ONLINE EXAMINATION SYSTEM

A MINI PROJECT REPORT

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BONAFIDE CERTIFICATE

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ABSTRACT

An online examination system is a web-based platform that enables students to take tests and exams via the internet. This system is designed to provide a secure and convenient testing environment for students, while also making it easier for educators to administer and grade exams. Online examination systems typically consist of a user interface for students to access exams and answer questions, and an administrative interface for educators to create, manage, and grade exams. Students can log into the system using their unique login credentials and access exams that have been assigned to them. This system can also be designed to include features such as time limits, randomization of questions, and the ability to save and review answers. The benefits of an online examination system include increased accessibility, as students can take exams from any location with internet access, reduced administrative workload for educators, and improved accuracy and speed of grading**.**

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ABBREVIATIONS

SQL	Structured Query Language
HTML	HyperText Markup Language
CSS	Cascading Style Sheets
ER DIAGRAM	Entity- Relationship Diagram
PHP	Hypertext Pre-processor
PDO	PHP Data Objects
UI	User Interface

CHAPTER 1

INTRODUCTION

1.1 About the System

Online Examination System is a web-based examination system where examinations are given online. either through the internet or intranet using computer system. The main goal of this online examination system is to effectively evaluate the student thoroughly through a totally automated system that not only reduce the required time but also obtain fast and accurate results.

This system is an online test simulator is to take online examination, test in an efficient manner and no time wasting for manually checking of the test paper. The main objective of this web based online examination system is to efficiently evaluate the student thoroughly through a fully automated system that not only saves lot of time but also gives fast and accurate results. For students they give papers according to their convenience from any location by using internet and time and there is no need of using extra thing like paper, pen etc.

Functional Specification:

- Registering new Student
- Getting the student and staff info and storing it to databases
- Getting the type and number of question paper for generating result after the exam.

1.2 Problem Statement

In this examination system ,examinee gets their user id and password with their admit card. This id is already saved in the examination server. Examinee login to the server where their profile is already registered, take up the test and all answers given by examinee are saved into the server with their profile information.

The main objective of this web based online examination system is to efficiently evaluate the student thoroughly through a fully automated system that not only saves lot of time but also gives fast and accurate results. For students they give papers according to their convenience from any location by using internet and time and there is no need of using extra thing like paper, pen etc.

1.3 Objectives

- Completely automate the old manual procedure of conducting exam to a computerized System which will provide a more efficient examination system.
- Efficiently evaluate the student thoroughly through a fully automated system that not only saves lot of time but also gives fast and accurate results.
- For students they give papers according to their convenience from any location by using internet and time and there is no need of using extra thing like paper, pen etc.
- For Easier evaluation and more accurate results.

1.4 Scope and Application

Scope of this project is very broad in terms of other manually taking exams are:-

- This can be used in educational institutions as well as in corporate world.
- Can be used 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.

1.5 General and Unique Services

- **Registration and enrolment:** The system allows students to register for the exam and provides administrators with tools to manage student enrolment.
- **Exam creation and management**: Administrators can create, customize, and manage exams, including setting the duration, number of questions, and scoring system.
- **Question management:** The system provides tools for examiners to manage the question bank, including adding, editing, and categorizing questions.
- **Test taking:** Students can take the exam on the system and the system can enforce time limits and other rules.
- **Grading and results:** The system can automatically grade exams and provide results to students and administrators.
- **Analytics and reporting:** The system can provide detailed analytics and reports on exam performance, including individual and aggregate results.
- **Proctoring:** The system can provide proctoring services to prevent cheating during the exam, such as webcam monitoring and keystroke tracking.
- **Security:** The system can ensure the security and integrity of the exam data, including protection against unauthorized access and data loss.
- **Remote proctoring**: With remote proctoring, an exam can be monitored in real-time by an authorized proctor who can ensure that the candidate is not cheating. This service is especially useful for high-stakes exams such as certification exams.
- **Question bank management:** The system can have a question bank management feature that can help teachers manage their question banks, including adding, editing, and deleting questions.

- **Mobile compatibility:** The system can be designed to be mobile-friendly, allowing students to take the exam on their mobile devices.
- **Question categorization:** The system can allow teachers to categorize questions based on topics, levels of difficulty, and other relevant criteria.

1.6 Software Requirements

The software requirements for our online examination system are as follows:

- **Operating System:** The system should be compatible with a popular operating system such as Windows, Linux, or MacOS.
- **Web Server:** The system should be deployed on a web server that can handle the traffic and provide reliable performance.
- **Database Management System**: The system should have a database to store user information, examination data, and results. Popular database management systems include MySQL, PostgreSQL, or Oracle.
- **Programming Language:** The system should be built using a programming language suitable for web development, such as PHP, Python, or Ruby.
- **Framework:** A web development framework should be used to provide a robust and scalable architecture for the system. Popular frameworks include Laravel, Django, or Ruby on Rails.
- **Front-End Technology**: The system should be built using HTML, CSS, and JavaScript to provide a user-friendly interface for candidates.
- **Security Measures:** The system should have security measures in place to protect user data, prevent cheating, and ensure the integrity of the examination process. This can include features such as two-factor authentication, encryption, and secure connections.
- **Reporting Tools**: The system should provide comprehensive reports for administrators to monitor and analyse examination results.
- **Integration with LMS:** The system should integrate with Learning Management Systems (LMS) to manage course content, assignments, and assessments.
- **Mobile Compatibility:** The system should be compatible with mobile devices, allowing candidates to take examinations using their smartphones or tablets.

CHAPTER 2

LITERATURE SURVEY

2.1 Existing System:

Security vulnerabilities: Online examination systems are vulnerable to security breaches such as hacking and cheating, which can compromise the integrity of the exam results.

Technical issues: Technical issues such as server downtime, network problems, or software glitches can disrupt the examination process and cause inconvenience to the test-takers.

Limited flexibility: Existing online examination systems may have limited flexibility in terms of customizability, making it difficult to adapt to the specific needs of different institutions and organizations.

Limited features: Existing online examination systems may lack essential features such as real-time analytics, online proctoring, or the ability to provide immediate feedback to the test-takers.

Accessibility issues: Online examination systems may not be accessible to all test-takers, particularly those with disabilities or limited access to technology.

Cost: Some existing online examination systems may be expensive to implement or maintain, making them less accessible to smaller institutions or organizations with limited budgets.

2.2 Existing System vs Proposed System:

An online examination system can be an effective way to assess the knowledge and skills of students or professionals. Here are some differences between an existing system and a proposed system for an online examination system.

There are several problems with the existing examination system, including:

Emphasis on memorization over understanding: Many exams focus on testing a student's ability to memorize information rather than their understanding of the material. This encourages rote learning rather than critical thinking, creativity, and problem-solving skills.

Limited assessment of real-world skills: Exams often do not assess students' real-world skills such as teamwork, communication, and leadership abilities. These skills are essential in today's workplace and society but are not adequately evaluated by the traditional examination system.

One-size-fits-all approach: The current examination system takes a "one-size-fits-all" approach, which does not consider the different learning styles, strengths, and weaknesses of individual students. This approach often leads to a lack of motivation and engagement among students, especially those who struggle to succeed in traditional testing environments.

High-stakes testing: The high-stakes nature of exams can create stress and anxiety among students, which can negatively impact their performance. Moreover, it can lead to an over-emphasis on grades and test scores, rather than the learning process and the development of the whole person.

Limited feedback: The feedback provided by exams is often limited to a numerical score or letter grade. This does not provide students with a comprehensive understanding of their strengths and weaknesses, nor does it provide actionable feedback to help them improve.

Lack of flexibility: Traditional exams are typically rigid and do not allow for flexibility in terms of testing format, timing, or location. This can be challenging for students with different needs, such as those with disabilities, or those who require alternative testing arrangements.

There are several proposed alternative examination systems that attempt to address the limitations of the traditional examination system:

Competency-based assessment: This approach assesses students based on their mastery of specific competencies or skills. Instead of measuring their ability to memorize information, students are assessed on their ability to apply knowledge to real-world situations.

Performance-based assessment: This approach measures a student's ability to perform a specific task or complete a project. It can provide a more accurate reflection of a student's abilities and can encourage the development of real-world skills such as collaboration, communication, and critical thinking.

Portfolio assessment: This approach allows students to compile a collection of their work over time, which is then evaluated by teachers or other assessors.

Online assessment: This approach uses digital tools and platforms to deliver and assess exams. It can provide more flexibility in terms of timing and location and can allow for more personalized assessment.

Overall, these alternative examination systems attempt to provide a more comprehensive and accurate assessment of a student's abilities and can encourage the development of real-world skills that are essential in today's society and workplace.

CHAPTER 3

SYSTEM ARCHITECTURE AND DESIGN

3.1 ARCHITECTURE DIAGRAM:

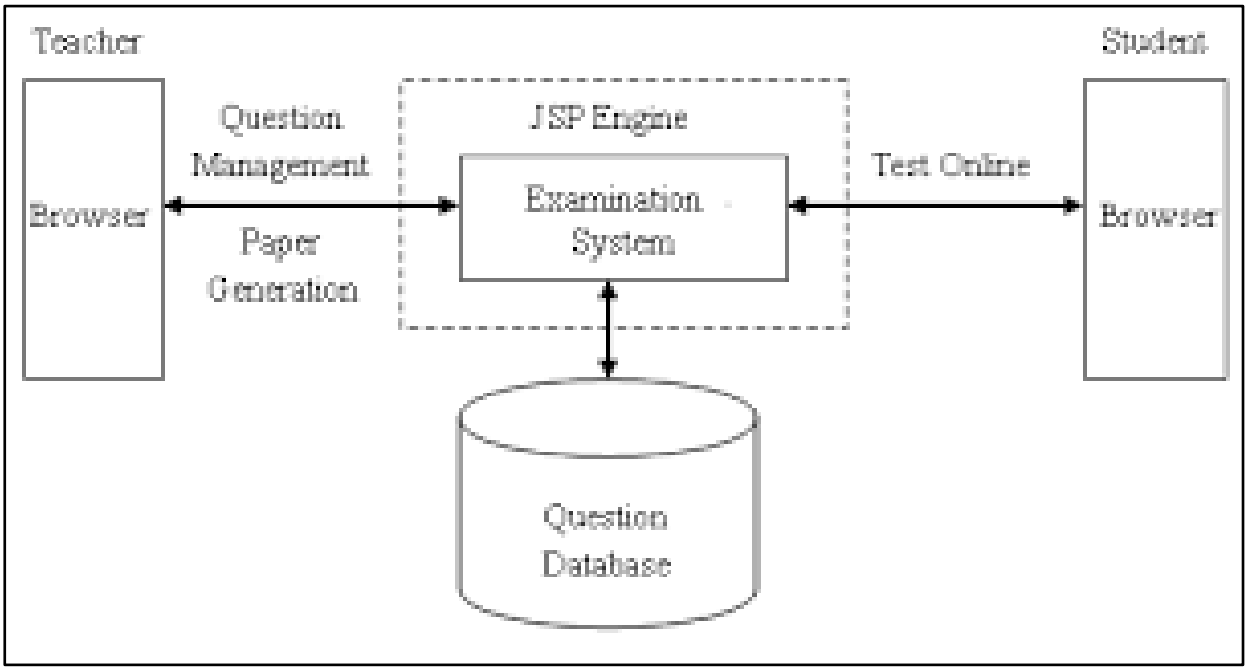

Fig 3.1 Architecture Diagram of Online Examination System

The system comprises of:

User Interface (Student): The students interact with the UI and through this web application they take up the exam , view their results. The student logs in with their user name and password which is validated with their details which is prestored in the database.

Question database: This database contains all the questions. More questions can be appended to the database as well as criteria for question response to the student can also be set

User Interface (Teacher): The teachers can view the question set to each student's as well as set the question difficulty level

3.1.1 FRONTEND (UI)DESIGN:

Front end design is implemented using HTML,CSS AND JAVASCRIPT which enables to form the basic webpage structure. Users interact with this UI providing a better user experience**.**

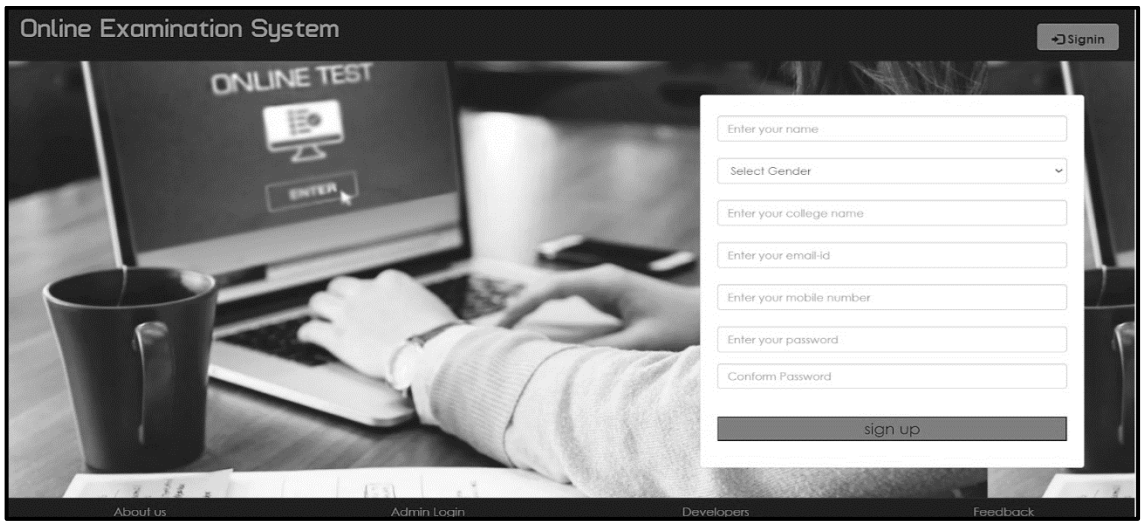

Fig 3.1.1 Frontend Portal

3.1.2 BACKEND (DATABASE)DESIGN:

Back end designing uses PHP,MYSQL.PHP is an easy to use programming language that provides backend scripting. PHP scripts are written to the server that interacts with the frontend or backend frame works. MYSQL enables for easy insertion, deletion, updation of users interacting with our system.

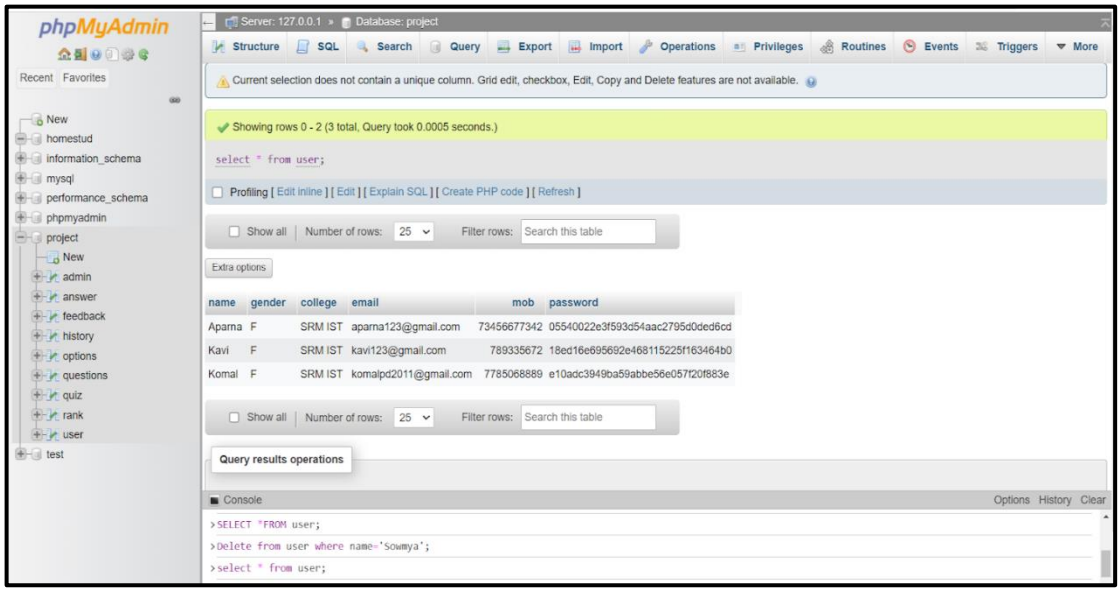

Fig 3.1.2 Backend Portal

3.2 USE CASE DIAGRAM:

The use case diagram consists of 2 use cases student and teacher respectively.

- The student can register , answers question and submit the test, and view their respectively test results.
- The Teacher has the loin access, question paper setting tab, access to review students' application and publish the results. Further more the option adding , deleting , updating and view questions are enhanced in the question paper setting tab.

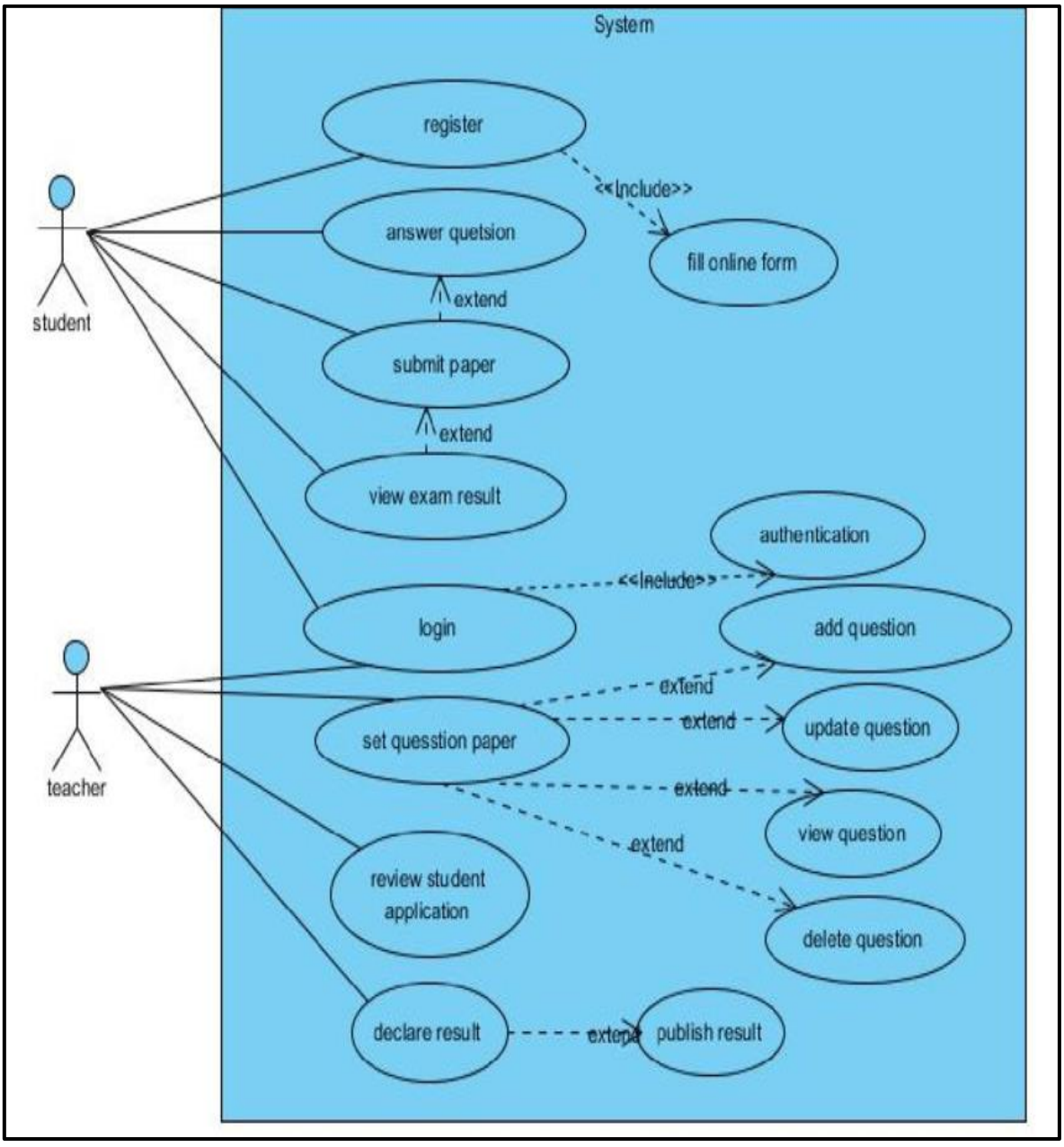

Fig 3.2 Use Case Diagram

3.3 ER DIAGRAM:

The ER diagram for our system consist of various entities which are elucidated below.

- **Entity Student:**

Student name: Each student is associated with a single user account, which includes their login credentials and personal information.

Student Password: A sophisticated password is provided for the user default where he/she can change and update their passwords whenever needed.

Email id: Email id could be useful for communication purposes between the system and its users. For example, the system may need to send email notifications to users about upcoming exams, exam results, or other important information.

Phone no: The number is required to notify the student about any kind of test or exams which are scheduled on a particular day or if any sudden plans are made then also are notified with same.

- **Entity Staff:**

Staff Name: This attribute consists of the faculty name.

Password: The sophisticated password is provided to him for maintenance of the system and making every aspect of the exam secrete.

Staff id: Unique id for faculty which can be referred whenever needed.

Phone no: A sophisticated password is provided for the user default where he/she can change and update their passwords whenever needed.

Email id: Each staff member can communicate with multiple students via email, and each student can receive emails from multiple staff members.

- **Entity Questions:**

Question: This contains question number in a particular section.

Quiz id: Uniquely identifies each quiz or exam in the system.

Correct answer: If the selected answer is correct then the software store it as correct in the database.

- **Entity Score:**

Scored Points: Each result is associated with a single quiz and a single student, and includes a "Scored Points" attribute which can help to track and display the performance of students who take quizzes or exams.

Quiz id: Uniquely identifies each quiz or exam in the system.

- **Entity Quizzes:**

Quiz id: Uniquely identifies each quiz or exam in the system.

Quiz name: Provides a descriptive and easily identifiable label for each quiz or exam in the system.

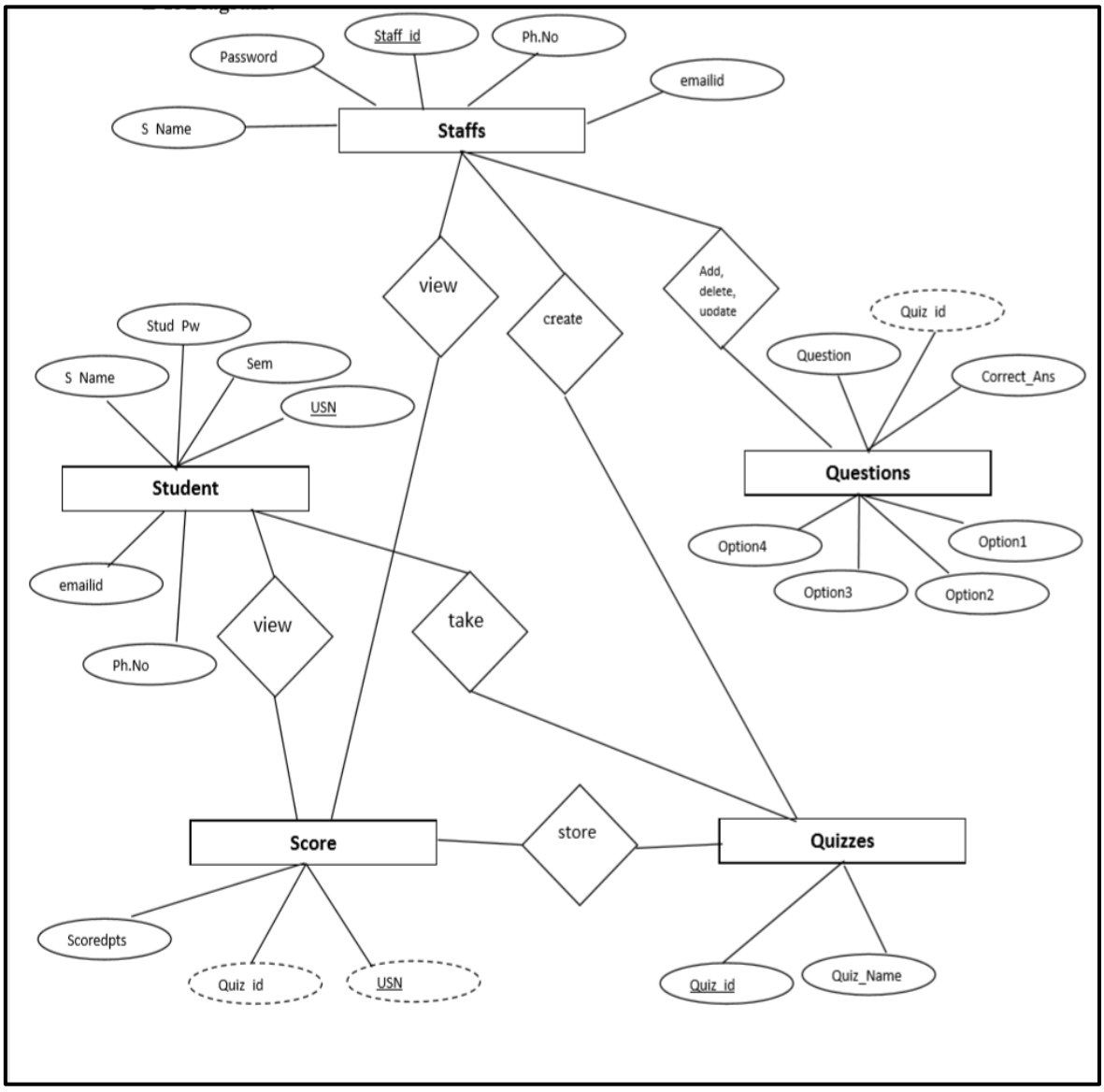

Fig 3.3 ER Diagram

CHAPTER 4

MODULES AND FUNCTIONALITIES

4.1 System Modules and its Functions:

- User management: This module is responsible for managing user accounts, including registration, login, and profile management.

- Question bank management: This module allows administrators to add, edit, and manage a repository of questions that can be used in the exams.

- Test creation: This module enables administrators to create and manage exams by selecting the questions from the question bank, specifying exam duration, and setting other parameters.

- Test taking: This module is responsible for managing the student experience during the exam, including displaying questions, accepting answers, and enforcing time limits.

- Test grading and reporting: This module automatically grades the exams, generates scores, and provides detailed reports on student performance.

- Security and access control: This module is responsible for ensuring that the online examination system is secure and that only authorized users can access the system and take the exams.

- Proctoring: This module may include functionalities such as webcam monitoring, screen recording, and keystroke monitoring to prevent cheating during the exam.

- Notification and communication: This module enables administrators to send notifications and communicate with students regarding exam schedules, changes, and other relevant information.

- Analytics and insights: This module provides insights into student performance, including trends, weaknesses, and strengths, to enable administrators to make data-driven decisions.

- Authentication module: This module is used to authenticate the users who access the online examination system, typically through a login process that verifies their identity.

- Exam delivery module: This module is responsible for delivering the exam to the users who have authenticated themselves.

- Exam management module: This module is used to manage the exam-taking process, including monitoring the users' progress, displaying the questions, collecting the answers, and providing feedback.

- Result processing module: This module is used to process the users' answers and calculate the scores.

- Reporting module: This module is used to generate reports, including user performance reports, exam analysis reports, and other statistical reports.

- Administration module: This module is used by the administrators to manage the entire online examination system, including user management, question management, exam management, and result management.

4.2 Database Connectivity

PHP Data Objects(PDO):PDO is a PHP extension that provides a consistent interface for accessing databases. It supports multiple database systems Including MySQL, PostgreSQL and Oracle.

CHAPTER 5

CODING AND TESTING

5.1 Frontend Code:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Project Worlds || Online Examination System </title>
<link  rel="stylesheet" href="css/bootstrap.min.css"/>
 <link  rel="stylesheet" href="css/bootstrap-theme.min.css"/>
 <link rel="stylesheet" href="css/main.css">
 <link  rel="stylesheet" href="css/font.css">
 <script src="js/jquery.js" type="text/javascript"></script>

  <script src="js/bootstrap.min.js"  type="text/javascript"></script>
  <link href='http://fonts.googleapis.com/css?family=Roboto:400,700,300' rel='stylesheet' ty
<?php if(@$_GET['w'])
{echo'<script>alert("'.@$_GET['w'].'");</script>';}
?>
<script>
function validateForm() {var y = document.forms["form"]["name"].value;  var letters = /^[A-Z
var dotpos = x.lastIndexOf(".");if (atpos<1 || dotpos<atpos+2 || dotpos+2>=x.length) {alert(
var b = document.forms["form"]["cpassword"].value;if (a!=b){alert("Passwords must match.");r
</script>
```

5.2 Login UI:

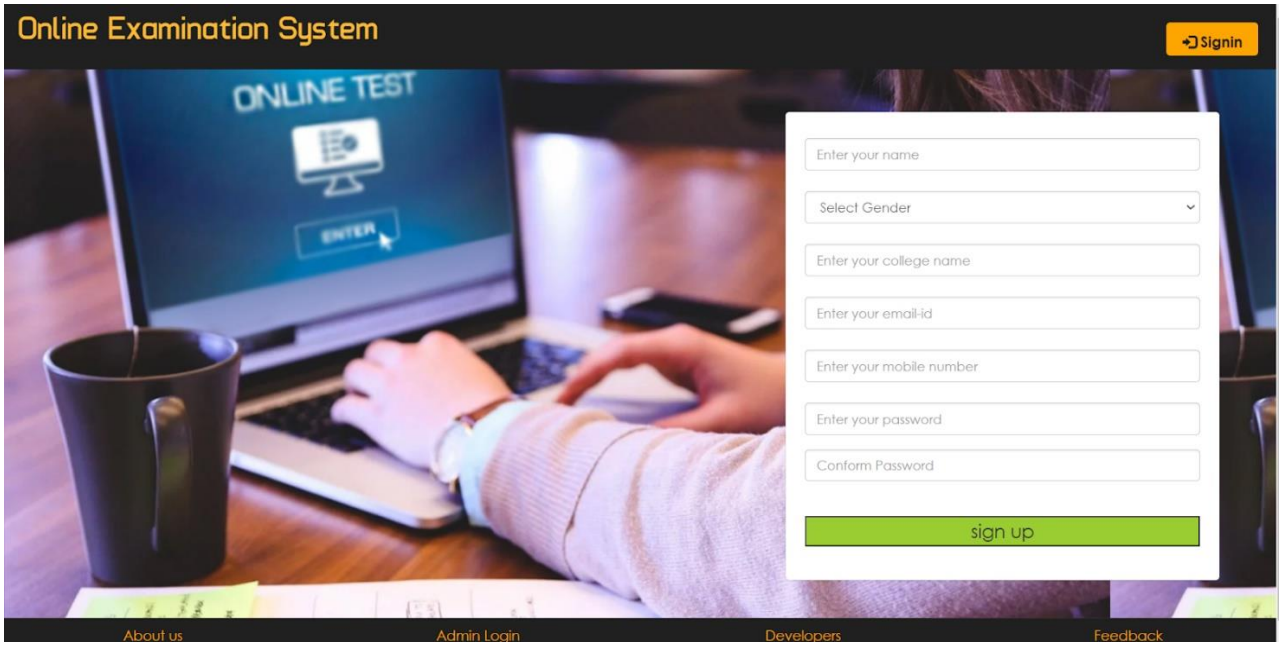

Fig 5.2 Login UI

5.3 Database:

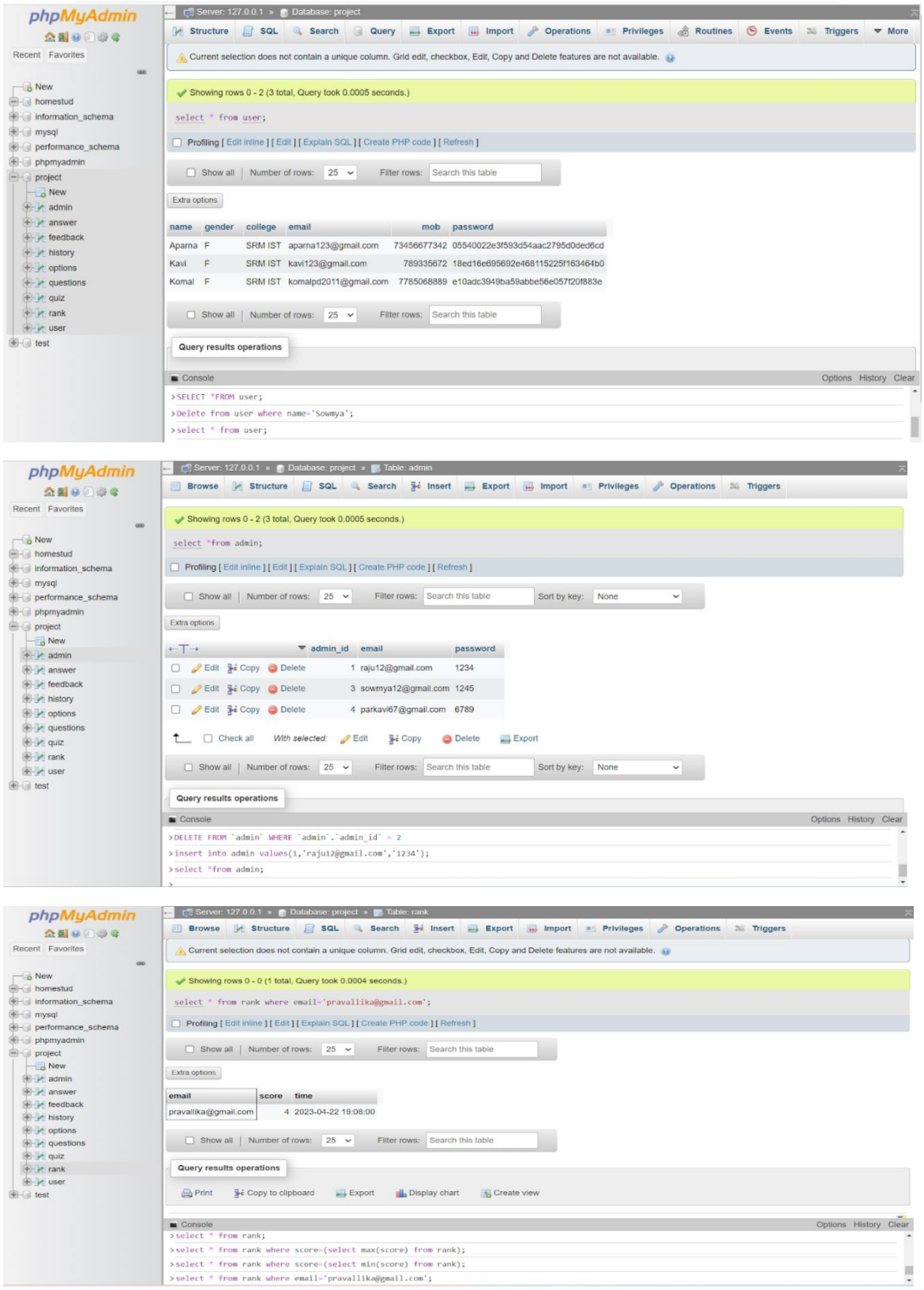

Fig 5.3 Database of the Portal

5.4 Use Cases:

5.4.1 : Home page : This page shows the Topic , no of questions present , marks and time limit for the test before the user starts their exam.

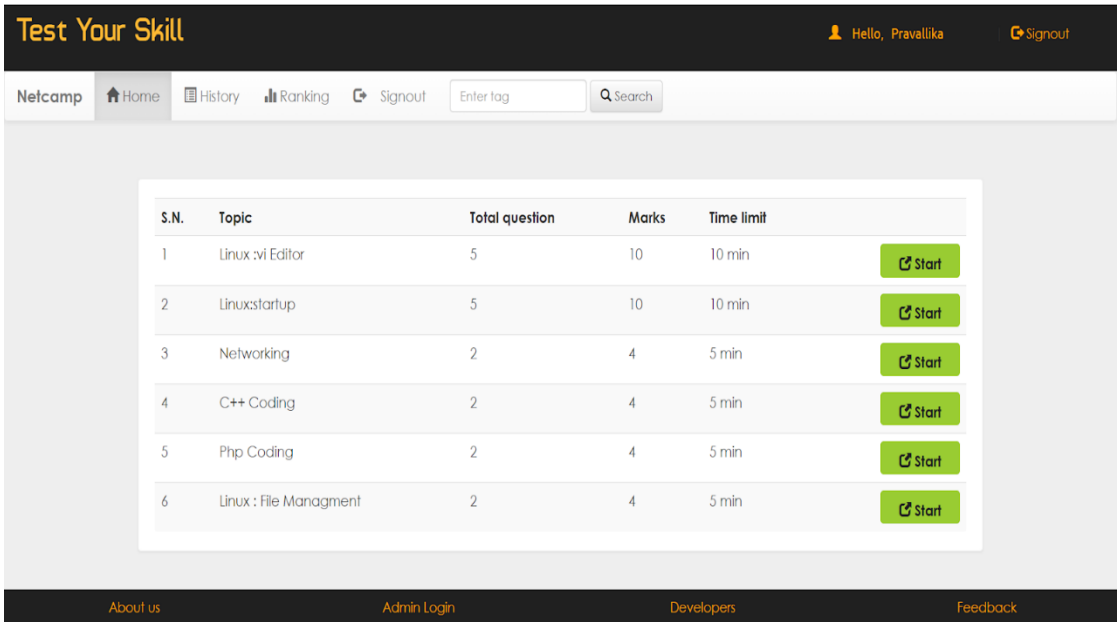

Fig 5.4.1 Home page

5.4.2 Questions Tab : Each question with options are viewed here with a submit button to submit their anwers.

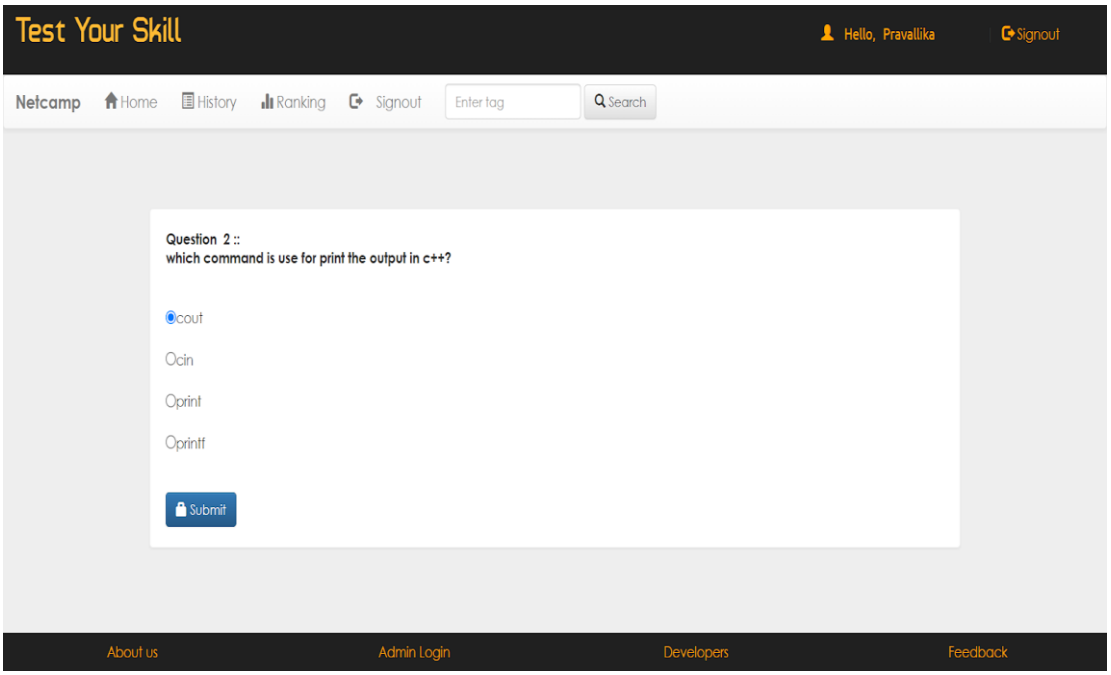

Fig 5.4.2 Questions Tab

5.4.3 User Details Tab : Various details such as name , gender, college ,email id and mobile number are present in this tab.

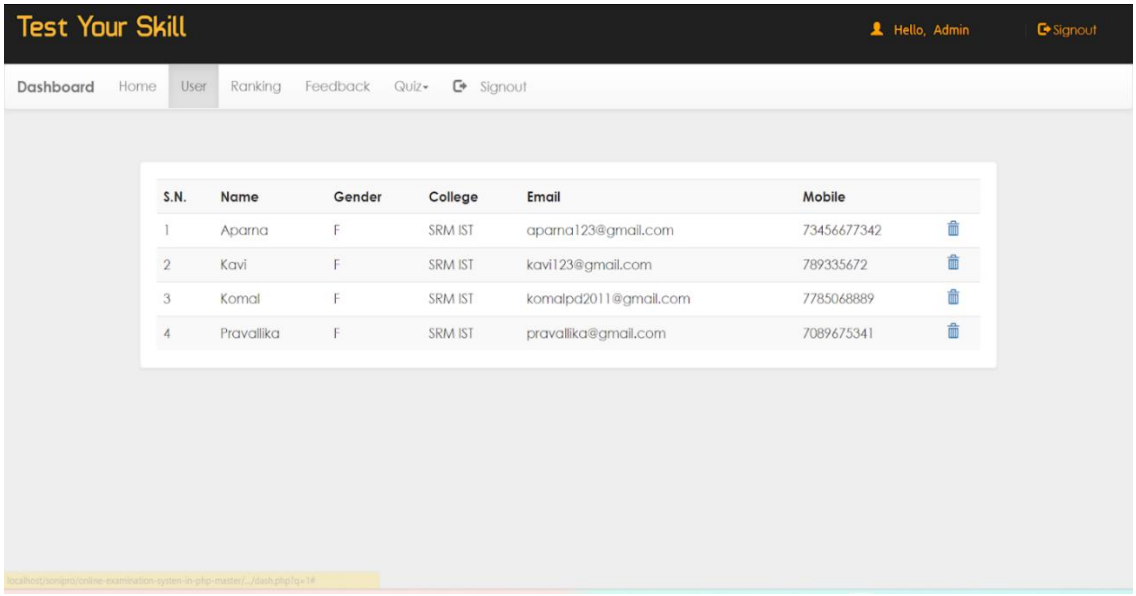

Fig 5.4.3 User Details Tab

5.4.4 Quiz Setting Tab : Various quiz details such as the quiz title , no of questions , marks allocated per question , time limit for test etc are present in this tab.

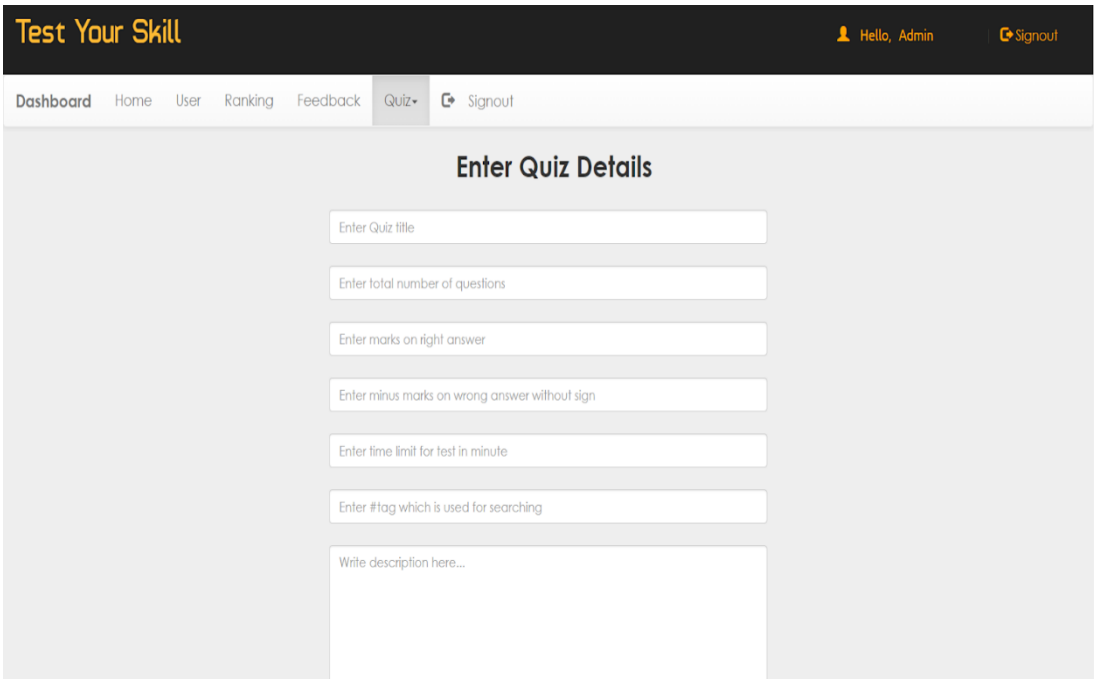

Fig 5.4.4 Quiz Setting Tab

CHAPTER 6

RESULTS AND DISCUSSIONS

6.1 Results:

The final Online Examination System Portal developed shows the Result of the student which displays the total no of answered questions , right answers, wrong score, and the scores obtained.

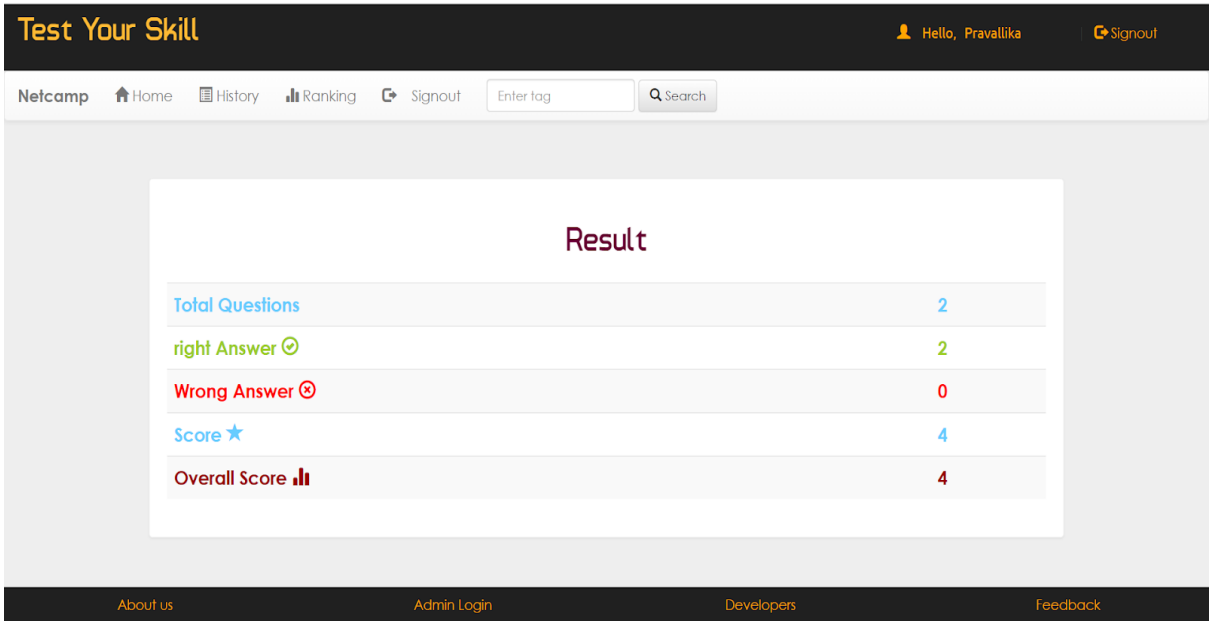

Fig 6.1 Results Tab

6.2 Benefits:

- Reduced Administrative Burden:

It greatly reduces the administrative burden of organizing and running exams when it moves online. Printing and circulating exams on paper and organizing shipments of completed scripts to markers is a time-consuming and costly process. Hence, online assessments and offering students the chance to complete a test online are timelier and more efficient.

- Quicker to Mark and Issue Results:

It is much quicker to mark online assessments and candidates welcome receiving results quickly. Feedback is given immediately to students which help in performance analysis.

- Automated Test Assembly Tools:

Once there is an approved bank of questions, exam papers can be created easily by selecting questions or by using automated tools , to create automatic and randomized papers.

- Scalable with Worldwide Reach

With online assessment, examining bodies can offer exams to candidates located over greater geographical areas, as they are not restricted to offering exams in physical test centres. This enables development for student learning across the world, which is the beginning of mass learning. Ensuring students are not limited to the tests that they can take, enhances the chance of education for those that seek further education development and new knowledge.

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENT

7.1 Conclusion:

Online examination systems have become increasingly popular due to their convenience, accessibility, and cost-effectiveness. Our project provides instant performance analysis and helps the students understand their downfalls. They allow for efficient administration and grading of exams, as well as providing a secure and controlled testing environment. However, there are still some challenges to overcome, such as preventing cheating and ensuring the accuracy and reliability of test results.

7.2 Future Enhancements:

To continue to improve online examination systems, here are some potential future enhancements:

- AI-based proctoring: Artificial intelligence can be used to monitor exam takers and detect any suspicious behaviour or cheating attempts, such as using a second device or looking away from the screen. This would provide a more secure testing environment and reduce the need for human proctors.
- Personalized testing: AI algorithms can be used to create personalized tests for each student based on their learning style, strengths, and weaknesses. This would provide a more accurate assessment of each student's knowledge and skills.
- Blockchain-based certification: Implementing blockchain technology to verify and secure certificates and transcripts could provide a more reliable and tamper-proof system of record-keeping. This would make it easier for employers and academic institutions to verify the authenticity of a candidate's credentials.

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4. https://www.academia.edu/6338470/Project_Report_On_Online_Examination_System_Submitted_By_Guided_By