JAACAI: Self-testing Quiz platform

BY

Pritam Datta
ID: 191-15-12417

Tanmoy Dhar Ripon
ID: 191-15-12305
AND
Prodip Das
ID: 191-15-12763

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

Supervised By

Ms. Subhenur Latif
Assistant Professor
Department of CSE
Daffodil International University

Co-Supervised By

Mr. Md. Azizul Hakim
Sr. Lecturer
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project titled **"JAACAI: Self-testing Quiz platform"**, submitted by Pritam Datta ID No: 191-15-12417, Tanmoy Dhar Ripon ID No: 191-15-12305, and Prodip Das ID No: 191-15-12763 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 24 January 2023.

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Dr. Touhid Bhuiyan
Professor and Head
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Abdus Sattar
Assistant Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
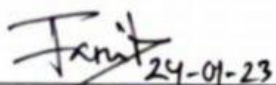Daffodil International University

Internal Examiner

Fatema Tuj Johra
Senior Lecturer
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

External Examiner

24-01-23
Dr. Dewan Md Farid
Professor
Department of Computer Science and Engineering
United International University

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Ms. Subhenur Latif, 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 award of any degree or diploma.
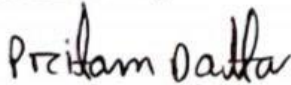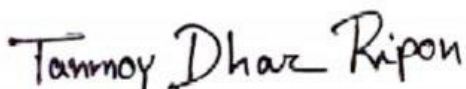
Supervised by:

Ms. Subhenur Latif
Assistant Professor
Department of CSE
Daffodil International University

Submitted by:

Pritam Datta
ID: -191-15-12417
Department of CSE
Daffodil International University

Tanmoy Dhar Ripon
ID: -191-15-12305
Department of CSE
Daffodil International University

Prodip Das
ID: -191-15-12763
Department of CSE
Daffodil International University

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ABSTRACT

Online schooling is becoming increasingly popular. E-learning is becoming increasingly popular. Because it saves us time and reduces our stress. "JAACAI" is a website where online exams are taken. where teacher's construct question quickly and student's attempted the exam easily and obtain live result. Without this, there is also the option of taking the Olympic quiz. Here, teachers design premium questions, and students pay to take the quiz, and if they get an A+, they find a price money or prize. There are also various features such as no one can copy the question, live counting time, and sector-specific questions. This type of website assists BCS exam students as well as varsity admission exam students in our country. This website help's student's and teacher's a lot and during any kind of pandemic situation never stopped us to attempted the exam.

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1.1 Introduction

E-learning has gained popularity among teachers and students since COVID-19. One of the finest ways to successfully complete any quiz or multiple-choice exam at home without any bother is through e-learning.

One of the most important aspects of today's environment is electronic learning, sometimes known as e-learning. Any learning or teaching method made possible by technology is referred to as e-learning. Knowledge and communication systems use specialized media to carry out academic tasks, whether or not networked learning is utilized.

The term is likely to be used to describe both outside-of-classroom and inside-classroom educational experiences using technology as long as curriculum and device advancements continue. The use of a computer and a network to impart knowledge and skills is known as e-learning.

We build a website to make taking quizzes and multiple-choice tests easier for students and teachers. We built two user panels and one admin panel for this website. There are two: one for students and one for teachers. Teachers sign in or establish an account and then use a referral code to create a quiz for students. Students sign in or create an account, and then use the referral code to enter their quiz or multiple-choice test. The website is easy to use. Both teachers and students can easily use this website [1].

1.2 Motivation

Our educational system has resumed its physical operations following COVID-19 [2]. After a two-year battle with COVID-19, we have returned. However, we can all easily acclimate to the online schooling system. It is not reasonable to give quiz or multiple-

choice exam from physically present or just to appear for one quiz or multiple-choice exam. Because we can complete anything online while sitting at home, physical thinking is an unwise choice.

- We have come to understand the need for quite an e-learning website as a result of the COVID pandemic.
- Going outside the house is time-consuming and useless. So, we decided to create a website that would make taking an online exam simpler and more user-friendly.
- Students who are preparing for the BCS exam or the varsity admissions exam need an online testing platform.

1.3 Objectives

The ultimate goals of this initiative are to:
- Simplify the education system.
- To easier student's and teacher's finished there exam task.
- To give student's and teacher's more time.
- To do BCS and varsity admissions exam preparation without leaving the house.
- To ensuring that students who are unable to attend school because of pandemic or disease they should continue their education without any hassle.
- To generate additional jobs.

1.4 Expected Outcome

The term "Digital Bangladesh" refers to the widespread use of computers and introduces a contemporary method of implementing open source technology in the areas of employment, education, health, and commitment to eradicating poverty. In our country nowadays, we use computers in every industry and conduct all of our business online. We may live a simple and comfortable life thanks to these online services.

My "JAACAI" is supposed to produce a number of results.

- Provide all possible assistance to users (students and teachers alike)
- Students and teachers both find plenty of time for another projects or lesson planning.
- No cheat happen.

1.5 Overview

Student's, Teacher's and admin access are all available for this project.

- The user (Student's or Teacher's) can access and leave the application.
- Registration for using the application
- Teacher's create a quiz and attending the quiz teacher's give's a refer code
- Student's attempt quiz with the refer code
- Live result show
- Showing the improvement
- Showing the demotion
- Create relation between teachers and students.
- Admin deploy any type of quiz.

1.6 Project Layout

The structure of the project report is as below:

- The project's instructions, motivation, objectives, expected outcomes, and an overview are all included in chapter one.
- In Chapter two covers the problem's scope, difficulties encountered during the project, related activities, and project jargon.
- In Chapter 3, the project's general description, the product viewpoint, the system model, the hardware requirements, the design, the requirement prosperity, and model diagrams are all introduced.
- The design specification, as well as its implementation, application, and testing throughout the project, are covered in Chapter 4.

- The effects of this project on society, the environment, ethical issues, and the sustainability plan are discussed in chapter five.
- The project's completion, scope, and future developments are all included in chapter six.
- The sources used for the project are listed in the references section.

CHAPTER 2
Background

2.1 Terminologies

The ability to test your knowledge with an online quiz system is incredibly intriguing. Users will have access to an online interface where they can complete various quizzes. Users or students must submit their personal information in order to log in and take a quiz of their choosing. Also, anyone can create a quiz and scheduling times. Online quiz competitions can be created through this website [3].

The features that we offer are as follows:

- Check the status
- Premium quiz
- Live result
- Providing the data of improvement and deterioration
- Refer code use for specific the quiz
- Student's and teacher's feedback option
- Can't copy the question
- Course based quiz

2.2 Related Works

There are numerous E-learning with a wide range of reputations that offer user's perks. However, most E-learning in Bangladesh are unable to trust their user's. Because there are several issues with the question or document they provide. Because of this, most systems, with the exception of a few, are unable to offer appropriate customer service. As a result, we shall place a high value on the standardized and systematize of education [4].

2.3 Scope of the Problem

We faced various challenges while doing this project. We have faced many challenges while working with education. Gaining knowledge about what steps to take to make the quiz interesting. When we first began to develop our system, we encountered many challenges in resolving them [5].

2.4 Challenges

Every task comes with many challenges. As a result, we also have to handle a few challenges. During the course of this endeavor, we ran across a number of difficulties. We went to a website that dealt with online exam service, made one and attempted to comprehend how it all worked. Afterward, we discover their limitations, which we address in our project. We had a lot of difficulties resolving them when we first started to build our system. If an administrator doesn't check the notice for confirmation after a patient makes a reservation, the system will fall short of its main objective. Therefore, the admin must always be accessible for confirmation. It's a significant issue for this project.

CHAPTER 3

Requirement Specification

3.1 Introduction

Data on student's demands was the first thing we gathered. Afterward, I examined them. aimed to comprehend their needs and take into account the limitations of the teacher's

3.2 Overall Description

The overall description provide is given under:

3.2.1 System Interfaces

The system will be connected to a web application with MySQL support. The administrator can access the server online.

3.2.2 User Interfaces

The system resembles a desktop program. After being released online, it can be utilized on any cellphone, tablet, or desktop. The technology has been created to be user-friendly.

3.2.3 Communication Interfaces

Data communication between the students and the teachers will be done using the TCP (Transmission Control Protocol) and the IP (Internet Protocol).

3.2.4 Storage Limitation

The amount of storage that our system can accommodate is unrestricted. System assembly, quality planning, testing, and the writing process are all complete at this point in the planning phase.

3.2.5 Operations

The main activity of the architecture is:

- Database
- Searching
- updating
- Editing
- Deleting

3.3 System Model

The system model I proposed is an agile model, that is a progressive framework for software development. Each cycle usually takes one to three weeks. Engineering tasks are managed by cross-functional teams. In software development, the ability to adapt to changes in technology, demands, and users is known to as "agile" [6].
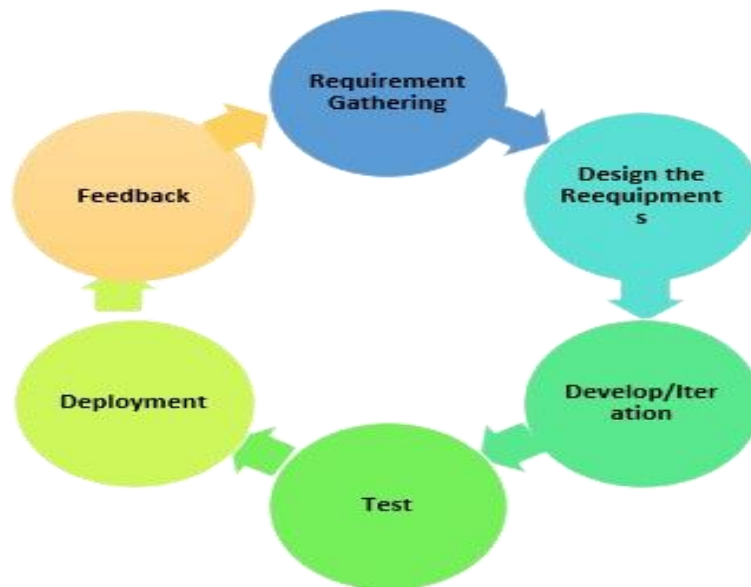

Figure: 3.3.1 Agile Model

3.3.1 Life cycle of the agile model

The following are the critical phases of the SDLC life cycle's Agile Process model:

Gathering Requirements: You must describe the requirements all through this step of the agile paradigm. It's important to talk about the project's time and effort requirements as well as the business potential. You may assess the technical and financial viability of a system by looking at this data.

Create the specifications: You can collaborate with stakeholders to identify needs after the feasibility research. You may establish how well the new scheme would be merged into your current software system using the UFD design or rising Uml.

Develop: After software development group has defined and designed the requirements, develop/iteration is when the real work starts. Starting with basic and rudimentary functionality, the product will go through many phases of improvement as the market, style, and software developers work together.

Test: The diagnostics team is involved in this stage of the agile model. For instance, at this stage, the Quality Assurance group evaluates the system's functionality and records any issues.

Deployment: This stage sees the user receive the first version of the product.

Feedback: it is the final stage in the Agile Method after the product has been released. During this stage, the team solicits input on the product and uses it to identify issues that need to be fixed.

3.3.2 Agile model types

The following are some crucial agile types [7]:

Scrum: This agile methodology is primarily concerned with task management in collaborative development environments. The team must adhere rigorously to a planning process for each Sprint under the Scrum Agile paradigm. Additionally, each participant in this kind of project is assigned a certain duty.

Crystal: One of the easiest and most adaptable methods for designing software is the Crystal process, which takes into account the fact that every project is different. Consequently, it is necessary to modify policies and procedures to fit them. The categories of crystal techniques are as follows:

- CLEAR: Use that for quick, low-stakes tasks.
- ORANGE: Applicant for initiatives that are somewhat significant and important.
- ORANGE WEB: Usually, online commerce

Dynamic Software Development Method (DSDM): With the aim of delivering products often, this Rapid Developer Tools (RAD) method actively incorporates users and gives groups the decision-making authority.

Development of lean software: Its "Just-In-Time Manufacturing" idea serves as the foundation for this system. It aids in accelerating application development and cutting expenses. A lean new approach eliminates waste while accelerating learning, achieving delivery time, and fostering authenticity.

XP: Extreme Programming: When there are customer requests or needs that are continually changing, test automation is a helpful Agile paradigm. It is also employed when the system's operation is uncertain.

3.3.3 Use of the agile model
The following are typical situations when the agile technique is applied:
- When regular modifications need to be made, this method is employed.
- Projects with little regulatory requirements.
- projects utilizing a less-than-strict current methodology.
- Those undertakings in which the item proprietor is easily reachable.
- programs with adaptable budgets and schedules.

3.3.4 Benefits of an agile model
Here seem to be a few typical benefits and advantages of the agile method:
- Yet another interaction is used to communicate with customers.
- presents a highly practical strategy for software design
- You may create effective designs and satisfy the demands of the business using the agile methodology in computer science.
- Each week and, new versions of functional programs are made available.

- It provides early-functioning partial answers.
- Anytime is a good moment to make changes.
- By using this Agile Approach, you may cut down on design stage as a whole.
- Within an all-encompassing planned environment, it enables concurrent creation and delivery.
- Within a matter of weeks, the finished product is created and ready for use.

3.4 Requirement Analysis and Specification

You must first make sure that your device complies with the system's criteria before downloading any software or hardware for your system.

The following hardware, software, and development platforms were used by us.

3.4.1 Requirement of hardware

Any software or system must be created on a computer. For the construction of our system, we used components that met the following requirements.

Processor	Intel i3 processor
Motherboard	ASUS Prime H310M
Ram	Minimum storage of ram is 2GB
Internet Card	Any type of internet card
Graphics Card	Intel UHD Graphics
Hard Disk	50GB

table:3.4.1.1 Requirement of hardware

3.4.2 Requirement of Software

Any system requires the writing of code, a communication server to link the database with the code, a database to store the system's data, and a browser to display the code's results. Therefore, we employed the software below.

Software	Usage
VS Code	to create, html, and CSS code
Apache web server	communicating to the server
MySQL	to build a database
Browser	to view the project's user interface

table:3.4.2.1 Requirement of Software

3.5 Design

We discussed the procedure for creating software, database schema (data architecture, architecture, and other documents), and other documents in this area. Use case model, data - flow illustrations, flowcharts, and DFD diagrams are further attempts to improve this software.

The programming languages used to construct this software are as follows:

- Markup Language for Hypertext (HTML)
- CSS Style Sheets (CSS)
- Bootstrap

3.5.1 Hyper Text Markup Language (HTML)

The Hyper Text Markup Language, sometimes known as HTML, is the primary markup language for writings that are meant to be read on an internet browser. Computer languages like JavaScript and technology like Cascading Style Sheets can be useful [8].

3.5.2 Cascading Style Sheets (CSS)

Cascading Style Sheets is a language for creating style sheets that describe how a material is presented in a markup language, such HTML or XML. The Massive Global Web's foundational technologies, along with HTML and JavaScript, include CSS [9].

3.5.3 Bootstrap

The front-end web design framework Bootstrap is open-source and free, with a focus on mobile adaptability. It comprises design themes for navigational elements, buttons, icons, and other interface components that rely on HTML, CSS, and JavaScript [10].

3.6 Requirement prosperity

- PHP(Laravel)
- MY SQL

3.6.1 PHP(Laravel)

The Taylor Otwell-created and Symfony-based free and open-source Laravel PHP web framework should be used to create prototype (MVC) web applications. A dedicated dependency manager, a modular packaging system with many ways to access relational databases, tools for application deployment and maintenance, and an emphasis on syntactic sugar are some of the aspects of Laravel [11] [12].

3.6.2 MY SQL

is an open-source solution for managing relational databases (RDBMS) [13]. Its name is a combination of the terms "My" and "SQL," which are the names of inventor Michael

Widenius's daughter and stand for Structured Query Language. Information is organized into one or more tables in a relational database so that the data may be related to one another. The SQL programming language, which also controls user access to the relational database, may be used to build, modify, and extract data from it. An RDBMS, like MySQL, works with desktop applications to build a database system on a user's storage device. It also handles users, allows network access, and makes it easier to check the integrity of the database and generate backups.

The General Public License governs MySQL, which is free and open-source software. There are also other proprietary licenses that make it open. Sun Microsystems purchased MySQL AB, a Swedish company that owned and promoted MySQL (now Oracle Corporation). Widenius separated the open-source MySQL project in 2010 to create MariaDB, the year Oracle acquired Sun [14].
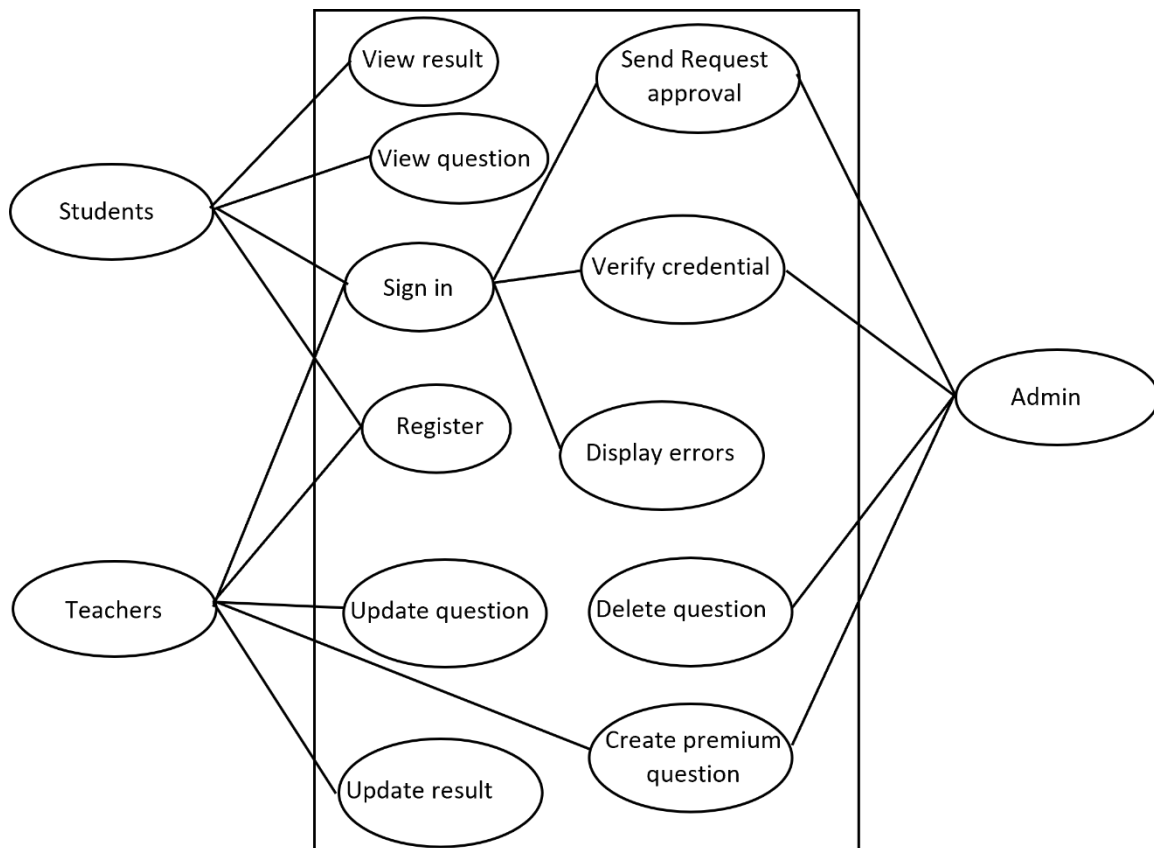
3.7 Diagram of Use Case Modeling

Figure 3.8.1 Use case Diagram

3.8 Diagram of Data Flow Diagram

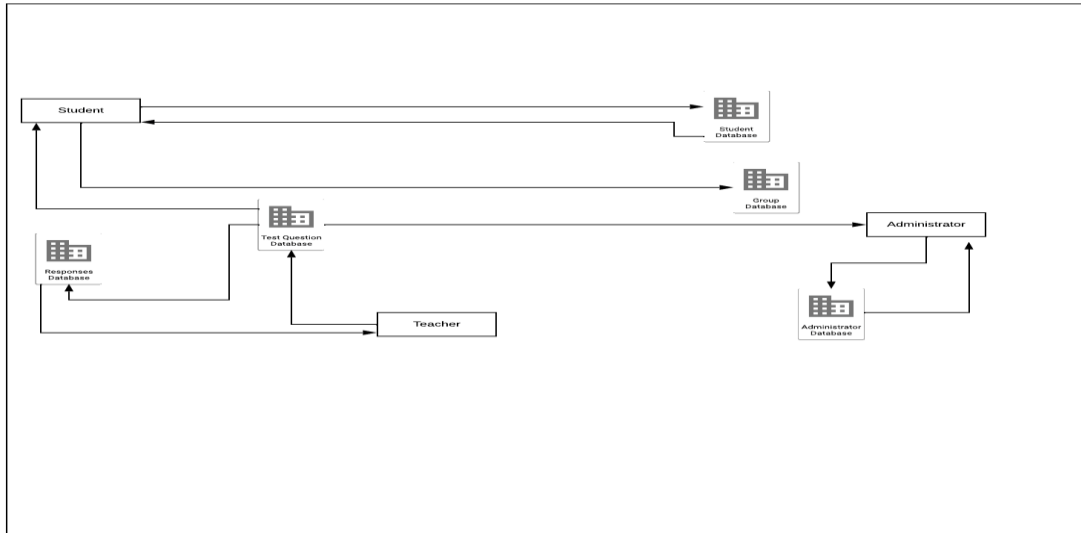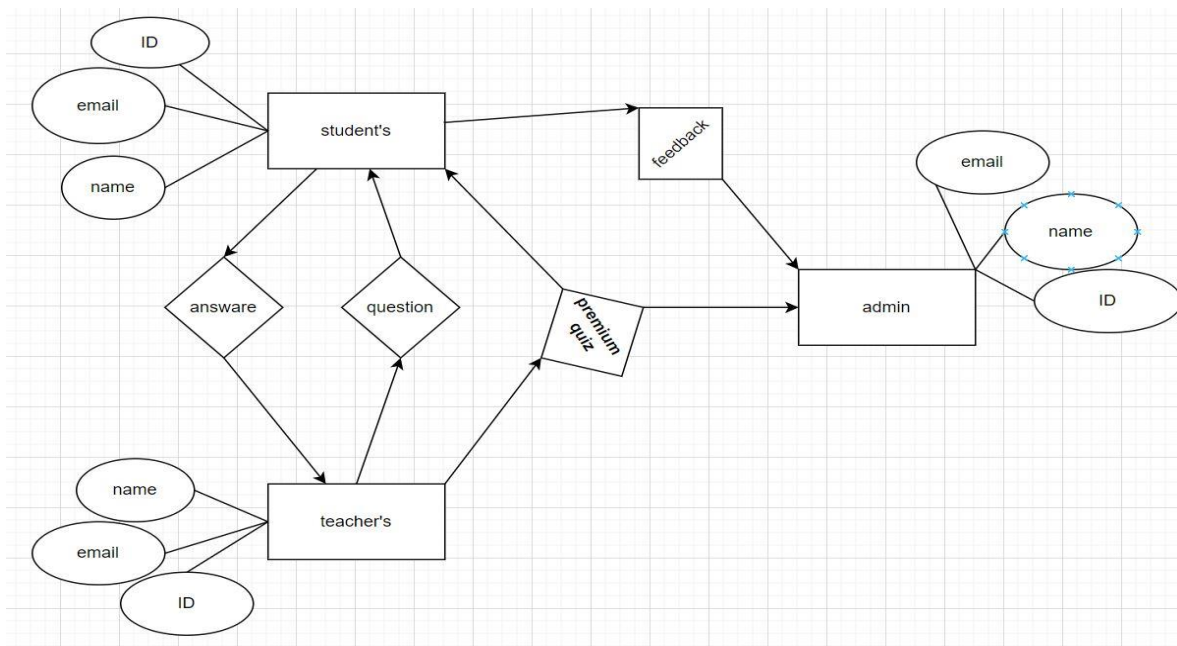Figure 3.8.1 Dataflow Diagram

3.9 E-R Diagram

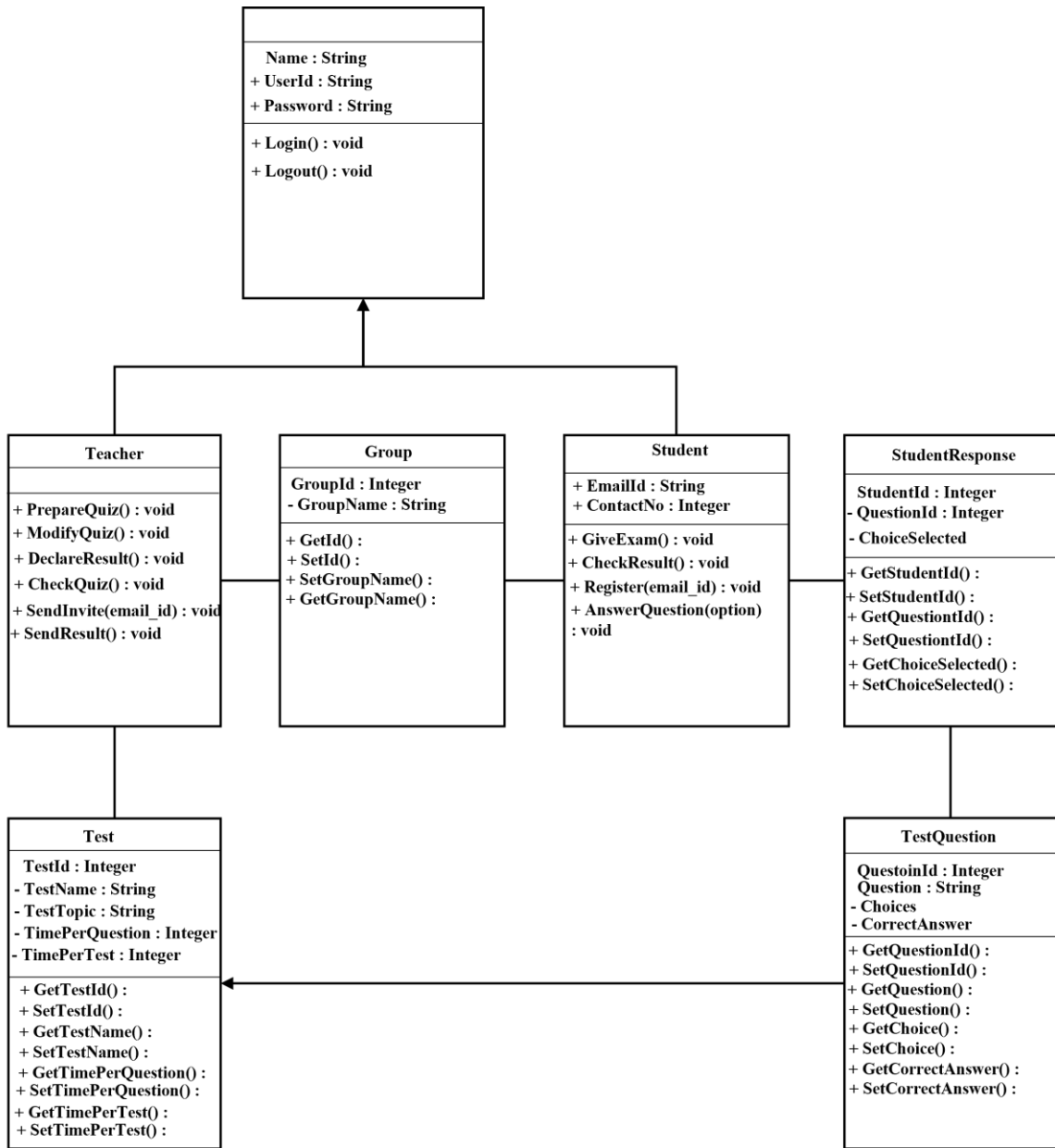Figure 3.9.1 E-R Diagram

3.10 Class Diagram

Figure 3.10.1: Class Diagram

CHAPTER 4

Design Specification

4.1 Front-end Design

Usually, there are two sections at the front. both front-end and back-end web development. We use HTML, CSS, and bootstrap for our front-end design. This group includes things like fonts, drop-down options, contact information, and other things. In this section, we present numerous front-end layouts for home pages.
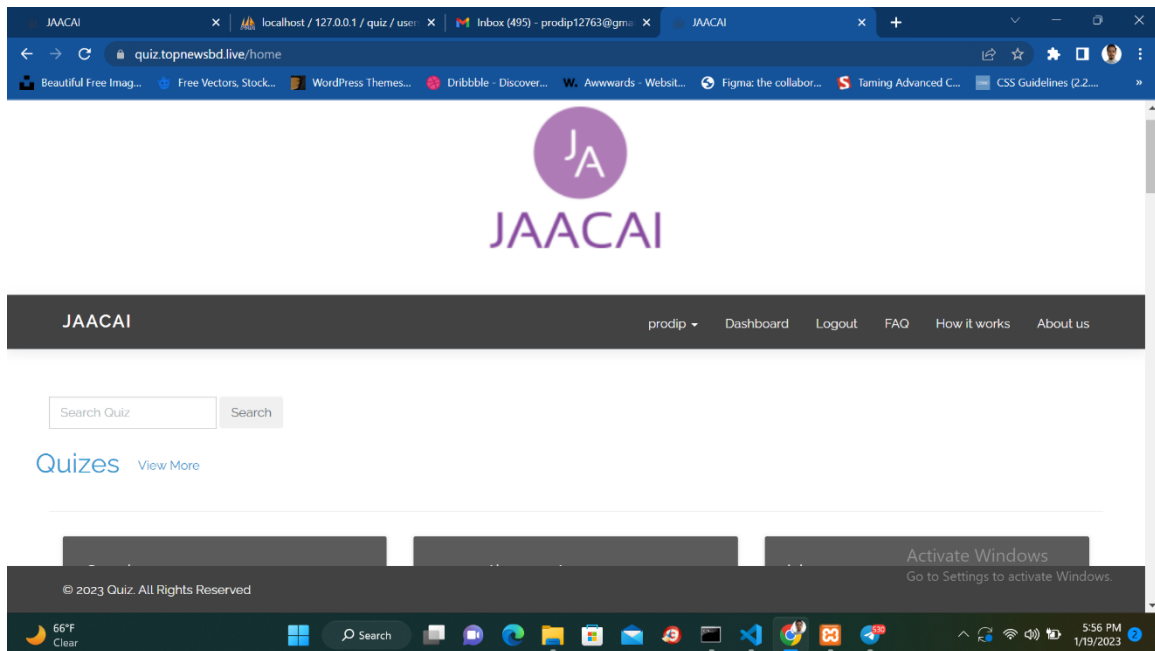

figure 4.1.1: Front-End Design

4.2 Back-end Design

Usually, there are three parts to the backend. a server, a database, and an application. The program stores the essential information that the user submitted in a database that was created on a server. Basically, we used the Laravel framework and PHP [15].
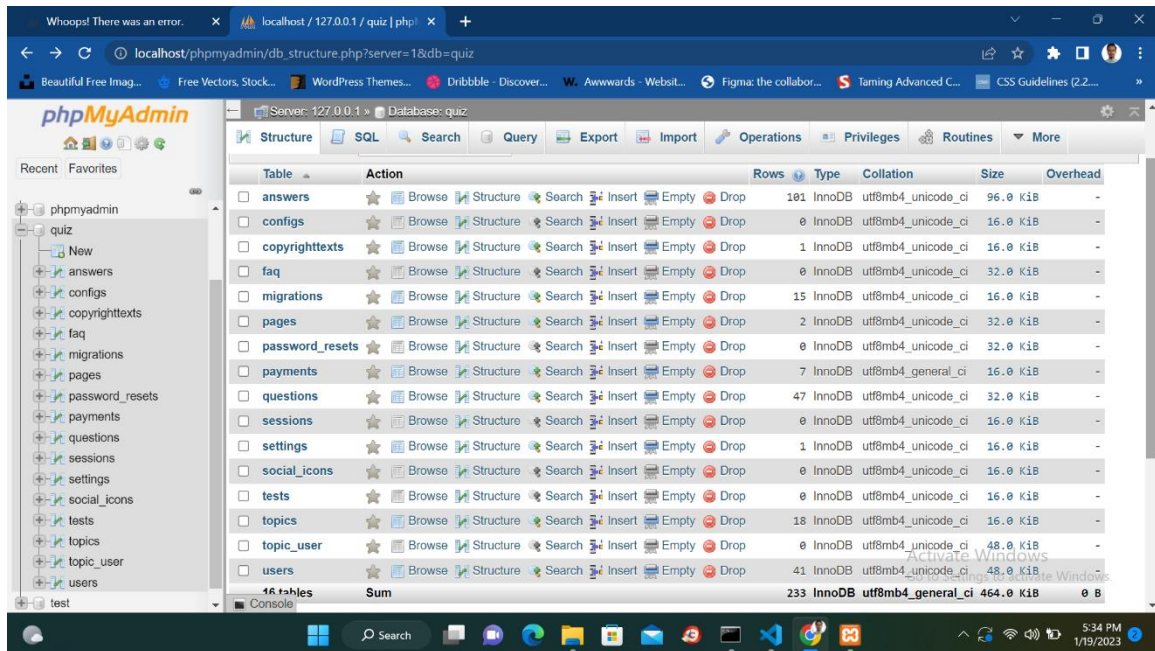
Figure:4.2.1 Backend Page Design

4.3 Interaction Design and UX (User Experience)

UX (User experience) design is the process that design teams use to create products that provide customers with meaningful and relevant experiences. In the architecture of the entire process of acquiring and integrating the products, UX design combines elements of branding, design, usability, and function [16].
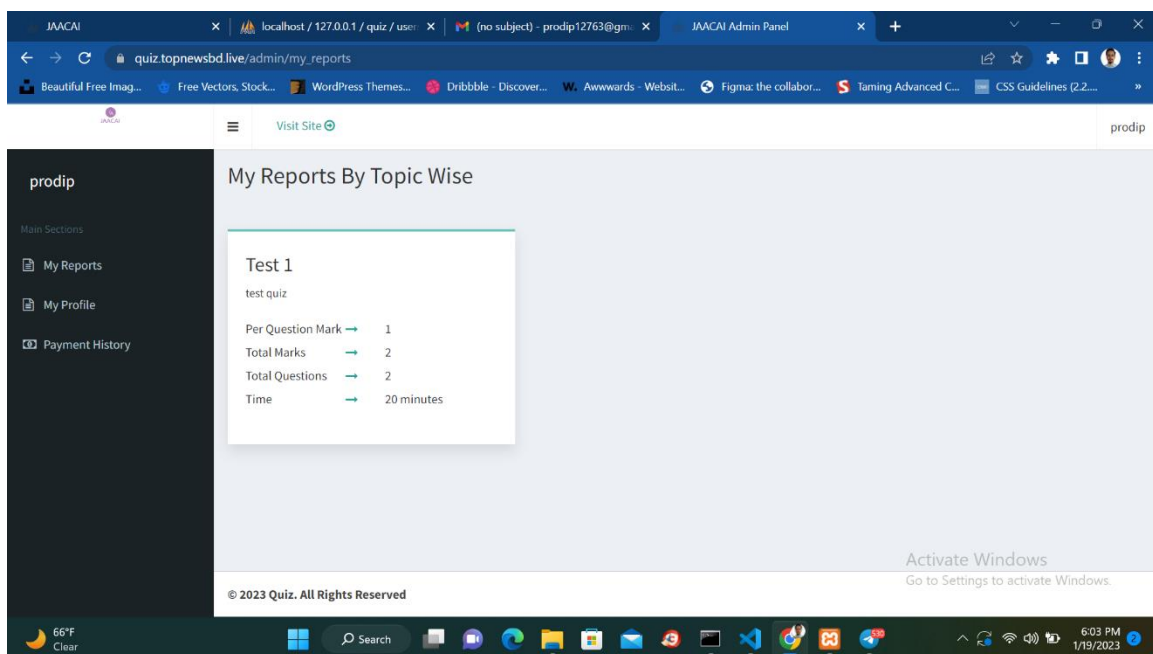

Figure:4.3.1 Student Dashboard Page Design

4.4 Implementation Requirements

User-friendly design is our projector's primary objective. Therefore, anyone can use the web application.

The following is a list of the implementation requirements:

- Easier to Create
- Facilitating Communication
- User-friendly
- Easier to Regulate
- Responsive

CHAPTER 5

Implementation and Testing

5.1 Database Implementation

A database is a collection of data that has been set up to be easy to update and manage. data files or records containing details about the test, question, and student report.
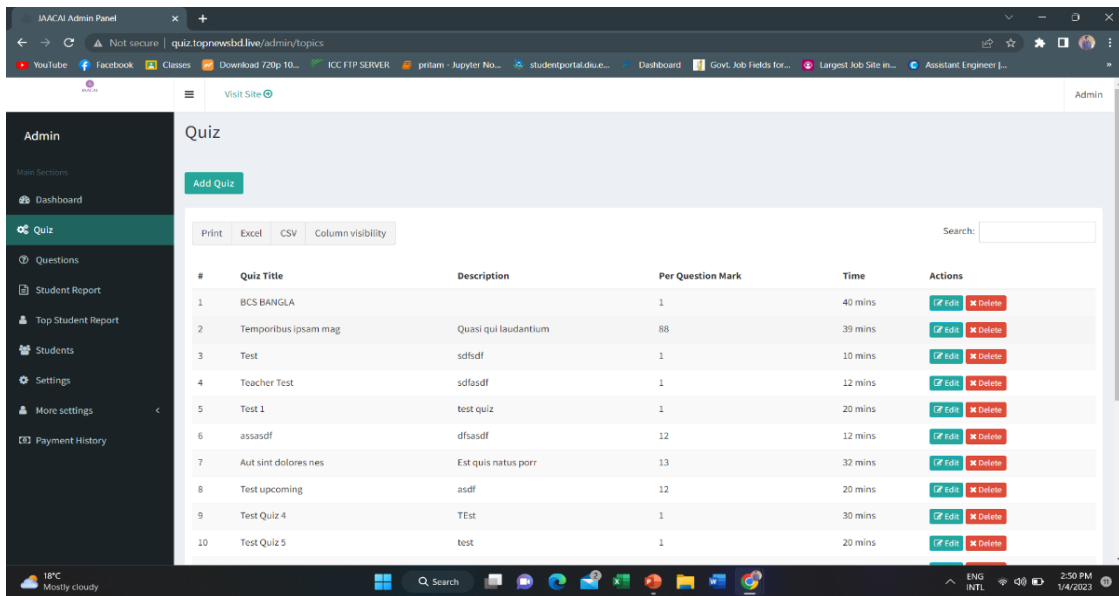

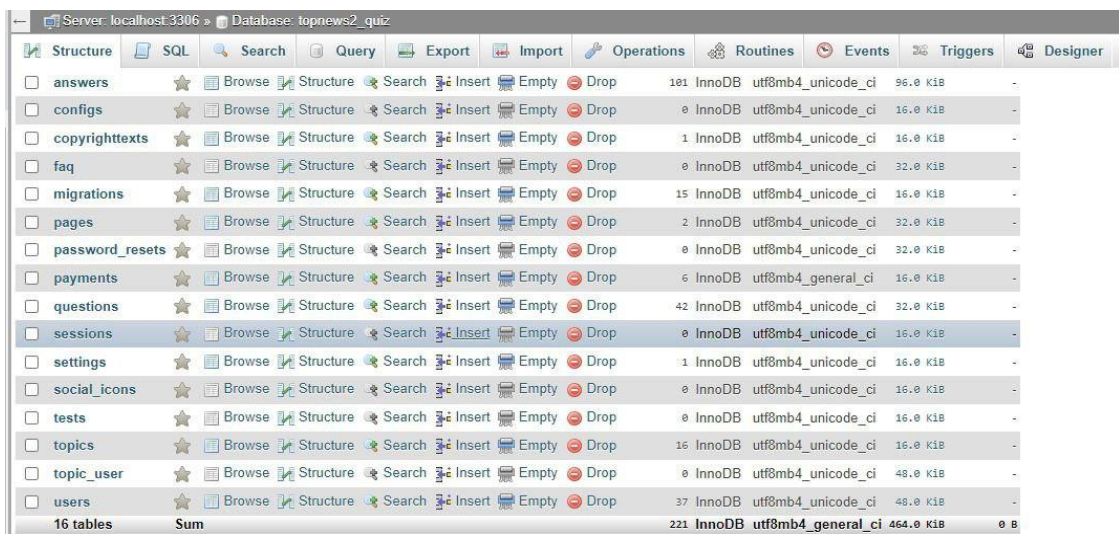Figure:5.1.1 Database of Quiz
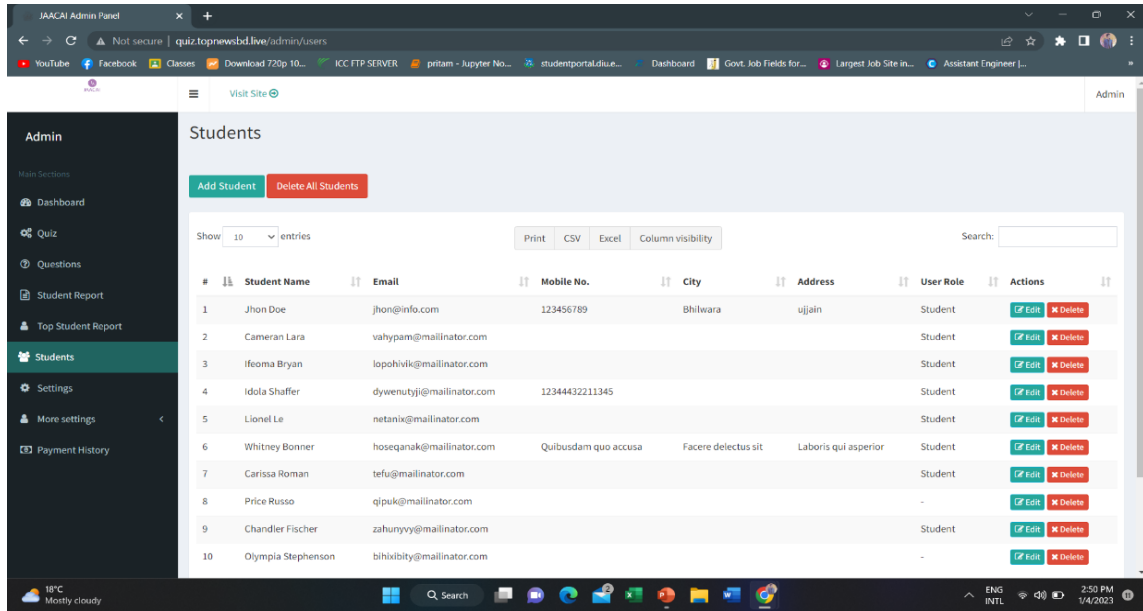

Figure:5.1.2 Database of Questions

Figure:5.1.3 Database of Students

5.2 Implementation of Front-end Design

After viewing the website's URL, it is the first page. By selecting things from the top navigation bar, log in, and Registration are in the top left corner of the navigation bar. If you already have an account with the system, you can log in. Otherwise system show the log in request on the font.
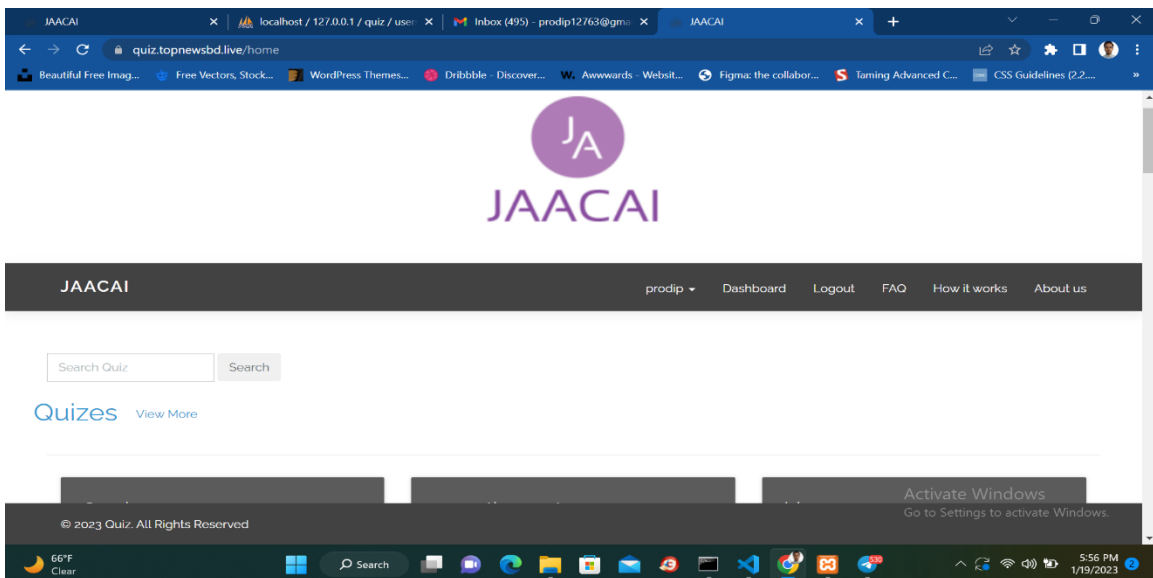

Figure:5.2.1 Home Page

5.2.1 Log in Page

Here is the login page. where student's and teacher's logging in the main site and attempted or create quiz.
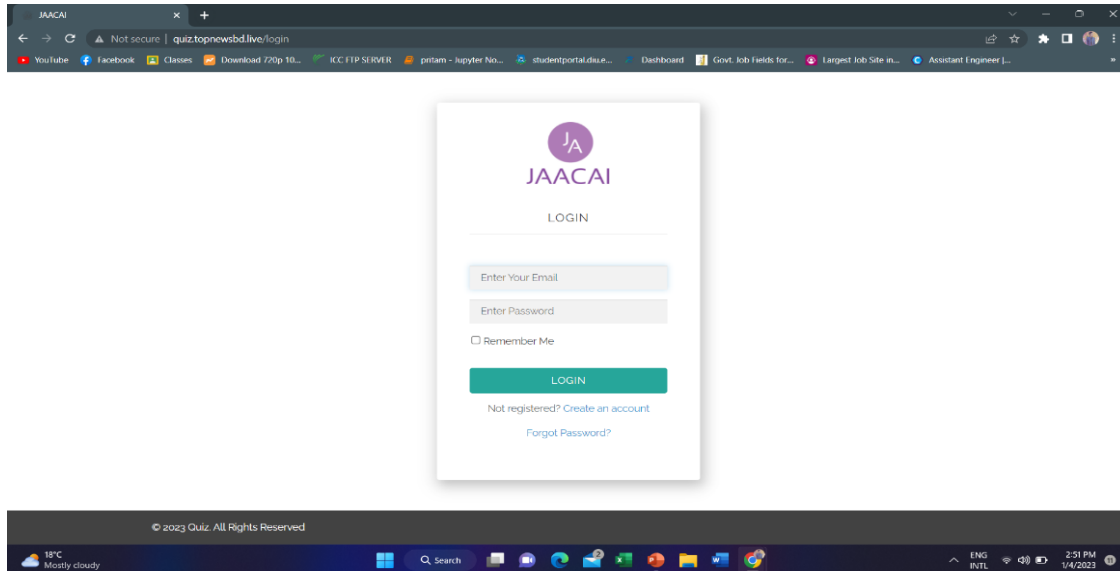

Figure:5.2.1.1 Design of Log in Page

5.2.2 Registration page

If anyone don't register in our website then he/she register with this page by using name and email.
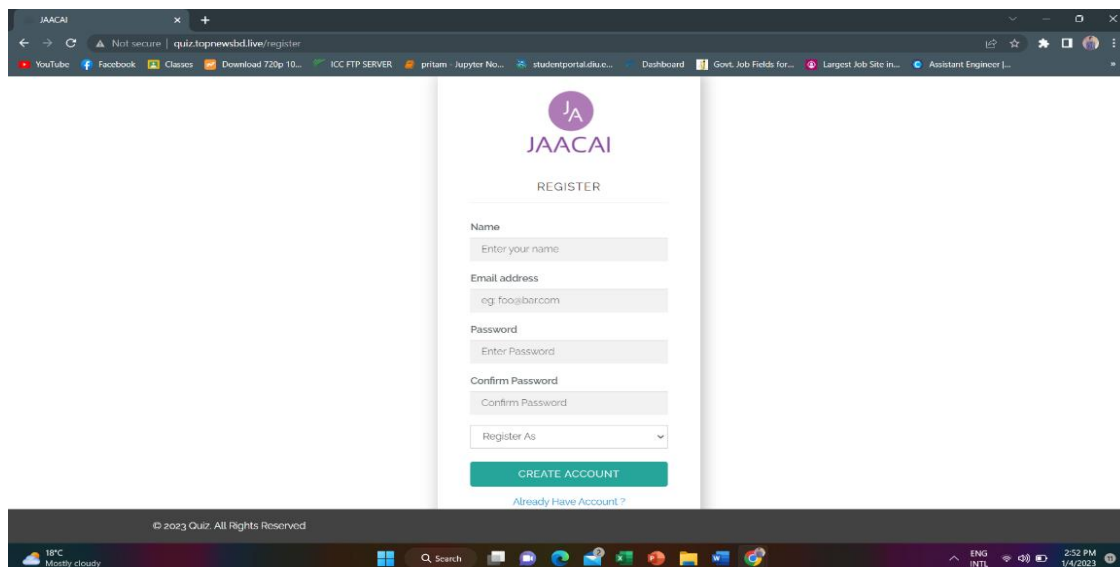
Figure:5.2.2.1 Design of Registration Page

5.2.3 How it works page

Here we describe the full process of the website how it's work and how we create a quiz and attempted a quiz. Besides that we describe the all features of our website in this page.
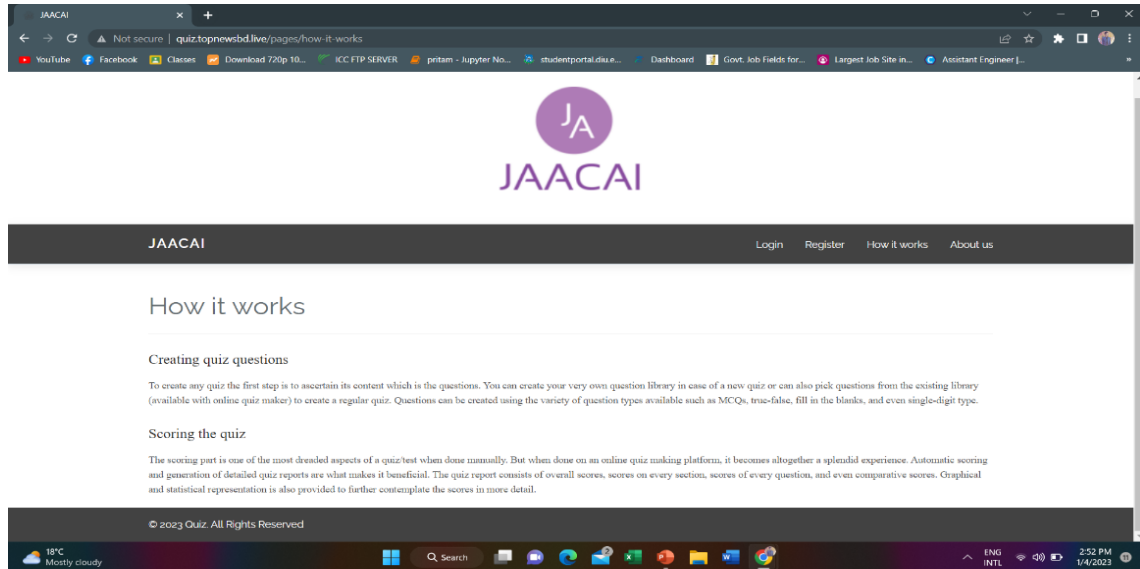
Figure:5.2.3.1 Design of Online Quiz

5.2.4 About us page

Knowing something about us just click the page and know about us. Here describe our team member and our details.
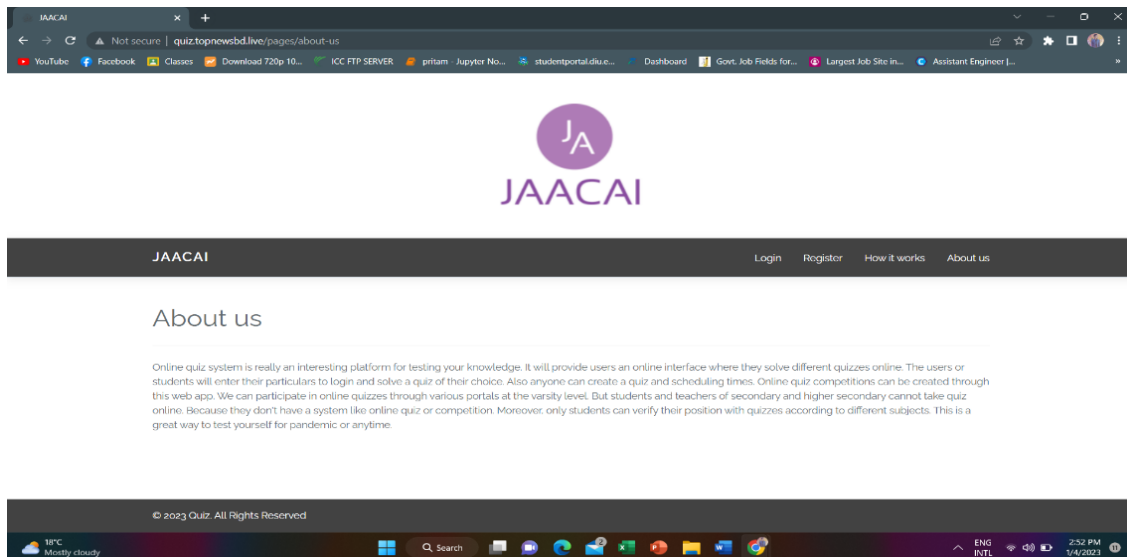
Figure:5.2.4.1 Design of About Page

5.2.5 Forget Password page

If a teacher or student unintentionally forgets their password, they can retrieve it by clicking the Forgot Password link and entering their registration email.

Figure: 5.2.5.2 Forget Password Page

5.2.6 Payment method page

Various methods of payment are available to customers when they buy premium subscription or question. They can pay using a direct bank account, mobile banking, or another method.
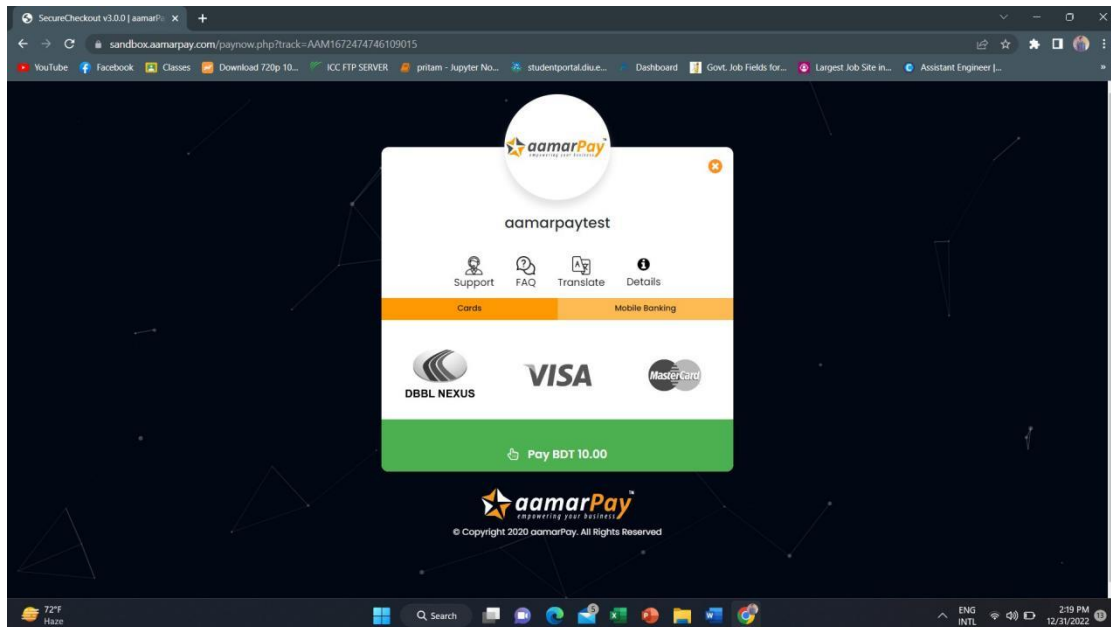
Figure5.2.6.1: Payment Page
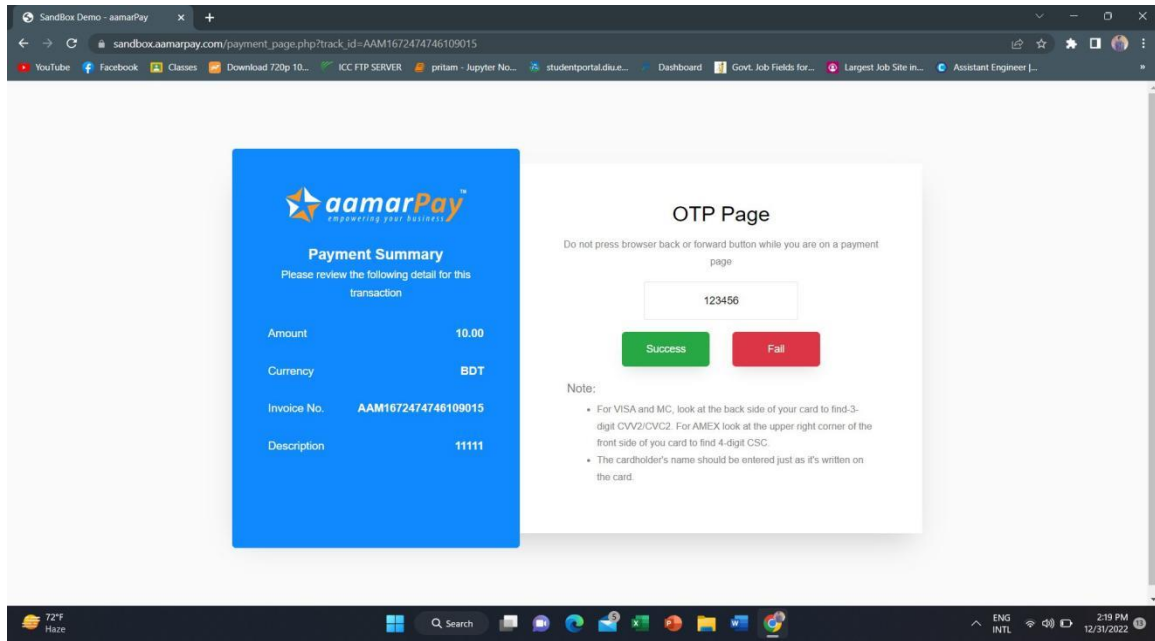
Figure5.2.6.2: Payment Page

5.2.7 Creating quiz page

The admin can set both paid and free quizzes. A quiz that has a special code or a referral code can also be created by the teacher. The quiz has a date, time, and quiz time, and the answer shown or not shown is all subject to admin and teacher discretion. The admin might include a quiz for the payment system.
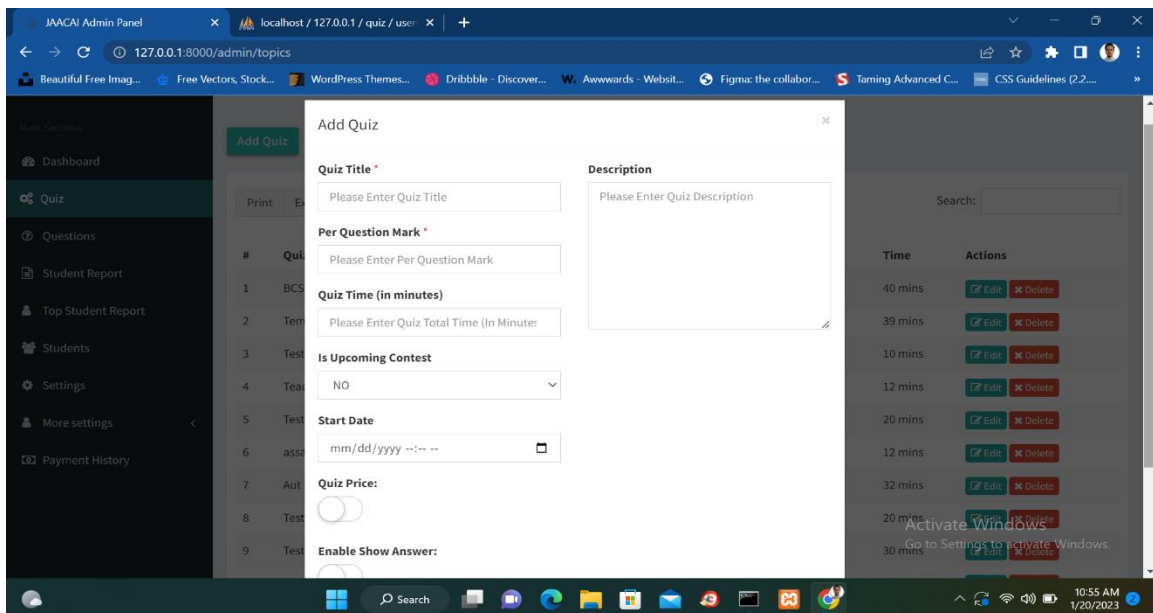
Figure5.2.7.1: Admin Quiz Creating Page

Figure5.2.7.2: Teacher Quiz Creating Page
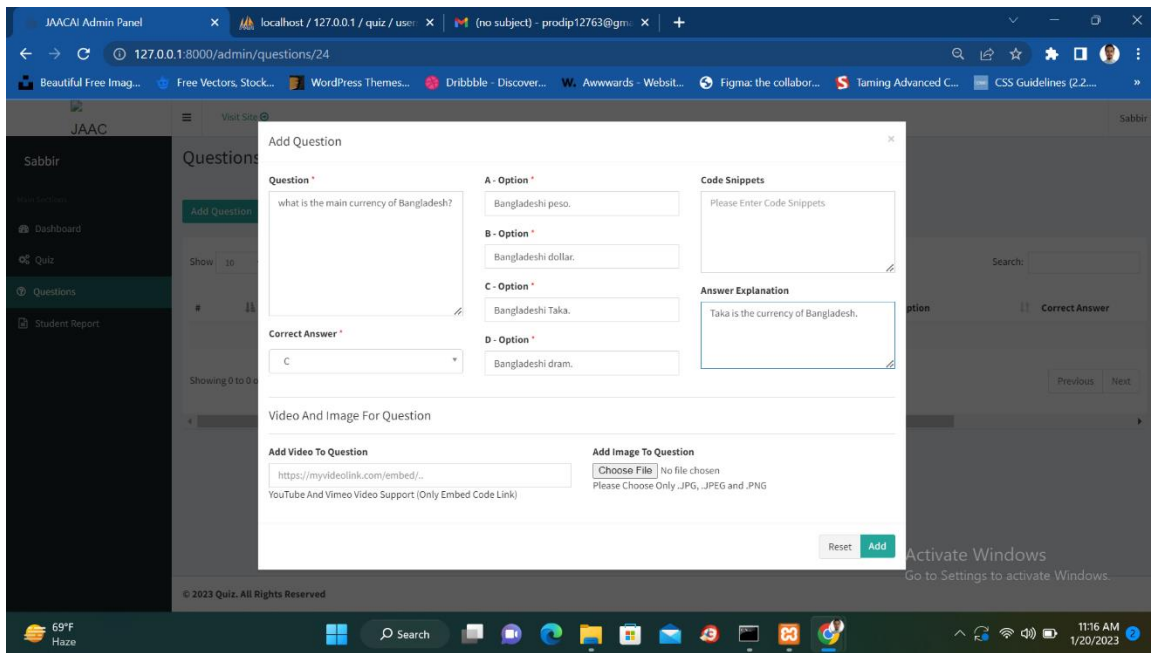
Figure5.2.7.3: Question Adding Page

5.3 Testing Implementation

The purpose of this test is to evaluate how effective our system satisfies the specified criterion. We worked hard to keep this system safe. The test must be passed by or every

piece of data a user inputs into our system.

5.4 Test Results and Reports

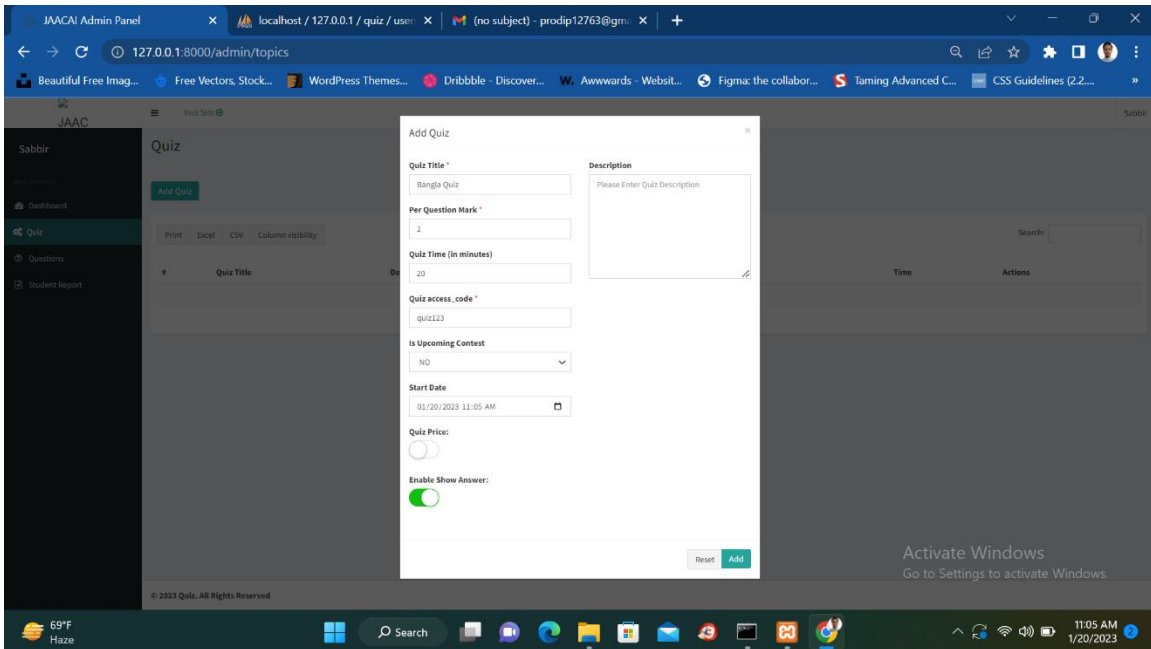| S.L No	Test result	Expected Result	Result
1	Registration	When the anonymous user (student's and teacher's) registers, the information will be recorded in the MySQL database.	Successful
2	Log-In	Student's and teacher's can access the website by entering their email and password.	Successful
3	Forget-Password	After enrolling, if a user (student's or teachers) forgets his password, he can reset it by choosing "forget password" and entering his email address.	Successful
4	Using refer code	For create a quiz Teacher's should use a refer code. For attempted the quiz Student's should give the correct refer code of the quiz.	Successful
5	Add premium quiz	Adding an quiz to the premium quiz sector.	Successful
6	Payment system	By paying, students can take part in premium quizzes.	Successful
7	Remove item	Remove any quiz.	Successful
8	Log Out	It will be used to leave the website page	Successful

Table 5.4.1 test results and rep

CHAPTER 6

Impact on Society, Environment

6.1 Impact on Society

Because of online quiz student's and teacher's find many time for there other's activity like walk in nature, gossiping with people and playing in filed. If it's held then our society will be a peach of haven.

6.2 Impact on the Environment

Because of online and digital thinking so environment don't be affected but if everybody want's everything in online then our environment should be improve. In COVID-19 we see the environment condition was improved. So we say that it is helpful for the environment.

6.3 Ethical Aspects

One facet of ethics is knowing right from wrong. It has to do with the values we respect and adhere to. Numerous ethical issues must be taken into account while providing online education.

These are the top ethical issues for E-learning:

- Social and political influence.
- Cultural diversity
- Geographical diversity
- Learner diversity
- Digital divide
- Etiquette
- Legal issues

6.4 Sustainability Plan

Now everybody knows, how to use online platform in every sector. We provide online quiz system. Student's judge themselves by using this website and the most important thing is not go for any-ware. Teacher's also find the benefits with this website. Because teacher's don't go to outside they just create a question and distribute. No printing tension.

Without online quiz in our website provide a income source too. If anyone is too good in any subject then he find opportunity to part quiz Olympics and get a price money. Teacher's create question and if no one answered it then teacher's get price money.

Our website mainly for educational per-pas but it's also provide a good revenue too.

CHAPTER 7

Conclusion and Future Scope

7.1 Discussion and Conclusion

We are aware that there are various legacies left behind when launching a firm. However, we want to build this website and we think we can handle any issue.

It greatly benefits our students and creates an online forum for both teachers and students. Without education, no country can advance. With education, our expanding nation will someday overtake all other nations in terms of development.

7.2 Scope for Further Development

We will include a section for varsity admission exam preparation, where they can find and attempt free questions from prior exams. The student can defend himself by taking a free test on the prior question.

We also create a BCS test preparation section, which is similar to the varsity admission exam preparation area. It's also a free zone. Students took a free quiz and saw the results.

Without this, we construct an Olympic quiz zone. It was designed for both students and teachers. It's almost liked a mental game. Students should be compensated for taking this quiz, and teachers should be compensated for creating it. Obviously, there are some guidelines. If they win, they will find a good price.

We can include CQs that the course instructor will evaluate. Students will respond to CQ-style questions posed by the teacher. The answers to the CQ questions will later be evaluated by the teacher.

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