

DESIGN & DEVELOPMENT OF AN ONLINE EXAMINATION SYSTEM

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

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APPROVAL

This Project titled “**Design & Development of an Online Examination System,**” submitted by Md. Afjal Hossen, ID No: 181-25-659 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 M.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 6th December, 2019.

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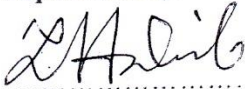
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I hereby declare that the project worked entitled “Design & Development of an Online Examination System” submitted to the Daffodil International University is a record of original work done by me. Except as acknowledged in the text and that the material has not been submitted, either in whole or in part, for a degree at this or any other university.

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ABSTRACT

In this project, a web application for providing good online Examination System is a software solution, which a particular company or institute to arrange, content and manage examinations via an online environment. This can be done through the Internet, Intranet and/or Local Area Network environments. Some of the problems faced by manual examination systems are delays in result processing, filing poses a problem, filtering of records is not easy. The change of loss of records is high and also record searching is difficult. Maintenance of the system is also very difficult and takes lot of time and effort. I intend to use the systems development life cycle (SDLC) which is a conceptual model used in project management that describe the stages involved in an information system development project Microsoft Visual basic 2019 was used to achieve the project because of its flexibility and English-Like Syntax, Microsoft SQL Server will be used as the database management system. In current generation lots of examinations like admission test, lab test etc. conducted through online system. This project will help students to get practiced to online examination method by taking mock tests from this web portal. Online examination portal is implemented in 2 modules student examination module and examination admin module. Admin module will and multiple questions under different subjects' branches so students can easily know about test details Student's examination module students ought to register with application and choose interested subjects and participate in the online test. So, this is my efficient for all the university students.

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CHAPTER 1

INTRODUCTION

1.1 Problem Statement

From our point of view, we noticed that most of the university do not use Online Examination System for their Examinations. They manage their exams are manually. It is time consume and need much effort for the examination system. It is very difficult to keep the students all information. If they use online examination system, they can handle it easily and record their all information accurately. It saves our time and money. In this system at a time many students can participate in the exam. I mean it is very efficient for the university students.

1.2 Literature Review

Online Exam System is very useful for Educational Institute to prepare an exam, safe the time that will take to check the paper and prepare mark sheets. It will help the Institute to testing of students and develop their skills. But the disadvantages for this system, it takes a lot of times when you prepare the exam at the first time. Online examination is conducting a test online to measure the knowledge of the participants on a given topic. In the old days everybody heads to gather in a classroom at the same time to taken exam. With online examination students can do the exam online with their own device, regardless. With Follow Class online examination system, we can create online examinations in less than 5 minutes without any hassle. With our system, online examinations are auto checked and results are provided immediately to students. Today many organizations are conducting online examination worldwide successfully and issue results online. Since the traditional have many drawbacks such as time consuming, difficulty of analyzing the test manually, more observers are required to take exam of many students, results are not accurate since calculations is done manually.

1.3 Aims & Objectives

The main objective of this project is to ensure that the students can sit in the remote areas to participate in various online exams by using computer mobile phones. Online Examination System will be benefited in the different ways. The objectives of our project are follows:

- To make easier the task of keeping total examination information.
- To make easier our course exams.
- To provide a complete and immediate solution for the student.
- Online examination can reduce the hectic job.
- Responses or the answers by the candidates can be checked automatically and instantly.
- Random generation of test question timed exams.
- The result can be shown immediately to the participating students.
- Can create various report on result.

1.4 Justification

The current system is unreliable it is likely to deteriorate when the number of users increase in the department. After proposed system every task will take short time and no more wastage of files to keep some data which can stay within the system for over years.

1.5 Project Description

Online Examination System is a web-based application website to manage online general examination and competitive exams. This website is basically for short term course. Through this website student or anybody can register for the exam online. He will get the time table of the online exam. In this website student can give the exam on Computer Science and Engineering core and noncore subjects. Also, here includes the short questions and multiple choose questions. So, there is no need to walk around everything can be done at this own place. Once the exam is over the result will be shown. So, he doesn't need wait for the result.

1.6 Report Layout

I have introduced about the implementations of my project with the comparative studies and challenges which I have to face, the report Layout of project are follows:

- Front-End
 - Dashboard
 - Sign Up
 - Login
- Admin Panel
 - Course Add
 - Teacher Add
 - Student Add
 - Admin all Post [edit/delete/view]
- Teacher Panel
 - Registration
 - Login
 - profile view and profile update
 - Password Update
 - Add Course and Add course code
 - Add MCQ Question
 - Add Short Question
 - MCQ Question List
 - Short Question List
 - MCQ Question Result Show
 - Short Question Result Show
 - Short Question Completed Answer
- Student Panel
 - Registration
 - Login
 - Profile view and profile update
 - Password Update

- MCQ Question Exam
- Short Question Exam
- MCQ Question Result Show
- Short Question Result Show

1.7 Project Development Technology

Front End

HTML [5] - HTML is a computer language devised to allow website creation. These websites can then be viewed by anyone else connected to the Internet. It is relatively easy to learn, with the basics being accessible to most people in one sitting; and quite powerful in what it allows you to create. It is constantly undergoing revision and evolution to meet the demands and requirements of the growing Internet audience under the direction of the, the organization charged with designing and maintaining the language.

CSS [3] – CSS is a Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable. CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, and variations in display for different devices and screen sizes as well as a variety of other effects. CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

BOOTSTRAP [4] - BOOTSTRAP has become an essential a tool for front-end developers. You know it's useful, but what is it used for, and how does it really help web developers? The Web app development toolkit was created by former Twitter employees Mark Otto and Jacob Thornton (below). The most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web. Bootstrap is a giant collection of handy, reusable bits of code written in HTML, CSS, and JavaScript. It's also a front-end development framework that enables developers & designers to quickly build fully responsive websites.

JAVASCRIPT [5] - JAVASCRIPT is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else. (Okay, not everything, but it is amazing what you can achieve with a few lines of JavaScript code).

PHP [6] - PHP is a server-side scripting language. That is used to develop Static websites or Dynamic websites or Web applications. PHP stands for Hypertext Pre-processor, that earlier stood for Personal Home Pages. PHP scripts can only be interpreted on a server that has PHP installed. The client computers accessing the PHP scripts require a web browser only.

Back End

MYSQL-MYSQL is an open source relational database management system (RDBMS) based on Structured Query Language (SQL). MYSQL runs on virtually all platforms, including Linux, UNIX, and Windows. Although it can be used in a wide range of applications, MySQL is most often associated with web-based applications and online publishing and is an important component of an open source enterprise stack called LAMP. LAMP is a Web development platform that uses Linux as the operating system, Apache as the Web server, and MYSQL as the relational database management system and PHP as the object-oriented scripting language. (Sometimes Perl or Python is used instead of PHP.)

APACHE SERVER - APACHE is the most widely used web server software. Developed and maintained by Apache Software Foundation, Apache is open source software available for free. It runs on 67% of all web servers in the world. It is fast, reliable, and secure. It can be highly customized to meet the needs of many different environments by using extensions and modules. Most Word Press hosting providers use Apache as their web server software. However, Word Press can run on other web server software as well.

1.8 Project Development Tools

- Notepad++
- Database Server MySQL
- Web Browser: Chrome, Mozilla Firefox, Internet Explorer
- OS – Windows 10 pro 64 bit and Windows 7 Professional

CHAPTER 2

METHODOLOGY ANALYSIS

2.1 Methodology

Methodology Prior to the existence of software development methodologies, systems were usually poorly designed with the final product failing to satisfy user requirements. Early approaches to software development placed too greater an emphasis on programming, and the absence of any predefined structure and methodology meant project scheduling dates and milestones were never met on time. explains that programmers would **"instead use their rule of thumb and rely on experience;"** evidently an invaluable asset to any software development project, but inadequate and unreliable when considering it as the sole factor for approaching development [1].

Methodologies provide a more systematic approach to software development, Adison and defines system design methodologies as "A collection of procedures, techniques, Tools and documentation aids which will help the system developers in their efforts to implement a new information system". This approach clearly defines tasks, providing guidance in order to fulfil these tasks, allowing greater management control and thus avoiding cost and schedule overruns. Therefore, it is vital that the project follows a methodical approach and has a well-defined structure, and with a wide varying range of methodologies available it is of paramount importance that one is chosen that is appropriate for the project. In turn this section will review a number of methodologies available such as the Waterfall model, SSADM, WISDM and Prototyping; the chosen methodology will dictate the overall approach of the project and subsequently will be mirrored in this report.

2.2 The Waterfall Model

The Waterfall model otherwise known as the Information Systems Development Life Cycle (SDLC) is considered the original model, depicting the classic software life cycle. This software development process is split into 6 well-devised phases as illustrated in Appendix, and each must be completed before the next stage commences.

The Waterfall model has been widely adopted because of its clear separation allowing documents to be well defined for each step, enabling management to inspect the development process and assess its progress. This allows for a more accurate prediction of project schedules.

There is an adaptation to this model which addresses the many apparent flaws of the waterfall model. The Waterfall model with iterative feedback begins with the normal phases, starting with gathering requirements, then design phase, implementation and evaluation. After this first iteration user feedback is provided, and any problems with unclear requirements, coding problems or other issues are noted and used to set the objectives of the second iteration. After the necessary number of iterations has been performed, the final two stages are completed. However, the developer has to be careful about this modified approach, because too many iterations will potentially allow the project to deviate from the waterfalls rigid development structure; resulting in a more prototyping approach. Therefore, careful consideration needs to be paid towards the amount of iterations allowed, ensuring that schedules and milestones are still maintained.

Development Methodology (Diagrams)

Classic software life-cycle (Waterfall model):

The following figure 2.2 shows Development Methodology.

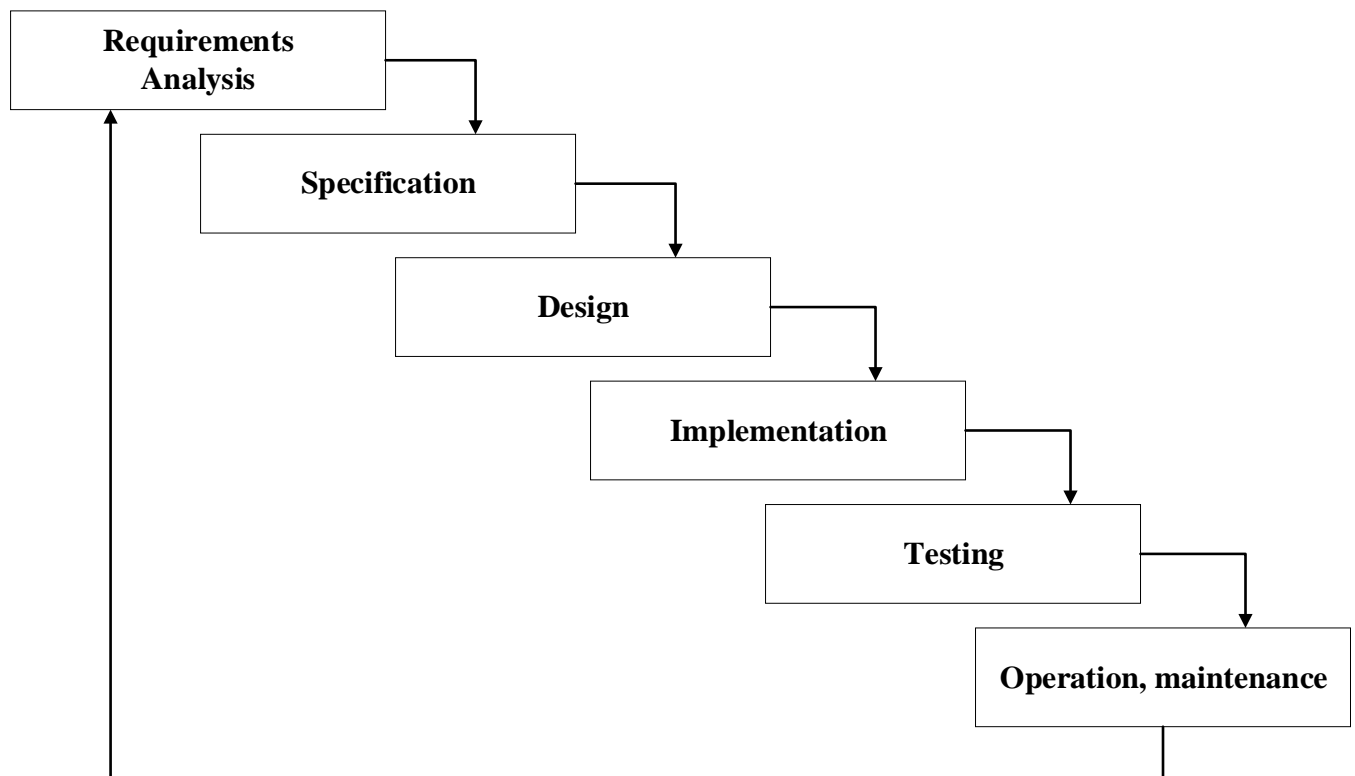


Figure 2.2: Development Methodology.

2.3 Structured System Analysis and Design Method (SSADM)

SSADM is a widely used development method in the UK, and is recognized as a formally specified British standard since 1994. Similar to the Waterfall model, SSADM provides a framework for managing the project in distinct steps, which lead on to the next step, although this approach focuses more on the earlier stages of the systems life cycle, in particular analysis and design. The emphasis placed on these earlier sections means user needs and requirements are communicated to the developer from the outset, ensuring the system closely matches user specifications. Overall this approach has been structured to avoid the shortcomings of the Waterfall model providing a framework for 7 self-contained stages, with the ability to view the system from three distinct perspectives. Allowing developers to cross-check and compare each view to ensure consistency and completeness throughout.

Logical Data Modelling - The process of identifying, modelling and documenting the data requirements of the system being designed.

Data Flow Modelling- The process of identifying, modelling and documenting how data moves around the system

Entity Behavior Modelling- The process of identifying, modelling and documenting the events that affect each entity and the sequence in which these events occur [4].

There are several drawbacks concerned with this approach. SSADM is a prescriptive approach, therefore following all the steps may take some time before users actually sees a concrete deliverable, and by that stage the solution offered may not be fully satisfactory. As Sand hill explains, "there is a danger of 'paralysis by analysis', where much time is spent overanalyzing the problem that the project fails to make satisfactory headway".

2.4 Web is Development Methodology (WISDM)

This methodology was proposed by Viriden and is an application of the Multi view model for the purpose of developing web applications. WISDM "provides a framework for bringing together traditional systems development methods with web- based techniques to provide a rounded framework that runs from e-business strategic analysis through to implementation in software" An example of this can be seen in the adaptation of the ISD methods matrix.

WISDM's approach is divided into 4 phases beginning with a thorough analysis of the organization who want the new system "the overall aim of organizational analysis is the consideration of how value will be added". In the information analysis stage, the systems requirements are captured and the last two stages see the system designed from a participative and physical perspective. The main advantage to this approach is its primary use in the development of web applications, important because of its specific relevance to the project's problem domain. Furthermore, WISDM places emphasis on stakeholder involvement using UML techniques in the analysis stage. This helps to model the system's user interface taking a socio-technical approach, important with websites. The main drawback with this approach is concerned with the lack of any explicit recommendations on the identification and analysis of stakeholders and their viewpoints.

2.5 Software Prototyping

This is the process whereby an incomplete model of the fully-featured software program is created, this can be used to let the users have an idea of the completed program and will allow the clients to evaluate the prototype. The process of prototyping involves 4 steps, identifying basic requirements, developing the initial prototype, review and finally revise and enhancements. This approach can be classified in 2 ways

Throwaway or Rapid Prototyping - This particular prototype involves storyboards and mock-ups which are used in the early stages before target hardware and software have been identified. After preliminary requirements gathering is completed, a simple working model of the system is constructed to visually show the users what their requirements may look like when implemented into a finished system. This prototype is then degraded and the final working prototype is developed.

Evolutionary Prototyping - This prototyping method is quite different from the one previously discussed. The main objective is to build a very robust prototype in a structured manner that can constantly be refined. "The reason for this is that the Evolutionary prototype, when built, forms the heart of the new system, and the improvements and further requirements will be built on to it" When developing a system using Evolutionary Prototyping, the system is continually refined and rebuilt. Evolutionary prototyping acknowledges that we do not understand all the requirements and builds

only those that are well understood.

There are many advantages to using prototyping in software development. This approach focuses on reduced time and costs because prototyping improves the quality of requirements and specifications, and early determination of what the user really wants can result in faster and less expensive software.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Project Development

A systems development life cycle is composed of a number of clearly defined and distinct work phases which are used by systems engineers and systems developers to plan for, design, build, test, and deliver information systems. Like anything that is manufactured on an assembly line, an SDLC aims to produce high-quality systems that meet or exceed customer expectations, based on customer requirements, by delivering systems which move through each clearly defined phase, within scheduled time frames and cost estimates. Computer systems are complex and often (especially with the recent rise of service-oriented architecture) link multiple traditional systems potentially supplied by different software vendors. To manage this level of complexity, a number of SDLC models or methodologies have been created, such as waterfall, spiral, Agile software development, rapid prototyping, incremental, and synchronize and stabilize.

SDLC can be described along a spectrum of agile to iterative to sequential methodologies. Agile methodologies, such as XP and Scrum, focus on lightweight processes which allow for rapid changes (without necessarily following the pattern of SDLC approach) along the development cycle. Iterative methodologies, such as Rational Unified Process and dynamic systems development method, focus on limited project scope and expanding or improving products by multiple iterations. Sequential or big-design-up-front (BDUF) models, such as waterfall, focus on complete and correct planning to guide large projects and risks to successful and predictable results. Other models, such as anamorphic development, tend to focus on a form of development that is guided by project scope and adaptive iterations of feature development.

In project management a project can be defined both with a project life cycle (PLC) and an SDLC. during which slightly different activities occur. According to Taylor (2004), "the project life cycle encompasses all the activities of the project, while the systems development life cycle focuses on realizing the product requirements".

SDLC is used during the development of an IT project, it describes the different stages involved in the project from the drawing board, through the completion of the project.

The SDLC is not a methodology per se, but rather a description of the phases in the life cycle of a software application. These phases (broadly speaking) are investigation, analysis, design, build, test, implement, and maintenance and support. All software development methodologies (such as the more

commonly known waterfall and scrum methodologies) follow the SDLC phases but the method of doing that varies vastly between methodologies. In the Scrum methodology, for example, one could say a single user story goes through all the phases of the SDLC within a single two-week sprint. Contrast this to the waterfall methodology, as another example, where every business requirement (recorded in the analysis phase of the SDLC in a document called the Business Requirements Specification) is translated into feature/functional descriptions (recorded in the design phase in a document called the Functional Specification) which are then all built in one go as a collection of solution features typically over a period of three to nine months, or more. These methodologies are obviously quite different approaches yet, they both contain the SDLC phases in which a requirement is born, then travels through the life cycle phases ending in the final phase of maintenance and support, after-which (typically) the whole life cycle starts again for a subsequent version of the software application.

3.2 Process Modeling

Another significant UML diagram to describe the system's dynamic elements is called Process Modeling.

Procedure Modeling is essentially a flowchart to speak to the stream starting with one action then onto the next movement. This displaying can be portrayed as an activity of the framework.

3.2.1 Activity Diagram

It can be a linear, simultaneous or branched flow. Activity diagrams handle all kinds of flow control by using different types of components. The modules of the website online examination system are related to each other's. All the data of the website stored in a database. We can divide the data in two sections such as Input Section and Output Section. The output section contains Teacher Profile, Student Profile and view Result.

3.2.2 Activity Diagram for Admin

Admin plays a vital role in this use case modeling of Online Examination System, where Admin manages Examination System, Course name and course code add and course edit a delete, Teacher

Update profile, Teacher edit and delete, Student add and edit and delete, Question show. They could view Feedback and manage inquiry.

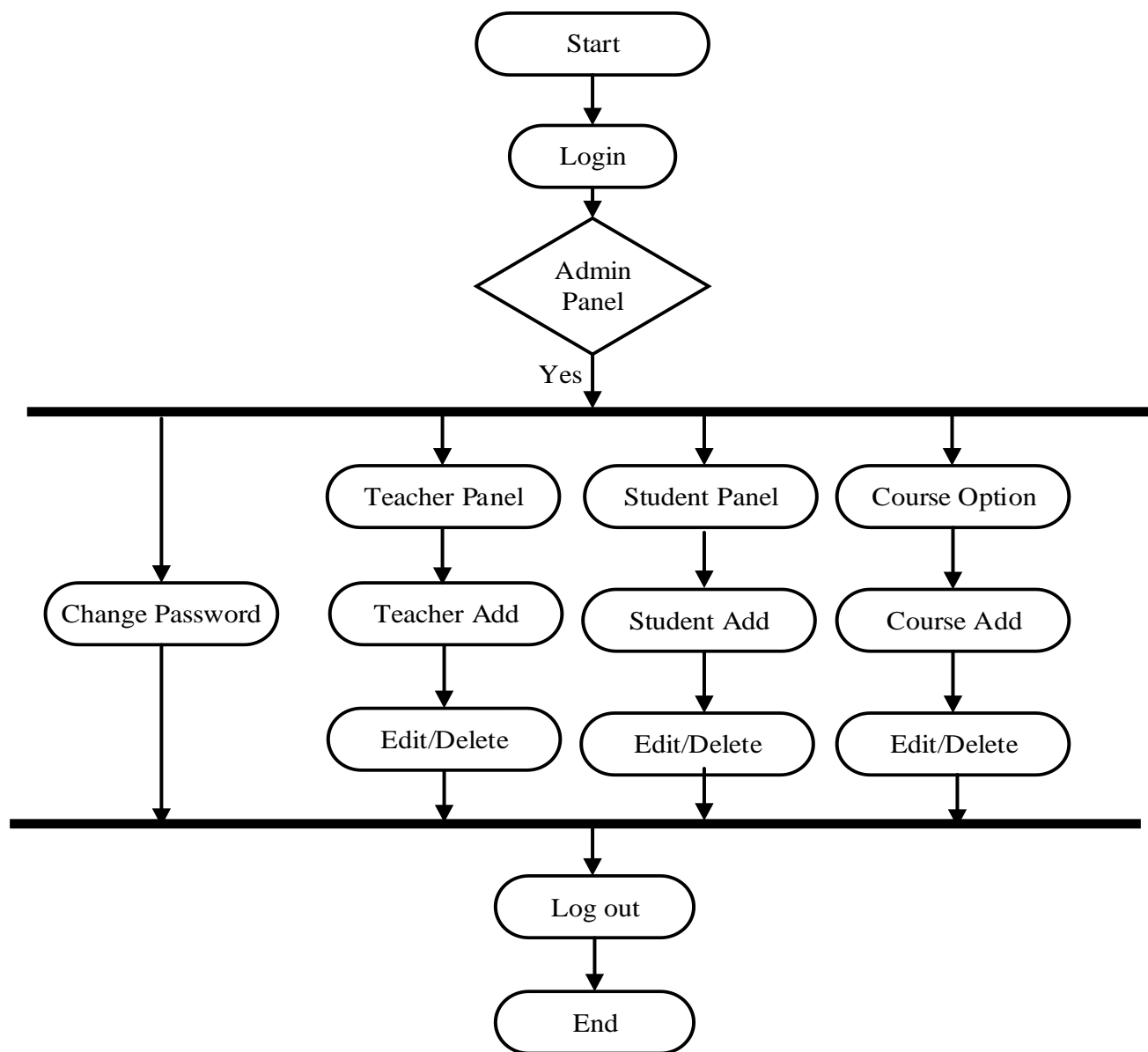


Figure 3.2.2: Activity Diagram for Admin

3.2.3 Activity Diagram for Teacher

The teacher panel sequentially to fulfill the procedure. At that point the teacher can oversee everything of the framework, for example student panel. Here is some information about for ©Daffodil International University

Teacher.

The input section is used to pass inputs to save in the database. It contains registration and Update information. When the teacher gives the information and students write something in answer paper is called input section. Here we can say about profile view and profile update, change password, add questions, add question delete, add question edit and question lists, question lists delete, question lists edit, solve correct answer, student result show and short question answer list manage.

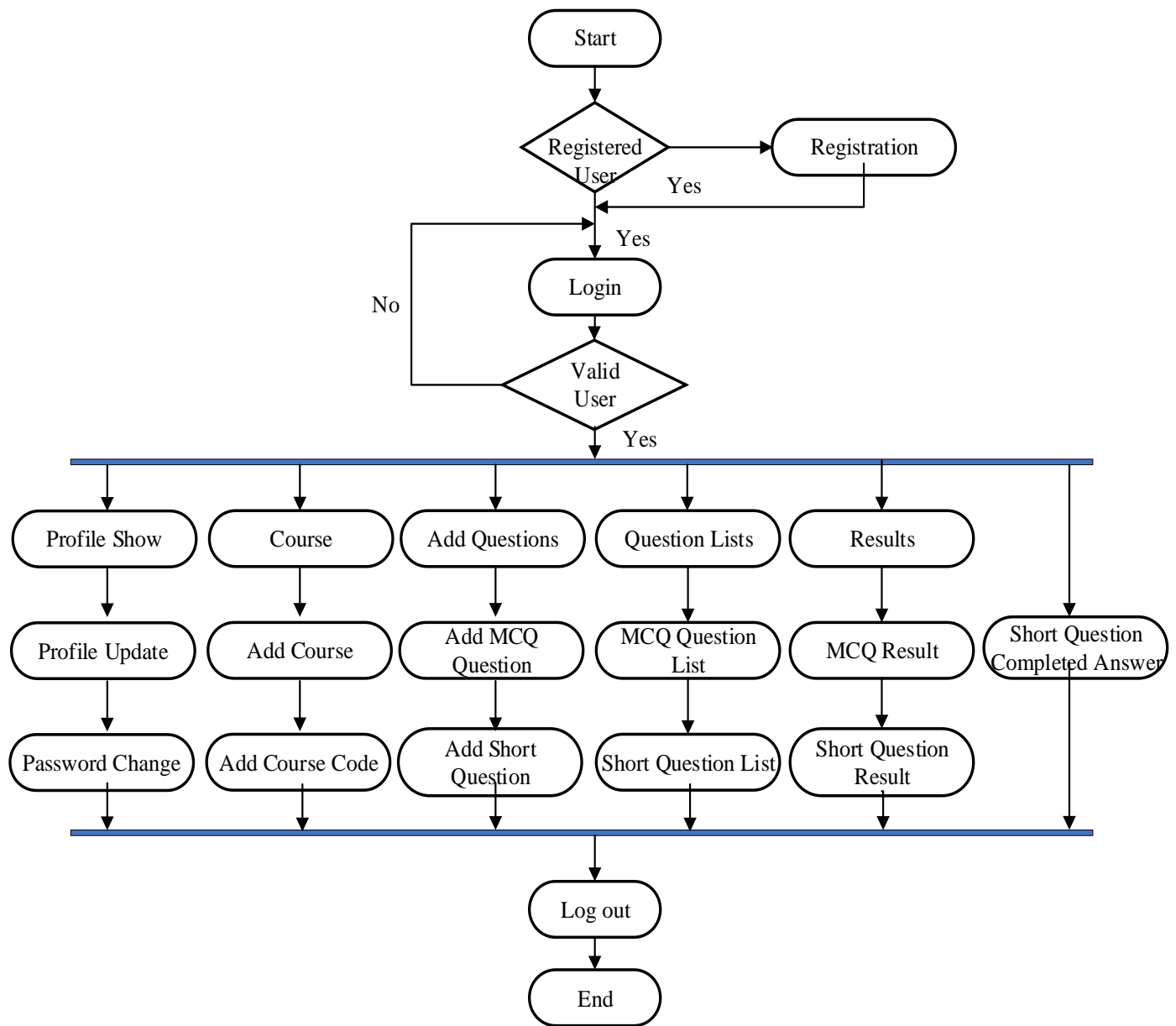


Figure 3.2.3: Activity Diagram for Teacher

3.2.4 Activity Diagram for Student

If anyone want to online examination then he/she have to fulfill the procedure for Students. Then he/she can update own profile, change password, MCQ question exam, Short question exam, MCQ question result show and Short question result show and make a can learn skill development for examination and immediate result show candidate examination and if he wants.

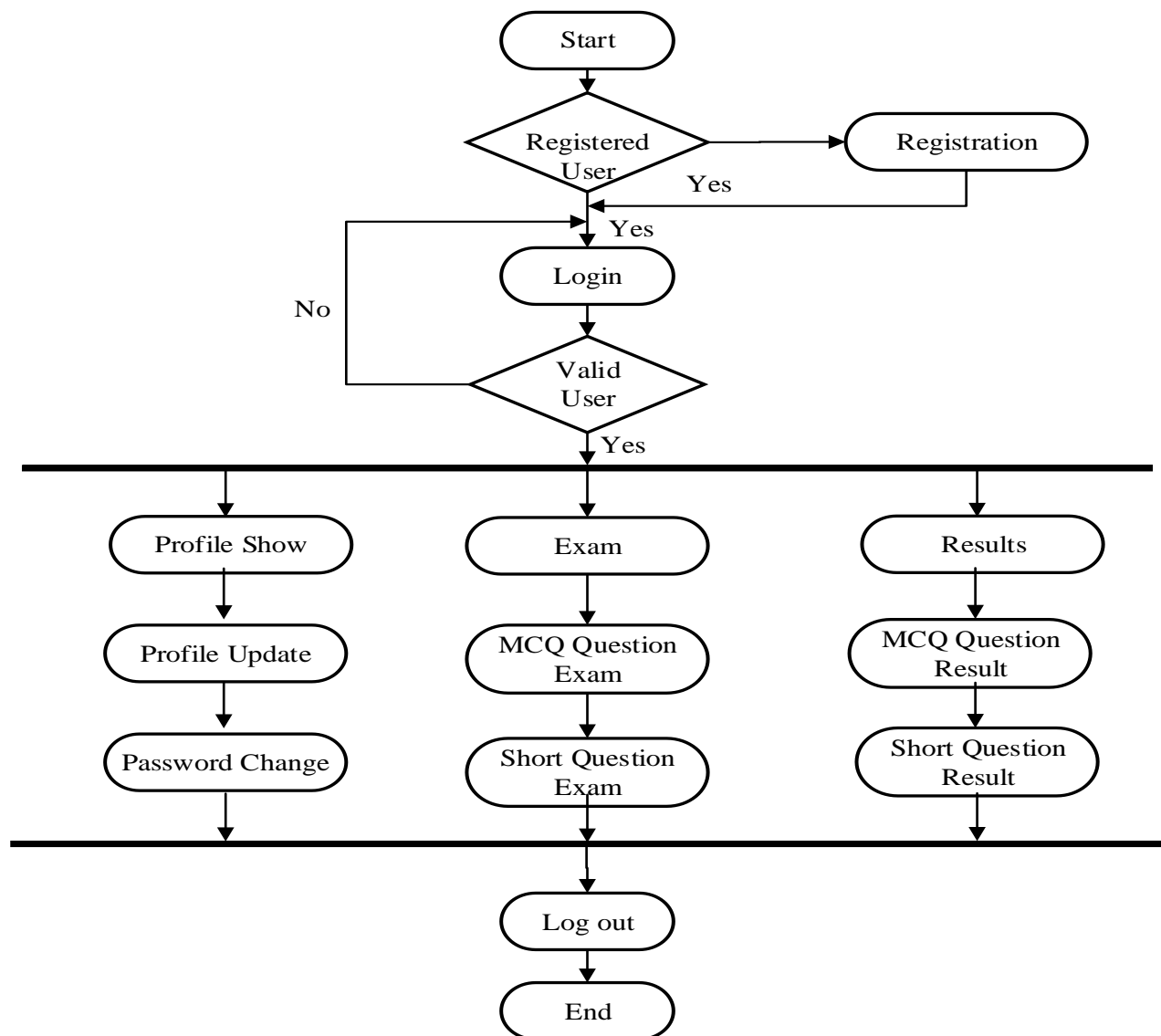


Figure 3.2.4: Activity Diagram for Student

3.3 Use Case Diagram and Description

Use case graphs are considered for extreme state requirement examination of a structure. So, when the necessity of a diagram is dissected the usefulness are caught being used cases. We may say that utilization cases are only the framework usefulness written in a stored-out way. At present, the following things those are pertinent to the utilization cases are the entertainers. On-screen characters can be characterized as something that associates with the skeleton. Admin can be the on-screen characters, in which some are inside applications or some are might be outside applications.

Admin, Teacher and Student are the Three actors included in the Online Examination System. represents Use Case Diagram for this website.

3.3.1 Use Case Diagram for Admin

Admin plays a vital role in this use case modeling of Online Examination System, where Admin manages Examination System, Course name and course code add and course edit a delete, Teacher Update profile, Teacher edit and delete, Student add and edit and delete, Question show. They could view Feedback and manage inquiry.

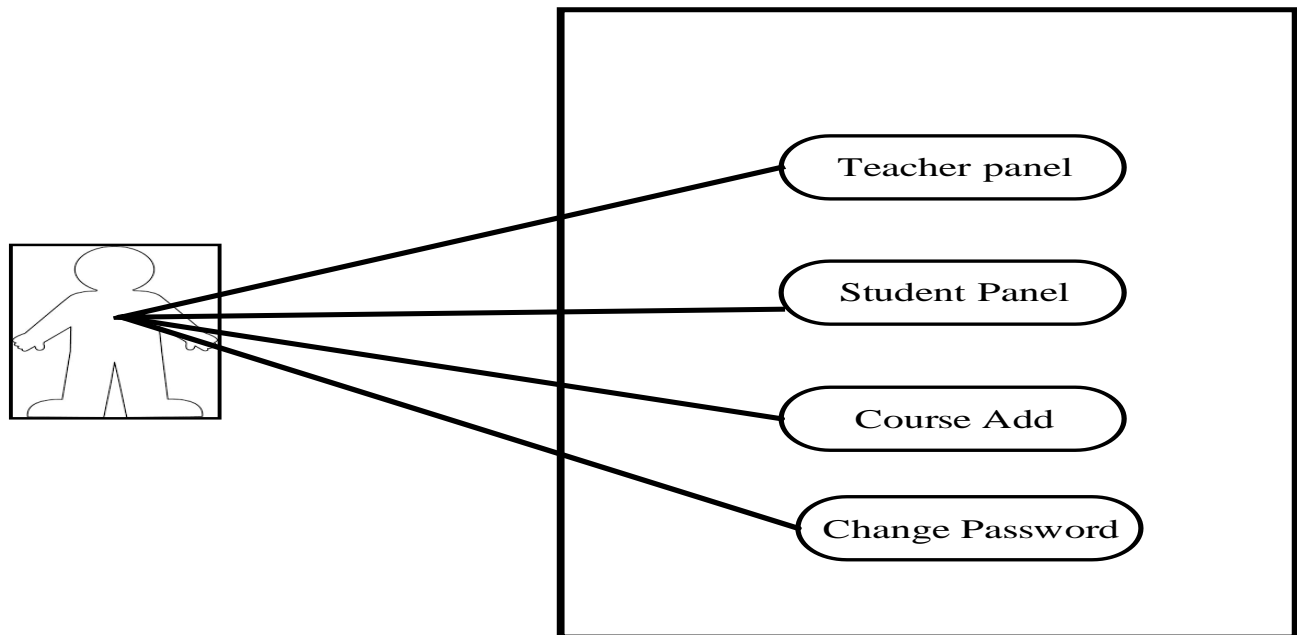


Figure 3.3.1: Use Case Diagram for Admin

3.3.2 Use Case Diagram for Teacher

Teacher plays a vital role in this use case modeling of Online Examination System, where Teacher manages Examination System, Teacher Update profile, Change Password, Add Question, Question List, Result and Short Question Answer List. They could view Feedback and manage inquiry.

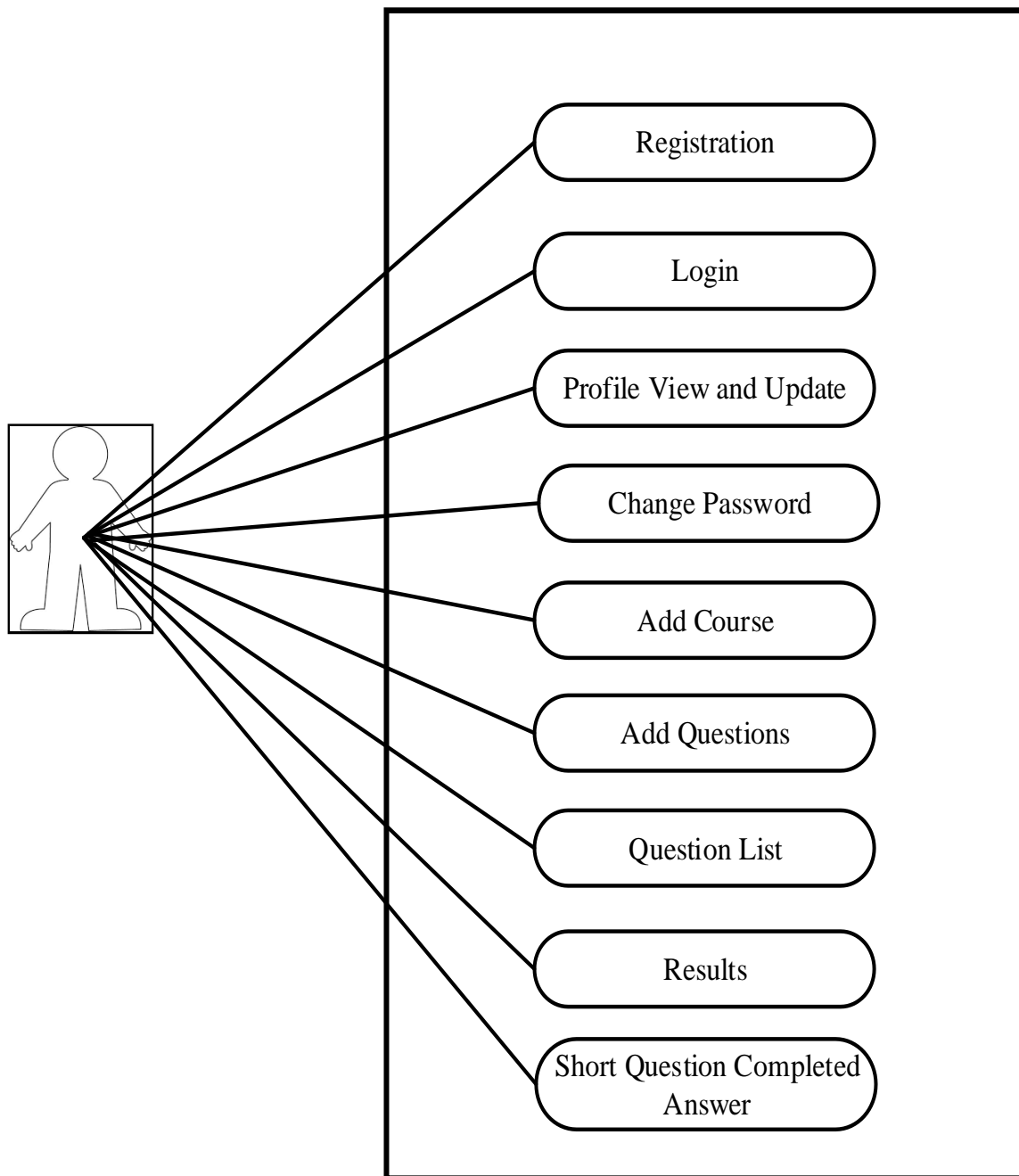


Figure 3.3.2: Use Case Diagram for Teacher

3.3.3 Use Case Diagram for Student

First of all, If a user wants to take a test on this website then he will have to registration first and after logging in he can update the user profile and can take the Exam option of his choice subjects and after giving User MCQ Examination you will see result option more results and then Short question examination result will be given.

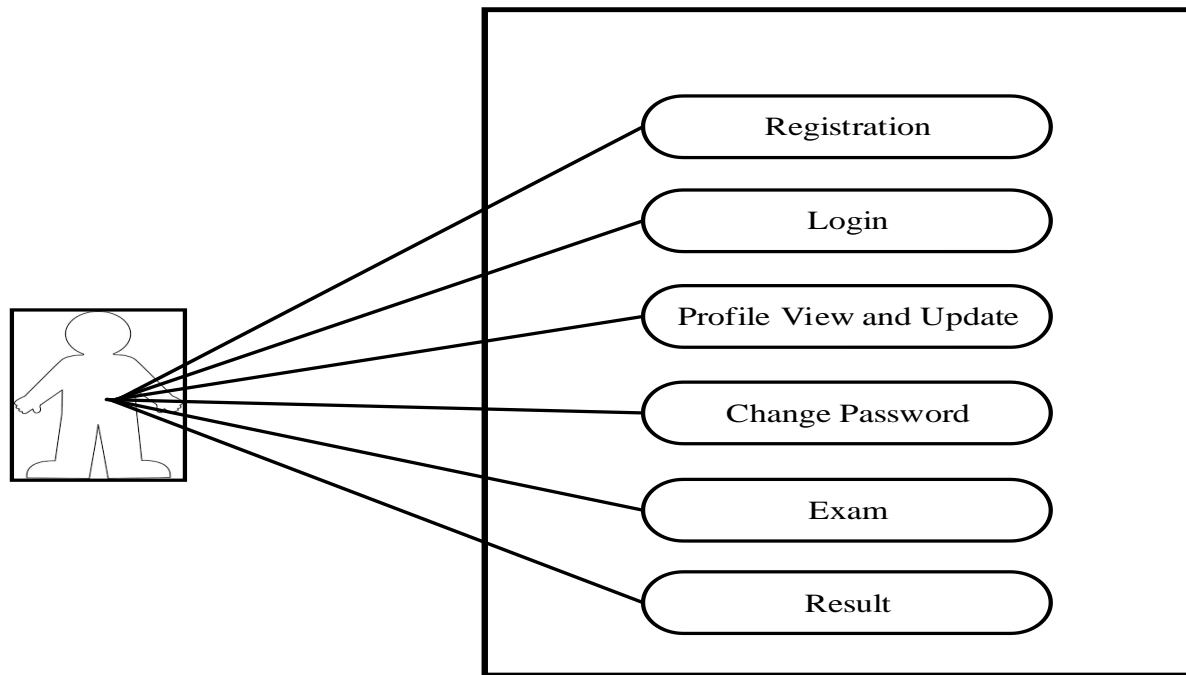


Figure 3.3.3: Use Case diagram for Student

3.4 Data Flow Diagram

How input and output information is processed by a scheme which exhibit the Data Flow Diagram (DFD). The purpose of the data flow diagram is to have a system model widely understood. The diagram is the basis of the assessment of the organized scheme.

The essential components are utilized to build information stream diagram:

- Process.
- Data-Flow.
- Data Store.
- External Entities.

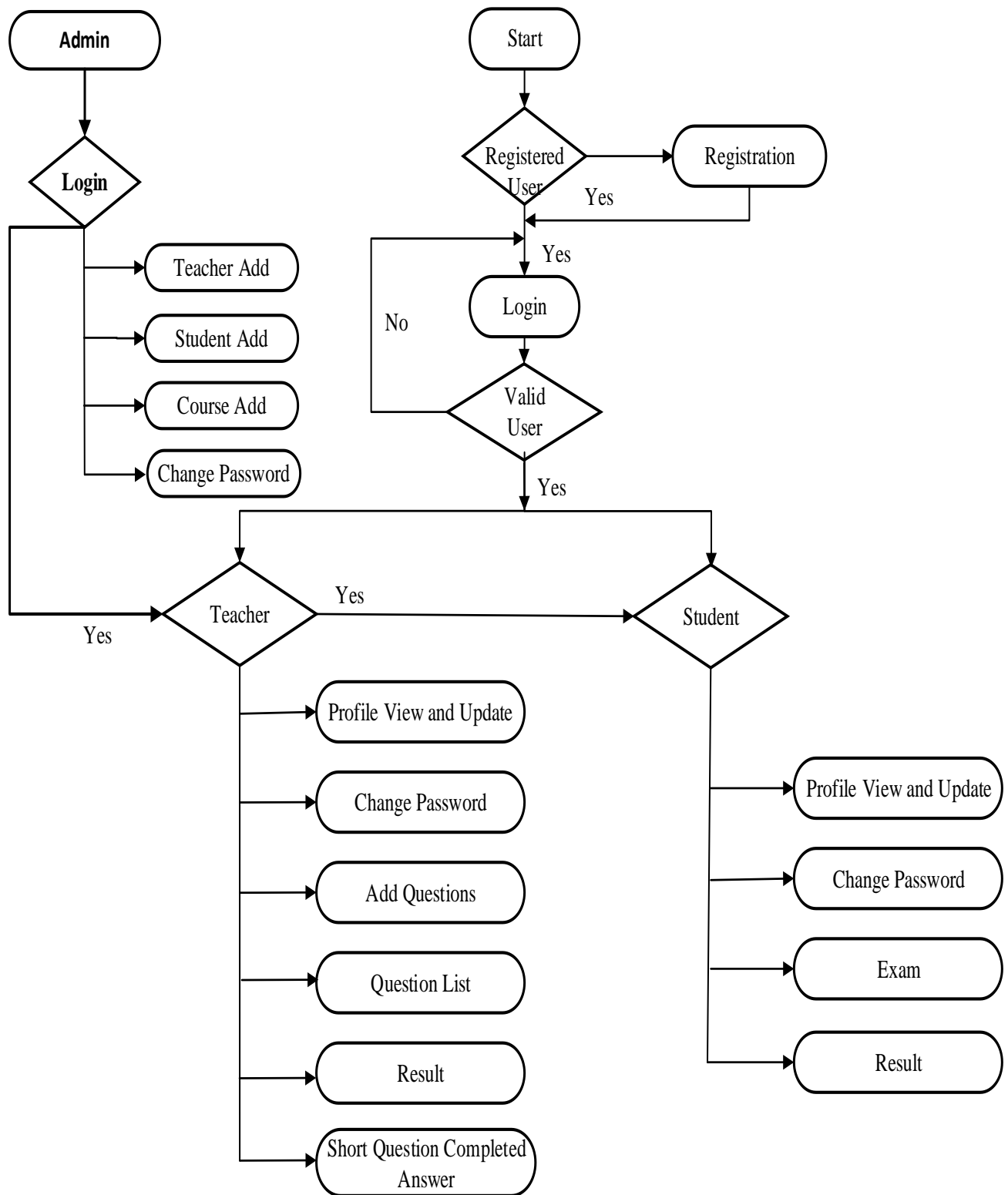


Figure 3.4: Data Flow Chart Diagram of the System

Information stream outline is a portrayal procedure of information, depicting the information streams, information stores, information process, information source and goal in a straightforward manner. The primary goal of information stream outline is to make the information model justifiable. The outlines appear in a basic manner. Information stream chart is additionally like information structure graphs, information word references and others system speaking to procedures like choice trees and tables. Figure: representing the system's data flow. Teacher plays a vital role in this use case modeling of Online Examination System, where Admin manages Examination System.

If a user wants to take a test on this website then he will have to registration first and after logging in he can update the user profile and can take the Exam option of his choice subjects. Result will be given manually after giving user exams and if he wants to like website then he can share it with his friends.

3.5 Entity Relationship Diagram (ERD)

The Entity-Relationship model is a data model for high-level descriptions of conceptual data models, and it provides a graphical notation for representing such data models in the form of entity-relationship diagrams. Such data models are typically used in the first stage of information-system design; they are used, for example, to describe information needs and/or the type of information that is to be stored in the database during the requirements analysis. The modeling technique, however, can be used to describe any ontology (i.e. an overview and classification of used terms and their relationships) for a certain universe of discourse (i.e. area of interest). In the case of the design of an information system that is based on a database, the conceptual data model is, at a later stage (usually called logical design), mapped to a logical data model, such as the relational model; this in turn is mapped to.

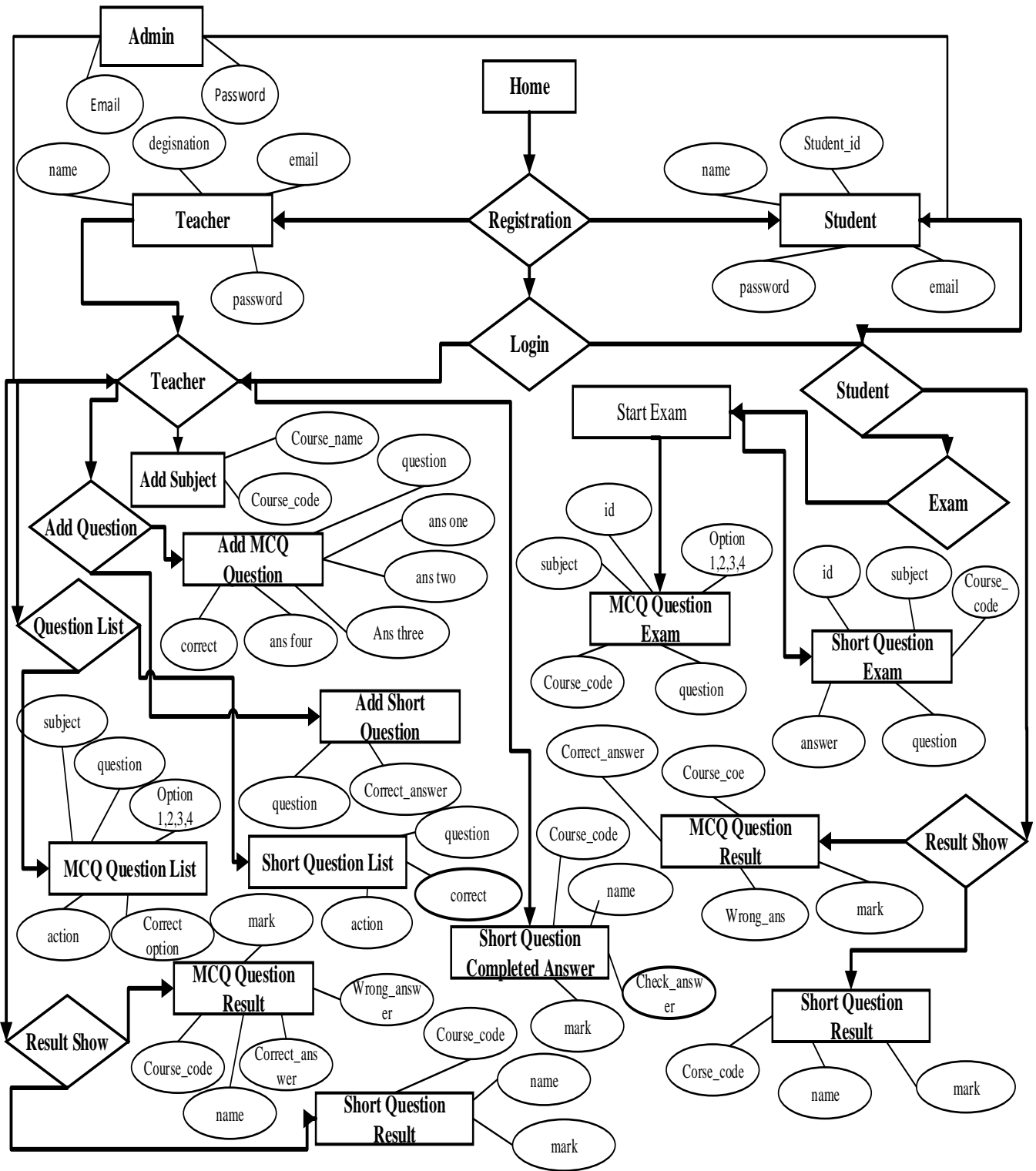


Figure 3.5: Entity Relationship Diagram (ERD)

CHAPTER 4

DESIGN SPECIFICATION

In this chapter, it is going to be described the application that are designed for the project with its specification view. It is elaborated graphically so that anyone can understand it easily.

4.1 Project Design

Design is the first step in the development phase for any techniques and principles for the purpose of defining a device, a process or system in sufficient detail to permit its physical realization. System design is the process, which involves conceiving planning and carrying out the plan by generating the necessary and inputs. In other word design phase acts as bridge between the software requirements specification and implements phase, which satisfies those requirements? System design is the transformation of the analysis model into a system design model.

The design model of the system is correcting if a system built precisely according to the requirements of that system. Design should be clearly verifiable, complete and traceable. The goal is to divide the problem into manageable small modules that can be solving separately. The different modules have to cooperate and communicate together to solve the problem. The complete projects are broken down into different identifiable modules. Each module can be understood separately. All the modules at last are combined to get the solution of the complete system.

4.2 Project Modules

Firstly, the entire project is divided into two modules for project design. One is Front-End and other is Back-End. Special attention has been given to how beautiful and attractive the project can be. For security issue a database has been created.

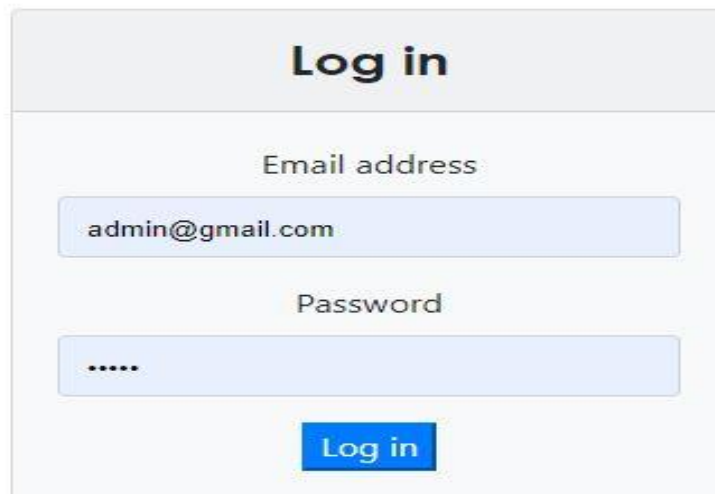
The modules that "Online Examination System" web application contains are Home Screen, Teacher Registration Page, Student Registration Page, Login Page, Profile View, Login as Teacher, Login as Student, Teacher and Student Update Profile, Teacher and Student Change Password, Add MCQ Question, Add Short Question, Question List as Teacher, take exam, Choose Subject& Start exam, Result Show.

4.3 Design Admin Panel

Admin plays a vital role in this use case modeling of Online Examination System, where Admin manages Examination System, Course name and course code add and course edit a delete, Teacher Update profile, Teacher edit and delete, Student add and edit and delete, Question show. They could view Feedback and manage inquiry.

4.3.1 Admin Login Page

In the Login page screen contains two input fields one is an email address and password for admin. After click on login the admin page or user get the option.



The image shows a login form titled "Log in". It features two input fields: "Email address" with the text "admin@gmail.com" and "Password" with masked characters ".....". A blue "Log in" button is positioned below the password field.

Figure 4.3.1: Admin Login page

4.3.2 Admin Password Change Page

Admin can change their password for extra security purposes or whenever they want. It gives strength to the Admin for safety and security issues. It is also a kind of interaction implementation where teacher applying for password changing and they are getting acceptance to process it.

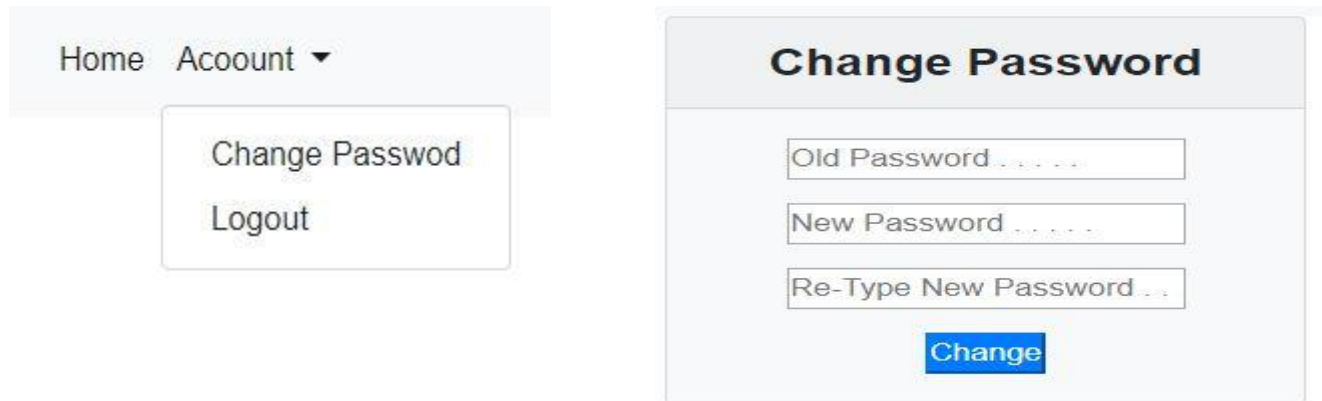


Figure 4.3.2: Admin Password Change page

4.3.3 Add Course Page

In this page the Admin can change Course name and course code add and course edit a delete information.

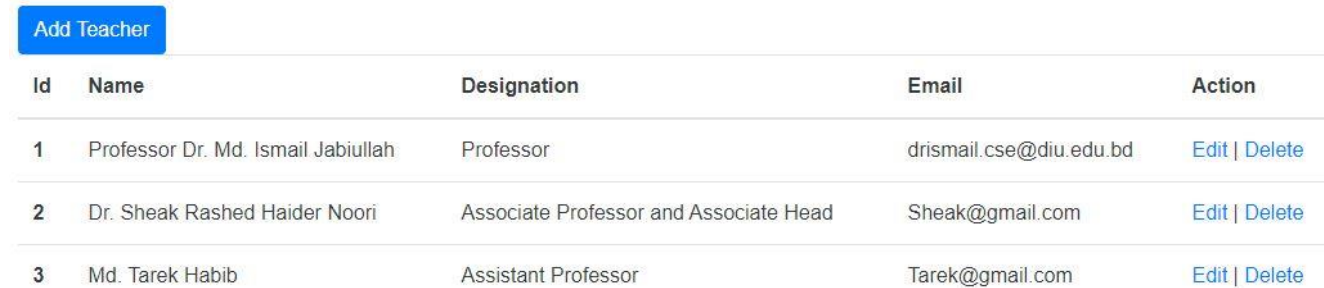
[Add Subject](#)

Id	CourseName	CourseCode	Action
1	Software Project Management System	CSE-123	Edit Delete
2	Computer Fundamental	cse123	Edit Delete
3	Database Management System	cse123	Edit Delete
4	Microprocessor	cse123	Edit Delete
5	Structure Programming	cse123	Edit Delete
6	Software Project Management System	cse234	Edit Delete
7	Data Structure	cse456	Edit Delete

Figure 4.3.3: Add Course page

4.3.4 Add Teacher Page

In this page the Admin can change Teacher Update profile, Teacher edit and delete information.

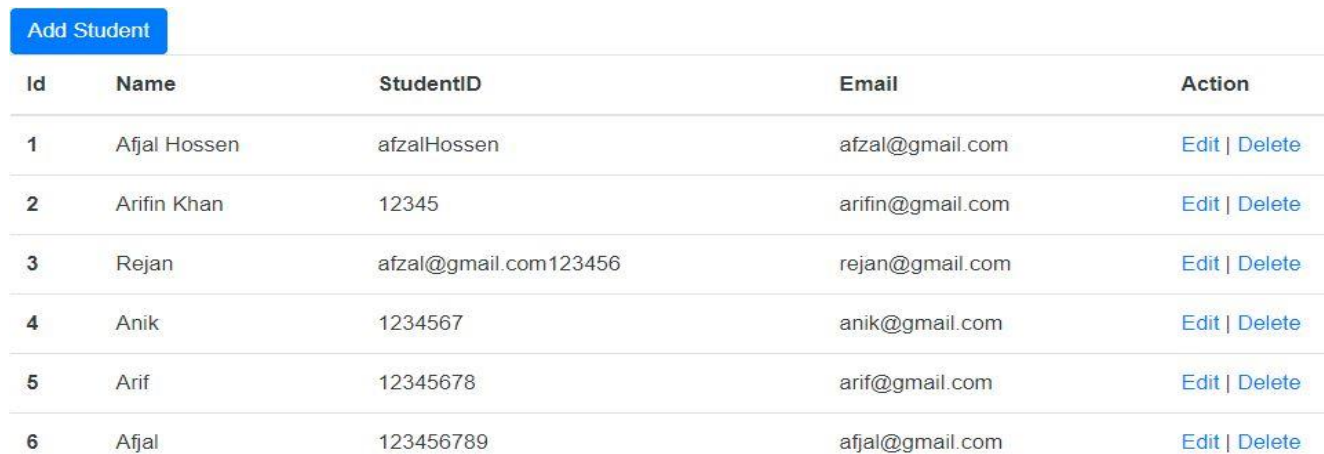


Add Teacher				
Id	Name	Designation	Email	Action
1	Professor Dr. Md. Ismail Jabiullah	Professor	drismail.cse@diu.edu.bd	Edit Delete
2	Dr. Sheak Rashed Haider Noori	Associate Professor and Associate Head	Sheak@gmail.com	Edit Delete
3	Md. Tarek Habib	Assistant Professor	Tarek@gmail.com	Edit Delete

Figure 4.3.4: Add Teacher page

4.3.5 Add Student Page

In this page the Admin can change Student add and edit and delete Information.



Add Student				
Id	Name	StudentID	Email	Action
1	Afjal Hossen	afzalHossen	afzal@gmail.com	Edit Delete
2	Arifin Khan	12345	arifin@gmail.com	Edit Delete
3	Rejan	afzal@gmail.com123456	rejan@gmail.com	Edit Delete
4	Anik	1234567	anik@gmail.com	Edit Delete
5	Arif	12345678	arif@gmail.com	Edit Delete
6	Afjal	123456789	afjal@gmail.com	Edit Delete

Figure 4.3.5: Add Student page

4.4 Design Teacher Panel

4.4.1 Home Page

This is the landing screen of our project. This is the homepage of the website of Online Examination System. The project title is Design & Development of an Online Examination. This homepage contains menu section, Email and Password for Login Option. Components of homepage are described below.

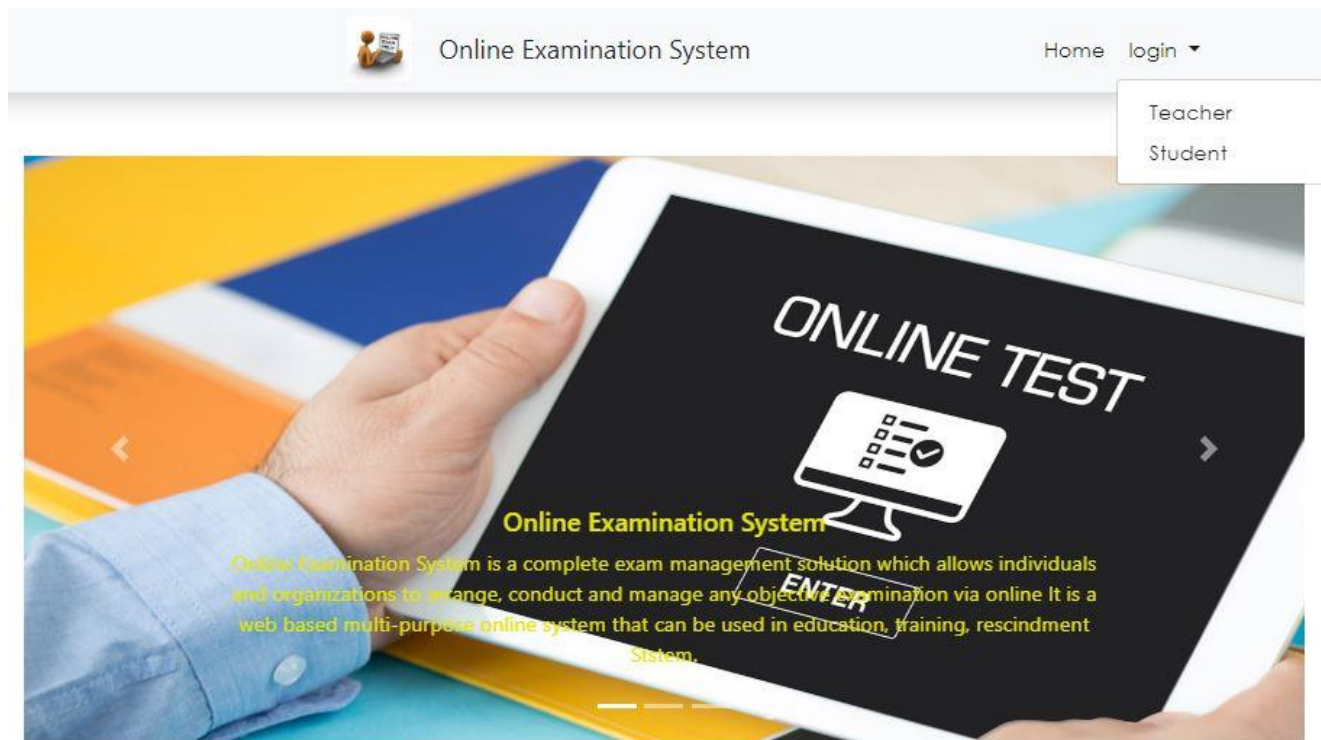
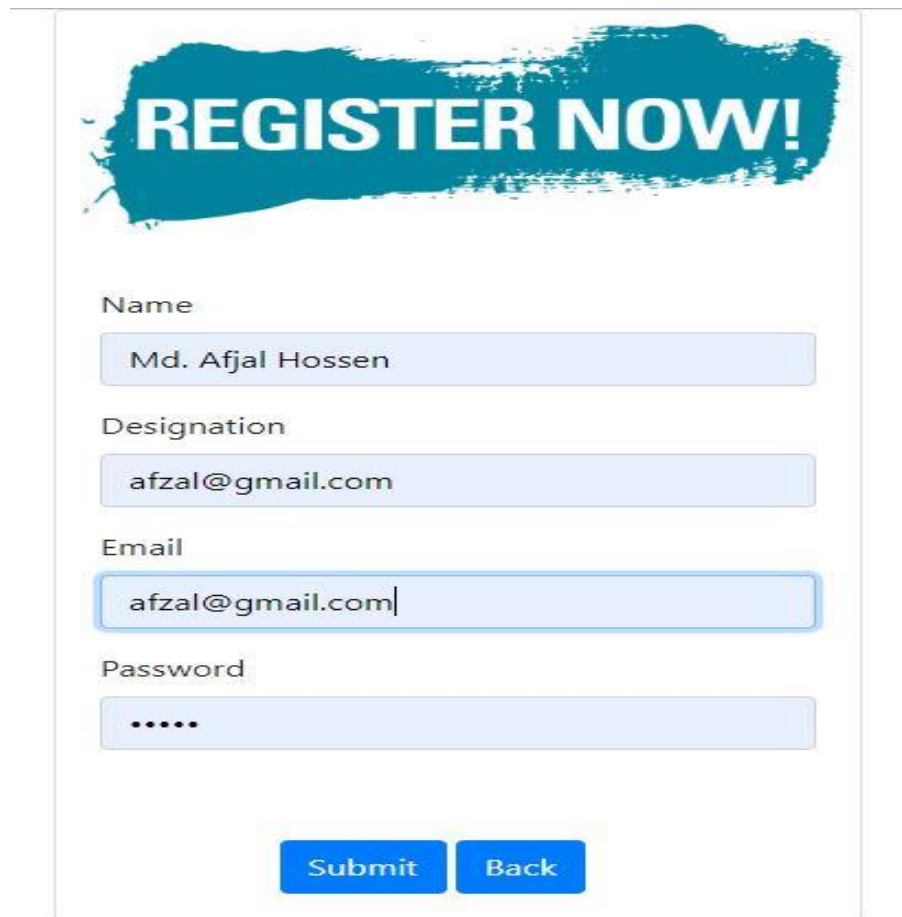


Figure:4.4.1: Teacher Home page

4.4.2 Teacher Registration Page

In Account registration screen contains mandatory input fields and a button. Here is some information about the online examination system. These fields are Email Address, Password, Name, after fill-up the mandatory fields press the Button [Sign up] for completing Registration process.



The image shows a registration form titled "REGISTER NOW!" in a teal brushstroke banner. Below the banner are four input fields: "Name" with the value "Md. Afjal Hossen", "Designation" with the value "afzal@gmail.com", "Email" with the value "afzal@gmail.com", and "Password" with five dots. At the bottom are two blue buttons labeled "Submit" and "Back".

REGISTER NOW!

Name
Md. Afjal Hossen

Designation
afzal@gmail.com

Email
afzal@gmail.com

Password
.....

Submit Back

Figure 4.4.2: Teacher Registration Page

4.4.3 Login Page

In the Login page screen contains two input fields one is a teacher page. After click on login the teacher or user get the option.

Figure 4.4.3: Login Page

4.4.4 Profile View and Update Page

In this page the teacher information and the teacher profile menu, shows Name, Emil Address. By pressing the Update Profile Button Teacher can update information.

Figure 4.4.4: Teacher Profile View and Update Page

4.4.5 Teacher Password Change Page

Teacher can change their password for extra security purposes or whenever they want. It gives strength to the teacher for safety and security issues. It is also a kind of interaction implementation where teacher applying for password changing and they are getting acceptance to process it.

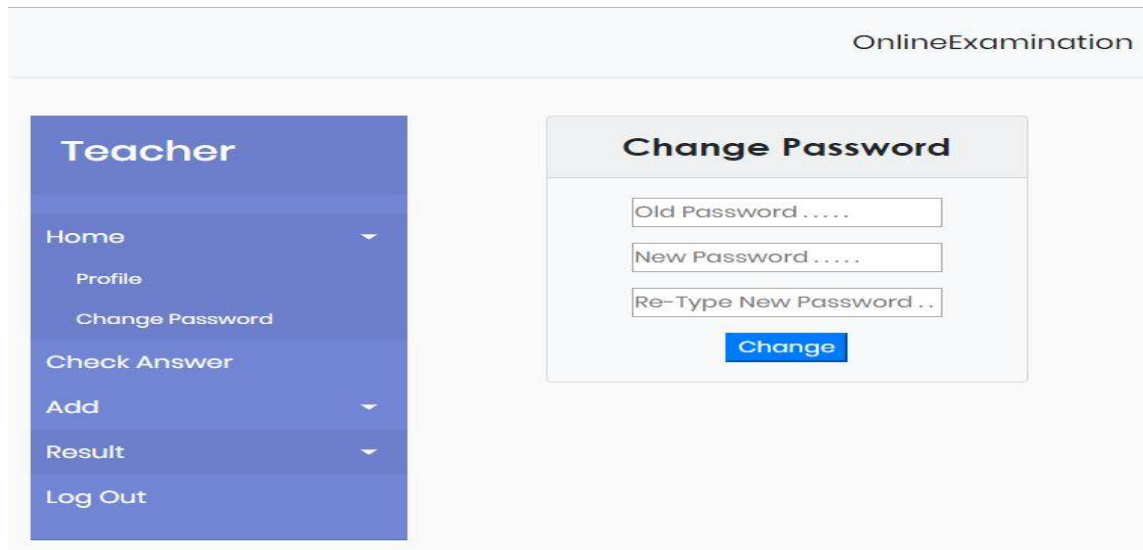


Figure 4.4.5: Teacher Password Change Page

4.4.6 Add Subject Page

When the Teacher clicks on add Subject, he gets two options like: Add course name and Add course Code.

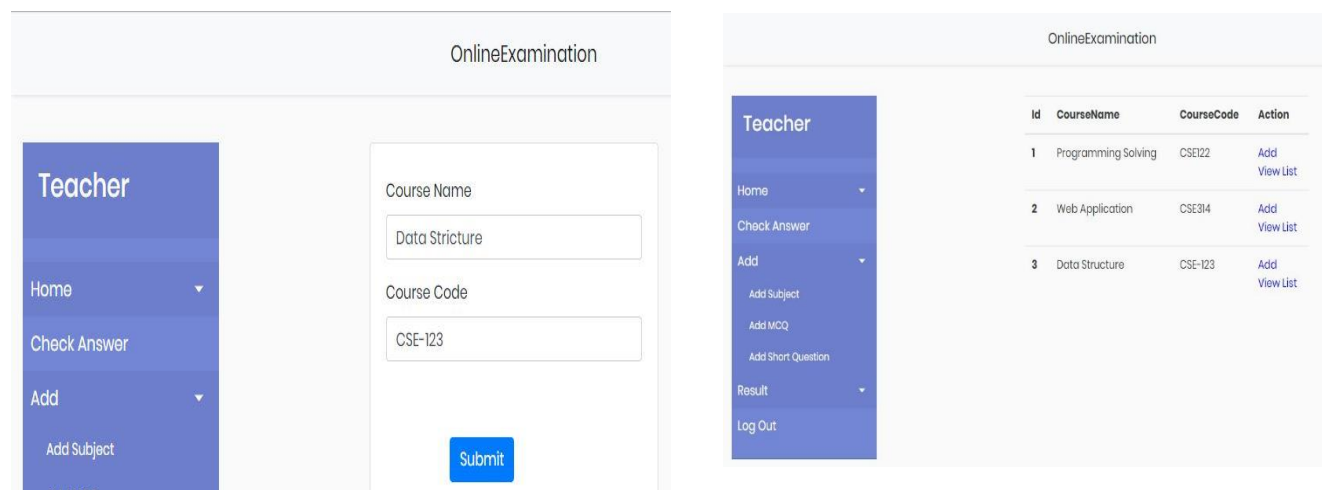


Figure 4.4.6: Add Subject and Show Page

4.4.7 Add MCQ Question Page

In this page the teacher can add MCQ question. And he also can choose various subjects. There are four option and one current option, the user can choose any one as answer.

The screenshot shows the 'Add MCQ Question Page' interface. On the left is a blue sidebar menu titled 'Teacher' with the following options: Home, Check Answer, Add (with sub-options: Add Subject, Add MCQ, Add Short Question), Result, and Log Out. The main content area is titled 'MCQ' and contains a 'Question' input field, four numbered 'Option' input fields (1-4), and a '#' 'Correct Answer' input field. A blue 'Add' button is at the bottom right.

Figure 4.4.7: Add MCQ Question Page

4.4.8 Add Short Question Page

Here the teacher can add the short question for various subjects.

The screenshot shows the 'Add Short Question Page' interface. On the left is a blue sidebar menu titled 'Teacher' with the following options: Home, Check Answer, Add (with sub-options: Add Subject, Add MCQ, Add Short Question), Result, and Log Out. The main content area is titled 'Short Question' and contains a 'Question' input field, an 'Answer' input field with 'Correct Answer' placeholder text, and a blue 'Add' button at the bottom right.

Figure 4.4.8: Add Short Question Page

4.4.9 MCQ Question List Page

In this page the teacher manage the question list and he can delete or edit the question and answer. There are four choose option and one correct option.

OnlineExamination						
Question	Answer1	Answer2	Answer3	Answer4	Corect	Action
The Θ notation in asymptotic evaluation represents - C -	Base case	enrage case	Worst case	NULL case	Base case	Edit Delete
Program with highest run-time complexity is	Tower of Hanoi	Fibonacci Series	Prime Number Series	None of the above	Tower of Hanoi	Edit Delete
Program with highest run-time complexity is	Tower of Hanoi	Fibonacci Series	Prime Number Series	None of the above	Tower of Hanoi	Edit Delete

Figure 4.4.9: MCQ Question list Page

4.4.10 Short Question List Page

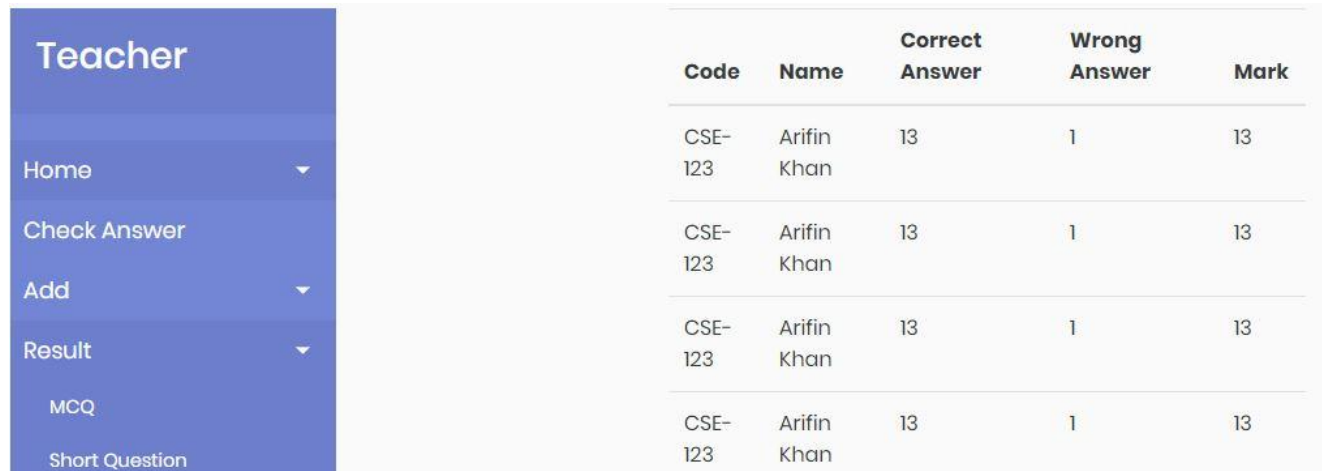
In this page the teacher manages the subject, question and he can delete or edit the subject and question.

Teacher		
Question	Corect	Action
What is an Operand?	the quantity on which an operation is to be done.	Edit Delete
What is basic computer knowledge?	Computer Knowledge – Main Parts of Computer. Hardware. Computer hardware is what you can physically touch includes the computer case, monitor, keyboard, and mouse. It also includes all the parts inside the computer case, such as the hard disk drive, mo	Edit Delete
What are some basic computer skills ?	Spreadsheets. ... PowerPoint. ... Microsoft Access. ... QuickBooks. ... Email. ... Web and Social Skills. ... Graphic and Writing Skills	Edit Delete

Figure 4.4.10: Short Question list Page

4.4.11 MCQ Question Result Page

Here teacher can see the list of students serial no, name of the students, email address, subjects and obtain marks. He can also identify which one is the best score.

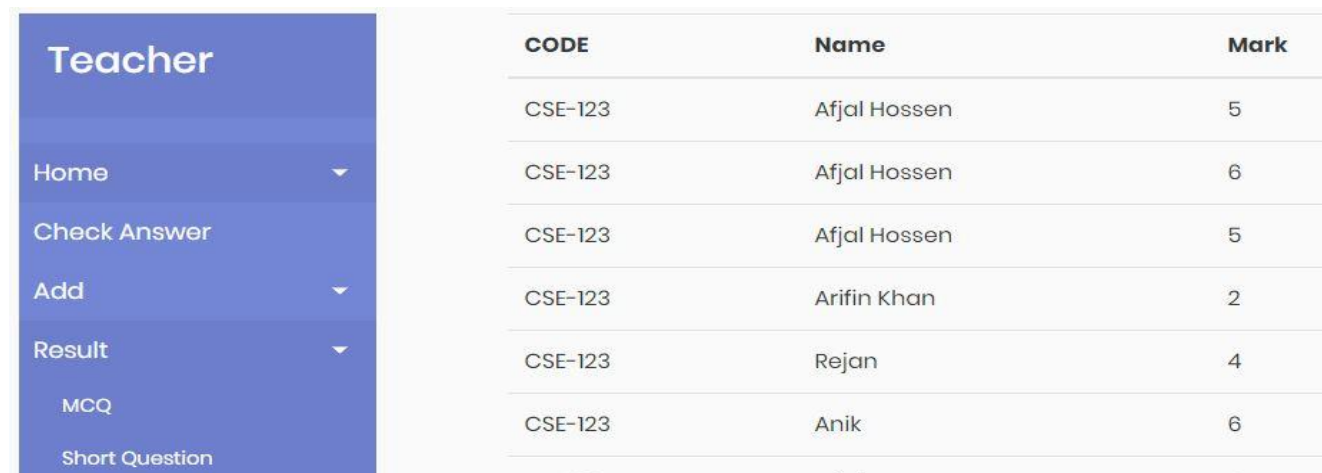


Code	Name	Correct Answer	Wrong Answer	Mark
CSE-123	Arifin Khan	13	1	13
CSE-123	Arifin Khan	13	1	13
CSE-123	Arifin Khan	13	1	13
CSE-123	Arifin Khan	13	1	13

Figure 4.4.11: MCQ Question result Page

4.4.12 Short Question Result Page

When the students completed their exam, they can see their individual result. Here the user can see the serial no, name of students, email address, total marks and obtain marks. He can find which is the best scorer.



CODE	Name	Mark
CSE-123	Afjal Hossen	5
CSE-123	Afjal Hossen	6
CSE-123	Afjal Hossen	5
CSE-123	Arifin Khan	2
CSE-123	Rejan	4
CSE-123	Anik	6

Figure 4412: Short Question Result Page

4.4.13 Short Question Completed Answer Page

When the students completed their exam and this question answer show teacher panel and this question view teacher identify mark.

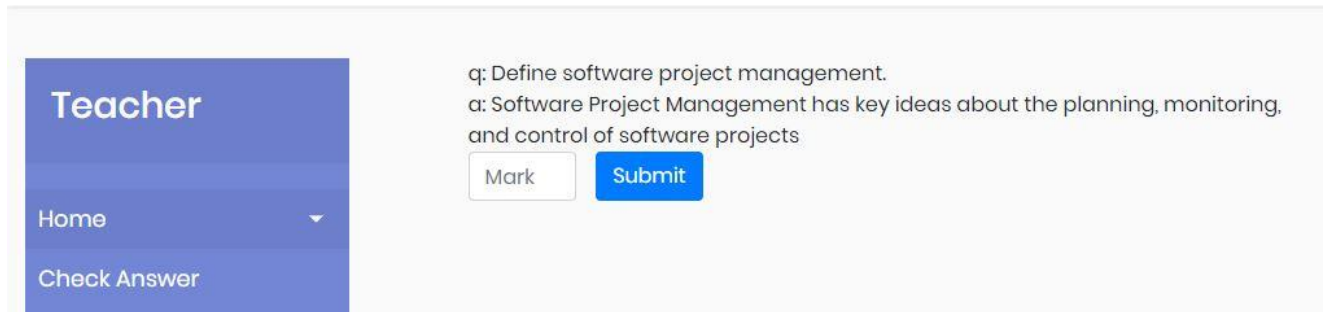


Figure 4.4.13: Short Question Completed Answer Page

4.5 Design Student Panel

4.5.1 Home Page

This is the landing screen of our project. This is the homepage of the website of Online Examination System. The project title is Design & Development of an Online Examination System. This homepage contains menu section, Registration Page, Login Page, Profile Section, About Section, About, How to Use/Help Section. Components of homepage are described below.

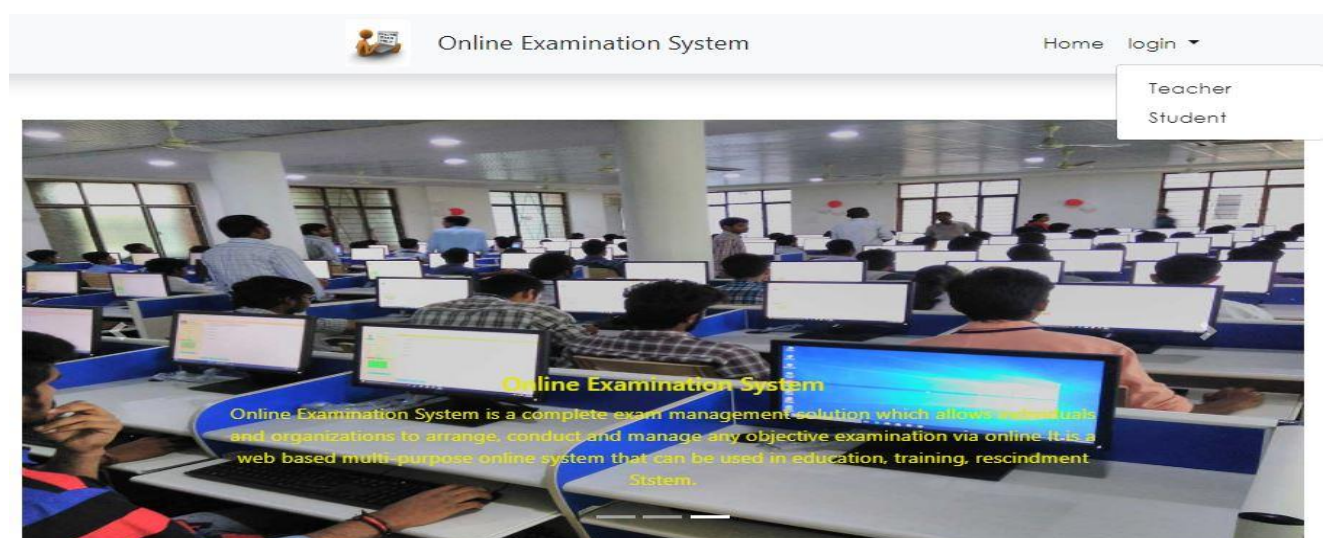
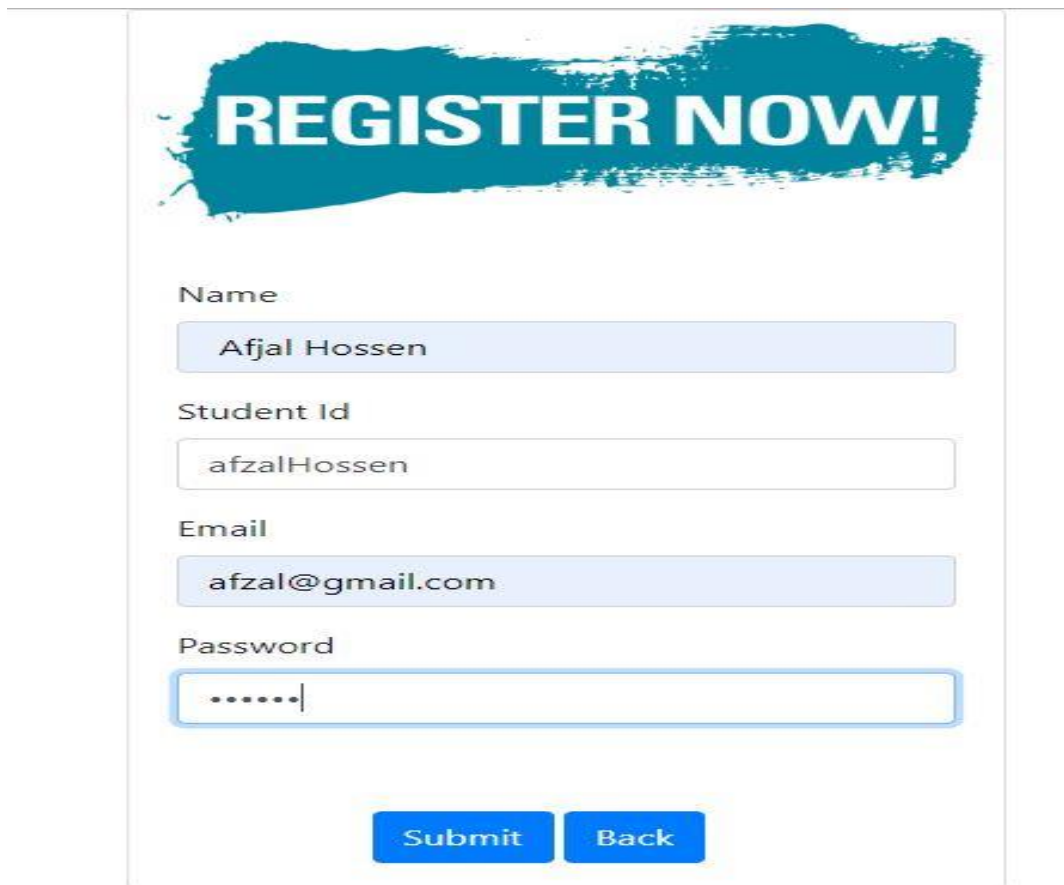


Figure 4.5.1: Home page

4.5.2 Student Registration Page

In Account registration screen contains six mandatory input fields and a button. is some information about the online examination system. These fields are Email Address, Password, Name, Address, Mobile No. After fill-up the mandatory fields press the Button [Sign up] for completing Registration process

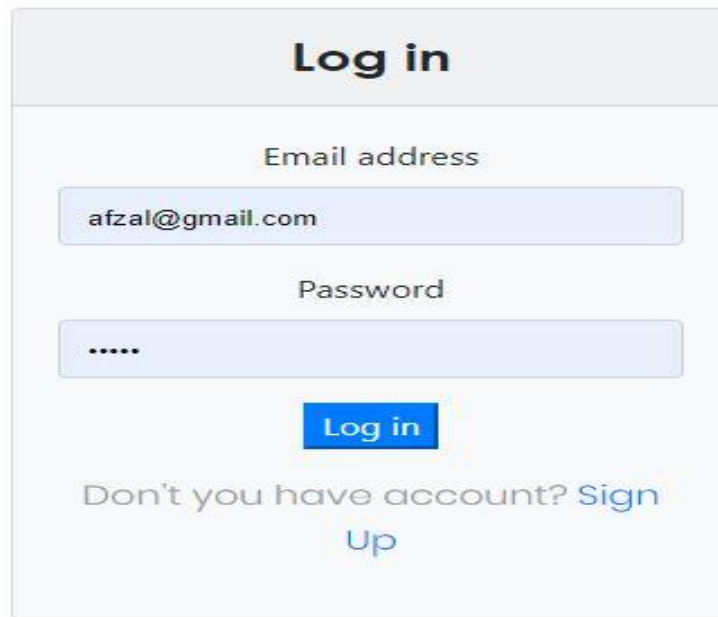


The screenshot shows a registration form with a prominent teal banner at the top that reads "REGISTER NOW!". Below the banner, there are four input fields: "Name" with the value "Afjal Hossen", "Student Id" with the value "afzalHossen", "Email" with the value "afzal@gmail.com", and "Password" with six dots. At the bottom of the form, there are two buttons: "Submit" and "Back".

Figure 4.5.2: Student Registration Page

4.5.3 Student Login Page

In this Login page screen contains two input fields one is student page. After click on login the student.

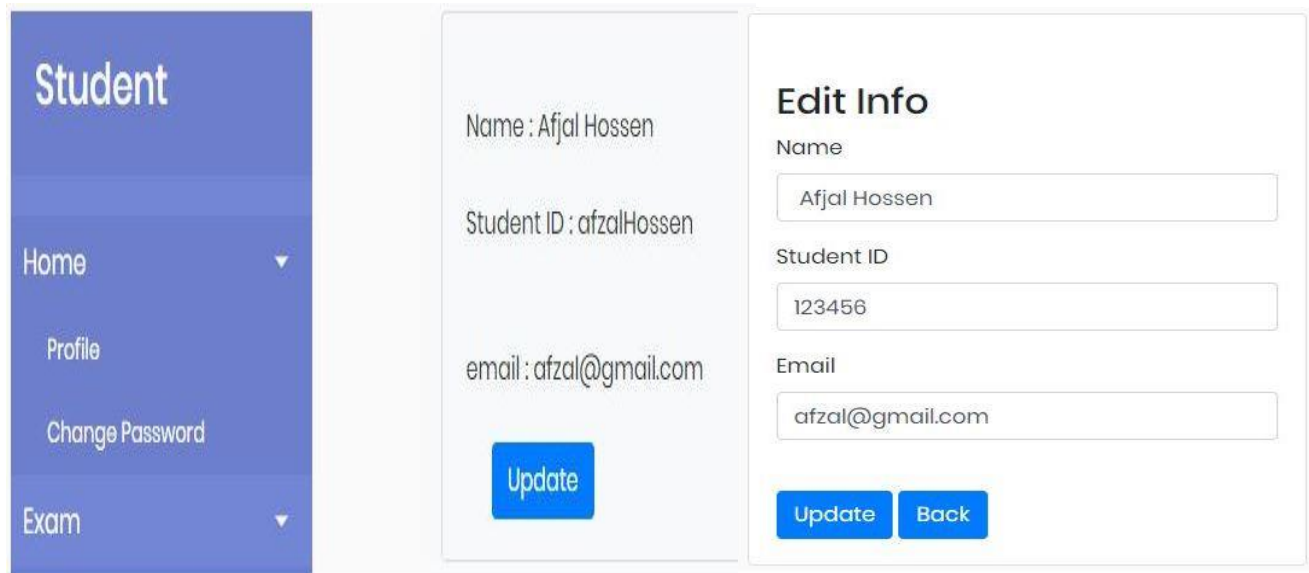


The image shows a login form with a grey header containing the text "Log in". Below the header, there are two input fields: "Email address" with the value "afzal@gmail.com" and "Password" with masked characters "*****". A blue "Log in" button is positioned below the password field. At the bottom, there is a link that says "Don't you have account? Sign Up".

Figure 45.3: Student Login Page

4.5.4 Profile View and Update Page

In this page the Student information and the student profile menu, shows Name, Email Address Mobile No, and Home Address. By pressing the Update Profile Button Teacher can update information.



The image displays a student profile page. On the left is a blue sidebar menu with the title "Student" and options: "Home", "Profile", "Change Password", and "Exam". The main content area is divided into two sections. The left section shows the student's details: "Name : Afjal Hossen", "Student ID : afzalHossen", and "email : afzal@gmail.com", with a blue "Update" button below. The right section, titled "Edit Info", contains three input fields for "Name" (Afjal Hossen), "Student ID" (123456), and "Email" (afzal@gmail.com), with "Update" and "Back" buttons at the bottom.

Figure 4.5.4: Student Profile View an Update Page

4.5.5 Student Password Change Page

Students can change their password for extra security purposes or whenever they want. It gives strength to the users for safety and security issues. It is also a kind of interaction implementation where student applying for password changing and they are getting acceptance to process it.

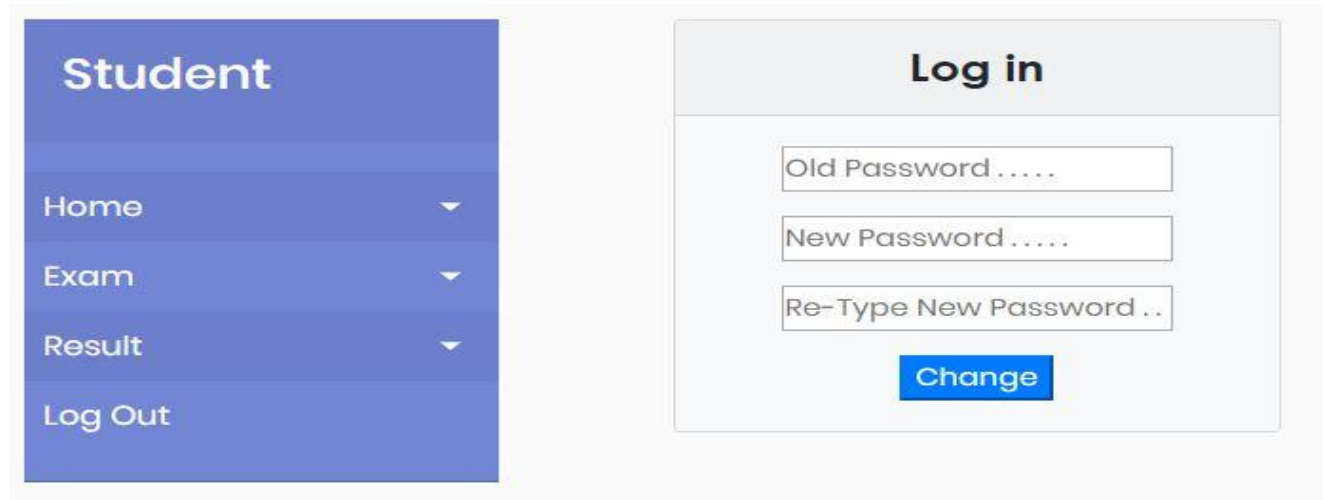


Figure 4.5.5: Student Password Change Page

4.5.6 MCQ Question Exam Page

In this section, the student can choose type of exam. If he wants to give the MCQ Exam then he presses start now button, he will get a question with four choosing answer option and he can choose any one as correct answer and step by step next question for MCQ question examination page.

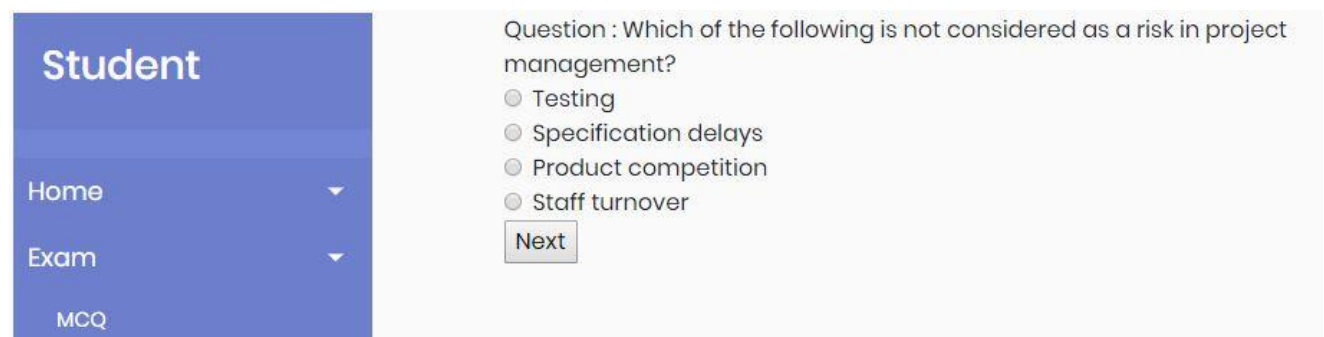
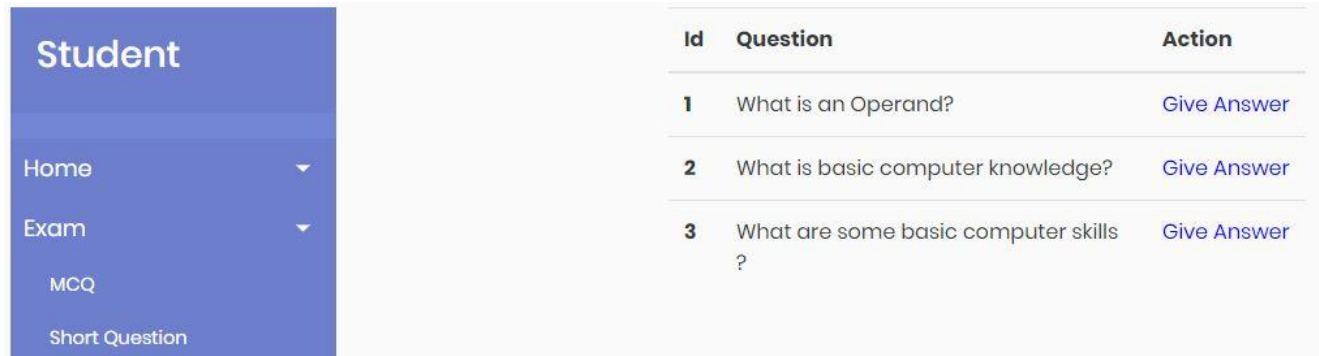


Figure 4.5.6: MCQ Question Exam page

4.5.7 Short Question Exam Page

In this section, the student can choose type of exam. If he wants to give the MCQ Exam then he presses



Id	Question	Action
1	What is an Operand?	Give Answer
2	What is basic computer knowledge?	Give Answer
3	What are some basic computer skills ?	Give Answer

Figure 4.5.7: Short Question Exam Page

4.5.8 MCQ Question Result page

Here teacher can see the list of students serial no, name of the students, email address, subjects and obtain marks. He can also identify which one is the best score.



CODE	Correct	wrong	Mark
CSE-123	1	0	1

Figure 4.5.8: MCQ Question Result Page

4.5.9 Short Question Result page

When the students completed their exam, they can see their individual result. Here the user can see the serial no, name of students, email address, total marks and obtain marks. He can find which is the best scorer.



CODE	Name	Mark
CSE-123	Afjal Hossen	5

Figure 4.5.9: Short Question Result Page

4.6 About this Website

This website is basically online service. Over time, when students attend public university or other public examinations. They all know and because of many students it is difficult to manage hotels or temporary residences. Online Examination System is a web-based application website to manage online general examination and competitive exams. This website is basically for short term course. Through this website student or anybody can register for the exam online. He will get the time table of the online exam. In this website student can give the exam on Computer Science and Engineering core subjects. Also here includes the short questions and multiple choose questions. So, there is no need to walk around everything can be done at this own place. Once the exam is over the result will be shown. So, he doesn't need wait for the result.

4.7 How to Use/Help

There are some basic instructions that you have to follow, if a user follows the command, he can easily access this website. As a student you have to follow the instructions. The instructions are given below:

- At first you have to registration the page. You have to click on "As student "button then you will get a registration form, if you complete the registration form.
- After complete the registration, you have to click on "Login "button.
- after complete Login, you can take exam. So, you click on "Take exam "button.
- Next you can choose your question pattern.
- When you complete your exams then you click on "submit" button and you can get your result.
- If you want to come back you have to click on "Logout" button.

CHAPTER 5

IMPLEMENTATION

5.1 Implementation of Database

Implementing database, installing Database management System plays a vital role. Then we need to adjust the setup variables according to the conditions of hardware, software and use. The next part is to the database table and load the data as needed.

Here Int (an Integer-whole Number) is a data type in the database. It can hold values.

The varchar or Variable Character Field is a lot of character information of middle of the road length.

The term varchar refers to an information sort of a field in a Database Management System.

Timestamp is a method for row versioning. It basically means every time a row is changed; this value is increased.

The following this database table is showing the example.

Name of Field	Type of Data	Primary Key	Foreign Key	Default Value	Remarks
Id	Int				
Name	Varchar		Foreign Key		
E-mail	Varchar	Primary key			
Password	Varchar				
Remember_Password	Varchar				
Create_at	Timestamp				
Updated_at	Timestamp				

Database Table

5.2 Implementation of admin database Design

In this section, I will explain with the pictures, how I have implemented the database Design. Those things which I want to introduce are Admin Page, Teacher Page, Student Page, Subject Page, MCQ Question page, Short Question Page, MCQ Question Result page, Short Question Result Page.

5.2.1 Admin page

This page is the details of admin page who mainly handle this website. I can see all the number rows as well as filter rows where can be searched. Only admin will have the authority to access this area.

The database table contains the following rows: id, email, password.

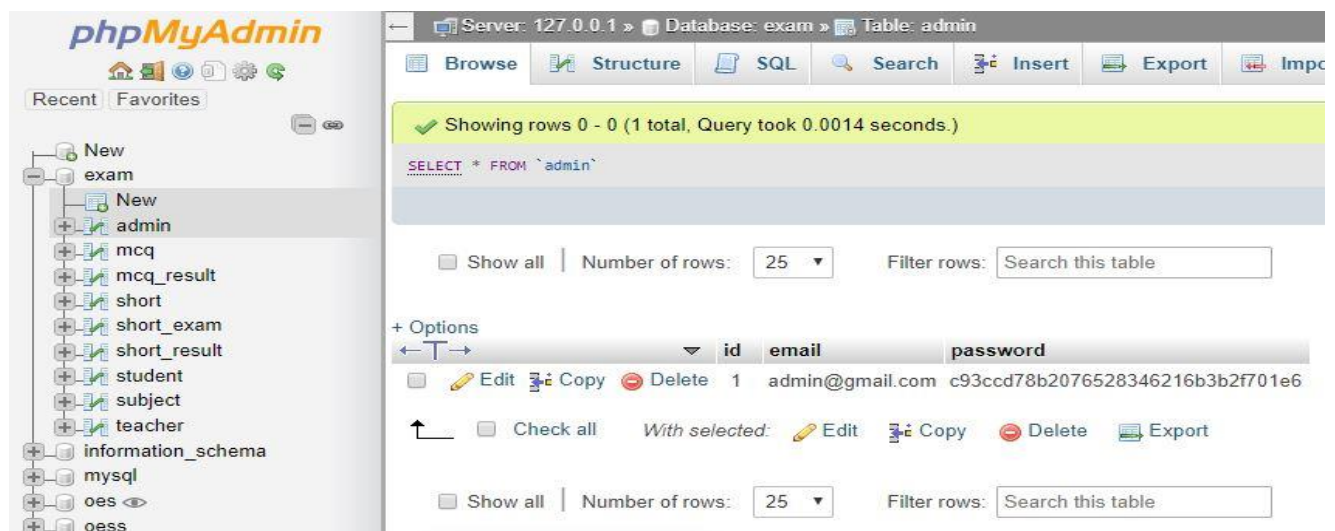


Figure 5.2.1: Admin Page

5.2.2 Teacher Page

In this page, we can get the teacher information who actually got register in this website and to student manage this teacher for exam. As they have their examination details, in case of any time we can exam with them to know, whether they are available to exam at that time. The database table contains the following rows: id, name, designation, email, password.

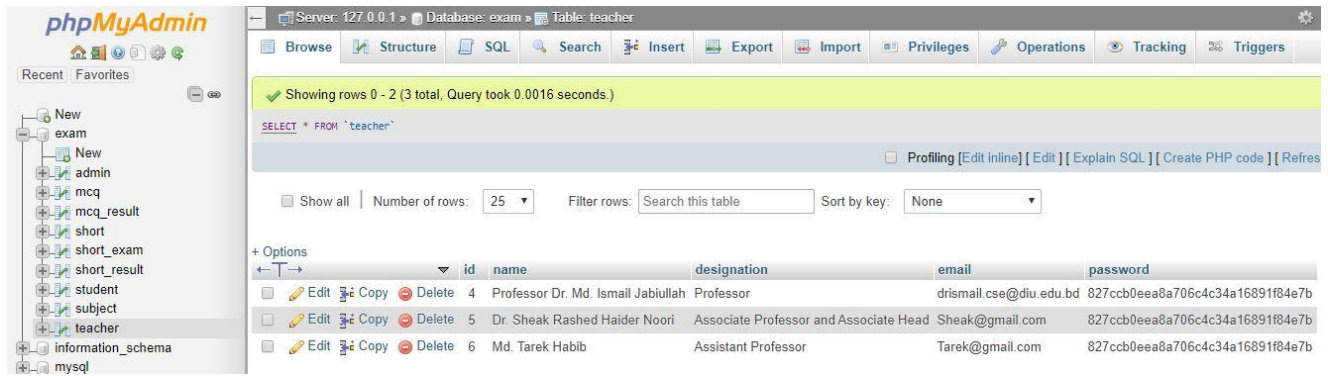


Figure 5.2.2: Teacher Page

5.2.3 Student Page

The vital part of student page. The table holds the profile information of the student. The table contains following rows: id, name, student_id, email, password. As they always need to know which exam they want. They can search by their desired examination.

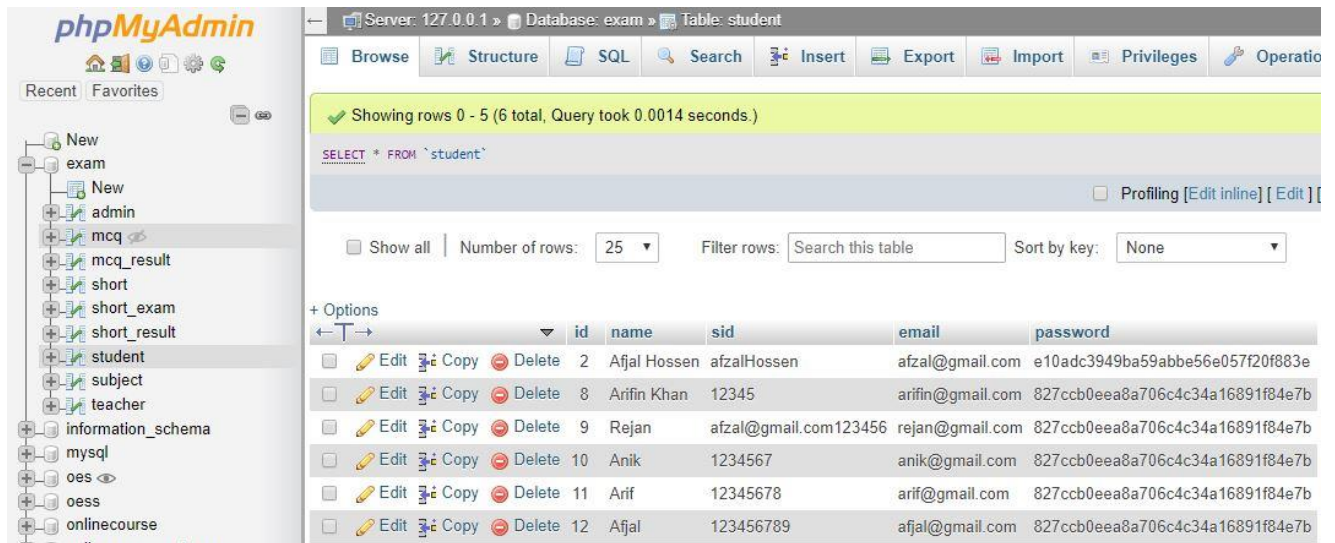
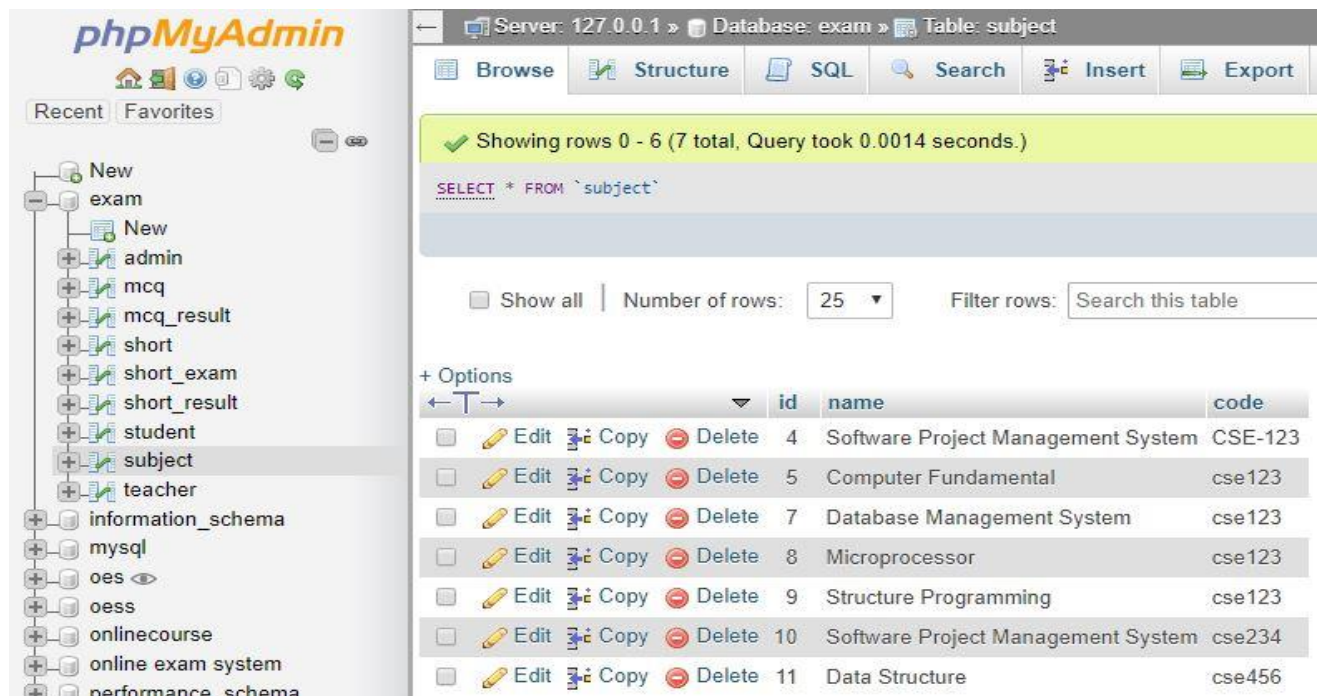


Figure 5.2.3: Student page

5.2.4 Subject Page

Here we can see the details information of admin and teacher for subject page who actually will handle this website and wishes to help people by providing subject details of student examination details information. The table holds the profile information of the student. The table contains following rows: id, course name, course code.



The screenshot shows the phpMyAdmin interface. On the left is a navigation tree with 'subject' selected. The main panel displays the 'subject' table with the following data:

id	name	code
4	Software Project Management System	CSE-123
5	Computer Fundamental	cse123
7	Database Management System	cse123
8	Microprocessor	cse123
9	Structure Programming	cse123
10	Software Project Management System	cse234
11	Data Structure	cse456

Figure 5.2.4: Subject Page

5.2.5 MCQ Question Page

In this section, teacher can handle MCQ question list. Teacher can see ten mandatory fields. If teacher wants to delete or edit subjects, questions, question options and a correct option then it is possible.

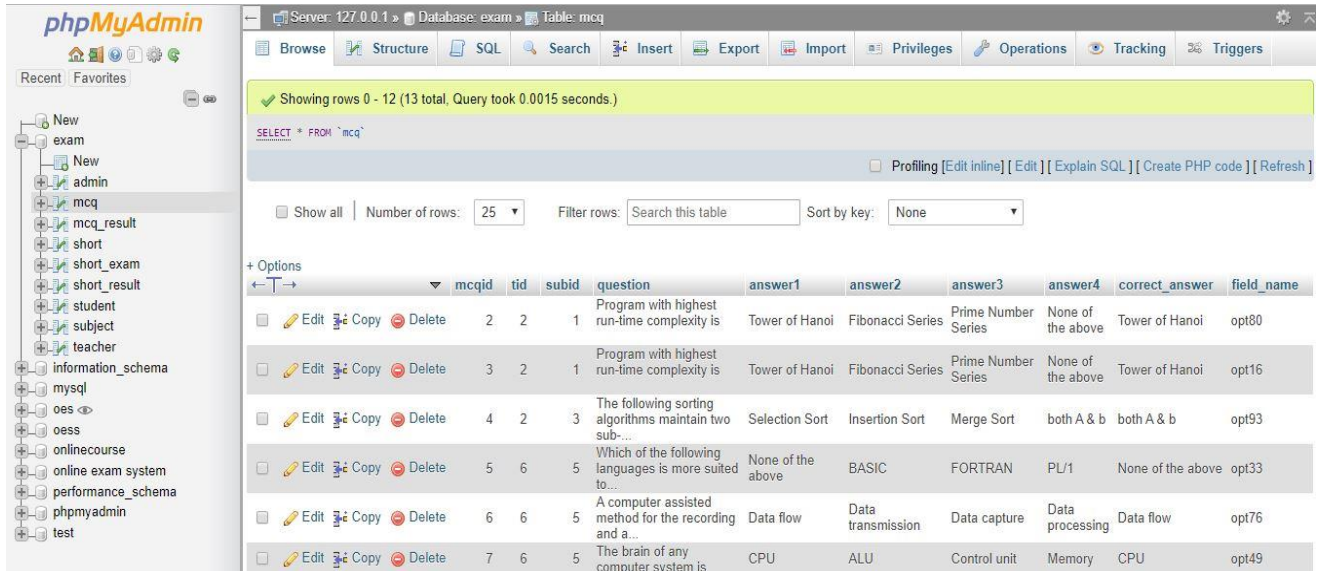


Figure 5.2.5: MCQ Question Page

5.2.6 Short Question Page

In this section, teacher can handle Short question list. Teacher can see five mandatory fields. The table contains following rows: id, teacher_id, subject_id, short_question, answer. If teacher wants to delete or edit subjects, questions, question answer and then it is possible.

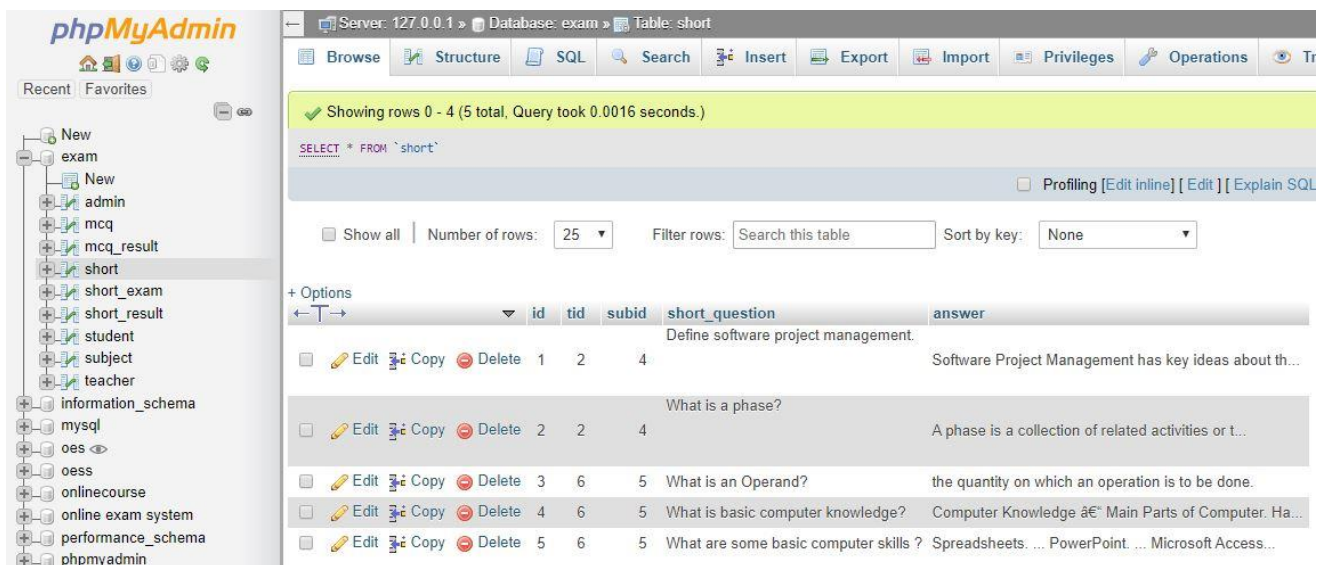
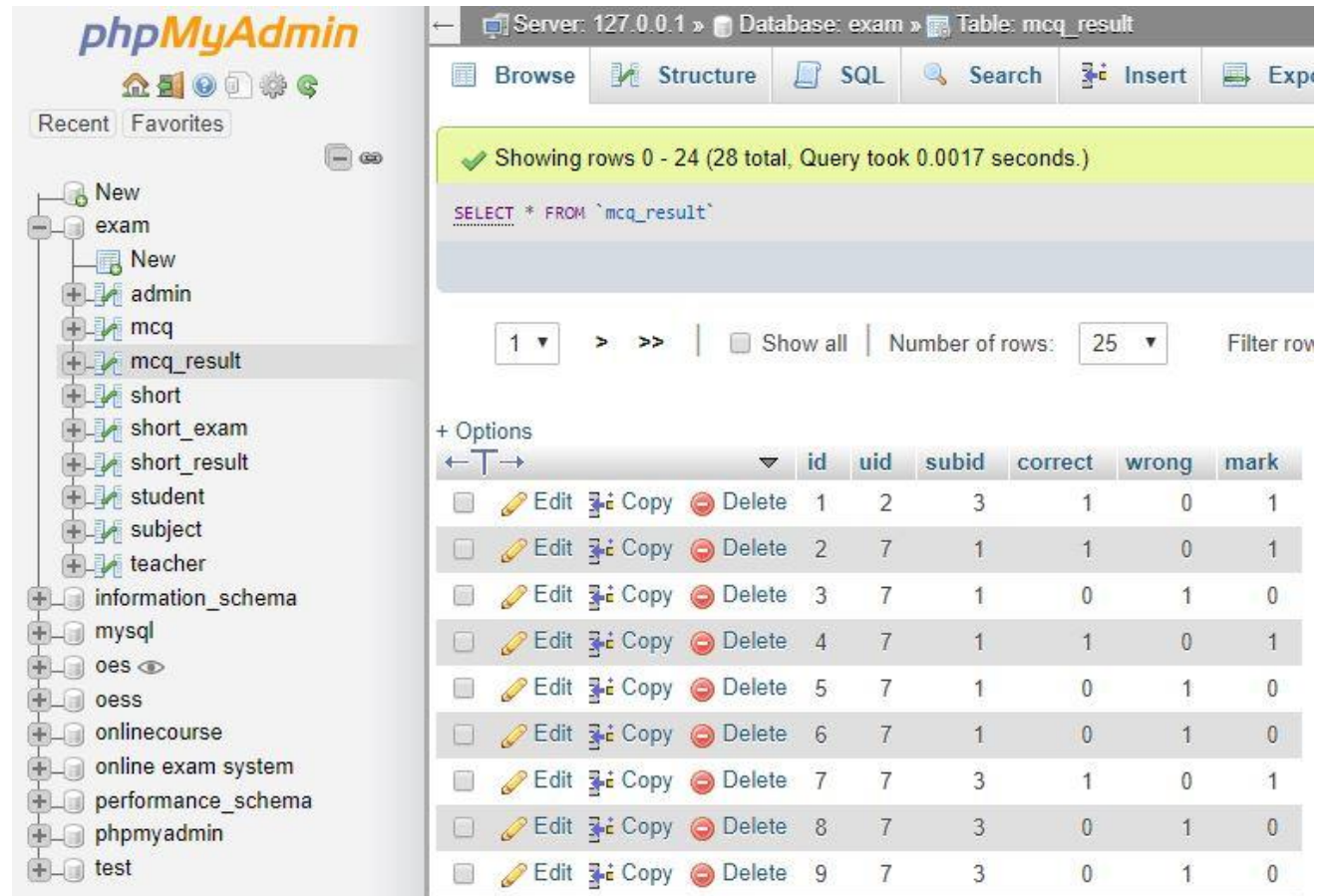


Figure 5.2.5: Short Question Page

5.2.7 MCQ Question Result Page

In this page, we will find about the database tables we have made to create this website. Above we have mentioned about the student examination result page. This page will show the id, uid, subject_id, correct option, wrong option and mark.



The screenshot shows the phpMyAdmin interface for the 'exam' database. The 'mcq_result' table is selected, and the SQL query 'SELECT * FROM `mcq_result`' is executed. The results are displayed in a table with columns: id, uid, subid, correct, wrong, and mark. The table contains 9 rows of data.

	id	uid	subid	correct	wrong	mark
<input type="checkbox"/> Edit Copy Delete	1	2	3	1	0	1
<input type="checkbox"/> Edit Copy Delete	2	7	1	1	0	1
<input type="checkbox"/> Edit Copy Delete	3	7	1	0	1	0
<input type="checkbox"/> Edit Copy Delete	4	7	1	1	0	1
<input type="checkbox"/> Edit Copy Delete	5	7	1	0	1	0
<input type="checkbox"/> Edit Copy Delete	6	7	1	0	1	0
<input type="checkbox"/> Edit Copy Delete	7	7	3	1	0	1
<input type="checkbox"/> Edit Copy Delete	8	7	3	0	1	0
<input type="checkbox"/> Edit Copy Delete	9	7	3	0	1	0

Figure 5.2.7: MCQ Question Result Page

5.2.8 Short Question Result Page

In this page, we will find about the database tables we have made to create this website. Above we have mentioned about the student examination result page. This page will show the id, uid, subject_id and mark.

Server: 127.0.0.1 » Database: exam » Table: short_r

Showing rows 0 - 6 (7 total, Query took 0.0014 seconds.)

```
SELECT * FROM `short_result`
```

Show all | Number of rows: 25 | Filter rows:

+ Options

				id	uid	subid	mark
<input type="checkbox"/>	Edit	Copy	Delete	1	2	4	5
<input type="checkbox"/>	Edit	Copy	Delete	2	2	4	6
<input type="checkbox"/>	Edit	Copy	Delete	3	2	4	5
<input type="checkbox"/>	Edit	Copy	Delete	4	10	4	6
<input type="checkbox"/>	Edit	Copy	Delete	5	8	4	2
<input type="checkbox"/>	Edit	Copy	Delete	6	9	4	4
<input type="checkbox"/>	Edit	Copy	Delete	7	12	5	2

Figure 5.2.8: Short Question Result Page

CHAPTER 6

IMPLEMENTATION AND TESTING

6.1 Usability Inspection

A usability inspection is an evaluation based on general design principles or a specific list of guidelines, which is usually carried out by the developer. Nielsen's heuristic evaluation for interface design used to develop the system, will be reintroduced as a checklist to ensure they have been successfully met. However, this method of testing is exclusively for the developer, therefore unit testing requiring user interaction will be implemented to ensure the developer has not over seen anything. Overall the usability inspection returned positive results, as determined by Nielsen's heuristic evaluation. All ten heuristics were successfully met as determined by the checklist evaluation. However, it was evident that 'user control and freedom' as part of the checklist was not fully supported. It was determined that in the secure area of the site, certain links returning the user to where they came from, was not full evident.

6.2 Unit Testing

This method of testing involves a thorough examination of the units that make up the prototype, ultimately evaluating the usability and efficiency of the systems interface. The method employed for this testing is the KLM framework, a simplified adaptation This technique is effective for determining how well the user task routines have been implemented, considering the cognitive and physical processes; with the aim of determining the unit testing carried out for this project, tested the routines required for accomplishing tasks set by the developer. In order to test all the functionality, the developer supplied a user with a list of tasks, and filled in a table recording the results. Such tasks included navigating to different areas of the site and interacting with the system e.g. adding clients to the database.

6.3 Testing Implementation

Implementation testing usually relates to the method of testing technology specification implementations. This method serves the dual aim of verifying that the specification is

implementable in practice and that implementation conforms to the specification. Test admin guarantees that all the prerequisites for starting execution such as test processes, test information, and so on are addressed.

This website has been tested many times from the starting such as registration, Login, Search teacher panel all option check list, search student panel all option check list and Confirm the request, Users registration, etc. I have tested the following factors:

➤ Admin Panel

- Course Add
- Teacher Add
- Student Add
- Question Show
- Admin all Post [edit/delete/view]

➤ Teacher Panel

- Registration
- Login
- profile view and profile update
- Password Update
- Add Course and Add course code
- Add MCQ Question
- Add Short Question
- MCQ Question List
- Short Question List
- MCQ Question Result Show
- Short Question Result Show
- Short Question Completed Answer
- Teacher all Post [edit/delete/view]

➤ Student Panel

- Registration
- Login
- Profile view and profile update

- Password Update
- MCQ Question Exam
- Short Question Exam
- MCQ Question Result Show
- Short Question Result Show

6.4 Browser Testing

Therefore, it was important that the web site supported as many browsers as possible, because many ecommerce sites lose business due to a lack of support from all browsers, displaying their site in the way it was not developed for. In order to achieve a high level of browser compatibility and presentation consistency, methods recommended by the W3C such as use of XHTML, CSS and JavaScript were implemented. Furthermore, to test how browser compatible the system was, the site was viewed in several browsers e.g. Microsoft Internet Explorer, Firefox, Mozilla, and Opera etc. shows a good level consistency across the different browsers; overall the layout, navigation bar and images and etc. transferred well across the different platforms, with the exception of a few text fields which drifted slightly.

CHAPTER 7

CONCLUSION

7.1 Limitations

Limitations Although it is one of the easiest and useful websites it has some limitations too. Keeping this simple, we used to avoid many complications. But it still has some limitations. The limitation is written below: -

- No Mobile Notification
- No Location Maps
- No Mobile authentication
- Manual Removed
- No area
- Manually take fees
- Short question result delay

7.2 Achievement

During our project work, we have gone through with immense learning of software planning, Coding, Designing web page, software testing and many more. In addition, we learnt how to run through a server. So, we have successfully achieved the concluding result of our project.

7.3 Future Development

Whenever a developer develops an application or website, at that time the developer is thinking of adding more to the future so that the app is more user friendly. And keep in mind the thought that the user can use the application more easily. There are some opportunities to update the application with. As we are trying to produce high quality applications, considering the current limitations we decided to update the app around to make this application user more and more satisfied. And what we are about to update is listed below: -

- Add Mobile Notification
- Add Google Maps
- Add Mobile authentication
- Accommodator can verify student pictures
- Add auto post delete

- Develop pure Android Apps.

7.4 Conclusion

This website will help thousands of students. Specially help them to take part in the exams, this website can be used by any student very easily. And it is as easy as UI that everyone can use it. We have tried to make this website very easy so that the students can use it very easily. I tried to make it less complicated but more efficient.

Although it has some limitations, in the short term it has added the most common and consistent features and we are trying to reduce the limitations as soon as possible.

APPENDIX

The figure Shows UML Class Diagram.

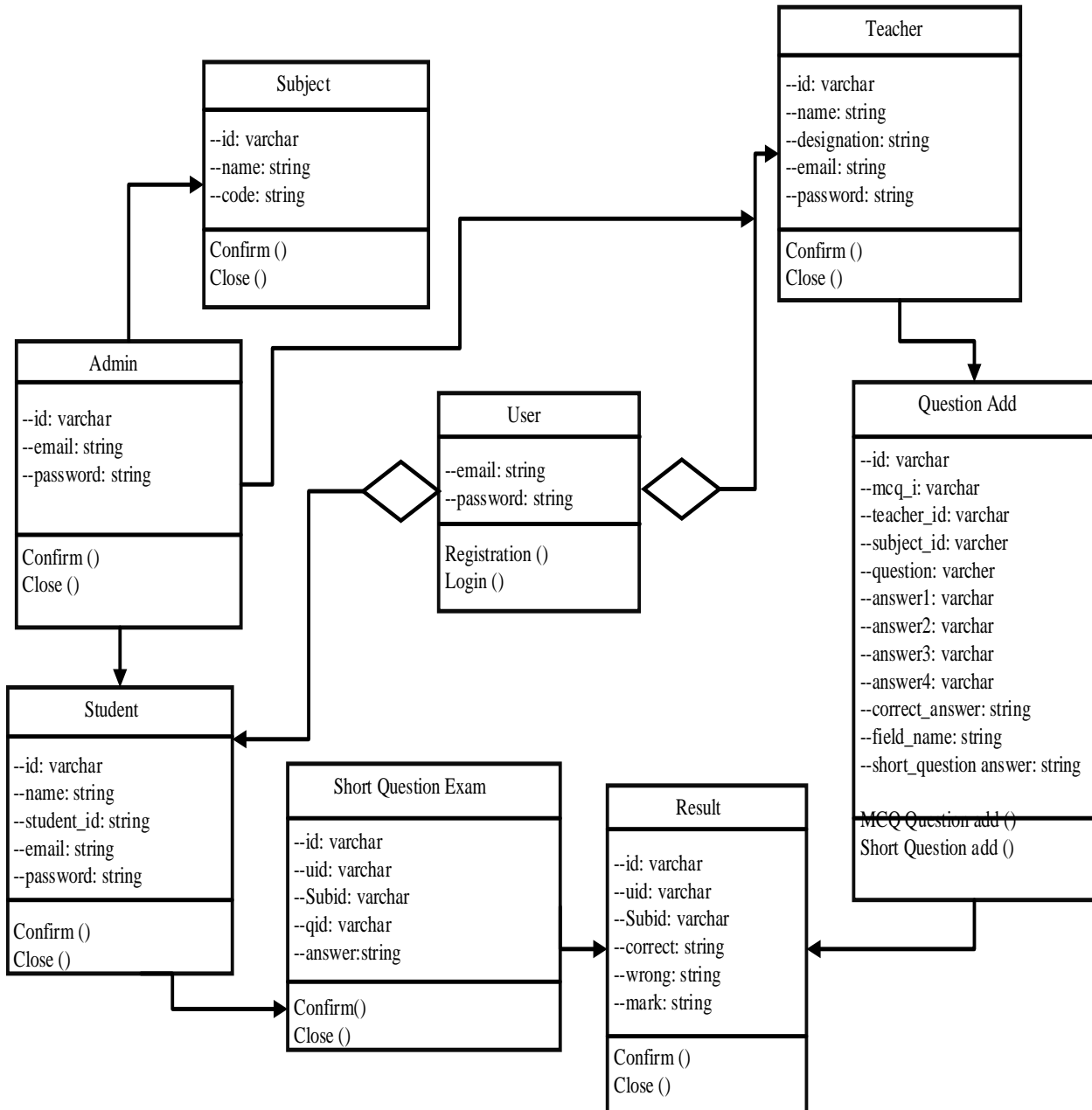


Figure: UML Class Diagram.

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