

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

PRESENTED BY

220940120006
220940120129
220940120151
220940120160
220940120180
220940120204

Abhishek
Omkar H Gurav
Rajnish Singh
Ritesh Ghule
Satyam Karmakar
Smitesh Chaudhary

AT CENTER FOR DEVELOPMENT OF ADVANCED COMPUTING

C-DAC, PUNE

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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.

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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

Chapter 2

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.

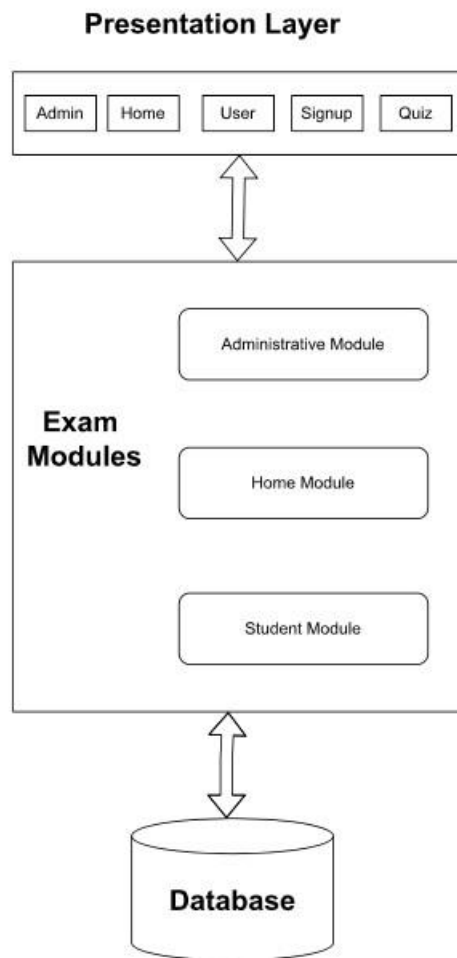


Figure 2.1: Three Tier Architecture

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.

2.3 PARIKSHA (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 a web application that improves the 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:

- Spring Tool Suite: 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.
- Node Package Manager: 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.

Chapter 3

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 centres, 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.

Chapter 4

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.

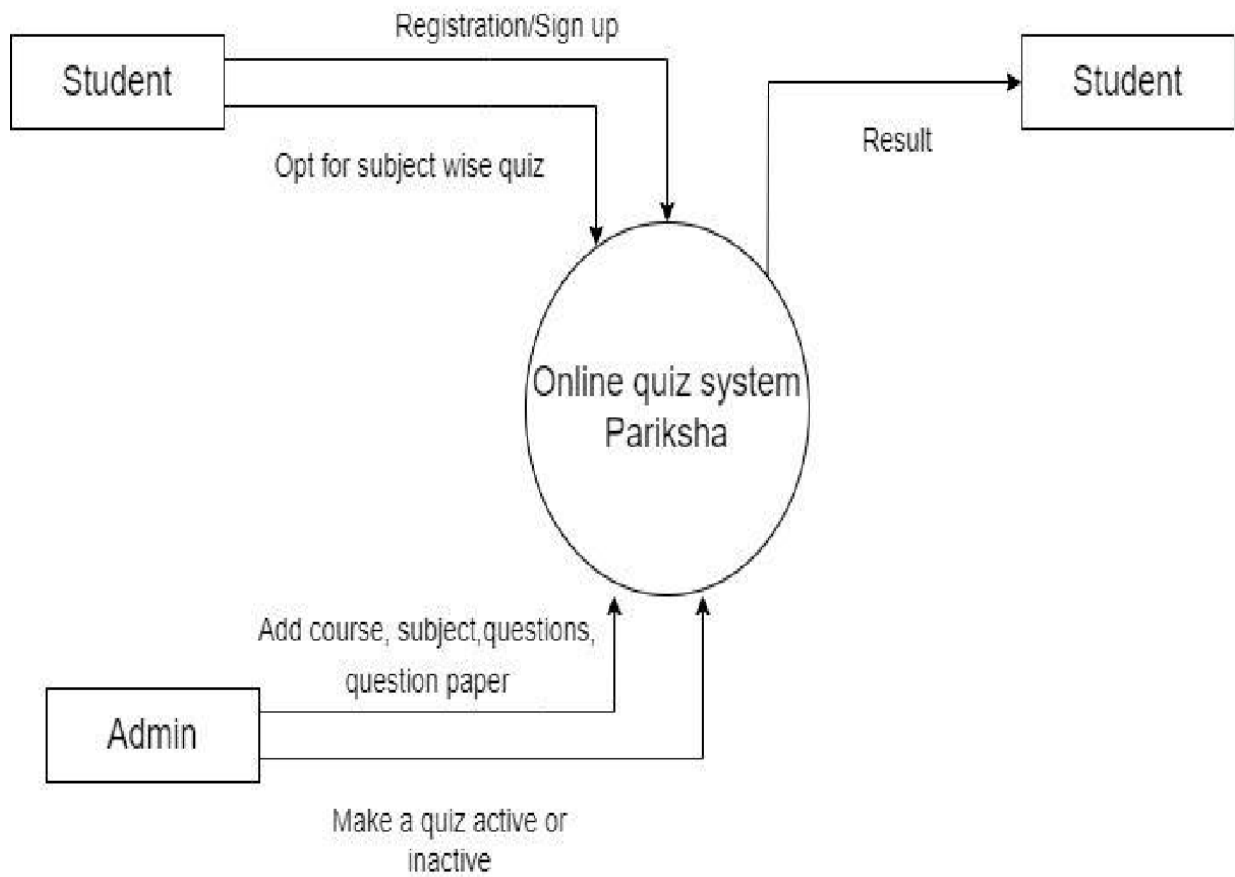
Technology stack:

The following technologies will be used to develop the system:

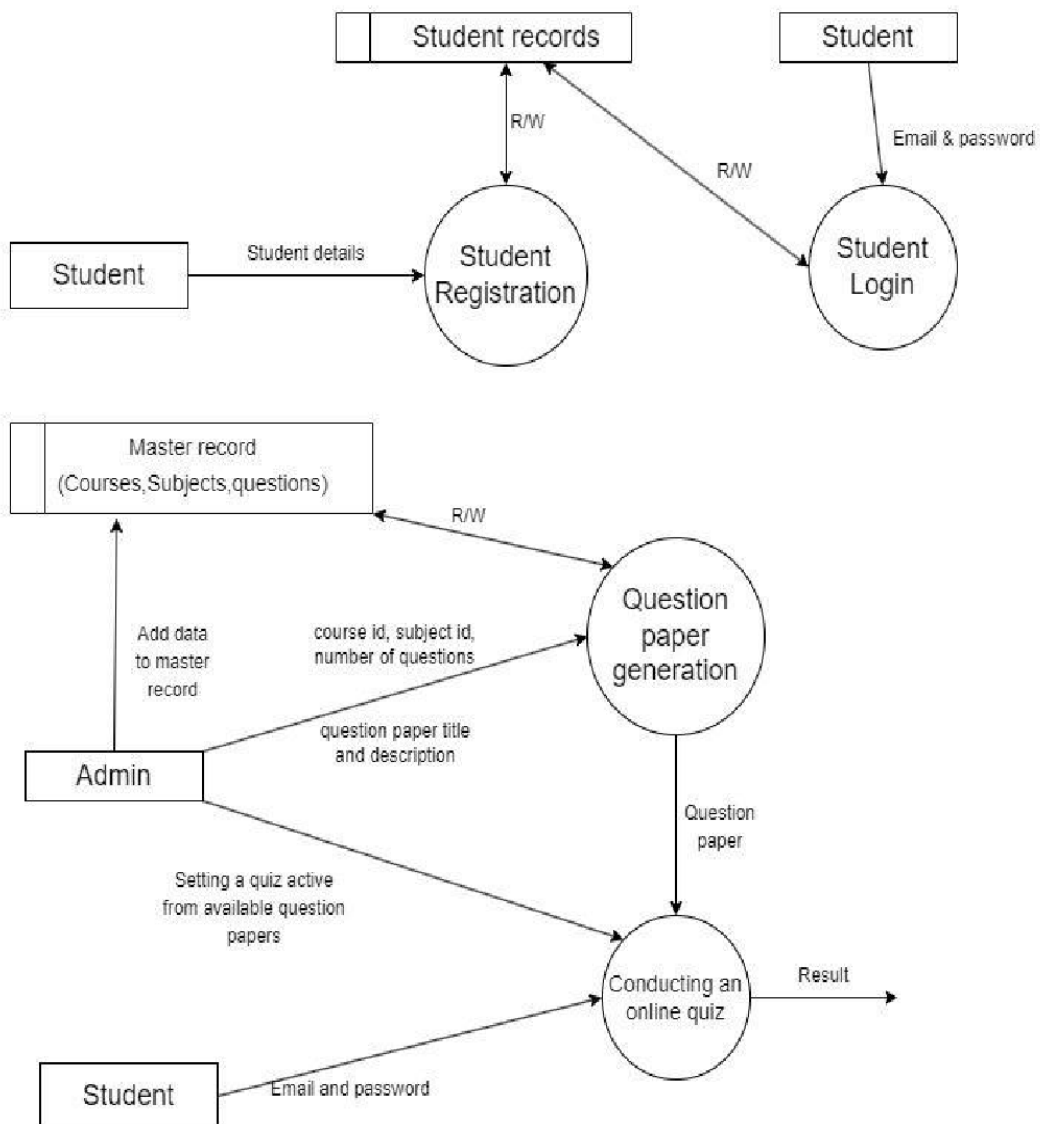
- a. Backend: Spring Boot, Hibernate, MySQL.
- b. Frontend: React, Axios, Bootstrap.

DFD DIAGRAM

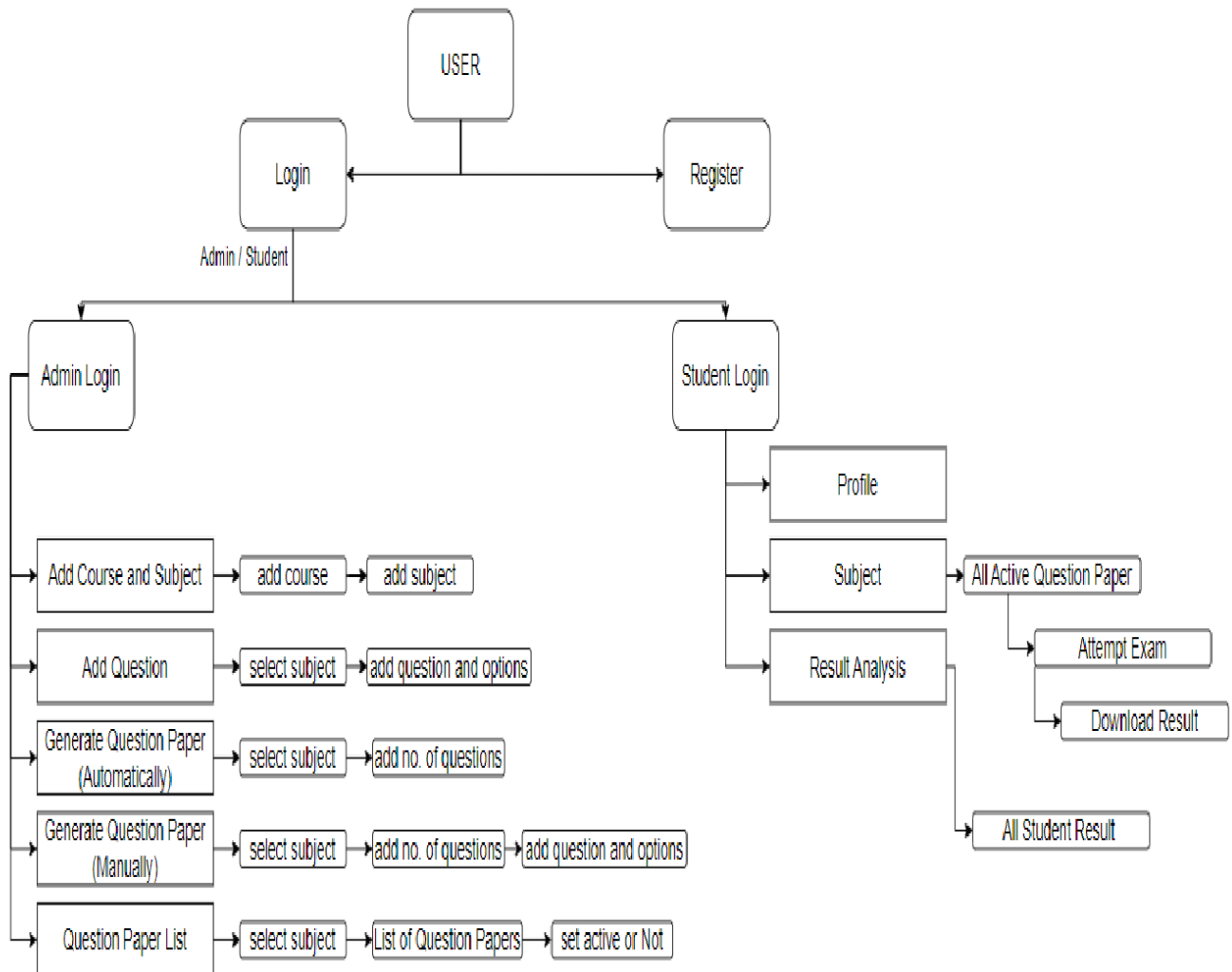
LEVEL 0



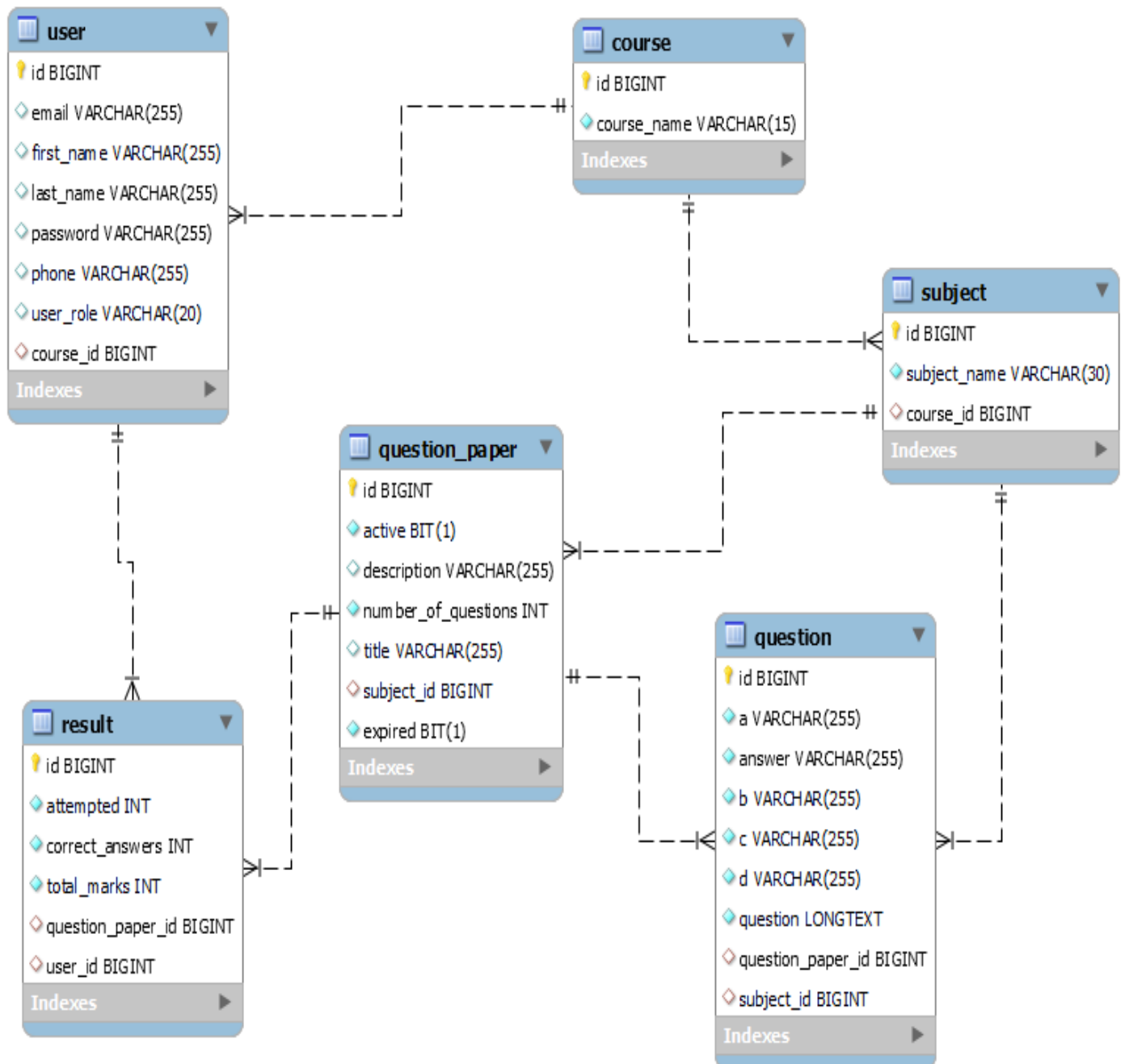
LEVEL 1



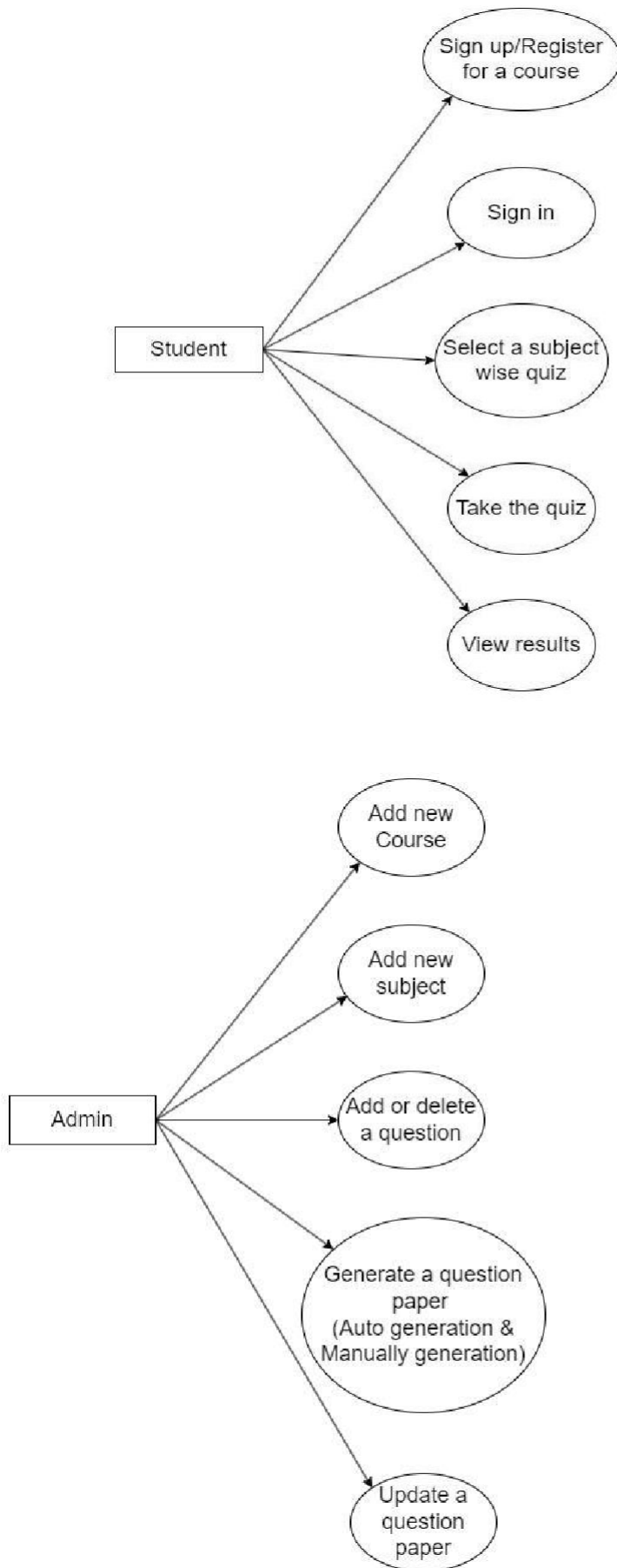
FUNCTIONAL DECOMPOSITION DIAGRAM



E-R DIAGRAM

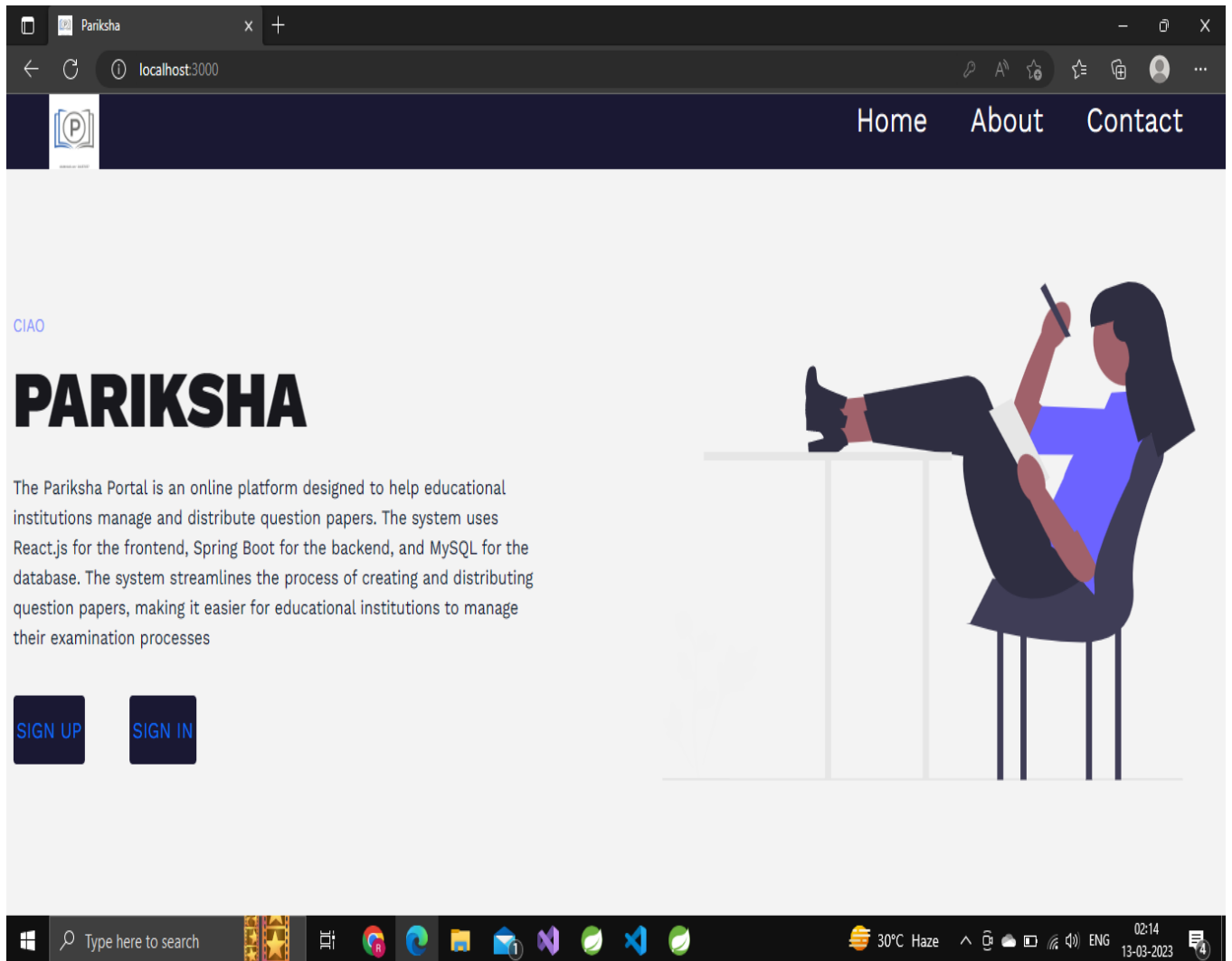


USE CASE DIAGRAM

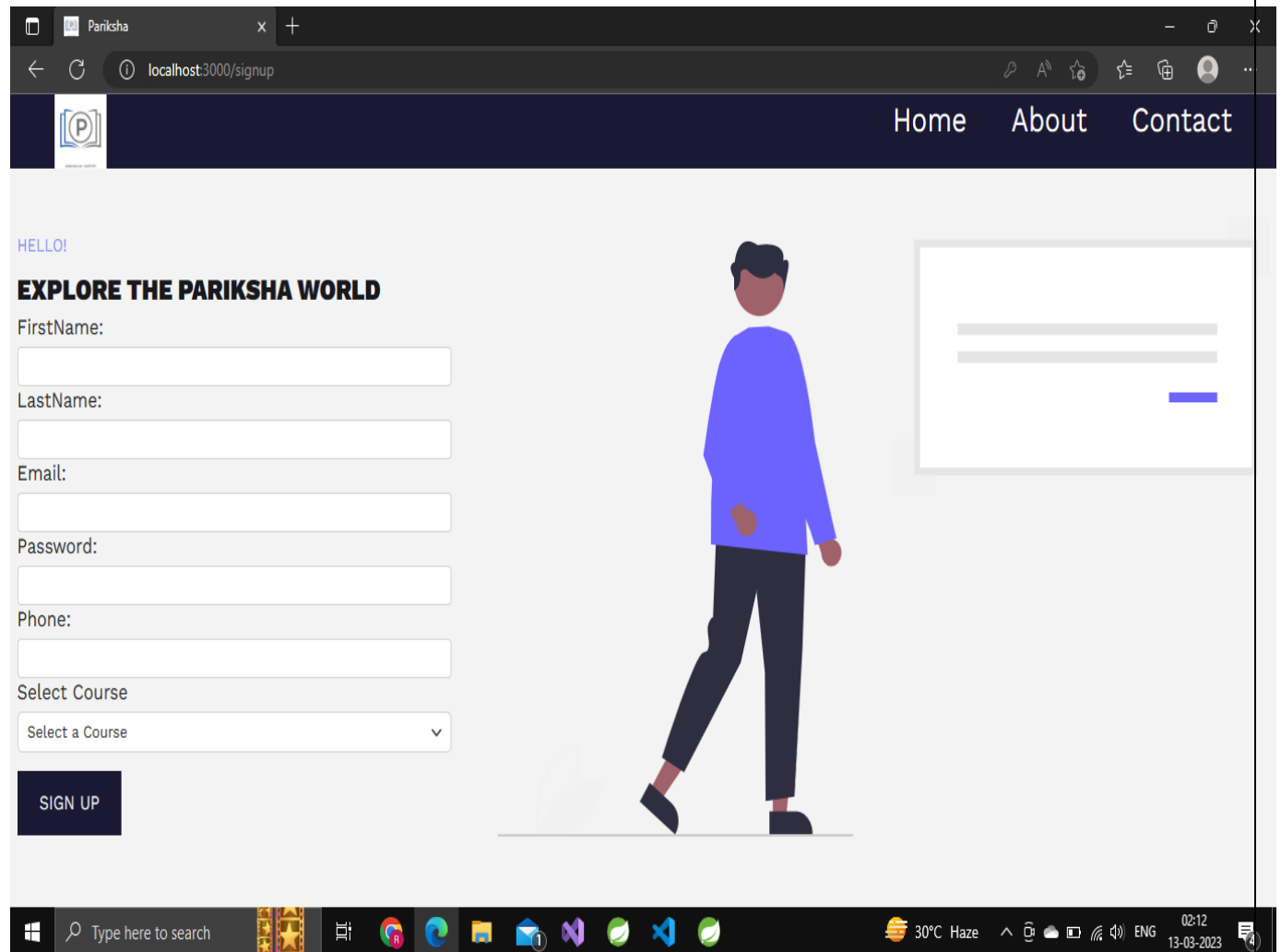


PROJECT SCREENSHOTS

1. HOME PAGE



SIGN-UP PAGE



The screenshot shows a web browser window with the address bar displaying 'localhost:3000/signup'. The page has a dark blue header with a logo on the left and navigation links 'Home', 'About', and 'Contact' on the right. The main content area is light gray and features a sign-up form on the left, a stylized illustration of a person in a blue sweater and dark pants walking towards the right, and a white rectangular box on the right side. The form includes fields for 'FirstName:', 'LastName:', 'Email:', 'Password:', 'Phone:', and a 'Select Course' dropdown menu. A dark blue 'SIGN UP' button is located below the form. The Windows taskbar is visible at the bottom, showing the search bar, task view button, and several application icons. The system tray on the right indicates the temperature is 30°C, the weather is Haze, and the time is 02:12 on 13-03-2023.

HELLO!

EXPLORE THE PARIKSHA WORLD

FirstName:

LastName:

Email:

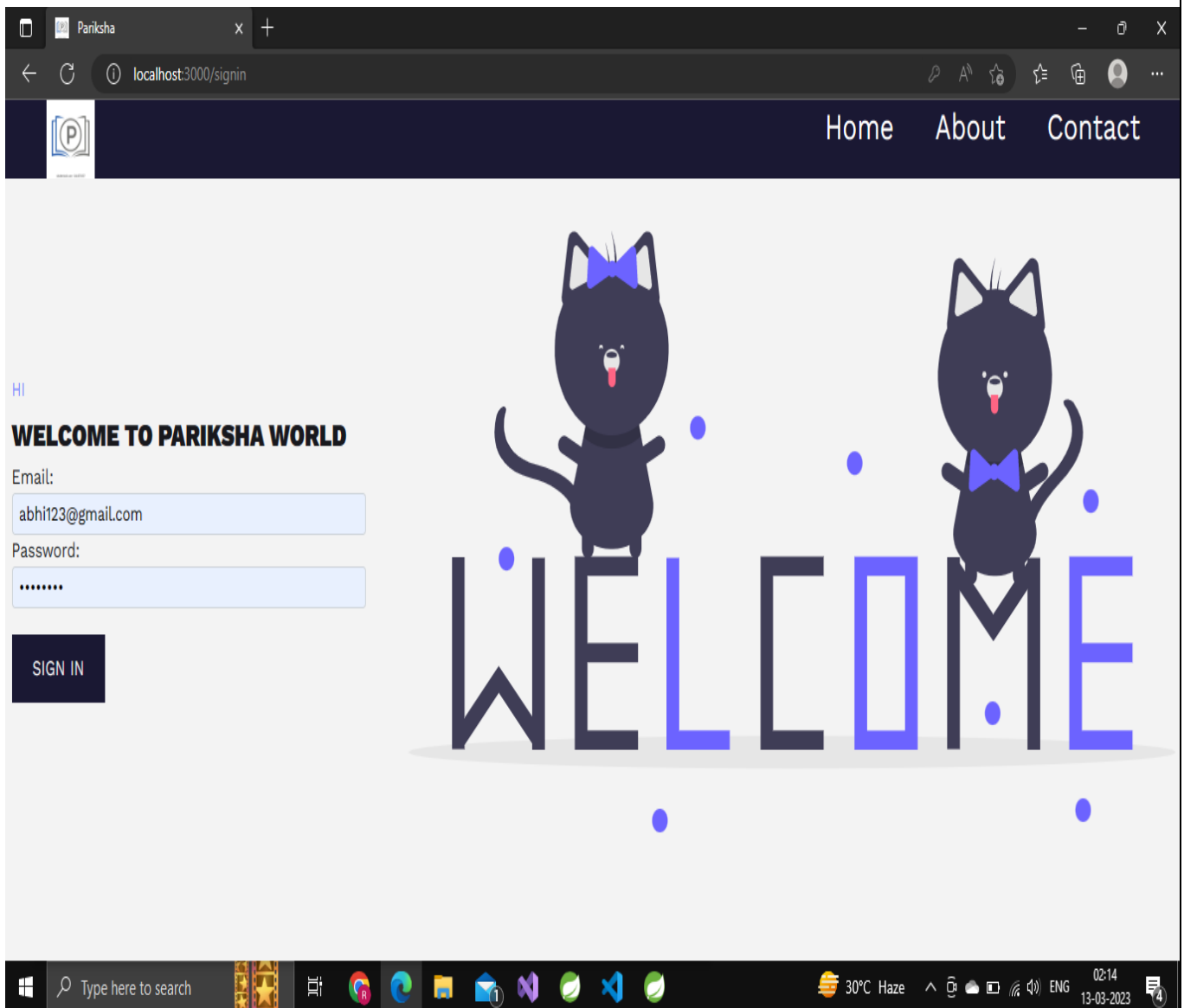
Password:

Phone:

Select Course

SIGN UP

1.3 SIGN-IN PAGE



1.4 ADMIN SIDE HOMEPAGE

Pariksha

Welcome To Pariksha Portal

Enjoy Your Day

Home

Add Course And Subjects

Add Question

Generate Question Paper

Generate Question Paper Automatically

Generate Question Paper Manually

Question Paper List by Course And Subject

Courses

#	Course Name	Action
1	PG-DAC	Delete
2	PG-DBDA	Delete
3	PG-DITISS	Delete

Subjects

Course : PG-DAC

Subject ID	Subject Name	Action
1	CPOS	Delete
2	ADS	Delete
3	DBT	Delete
4	WPT	Delete

1.5 ADD COURSE AND SUBJECT

The screenshot shows a web browser window with the URL `localhost:3000/admin/add-course-subject`. The page has a dark blue header with a logo on the left and navigation links 'Home', 'About', and 'Contact' on the right. Below the header, a light gray banner contains the text 'Pariksha', 'Welcome To Pariksha Portal', and 'Enjoy Your Day'. A sidebar on the left lists menu items: 'Home', 'Add Course And Subjects', 'Add Question', 'Generate Question Paper', 'Generate Question Paper Automatically', 'Generate Question Paper Manually', and 'Question Paper List by Course And Subject'. The main content area features two buttons at the top: 'Add New Course' and 'Add New Subject'. Below these is a form with a text input field labeled 'Enter Course Name' and a 'Save' button. The Windows taskbar at the bottom shows the date and time as 02:16 on 13-03-2023.

This screenshot shows the same Pariksha portal but with the 'Add New Subject' form active. The 'Add New Course' button is now disabled. The form includes a dropdown menu labeled 'Course' with the placeholder text 'Select a Course', a text input field labeled 'Enter Subject Name', and an 'Add Subject' button. The rest of the page layout, including the header, banner, sidebar, and taskbar, remains identical to the previous screenshot.

1.6 ADD QUESTIONS

Pariksha

Welcome To Pariksha Portal

Enjoy Your Day

Home

Add Course And Subjects

[Add Question](#)

Generate Question Paper

Generate Question Paper Automatically

Generate Question Paper Manually

Question Paper List by Course And Subject

Add Question

Course : Subject :

[Back to Home](#)

Type here to search

30°C Haze

ENG

02:17

13-03-2023

1.7 GENERATE QUESTION PAPER AUTOMATICALLY

Pariksha

localhost:3000/admin/generate-question-paper-auto

HomeAboutContact

Pariksha

Welcome To Pariksha Portal

Enjoy Your Day

Home

Add Course And Subjects

Add Question

Generate Question Paper

Generate Question Paper Automatically

Generate Question Paper Manually

Question Paper List by Course And Subject

Generate Question Paper

Course : PG-DAC Subject : WPT

Question Paper Title:
Sept Term Exam

Question Paper Description:
Mid Term Exam, 10 questions each of 1 marks and No negative marking

Number of Questions:
10

Submit

Type here to search

30°C Haze

02:18

13-03-2023

1.8 GENERATE QUESTION PAPER MANUALLY

Enjoy Your Day

[Home](#)
[Add Course And Subjects](#)
[Add Question](#)
[Generate Question Paper](#)
[Generate Question Paper Automatically](#)
[Generate Question Paper Manually](#)
[Question Paper List by Course And Subject](#)

Question Paper Manual Generation

Course : Subject :

Title:

Description:

Number of Questions:

Question 1

Question:

Option A:

Option B:

Windows taskbar: Type here to search, 30°C Haze, 02:18, 13-03-2023

1.9 QUESTION PAPER LIST BY COURSE

The screenshot displays a web browser window with the URL `localhost:3000/admin/question-paper-list`. The page title is "Welcome To Pariksha Portal" with the subtitle "Enjoy Your Day".

Question Paper List Course and Subject Wise

Course : Subject :

1. Question Paper 1

Attempt

Number of Questions: 10

Active: ☒

2. Sept Term Exam

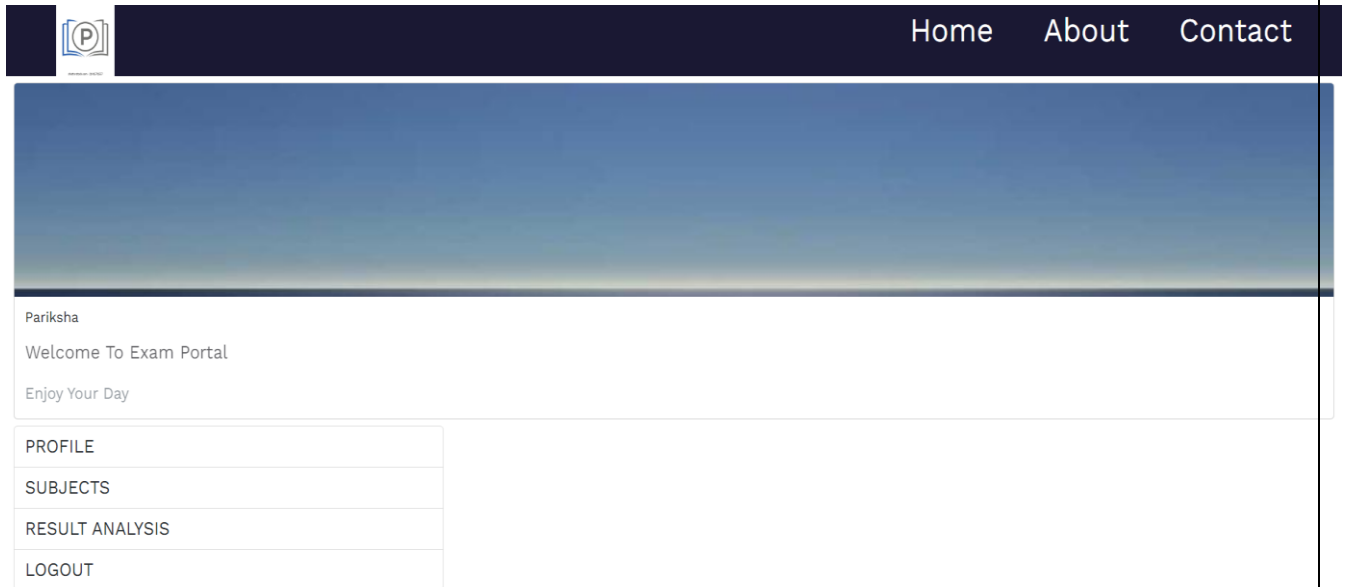
Mid Term Exam, 10 questions each of 1 marks and No negative marking

Number of Questions: 10

Active: ☐

The interface includes a sidebar menu on the left with the following options: Home, Add Course And Subjects, Add Question, Generate Question Paper, Generate Question Paper Automatically, Generate Question Paper Manually, and Question Paper List by Course And Subject. The bottom of the image shows a Windows taskbar with various application icons and system status information, including a temperature of 30°C and the date 13-03-2021.

2.0 USER SIDE



2.1 STUDENT PROFILE



[Home](#) [About](#) [Contact](#)

Pariksha

Welcome To Exam Portal

Enjoy Your Day

PROFILE

SUBJECTS

RESULT ANALYSIS

LOGOUT

Student Profile

Name: Ritesh Ghule

Email: riteshghule222@gmail.com

Phone: 9822914728

Course: PG-DAC

2.2 SUBJECTS PAGE

Pariksha

Welcome To Exam Portal

Enjoy Your Day

PROFILE

SUBJECTS

RESULT ANALYSIS

LOGOUT

PG-DAC SUBJECTS

CPOS

[Appear for Exam](#)

ADS

[Appear for Exam](#)

DBT

[Appear for Exam](#)

WPT

[Appear for Exam](#)

.NET

[Appear for Exam](#)

ASDM

[Appear for Exam](#)

Web based Java

[Appear for Exam](#)

Java with OOPS

[Appear for Exam](#)

2.3 RESULT ANALYSIS PAGE



Pariksha (P)

[Home](#) [About](#) [Contact](#)

Pariksha

Welcome To Exam Portal

Enjoy Your Day

PROFILE

SUBJECTS

RESULT ANALYSIS

LOGOUT

CPOS Testing

Scored: 0

Attempted: 0

Total Marks: 5

CPOS Testing

Scored: 0

Attempted: 0

Total Marks: 5

CPOS Testing

Scored: 0

Attempted: 0

Total Marks: 5


CPOS Testing

Scored: 4

Attempted: 4

Total Marks: 5

2.4 ATTEMPT EXAM



HomeAboutContact

Pariksha

Welcome To Exam Portal

Enjoy Your Day

PROFILE

SUBJECTS

RESULT ANALYSIS

LOGOUT

Attempt Exam

CPOS End Module

Evaluation of CPOS module for lab

Number of Questions: 20

Attempt Exam

CPOS Mid Module Exam

Practice Test for lab

Number of Questions: 10



HomeAboutContact

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.

Start the 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.

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.

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