Annexure-I

Online Examination System

Submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Computer Applications (BCA)

To

Guru Gobind Singh Indraprastha University, Delhi

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Batch (2020-2023)

Certificate

We, 1. (VIVEK SINGH ADHIAKRI & 10490302020) & 2. (Rakesh Kumar Yadav & 06490302020) & 3. (PIYUSH UPADHYAY 35890302020) certify that the Major Project Report (BCA-356) entitled "**ONLINE EXAMINATION SYSTEM**" is done by us and it is an authentic work carried out by us at Institute of Innovation in Technology & Management. The matter embodied in this project work has not been submitted earlier for the award of any degree or diploma to the best of my knowledge and belief.

1.Signature of the Student 2. Signature of the Student 3.Signature of the Student

Date:

Certified that the Project Report (BCA-356) entitled "**Online Examination System**"

done by the above students is completed under my guidance.

Signature of the Guide
Date:
Name of the Guide:
Designation:
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Institute of Innovation in Information Technology & Management, New Delhi-110058

Countersigned

Director/Project Coordinator

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Chapter 1 - Problem Definition

1. Introduction

Online examinations contents providers to focus on creating effective assessment questions and focusing on exam's feedback delivery to students. In the paper we present techniques that are pertinent to the elements of assessment process: answers submission, computerized grading, and feedback after submission.
As the modern organizations are automated and computers are working as per the instructions, it becomes essential for the coordination of human beings, commodity and computers in a modern organization.
The administrators, instructor, Students who are attending for online examination can communicate with the system through this project, thus facilitating effective implementation and monitoring of various activities of Online Examinations like conducting Exams as per scheduled basis and delivering result to that particular use or student. And the details of students who attempted Online Examination are maintained at administrator.

1.1 Brief Description of System Under Study

Existing system is a manual one in which users are maintaining books to store the information like Student Details, Instructor Details, Schedule Details and feedbacks about students who attempted exam as per schedule. It is very difficult to maintain historical data.

1.2 About the Proposed System

1.2.1 Objective

The objective of the Online Examination Tool is to provide better information for the users of this system for better results for their maintenance in student examination schedule details and grading details.

1.2.2 Purpose

This application is used to conduct online examination. The students can sit at individual terminals and login to write the exam in the given duration. The questions have to be given to the students. This application will perform correction, display the result immediately and also store it in database. This application provides the administrator with a facility to add new exams. This application provides the instructor add questions to the exam, modify questions in the exam in a particular exam. This application takes care of authentication of the administrator, Instructor as well as the student.

1.3 Software Model Used

Waterfall Model

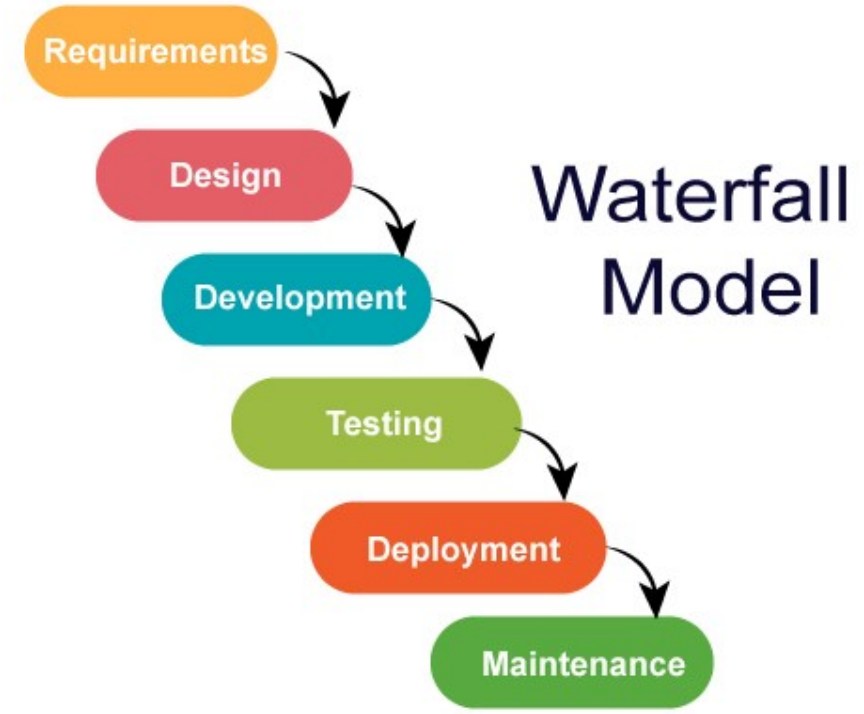


Figure 1 : WATERFALL MODEL

The waterfall model is a linear, sequential approach to the software development life cycle that is popular in software engineering and product development. The waterfall model emphasizes a logical progression of steps. Similar to the direction water flows over the edge of a cliff, distinct endpoints or goals are set for each phase of development and cannot be revisited after completion.

- **Requirements:** Potential requirements, deadlines and guidelines for the project are analyzed and placed into a functional specification. This stage handles the defining and planning of the project without mentioning specific processes.
- **Analysis:** The system specifications are analyzed to generate product models and business logic that will guide production. This is also when financial and technical resources are audited for feasibility.
- **Design:** A design specification document is created to outline technical design requirements such as programming language, hardware, data sources, architecture and services.

- **Coding/Implementation:** The source code is developed using the models, logic and requirements designated in the prior stages. Typically, the system is designed in smaller components, or units, before being implemented together.
- **Testing:** This is when quality assurance, unit, system and beta tests take place to report issues that may need to be resolved. This may cause a forced repeat of the coding stage for debugging. If the system passes the tests, the waterfall continues forward.
- **Operation/Deployment:** The product or application is deemed fully functional and is deployed to a live environment.
- **Maintenance:** Corrective, adaptive and perfective maintenance is carried out indefinitely to improve, update and enhance the final product. This could include releasing patch updates or releasing new versions.

Advantages of waterfall model

1. Forces structured, disciplined organization.
2. Is simple to understand, follow and arrange tasks.
3. Allows for early design or specification changes to be made easily.
4. Clearly defines milestones and deadlines.

Disadvantages of waterfall model

1. Ignores the potential to receive mid-process user or client feedback and make changes based on results.
2. Delays testing until the end of the development life cycle.
3. Does not handle requests for changes, scope adjustments or updates well.
4. No working product is available until the later stages of the life cycle.

1.4 Methodology Used for Data Collection

Data collection

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes.

1.4.1 Primary Sources

Primary resources contain first-hand information, meaning that you are reading the author's own account on a specific topic or event that he participated in.

- Observation Method
- Interview Method

1.4.2 Secondary Sources

A secondary source of information is one that was created later by someone who did not experience first-hand or participate in the events or conditions you're researching.

- Public Records
- Statistical Documents

In this project I have used both sources for data collection, namely: -

1. Observation Method
2. Interview Method
3. Public Records
4. Statistical Documents
5.

1.5 System Requirement Tools

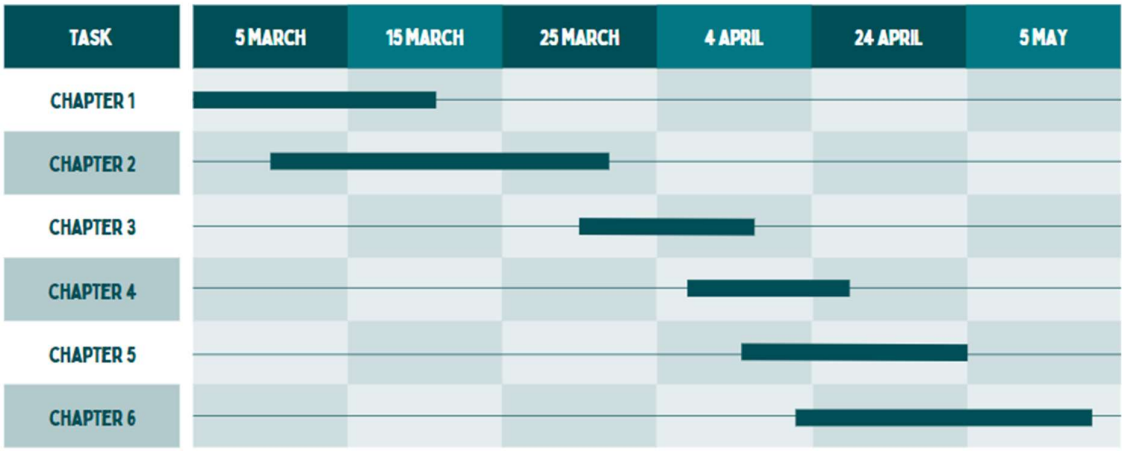
1.5.1 Software Requirements

- **Tool –** XAMPP
- **Platform –** Web Browser
- **Technology –** PHP, JavaScript, CSS, HTML, SQL

1.5.2 Hardware Requirements

- Windows / macOS
- Dual Core processor @ 1.00GHz
- 2GB RAM

1.6 Gantt chart



Chapter 2 - System Analysis

Software Requirement Specifications – A software requirements specification (SRS) is a document that describes what the software will do and how it will be expected to perform. It also describes the functionality the product needs to fulfill all stakeholders (business, users) needs.

2.1 Introduction

The following subsections of Software Requirement Specifications Document should facilitate in providing the entire overview of the Information system "**Online Examination System**" under development. This document aims at defining the overall software requirements for your end users. Efforts have been made to define the requirements of the Information system exhaustively and accurately.

2.1.1 Purpose

The main purpose of Software Requirement Specifications Document is to describe in a precise manner all the capabilities that will be provided by the Software Application "**Online Examination System**". It also states the various constraints which the system will be abide to. This document further leads to clear vision of the software requirements, specifications and capabilities. These are to be exposed to the development, testing team and end users of the software

2.1.2 Scope

The online examination system application is vast. It can be used in various sectors, schools, colleges, tuition centres, or individual tutors. It replaces the logistical problems and shortcomings of the conventional pen-and-paper examination mode. It will also reduce the usage of paper and ink. It will save the time which is used in scheduling the exam and improve the management.

2.1.3 References

- Software engineering (Third edition, k.k Aggarwal and Yogesh singh)
- https://mettl.com/online-exam-software-system/

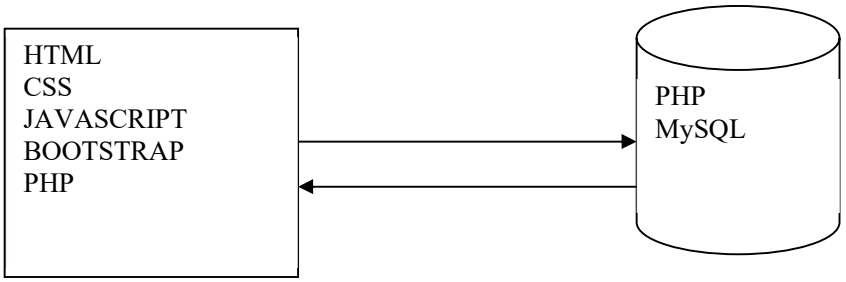
2.1.4 Overview

The rest of this SRS document describes the various system requirements, interfaces, features and functionality in detail.

2.2 Overall description of proposed system

2.2.1 Product Perspective

The application will be windows-based, self-contained and independent software product.



2.2.1.1 System Interfaces

None

2.2.1.2 Interfaces

The application will have a user friendly and menu-based interface. Following screens will be provided.

- A Login Screen for entering username, password and role (Administrator, operator) will be provided. Access to different screens will be based upon the role of the user.
- A Signup Screen for Registering Details and role (User) will be provided. Details like: (Full Name, Email id, Password, Confirm Password, phone number)
- A Create Exam Screen For Create Exam for Students/users . Before Create Exam Required details Are: Questions, options, correct answer, time)

2.2.1.3 Hardware Interfaces

- **Processor:** Intel Dual Core i3 and above
- **HDD:** Minimum 80GB Disk Space and above
- **RAM:** Minimum 2GB and above
- **OS:** Windows 7 and above, Linux

2.2.1.4 Software Interfaces

- **Database:** MYSQL Server 8.0.30
- **Application:** XAMPP

2.2.1.5 Communication Interfaces

None

2.2.1.6 Memory Constraints

At least 64 mb RAM and 2GB space on hard disk will be required for running the application

2.2.1.7 Operations

This product will not cover any automated housekeeping aspects of database. The DBA at client site will be manually deleting old/ non required data. Database backup and recovery will also have to be handled by DBA.

2.2.1.8 Site Adaptation Requirement

The terminals at the client side will have to support the hardware and software interfaces specified.

2.2.2 Product functions

The system will allow access only to authorized users with specific roles (Administrator, Operator). Depending upon the user's role, he/she will be able to access only specific modules of the system.

A summary of the major functions that the software will perform:

- **Login Facility: -** Used for the admin and users for login into the program. This provide various facility according to the type of user(admin or user).
- **Create Exam: -** This is also an essential function that handles all aspects of creating exam.
- **Users: -** Users can give exam or create own exam.

2.2.3 User Characteristics

- Educational Level: At least graduate and should be comfortable with English language.

- Technical Expertise: Should be a high or middle level employee of the organization comfortable with using general purpose applications on a computer

2.2.4 Constraints

None

2.2.5 Apportioning Requirement

Not Required

2.3 Specific Requirements

This section contains the software requirements to a level of detail sufficient to enable designers to design the system, and testers to test the system.

2.3.1 External Interfaces

2.3.1.1 User Interfaces

The following screens will be provided:

- All the users will see the same page when they enter in this website. This page asks the users a username and a password.
- After being authenticated by correct username and password, user will be redirect to their corresponding profile where they can do various activities.
- The user interface will be simple and consistence, using terminology commonly understood by intended users of the system. The system will have simple interface, consistence with standard interface, to eliminate need for user training of infrequent users.

2.3.1.2 Hardware Interfaces

- No extra hardware interfaces are needed.
- The system will use the standard hardware and data communication resources.
- This includes, but not limited to, general network connection at the server/hostingsite, network server and network management tools.

2.3.1.3 Software interfaces

- **OS:** Windows 7, Linux Web
- **Browser:** The system is a web-based application; clients need a modern web browser such as Mozilla Firebox, Internet Explorer, Opera, and Chrome.

2.3.1.4 Communication Interfaces

None

2.3.2 System Features

Creating Exam: Using this module user can create or exam and know the details for various types of exams.

1. **Validity Checks:**
   - Name should not blank.
   - Type must be specified
   - User should enter address.
   - Phone No and Email should be filled.

2. **Sequencing Information**
   - Firstly, user enter exam name.
   - Then he/she enter question.
   - After this user enter answer options.
   - Then, user select correct answer
   - Then, user create.
   - At last user enter required time.

3. **Error Handling / Response to abnormal situations:**
   - If user left any field blank then it shows an error.
   - If booking is successful then it shows a message above form regarding successful booking.

2.3.3 Performance Requirements

None

2.3.4 Logical Database Requirements

The proposed information system contains the following data tables in its database collection.

1. **admin**

   EMAIL ID
   PASSWORD

2. **answer**

   QID

ANSID

3. **feedback**

   ID
   NAME
   EMAIL
   SUBJECT
   FEEDBACK
   DATE
   TIME

4. **history**

   EMAIL
   EID
   SCORE
   LEVEL
   CORRECT WRONG
   TIME

5. **options**

   QID
   OPTION
   OPTIONID

6. **questions**

   EID
   QID
   QNS
   CHOICE
   SN

7. **quiz**

   EID
   TITLE
   CORRECT
   WRONG
   TOTAL
   TIME
   INTRO

TAG
DATE

8. **rank**

   EMAIL
   SCORE
   TIME

9. **user**

   NAME
   GENDER
   COLLEGE
   EMAIL
   MOB
   PASSWORD

2.3.5 Design Constraints

2.3.5.1 Standard Compliance

None

2.3.6 Software System Attributes

- Reliability
  This application is a reliable product that produces fast and verified output of all its processes.
- Availability
  This application will be available to use for your end users and help them to carry out their operations conveniently.
- Security
  The application will be password protected. User will have to enter correct username, password and role in order to access the application.
- Maintainability
  The application will be designed in a maintainable manner. It will be easy to to incorporate new requirements in the individual modules.
- Portability
  The application will be easily portable on any windows-based system that has oracle installed.

2.3.7 Other Requirements

None

3 Methodologies for Data Collection

3.1 Primary Data Collection

Data that has been collected from first-hand-experience is known as primary data. Primary data has not been published yet and is more reliable, authentic and objective. Primary data has not been changed or altered by human beings; therefore its validity is greater than secondary data.

Primary sources can include ;

1. Interviews, diaries, letters, journals, speeches, autobiographies, and witness statements.
2. Articles containing original research, data, or findings never before shared.
3. Original hand-written manuscripts.
4. Government documents and public records.
5. Art, photographs, films, maps, fiction, and music.

3.2 Secondary Data Collection

Data collected from a source that has already been published in any form is called as secondary data. The review of literature in nay research is based on secondary data. Mostly from books, journals and periodicals.

Secondary sources can include ;

1. Textbooks
2. Review articles and critical analysis essays
3. Biographies
4. Historical films, music, and art
5. Articles about people and events from the past

Chapter 3 - System Design

1. Physical Design

The physical design relates to the actual input and output processes of the system. This is laid down in terms of how data is input into a system, how it is verified/authenticated, how it is processed, and how it is displayed as In Physical design, following requirements about the system are decided.

1. Input requirement,
2. Output requirements,
3. Storage requirements,
4. Processing Requirements

Block Diagram

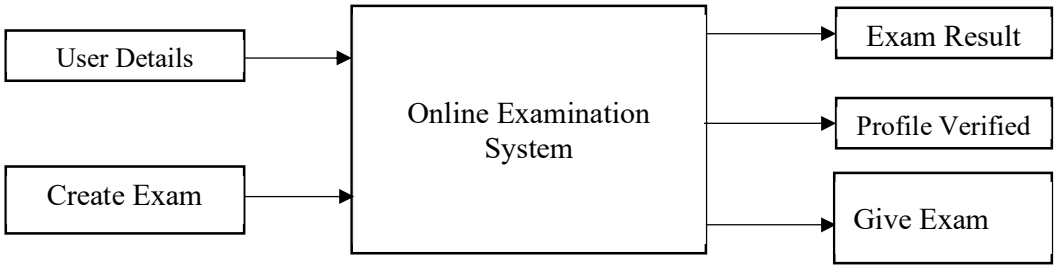


FIGURE 2: BLOCK DIAGRAM

Use Case

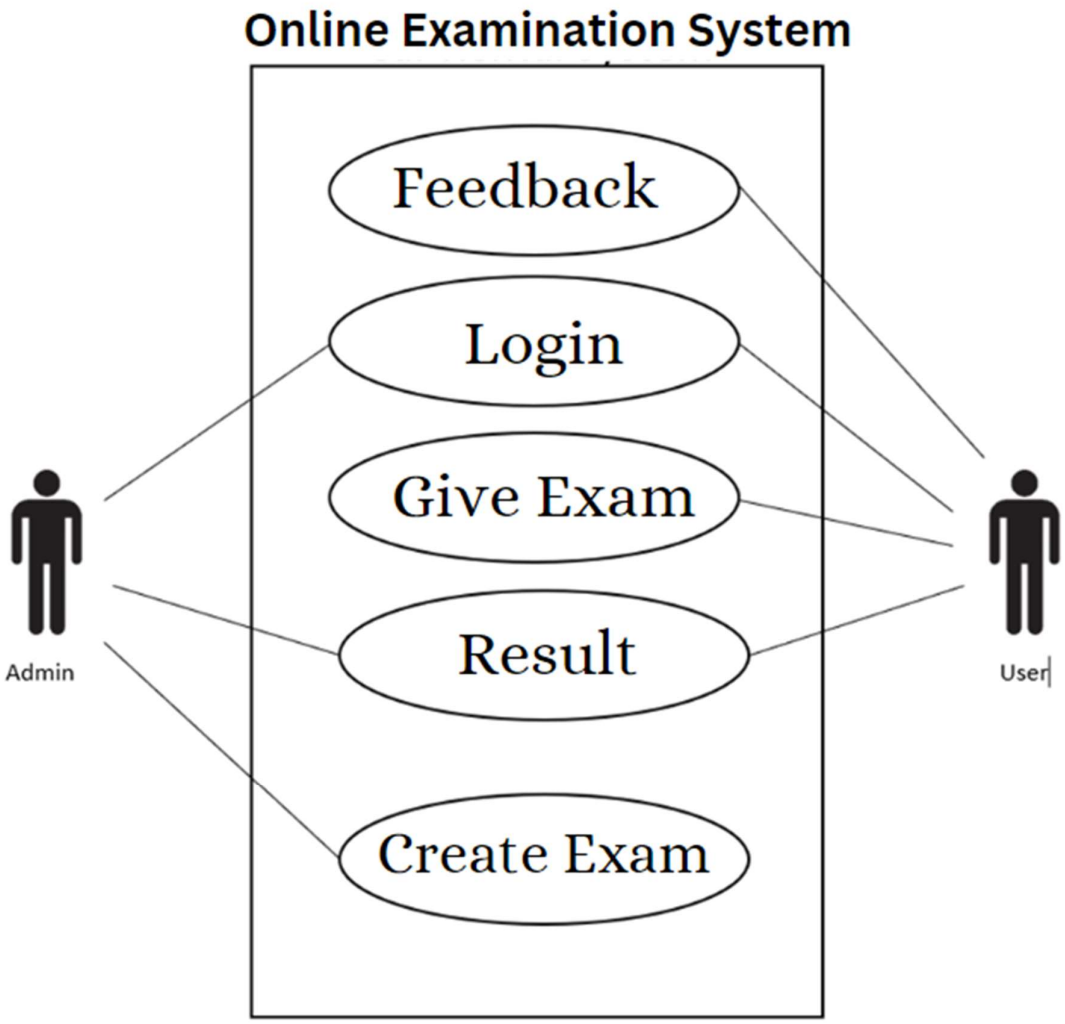


Figure 3: USE CASE

2. **DFD**

0 level Data Flow Diagram (DFD)

Figure 4: 0 level Data Flow Diagram (DFD)

1 level Data Flow Diagram

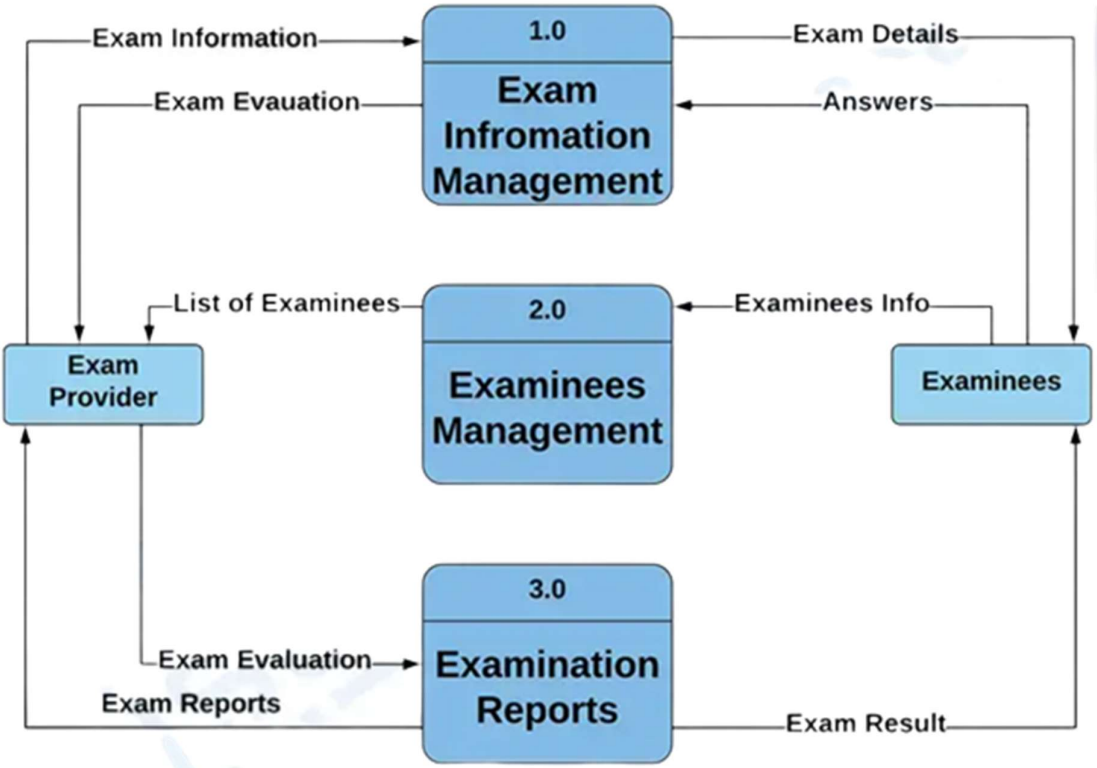


Figure 5: 1 level Data Flow Diagram (DFD)

2 level Data Flow Diagram (DFD)

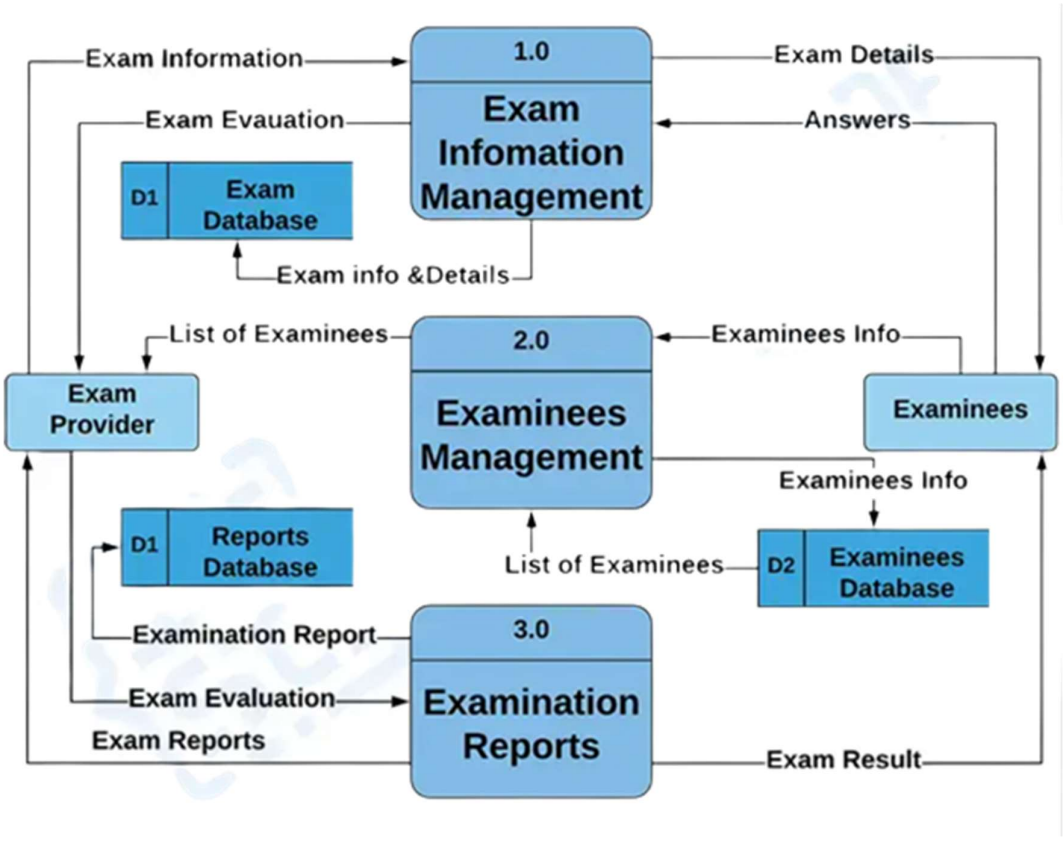


Figure 6: 2 level Data Flow Diagram (DFD)

3. ER Diagram

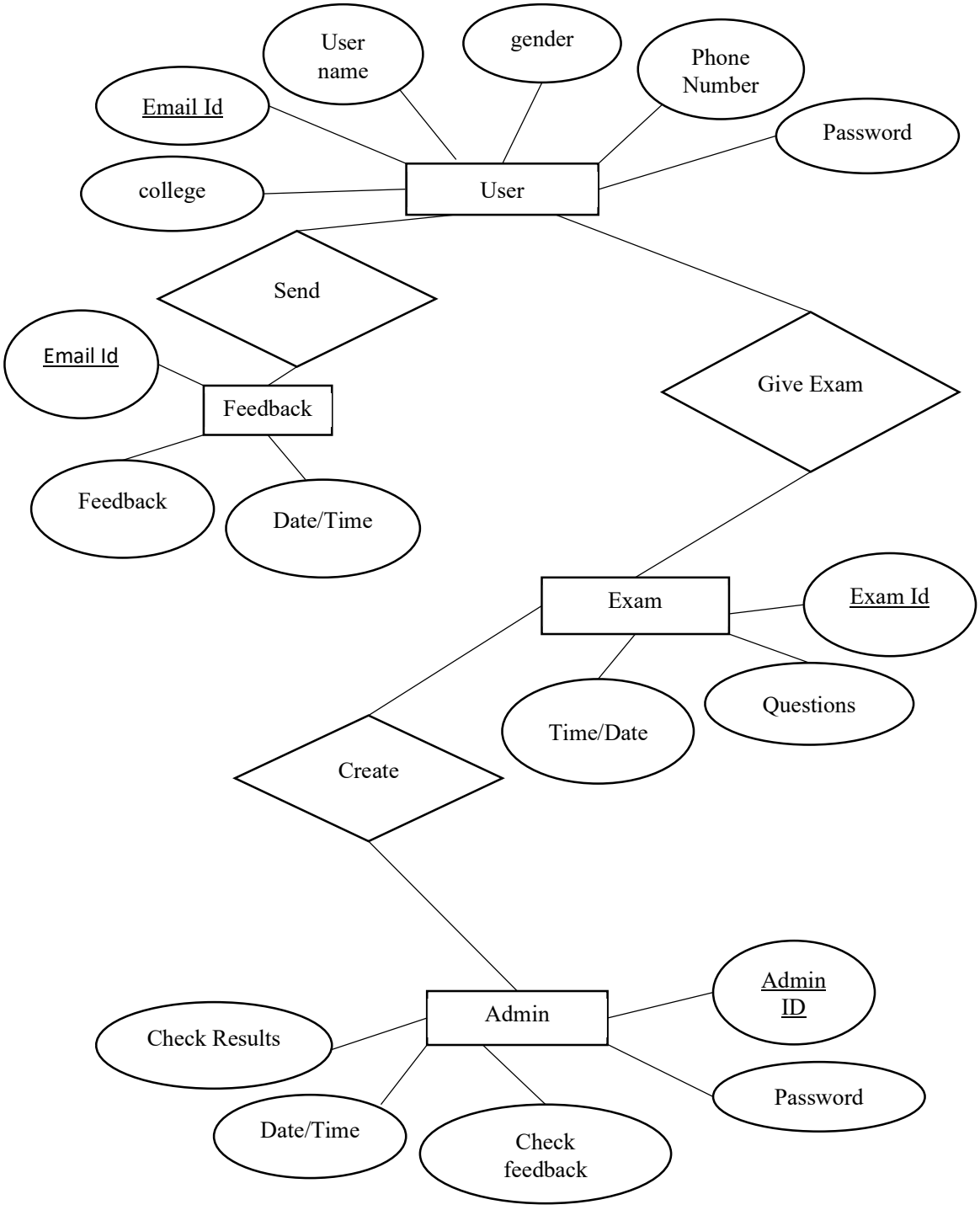


Figure 7: E – R DIAGRAM

Sequence Diagram

Sequence diagram and collaboration diagram are called INTERACTION DIAGRAMS. An interaction diagram shows an interaction, consisting of set of objects and their relationship including the messages that may be dispatched among them.

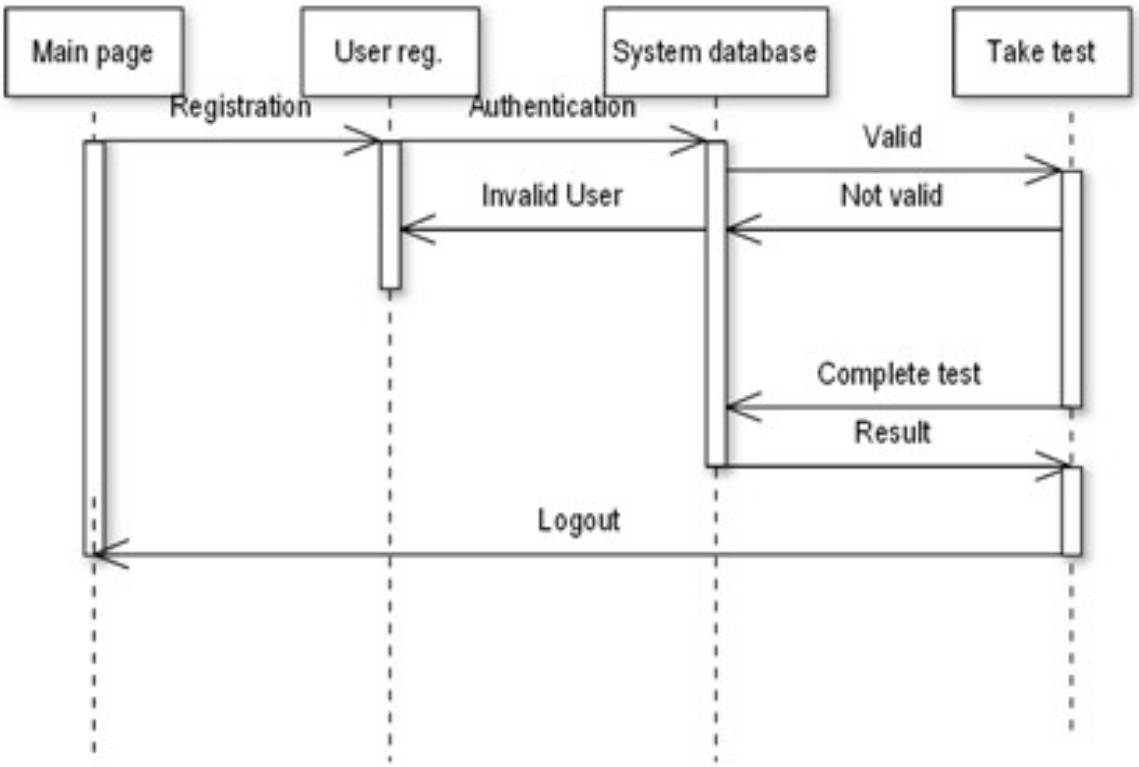


Figure 8: SEQUENCE DIAGRAM

Database Design

The information system of "Online Examination System" performs its function with the help of the data store in certain repositories called Databases of the system. Detailed descriptions of the various databases included in the information systems are tabulated as follows:

admin

S No	Field Name	Field Type	Field Size	Constraint	Description
1	email	varchar	50	primary key	email of the user
2	password	varchar	500	not null	password of the user

answer

S No	Field Name	Field Type	Field Size	Constraint	Description
1	qid	varchar	30	not null	question id
2	ansid	varchar	30	primary key	answer id

feedback

S No	Field Name	Field Type	Field Size	Constraint	Description
1	id	text		not null	feedback id
2	name	varchar	50	not null	name of the sender
3	email	varchar	50	primary key	email of the user
4	subject	varchar	500	not null	subject of the feedback
5	feedback	varchar	500	not null	description of the feedback
6	date	date		not null	current date
7	time	varchar	50	not null	current time

history

S No	Field Name	Field Type	Field Size	Constraint	Description
1	email	varchar	40	not null	email of the user
2	eid	text		not null	unique user id generated by the system
3	score	int	11	not null	score of the student
4	level	int	11	not null	level of the student
5	correct	int	11	not null	no. of correct answer
6	wrong	int	11	not null	no. of wrong answer
7	date	timestamp		primary key	current time

options

S No	Field Name	Field Type	Field Size	Constraint	Description
1	qid	varchar	50	not null	question id
2	option	varchar	50	not null	options of the question
3	optionid	varchar	30	primary key	option id

questions

S No	Field Name	Field Type	Field Size	Constraint	Description
1	eid	text		not null	unique user id generated by the system
2	qid	varchar	30	primary key	question id
3	qns	text		not null	question
4	choice	int	10	not null	number of options
5	sn	int	11	not null	correct option

quiz

S No	Field Name	Field Type	Field Size	Constraint	Description
1	eid	text		not null	unique user id generated by the system
2	title	varchar	100	not null	title of the quiz
3	correct	int	11	not null	number of correct answers
4	wrong	int	11	not null	number of wrong answers
5	total	int	11	not null	total score
6	time	bigint	20	not null	total quiz time
7	intro	text		not null	a brief introduction of quiz
8	tag	varchar	100	not null	tags
9	date	timestamp		primary key	current date

rank

S No	Field Name	Field Type	Field Size	Constraint	Description
1	email	varchar	50	primary key	email of the user
2	score	int	11	not null	total score secured by student
3	time	timestamp		not null	current time

user

S No	Field Name	Field Type	Field Size	Constraint	Description
1	name	varchar	50	not null	name of the student
2	gender	varchar	5	not null	gender of the student
3	college	varchar	100	not null	college of the student
4	email	varchar	50	primary key	email of the user
5	mob	bigint	20	not null	mobile number of the student
6	password	varchar	50	not null	password of the user

4. Site Map

A site map (or sitemap) is a list of pages of a web site accessible to crawlers or users. Sitemaps to provide site with metadata about specific types of content on your site, including video, images, mobile, and News. For example, a video Sitemap entry can specify the running time, category, and family-friendly status of a video; an image Sitemap entry can provide information about an image's subject matter, type, and license. You can also use a Sitemap to provide additional information about your site.

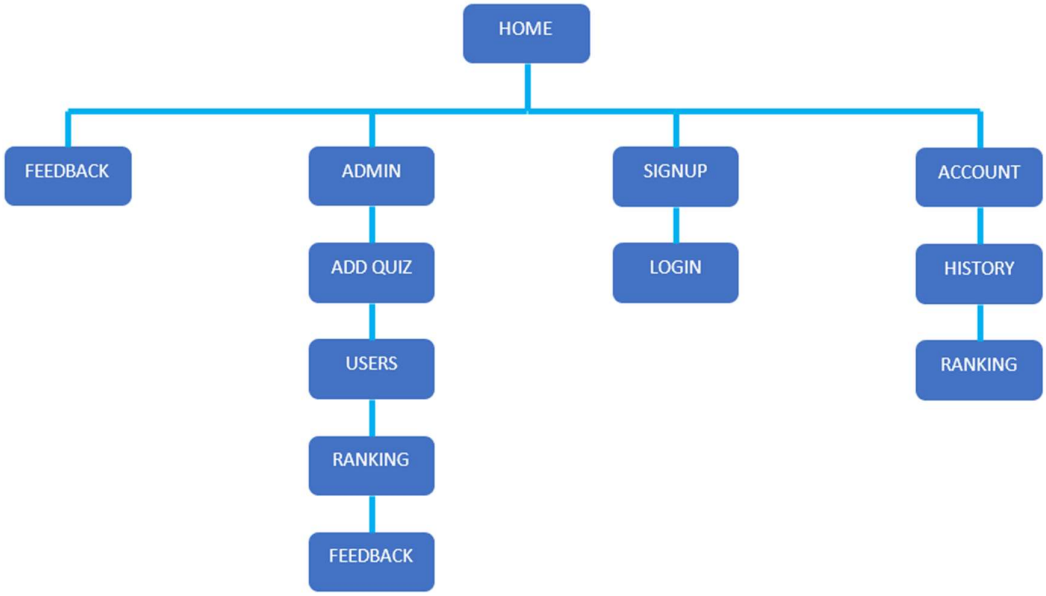


Figure 9: SITE MAP

Chapter-4: Systems Development, Testing &Implementation

Purpose: To carry out the activities of writing actual programmes, their debugging, testing and validation. Following activities are to be carried out:

(a) **Programme Development**: Develop the programs using the tools/platform specified in Chapter-1 (both back-end and front-end). Attach programme codes, screen prints of GUI and 'Actual Output Reports' using the real data. Codes may be attached as appendix & on CD.

HOME

Home page is use to create new user by enter your Name, Select Gender (Male/Female), Enter College Code, Enter Email Id And user phone number, then create your password and reconfirm password for create new user.

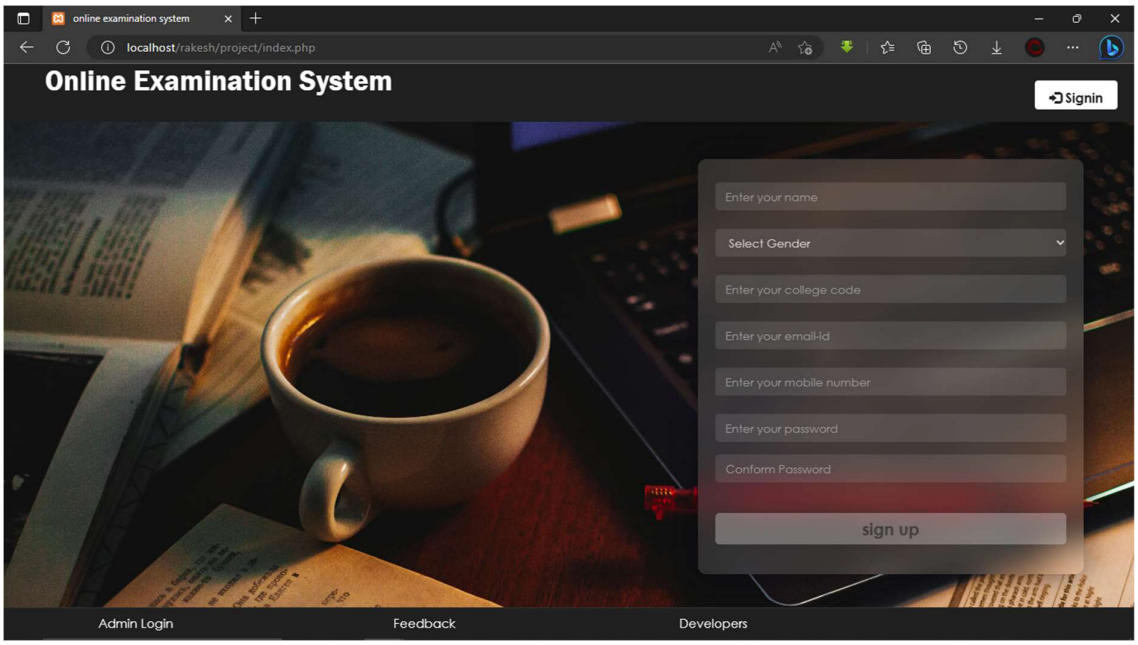


Figure 4.1: Home page

LOGIN

In login page, user can able to account login in website by entering email id and password which created in home page.

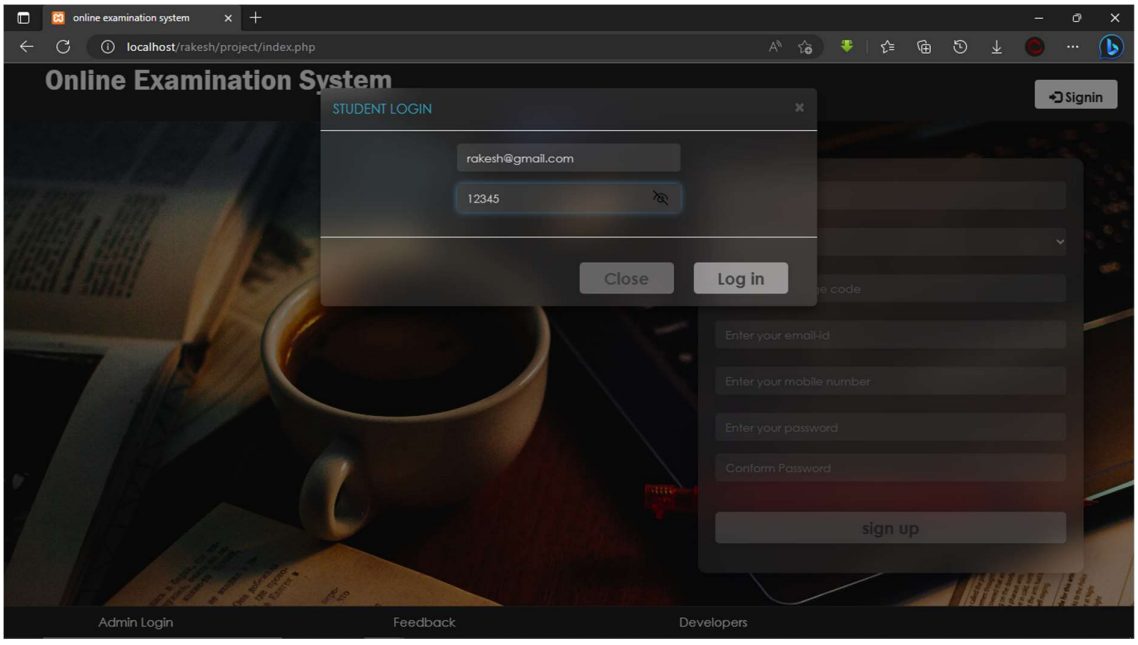


Figure 4.2: login page

FEEDBACK

Feedback page is use to give feedback to admin directly by enter name subject of feedback and your valid email address and then enter your feedback.

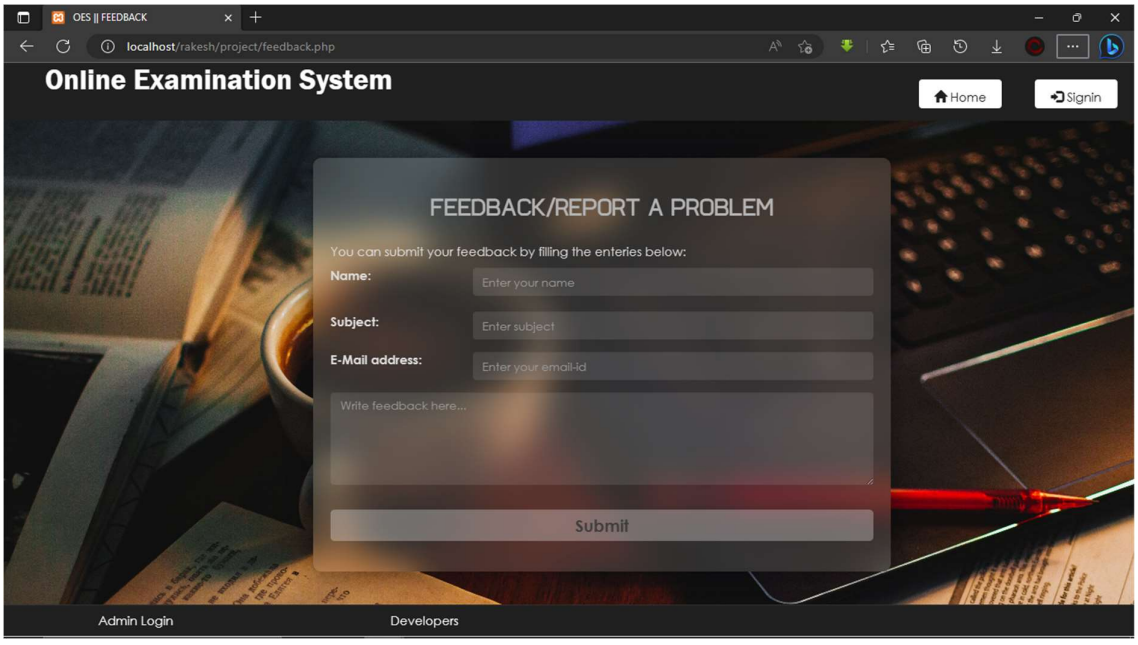


Figure 4.3: feedback page

STUDENT DASHBOARD

In student dashboard, students are able to see their exam details.

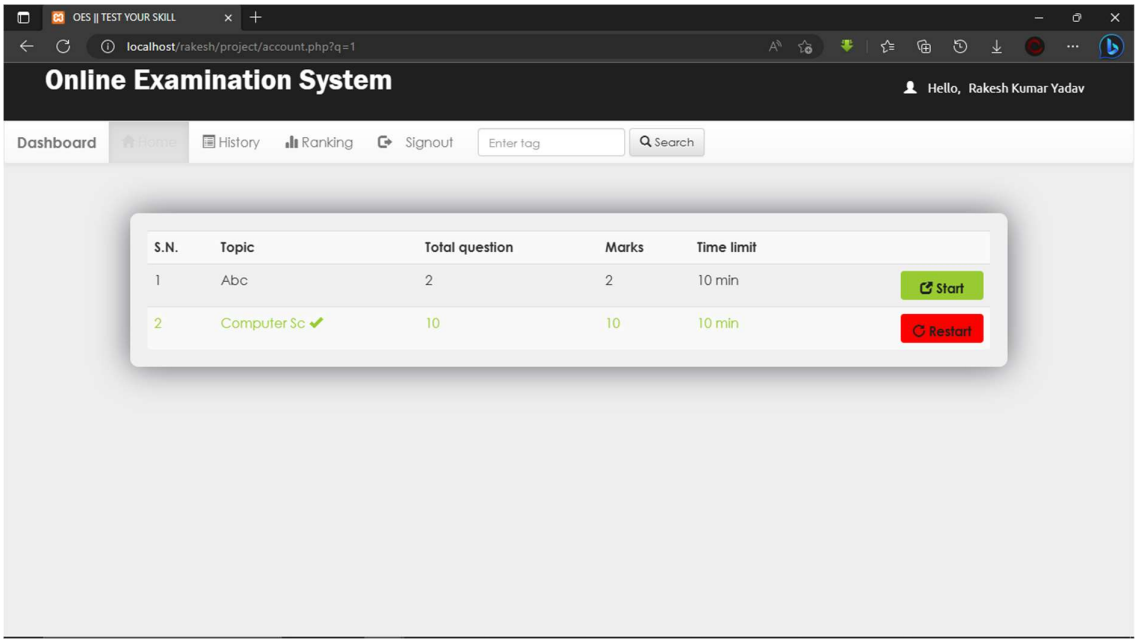


Figure 4.4: student dashboard page

STUDENT RANKING

In student ranking, students are able to see their score of exams.

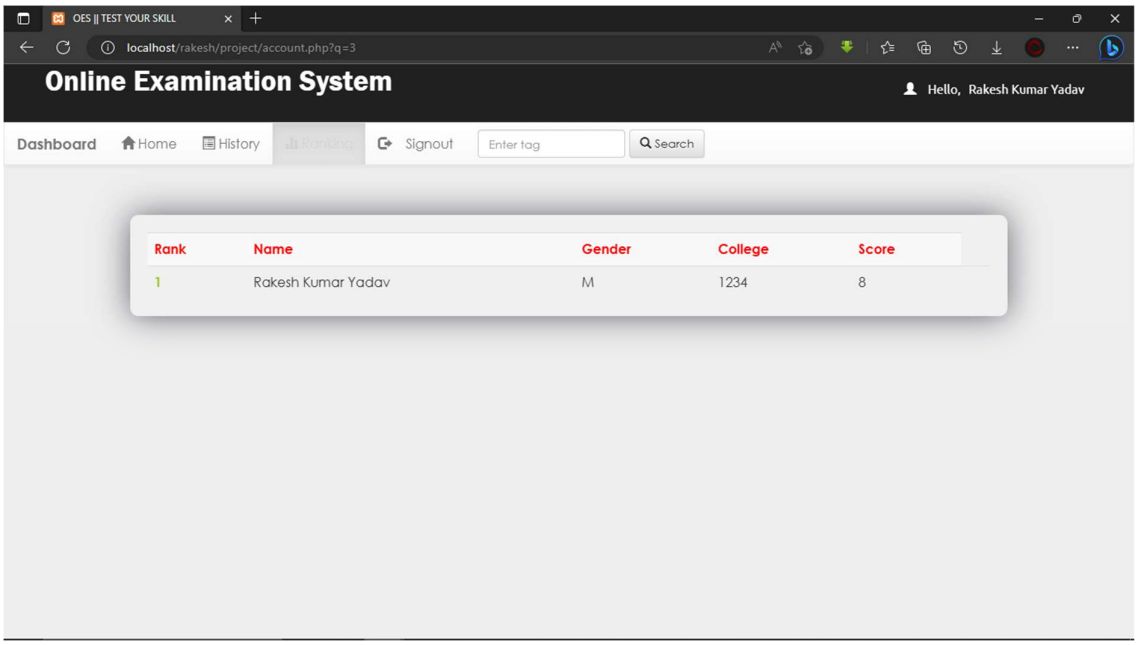


Figure 4.5: Student Ranking page

TEST QUESTIONS
In test page, the test will solve by the students.

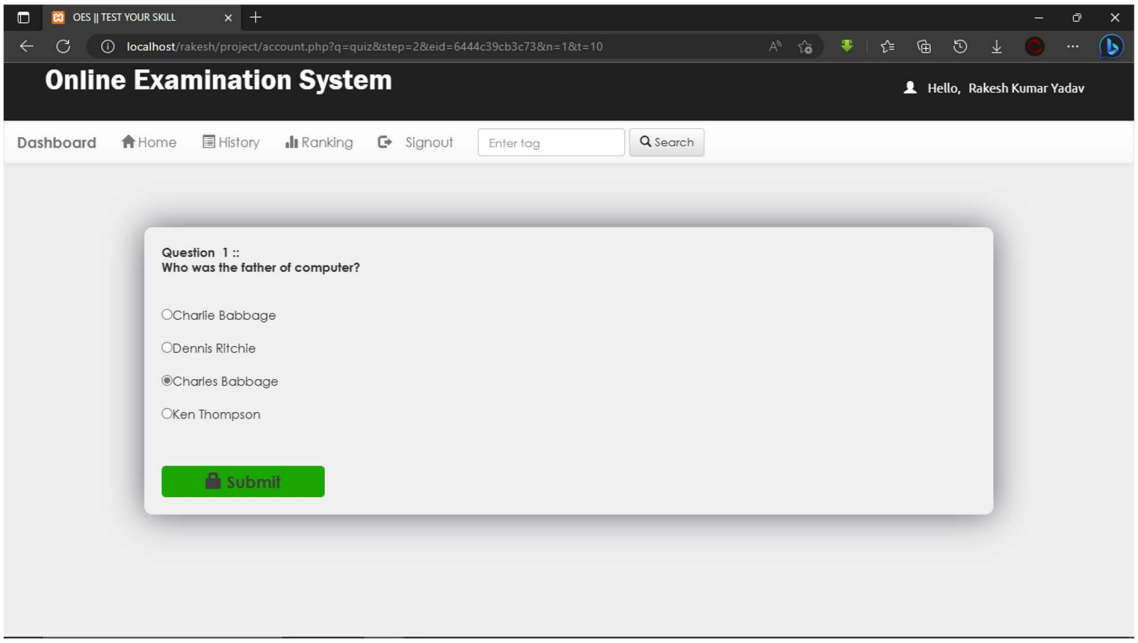


Figure 4.6: Test page

RESULT
In result page students are able to see their score and result of exam.

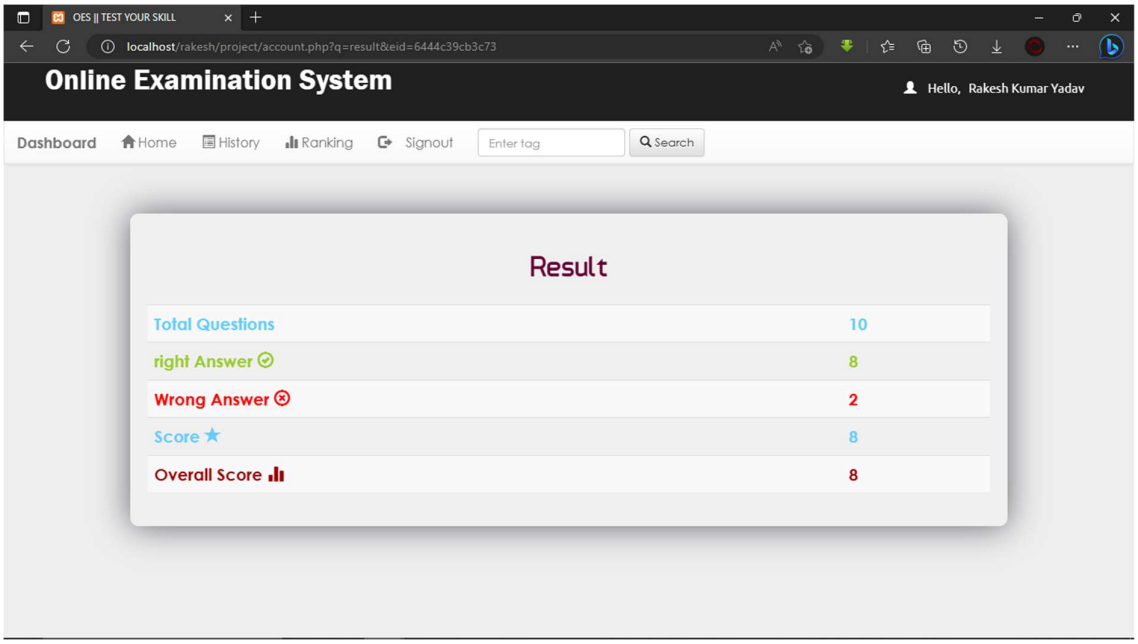


Figure 4.7: Result page

ADMIN DASHBOARD

Admin Dashboard is managed by admin, create exam and manage the exam.

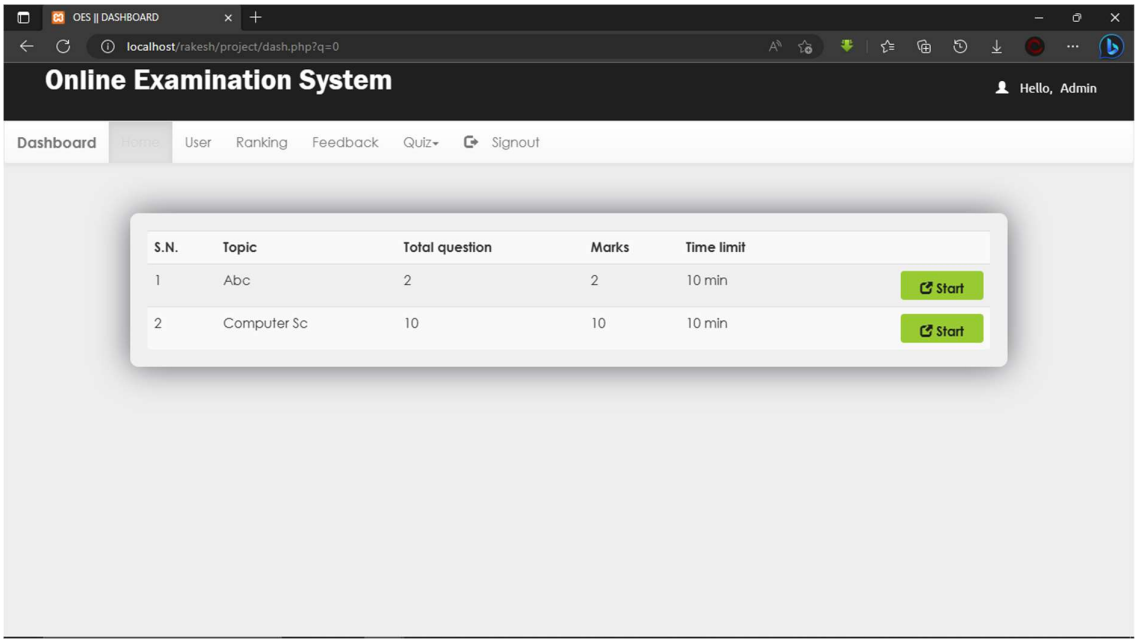


Figure 4.8: Admin Dashboard page

USER LIST

All the users are listed here, it can be accessed by admin.

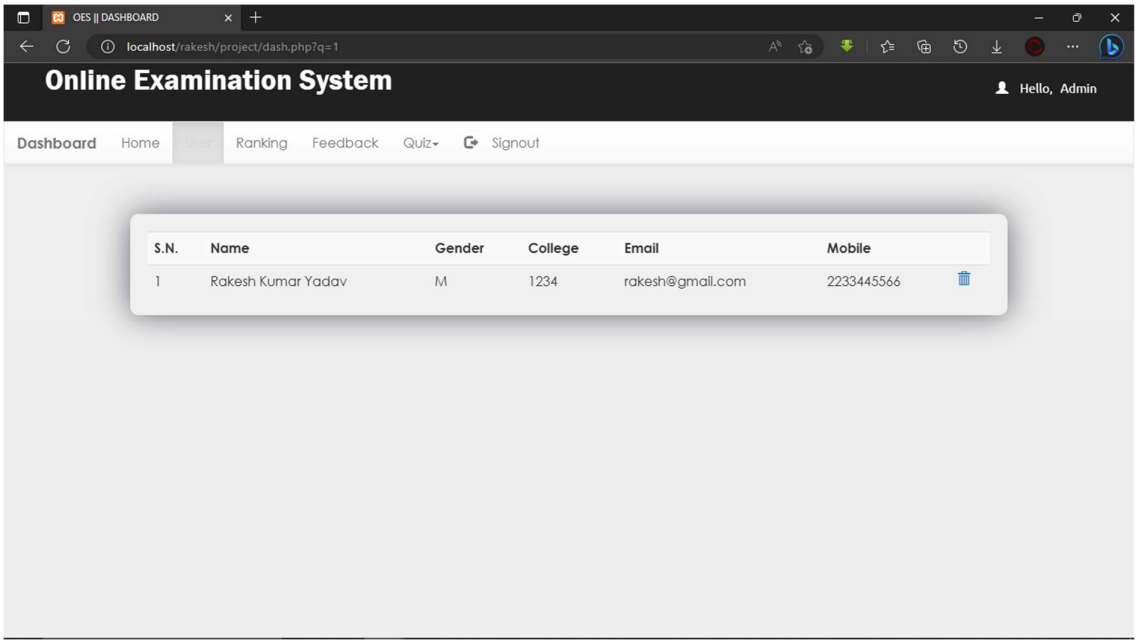


Figure 4.9: User list page

ADD QUIZ
Exam is created by admin.

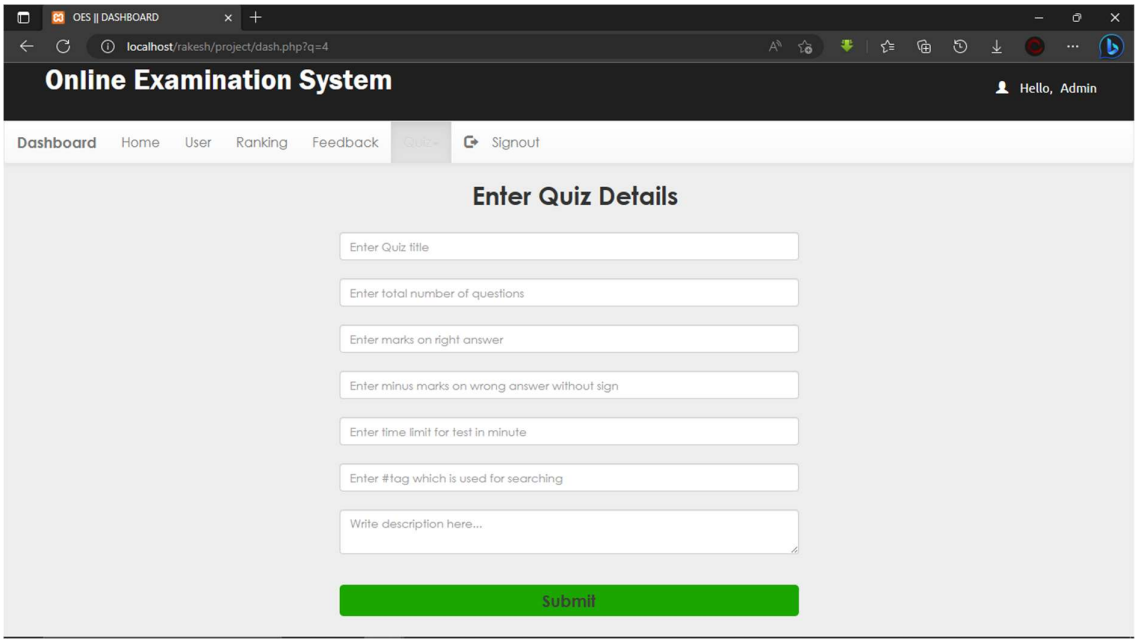


Figure 4.9: Add Exam page

REMOVE QUIZ
Created exam can be removed by admin.

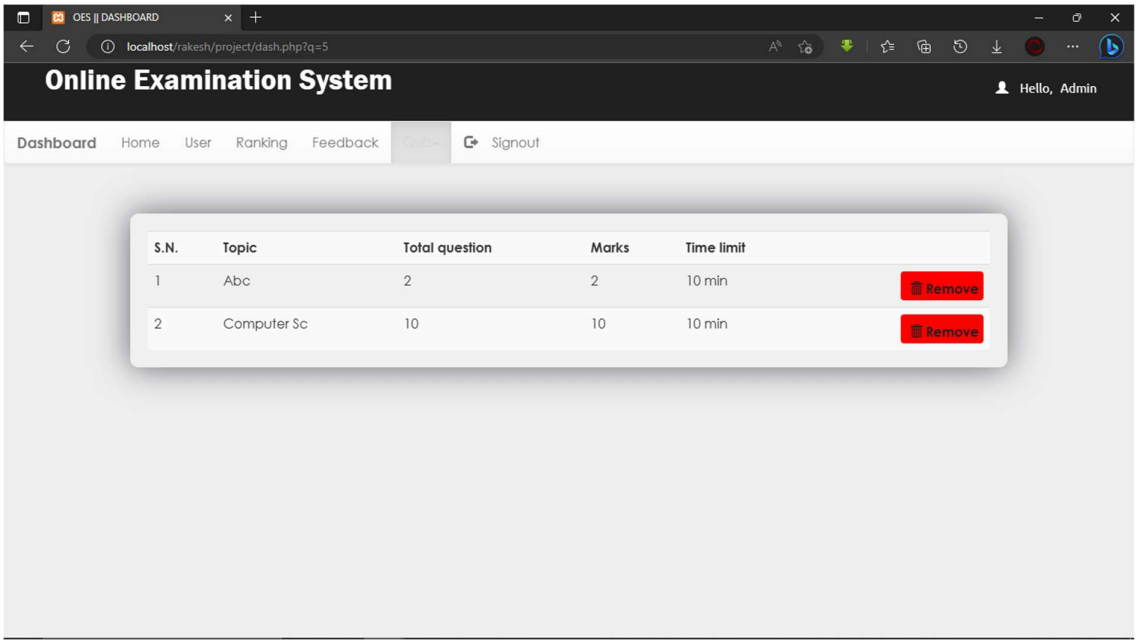


Figure 4.8: Remove Exam page

Chapter-5: System Testing

Testing & Debugging: Use *Past Data* to check whether the programmed work as intended by you or you can use dummy data.

Login					
Input				Output	
Actual		Expected		Actual	Expected
Username	Password	Username	Password		
rakesh@gmail.com	12345	rakesh@gmail.com	12345	Login Successful	Login Successful
piyush@gmail.com	00000	piyush@gmail.com	54321	Login Unsuccessful	Login Unsuccessful
vivek@gmail.com	12345	vivek@gmail.com	67890	Login Unsuccessful	Login Unsuccessful
Empty Field	Empty Field	Username	Password	Please enter username/password	Login Unsuccessful

Quiz			
Input		Output	
Actual Data	Expected Data	Actual	Expected
choosing one of the options	choose one of the options to answer the question	Submit Successful	Submit Successful
Empty Field	choose one of the options to answer the question	Please select an option	Select an option before submitting

Feedback			
Input		Output	
Actual Data	Expected Data	Actual	Expected
All the fields are filled properly	all the field must be filled	Submit Successful	Submit Successful
Empty Field	all the field must be filled	Please fill this field	Fill all the fields first

Create Exam			
Input		Output	
Actual Data	Expected Data	Actual	Expected
All the fields are filled properly	all the field must be filled	Submit Successful	Submit Successful
Empty Field	all the field must be filled	Please fill this field	Fill all the fields first

Chapter-6: Scope of Improvement, Summary and Conclusions

Describe what has been achieved vis-à-vis objectives & scope of the project. Is the application developed by you ready for use or some bugs remain? Describe limitations and scope for future development/improvement.

OBJECTIVE

The objectives of online examination system is to make sure that the student is thoroughly ware of the course curriculum and that the exam reflects the course content he/she has studied. It will automate the process of assessing students' subject knowledge. The platform is preferred by universities and colleges as it replaces the logistical problems and shortcomings of the conventional pen-and-paper examination mode.

SCOPE

The online examination system application is vast. It can be used in various sectors, schools, colleges, tuition centers, or individual tutors. It replaces the logistical problems and shortcomings of the conventional pen-and-paper examination mode. It will also reduce the usage of paper and ink. It will save the time which is used in scheduling the exam and improve the management.

DRAWBACKS / LIMITATIONS

Network Issue: One of the biggest challenges in conducting online examinations is connectivity. If any network issue occurs during the exam, the online test can be delayed or postponed. The exams can indeed be taken some other time, but it negatively affects the students' minds.

Security Issue: In online examinations, data are shared online and stored in cloud-based storage. But being in a totally online environment brings the risk of data breach and hacking. Suppose Hackers can get into the online examination system. In that case, they can completely sabotage the data and may even extract question papers. Not every type of question can be checked automatically with the Online examination system. While online evaluation is excellent for short multiple-choice questions, they are not useful for broad questions. Teachers have to manually check the answers and grade the students.

Accessibility: India is still a developing country. And rural areas are yet not connected through the internet or have computer systems. Under such conditions, conducting online examinations in such places is a faraway dream.