A

PROJECT REPORT ON

PARIKSHA PORTAL

An Online Quiz Management System

SUBMITTED IN PARTIAL

FULFILLMENT OF

DIPLOMA IN ADVANCED COMPUTING (PG-DAC)

UNDER THE GUIDANCE OF Mr. Jitesh Bafna

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Lastly, we would like to thank all the developers and contributors of Spring Boot and React for providing such great tools that have made the development process easier and efficient.

Thank you all for your valuable contributions to the project.

Abstract

Now a days every educational institute is focusing on online education where they starting to taking classes in online mode. Here we introducing an online quiz application where student can attempt a quiz and test knowledge.

The PARIKSHA (online Exam Portal) is a web application for taking an online quiz in an efficient manner and no time wasting checking the paper. The main objective of PARIKSHA (online Exam Portal) is to efficiently evaluate the candidate thoroughly through a fully automated system that not only saves lot of time but also gives fast results. students can attend Quiz according to their convenience and time and there is no need of using extra thing like paper, pen etc. This can be used in educational institutions as well as in corporate world. It's also use-full for student they can give those quiz for practice or we can use anywhere any time as it is a web-based Application (user location doesn't matter). No restriction that examiner has to be present when the candidate takes the test. This Web Application provides facility to conduct online quiz from worldwide. It saves time as it allows a number of students to give the exam at a time and displays the results as the test gets over, so no need to wait for the result. It is automatically generated by the server. The administrator has the privilege to create, modify and delete the Quiz, questions of the quiz, Categories of the Quiz, and also evaluate different contexts. Students can see their results and other activity where a student not only judges their knowledge/skill but o they can improve their knowledge/skill at the same time.

Contents

List of Figures

Chapter 1

Introduction

In this chapter we are going to explain in detail about PARIKSHA, its problem statement, motivation, objective and so on. We will explore different dimensions of it.

1.1 PARIKSHA

1.1.1 Problem Statement

PARIKSHA is a software developed to conduct an Online Quiz based on time constraints. Portal is accessed by entering the username and password which is added to the database. Before the start of the Quiz, the rules and regulations are displayed which includes description of time limit, number of questions to be answered and scoring methods. Quiz starts by displaying questions with four options each based on categories chosen ,like General Knowledge, Verbal Reasoning and Computer Science. If the time exceeds the given time or the user enters the submit button then the quiz will be ended. Final score will be displayed and updated in the database with username.

1.1.2 Objective

1. It will simplify the task of users to test their knowledge and reduce the paperwork.

2. It is also helpful for educational institutes to conduct exams for students in asynchronous mode.

3. The result can be displayed after completion of the exam in the form of dashboard.

1.1.3 Motivation

The following are the points which motivate us to do the project on Code Readability:

1. Time Saving: For building it, we don’t need a huge investment as it is going to an online service that will predict and suggest related

information. There is no timewasting in traveling or making the paper as a copy or giving them to students and doing all the basic regions manually.

2. Convenience: It is quite user-friendly which takes basic information of yours and you are all set to go and test and use this application.

3. Importance: An online exam provides flexibility and security to the examination process. Once all the questions are uploaded in the system, the system can shuffle and give questions in different orders to different students. This minimizes the chance of cheating.

1.1.4 Scope

The Following points are most valuable.

- Conduct Exam effortless. It reduces exam anxiety among test takers.
- Promote social interaction between the test taker and experts.
- Prevents cheating.
- Safe and secure data.
- Can get result instantly

Literature Survey

In this chapter, we are going to explain about application architecture i.e., three-tier architecture further in detail about PARIKSHA (online exam Portal) and related tools and technologies.

2.1 Application architecture patterns

This chapter includes the details about my application architecture patterns. Here I am using three-tier architecture for developing full-stack applications.

2.1.1 Three-Tier Architecture

Three-tier architecture, which separates applications into three logical and physical computing tiers, is the predominant software architecture for traditional client-server applications. Three-tier architecture is a well-established software application architecture that organizes applications into three logical and physical computing tiers: the presentation tier, or user interface; the application tier, where data is processed; and the data tier, where the data associated with the application is stored and managed.

The three tier is -

1. Presentation tier – it is user interface and communication layer of the application

2. Application tier – it is known as the logic tier or middle tier and is the heart of the application.

3. Data tier - sometimes called database tier, data access tier or back-end of application.

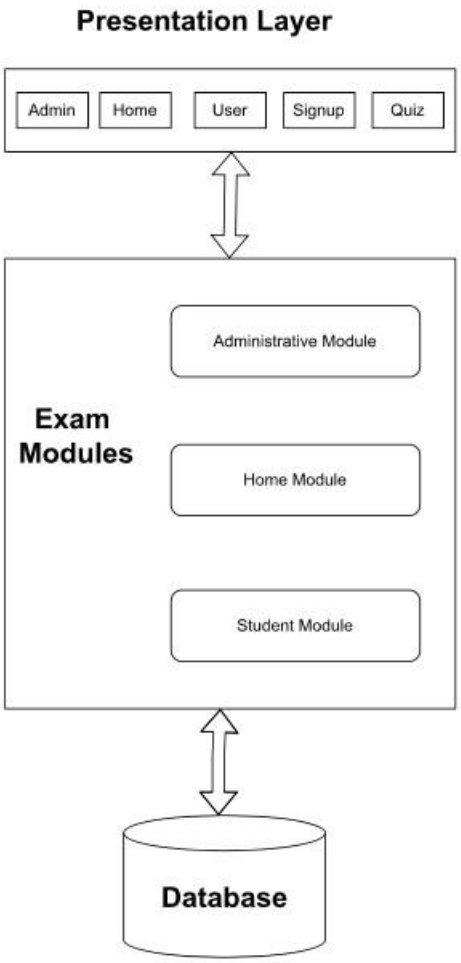


Figure 2.1: Three Tier Architecture

Advantages

The chief benefit of the three-tier architecture is its logical and physical separation of functionality and more in the following.

1. Improved security: Because the presentation tier and data tier can't communicate directly, a well-designed application tier can function as a sort of internal firewall, preventing SQL injections and other malicious exploits.

2. Improved scalability: Any tier can be scaled independently of the others as needed.

3. Faster development: Because each tier can be developed simultaneously by different teams, an organization can bring the application to the market faster, and programmers can use the latest and best languages and tools for each tier.

2.3PARIKSHA (online quiz portal) background -

PARIKSHA is a concept that originated with software engineering and computer science that arrived with the addition of computing technologies and helped people to develop their skills. It is conduct web application that improve accessibility of remote students.

Today many organizations conduct online exams worldwide successfully and issue results online. There are some advantages and disadvantages to the online examination. The advantage is that, "It can be conducted remote candidates' evaluations for answers can be conducted can be fully automated for multiple choice". The question can be evaluated manually or through an automated system depending on the nature of the question and requirements. The disadvantage is there is no method to identify whether the exact student takes the exam.

2.4 Tools And Technologies Used

Backend:

- Spring Boot: a popular Java-based framework used for creating web applications.
- Spring Data JPA: a library that simplifies the implementation of database access using the Java Persistence API (JPA).
- MySQL: a popular open-source relational database management system.

Frontend:

- React: a popular JavaScript library used for building user interfaces.
- React Router: a library that enables navigation between different views in a React application.
- Axios: a popular library used for making HTTP requests from a web browser.

Development Tools:

- STS : an integrated development environment (IDE) used for Java development.
- Visual Studio Code: a lightweight, cross-platform source code editor used for web development.
- Git: a popular version control system used for managing the source code of the project.
- GitHub: a web-based platform used for hosting and collaborating on Git repositories.
- npm: a package manager used for installing and managing JavaScript packages.

The above tools and technologies have been instrumental in the development and deployment of the Online Quiz Management System using Spring Boot as the backend and React as the frontend.

FEASIBILITY STUDY

Technical feasibility:

From a technical perspective, building an Online Quiz Management System using Spring Boot and React is feasible. Both technologies are widely used and have extensive documentation and community support. The system architecture and technology stack are also scalable and can handle a large number of users and quizzes.

Economic feasibility:

The development cost of an Online Quiz Management System can vary depending on the complexity of the system and the development team's experience. However, since Spring Boot and React are open-source technologies, there are no licensing costs associated with them. The costs associated with hosting, maintenance, and upgrades can be managed effectively through cloud hosting platforms.

Operational feasibility:

An Online Quiz Management System can be easily integrated into educational institutions, training centers, and other organizations that require online assessments. It can also be accessed from anywhere with an internet connection, making it convenient for students and professionals to take quizzes remotely.

SYSTEM ANALYSIS

Functional requirements:

a. User registration and login: Users can register for an account and log in to the system.

b. Quiz creation and management: Admins can create and manage quizzes by adding questions from the database or adding a new question by selecting different courses and its subjects.

c. User participation: Users can participate in quizzes created by admins.

d. Scoring and result display: The system will calculate the scores of the users and display their results after completion of the quiz.

Non-functional requirements:

a. Performance: The system should handle a large number of users and quizzes with fast response times.

b. Security: The system should implement authentication and authorization to ensure that only authorized users can access specific functionalities.

c. Usability: The system should have a user-friendly interface that is easy to navigate.

d. Availability: The system should be available 24/7 with minimal downtime.

e. Scalability: The system should be scalable to handle an increasing number of users and quizzes.

System architecture:

The system will be built using a three-tier architecture with the following components:

a. Presentation layer: The React frontend will handle the user interface and interaction with the user.

b. Application layer: The Spring Boot backend will handle the business logic and data processing, such as user authentication, quiz creation, and scoring.

c. Data layer: The MySQL database will store user and quiz data.

Database schema:

The database will have the following tables:

a. User: stores user information such as name, email, and password.

b. Quiz: stores quiz information such as quiz name .

c. Question: stores the quiz questions along with the correct answer and options.

d. UserQuiz: stores the user's score for each quiz.

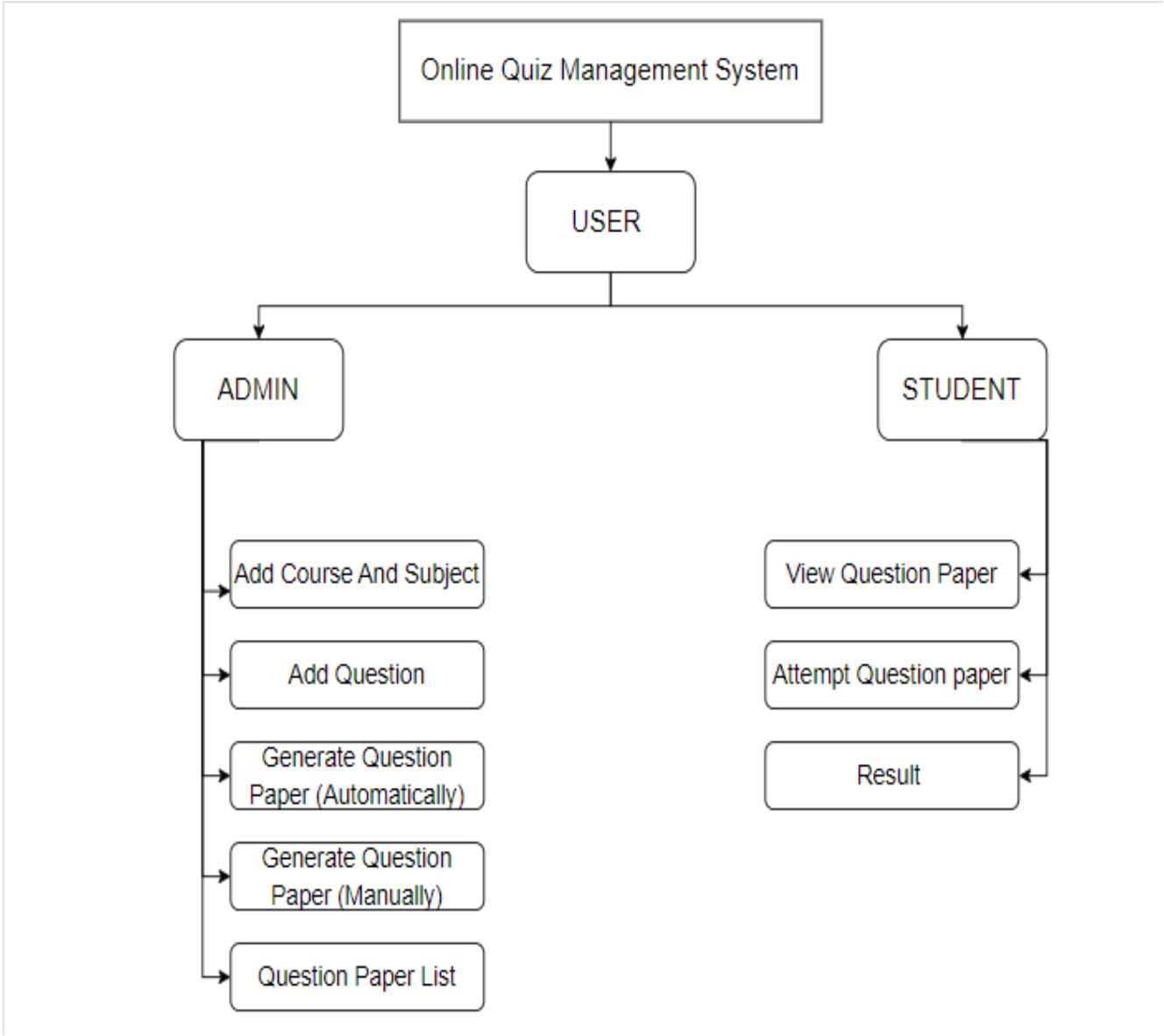
Technology stack:

The following technologies will be used to develop the system:

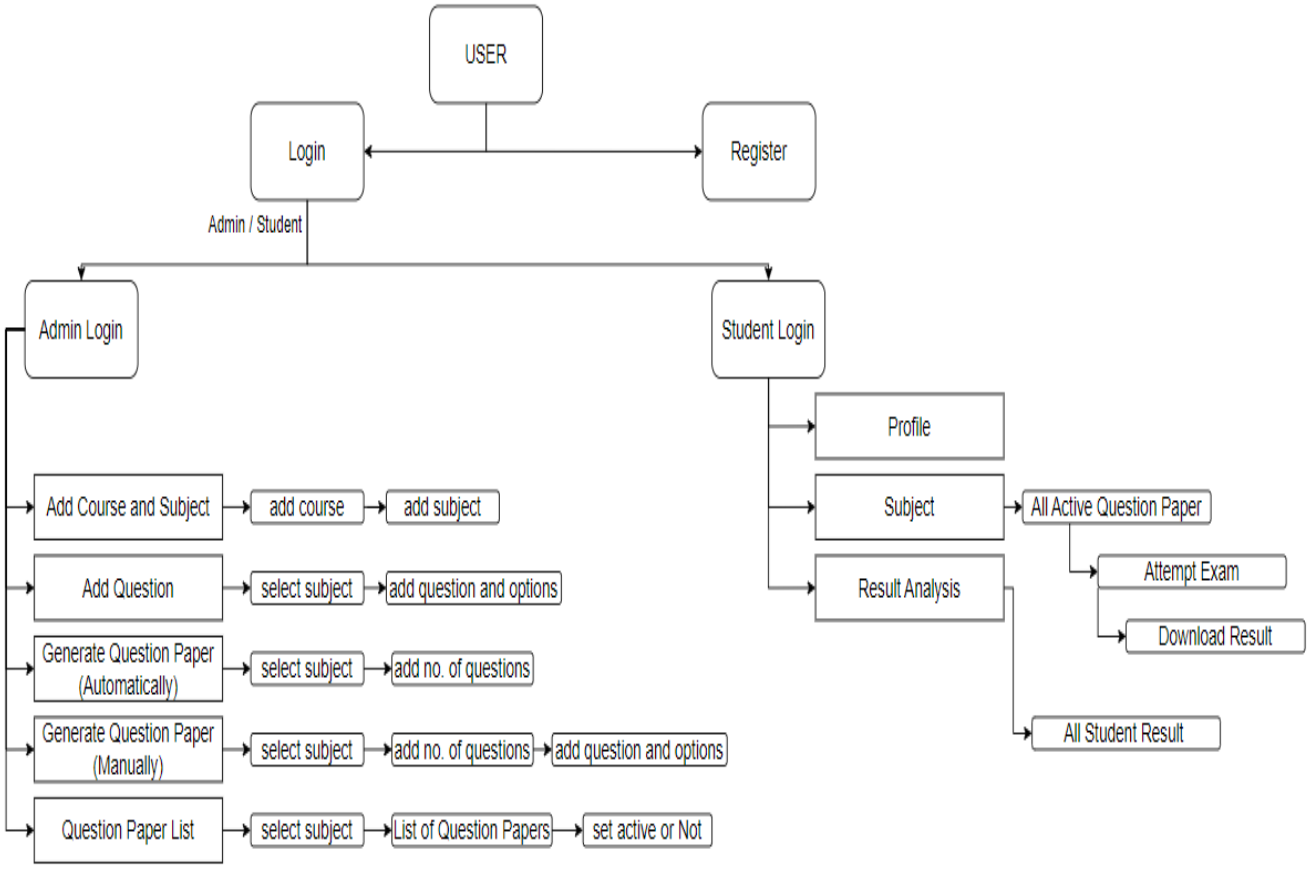
a. Backend: Spring Boot, Hibernate, MySQL.

b. Frontend: React, Axios, Bootstrap.

DFD DIAGRAM

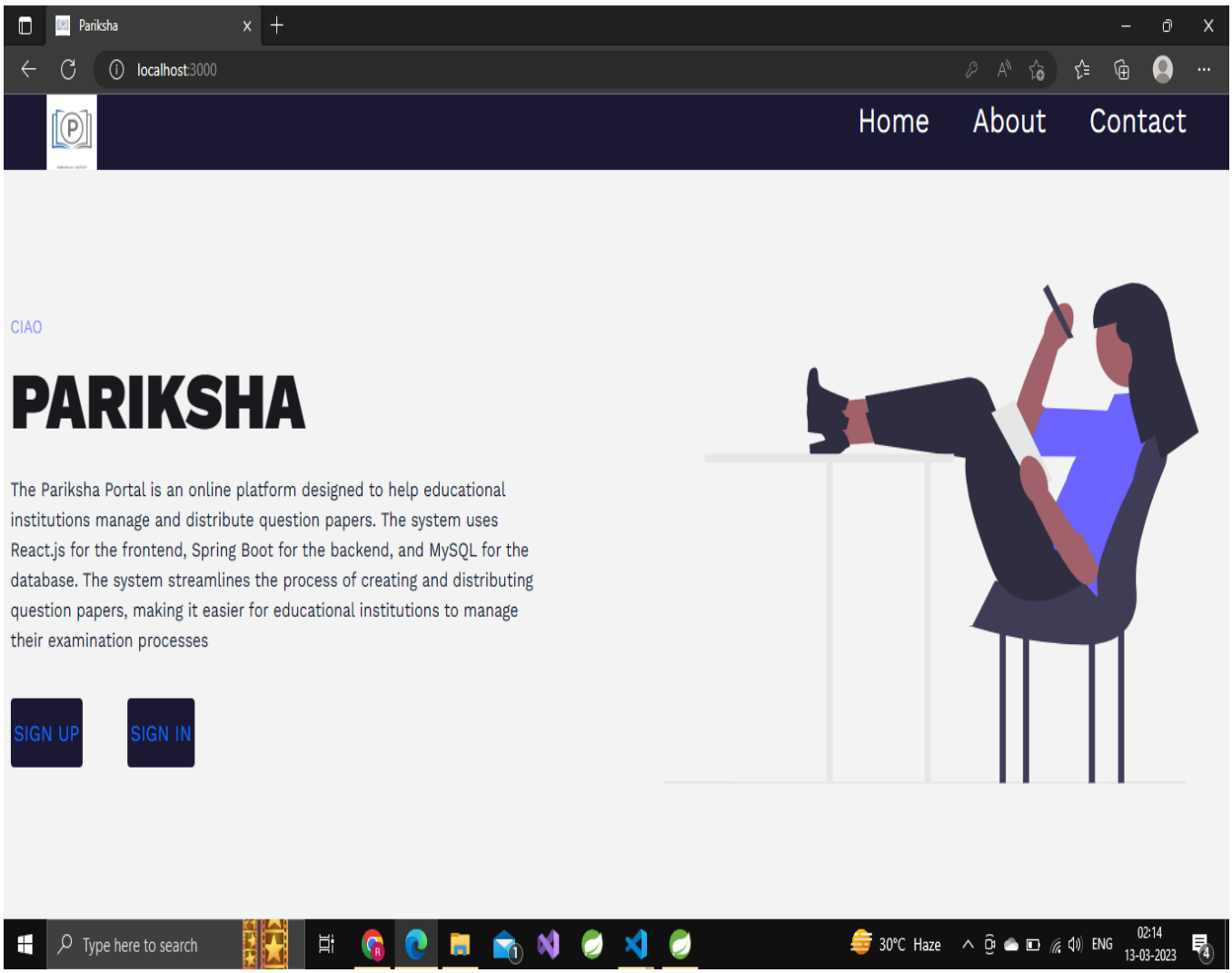

Online Quiz Management System
USER
ADMIN
STUDENT
Add Course And Subject
Add Question
Generate Question Paper (Automatically)
Generate Question Paper (Manually)
Question Paper List
View Question Paper
Attempt Question paper
Result

COMPOSITION DIAGRAM

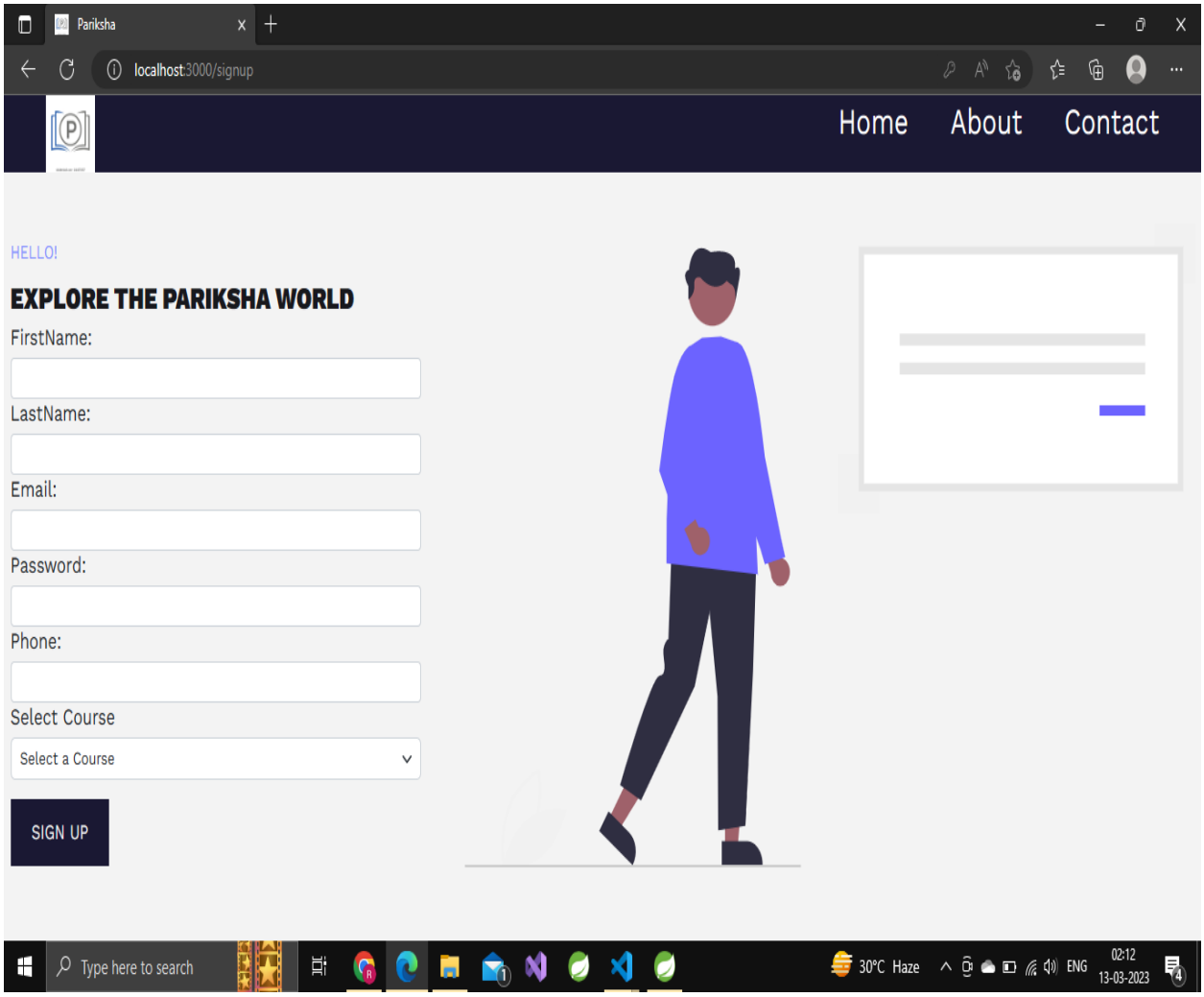


PROJECT SCREENSHOTS

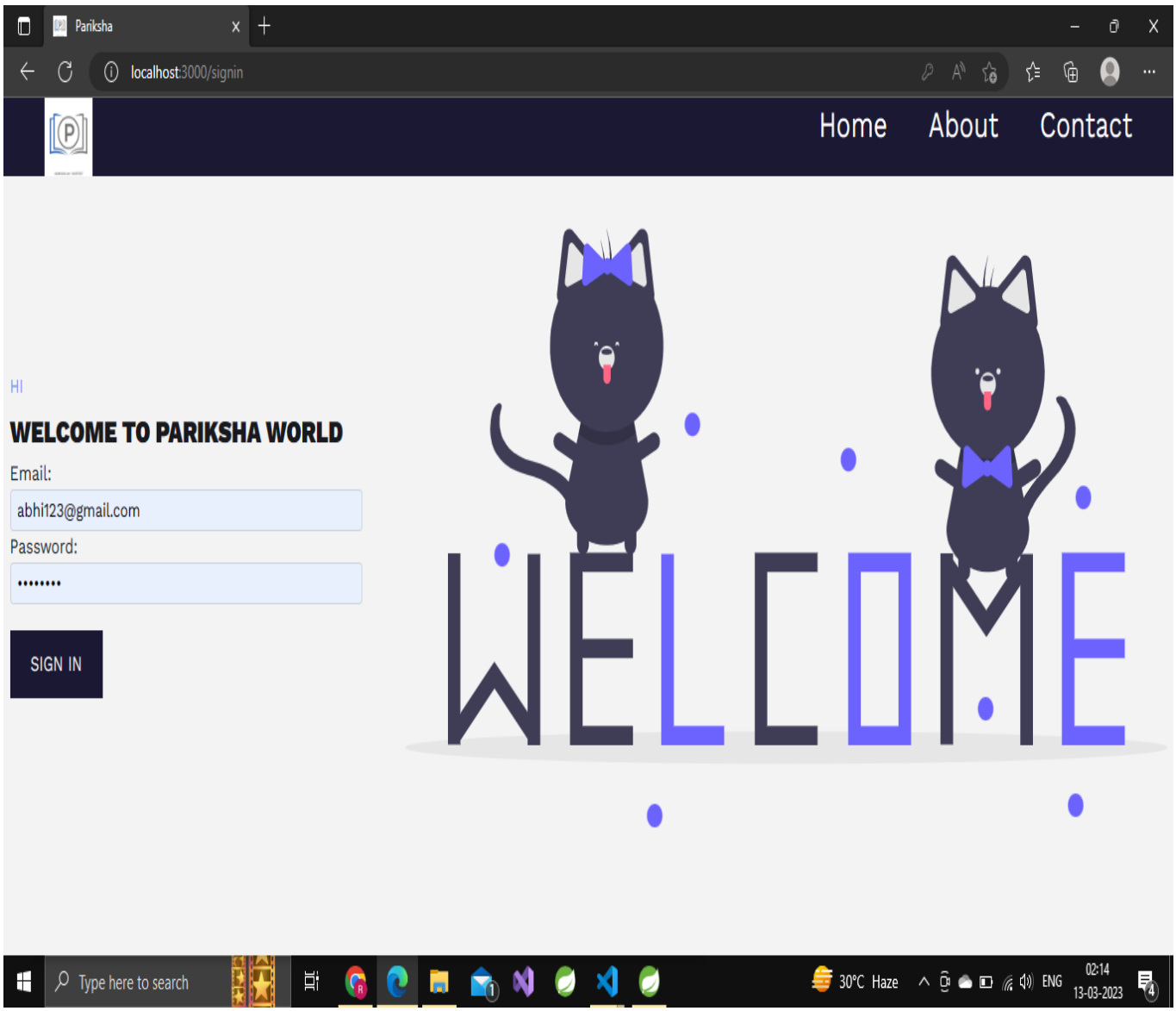
1. HOME PAGE



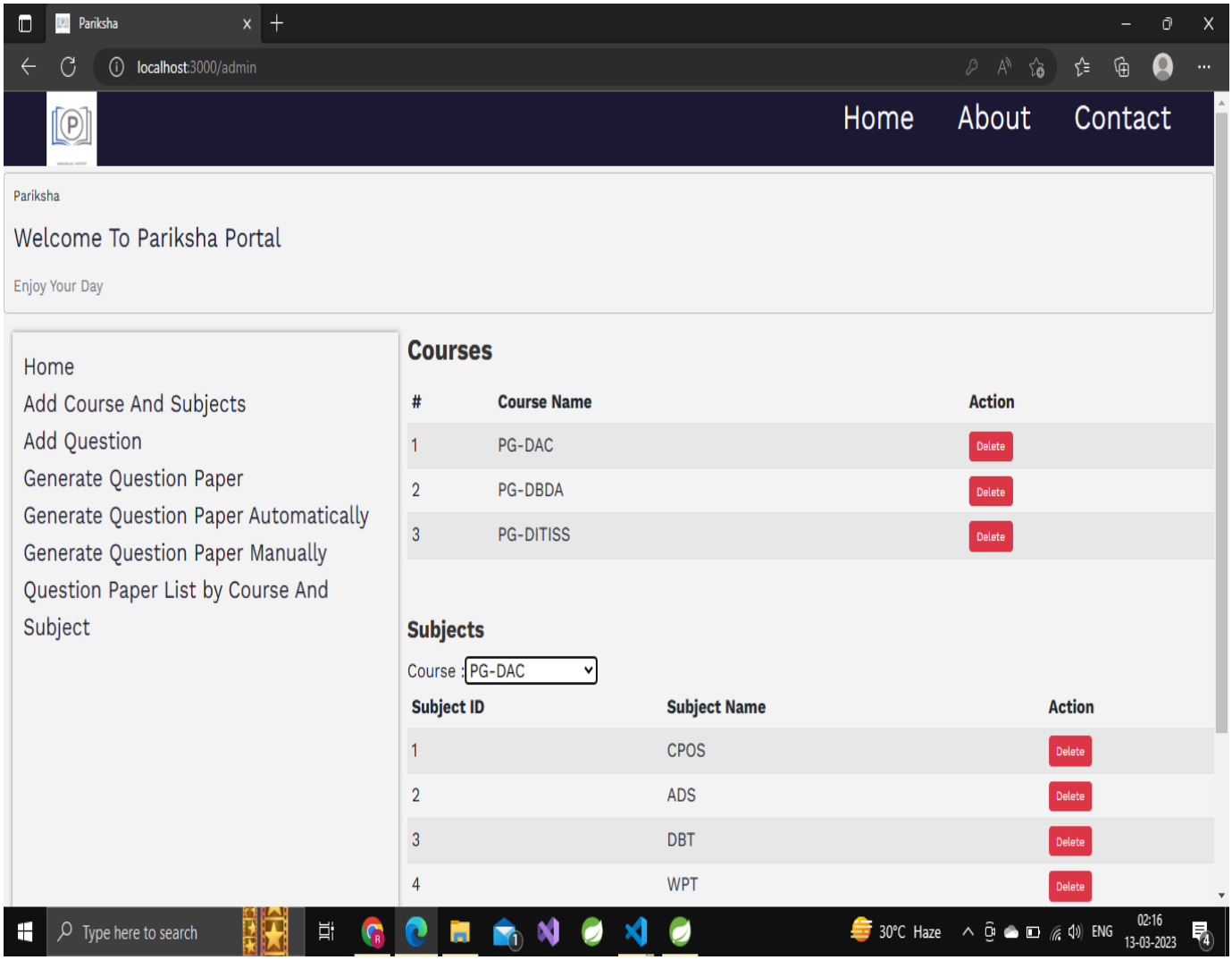
SIGN-UP PAGE


Pariksha
localhost:3000/signup
Home
About
Contact
HELLO!
EXPLORE THE PARIKSHA WORLD
FirstName:
LastName:
Email:
Password:
Phone:
Select Course
Select a Course
SIGN UP
Type here to search
30°C Haze
ENG
02:12
13-03-2023

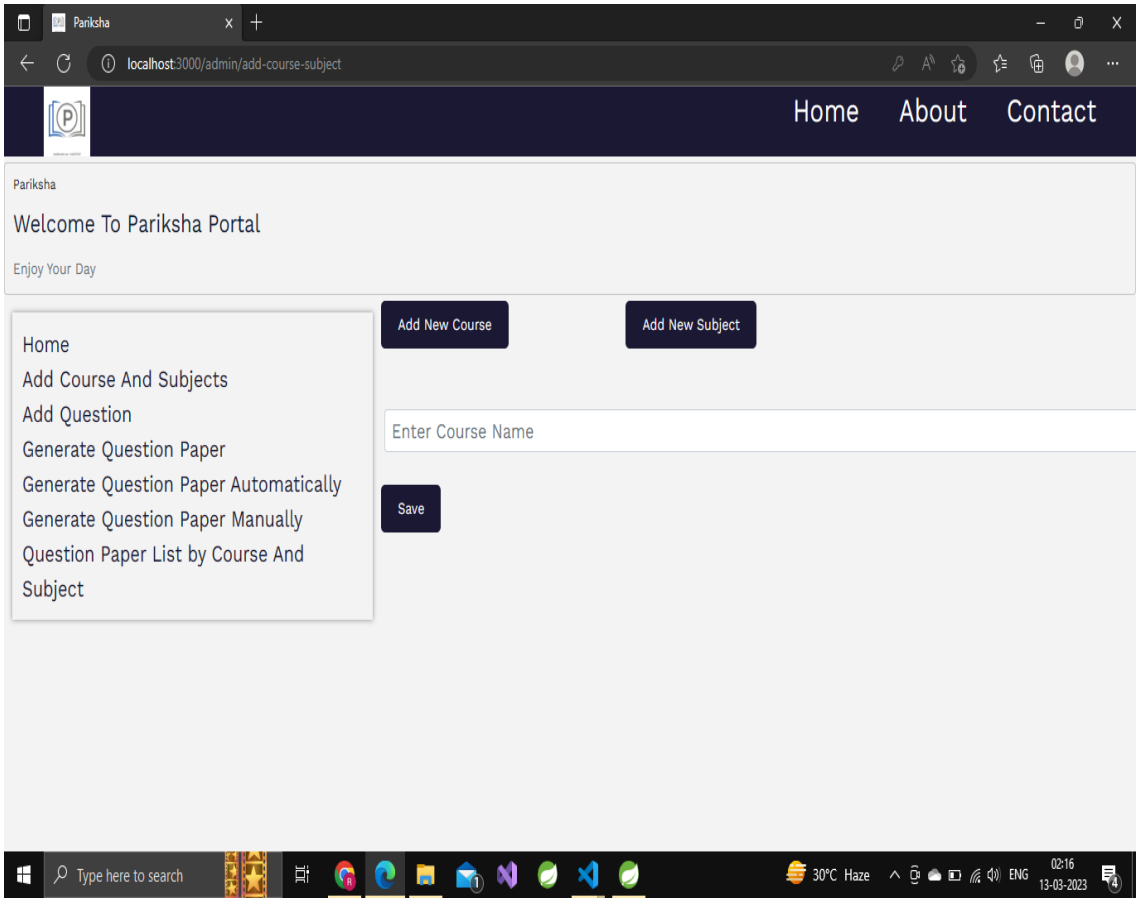
1.3 **SIGN-IN PAGE**

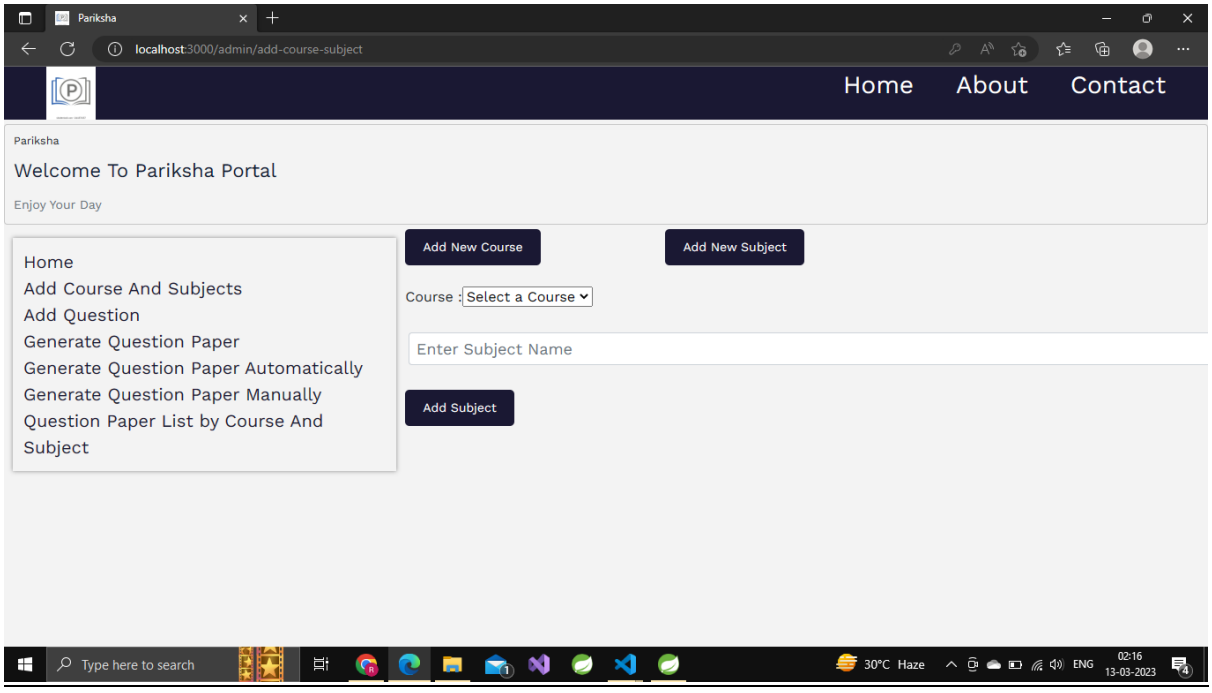


1.4 ADMIN SIDE HOMEPAGE

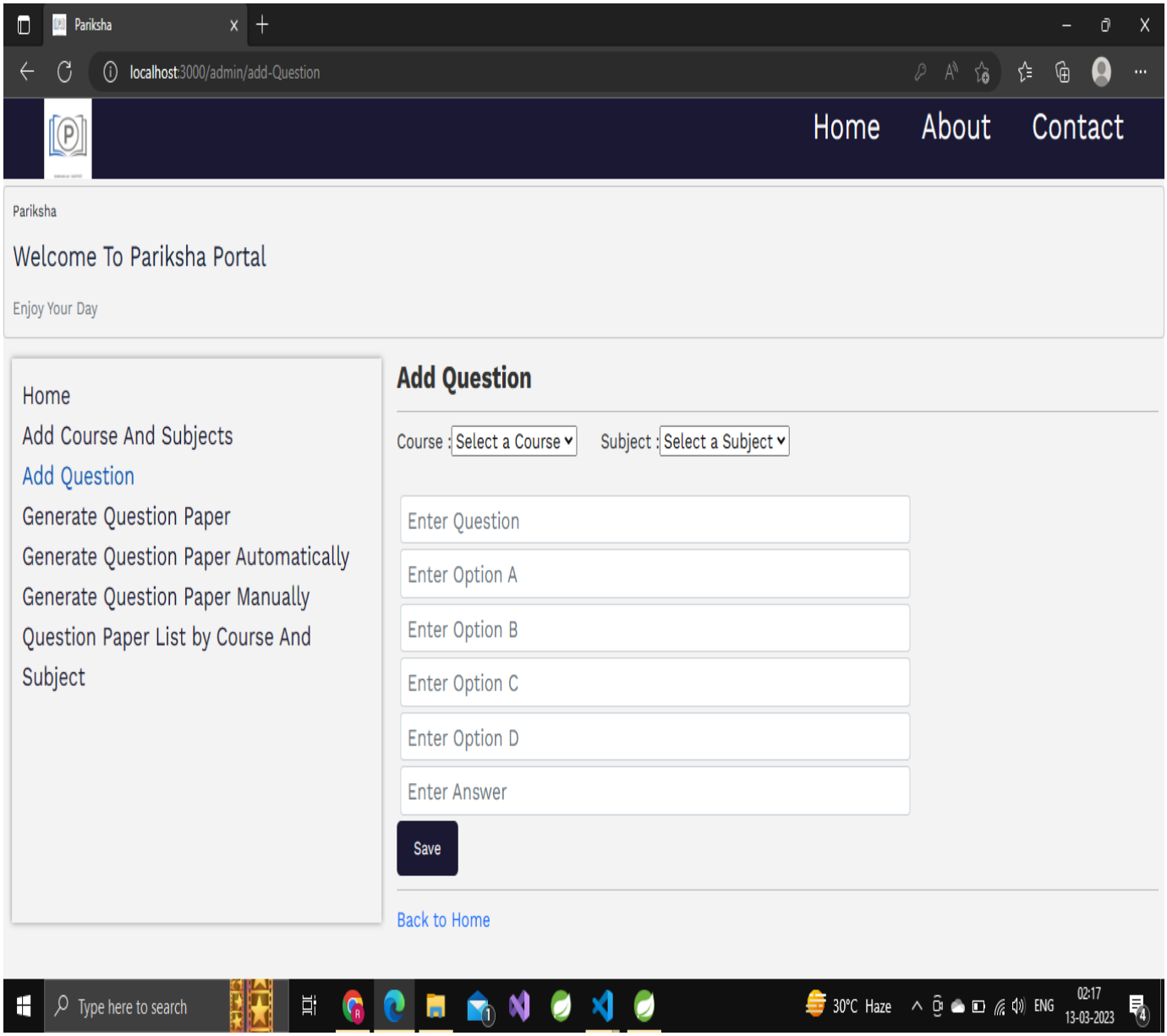


1.5 ADD COURSE AND SUBJECT

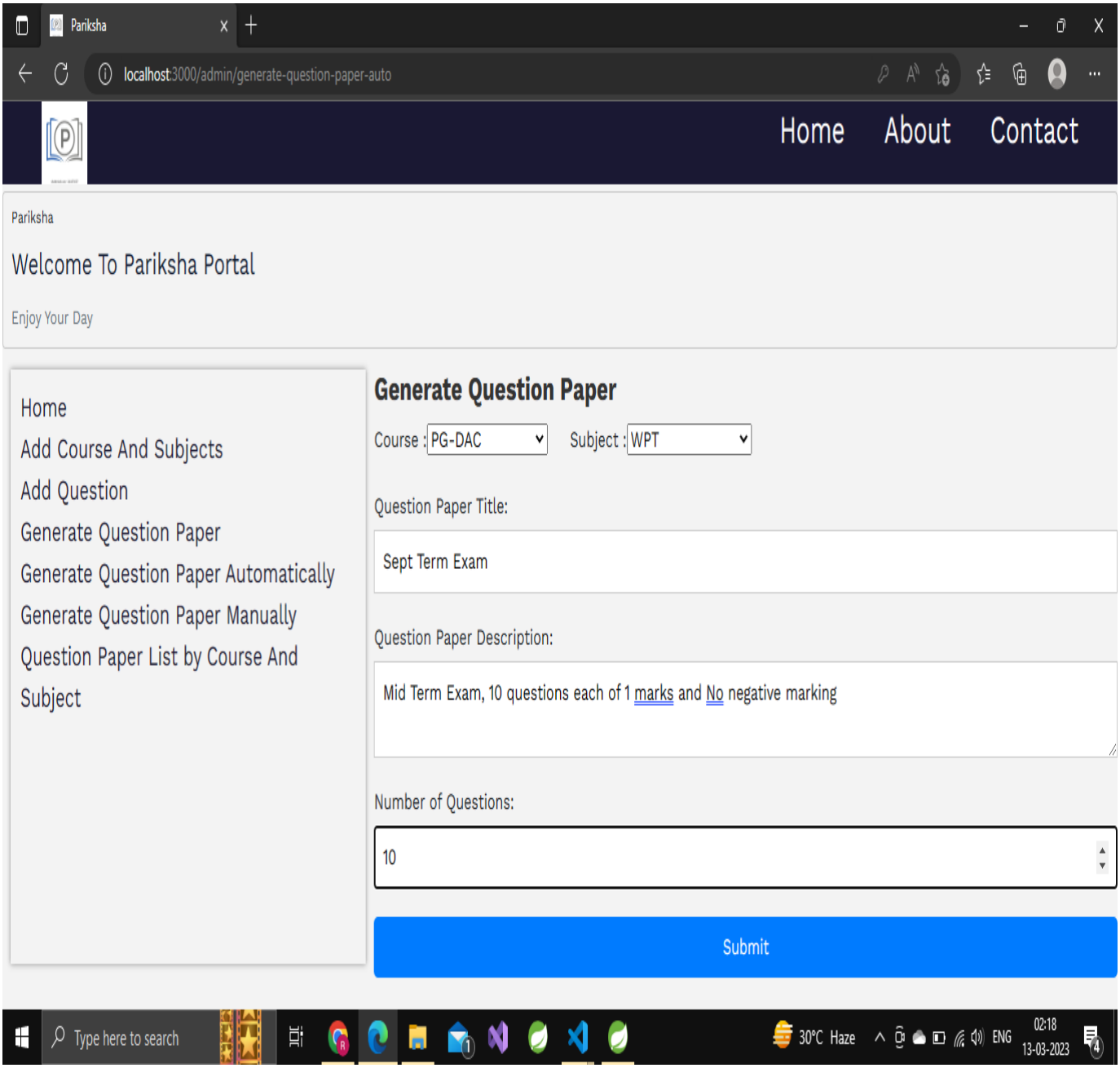




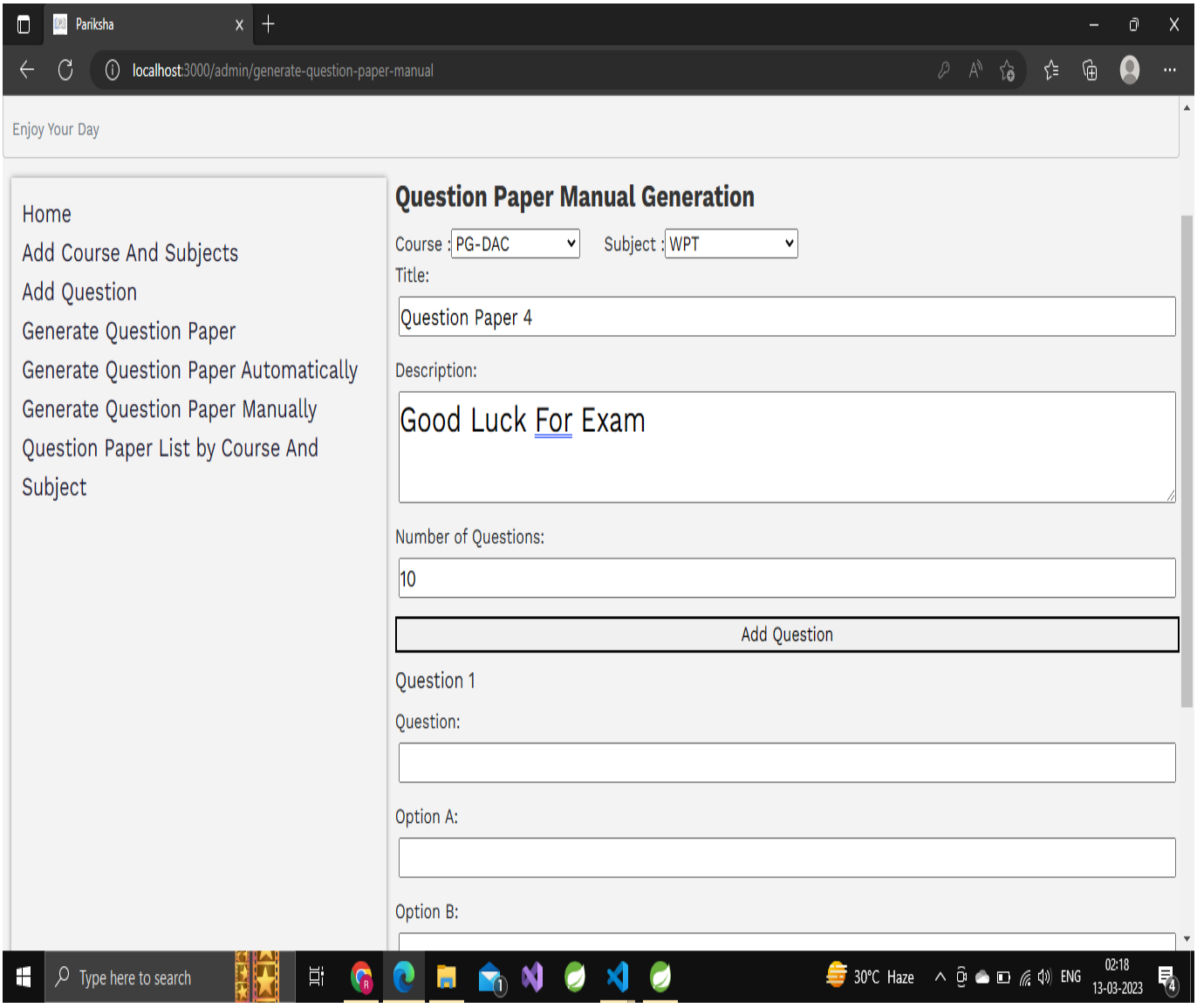
1.6 ADD QUESTIONS



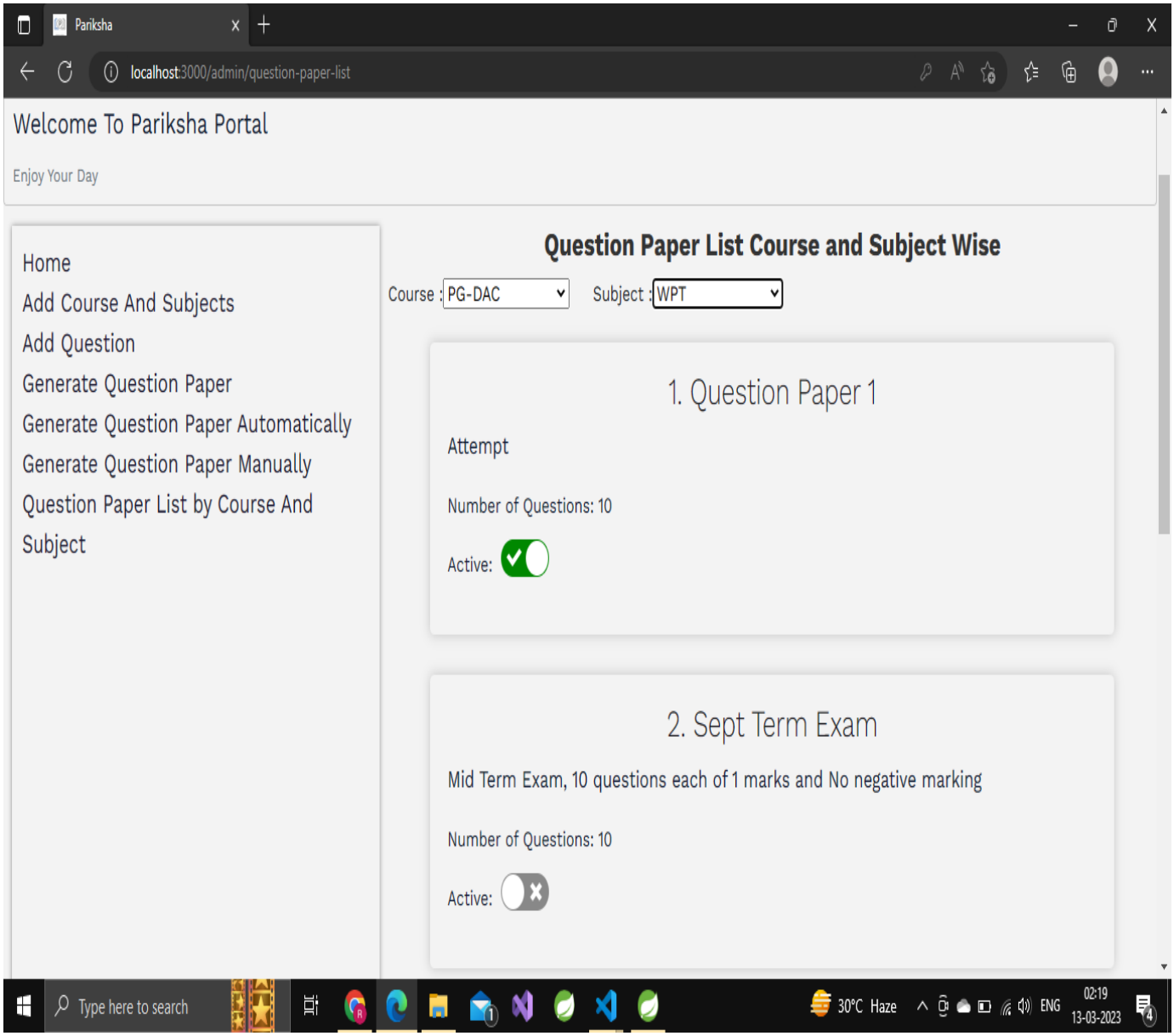
1.7 GENERATE QUESTION PAPER AUTOMATICALLY



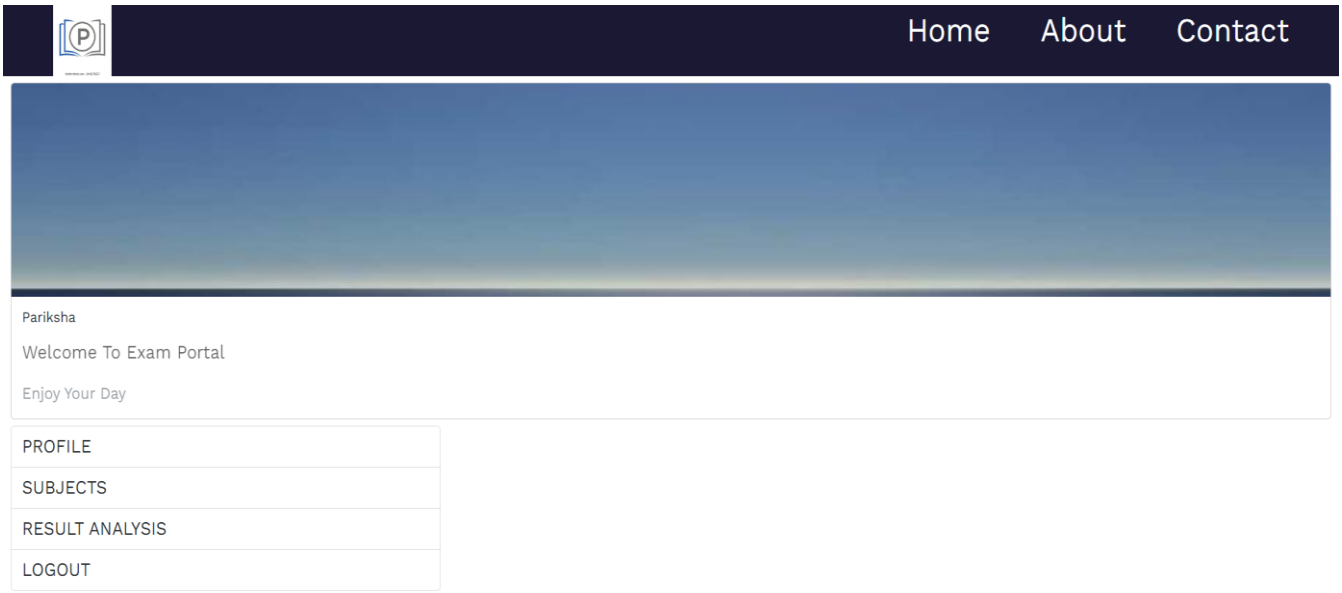
1.8 GENERATE QUESTION PAPER MANUALLY



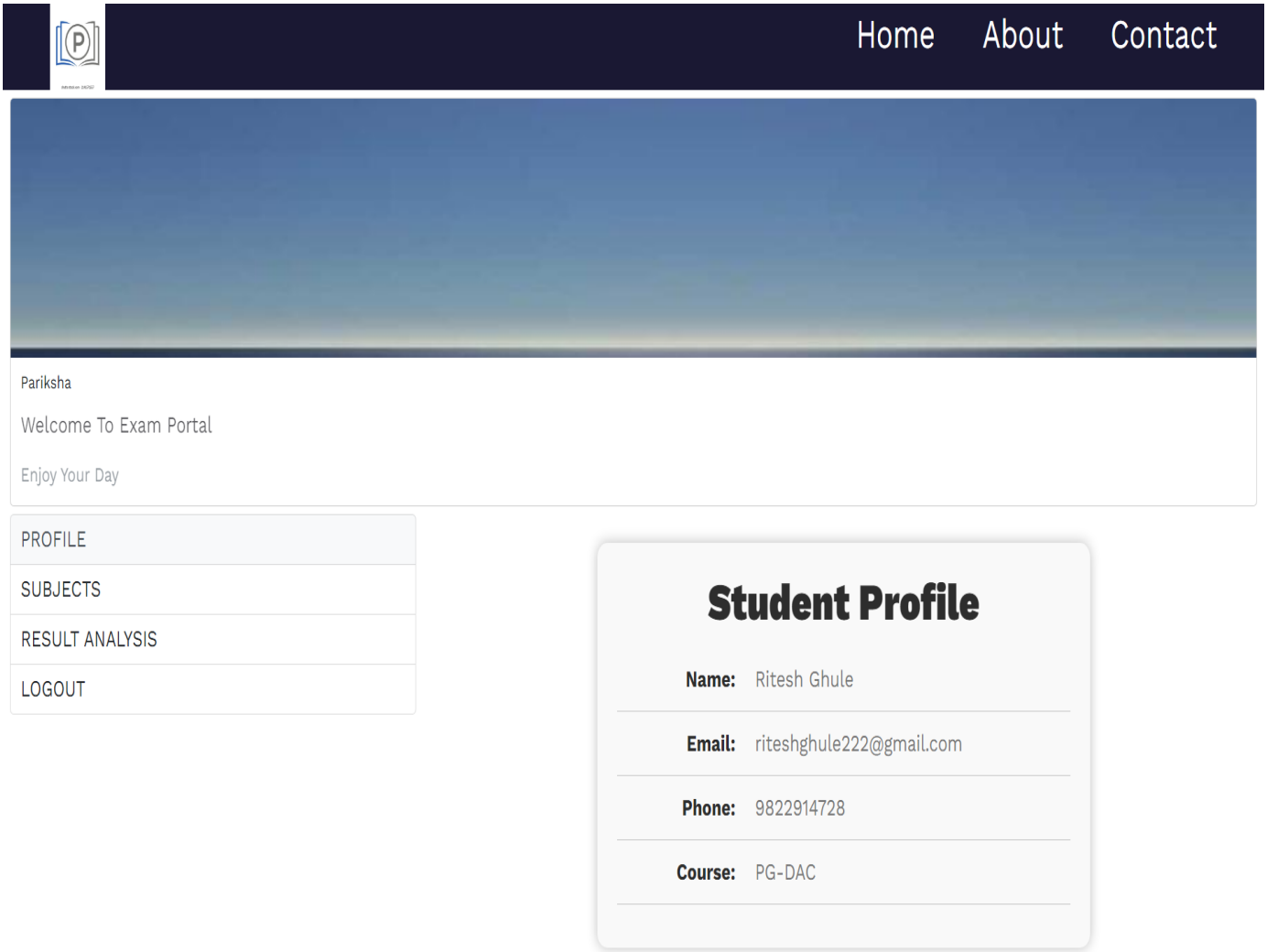
1.9 QUESTION PAPER LIST BY COURSE



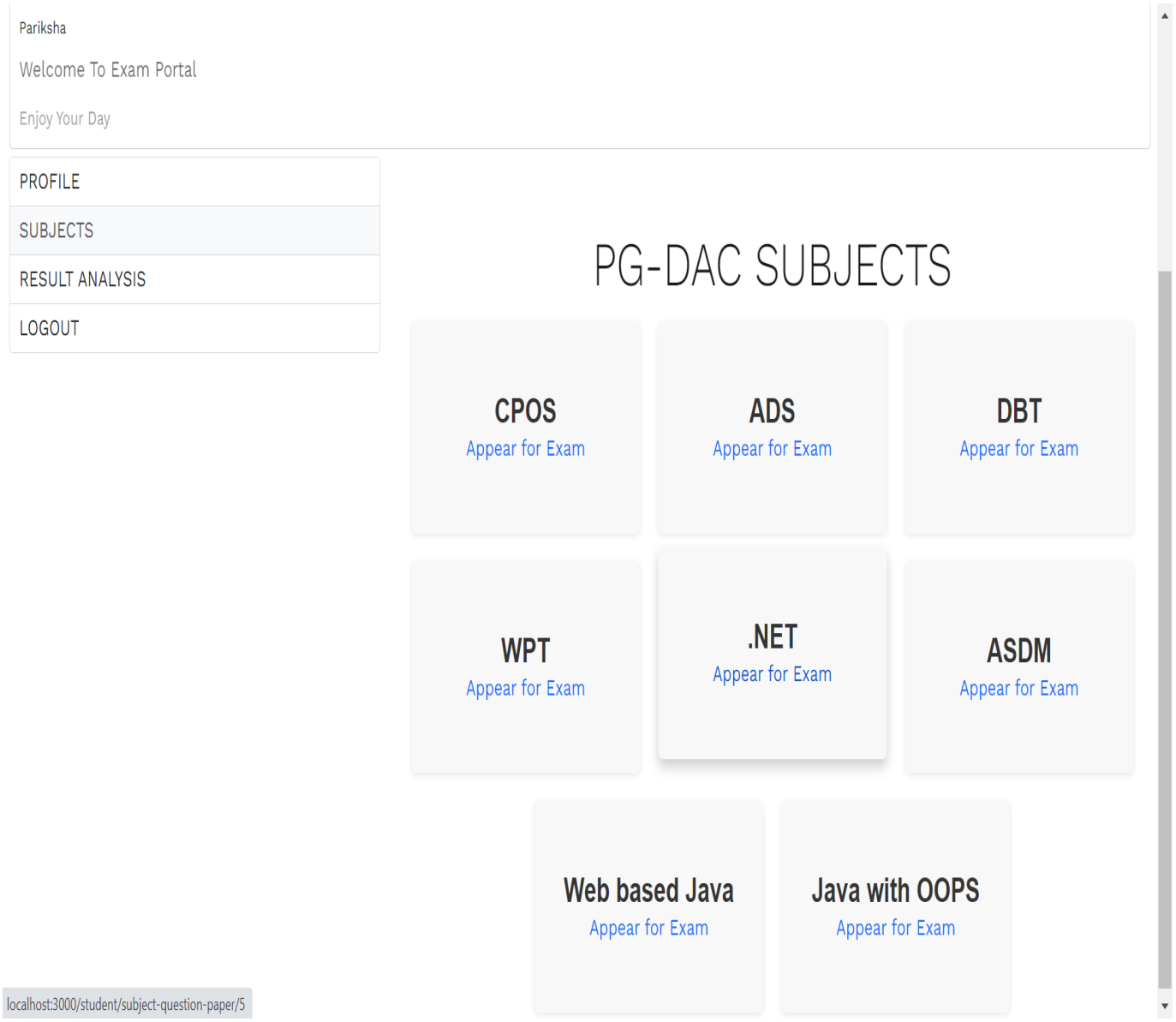
2.0 USER SIDE


Home
About
Contact
Pariksha
Welcome To Exam Portal
Enjoy Your Day
PROFILE
SUBJECTS
RESULT ANALYSIS
LOGOUT

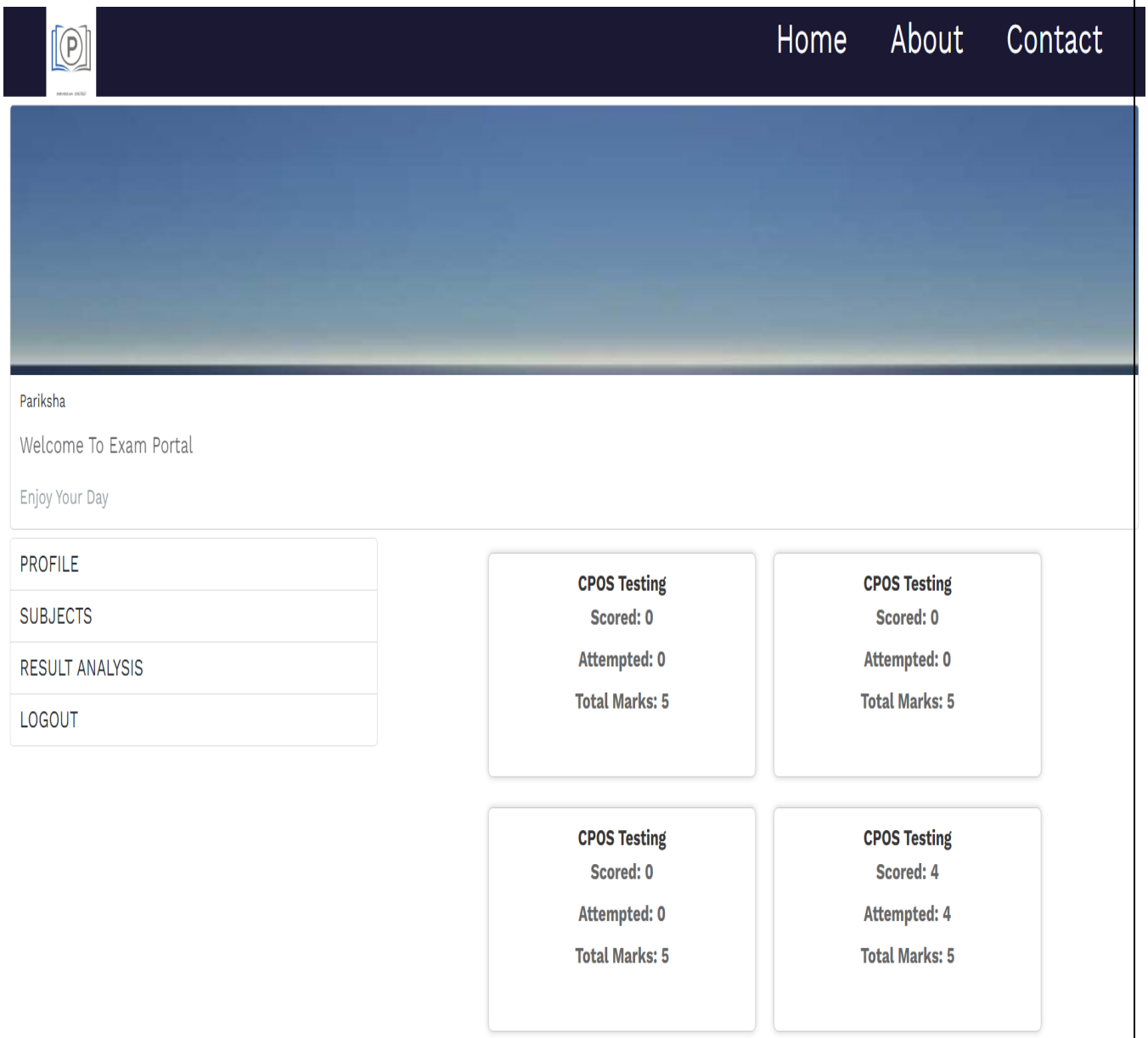
2.1 STUDENT PROFILE



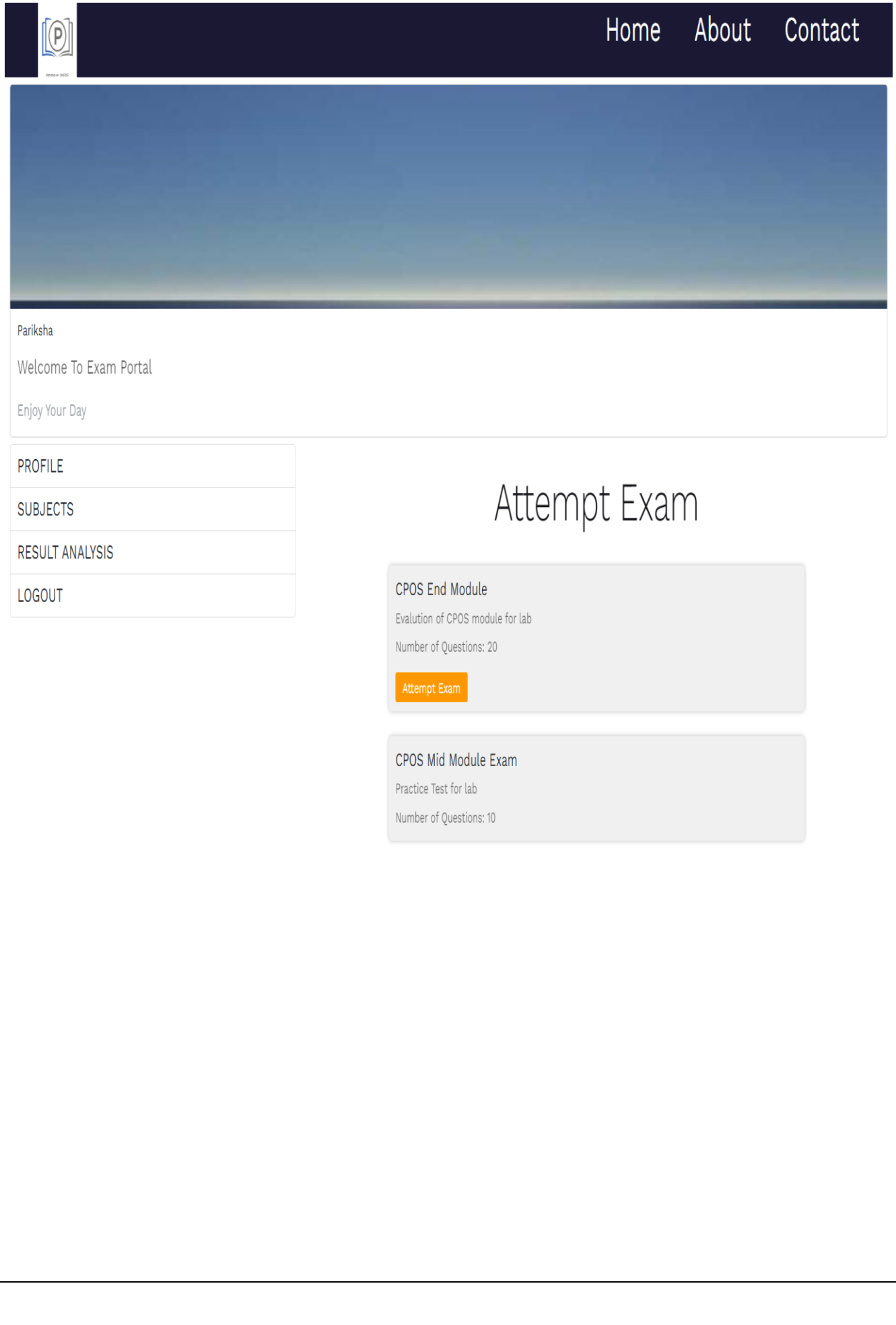
2.2 SUBJECTS PAGE

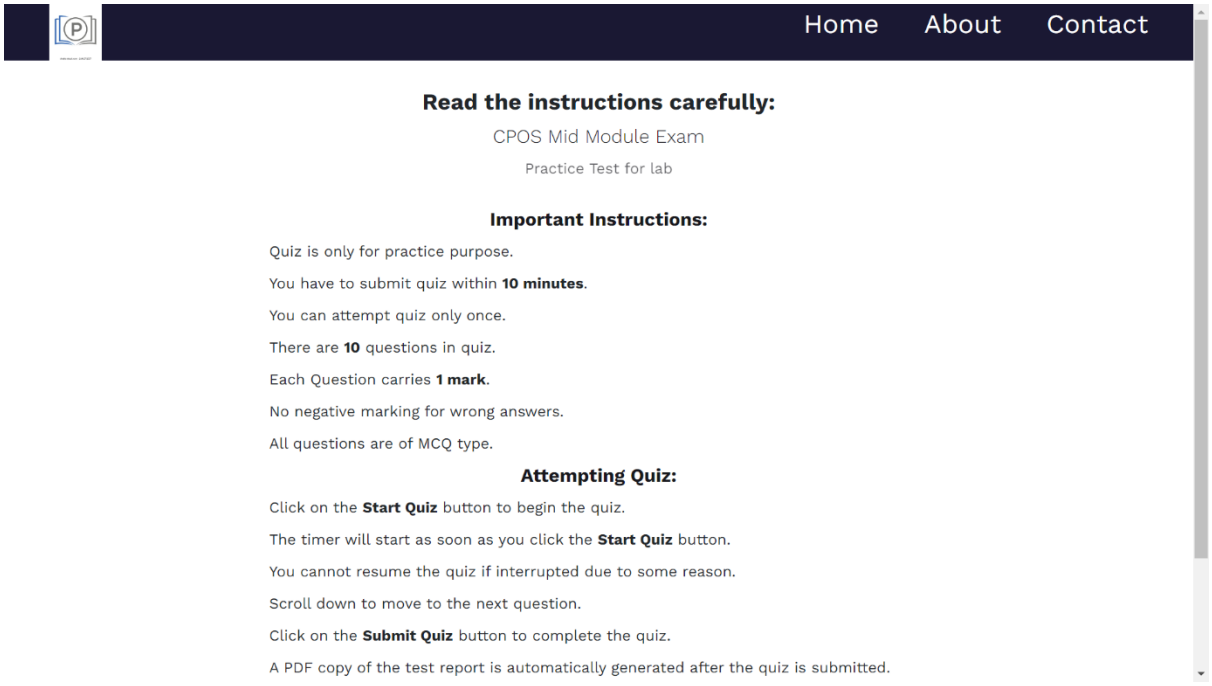


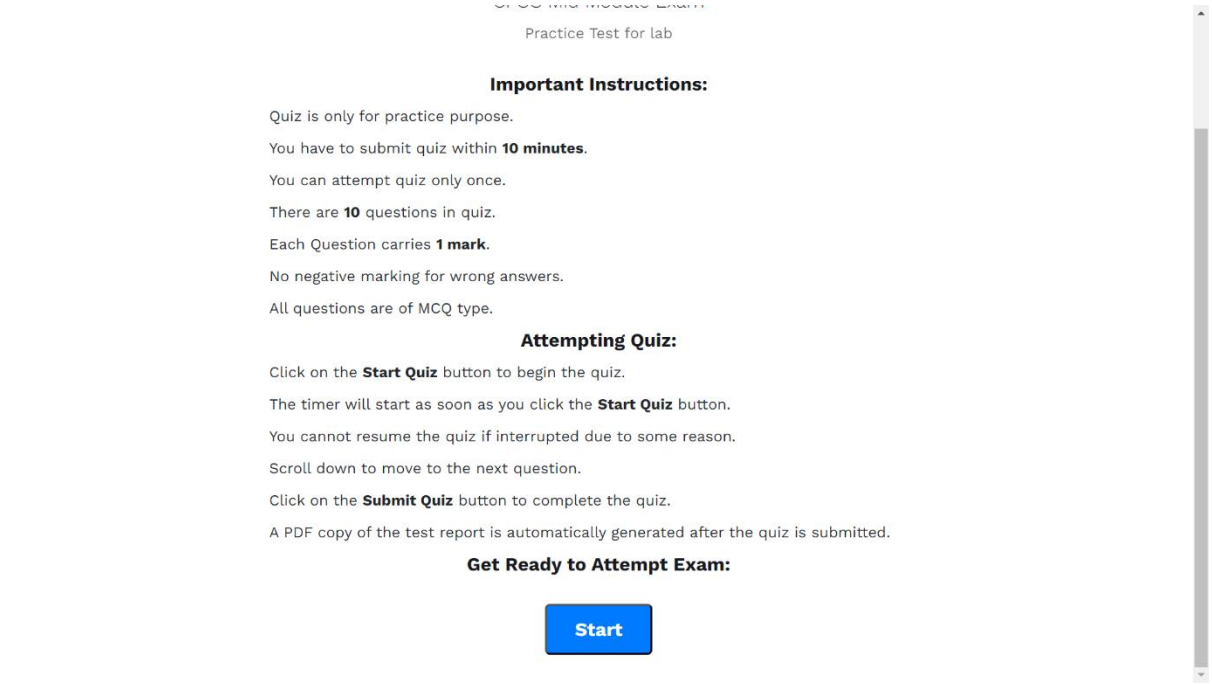
2.3 RESULT ANALYSIS PAGE



2.4 ATTEMPT EXAM




Home
About
Contact
Read the instructions carefully:
CPOS Mid Module Exam
Practice Test for lab
Important Instructions:
Quiz is only for practice purpose.
You have to submit quiz within 10 minutes.
You can attempt quiz only once.
There are 10 questions in quiz.
Each Question carries 1 mark.
No negative marking for wrong answers.
All questions are of MCQ type.
Attempting Quiz:
Click on the Start Quiz button to begin the quiz.
The timer will start as soon as you click the Start Quiz button.
You cannot resume the quiz if interrupted due to some reason.
Scroll down to move to the next question.
Click on the Submit Quiz button to complete the quiz.
A PDF copy of the test report is automatically generated after the quiz is submitted.


Practice Test for lab
Important Instructions:
Quiz is only for practice purpose.
You have to submit quiz within 10 minutes.
You can attempt quiz only once.
There are 10 questions in quiz.
Each Question carries 1 mark.
No negative marking for wrong answers.
All questions are of MCQ type.
Attempting Quiz:
Click on the Start Quiz button to begin the quiz.
The timer will start as soon as you click the Start Quiz button.
You cannot resume the quiz if interrupted due to some reason.
Scroll down to move to the next question.
Click on the Submit Quiz button to complete the quiz.
A PDF copy of the test report is automatically generated after the quiz is submitted.
Get Ready to Attempt Exam:
Start

Question 1

← PREV NEXT→

The technique, for sharing the time of a computer among several jobs. Which switches jobs so rapidly such that each job appears to have the computer to itself:

- ○ time sharing
- ○ time out
- ○ time domain
- ○ FIFO

Clear Response Mark for Review

0 marked for review **0** questions answered **10** questions left

Submit Exam

Conclusion and Future Work

A. Summary of the Project Accomplishments

In conclusion, the development of an online quiz management system using Spring Boot as the backend and React as the frontend has been successfully completed. The system fulfills the requirements and specifications identified in the analysis and design phase, providing users with an intuitive and efficient way to create, manage, and participate in quizzes.

The backend implementation using Spring Boot has been designed with a robust and scalable architecture, using modern web development technologies and design patterns. The frontend implementation using React has provided a modern and responsive user interface, with efficient data flow and state management.

B. Reflection on the Project Process and Lessons Learned

Throughout the project development, we faced several challenges related to the integration of the backend and frontend components, as well as the implementation of the system's security and authentication features. However, through collaboration and communication, we were able to overcome these challenges and achieve the project objectives.

We learned valuable lessons about the importance of thorough analysis and design, the benefits of using modern web development technologies and frameworks, and the need for effective collaboration and communication in software development projects.

C. Potential Areas for Improvement and Future Development

There are several potential areas for improvement and future development of the online quiz management system. These include:

Integration with external systems like Learning Management Systems (LMS)

Implementation of more advanced security and authentication features like two-factor authentication

Integration with more payment gateways for monetization

Implementation of more advanced analytics and reporting features

D. Conclusion and Final Remarks

In conclusion, the online quiz management system using Spring Boot and React provides a reliable and efficient solution for managing and participating in quizzes online. The project has demonstrated

the potential of modern web development technologies and frameworks in creating robust and scalable web applications.

Finally, we hope that this project report will serve as a valuable resource for future software development projects and inspire further research and development in the field of web application development.