Quiz Portal Online - An Interactive Way of Conducting Quizzes

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project titled "**Quiz Portal Online – An Interactive Way of Conducting Quizzes**", submitted by Md. Nurnobi Hosen, ID No: 183-15-11820 and Md. Selim Reza, ID No: 183-15-12020 and Md. Asif Iquebal Niloy, ID No: 183-15-11895 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 23 January 2023

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DECLARATION

We hereby declare that this project has been done by us under the supervision of **Dr. Md. Tarek Habib, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

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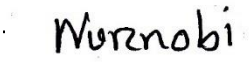

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Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

"**Quiz Portal Online**" has been developed to overcome the problems prevalent in practice manual systems. This software is supported to eliminate and possibly mitigate the problems faced by this existing system. This application is reduced as much as possible to avoid errors while entering the data. It also provides an error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus, by this all it proves it is user-friendly. **Quiz Portal Online**, as described above, can lead to an error-free, secure, reliable, and fast management system. It can assist the user to concentrate on their other activities rather than concentrate on record keeping. Thus, it will help organizations in better utilization of resources. Every teacher or academic institution, large or small, has challenges to overcome and manage information about questions, subjects, students, results, and tests. Each online test system has different subject category needs, which is why we design proprietary management systems to fit your administration requirements. These systems will ultimately allow you to better manage your resources. In addition, each student will give a test and earn a coin from the test score. Students will generate money from their coins.

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CHAPTER 1

INTRODUCTION

1.1 Introduction:

Students in Bangladesh are becoming exposed to internet learning on a daily basis. Our educational system is being severely impacted by the digitalization of society. Our nation's education system was on the verge of disintegrating until the covid hit. But because of the country's adequate internet, the online education system saved the day. We could maintain our educational system more continuously with the aid of web platforms. Because of this, we were able to continue with our regular instruction throughout the pandemic. But after that pandemic period, the effect of online education remains in our system which is definitely good for the students as well as teachers. But there was a problem in that system which was proper evaluation through online examinations. Also, the teachers used to face great difficulty to create multiple questions for each student manually. This was a great challenge for the teachers to prevent the students from cheating during online examinations. Students used to search the results from the internet and write it down in their answer scripts. Which is harmful to them and other students as well. That's why we developed a system named "**Quiz Portal Online**".

It was created to address the issues with practicing manual systems that were common. The flaws with the current system are supported by this program in an effort to get rid of them and potentially minimize them. To minimize data entry errors, this program has been scaled back as much as feasible. Additionally, when entering inaccurate data, an error notification is displayed. The user doesn't require any formal training to use this system. This alone demonstrates that it is user-friendly.

An error-free, safe, dependable, and quick administration system can be achieved using Quiz Portal Online as previously mentioned. Instead of focusing on record keeping, it can help the user focus on their other activities. As a result, it will aid companies in more effective resource utilization.

Managing information concerning questions, subjects, students, outcomes, and exams presents issues for every educator and academic institution, regardless of size. Because the

subject category needs for each online exam system vary, we create custom management solutions to meet your administration needs. Your ability to manage your resources more effectively will be made possible by these systems.

In addition, each student will give a test and earn a coin from the test score. Students will generate money from their coins.

1.2 Motivation:

Interactive online quizzes not only help teachers master e-learning teaching techniques; they also have a positive impact on students. There are several benefits that students can derive from fun online quizzes, including student engagement, increased motivation, improved scores, and stress relief.

1.3 Objectives:

My objective for the project was to build a web application that will have proper login and registration with proper security. The purpose of this software is to fix and perhaps even lessen the issues that this system is currently experiencing. To limit the possibility of data entry errors, this program has been scaled back considerably. When entering invalid data, it also displays an error notice. The user of this system doesn't need any special training. This alone demonstrates how user-friendly it is.

1.4 Expected Outcomes:

- Instantly Generating The results of participants.
- Automatic PDF Generate for Question and Result Information.
- Responsive view for All kind of devices.
- Unique email is required for registration. Anyone cannot create multiple accounts using one email.
- Answer script will be submitted automatically after the timeout.
- Questions of the same quiz will appear randomly for different users.
- A dashboard for both students and teachers for proper performance justification.
- CSRF security for preventing any attack 8. Functional Admin Panel for proper.
- Observation.

1.5 Project Management and Finance:

1.5.1 Project Team

1) Developer: 1 Person
2) System Analyst: 1 Person
3) Content Writer and Graphic Designer: 1 Person

1.5.2 Project Cost

1) Salary: 20000 TK per month
2) Domain Hosting: 10000 TK per year
3) Utilities: 2000 TK per month
4) Cloud Subscription: 5000 Tk per month

CHAPTER 2

BACKGROUND

2.1 Preliminaries:

In the system development life cycle, the preliminary analysis to determine whether the system is feasible is the first phase. The preliminary investigation's objective is to evaluate project requests. It is neither a design study nor does it include the gathering of data to fully characterize the business system. Instead, it is the gathering of information that gives committee members the ability to weigh the merits of the project request and come to a logical conclusion about the project's viability.

2.2 Related Work:

All over the country online education is spreading so widely. Also, in Bangladesh online education is in a good position. Some related works like our projects are,

- In the USA & Canada, automatic admin tasks have been an important aspect.
- Making an appointment, and completing the immigration automation is everywhere.
- The US Federal administrative supports are now done by automatic admin software.
- In Canada, banks use automatic admin software to monitor several tasks.
- In Bangladesh, the Automatic Immigration system is playing an important role.
- After this covid situation Automation in education has been an important aspect to accrue.
- Taking attendance, shortlisting students, grading, registering courses, etc tasks are now being done by an automatic system.
- 10 Minute School, Mukthopath making online education so easy in Bangladesh.

Figure 2.2.1: Related Works Mukhtopath

Figure 2.2.2: Related Works 10 Minute Schools

2.3 Comparative Analysis:

Online educational websites are now a staple of the internet. They have several features, including the ability to create courses, hold online meetings, publish exam results, and challenge your rank. However, the teacher must constantly be concerned with developing the questions independently and taking online tests in every area of this software. It is really challenging for the teacher to interact with every single student on a regular basis.

As a result, I provide this system, which will generate questions automatically depending on the information provided by the professors. During the online exams, we will also examine the results and many mechanisms for detecting cheating.

2.4 Scope of the Problem:

This program primarily runs on the web and has a number of security features for login and data monitoring. In the background, this software uses an artificial intelligence model to automatically generate queries. For a brakeless operation, this automated process needs good connectivity with servers. This operation is crucial for the uninterrupted operation of the software. Operation loss may result from any network connectivity disruption. Additionally, this software is simple and lightweight.

2.5 Challenges:

- Providing the exact support that the student wants from a chatbot.
- Ensuring trained dataset for making Automatic Test/Assignment with reliability
- accuracy.
- Ensuring a relative result dataset to the assignment/test.
- Controlling a huge set of users.
- Preventing unauthorized users.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling:

This software serves as a teaching tool. This requires a B2B or B2C business model. This requires both government and businessman collaborations for successful market deployment. Such software can be managed by a group of people that needs proper direction and documentation. Again, the consumers are basically the students and their parents. They will basically use it like all other software on the web. But for deploying and maintaining this software there should be a team that will maintain several things such as proper connectivity, brakeless operations, and maintenance. The business benefits are,

- Teachers' productivity will be increased
- School office productivity will be increased as well.
- Automation in work will minimize paper use.

3.2 Requirement Collection and Analysis:

The issue that was brought up in order to introduce this software has set the requirements for this program. The challenge was to design questions that would benefit both teachers and students while minimizing their workload during the exam. As a result, the options that must be present for this software must also be present.

SL	User	Action
1	Admin	1. Admin can login with specific credentials. 2. Admin can see the teacher and student list. 3. Admin can delete, and update users list. 4. Admin can see the test result. 5. Admin can see the rank test result. 6. Admin can monitor user activity. 7. Admin can update his/her profile information. 8. Admin can check and update internal files/folders also. 9. Admin can do everything.

2	Teacher	1. The teacher can register with proper credentials 2. Teachers can login with valid credentials. 3. Teacher can generate questions. 4. Teacher can add questions for the test. 5. Teacher can monitor the test. 6. Teacher can see the test result. 7. Teacher can see the rank test result. 8. Teacher can update his/her profile.
3	Student	1. Students can register 2. Student can login with valid credentials 3. Students can Perform test 4. Students can see the final result after the test. 5. Student can download questions as PDF. 6. Student can download question answers as PDF. 7. Student can download questions as PDF. 8. Student can update his/her profile information.

Table 3.2.1 User Activity

3.3 Use Case Modeling and Description:

Teachers and students acting as actors are the software's users. Another is the administrator, who will have access to the Django default admin page for managing everything. Both the kids and the teacher will be assigned a specific assignment. Teachers will have access to services including a student watch list, the creation of a question portal, and a results portal. Students will also be involved in activities like administering tests and monitoring results. The action is carried out according to the user id.

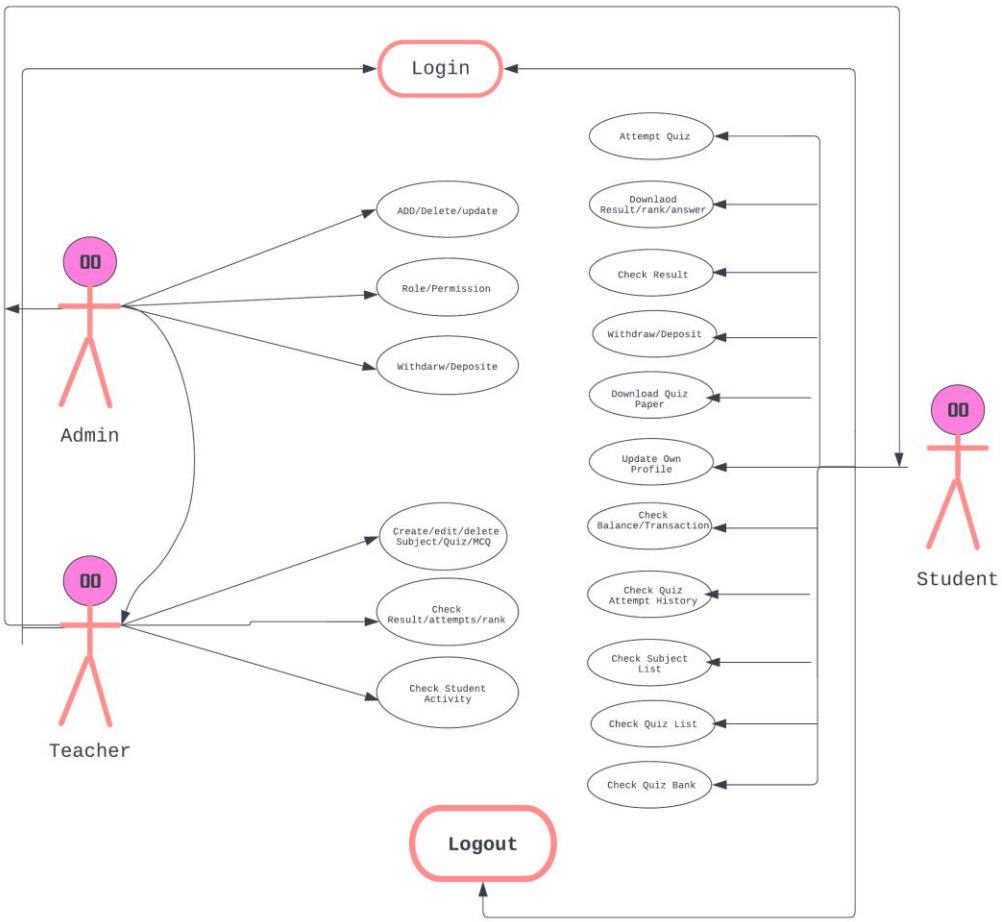

Figure 3.3.1 Use Diagram Model

3.4 Design Requirement:

This software requires designing materials such as

1. User login
2. User registrations
3. User profile
4. About Page
5. Blog Page
6. Blog Article details Page
7. Contact Page
8. Admin portal

a. Student/User list
b. Student Profile Details
c. Student Profile Edit
d. Student Registration
e. Subject (Create, Edit)
f. Exam Category (Create, Edit)
g. Exam Type (Create, Edit)
h. MCQ (Create, Edit)
i. Exam Paper (Create, Edit)
j. Attempt List
k. Result List
l. Blog Category (Create, Edit)
m. Blog Post (Create, Edit)
n. Blog Author (Create, Edit)

9. Student Portal
    a. Subject List
    b. Exam List
    c. Quiz Attempt Page
    d. Result Page
    e. Pdf Generate Page
    f. Dashboard
    g. Transaction (Withdraw and Deposit)

CHAPTER 4

REQUIREMENT SPECIFICATION

4.1 Front-end Design:

No	User	View
1	Admin	1. Login 2. Dashboard 3. User Manage 4. Profile Update 5. Subject 6. Exam Category 7. MCQ 8. Exam Paper 9. Exam Type 10. Blog Post 11. Blog Category 12. Blog Author 13. Attempt 14. Result 15. Permission
2	Teacher	1. Login 2. Dashboard 3. Result 4. Profile Update 5. Subject 6. Exam Category 7. MCQ 8. Exam Paper 9. Exam Type 10. Blog Post

		11. Blog Category 12. Blog Author 13. Attempt
3	Student	1. Register 2. Login 3. Dashboard 4. Perform Test 5. Check result 6. Check Question 7. Download Result Card

Table 4.1.1 User Can View

Screenshots:

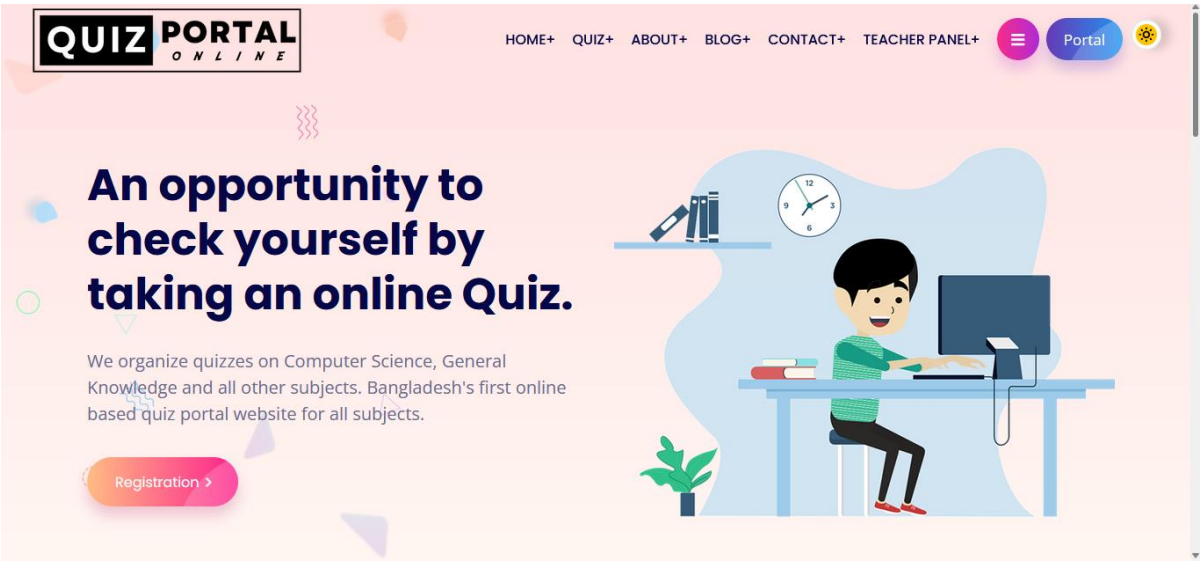

Figure 4.1.1 Home Page

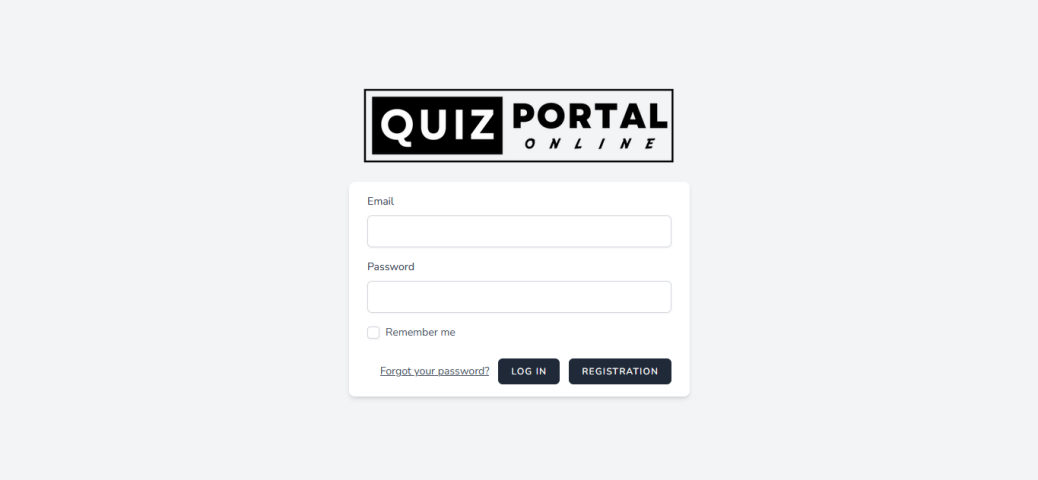

Figure 4.1.2 Login Page

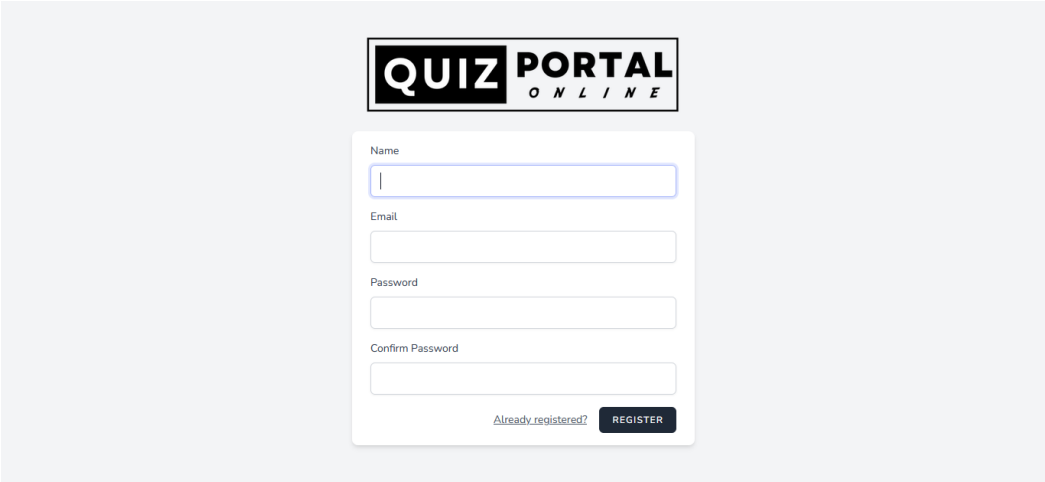

Figure 4.1.3 Registration Page

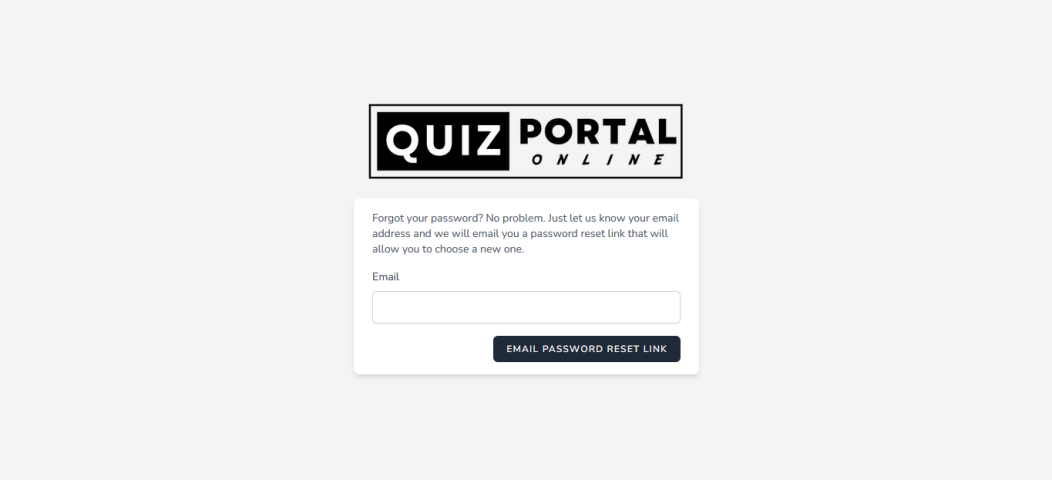

Figure 4.1.4 Forget Password Page

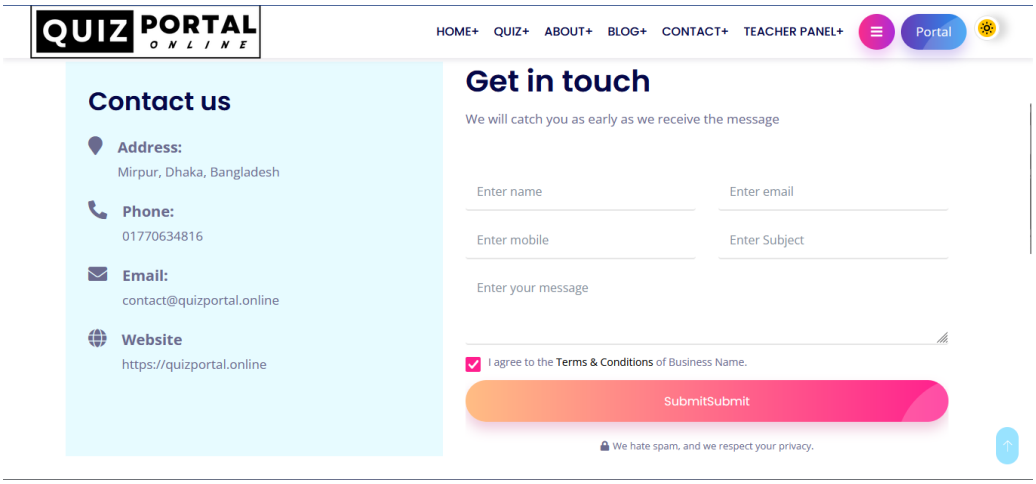

Figure 4.1.5 Contact Page

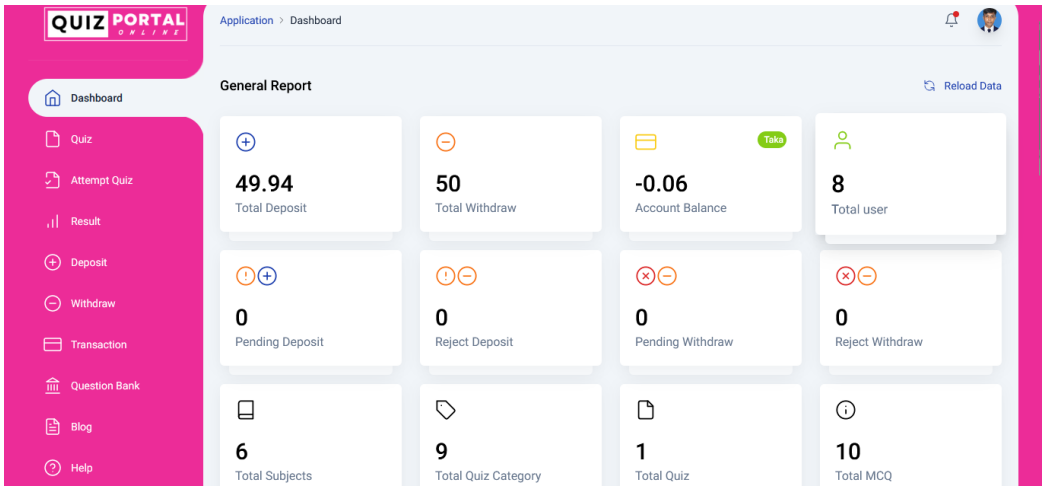

Figure 4.1.6 Student Dashboard

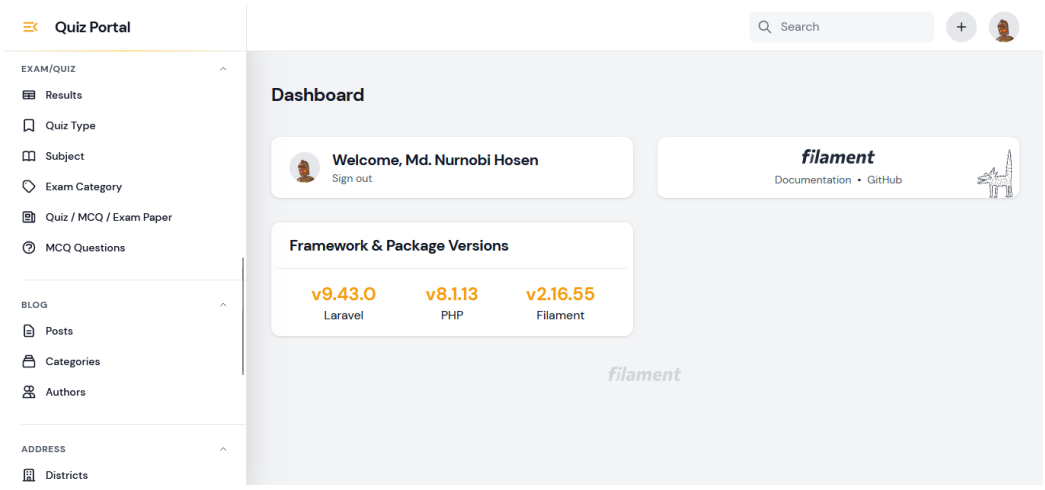

Figure 4.1.7 Admin Dashboard

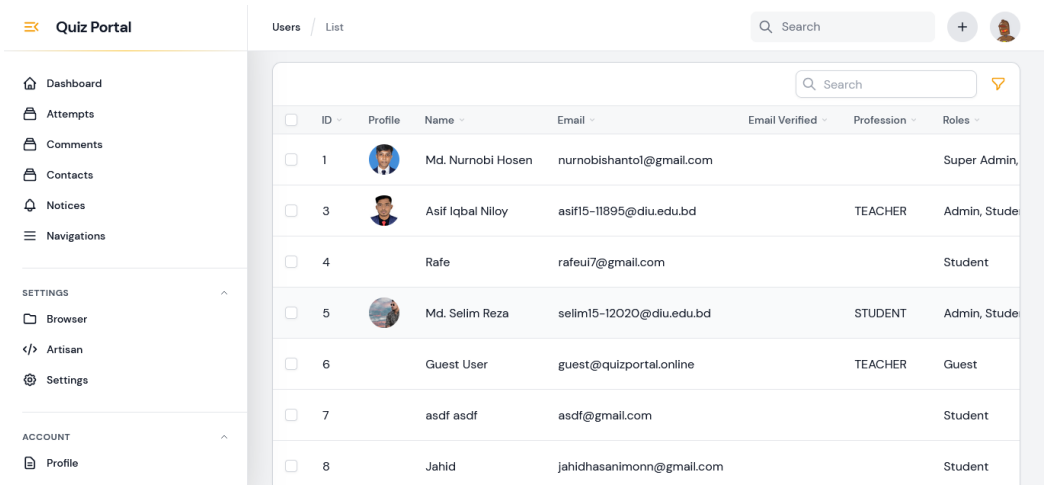

Figure 4.1.8 User/Student Manage for admin and Teacher

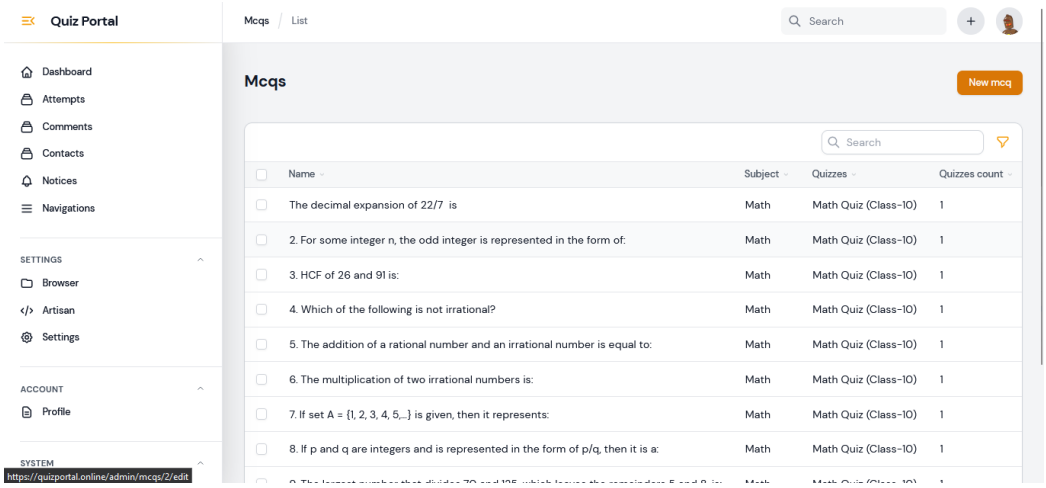

Figure 4.1.9 MCQ Question Manage for admin and Teacher

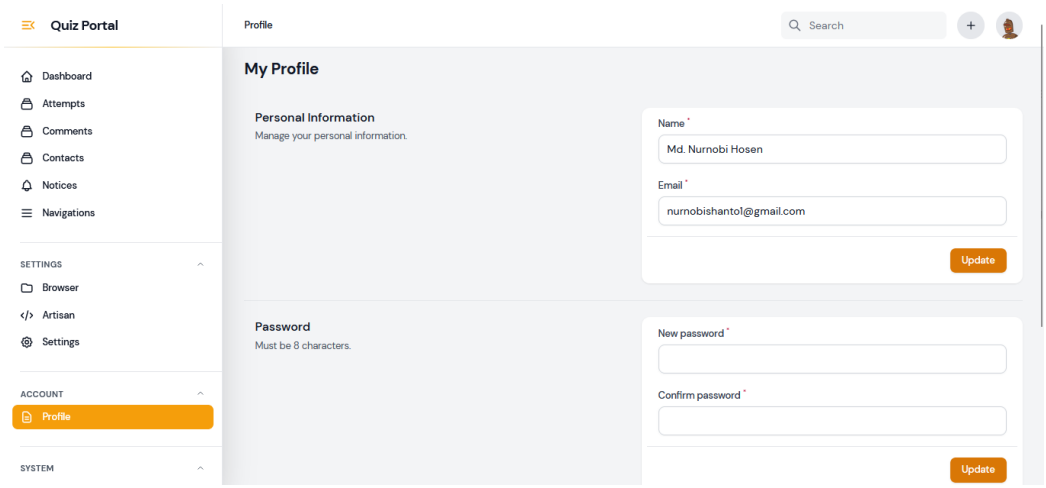

Figure 4.1.10 Profile Update for admin and Teacher

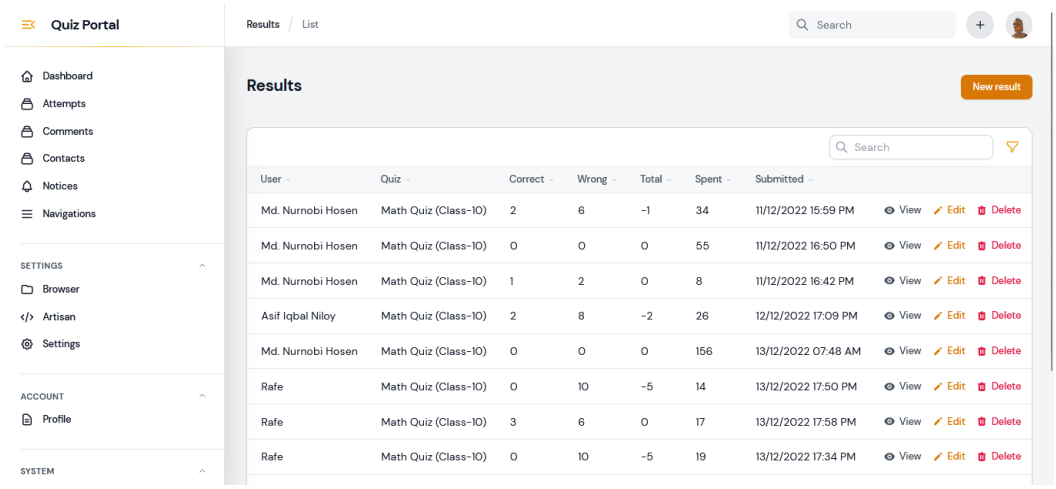

Figure 4.1.11 Result Information for admin and Teacher

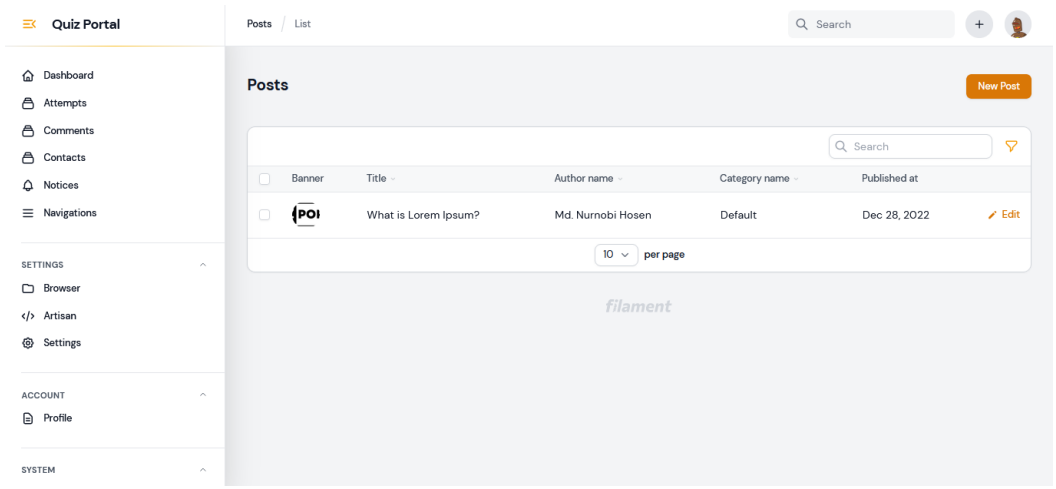

Figure 4.1.12 Blog Post manage for Teacher

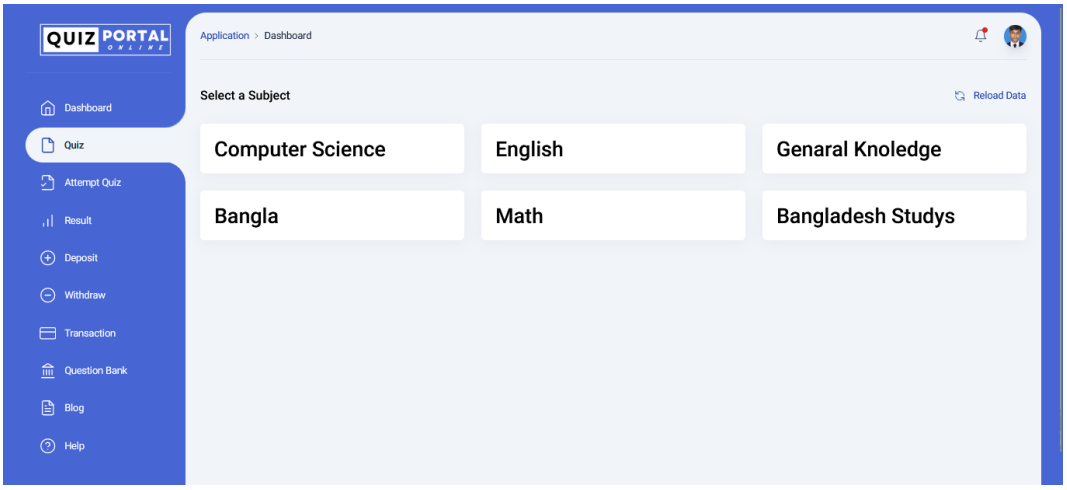

Figure 4.1.13 Subject List for Student

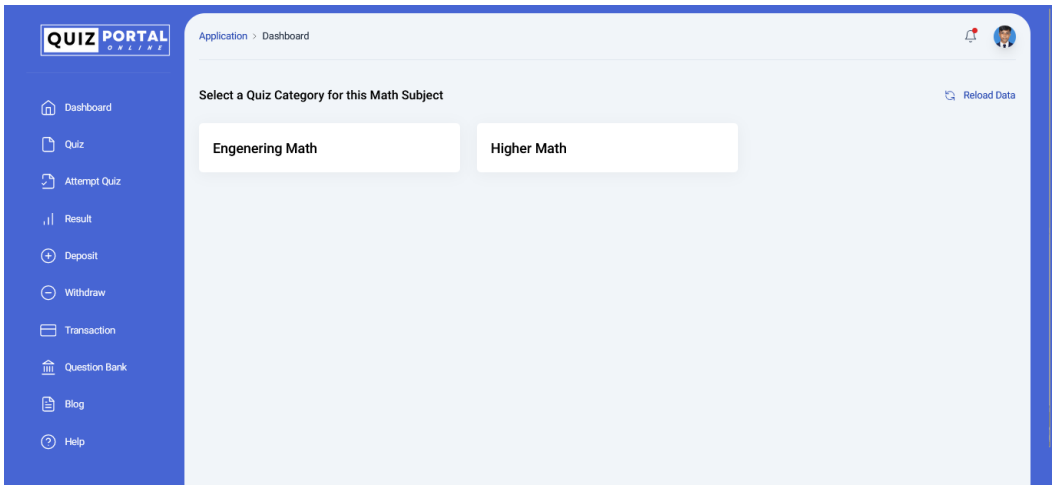

Figure 4.1.14 Exam Category List for Student

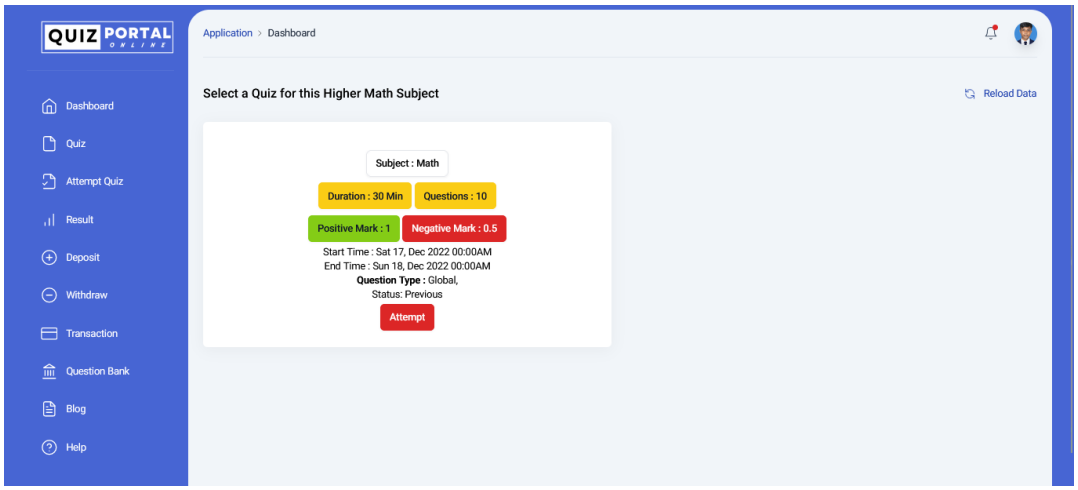

Figure 4.1.15 Exam Paper List for Student

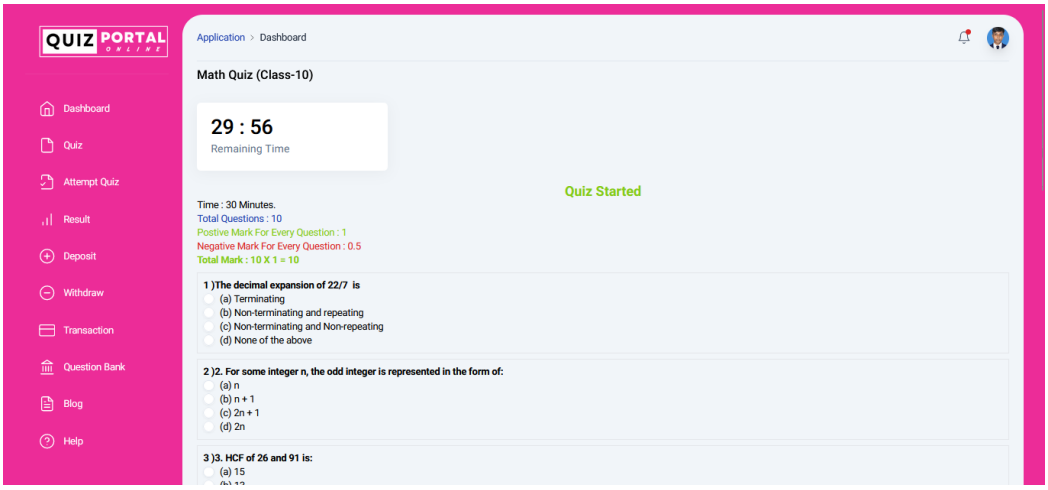

Figure 4.1.16 Quiz Start for Student

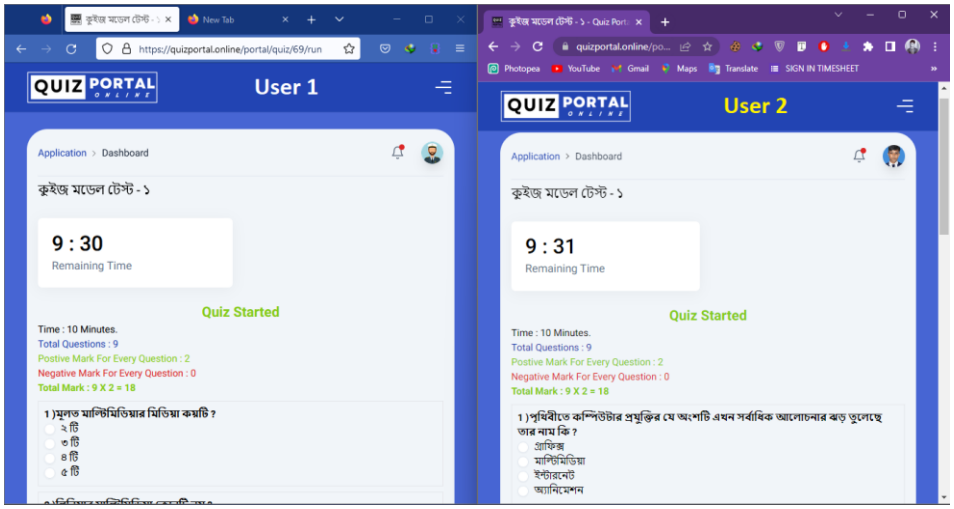

Figure 4.1.17 Attempt the same quiz for different users (questions are randomized)

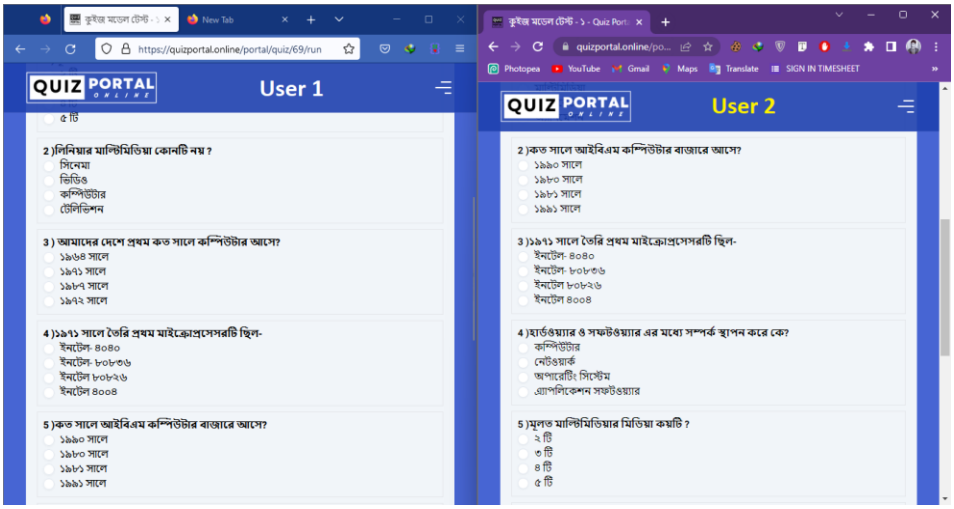

Figure 4.1.18 Attempt the same quiz for different users (questions are randomized)

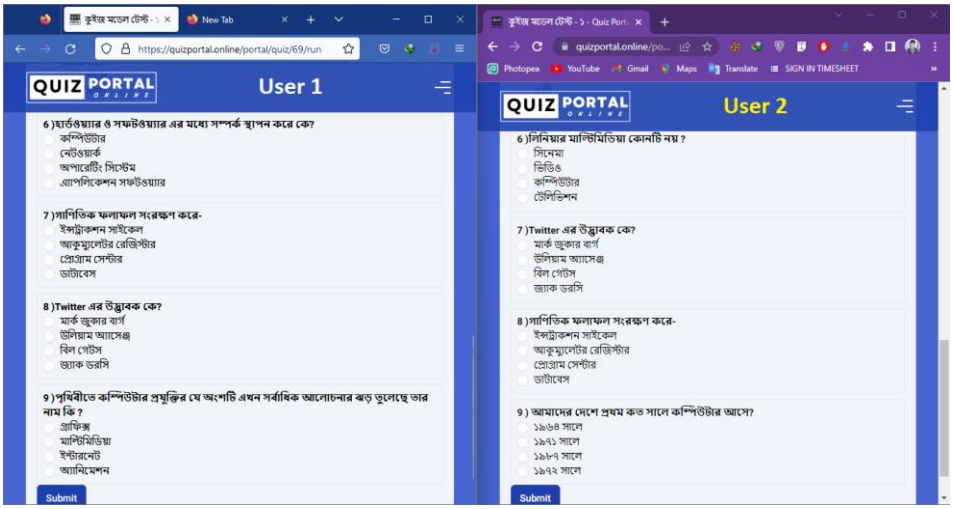

Figure 4.1.19 Attempt the same quiz for different users (questions are randomized)

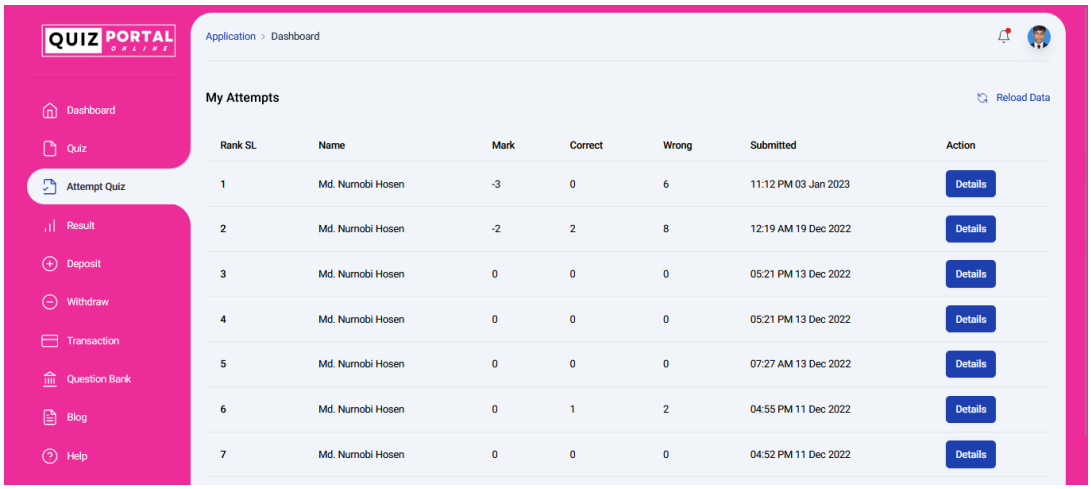

Figure 4.1.20 Quiz Attempt for Student

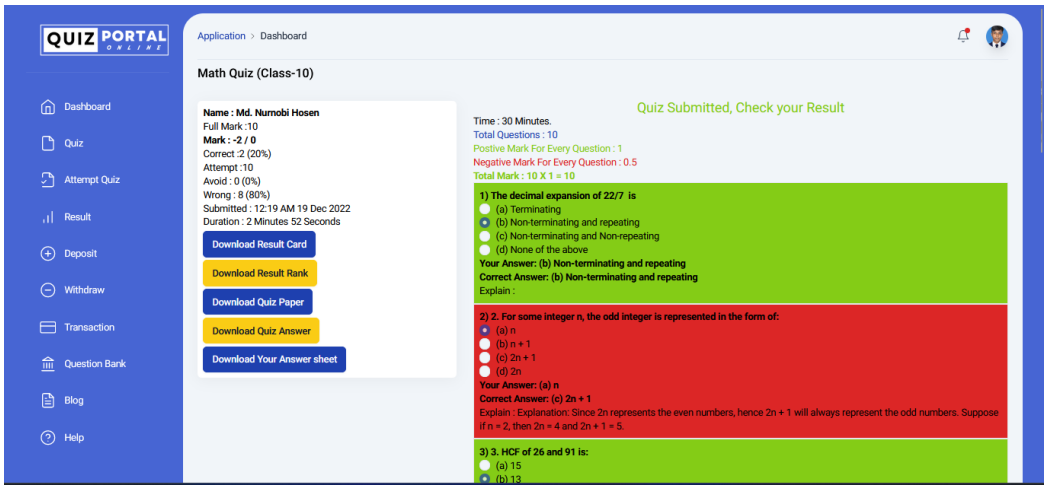

Figure 4.1.21 After Quiz Attempt checking result for Student

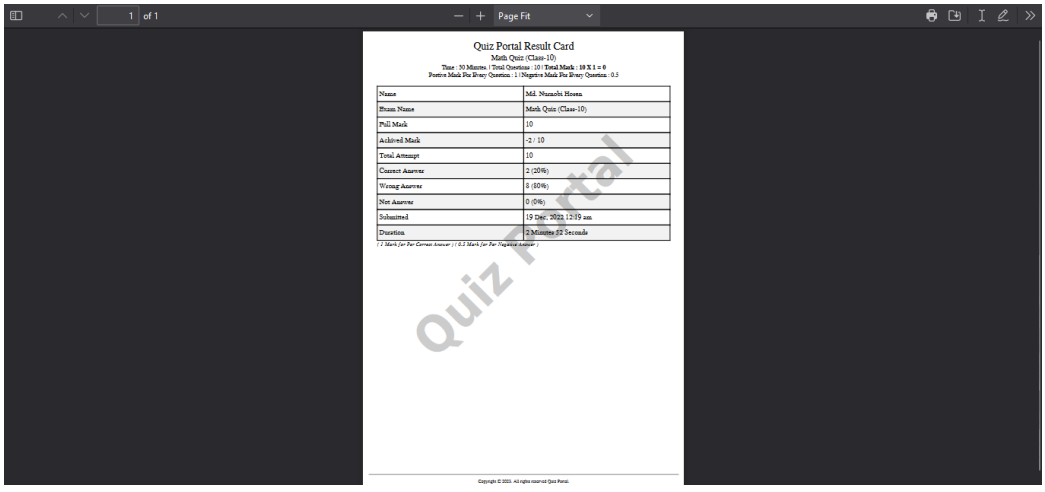

Figure 4.1.22 Result Card PDF Download for Student

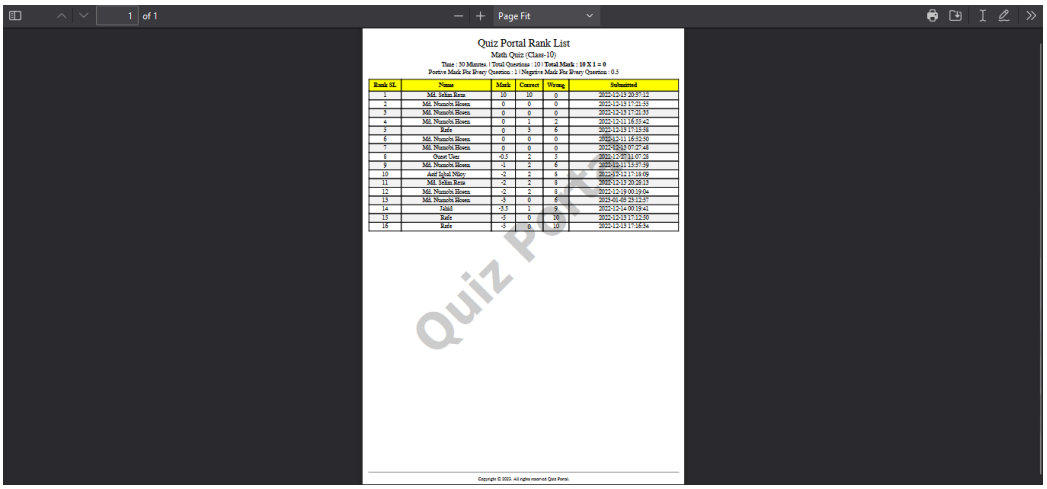

Figure 4.1.23 Result Rank PDF Download for Student

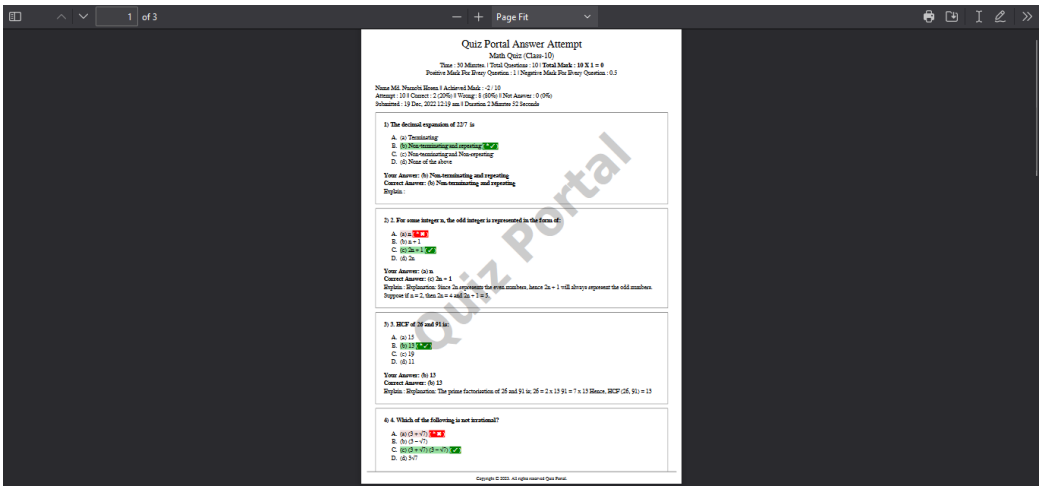

Figure 4.1.24 After Attempt Answer sheet PDF Download for Student

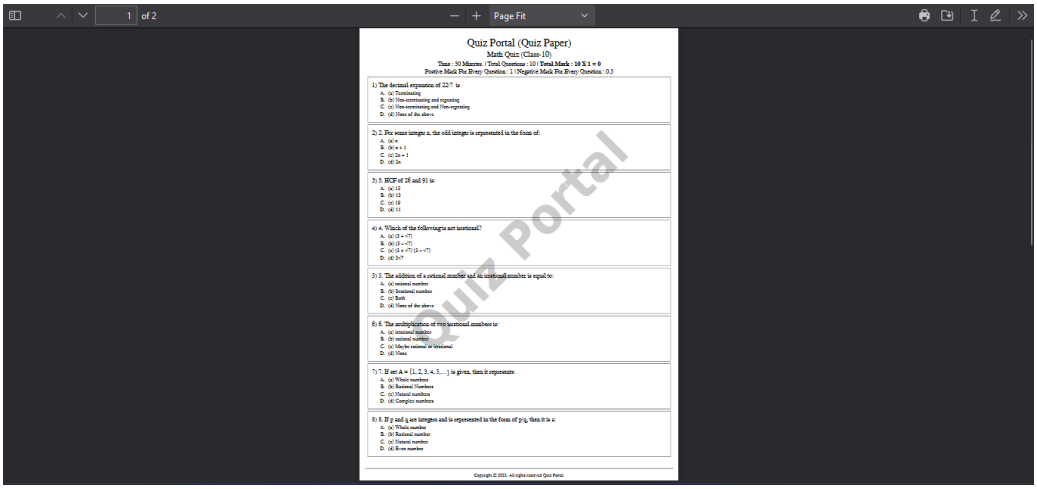

Figure 4.1.25 Quiz Paper PDF Download for Student

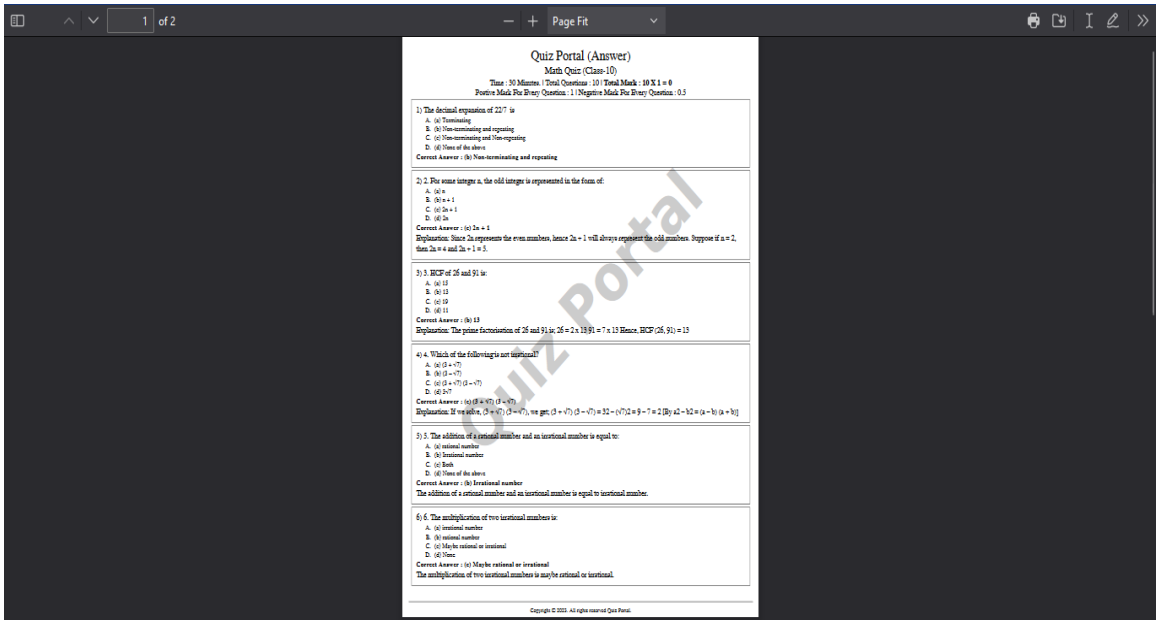

Figure 4.1.26 Quiz Paper Answer PDF Download for Student

4.2 Back-end Design:

No	User	Action
1	Admin	1. Can Authenticate all users 2. Can group the users 3. Can Delete, and update users 4. Can Monitor actions
2	Teacher	1. Can register and login 2. Can Manage Question/Exam Paper 3. Can monitor test result
3	Student	1. Can register and login 2. Can perform test 3. Can observer result

Table 4.2.1 User Can Access

Screenshots:

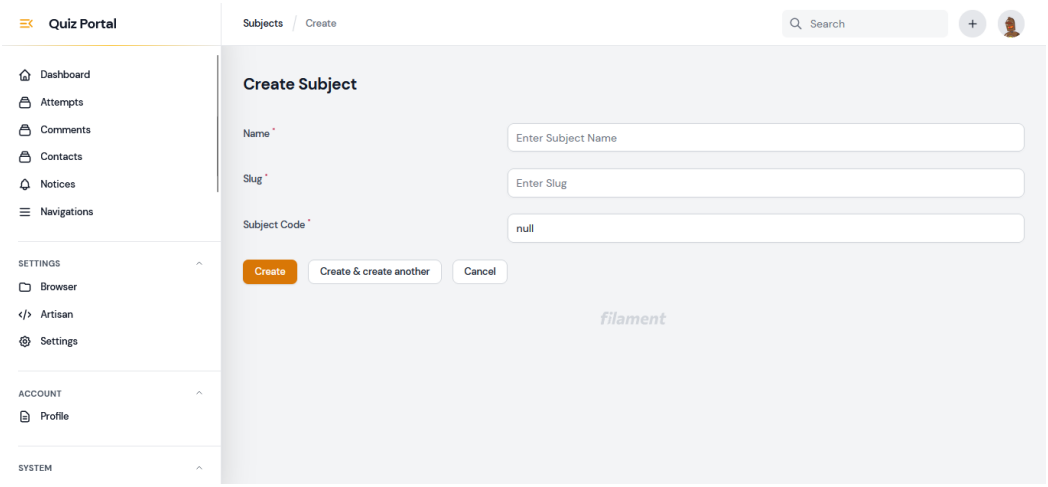

Figure 4.2.1 Create Subject for Admin and Teacher

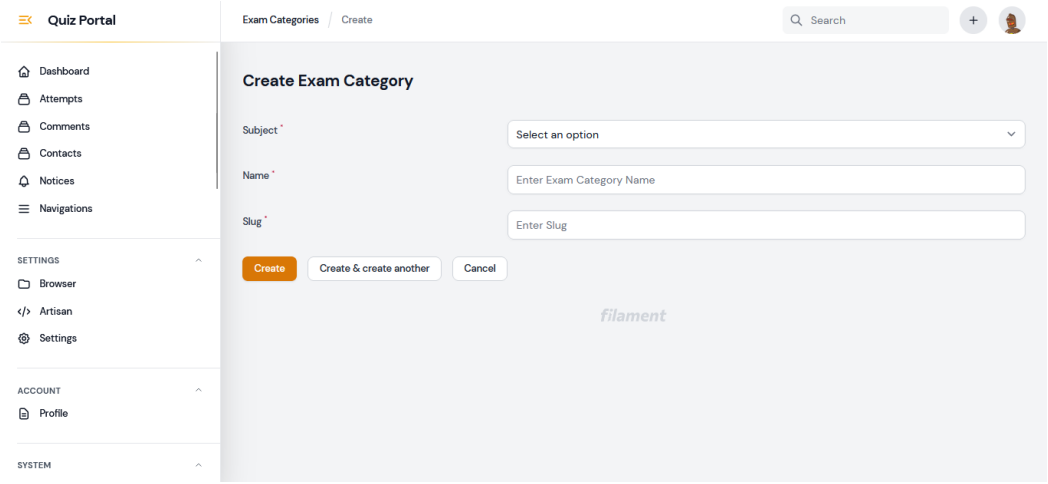

Figure 4.2.2 Create Exam Category for Admin and Teacher

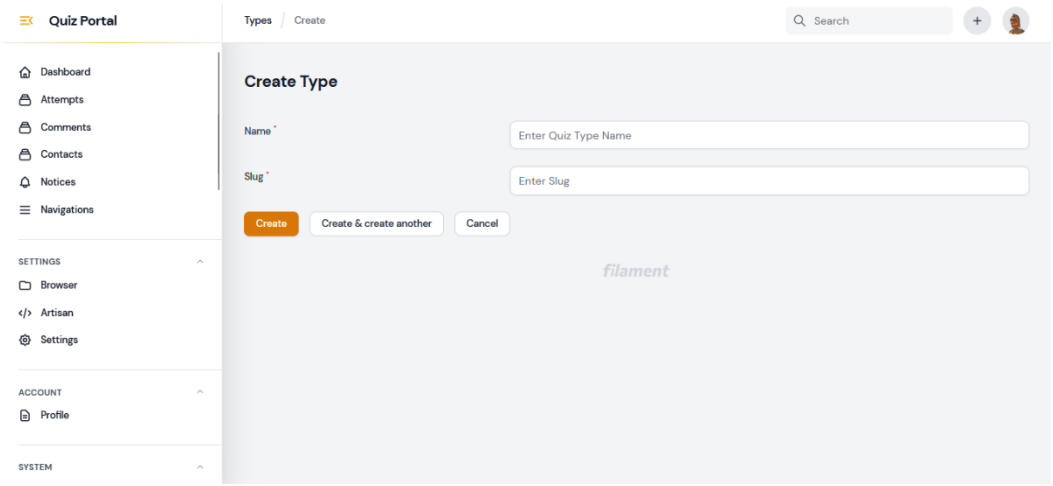

Figure 4.2.3 Create Exam Type for Admin and Teacher

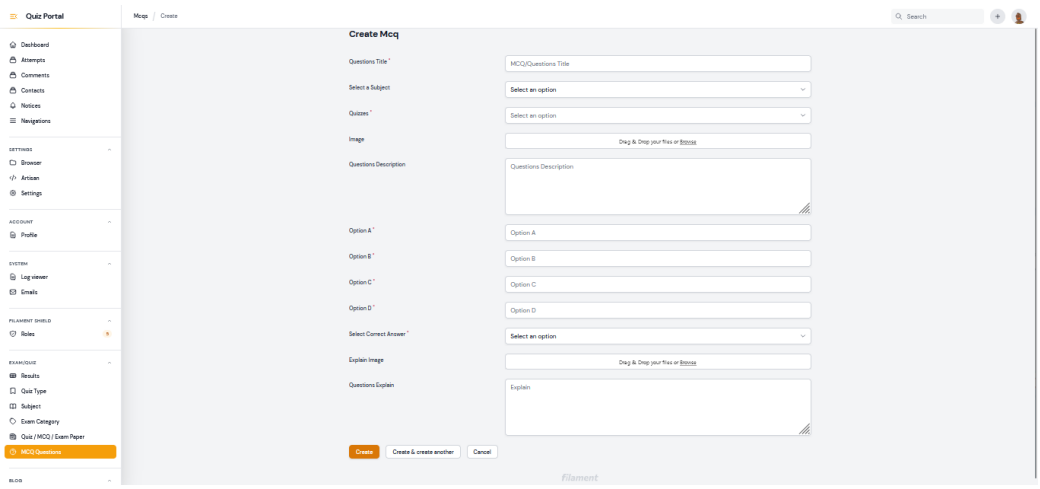

Figure 4.2.4 Create MCQ for Admin and Teacher

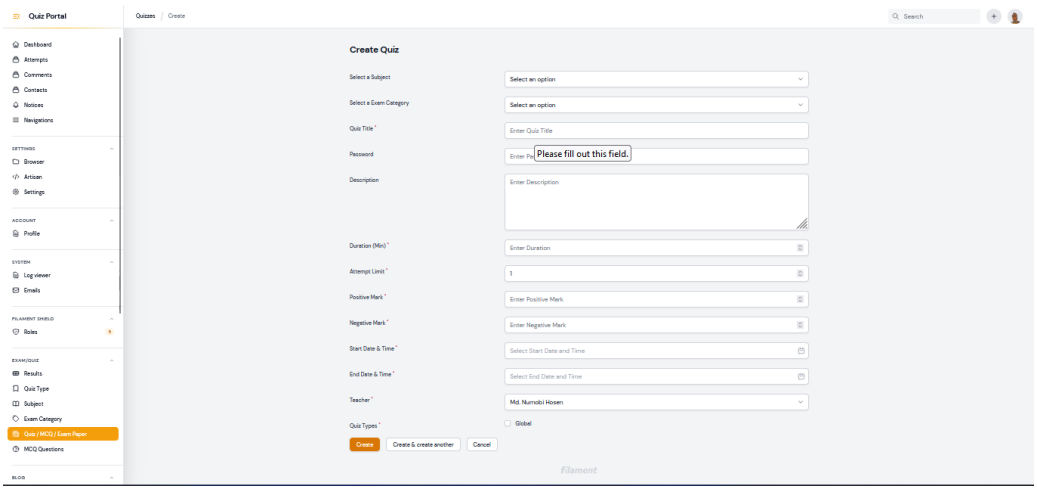

Figure 4.2.5 Create Quiz Paper for Admin and Teacher

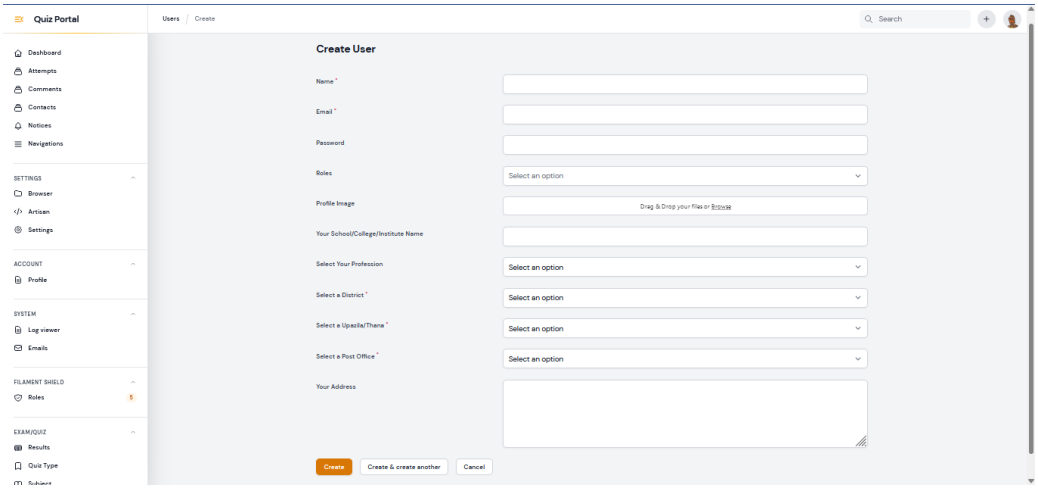

Figure 4.2.6 Create/Add User/Student for Admin and Teacher

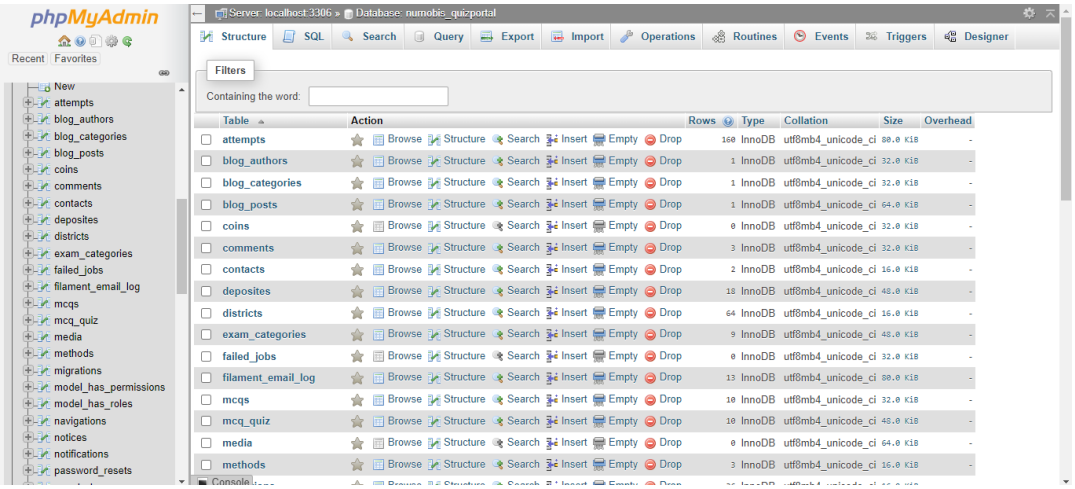

Figure 4.2.7.1 MySQL Database

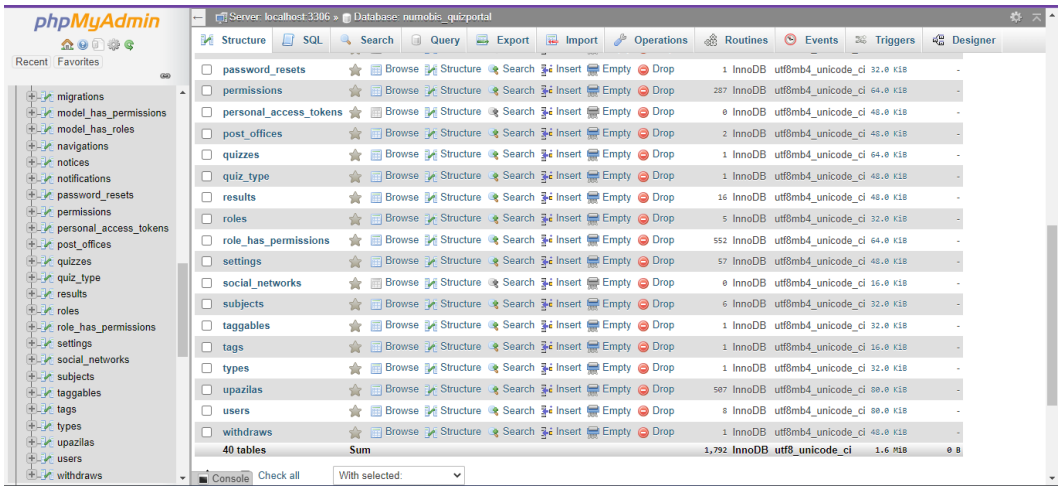

Figure 4.2.7.2 MySQL Database

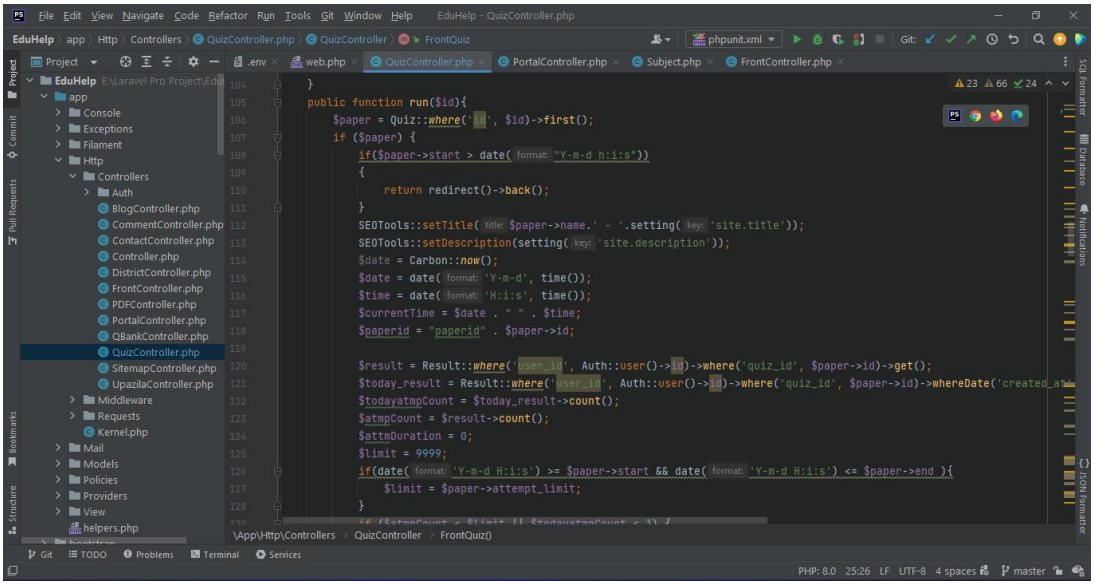

Figure 4.2.8.1 Quiz Run Code from QuizController

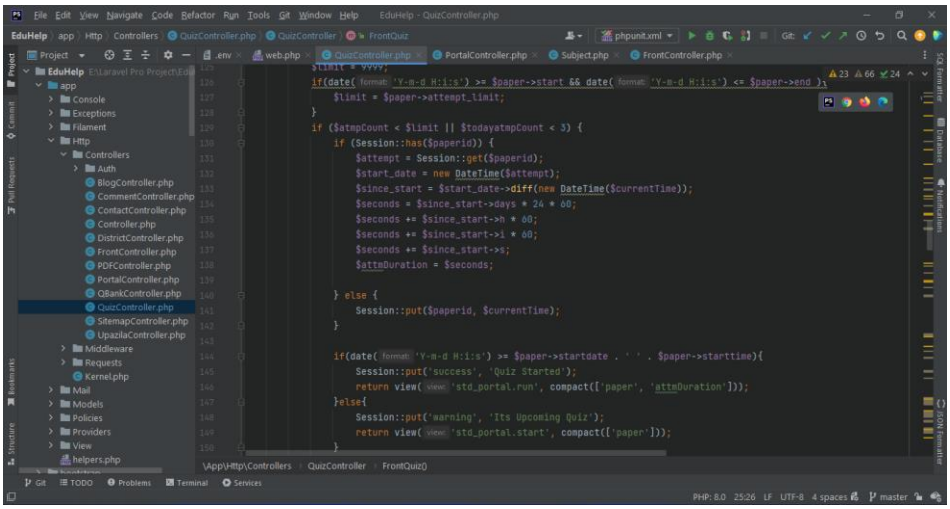

Figure 4.2.8.2 Quiz Run Code from QuizController

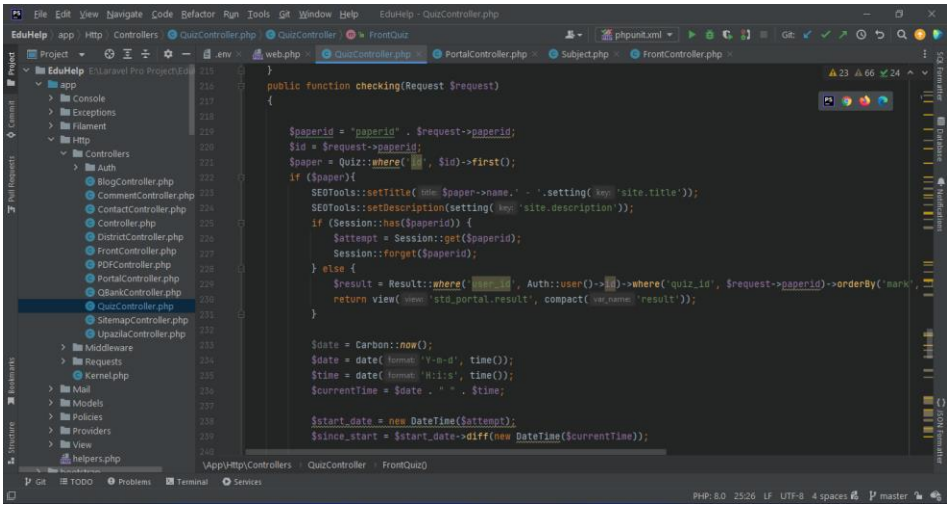

Figure 4.2.9.1 Quiz Checking Code from QuizController

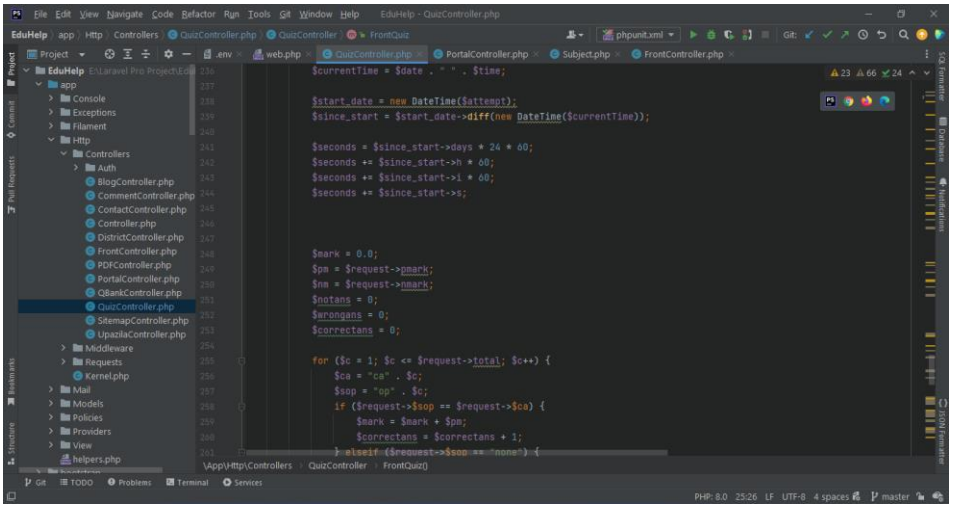

Figure 4.2.9.2 Quiz Checking Code from QuizController

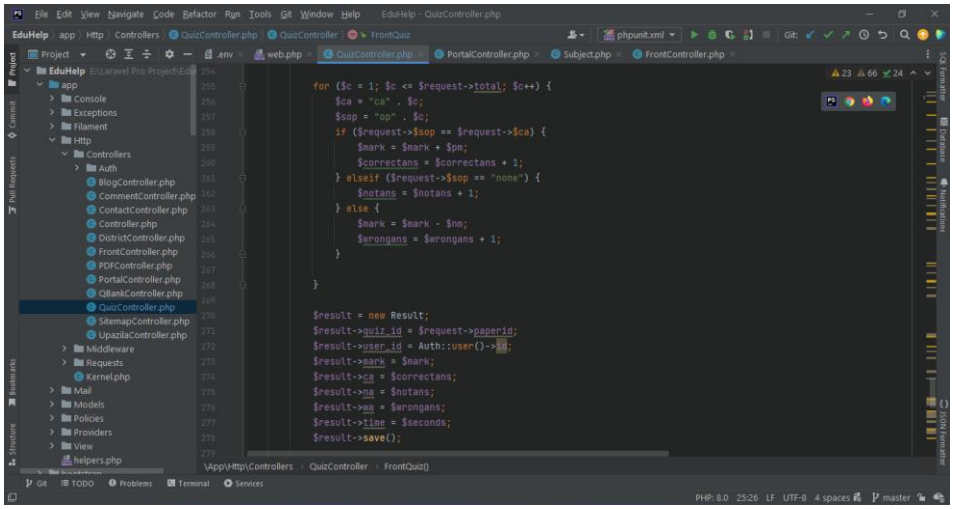

Figure 4.2.9.3 Quiz Checking Code from QuizController

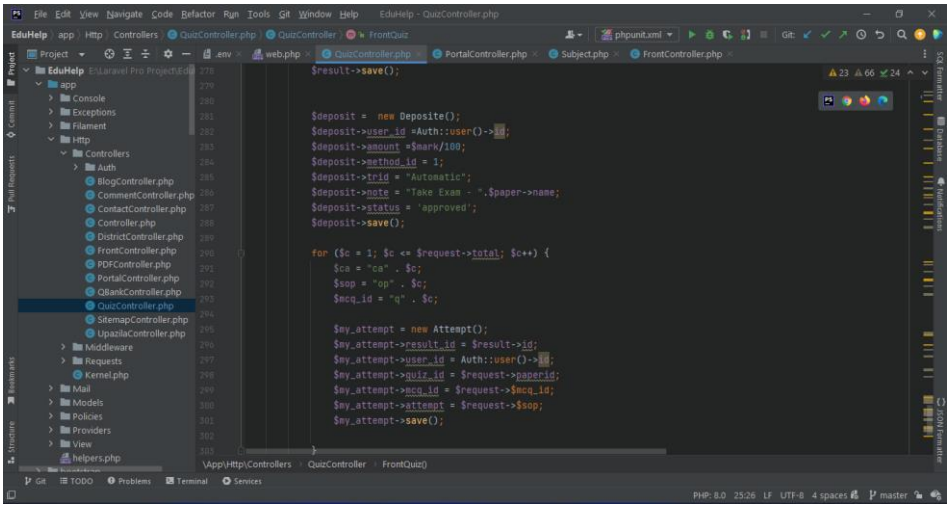

Figure 4.2.9.4 Quiz Checking Code from QuizController

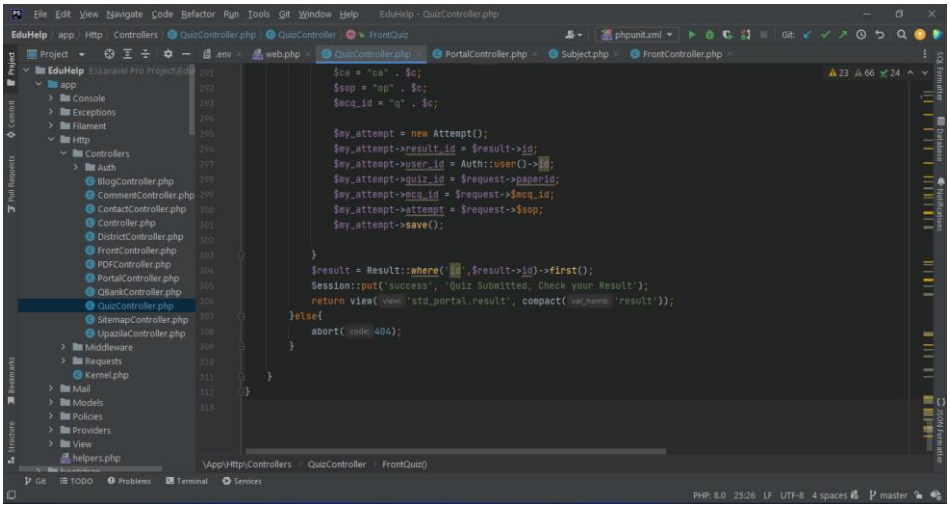

Figure 4.2.9.5 Quiz Checking Code from QuizController

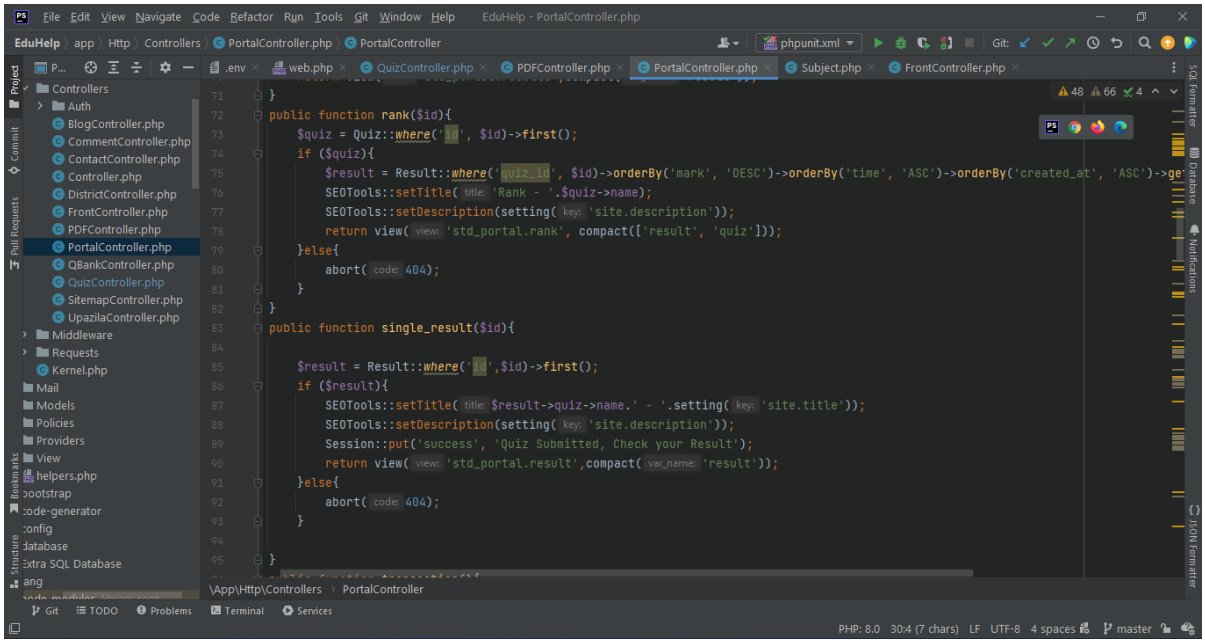

Figure 4.2.10 Result and Rank Code from QuizController

4.3 Implementation Requirements:

1. GitHub: For managing the software version
2. XAMPP: For Web Server
3. Visual Studio Code: For coding
4. PHPStorm: For Coding
5. Windows: As OS
6. Linux server (Any): As Server

CHAPTER 5

REQUIREMENT SPECIFICATION

5.1 Implementation of Database:

The implemented database shows that the administrator, acting as the root user, has full access. Teachers and students are also users; however, they are subject to restrictions.

Entity Relationship Diagram

A popular high-level conceptual data model is the E.R. Model. The idea behind this paradigm and its adaptations is utilized by many database design tools for the conceptual design of database applications.

A relational database's set of tables can be used to describe a database that follows an E-R diagram. The E-R diagram corresponds to the following entities:

- **Attributes**
- **Relations**
- **Weak Entities**
- **Sub-type and Super-type**

The following conventions are used to display the entities and their connections to one another.

- An object is displayed as a rectangle.
- A diamond symbolizes the connection between several entities.
- Oval-shaped qualities are linked to respective entities or relationships by lines.
- Relationships are labeled on the diamond oval.
- A model is an abstraction process that conceals excessive features and, at the end, highlights those that are pertinent to the application.
- A method that offers this abstraction for database applications is a data model.
- Entities and their connections are represented in the database using data modeling.
- Entities are the fundamental building blocks used in database modeling; they might represent ideas or concepts or have a concrete presence.

- A collection of related items known as an entity type or entity set is concerned with a certain organization for which it manages data.
- Properties, often known as attributes, are the characteristics of an entity.
- An entity set's "key" is a single attribute, or a pair of attributes or more, used to identify one or more instances of the set.
- Using tuples to represent an instance of the entity, we represent the entity by the relation in the relational model.
- In data modeling, relationships are used to express how two things are related.
- When two qualities are related, it means that their values are independent of one another.

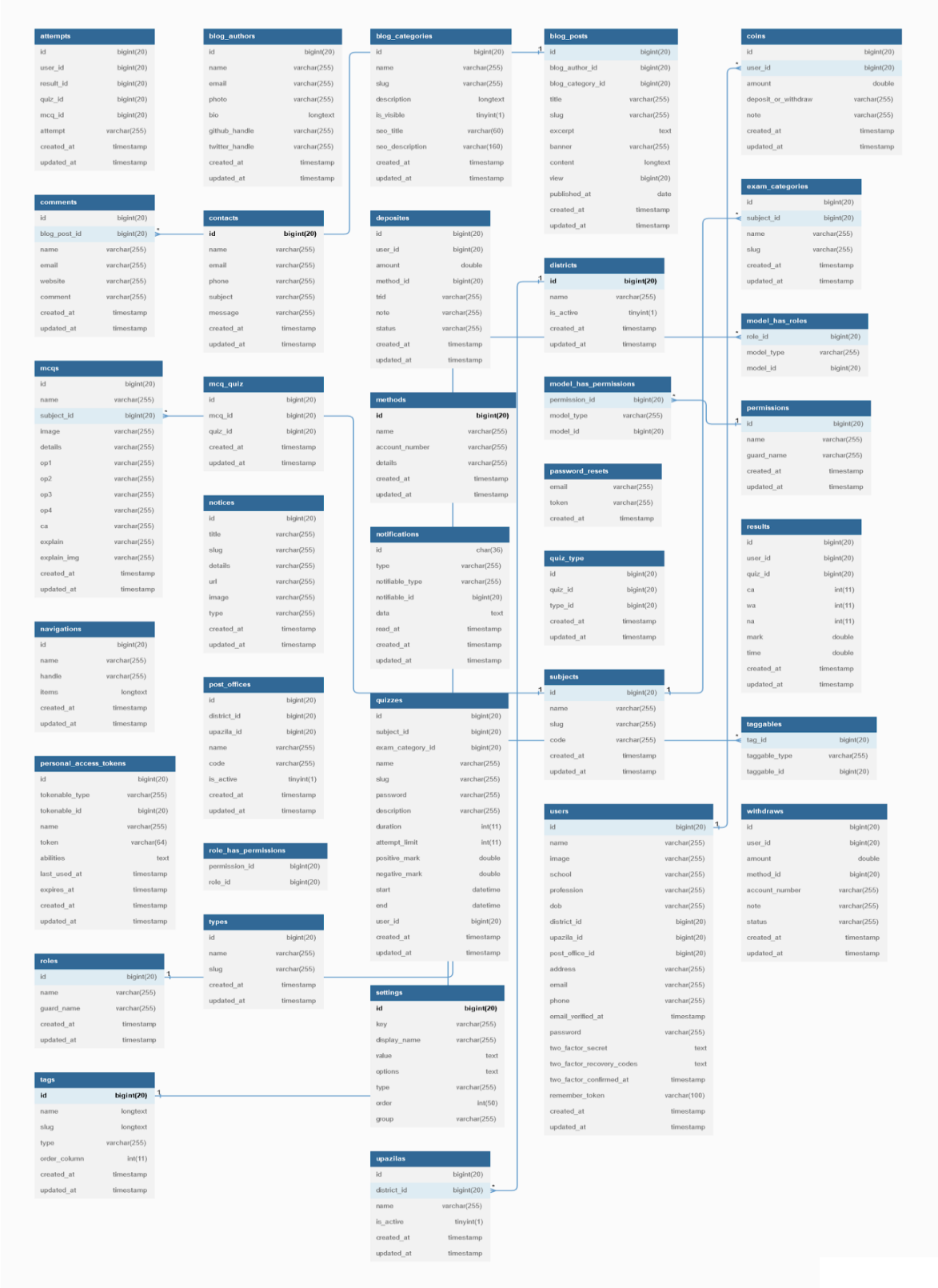

Figure 5.1.1 Database Entity Relationship

5.2 Testing Strategy:

Security Testing of the Project

Any software's success depends on testing. Every system design has flaws. Additionally, testing is done in two stages. The software engineering phase, which is when modules are created, is the initial step. After the software is finished, the second step begins. This is system testing, which confirms that the entire collection of applications functioned as intended.

White Box Testing:

In this approach, the software's ability to closely evaluate the logical components is tested using instances that test certain sets of conditions or loops. go through the complete logic of the software. This technique can be used to remedy typographical errors, logical expressions that should only be run once but are being executed multiple times, and errors brought on by using the wrong controls and loops. Each separate component within a module undergoes box testing to ensure that all loops and limits are within their operational limitations and that internal data structures are correct.

Black Box Testing:

A software engineer can produce collections of input methods that completely meet all of a program's functional requirements by employing this methodology. Black box testing validates the input and output as well as the external data. It checks to see if the input data is correct and if the desired result is being generated.

Alpha Testing:

Acceptance testing is sometimes known as alpha testing. Be Spoke develops systems specifically for each of its clients. Alpha testing doesn't stop until the client and the system developer agree that the provided system adequately satisfies the system requirements.

Beta Testing:

However, when a system is to be branded as a software product, beta testing is a method that is regularly performed.A system is supplied to several willing users during beta testing so they can try it out. Problems are then reported by customers to the developers. This

enables the product for practical usage and finds faults that the system developers could not have foreseen.

Unit Testing

Each module is taken into account separately. It concentrates on every software component as it is written in the source code. The testing is white-box.

Integration Testing

The goal of integration testing is to build the program's structure while also creating tests to find problems with how the modules are connected. Top-down integration is the method used to combine modules.

Validation Testing:

To make sure that all the functional and performance requirements were met, validation testing was done.

System Testing:

It is executing programs to check logical changes made in an effort to find faults. Online responsiveness, transaction volume, failure recovery, and other factors are assessed for a system. A system test is carried out to ensure that the system meets all user requirements.

5.3 Tools/Platform, Hardware, and Software Requirement specifications:

Software Requirement:

Name of component	**Specification**
Operating system	Windows 11
Language	PHP
Database	MySQL Server
Browser	Any of Mozilla, Chrome, etc.
Web server	Apache
Software development kit	PHP
Scripting language	JavaScript

Hardware Requirement:

Name of component	Specification
Processor	Pentium III 630 MHz
Ram	128
Hard Disk	20GB
Monitor	15`` Color Monitor
Keyboard	122 Keys

5.4 Software Implementation Methodology:

The software design pattern known as Model View Controller, or MVC as it is more often known, is used for creating online applications. The following three components make up a model view controller pattern:

- **Model** - The pattern's lowest level, which is in charge of data maintenance.
- **View** -This is in charge of showing the user all or some of the info.
- **Controller** - The computer program that manages how the Model and View communicate.

MVC is well-liked because it promotes the separation of concerns and separates the application logic from the user interface layer. In this case, the Controller takes in all requests for the application and collaborates with the Model to prepare any data that the View needs. The View then creates a final presentable response using the data that has been prepared by the Controller. The following diagram illustrates how the MC abstraction works.

MVC (Model View Controller Flow) Diagram

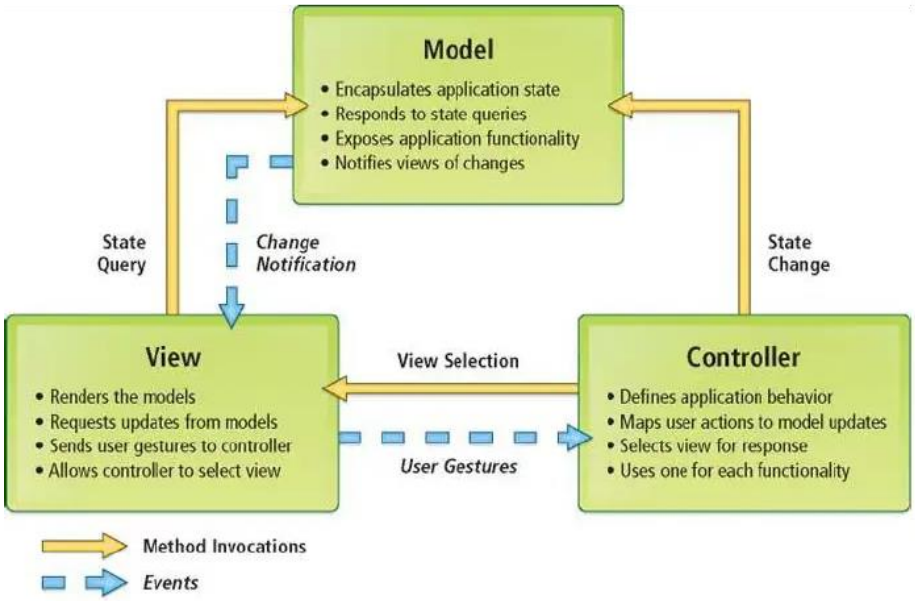

Figure 5.4.1 MVC (Model View Controller Flow) Diagram

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society:

Every civilization on the planet is built on the foundation of education. The age of advanced technology is now. Every area of our daily lives is being affected by technology. As a result, the educational system cannot be ignored. In order to improve the current educational system and prepare students for the future, this program will assist students and teachers in working together.

6.2 Impact on Environment:

A crucial component of the educational system is the use of paper. We cannot imagine an educational system without paper. The use of paper for exams will reduce thanks to this program. This software will lessen the amount of deforestation because trees are used to make paper. Our environment will be clean as a result, benefiting nature.

6.3 Ethical Aspects:

We learn ethics through education. However, in online exams, pupils cheat to improve their results. Even when they receive an excellent mark, it has a detrimental effect on their outlook. Thus, this program will reduce the likelihood of unethical behavior during online exams. As a result, students' ethics will gradually return.

6.4 Sustainability Plan:

Our strategy would be cost leadership for mutual sustainability. where there was a 68% decrease in production costs and a 73% increase in profit margin.

Strength

1. A pertinent query
2. Real Context
3. Accurate Distractors
4. Detect Correct Answer

5. Detection of Cheating

6. Quick procedure

Weakness

1. Language barrier

2. Free Cloud Version

Opportunities

1. Automation in education

2. Option to add new Languages

3. Rising demand for online education

Threat

1. Moderate capital investment.

Figure 6.4.2 Software Development Life Cycle (SDLC)

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion:

Our initiative is merely a modest effort to meet their requirement for project management. Additionally, a variety of user-friendly coding has been used. Software planning's goal is to offer a framework that enables the management to create accurate predictions within a constrained time period at the start of the software project. This framework should be updated often as the project moves forward.

7.2 Scope for Further Developments:

In a word, it may be said that the project's future scope revolves around keeping data on.

- Automatic Payment Gateway System.
- Teacher Subscription System.
- Automatic MCQ Questions generate system.
- Broad Question Exam System.
- Develop android and IOS applications for this system.
- Advanced software for Quiz Portal Online including more facilities.
- Implement a backup system such that the codebase database is regularly backed up on several servers.

In order to judge the success of the process, we hope that the project will fulfill the objective for which it was created.

CHAPTER 8

REFERENCES

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5. https://laravel.com/docs/9.x
6. https://filamentphp.com/docs/2.x
7. https://httpd.apache.org/
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