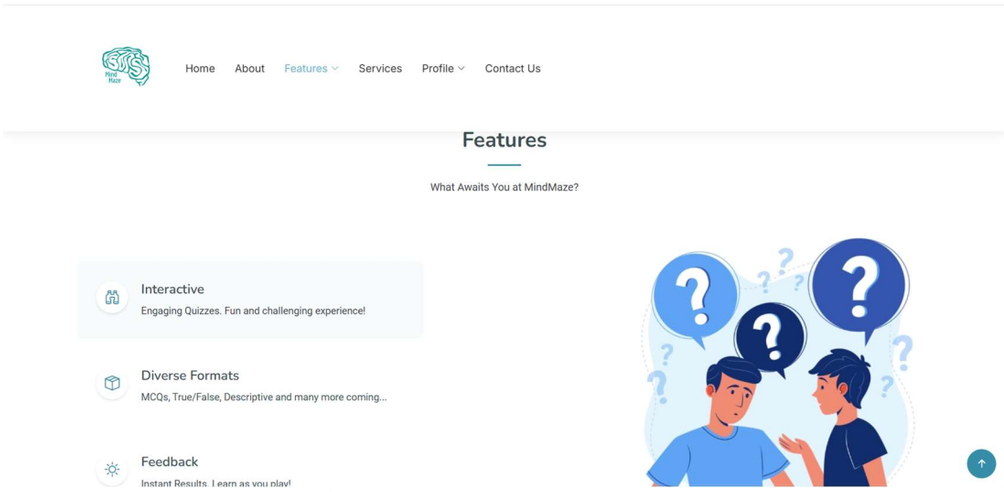

Fig: 6.3(1) Features Page (1)

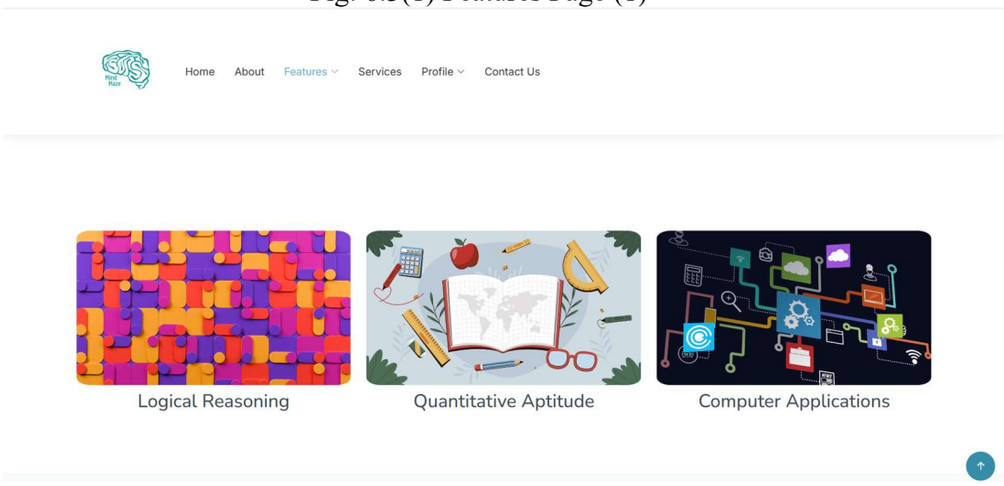

Fig: 6.3(2) Features Page

There are various features(Fig: 6.3(1) & Fig: 6.3(2)) in our quiz website available which includes Interactivity, Diverse Format in logical reasoning , computer science and mathematics portion.

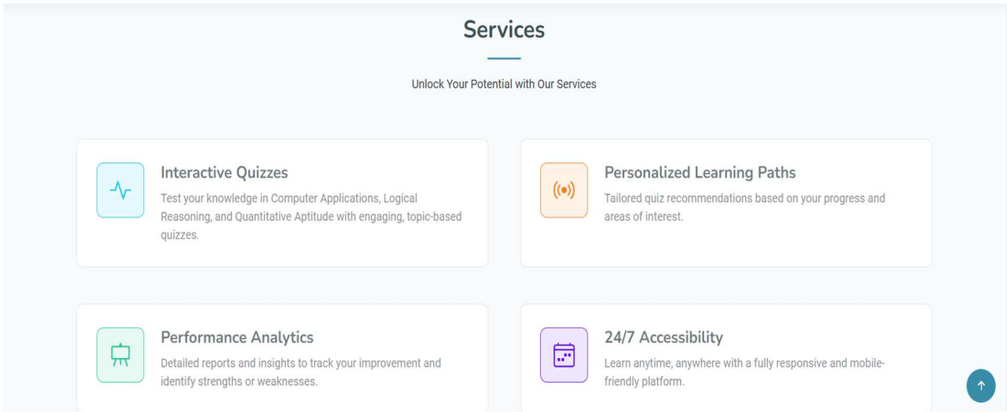

Fig: 6.5 Services Page

In services(Fig: 6.5), user will be able to view various service features like:- Interactive Quizzes, Personalised Learning Paths, Performance Analytics, 24/7 Accessibility.

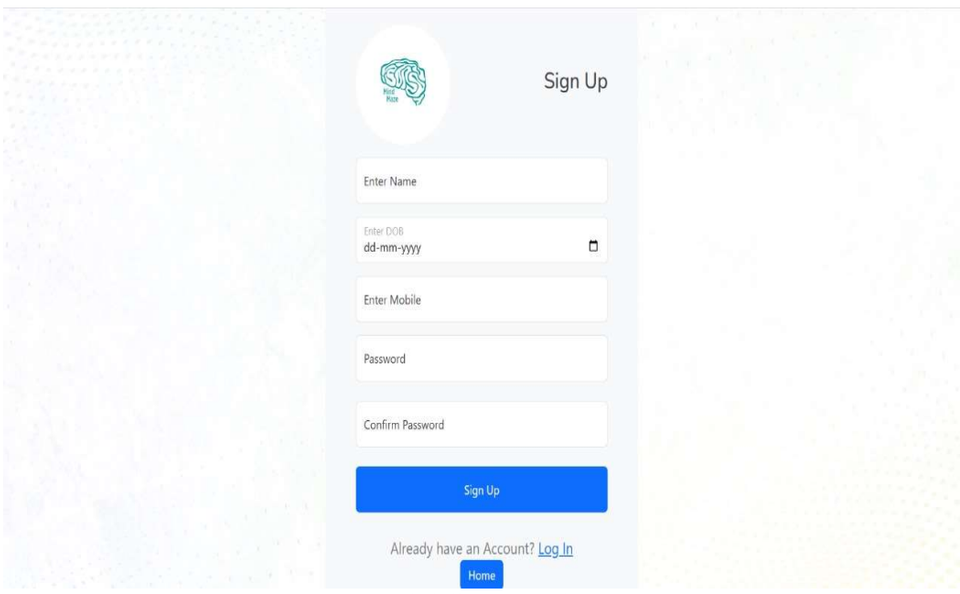

Fig: 6.6 Sign Up Page

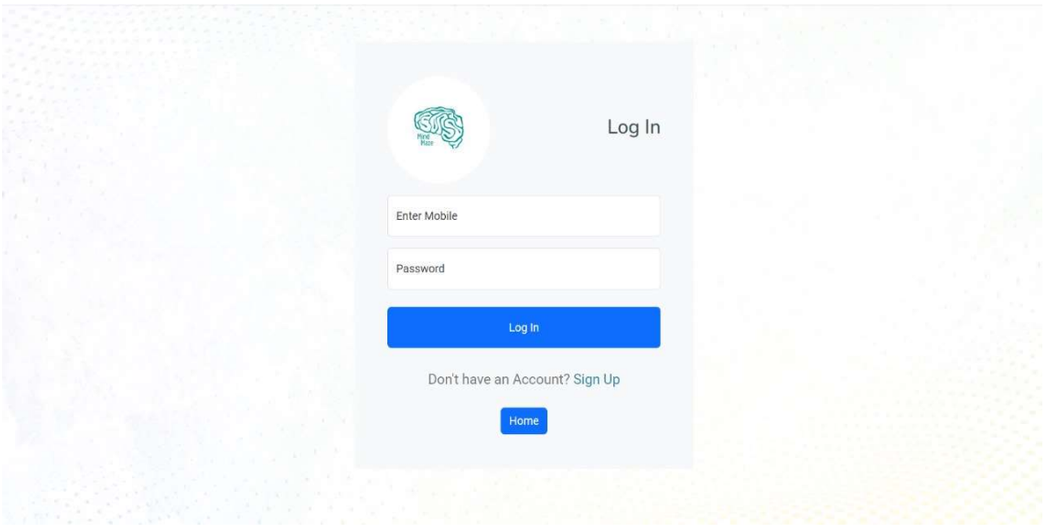

Fig: 6.7 Login Page

The application has secured login(Fig: 6.6) and registration system(Fig: 6.7) facilities provided to the users so they could prepare their personal accounts. By this feature, user's data will be stored, such as preferences and recipes saved. The design provided is intuitive, and one won't have much trouble making his/her registration.

Fig: 6.8 Quiz Page (True/False Format)

Fig: 6.9 Quiz Page (MCQ Format)

This is a quiz format(Fig: 6.8 & Fig: 6.9) of those users who are attempting the quiz even without logging in. As in our website we have the feature that even those who have not created account they can also attempt some quizzes. Additionally, they will be also provides a question navigation panel where they can skip questions in their quiz.

Fig:6.10 Score Card

After attempting their quiz, they will be also able to view their scores(Fig: 6.10) out of total scores for the allotted quiz.

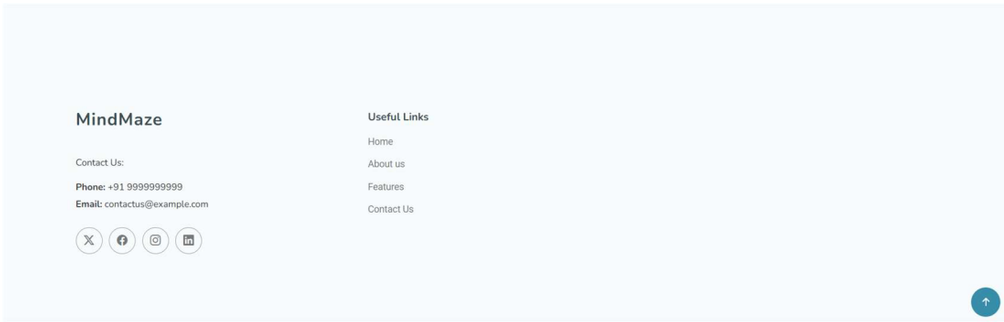

Fig: 6.11 Contact Us Page

This section(Fig: 6.11) will contain information about the contact details which includes mobile number, email Id, link to facebook , LinkedIn, Instagram and some other useful links.

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- https://www.php.net/docs.php
- https://getbootstrap.com