# A WEB BASED APPLICATION ("ONLINE EXAMINATION SYSTEM")

**BY**

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

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# APPROVAL

This Project titled **"Online Examination System**", submitted by Md. Nazrul Islam, Md. Abdullah Al Kafi and Syed Ashfaque Ali 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 05 May, 2018.

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# DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Ms. Farhana Irin, Lecturer, 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.

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# ABSTRACT

This report is intended as a guide for exam organizer and candidates when using online examination system for any related purposes. The main objective of our project is to develop an online examination system that will be secured and efficient to use. To achieve this goal we have used some latest version of toolkits such as HTML5, CSS3, Bootstrap4, MySQL, PHP7, JavaScript etc. we also have use agile model for implement our project plan. To ensure the security we have implemented the automatic and random question generation, question encryption, and automatic full screen lock system. The system is based on multiple choices and Fill in the blanks type questions. We will add subjective type questions in this project. We will integrate speech recognizer to our online examination system project in future too. So it will be a secured and efficient system for all the users and an overview for the future developers.

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# CHAPTER 1

# INTRODUCTION

## 1.1 Introduction

In future, the internet world will have an even closer relation with our daily life, online teaching and online examination are the direction towards which the academic circle will move. An online examination system does not have the limitation of time and place. Users can arrange their examination time in accordance to the progress of their lesson. Since the test is graded by computers, time which would have been required for manual marking and grading is saved. Test takers can check the test solutions immediately after the test, thus letting candidates know their mistakes and work to correct them.

## 1.2 Motivation

Online learning has become increasingly popular day by day due to technology advancement. Due to constant corruption in exam system the future of the new generation of the country is at stake. Proper education is the fuel of steady growth of a country and carefully mange exam can be stimulated the effectiveness of education system .with this background in mind creative online exam software is to be developed.

## 1.3 Objectives

The objective of our project is to provide an interface through which student can appear for examination online for objective type questions as well as fill in the blanks. The system provides registration both for students and the staffs. When student starts the exam the timer will start automatically and show the student how much time is left. The questions will be display randomly from question bank. Answers will be checked automatically by the system from the database. Provided user name and password facility and credentials should be checked properly at login time for the Students, Portal Admin, Exam Dept. Admin/Coordinator and Question Setter. Our system will provide an interface from where Portal Admin will create new exam portal and addCoordinatorfor Exam. The system will facilitate ExamCoordinatorto recruit a question setter. Question Setter will add the question in the exam pool. Exam Coordinator will make schedule and update final result.

## 1.4 Expected Outcome

- The system will automatically generate questions from the Question Bank.
- The system will be made highly secured by applying different types of algorithm. For example, automatic screen lock during the exam time.
- At the end of each exam the system will calculate result and show it the student instantly.
- After the completion of final exam, the system will calculate the total and final result then update the result database automatically.
- Exam coordinator will be able to manage and update test result to calculate final result for certification.
- So it will save the time both the student and teacher and exam authority.

## 1.5 Advantage

- Save time and reduce students and staff workload.
- Reduce duplicate entries and make it error-free.
- Secure and tamper-proof system eliminates leakages and upholds sanctity.
- Eliminate manual forms and paper-based processes.
- Reduce printing and stationery costs of question papers for exam subjects.
- Automatic and manual grading system will record the grade per test.
- This can be used in any educational institutions.

## 1.6 Report Layout

This report is intended as a guide for exam organizer and candidates when using online examination system for any related purposes. Discussion includes various things which are related to our project objectives, features, implementation etc. When developing our project we mainly focused on exam security and efficient use. There are some unique features in our projects those have discussed in this paper. Exam organizers will be able to learn that how to arrange the exam, set questions, distribute result etc. using this exam system. Candidates will be able to learn that how to get access in the exam, how to manage the exam result and collect the documents. Any kinds of organization can use this system to organize their exam. Now come to the implementation part. RDBMS was the base of our database design part. We have used latest

version of toolkits to design the user interface and different types of algorithms to develop the back-end to ensure security of our project, this paper will give an overview about this too. So, this paper will be a great overview for both the user and future developer.

# CHAPTER 2

# BACKGROUND

## 2.1 Introduction

The traditional approach to measuring a person's level of knowledge in topic has been examination. In manual system exam is time consuming and difficult to analyze the question paper , but in our proposed system analysis will be very easy and automated Result will be very accurate and will be declared in very short time because calculation and evaluations are done by the simulator itself. Our proposed system is very secure and no chance to leak of question paper because of the question paper selected randomly. That is why our proposed system is more efficient than any other related system.

## 2.2 Related Works

Many online examination systems available in the world market existing. In this portion of report briefly describe the existing systems and weaken characteristics of the suggested system. These characteristics are the development or benefit of our suggested system over the current systems. Sify-itest, Exam-Pro Software, Exam 9 products, iSummation Technologies and many more are the widely used online examination software today in world market [1].

## 2.2.1Overview of existing systems

Many systems are available we see the following ones to comprehend basic characteristics offered by all the available systems and compare with the suggested system. The whole process of assigning test and evaluating their scores after the test was done manually till date. Processing the test paper i.e. checking and distributing respective scores used to take time when the software was not being installed [2].

### 2.2.1.1 Exam-Pro Software

Exam Software is a Test Management Software to create and conduct computer based online examination. Helpful for school, college, university, teachers and professors for managing question papers and examinations [3]. Recruiting agencies, companies can use it for candidate's skills evaluation by conducting online test.

### Features

- It is ideal for candidates present for competitive exams where they have to take multiple choice question papers.
- Exam software can be used anywhere and anytime.
- Gives the facility show result after each test to validate performance.
- Questions are presented in a random sequence.
- Question does not matching any candidates.

## 2.2.1.2 EXAM 9 Products

Web based examination system modules for candidates. Exam 9 products are used to set up multiple-choice tests for set time periods that when submitted are automatically corrected and the results logged beside the students or trainees id number [4].

### Features

- Exam parameters remain fully editable and results are viewed in tabular and graphic formats.
- Exam 9 products provide questions are presented in a random sequence.
- Exam 9 products can be created that take questions from different exams in a class.
- Exam 9 products are maintained of how often questions are answered right, wrong or skipped.

## 2.3 Comparative Studies

The current system is very time consuming. It is very difficult to analyze the exam manually. To take exam of more candidates more invigilators are required. Results are not precise as calculation and evaluations are done in the current system. The chances of paper leakage are more in current system as compared. Result processing also takes more time as it is done manually paper based system. Existing online exam system has some limitation and security

problem too. But in our proposed system we fix these common issues to make our system comparatively better than both kinds of manual and online system.

## 2.4 Scope of the Problem

Scope of this project is very broad in terms of other manually taking exam. This exam system can be used in educational institutions as well as in corporate world. It can be used anywhere anytime through internet. Academic admin, Exam Coordinate, Question Setter, Student facilitate to design. This system is designed for educational institutes like school, colleges and university to conduct logic test for their students [5].

## 2.5 Implementation Challenges

It was very difficult for us to implement the task. This problem can be solved. Many challenges to develop and maintain online examination system such as-

It is web-based application, browser are using to run this system. The data file is stored. Such as, Server Space availability, illiteracy, lack of Internet Knowledge of end user etc [6].

### 2.5.1 Internet Availability

In our country very few place have suitable internet connectivity. View to low bandwidth is very tough participate online exam spontaneously. Spontaneous electricity is also require for online examination system.

### 2.5.2 Lack of Internet Knowledge of End User

People must be trained for basic computer concepts. There is very few people in our country who has knowledge about IT. General English knowledge required must for this site.

# CHAPTER 3

# REQUIREMENT SPECIFICATION

## 3.1 Introduction

This chapter covered the whole requirements of our project and analysis it. It's the most important part because of it shows how the requirements are interacted with the system. It focuses on the business processes that are taking place and how these requirements can be fulfilled more efficiently to achieve the project.

## 3.2 Requirement Collection and Analysis

Requirements analysis is an important characteristic of project management. Requirements analysis is the process of determining user expectations for a new or modified product. These features, called requirements, must be proven, relevant and detailed.

### 3.2.1 Software Requirement

The software requirements are description of features and functionalities of the target system. Many Requirements needed of our project likes operating system, Front End design, Back End design and Browser. Operating system likes Windows 7, Windows 8, Windows 8.1, Windows 10 and others are compliable of our system. Net Beans, PHP Strom, Adobe Dreamweaver software are used for Front End design. Apache Server, Myself (XAMPP) are used for Back End design. Browser likes Mozilla Firefox, Google Chrome, Internet Explorer and others are using to run this system.

### 3.2.2 Hardware Requirement

This program can run on multiple devices and has cross-platform portability and usability. These include different operating systems and browser compatibility too. A minimum processor speed of 1GHz is required for its smooth calculation process. Also it will take up at least 200 MB space in the hard-drive and occupy 1GB of RAM while operating.

### 3.2.3 User Requirements

Application will be accessed through a browser .user must have knowledge about it section otherwise they cannot handle it.

Every user should be:

- Comfortably work with computer.
- He must also have basic knowledge of English.

## 3.3 Use Case Modeling and Description

### 3.3.1 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well [7].

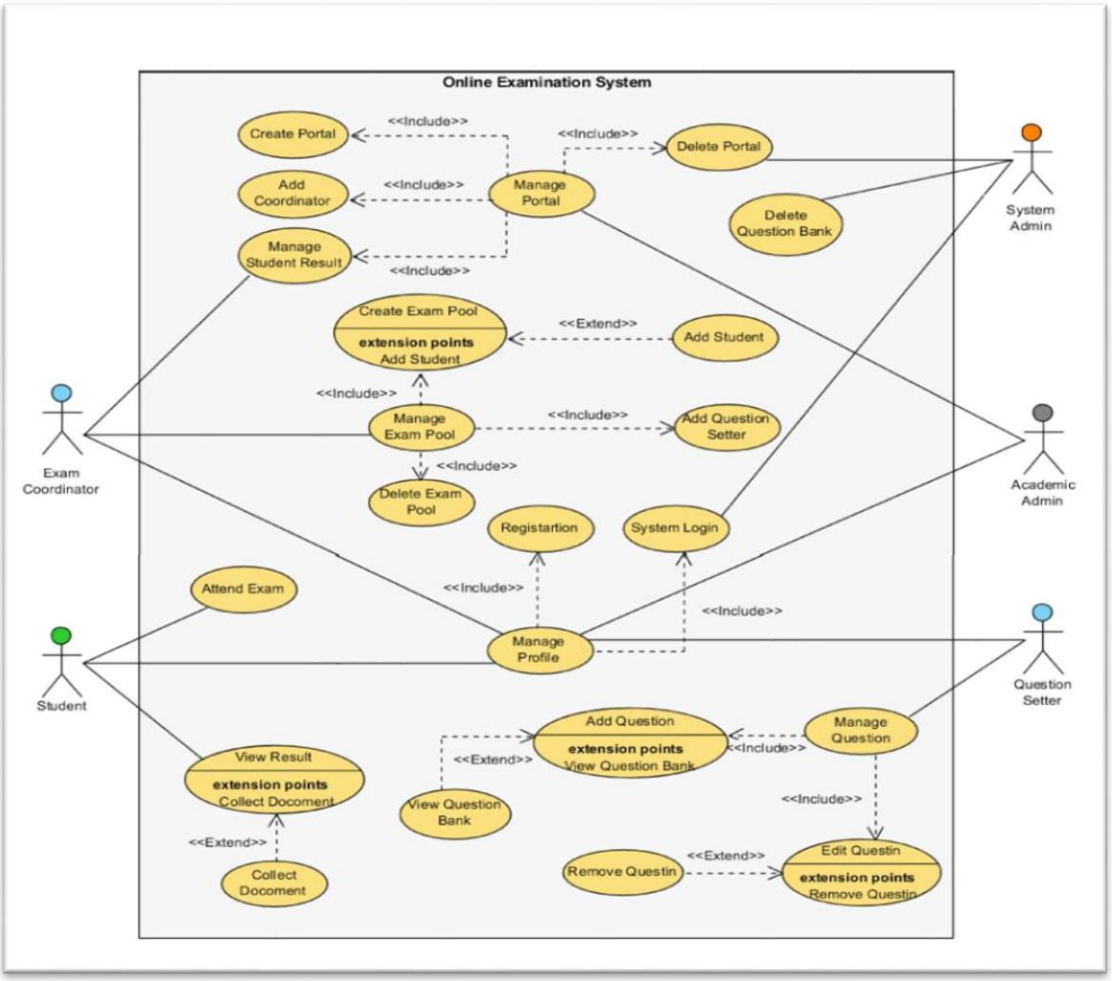


Figure 3.1: Use case diagram of online exam system

## Use case description:

## System login

| | |
|---|---|
| Use case Id | Uc-0 |
| Use case name | System Login |
| Actor | Student, exam coordinator, system admin, academic admin, question setter |
| Description | This use case describes how user log into the system |
| Pre-condition | Registration |
| Post-condition | Login successfully |
| Normal flow | 1.open browser |

| | |
|---|---|
| | 2.Enter our system<br>3.input valid user name and password<br>4. login successfully |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.1**: Use case for system login.

## Create portal

| | |
|---|---|
| Use case Id | Uc-1 |
| Use case name | Create portal |
| Actor | Academic admin. |
| Description | This use case describes how to create portal into the system. |
| Pre-condition | Registration, login. |
| Post-condition | None |
| Normal flow | 1.open browser<br>2.Enter our system<br>3.input valid user name and password<br>4. login successfully<br>5.create portal |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.2**: Use case for create portal.

## Delete portal

| | |
|---|---|
| Use case Id | Uc-2 |
| Use case name | Delete portal |
| Actor | system admin, |
| Description | This use case describes how system admin delete the portal. |
| Pre-condition | Registration, login |
| Post-condition | None |
| Normal flow | 1.open browser<br>2.Enter our system<br>3.input valid user name and password<br>4. login successfully<br>5. delete portal |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.3**: Use case for delete portal.

## Create exam portal

| | |
|---|---|
| Use case Id | Uc-3 |
| Use case name | Create exam pool |
| Actor | exam coordinator |
| Description | This use case describes how exam coordinator create the exam pool. |
| Pre-condition | Registration, login, |
| Post-condition | Add question setter , add student, delete exam pool, |
| Normal flow | 1.open browser |

| | |
|---|---|
| | 2.Enter our system<br>3.input valid user name and password<br>4. login successfully<br>5.create exam pool |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.4**: Use case for create exam portal.

## Delete exam portal

| | |
|---|---|
| Use case Id | Uc-4 |
| Use case name | Delete exam pool |
| Actor | exam coordinator |
| Description | This use case describes how exam coordinator delete the exam pool. |
| Pre-condition | Registration, login, create portal |
| Post-condition | None |
| Normal flow | 1.open browser<br>2.Enter our system<br>3.input valid user name and password<br>4. login successfully<br>5.Delete portal |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.5**: Use case for delete exam portal.

## Set question

| | |
|---|---|
| Use case Id | Uc-5 |
| Use case name | Set question |
| Actor | Question setter |
| Description | This use case describes how question setter set the question. |
| Pre-condition | Registration, login, view question bank |
| Post-condition | Edit question, Remove question |
| Normal flow | 1.open browser<br>2.Enter our system<br>3.input valid user name and password<br>4. login successfully<br>5.Set question |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.6**: Use case for set question.

## Attend exam

| | |
|---|---|
| Use case Id | Uc-6 |
| Use case name | Attend exam |
| Actor | Student |
| Description | This use case describes how student attend exam in this system. |
| Pre-condition | Registration, login, attend exam |
| Post-condition | View result |
| Normal flow | 1.open browser<br>2.Enter our system |

| | |
|---|---|
| | 3.input valid user name and password<br>4. login successfully<br>5.attend exam |
| Alternative flow | 1.login failed<br>2.server error<br>3.Invalid user name and password |

**Table 3.7**: Use case for attend exam.

## 3.4 Logical Data Model

Logical data modeling is the process of representing data architecture and organization in a graphical way without any regard to the physical implementation or the database management system technology involved in storing the data. A logical data model provides all the information about the various entities and the relationships between the entities present in a database.

### 3.4.1 Entity Relationship Diagram (ERD)

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. In other words, ER diagrams illustrate the logical structure of databases. At first glance an entity relationship diagram looks very much like a flowchart [8].

### 3.4.1.1 Entity Relationship Diagram for System

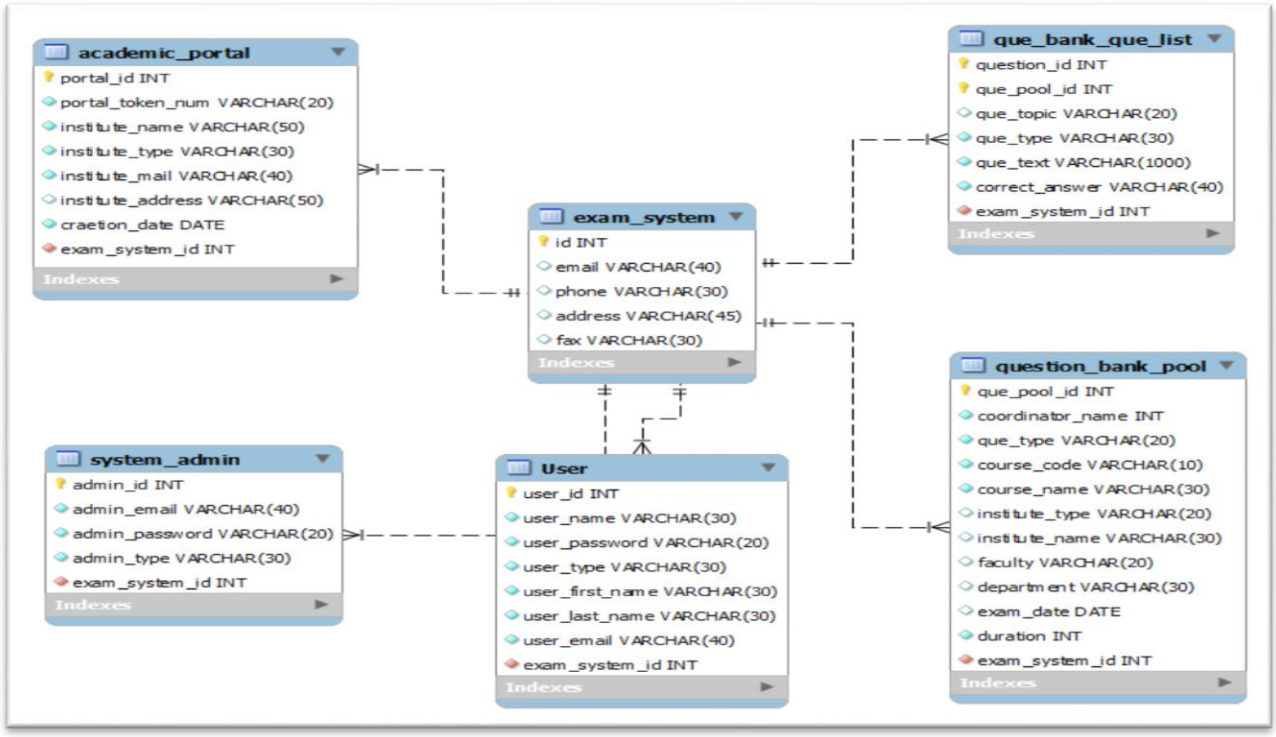


**Figure 3.2** entity relationship diagram of online exam system (system)

### 3.4.1.2 Entity Relationship Diagram for Academic Institute

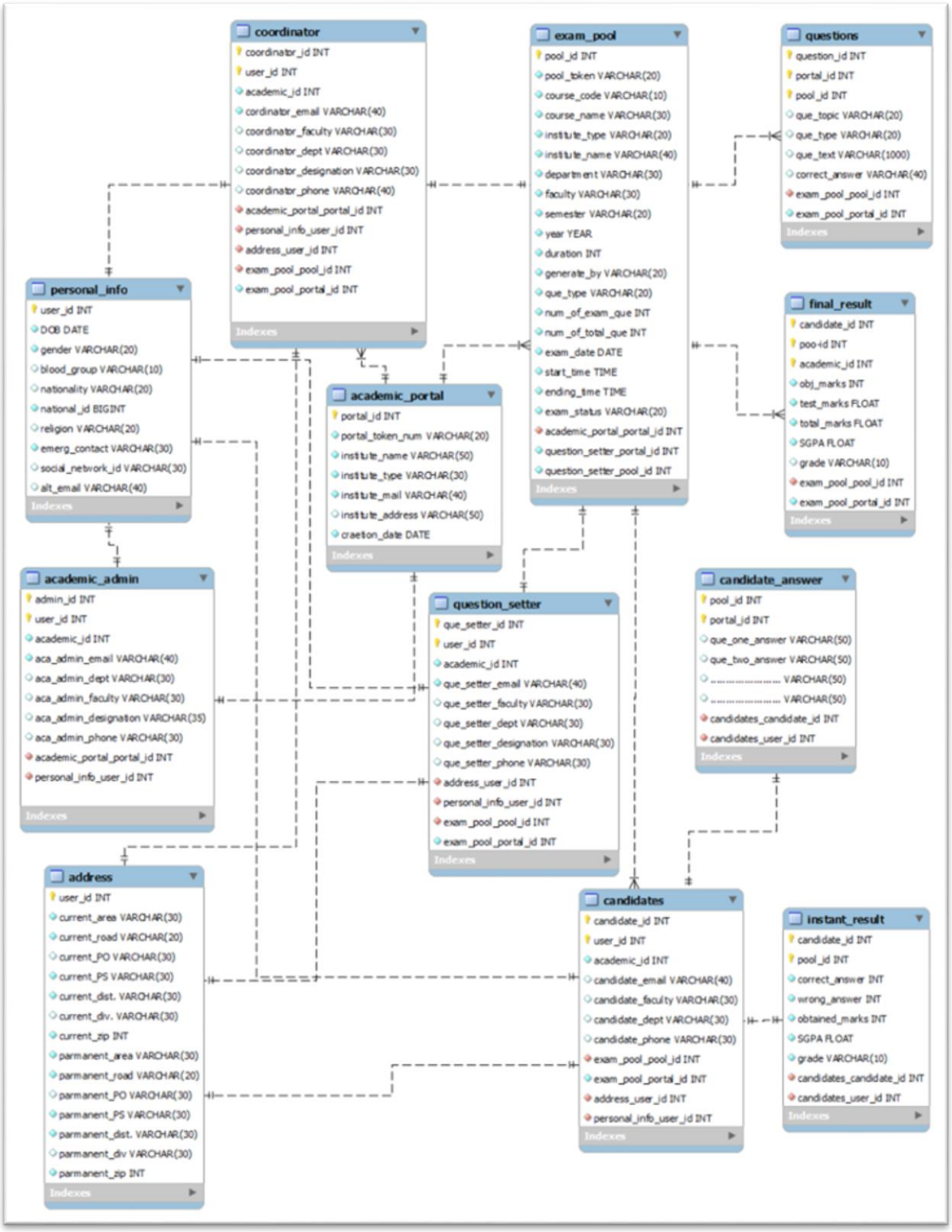


**Figure 3.3** entity relationship diagram of online exam system (academic institute)

### 3.4.2 Data Flow Diagram (DFD)

A data flow diagram (DFD) is a graphical representation of the flow of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated [9].

### 3.4.2.1 How to Create a Data Flow Diagram

1. Adding the symbols that represent processes, data stores, dataflow and external entities
2. Connecting the symbols with lines to represent the flow of information
3. Adding text in the symbols
4. Show any loops back to previous steps or link to sub-processes

### 3.4.2.2 Data flow diagram notations

All data flow diagrams include four main elements: entity, process, data store and data flow.

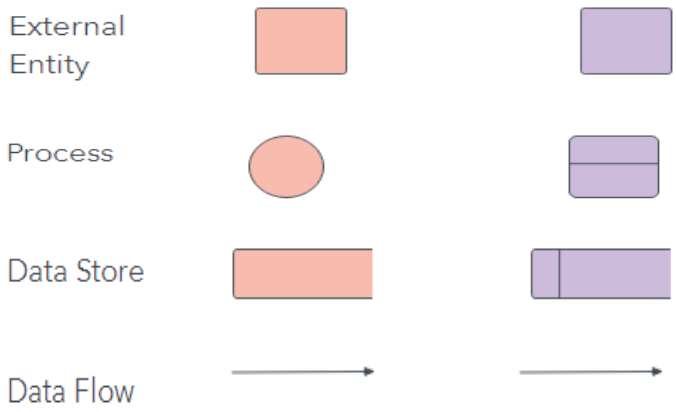


**Figure3.4**: Data flow diagram notations.

### 3.4.2.3 Terms and Acronym

| No. | Terms/Actors | Types |
|---|---|---|
| 1 | Student | Student, Candidate |
| 2 | Admin | Academic admin |
| 3 | Faculty Members | Exam coordinator, Question setter |

**Table 3.8**: Terms and Acronyms.

**Data Flow Diagram of our Project**

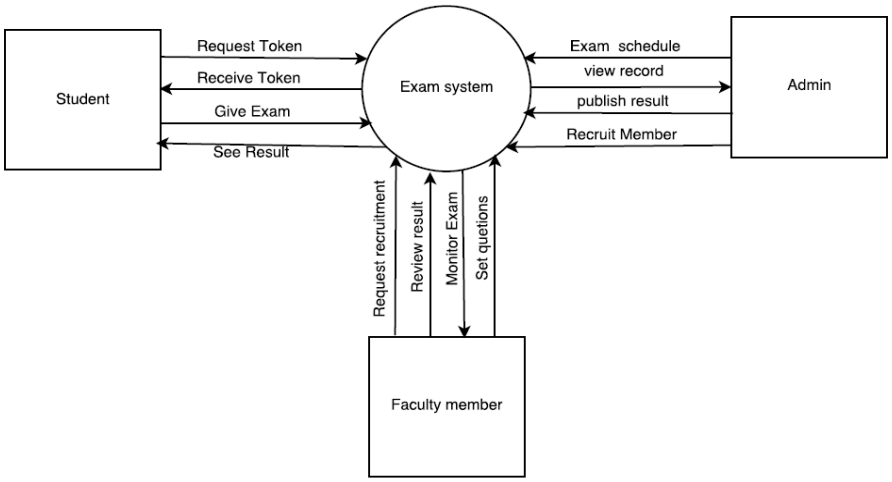


**Figure-3.5:** Context Level DFD for Online Examination System.

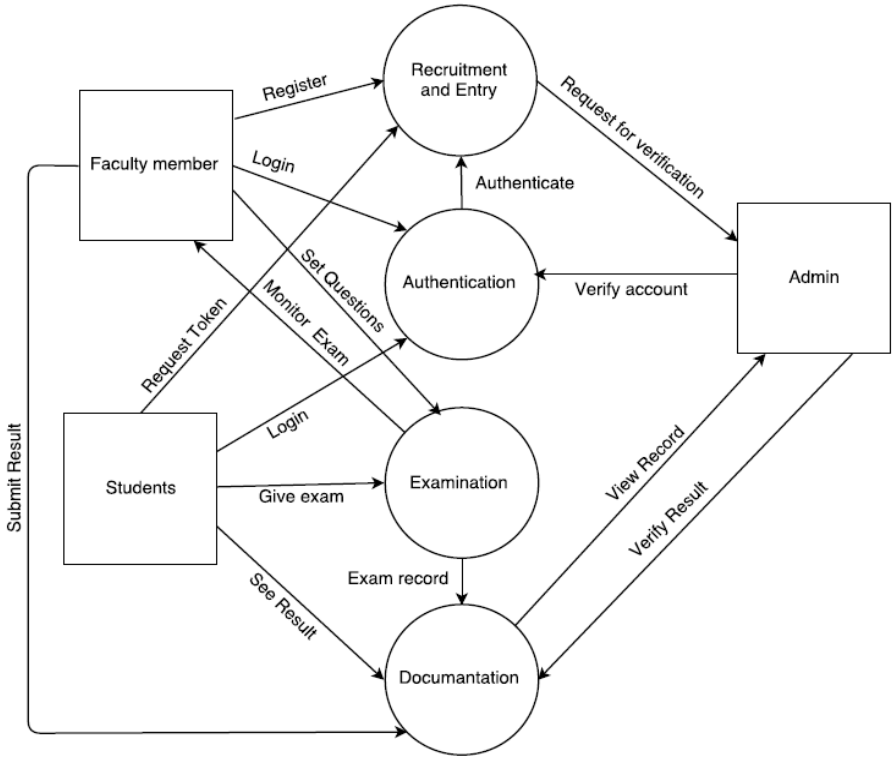


**Figure-3.6:**Level 0 DFD for Online Examination System.

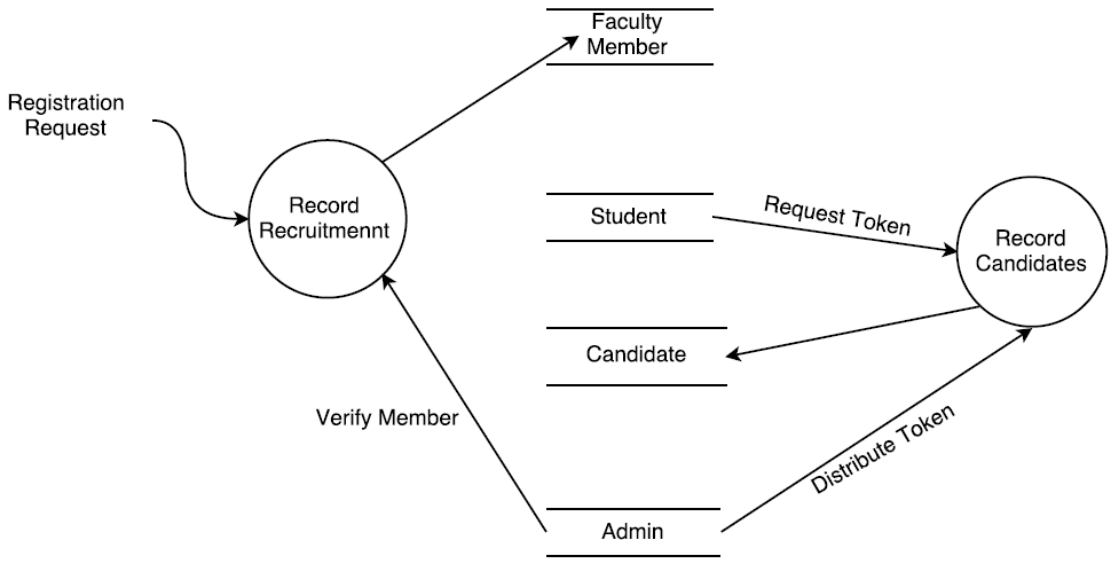


**Figure-3.7:** Level 1 DFD for Recruitment.

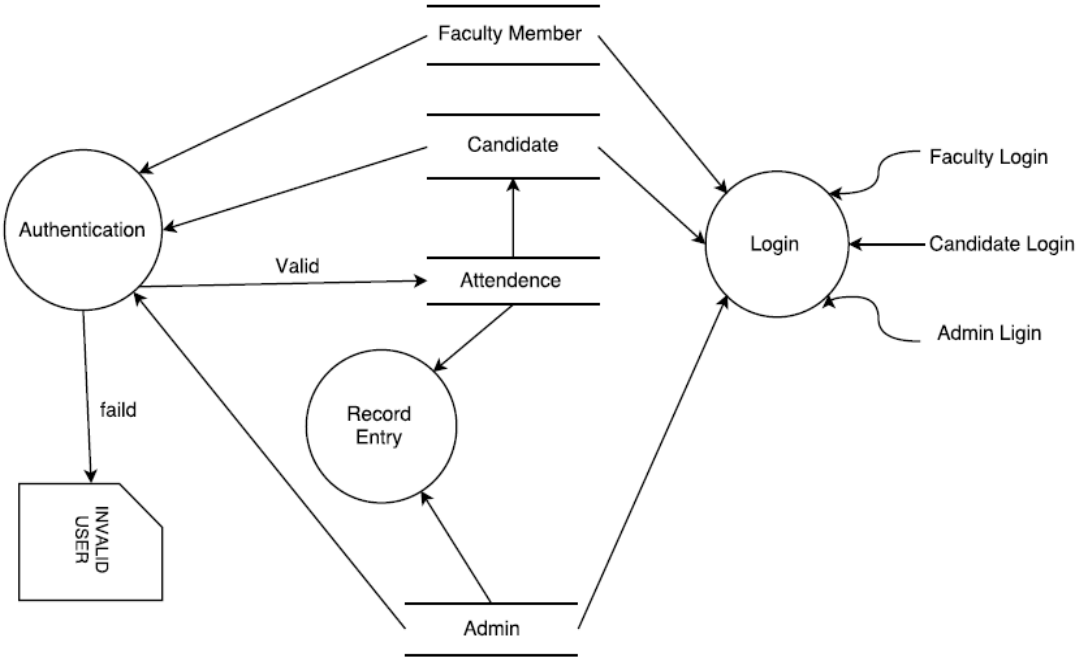


**Figure-3.8:**Level 1 DFD for Authentication.

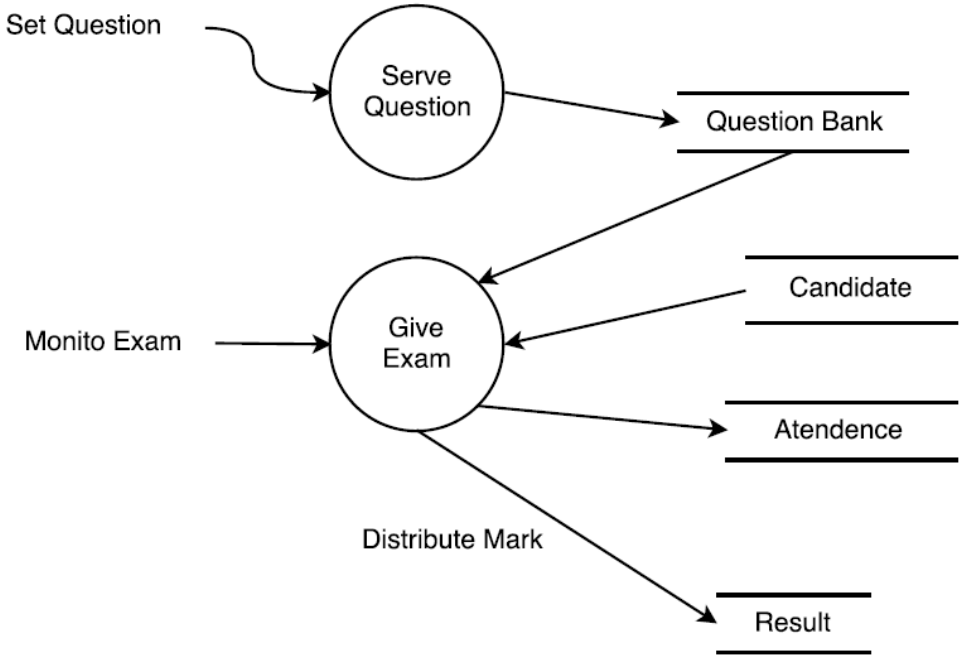


**Figure-3.9:** Level 1 DFD for Examination.

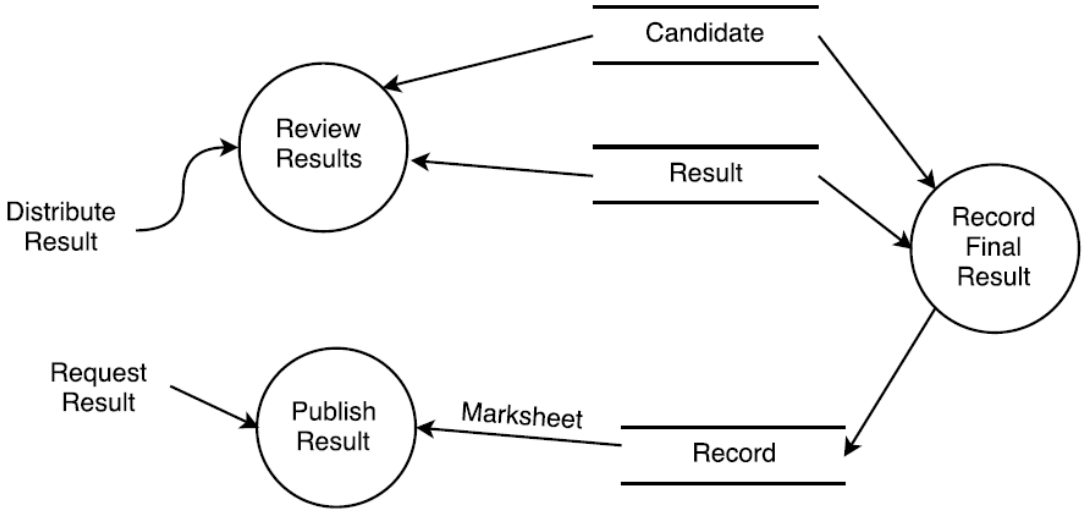


**Figure-3.10:** Level 1 DFD for Documentation.

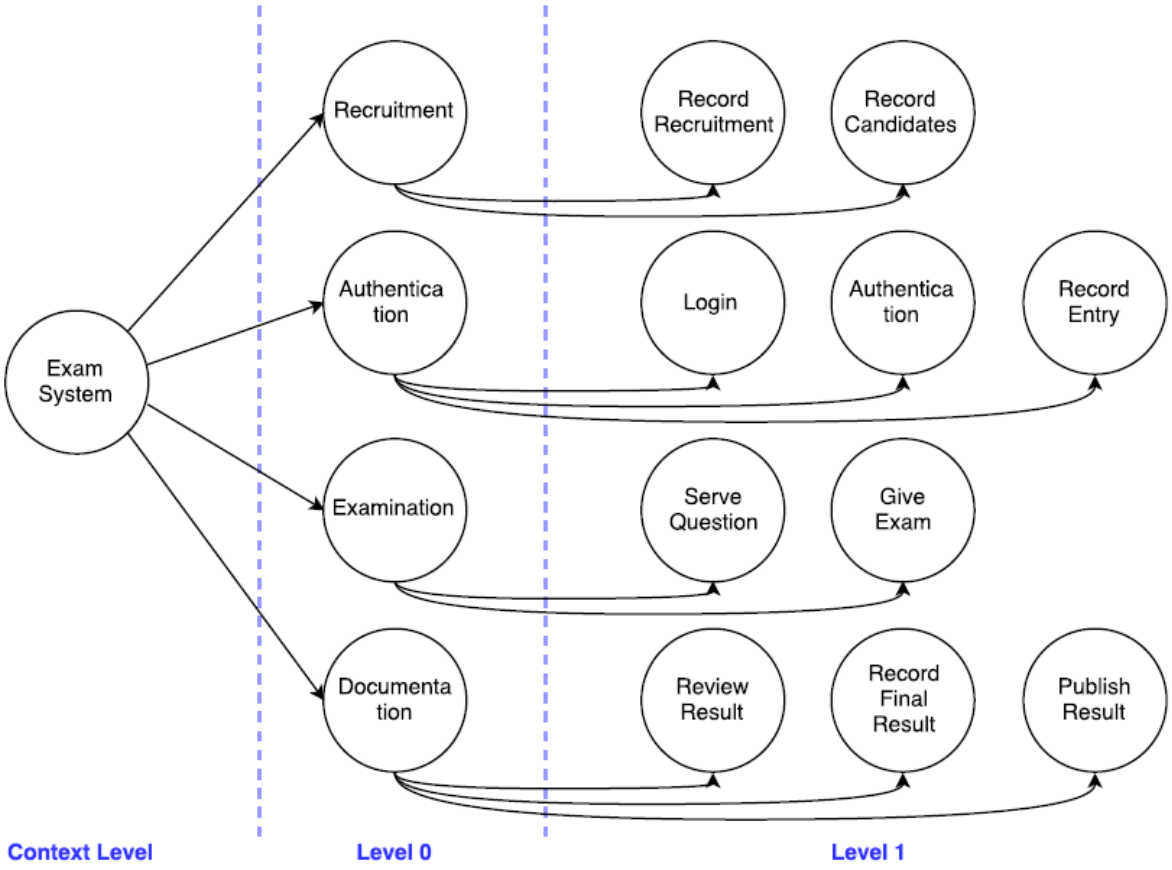


**Figure-3.11:** Process Decomposition.

## 3.5 Business Process Model and Notation (BPMN)

A standard Business Process Model and Notation will provide businesses with the capability of understanding their internal business procedures in a graphical notation and will give organizations the ability to communicate these procedures in a standard manner. Its gives everyone a clear understanding of how the process works. Also sets a clear idea about starting and ending of process and Provides consistency and controls the process.

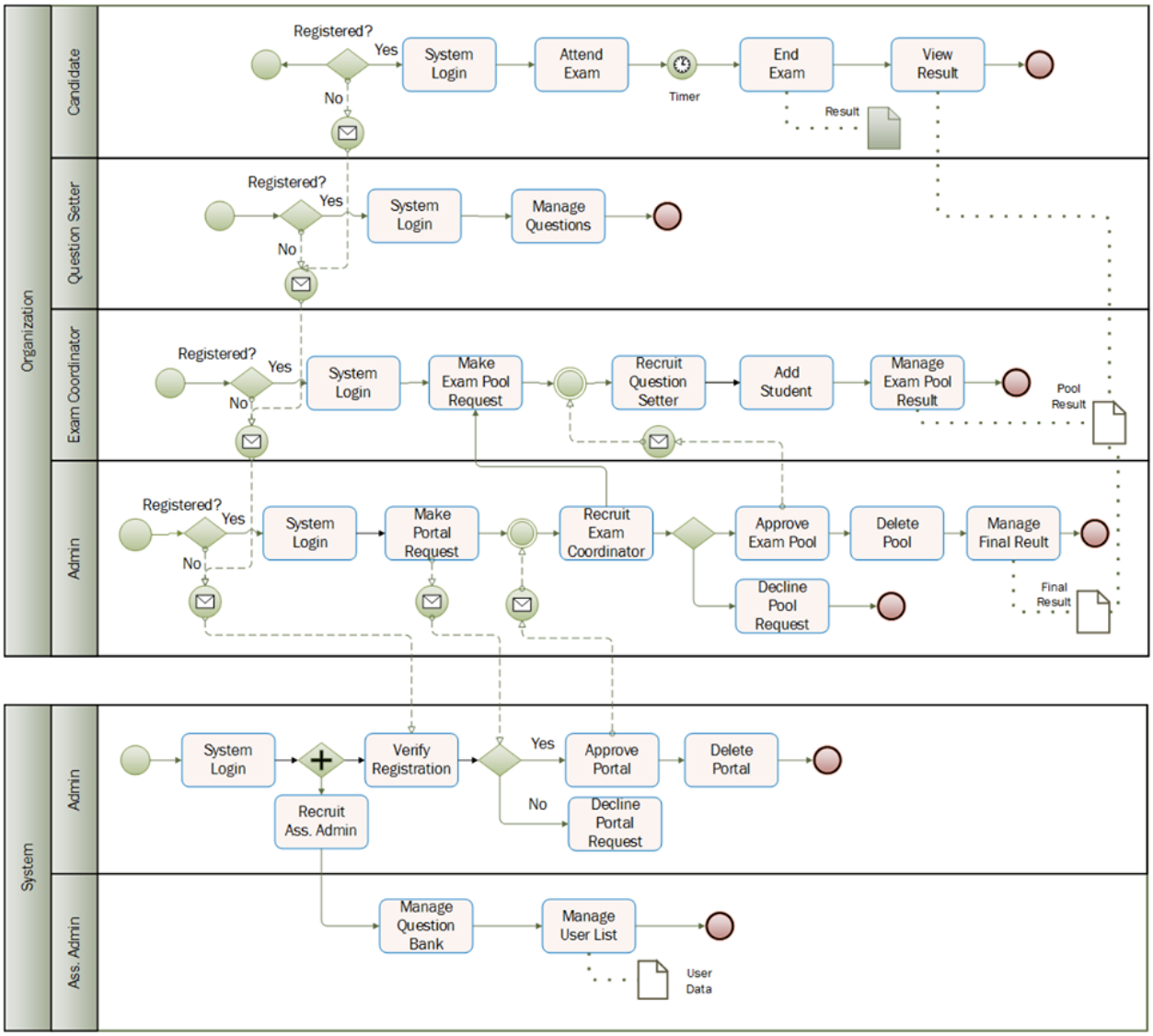


**Figure 3.12:** Business process model of online exam system.

## 3.6 Design Requirement

Font-end Design: HTML5, CSS3, Bootstrap4, JavaScript3.

Back-end Design: MySQL, PHP7.

# CHAPTER 4

# DESIGN SPECIFICATION

## 4.1 Front-end Design

Font end deals with outlook. HTML [10], CSS [11] and bootstrap [12] to code using Front end developers. There will be six types of users those are Student, Admin, Assistant admin, Exam coordinator. Every user will login using simple login form. Login field are email address and password will include forgot password option for recovery or generate new password.

### 4.1.1 Home Page

Welcome to your online exam system

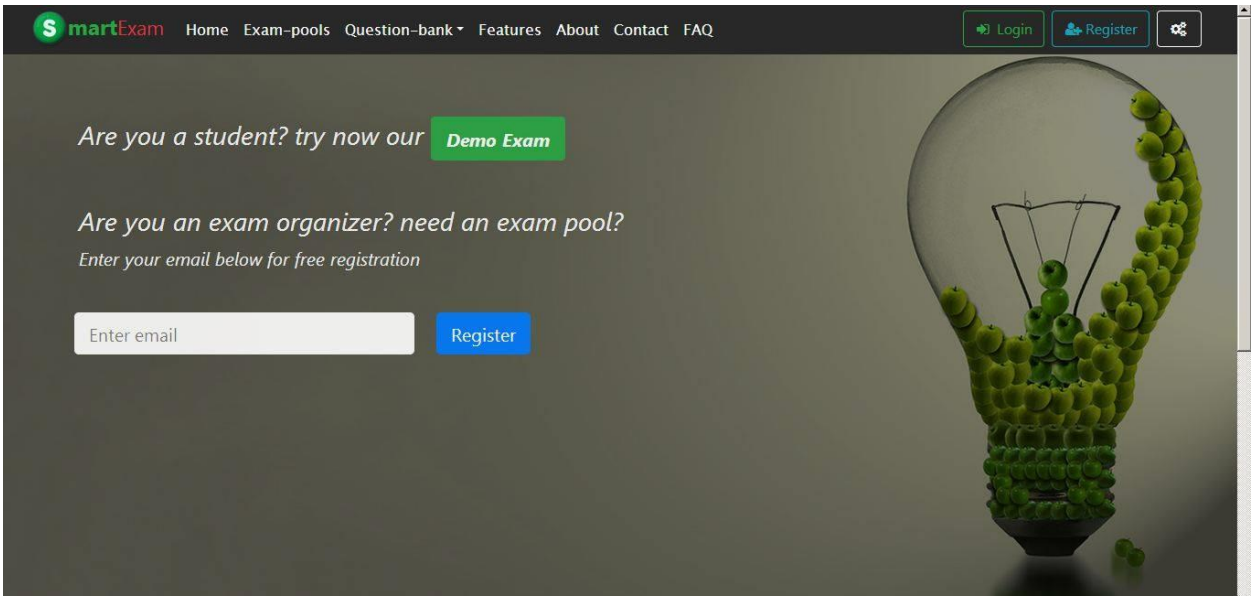


**Figure 4.1: Homepage**

### 4.1.2 Registration Page

Using this page all the users except Admin and Ass Admin can join with this system.

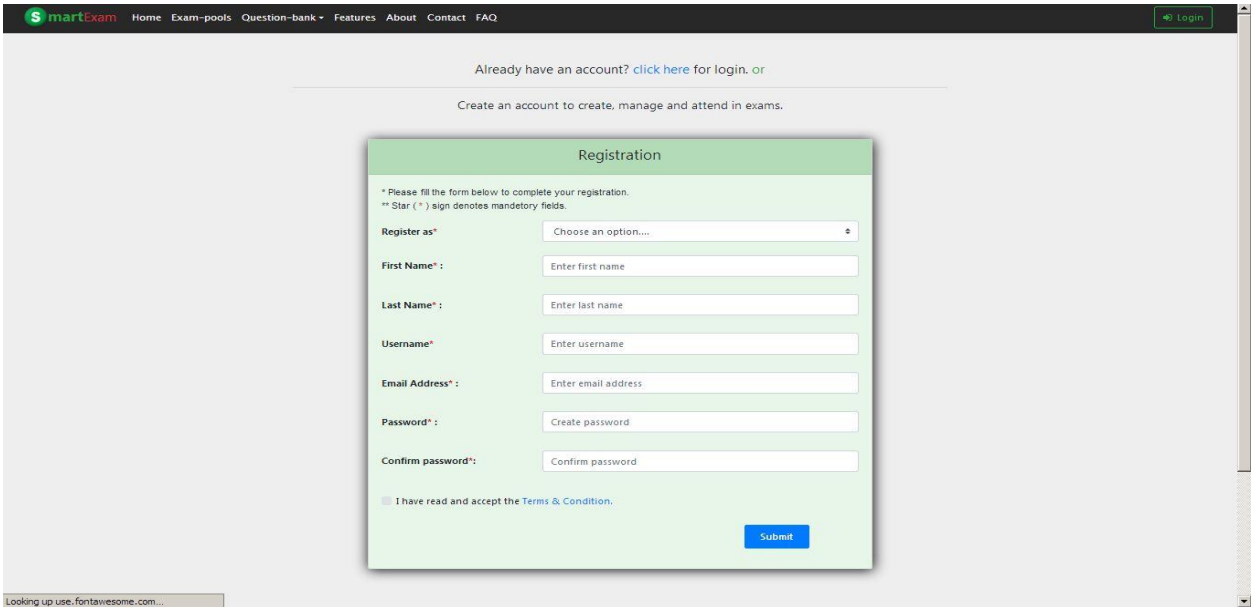


**Figure 4.2:** Registration page

### 4.1.3 Login page

This page will be used for user login into the system.

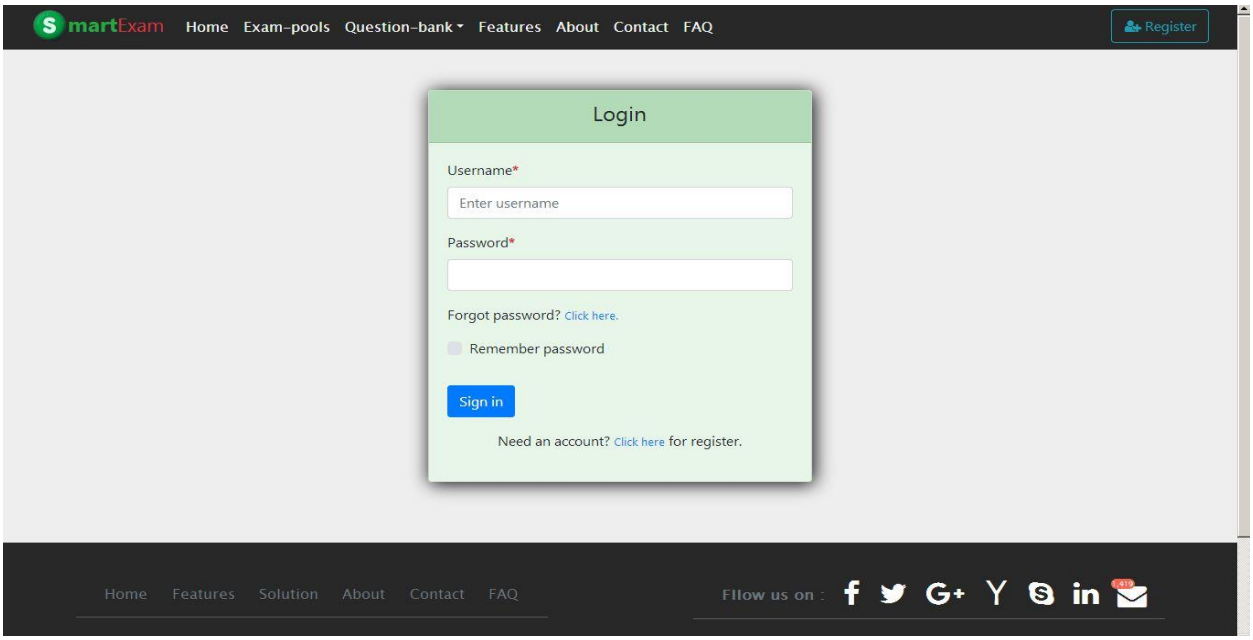


**Figure 4.3:** Login page

### 4.1.4 System Admin Homepage

System Admin can manage the portal and approved academic admin request to create portal. He/she also can delete portal.

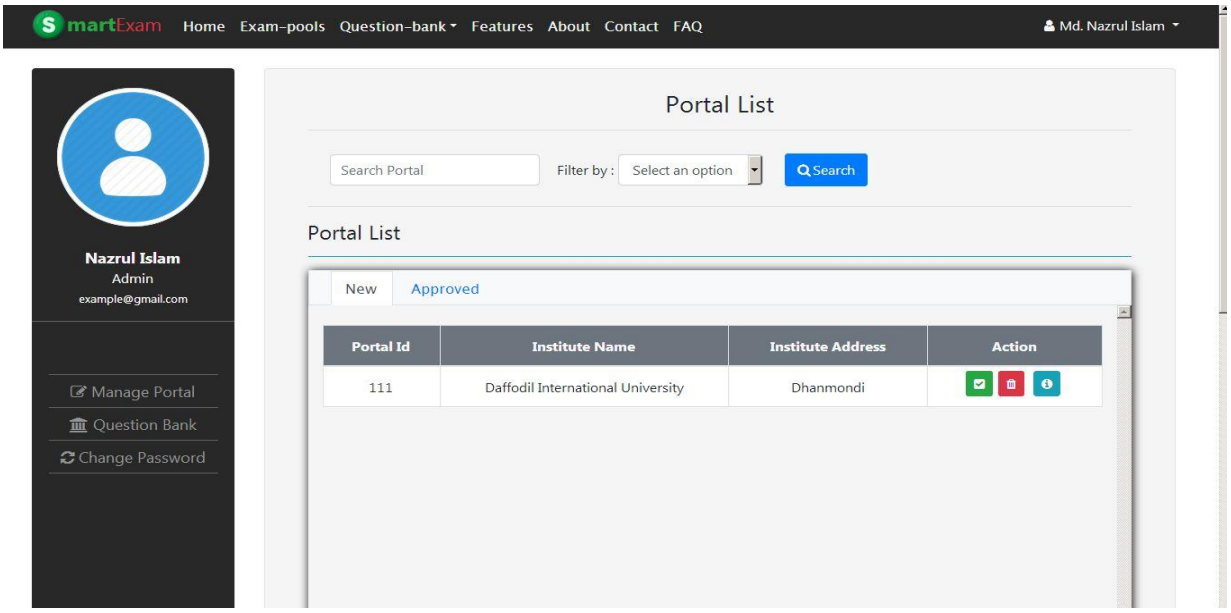


**Figure 4.4:** System admin Homepage

### 4.1.5 Academic admin Homepage

Academic admin can create portal, add coordinator and view student list.

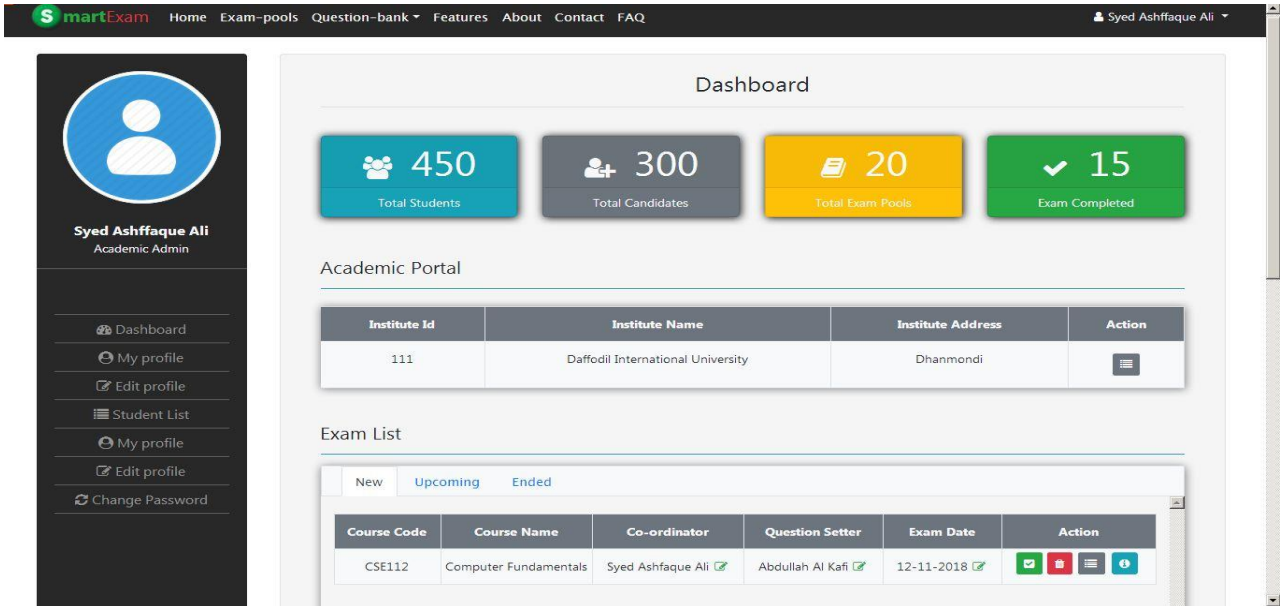


**Figure 4.5:** Academic admin homepage

### 4.1.6 Create portal

By using this page academic admin will be able to create portal for his/her institution.

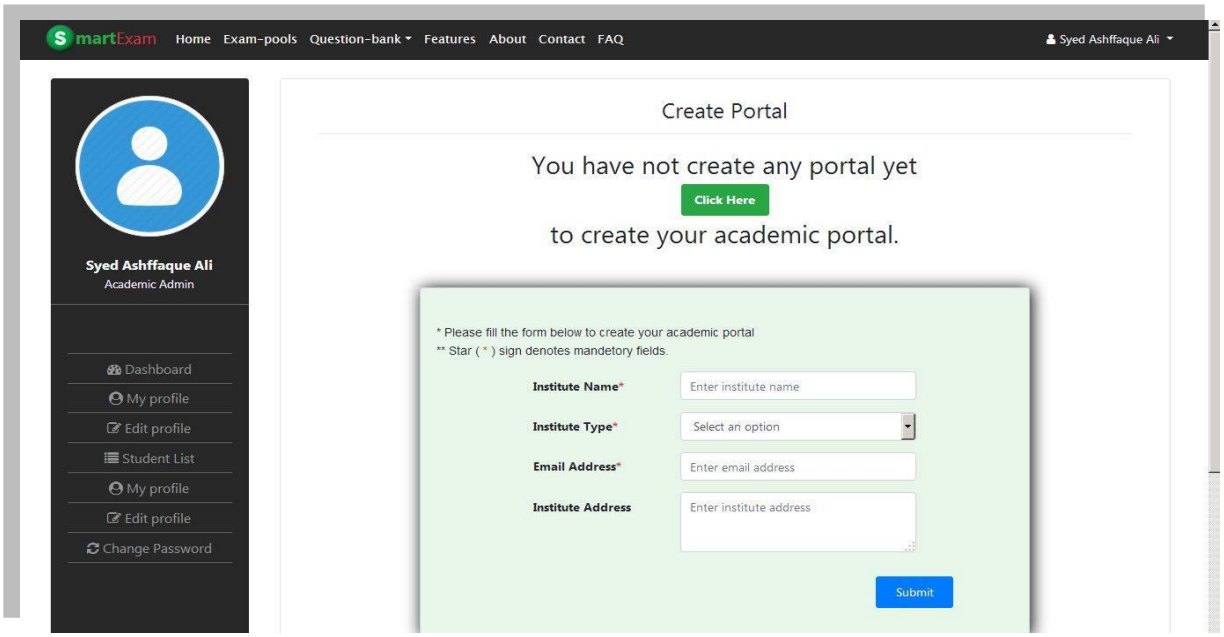


**Figure4.6:** Create portal

### 4.1.7 Exam coordinator Home page

Exam coordinator can create exam pool, delete exam pool, add and remove question setter as well as add and remove student.

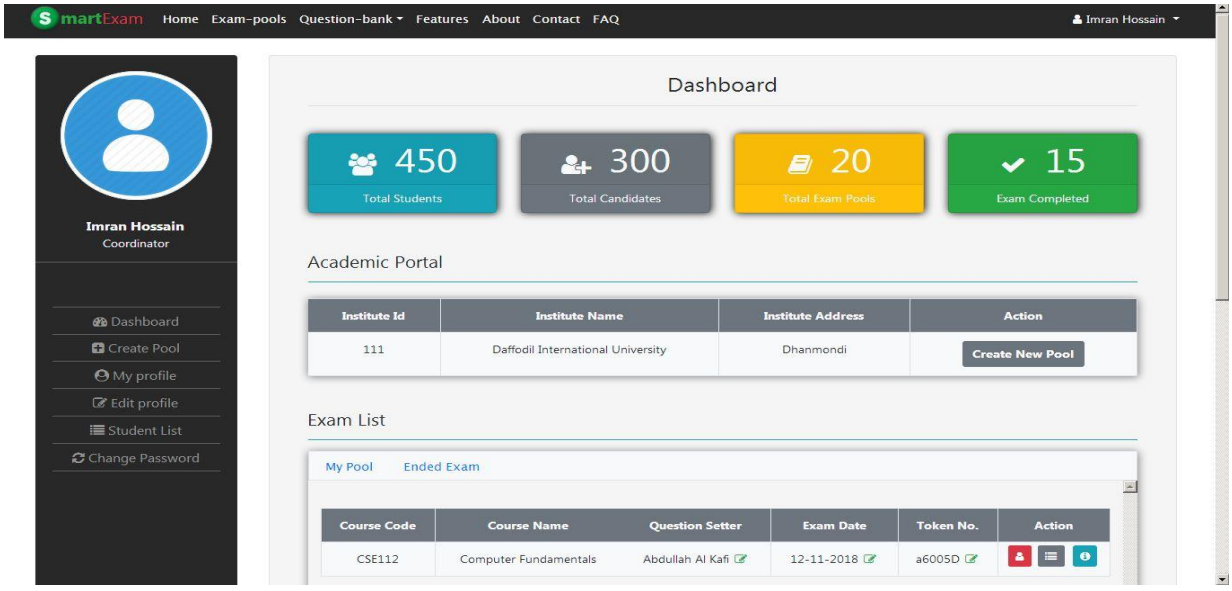


**Figure 4.7:** Coordinator homepage

### 4.1.8 Create exam Pool

Only academic admin can create exam pool. At first he /she login into the system then they request to system admin to create an exam pool. After verify the login process system admin approve the request of academic admin.

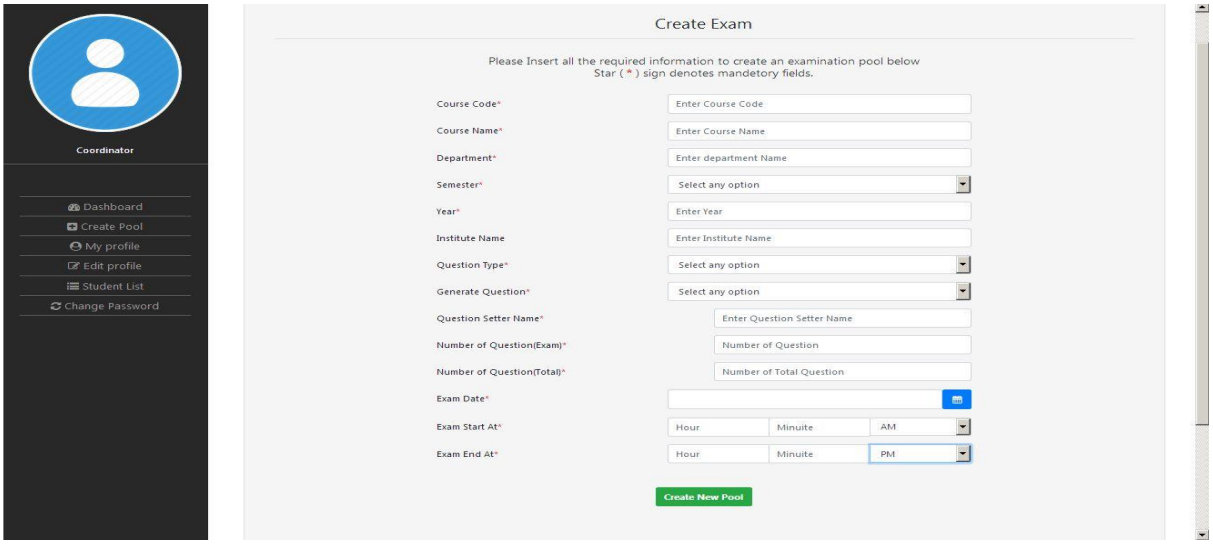


**Figure 4.8:** Create exam pool.

### 4.1.9 Exam pool

By using this page coordinator will be able to create pool for his/her institution

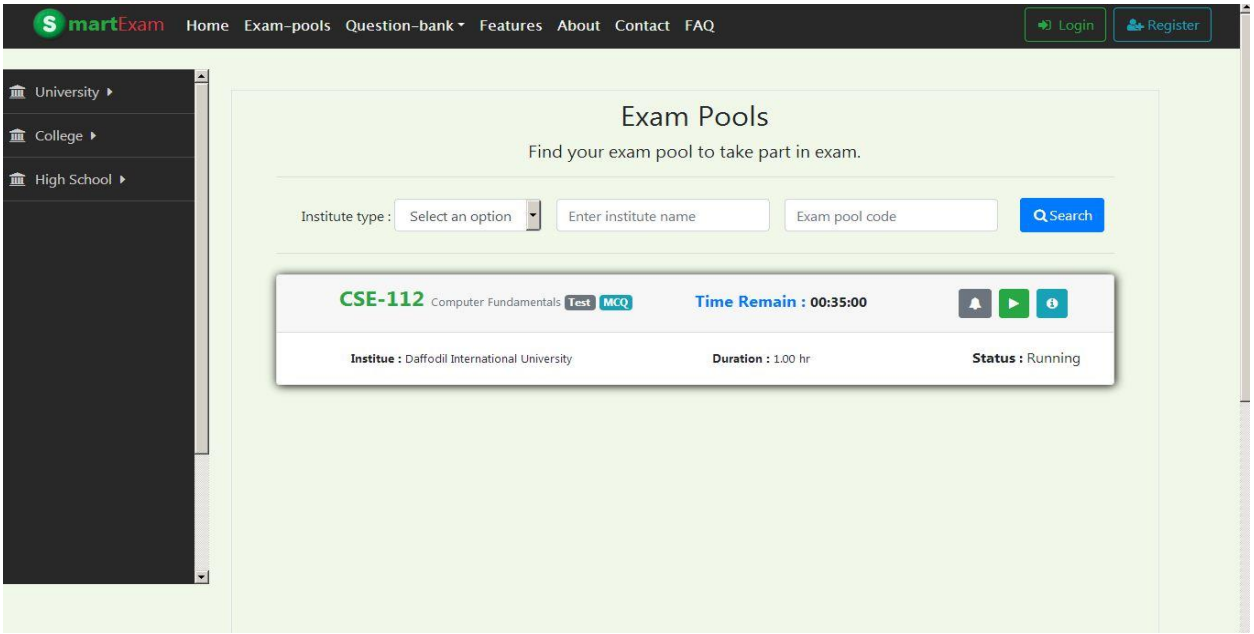


**Figure 4.9:** Exam pool

### 4.1.10 Question setter home page

Question setter added question to question bank and delete also.

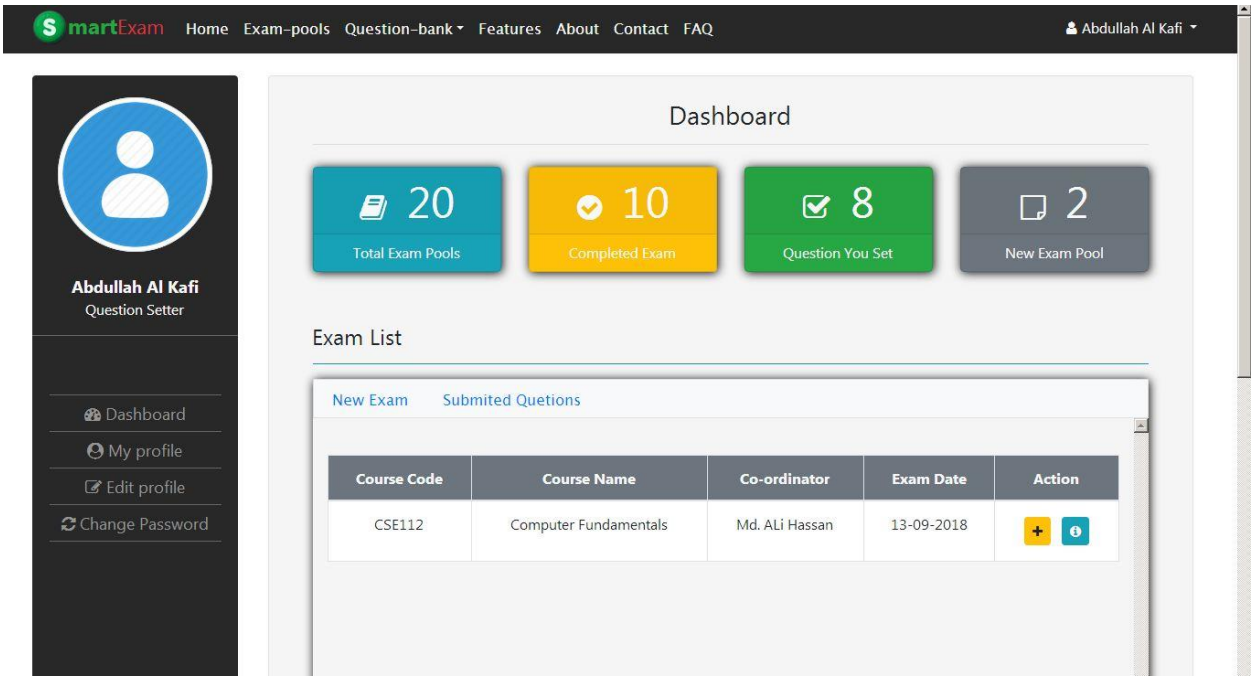


**Figure 4.10: Question setter home page**

### 4.1.11 Set Question

Only question setter set the question**.**

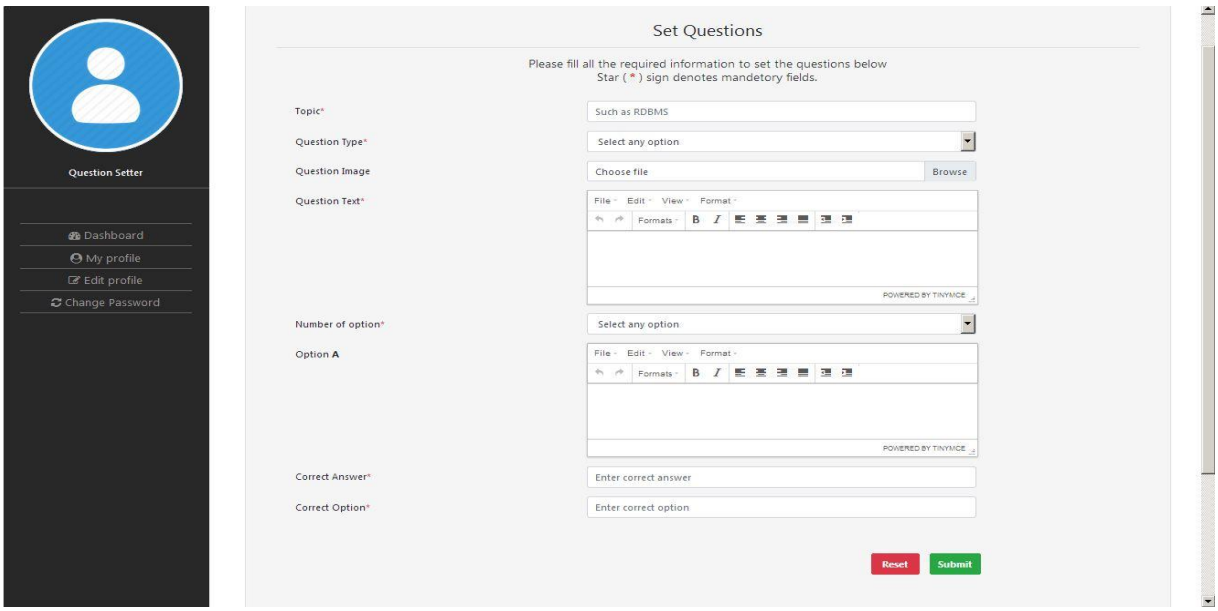


**Figure 4.11:** Set question

### 4.1.12 Student home page

Student can attend the exam

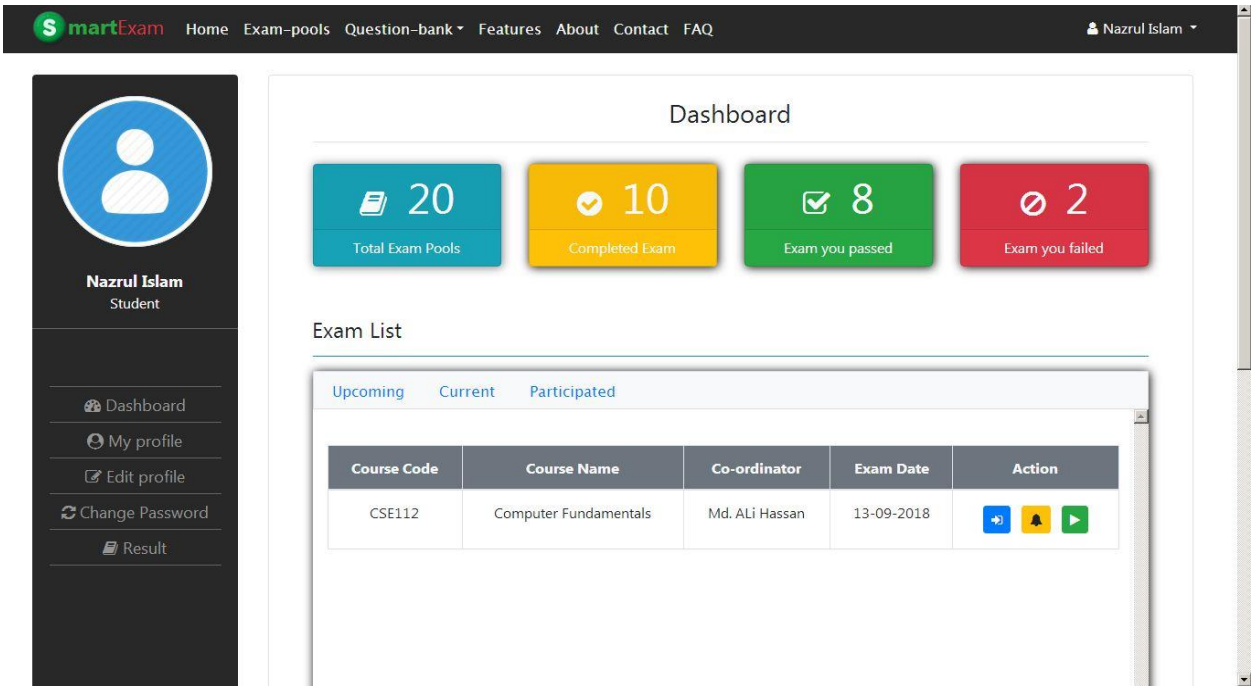


**Figure 4.12:** Student home page

### 4.1.13 Exam panel

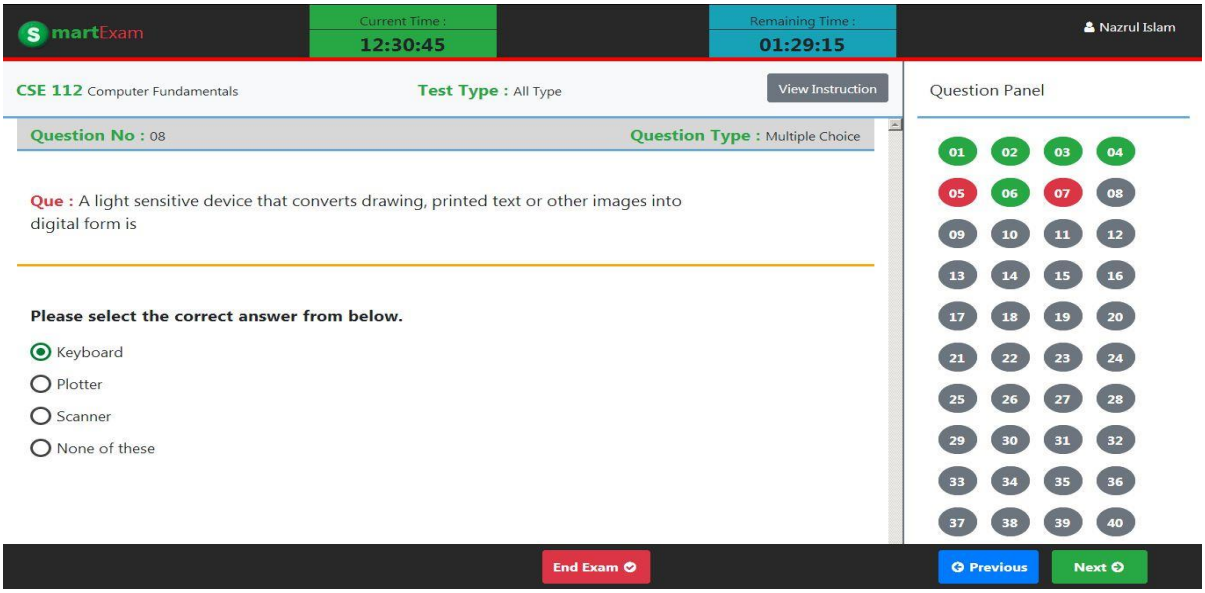


**Figure4.13:** Exam panel

### 4.1.14 Exam result

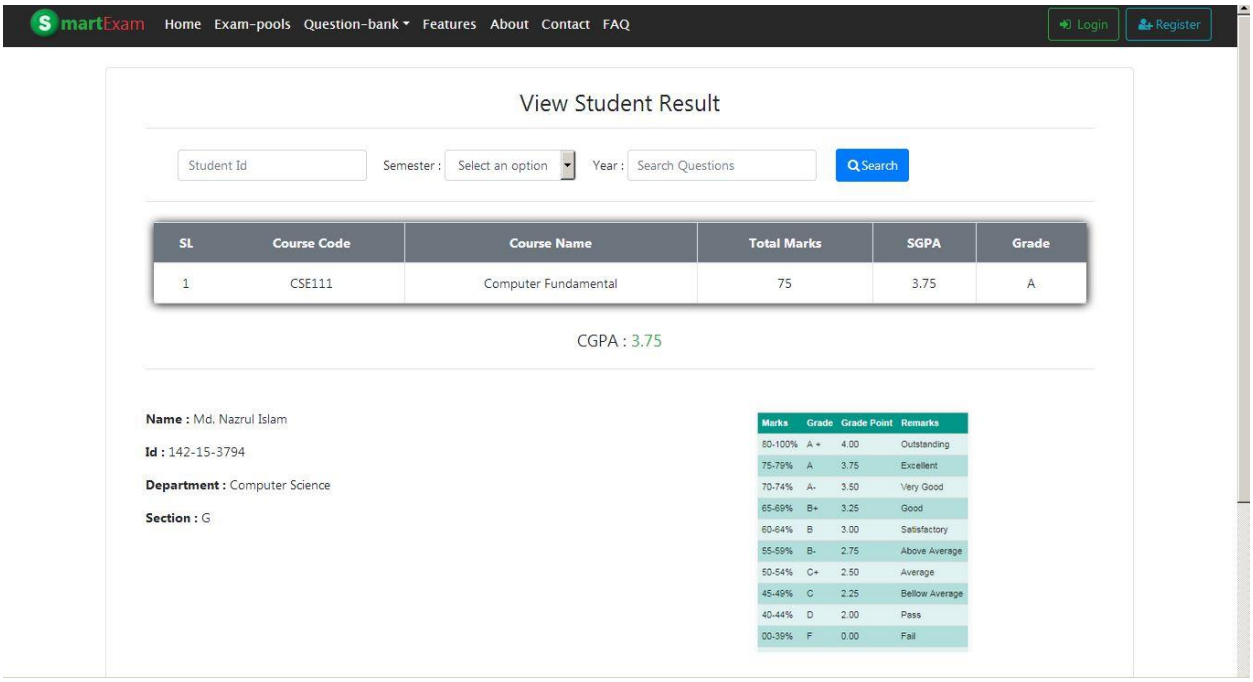


**Figure4.14:** Result page

## 4.2 Back-end Design

Back end deals with the working of the website. PHP [13], JavaScript [14] to code using Front end developers. Admin will manage the software using default settings of the software. Admin will add the assistant admin. Admin and assistant admin representative also he/she can manage them. JavaScript code using our project showing timer how left remaining time and current time. When finished exam then automatically result this portion using php code.

## 4.3 Interaction Design and UX

Interaction diagram are models that describe how a group of objects inter act with the system.

At first academic admin request to login into the system then system admin verify the login and approve it. Then academic admin create the portal and add exam coordinator. Exam coordinator creates exam pool and adds question setter as well as student. They can remove question setter and student also. Question setter can set the question from question bank and delete the question. Student only can attend the exam.

### 4.3.1 Academic Admin to System

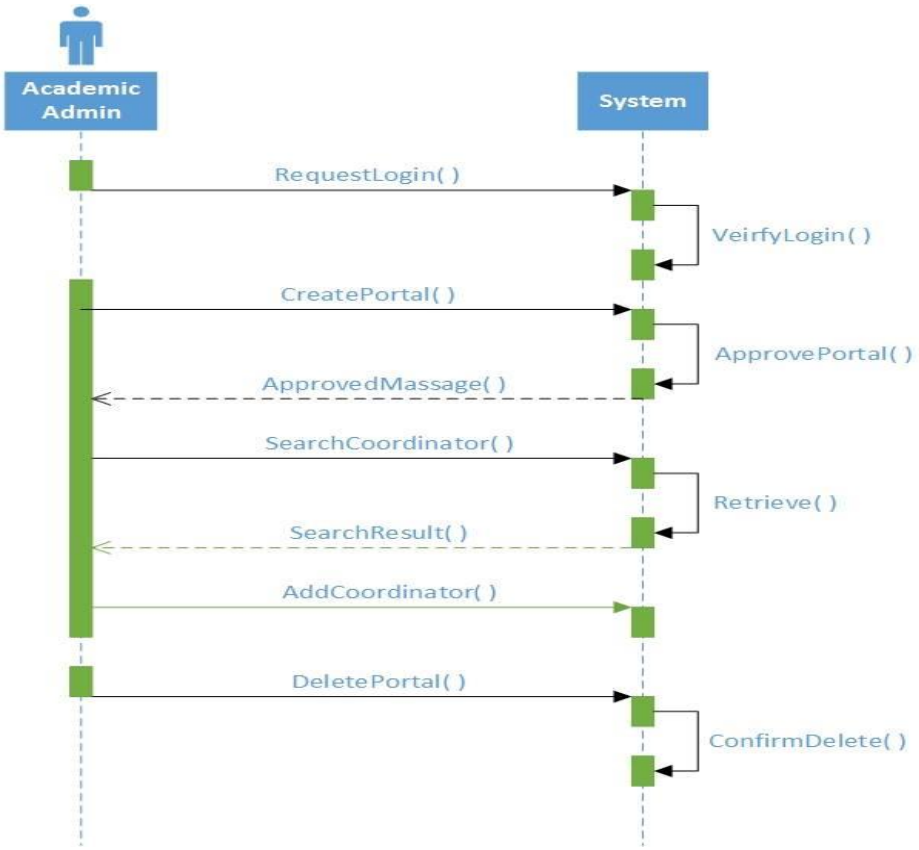


**Figure 4.15:** Interaction diagram (academic admin to system).

### 4.3.2 Exam Coordinator to System

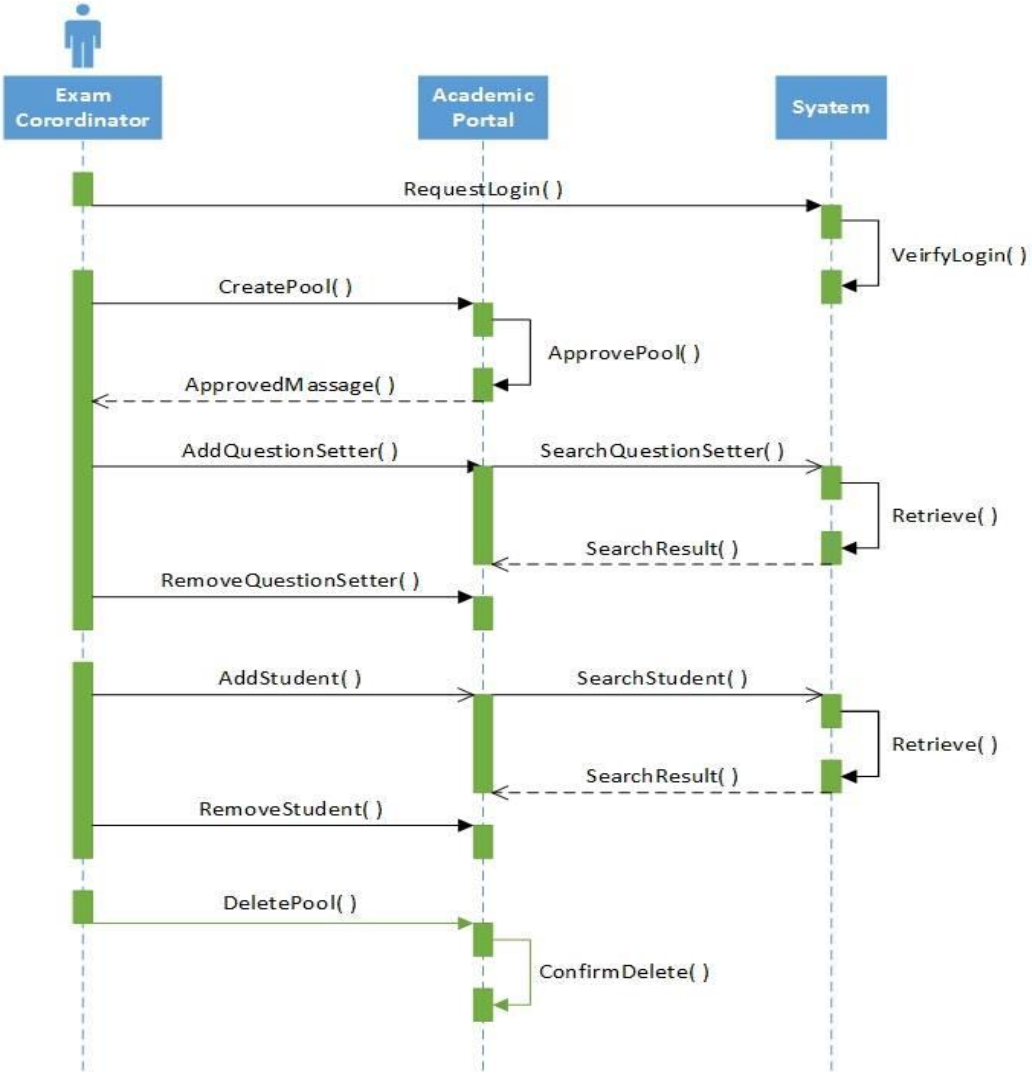


**Figure 4.16:** Interaction diagram (exam coordinator to system).

### 4.3.3 Question setter to System

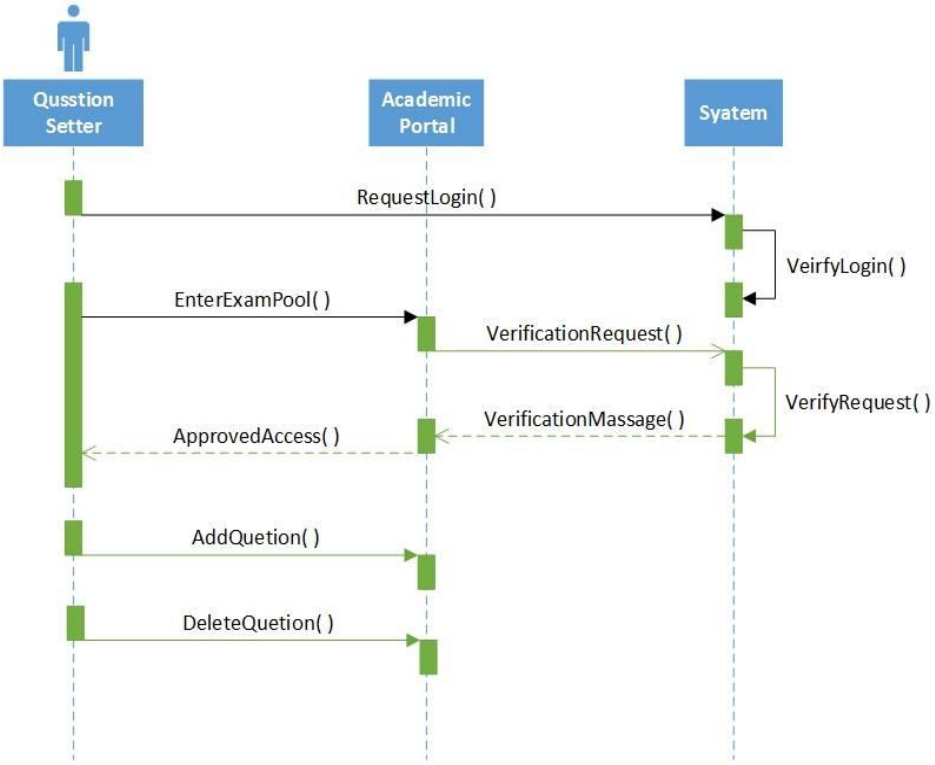


**Figure 4.17**: Interaction diagrams (question setter to system).

### 4.3.4 Candidate to System

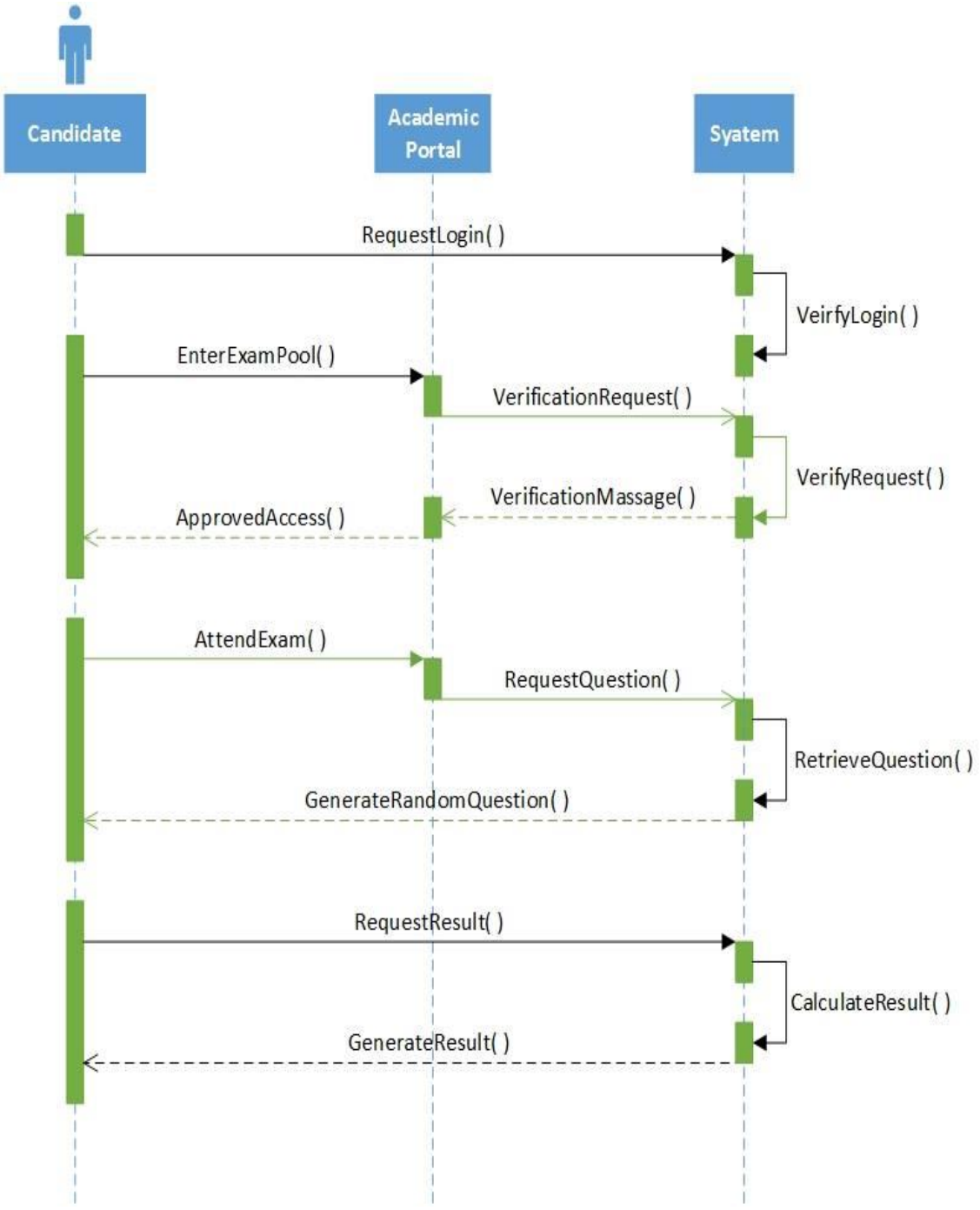


**Figure 4.18:** Interaction diagram (candidate to system).

## 4.4 Implementation Requirements

### 4.4.1 Software Requirements

Software Requirements needed of our project likes font end design and back end design. We are using many tools those are phpstrom, Adobe Dreamweaver, Microsoft Visio, Apache Server and XAMPP. Font end design implementation using Adobe Dreamweaver. Adobe Dreamweaver platform written html and css code using font end design.

PHPstrom platform written php code using back end design. Microsoft Visio using this platform we are draw all diagrams likes Use case, ERD, Interaction Diagram, DFD. These diagram making for most interaction using Microsoft Visio tool. We used Apache Server for making of pc localhost.

### 4.4.2 Language tools

We used php for making of back end design. Java script using for most interaction making of our project.Html and CSS using are font end design.

# CHAPTER 5

# IMPLEMENTATION AND TESTING

## 5.1 Introduction

Software testing process used to identify the correctness, completeness and quality of developed computer software and also execute a program/application under positive and negative condition by manual or automated means its checks specification, functionality, performance.

## 5.2 Implementation of Database

Database implementation is an important role an implementation of our system. There are two kinds of keys database. Primary key and foreign key are the classification key of databases. Primary key is unique for all the record occurrence and foreign key is used to set relation between tables [15]. There are many general objectives to make information for the users like as easy access easy, quick, Inexpensive and flexible [16].

### 5.2.1 Academic admin

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | aca_admin_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique More |
| 2 | user_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique More |
| 3 | portal_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique More |
| 4 | academic_id | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique More |
| 5 | academic_name | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique More |
| 6 | email | varchar(40) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique More |
| 7 | contact_no | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique More |
| 8 | faculty | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique More |
| 9 | department | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique More |
| 10 | designation | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique More |

**Figure5.1:** Database of academic admin.

## 5.2.2 Admin

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | admin_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index More |
| 2 | admin_type | varchar(20) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 3 | user_name | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 4 | email | varchar(40) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 5 | password | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index More |

**Figure5.2:** Database of admin.

## 5.2.3 Candidate

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | candidate_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index More |
| 2 | student_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 3 | pool_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 4 | pool_token | varchar(20) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 5 | clearence_no | varchar(20) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index More |
| 6 | candidate_otp | int(20) | | | Yes | NULL | | | Change Drop Primary Unique Index More |

**Figure5.3:** Database of candidate.

## 5.2.4 User

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | user_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial Fulltext More |
| 2 | user_type | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 3 | first_name | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 4 | last_name | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 5 | full_name | varchar(60) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 6 | user_name | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 7 | email | varchar(40) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 8 | password | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |

**Figure5.4:** Database of user.

## 5.2.5 Exam pool

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | pool_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial More |
| 2 | portal_id | int(11) | | | No | None | | | Change Drop Primary Unique Index Spatial More |
| 3 | pool_token | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 4 | course_code | varchar(20) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 5 | course_name | varchar(50) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 6 | department | varchar(50) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 7 | semester | varchar(20) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 8 | year | year(4) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 9 | institute_name | varchar(100) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 10 | que_type | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 11 | que_generate_by | varchar(20) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 12 | que_setter_email | varchar(40) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 13 | num_of_exam_que | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 14 | num_of_total_que | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 15 | exam_date | date | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 16 | start_time | time | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 17 | ending_time | time | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 18 | duration | bigint(20) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 19 | status | varchar(20) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial More |

**Figure5.5:** Database of academic exam pool.

## 5.2.6 Personal information

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | info_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial Fulltext More |
| 2 | user_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 3 | dob | date | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 4 | gender | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 5 | bloodgroup | varchar(20) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 6 | nationality | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 7 | national_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 8 | religion | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 9 | emerg_contact | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 10 | social_net_id | varchar(40) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 11 | alt_email | varchar(40) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |

**Figure5.6:** Database of academic personal information.

## 5.2.7 Question list

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | student_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial Fulltext More |
| 2 | user_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 3 | academic_id | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 4 | academic_name | varchar(40) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 5 | email | varchar(40) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 6 | contact_no | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 7 | faculty | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 8 | department | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |

**Figure5.7:** Database of academic question list.

## 5.2.8 Student

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | que_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial More |
| 2 | pool_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 3 | que_topic | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 4 | que_type | varchar(30) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 5 | que_text | varchar(2000) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |
| 6 | que_option_A | varchar(100) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial More |
| 7 | que_option_B | varchar(100) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial More |
| 8 | que_option_C | varchar(100) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial More |
| 9 | que_option_D | varchar(100) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial More |
| 10 | correct_answer | varchar(150) | latin1_swedish_ci | | Yes | NULL | | | Change Drop Primary Unique Index Spatial More |

**Figure5.8:** Database of academic student.

## 5.2.9 Result

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | candidate_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial Fulltext More |
| 2 | pool_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 3 | obj_marks | int(11) | | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 4 | test_marks | float | | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 5 | total_marks | float | | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 6 | sgpa | float | | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 7 | grade | varchar(10) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |

**Figure5.9:** Database of academic result.

### 5.2.10 Portal

| # | Name | Type | Collation | Attributes | Null | Default | Comments | Extra | Action |
|---|---|---|---|---|---|---|---|---|---|
| 1 | portal_id | int(11) | | | No | None | | AUTO_INCREMENT | Change Drop Primary Unique Index Spatial Fulltext More |
| 2 | aca_admin_id | int(11) | | | Yes | NULL | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 3 | portal_token | varchar(20) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 4 | institute_name | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 5 | institute_type | varchar(30) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 6 | institute_email | varchar(40) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |
| 7 | institute_address | varchar(60) | latin1_swedish_ci | | No | None | | | Change Drop Primary Unique Index Spatial Fulltext More |

**Figure5.10:** Database of academic portal.

## 5.3 Implementation of Front-end Design

We have thought about specially the user of our system while designing our application Font-end. We have analyzed user requirements for the system. We have tried our best to keep our application user friendly. To do so we have use some well-known and modern tools and tricks. We have used PhpStorm, Adobe Dreamweaver, XAMPP, and Apache server etc. to implement the project code. We have use HTML, CSS, JavaScript, Bootstrap, MySQL etc. to complete our font-end design. Our implementation plan is given below.

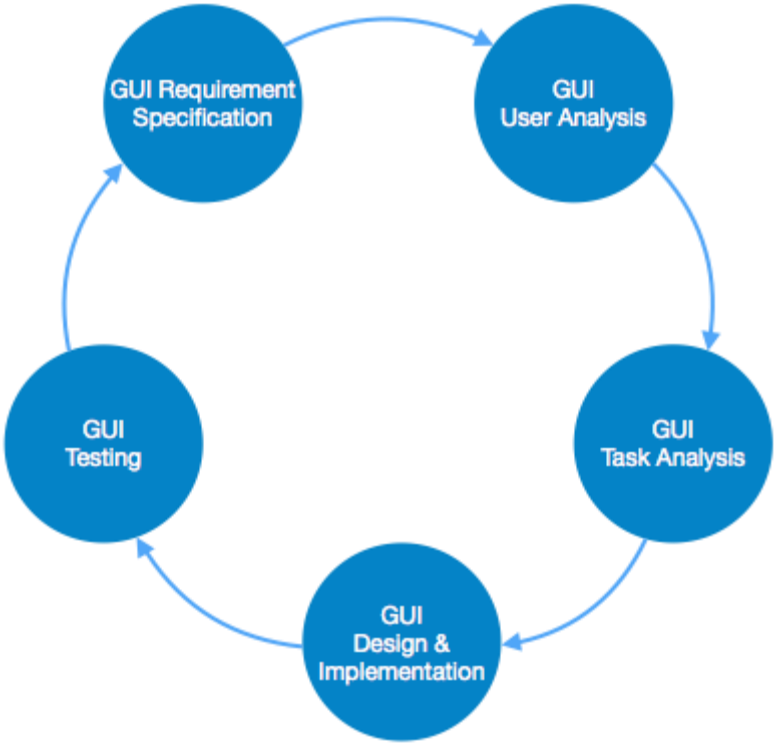


**Figure 5.11:** Implementation of front-end design.

## 5.4 Implementation of Interactions

To make our system we have implemented interactive UI for better user experience. This system design interactions diagram candidate request login of our system then our system candidate request verify and permission accessing. when candidate enter exam pool sent verification request in our system then our system verified request and sent verification massage when candidate approved access. Candidate enter the attend exam then sent request question when our system retrieve question and sent generate random question. Candidate request result sent when our system calculate result and sent generate result. Question setter request login of our system then our system question setter request verify and permission accessing. When question setter enter exam pool sent verification request in our system then our system verified request and sent verification massage when question setter approved access. Question setter can be add question and delete question. Exam coordinator request login of our system then our system question setter request verify and permission accessing .Exam coordinator when delete pool request academic portal and confirm delete. Exam coordinator can remove student of the academic

portal. Exam coordinator can be adding student and search student of the system. Exam coordinator can be add question setter and remove question setter in the system. Exam coordinator request create pool sent academic portal then academic portal request verified and sent approved massage of the exam coordinator.

## 5.5 Testing the application

The first level of system testing is unit testing. The purpose of unit testing is to ensure that each program is fully tested. The second step is integration testing. In this individual program units or programs are integrated and tested as a complete system to ensure that the software requirements are met. Application should be thoroughly tested before releasing it into the market. Testing will show if the application is delivering the expected results [17].In this case we have given some wrong values to the application so that we can counter the errors produced by the application in such a case [18]. Next topic is test cases, where 10 test cases are considered and checked if the test results are positive or negative.

### 5.5.1 Login

| Test case Id | Test case scenario | Test data | Expected result | Actual result | Pass/ Fail |
|---|---|---|---|---|---|
| Tc-0 | Login | Username and Password is blank | Provide username and password | Provide username and Password | pass |
| | | Username and Password is incorrect | Please enter correct username and password | Please enter correct username and password. | pass |
| | | Username and Password is correct | Login successfully. | Login successfully. | pass |

**Table 4.1**: Test case for login.

### 5.5.2 Create portal

| Test case Id | Test case scenario | Test data | Expected result | Actual result | Pass/ Fail |
|---|---|---|---|---|---|
| Tc-1 | Create portal | required field(institute name, type ,email) blank | Please fill up the require field | Please fill up the require field | pass |
| | | Wrong input | Invalid input | Invalid input | pass |

**Table 4.2**: Test case for create portal.

### 5.5.3 Create exam pool

| Test case Id | Test case scenario | Test data | Expected result | Actual result | Pass/ Fail |
|---|---|---|---|---|---|
| Tc-2 | Create portal | required field( course code & name, semester, year, duration, question type, exam date & time ) blank | Please fill up the require field | Please fill up the require field | pass |
| | | Wrong input | Invalid input | Invalid input | pass |

**Table 4.3**: Test case for create exam portal.

### 5.5.4 Set Question

| Test case Id | Test case scenario | Test data | Expected result | Actual result | Pass/ Fail |
|---|---|---|---|---|---|
| Tc-3 | Set question | required field(topic, question type, select language ) blank | Please fill up the require field | Please fill up the require field | pass |
| | | Wrong input | Invalid input | Invalid input | pass |

**Table 4.4**: Test case for set question.

### 5.5.5 Attend exam

| Test case Id | Test case scenario | Test data | Expected result | Actual result | Pass/ Fail |
|---|---|---|---|---|---|
| Tc-4 | Attend exam | Correct student id and password | Login the exam pool | Login the exam pool | pass |
| | | Incorrect student id and password | Id or password is incorrect enter the correct one | Id or password is incorrect enter the correct one | pass |

**Table 4.5**: Test case for attend exam.

# CHAPTER 6

# CONCLUSION AND FUTURE SCOPE

## 6.1 Discussion and Conclusion

In this chapter we will like to discuss about the future work, goal of the project and some limitation of the project.

The idea of online examination system is not new, but we try to bring new things. Online examination system is a web based application. The key concept is to minimize the amount of paper and convert all forms documentation to digital form. The user with minimum knowledge about computer can be able operate the system easily.

When we will be developing a system like this we have learned a lot about the tasks of getting and making a website. It was a great learning experience and we will continue to develop other websites in the future and that is the reason we have chosen the project. We always kept in mind to make the project user friendly. Our focus was to make the system acceptable to any user.

In future we will work with this project, and we wish to develop this project. We have a long term plan for this project. We wish we could improve the system and reduce the limitation of the system in a short time. As a part of developing this project we wish to customize the system tools, adding some new features etc. and we have a plan to marketing this system so that many others can be benefited by using this system.

## 6.2 Limitation of Our System

- Unable to create any kind of written exam with similar types of algebraic tools.
- This system only capable of MCQ type question.
- Lacking of professional work.
- Simple database which must be upgraded for real life using.

## 6.3 Scope for Further Developments

In our country our system opens a new era. As we all know for the political issue and other natural disaster we can't be able to give our exam. If this system is used for educational or other training purpose it is good for the student. Further we will include some features in our development web site and we will solve all limitation of our system.

We will include in future we can add the written exam and draw diagram system.

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