A

Mini Project Report

on

Online Examination System

Submitted in partial fulfillment of the requirements for the degree.

of

Second Year Engineering – Information Technology

by

Neha Khorne	**22104029**
Janvi Kadam	**22104158**
Divya Keni	**22104022**
Abhirami Kalathil	**22104166**

Under the guidance of

Prof. Neha Deshmukh

DEPARTMENT OF INFORMATION TECHNOLOGY

A.P. SHAH INSTITUTE OF TECHNOLOGY

G.B. Road, Kasarvadavali, Thane (W)-400615

UNIVERSITY OF MUMBAI

Academic Year: 2023-24

CERTIFICATE

This to certify that the Mini Project report on **Online Examination system** has been submitted by **Neha Khorne (22104029), Janvi Kadam (22104158), Divya Keni (22104022), Abhirami Kalathil (22104166),** who are bonafide students at A. P. Shah Institute of Technology, Thane as a partial fulfillment of the requirement for the degree in **Information Technology**, during the academic year **2023-2024** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

Ms. Neha Deshmukh
Guide

Dr. Kiran Deshpande **Dr. Uttam D. Kolekar**
HOD, Information Technology **Principal**

External Examiner: **Internal Examiner:**
1. **1.**
2. **2.**

Place: A. P. Shah Institute of Technology, Thane
Date:

ACKNOWLEDGEMENT

This project would not have come to fruition without the invaluable help of our guide **Ms Neha Deshmukh**. Expressing gratitude towards our HoD, **Dr. Kiran Deshpande**, and the Department of Information Technology for providing us with the opportunity as well as the support required to pursue this project. We would also like to thank our project coordinator **Mr. Mandar Ganjapurkar** who gave us his valuable suggestions and ideas when we were in need of them. We would also like to thank our peers for their helpful suggestions.

TABLE OF CONTENTS

ABSTRACT

The Online Examination System (OES) is a web-based platform designed to streamline the process of conducting assessments remotely. With the rapid advancement of technology, traditional examination methods are gradually being replaced by online systems that offer convenience, accessibility, and efficiency. The OES allows students to take exams from any location with an internet connection, eliminating the need for physical presence in a designated examination center. Additionally, it offers features such as randomized question generation, secure authentication, and instant result processing, ensuring fairness and accuracy in assessment. Moreover, administrators benefit from the system's ability to automate tasks such as exam scheduling, grading, and data analysis, thereby saving time and resources. Overall, the OES revolutionizes the way examinations are conducted, making them more accessible, reliable, and scalable in the digital age.

In terms of scalability, the OES offers a solution that can accommodate a large number of users simultaneously. Whether it's a small classroom or a nationwide examination, the system is designed to handle high volumes of traffic without compromising performance or user experience.

Furthermore, the OES enhances the efficiency of the assessment process through automation. Tasks such as question randomization, answer validation, and result generation are carried out automatically, reducing the burden on educators and administrators. Additionally, the system provides real-time feedback to students, allowing them to identify areas for improvement and track their progress over time

Overall, the Online Examination System represents a paradigm shift in the way assessments are conducted, offering a convenient, secure, and efficient solution for both educators and students. As technology continues to advance, the OES is poised to play an increasingly important role in shaping the future of education and evaluation.

Chapter 1

Introduction

Online Examination Portal is a project that aims to provide a digital platform for users to manage their exams through online mode. It is a comprehensive tool that allows users to track their progress in academics. The project focuses on providing an easy-to-use interface for the user to access their information. People often need information while on the go. Sometimes the information required is essential to the task at hand, people use a variety of strategies to find a way to do their tasks efficiently. The E-Diary System helps them to set down their tasks at one place and add notes to it. It helps them save time and effort by organizing their all exams data and results of their exams in one place. It also helps them track their progress and stay on top of their goals. The system would be having a login system for user login. Users can log in and update/delete/create notes.

1.1 Purpose

The main purpose of our project is to provide a web-based platform for educators to create, administrate and manage their assessments online. The system will have an easy-to-interact interface so that even a newbie user can use it without any problems. You will have the opportunity to choose from a variety of questions from the question bank of the online examination software system. Exam creation flexibility is a necessity; no one likes to be confined to a certain option all the time. Online exams software provide Psychometric analysis that helps in decision making within your school or university. Course management is a plus advantage.

1.2 Problem statement

1. **Cheating and Plagiarism**: Traditional exams conducted in large halls or classrooms may be susceptible to cheating and plagiarism, compromising the integrity of the assessment process.
2. **Inefficient Feedback Mechanisms**: Feedback in traditional exams is often limited to a grade or score, providing little insight into areas where a student may need improvement. This lack of detailed feedback can hinder the learning process.
3. **Time Constraints**: Traditional exams are typically time-bound, which may not allow students with different pacing needs to fully demonstrate their understanding and abilities. This can create undue stress and anxiety.
4. **Focus on Memorization**: Traditional exams often prioritize memorization of facts and formulas over critical thinking, problem-solving, and creativity. This can discourage deeper learning and understanding.
5. **Resource Intensive**: Traditional exams require significant resources in terms of time, manpower, and infrastructure for administration, grading, and logistics, making them costly and sometimes logistically challenging to conduct, especially in large-scale setting

1.3 Objectives

1. The objectives of online examination system or rather any other exam (purpose of online examination system) is to make sure that the student is thoroughly ware of the course curriculum and that the exam reflects the course content he/she has studied.
2. Mapping your course content and exam questions is paramount to teaching and education. It's what gives us the satisfaction that we're on track and that what was intended to be taught and addressed in questions is actually done.
3. That's why having structured courses, e.g., credit hours or weight, and item mapping to establish the best designed exam questions is one of the top advantages of online examination for students and teachers both.
4. To be designed with the aim of providing a user-friendly, intuitive experience for all users, regardless of their level of technical knowledge.
5. The primary goal of the Online Examination Portal is to improve productivity and help them reach their goals.

1.4 Scope

1. To provide a comprehensive and user-friendly interface for users to track their progress in academics one place.
2. To have secure usage for the user. Online Examination System is widely used as compared to other exams.
3. Online examination system can be used in private institutes as well as educational institution.
4. As it is user friendly web base application it can be used anywhere and anytime.
5. An online examination system offers a comprehensive platform for conducting assessments and examinations digitally, thereby revolutionizing the traditional examination process.
6. This system encompasses various features such as user-friendly interfaces for both administrators and examinees, secure login mechanisms to prevent unauthorized access, customizable examination formats to accommodate different types of tests, automated grading systems for efficiency and accuracy, real-time monitoring capabilities to ensure integrity, and robust analytics tools to generate insightful reports on student performance.
7. Moreover, the online examination system promotes sustainability by reducing paper usage and administrative overheads associated with conventional pen-and-paper examinations.
8. Overall, it enhances the efficiency, accessibility, and transparency of the examination process, benefiting educational institutions, students, and administrators alike.

Chapter 2

Literature Review

[1] Online Examination System: Study on Online Examination System about how effective it is .Author: Muna R. Hameed and Firas. A. Abdullati. The proposed Online Examination System (OES) can be easily adopted by universities and institutions in order to make the exam more secure and more flexible. The system is subdivided into two main subsystems (student and administrator) that are designed to give the system maximum benefit by demonstrating carefully each subsystem service. The administrator's functions are clearly identified to be able to manipulate user's information such as add (register), delete users and managing the exam materials and content such as add, delete questions, Thus the proposed system is easy and flexible because for future maintenance and development because each subsystem can be handled separately without influence on other system

2] Experiences of University Staff in Online Proctored Examination: A Phenomenological Study. Author: Subekshya Ghimire and Jeevan Khanal. Three themes emerged from this qualitative data analysis to emphasize the opportunities. The three themes regarding opportunities were: (1) consuming less time and effort, (2) reducing huge administrative burdens, and (3) running the exams frequently. Regarding opportunities for the online proctored exam, staff appreciated it as less time and effort is required in online proctored examinations because of the benefit of low cost, the ability to manage more students within a certain time, and the ability to examine with less human resource too. Respondents revealed the benefit of the online proctored examination and highlighted the opportunity of reducing the huge administrative burden. Generally, the culture of the Nepali examination is to run the exam in centers across the country by sharing the human resources of other institutions or colleges. For the physical examinations, lots of human resources are required. Invigilators, external examiners, admin, focal person, security persons, and other staff for cleanliness are involved in the physical examination. Remuneration is required for all these human resources, but online proctored examination requires a less human resource, and the administrative work is also get minimize

Chapter 3

Proposed System

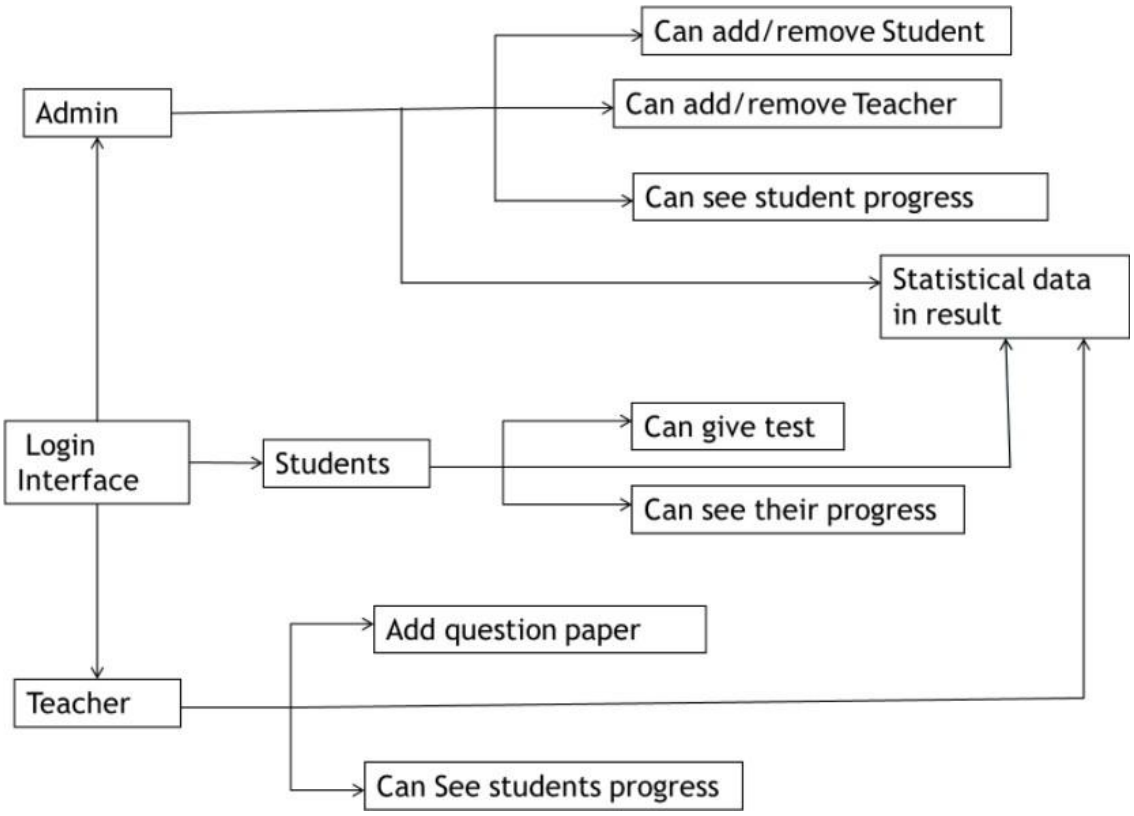

Fig 3.1 Proposed System of Online Examination System

3.1 Features and Functionality

FEATURES:

Key features of the online examination system include user registration and login, exam selection, randomized question generation, timer for exams, secure question delivery, real-time exam monitoring to prevent cheating, instant result generation, performance analytics for students and administrators, and the ability to handle multiple question types such as multiple choice, true/false, and essay questions. An online examination system should include features such as user authentication, test creation and management, question bank management, timer, randomization of questions, multiple question types (MCQs, short answer, essays), grading and result generation, analytics for performance tracking, security measures (anti-cheating mechanisms), and accessibility options. Hence, the best online exam software must be consist of customizable features that can fit into every user's exclusive requirements. Some of the main

customizable features are interface themes, choice of questions, text font, test templates, etc. In the case of online assessments, online proctoring is a mandatory part that is responsible to maintain the credibility of the online tests. The cheat-proof environment is crucial for any administrator when it comes to conducting an online test; hence an online test platform integrated with the proctoring feature is a must. The proctoring system is backed with AI features and is efficient in detecting any sort of malpractice with its real-time monitoring.

FUNCTIONALITY:

The first functionality is to create a test that involves the selection and classification of subject/test relevant questions. For any test to be accurate, the selection of questions plays an integral part. The test creator has got two choices; he/she can either add new questions in the online test or can pick up from the existing ones in the library. The next functionality is to design a test and give it its representable look. The designing part includes giving the test a proper template and assigning any instructions or timings to it. If you are choosing the best online exam software then it comes integrated with different test templates which can even be customized. In the designing part, one can also add tools such as a timer or a calculator. To conduct an online assessment the administrator gets the benefit of classifying the test takers within specific groups. This feature is also beneficial when it is time to assign the candidates with the online test. The administrator can either send the link of the test through an email or can even post it in that specific group on which the test has to be conducted. This way it is possible to create and conduct different tests at a time without any confusion or hassle. Online assessment software is an AI integrated efficient tool that is capable of evaluating the test automatically based on the scores allotted to every question and section by the test creator. The evaluation part is efficient and can be done instantly. Once the evaluation is over a comprehensive test report is generated which can be instantly shared with the test takers through email or SMS.

The test reports generated comprise of various parts that give insight to the scoring of the overall test. The test report highlights the scores obtained on every subject, section, questions, and even competitive scores. Also, the visualization of scores can be obtained that are represented in a graphical and statistical format.

Chapter 4

Requirement Analysis

1. **User Roles and Permissions**:
    - Define user roles such as administrators, instructors, examiners, and examinees.
    - Specify the permissions associated with each role, e.g., creating exams, scheduling
    - exams, taking exams, viewing results, etc.

2. **User Authentication and Security**:
    - Implement secure login mechanisms such as username/password, two-factor authentication, or biometric authentication.
    - Ensure data encryption to protect sensitive information like exam questions, answers, and results.

3. **Reporting and Analytics**:
    - Comprehensive reporting on exam results, including individual and class performance.
    - Analytics to identify trends, strengths, and weaknesses.

4. **Scoring and Result Generation**:
    - Automated scoring for objective questions.
    - Manual grading for subjective questions.

Chapter 5

Project Design

5.1 ER diagram

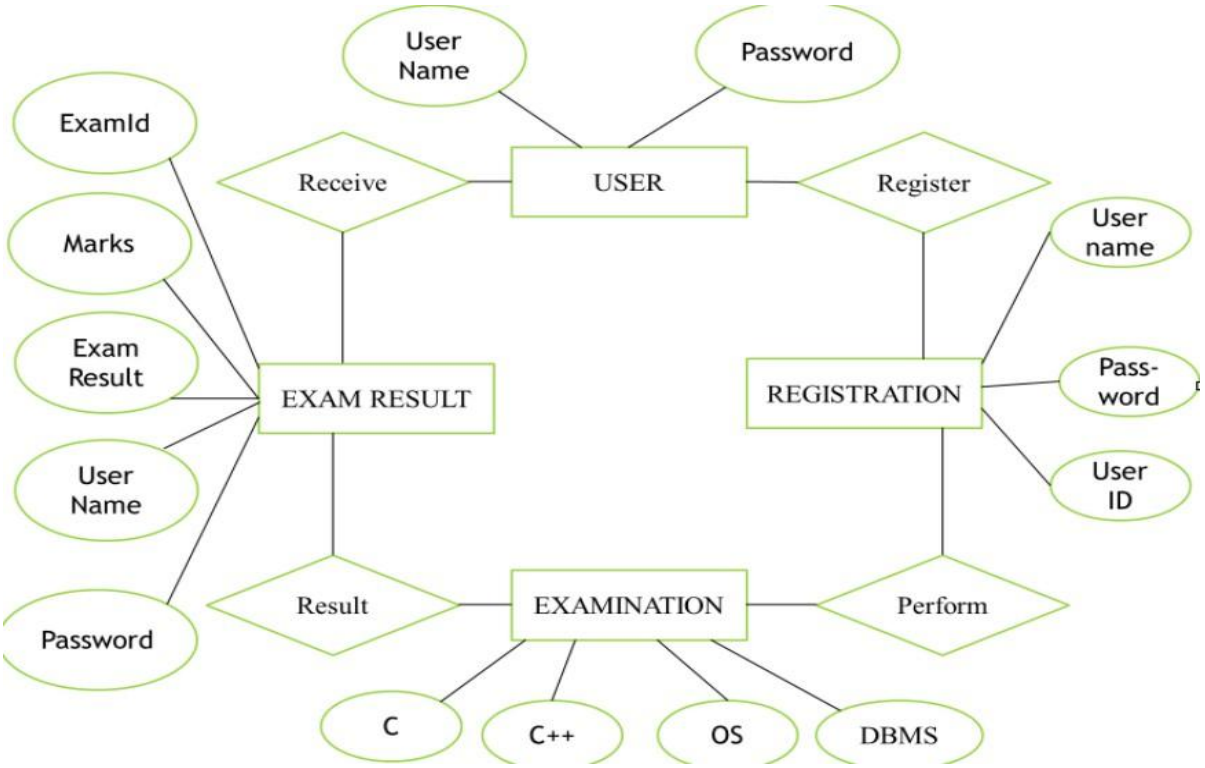

Fig 5.1 ER Diagram of
online examination system

The ER diagram for an online examination system showcases the key components and relationships within the system. It typically includes entities like "User," "Exam," "Question," "Answer," and "Result." Users interact with the system, taking exams, while exams contain questions, each with multiple possible answers. Results are recorded for each user's performance in exams. Relationships between these entities, such as users taking multiple exams or exams containing multiple questions, are depicted to illustrate how data is organized and connected. This ER diagram serves as a blueprint for designing the database structure of the online examination system, ensuring efficient data management and retrieval

5.2 FLOW DIAGRAM:

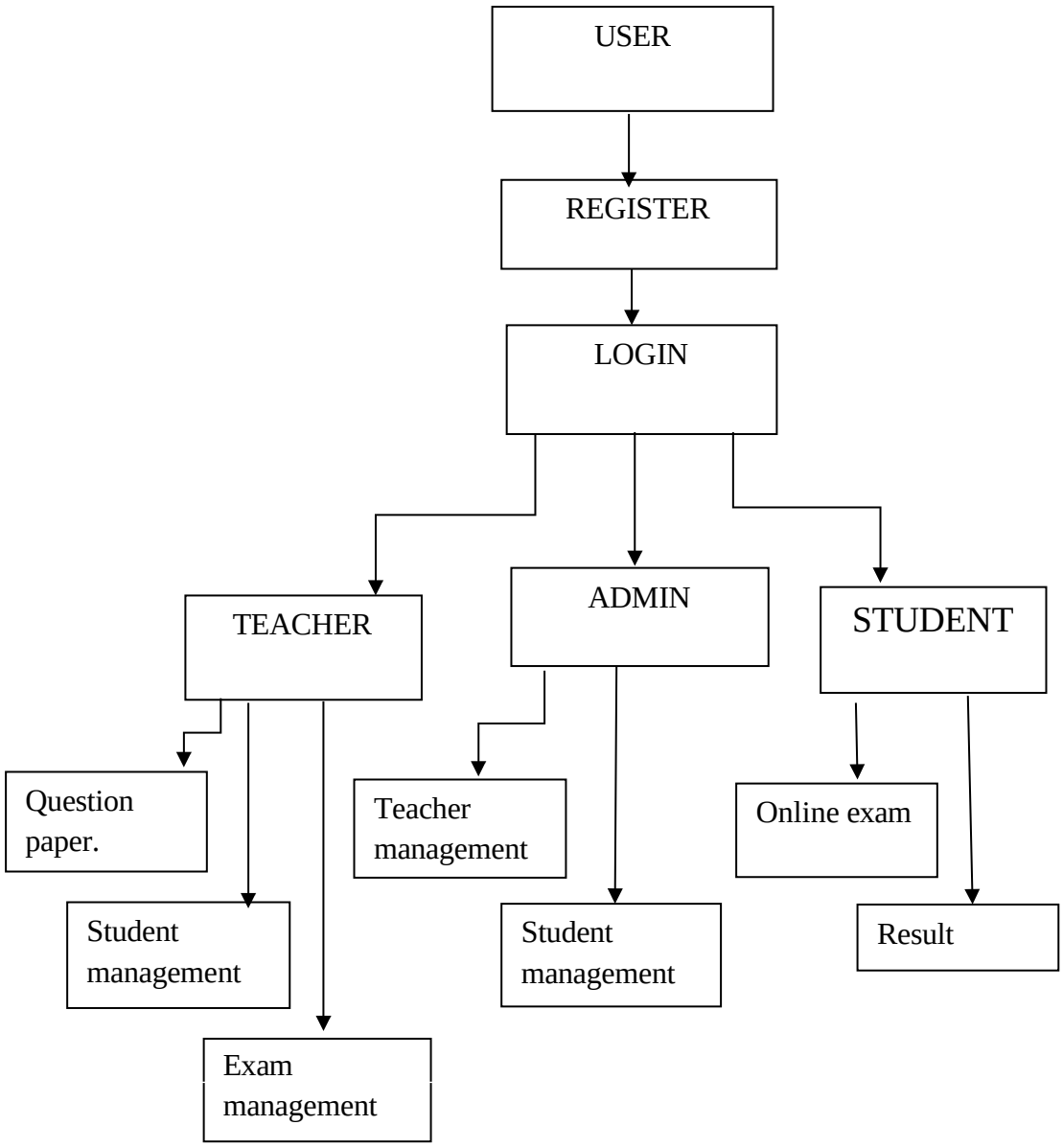

Fig 5.2 Flow diagram of how the online examination system works

The flow diagram of an online examination system outlines the sequential steps involved in the examination process. It typically starts with user authentication, where users log in to the system. Upon authentication, users access available exams or create new ones. They then proceed to select an exam, answer questions within a specified time frame, and submit their responses. After submission, the system automatically evaluates the answers and calculates the results. Finally, users can view their scores and performance feedback. This flow diagram provides a clear visualization of the examination process, ensuring smooth navigation and functionality within the online examination system.

5.3 SYSTEM ARCHITECTURE

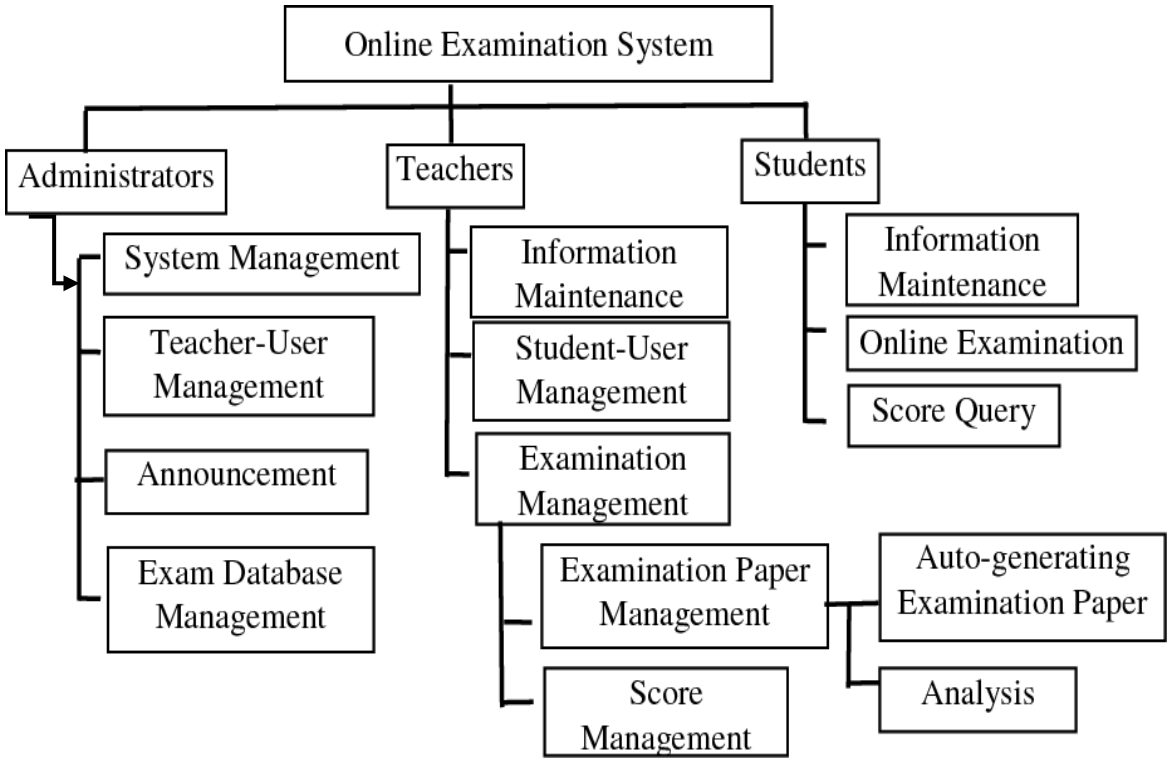

Fig 5.3 System Architecture for online examination system

The system architecture of an online examination system encompasses its structural design and components, serving as the foundation for its functionality. It typically comprises three layers: the presentation layer, application layer, and data layer. The presentation layer handles the user interface, facilitating interaction through web browsers or mobile applications. The application layer contains the system's logic, managing tasks like user authentication, exam creation, and result processing. The data layer stores and retrieves information using

5.4 IMPLEMENTATION

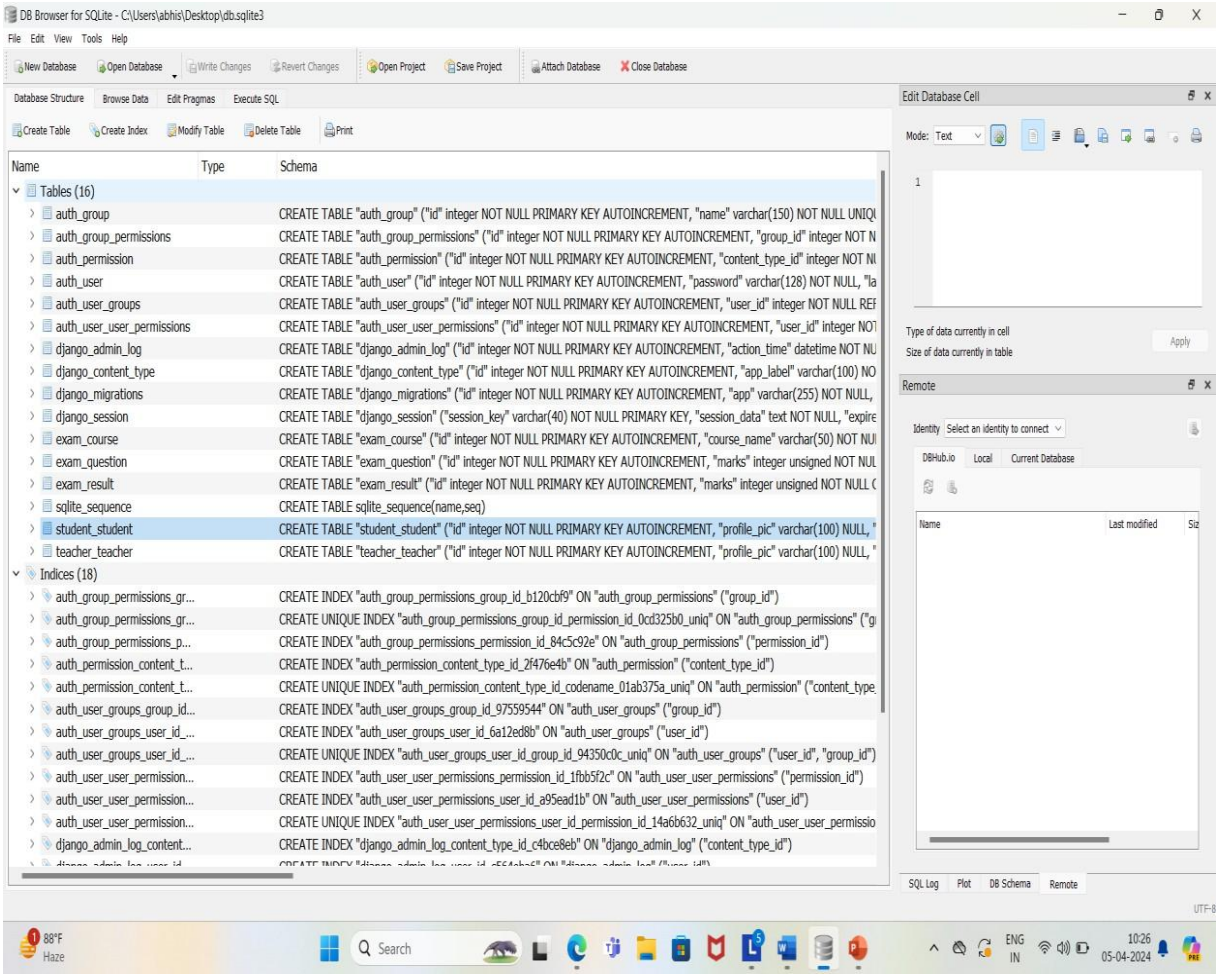

Fig 5.4.1 Implementation of online examination system

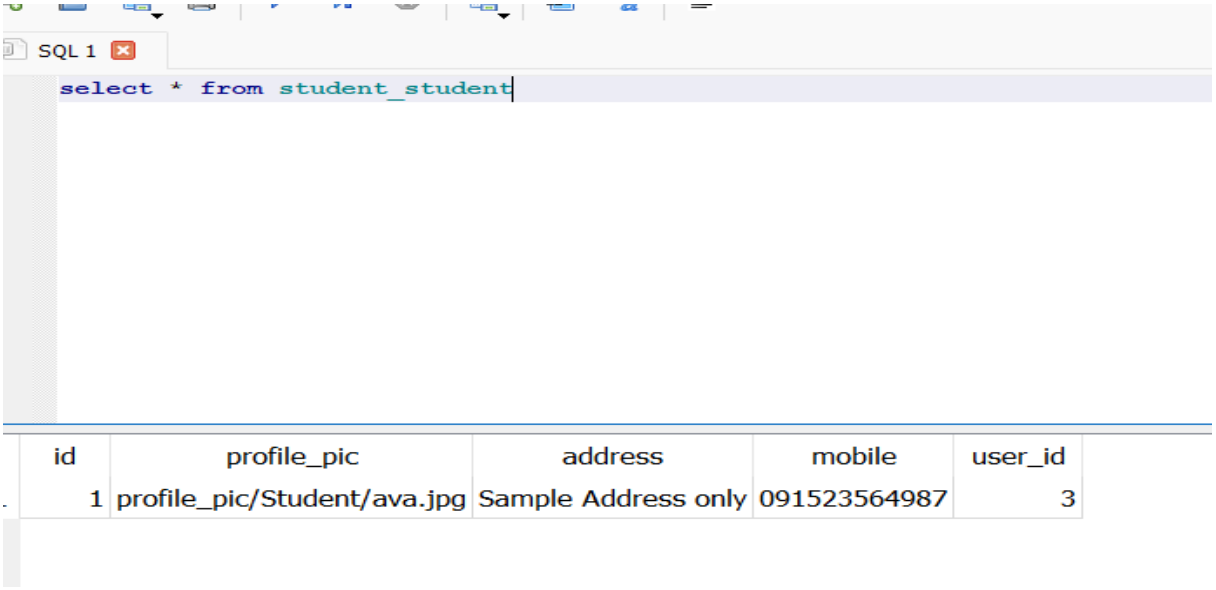

Fig 5.4.2 Student Table

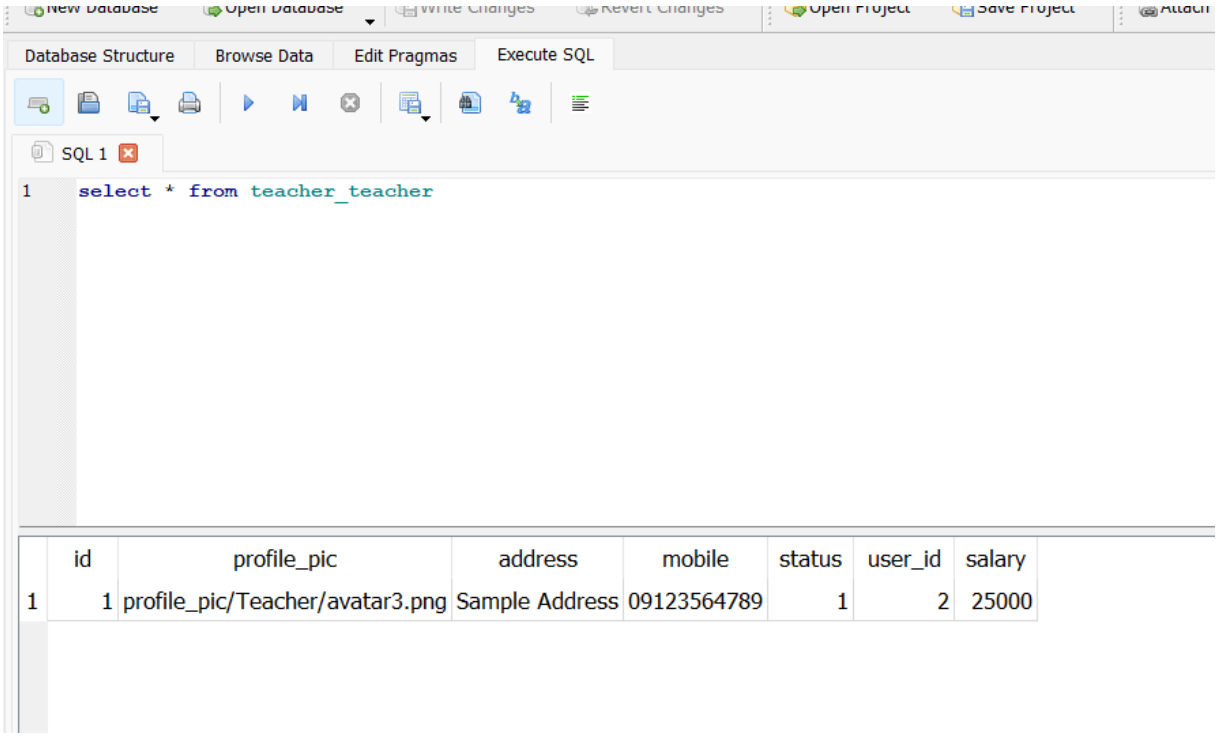

Fig 5.4.3 Teacher table

Chapter 6

Technical specification

The Online Examination System project aims to create a web application that allows educational institutions or organizations to conduct online exams. The application will provide features for administrators to manage exams, questions, and results, while allowing students to take exams securely within a specified time frame.

Technologies Used:

- Python (3.4)- Python is a high-level programming language known for its simplicity and readability, making it popular among developers of all levels. It offers dynamic typing and automatic memory management, facilitating rapid development and easy maintenance of code
- Django-Django is a high-level web framework for building web applications in Python. It follows the "batteries-included" philosophy, providing a set of tools and features that enable rapid development and clean, pragmatic design.
- SQLite-SQLite is a lightweight, serverless, self-contained, and open-source relational database management system (RDBMS). Unlike traditional database systems, SQLite does not require a separate server process to operate; instead, it reads and writes directly to ordinary disk files

Chapter 7

Project scheduling

GANTT CHART

Smartsheet Tip → A Gantt chart's visual timeline allows you to see details about each task as well as project dependencies.

PROJECT TITLE	Online Examination System	INSTUTUTE & DEPART	Information Technology
PROJECT GUIDE	Ms Neha Deshmukh	DATE	3-31-24

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION(Wks)	PCT OF TASK COMPLETE
1	**Project Conception and Initiation**					
1.1	Area of Problem Search	Abhirami	1-8-24	1-8-24	3	100%
1.2	Project Title	Abhirami, Neha, Divya, Janvi	1-8-24	1-8-24	3	100%
1.3	Abstract	Neha	1-15-24	1-22-24	1	100%
1.4	Objectives	Divya	1-15-24	1-22-24	1	100%
1.5	Literature Review	Janvi	1-15-24	1-22-24	1	100%
1.6	Problem Definition	Abhirami, Neha, Divya, Janvi	1-15-24	1-22-24	1	100%
1.7	Scope	Abhirami	1-15-24	1-22-24	1	100%
1.8	Technology stack	Abhirami, Neha, Divya, Janvi	1-15-24	1-22-24	1	80%
1.9	Benefits for environment	Janvi	1-15-24	1-22-24	1	100%
1.10	Benefits for society	Divya	1-15-24	1-22-24	1	80%
1.11	Applications	Abhirami	1-15-24	1-22-24	1	100%
2	**Project Design**					
2.1	Proposed System	Abhirami, Neha, Divya, Janvi	1-22-24	1-29-24	1	70%
2.2	Design(Flow Of Modules)	Neha	1-22-24	1-29-24	1	70%
2.3	E-R Diagram	Janvi	1-22-24	1-29-24	1	50%
2.4	Data Flow Digram	Janvi	1-22-24	1-29-24	1	50%
3	**Project Implementation**					
3.1	Module-1	Divya	1-29-24	2-12-24	3	100%
3.2	Module-2	Divya	2-5-24	3-4-24	3	100%
3.3	Module-3	Abhirami	3-4-24	3-18-24	3	100%
3.4	Module-4	Neha.	3-11-24	3-26-24	2	100%
4	**Testing**					
4.1	Design of Test Cases	Abhirami, Neha, Divya, Janvi	3-26-24	4-1-24	1	100%
4.2		Abhirami, Neha, Divya, Janvi	3-26-24	4-1-24	1	100%
5.2	Graphical Representation	Neha	3-26-24	4-1-24	1	100%

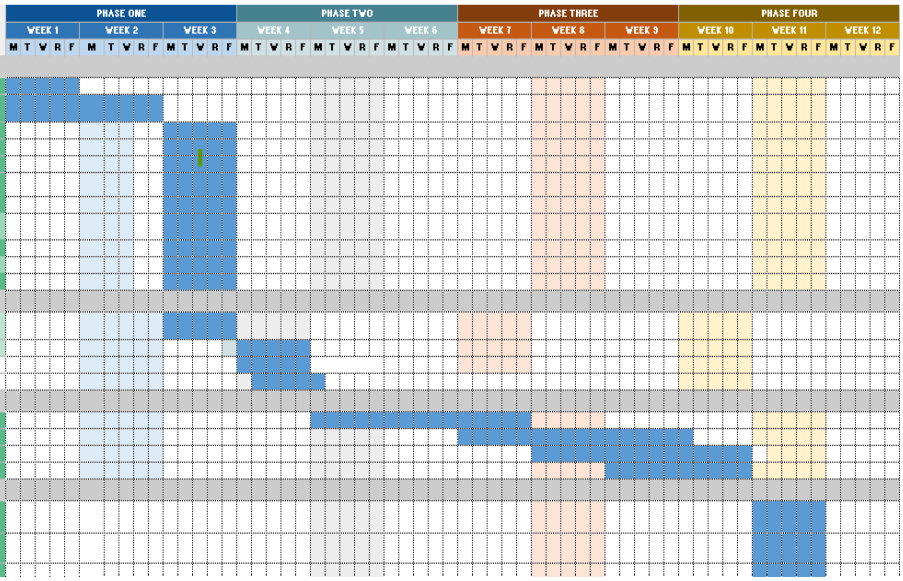

Fig 7.1 Gantt Chart

Chapter 8

Results

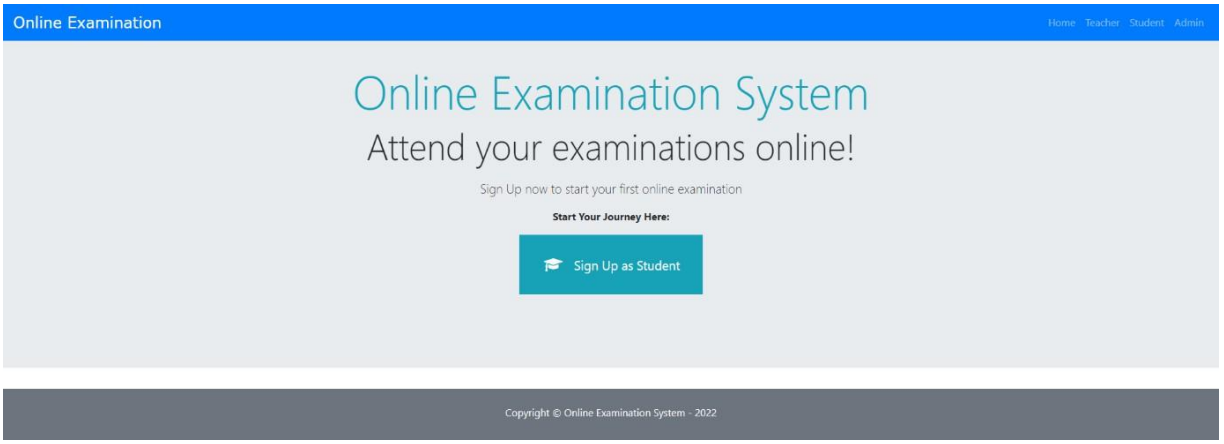

FIG 8.1 Public Home Page

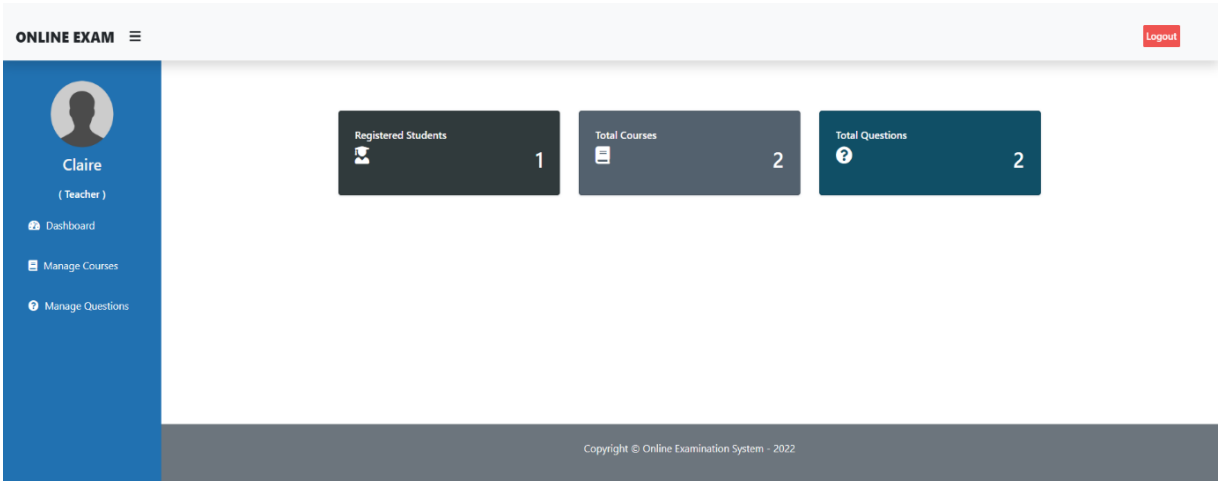

FIG 8.2 Teacher
Dashboard

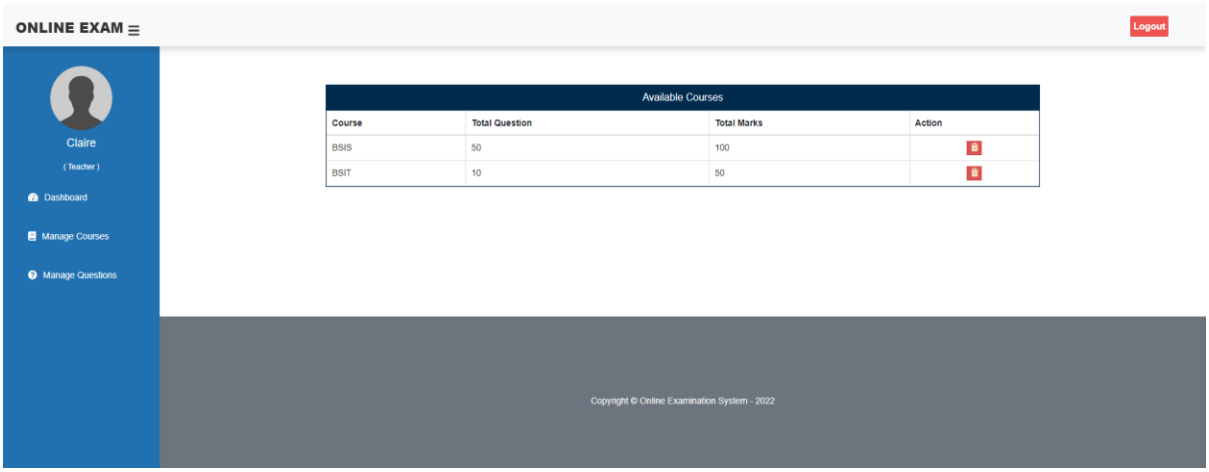

FIG 8.3 Course List

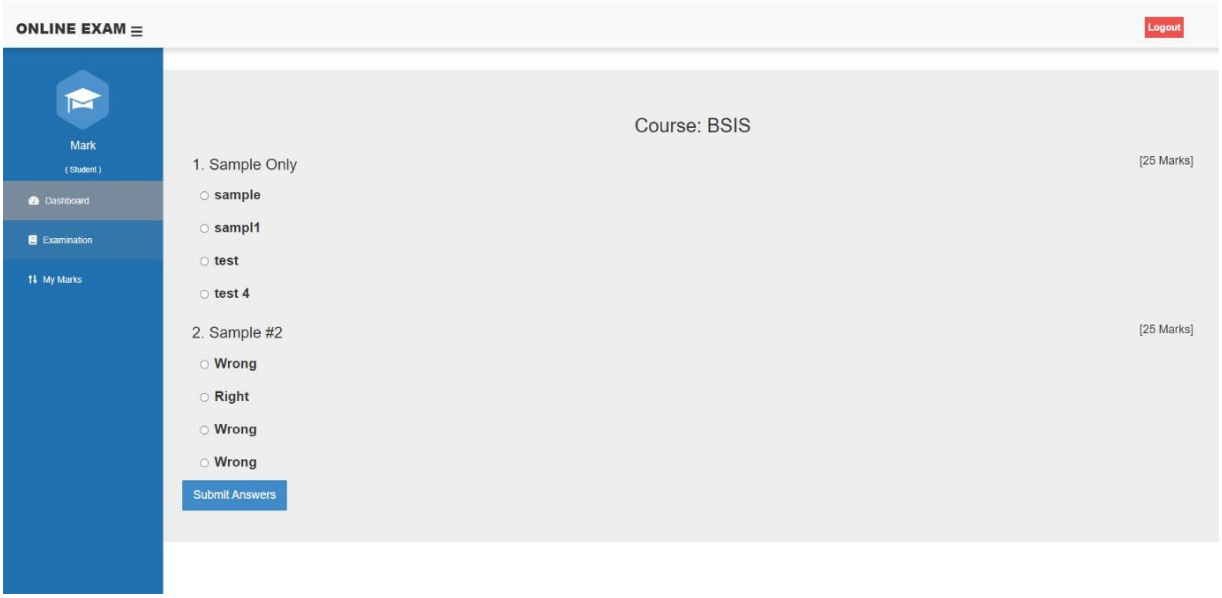

FIG 8.4 Exam Questionnaire

An online examination system is a web-based platform designed to facilitate the administration, delivery, and evaluation of assessments in a digital environment. It typically includes features such as user authentication, test creation and scheduling, question randomization, timer functionality, and automated grading. These systems utilize various technologies such as databases, web servers, and security protocols to ensure the integrity, reliability, and security of the examination process.

Chapter 9

Conclusion

The implementation of an online examination system has ushered in a significant transformation in the realm of education and assessment. With its seamless integration of technology, this system has streamlined the process of conducting exams, offering a myriad of benefits to both students and educators. One of the most noteworthy advantages is the efficiency it brings to the examination process. Gone are the days of cumbersome paperwork and manual grading; instead, exams can now be administered and completed online, saving valuable time and resources. Moreover, the online examination system ensures greater accuracy in grading, minimizing the potential for errors and ensuring fairness in assessment. Additionally, this system provides a level playing field for all participants, as it eliminates the possibility of cheating through stringent security measures such as randomized question orders and timed exams. Furthermore, the flexibility it offers allows students to take exams from any location with internet access, accommodating diverse learning needs and schedules. Overall, the adoption of an online examination system represents a pivotal shift towards modernization and efficiency in the educational landscape, promising a more streamlined and equitable assessment process for all stakeholders involved. the implementation of an online examination system marks a significant milestone in the evolution of educational assessment methodologies. By leveraging technology, this system offers unparalleled efficiency, accuracy, and fairness in the examination process. The transition from traditional paper-based exams to online platforms not only streamlines administrative tasks but also enhances the overall experience for both students and educators. With its flexibility, accessibility, and robust security measures, the online examination system caters to the diverse needs of learners while ensuring the integrity of assessments. As we continue to embrace digital innovations in education, the online examination system stands as a testament to the transformative power of technology in fostering a more efficient, equitable, and reliable assessment ecosystem.

Chapter 10

Future Scope

The future scope of online examination systems holds tremendous promise as advancements in technology continue to shape the landscape of education. With the ongoing digital transformation, these systems are poised to play an increasingly integral role in assessment methodologies worldwide. One significant aspect of the future scope lies in the personalization and adaptive capabilities of online examination platforms. Utilizing artificial intelligence and machine learning algorithms, these systems can analyze individual learning patterns and tailor assessments to match the unique needs and abilities of each student, thereby fostering personalized learning experiences. Furthermore, the integration of virtual reality and augmented reality technologies into online examination systems presents exciting possibilities for creating immersive assessment environments that simulate real-world scenarios, allowing for more authentic and engaging evaluations. Additionally, the future of online examination systems encompasses enhanced data analytics capabilities, enabling educators to gain deeper insights into student performance trends and learning outcomes, thus facilitating data-driven decision-making and continuous improvement strategies. Moreover, as global connectivity improves, online examination systems have the potential to transcend geographical barriers, facilitating access to education for learners in remote or underserved regions. Overall, the future scope of online examination systems is characterized by innovation, adaptability, and inclusivity, paving the way for a more dynamic, personalized, and equitable approach to educational assessment in the years to come.

REFERENCES

[1] S. K. Gupta and S. K. Singh, "Online Examination System: A Review," 2019 International Conference on Advanced Computing and Communication Systems (ICACCS), Coimbatore, India, 2019, pp. 473-477, doi: 10.1109/ICACCS.2019.8722690.

[2] S. Kaur and M. Kaur, "Survey on Online Examination System," 2018 2nd International Conference on Inventive Systems and Control (ICISC), Coimbatore, India, 2018, pp. 203-207, Doi: 10.1109/ICISC.2018.8399185.

[3] S. Padalkar and A. Jadhav, "Online Examination System Using Angular JS," 2019 3rd International Conference on Trends in Electronics and Informatics (ICOEI), Tirunelveli, India, 2019, pp. 673-677, doi: 10.1109/ICOEI.2019.8862743
.

[4] A. K. Choudhary and A. Singh, "Implementation of Online Examination System using PHP and MySQL," 2018 International Conference on Advances in Computing, Communication Control and Networking (ICACCCN), Pune, India, 2018, pp. 227-230, doi: 10.1109/ICACCCN.2018.8488973.

[5] H. K. Dandage and S. Jadhav, "Online Examination and Evaluation System," 2021 3rd International Conference on Inventive Research in Computing Applications (ICIRCA), Coimbatore, India, 2021, pp. 1295-1299, doi: 10.1109/ICIRCA52374.2021.9796674

[6] https://youtu.be/ySahWuDAbhI?si=unfCK-iKzEbZNg4a