ATMIYA UNIVERSITY

RAJKOT

A

Report On

Online Examination System

Under subject of

MAJOR PROJECT

B.TECH, Semester – VII

(Computer Engineering)

Submitted by:

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Academic Year

(2022-23)

CANDIDATE'S DECLARATION

We hereby declare that the work presented in this project entitled "**Online Examination System**" submitted towards completion of project in **7th Semester** of B. Tech. (Computer Engineering) is an authentic record of our original work carried out under the guidance of "**Prof. Nirali Borad".**

We have not submitted the matter embodied in this project for the award of any other degree.

Semester: 7th
Place: Rajkot

Signature:

Bhimani Shreyansh (19002010)

Joshi Vatsal (190002044)

ATMIYA UNIVERSITY

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CERTIFICATE

Date:

This is to certify that the "**Online Examination System**" has been carried out by **Bhimani Shreyansh Vinodbhai** under my guidance in fulfillment of the subject Major Project in COMPUTER ENGINEERING (7th Semester) of Atmiya University, Rajkot during the academic year 2022.

Prof. Nirali Borad — **(Project Guide)**

Prof. Tosal M. Bhalodia — **(Head of the Department)**

ATMIYA UNIVERSITY

RAJKOT

CERTIFICATE

Date:

This is to certify that the "**Online Examination System**" has been carried out by **Joshi Vatsal Nileshbhai** under my guidance in fulfillment of the subject Major Project in COMPUTER ENGINEERING (7th Semester) of Atmiya University, Rajkot during the academic year 2022.

Prof. Nirali Borad — **(Project Guide)**

Prof. Tosal M. Bhalodia — **(Head of the Department)**

ACKNOWLEDGEMENT

We have taken many efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. We would like to extend our sincere thanks to all of them.

We are highly indebted to **Prof. Nirali Borad** for their guidance and constant supervision as well as for providing necessary information regarding the Major Project titled **"Online Examination System".** We would like to express our gratitude towards staff members of Computer Engineering Department, Atmiya University for their kind co-operation and encouragement which helped us in completion of this project.

We even thank and appreciate to our colleague in developing the project and people who have willingly helped us out with their abilities.

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Joshi Vatsal Nileshbhai (190002044)

ABSTRACT

Online Examination System is an Android Mobile Application. It fulfils the requirements of the institutes to conduct the exams online. The purpose is to provide a system that saves the effort and time of institution.

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CHAPTER – 1: INTRODUCTION

1.1. Introduction

Online Examination System is a Multiple Choice Questions (MCQ) based examination system. It provides an easy to use environment for both Test Conductors and Students appearing for Examination. The main objective of Online Examination System is to provide all the features that an Examination System must have, with the "interfaces that don't Scare it's Users!".

1.2. Scope

- The main purpose of the system is to efficiently evaluate the candidate thoroughly through a fully automated system that not only save a lot of time but also gives fast results and saves paper.
- It is a cost-effective and popular means of mass- evaluation system.
- The faculty prepares the tests and questions for each exam.
- The candidates can login through the client computers with their roll number given to them and can take the exam.
- The questions are shuffled in a random order so that possibilities for getting questions in the same order for the students who are beside, is very less.

1.3. Taxonomy of OLES (Online Learning Environment Survey)

Users of this system are classified into two categories:

- Admin
- Users (Students)

1.3.1. Admin

Administrators are responsible for management of system users, preparing questions and create a test etc.

1.3.2. Users

Users are the candidates, appearing for the Exam.

1.4. Existing System

The Existing System of conducting examination process is manual. Existing system is a large man power process and is difficult to implement it at different platform. It has so many problems. So we introduce an OLES system, which is fully computerized. Existing system is a large man power process and is difficult to implement.

1.5. Disadvantages of existing system

- The existing systems are very time consuming.
- It is difficult to analyze the exam manually.
- Results are not precise as calculation and evaluations are done annually.
- Result processing after summation of exam takes more time as it is done manually.

1.6. Objective of proposed system

- Economic feasibility
- Time Flexibility
- Technical feasibility
- User-friendly interface
- Eco-Friendly System

CHAPTER – 2: Software Requirement Specification

2.1. Proposed

The main objective of the Online Examination System is that it helps educational institutions and corporate world to conduct exams to any number of candidates at a time, in an automated manner. It reduces the time consumption and workload that exist in the current system of examination. It also helps in storing the record of each examination and the results are also stored in the system. This makes the searching of the records easier than the existing system.

2.2. Scope

- OLES can be used in educational institutions as well as in corporate world.
- The system handles all the operations and generates reports as soon as the test is completed which saves the precious time of faculties spent on reviewing answer sheets.
- OLES is a cost-effective and popular means of mass- evaluation system.
- The administrator of the system prepares the tests and questions for each exam.
- The candidates can login through the client computers with their Admission number given to them by the College and can take the exam.
- The questions are shuffled in a random order so that possibilities for getting questions in the same order for the students who are sitting beside is very less.
- Can be used anywhere any time as it is a web based application.

2.3. Specific Requirements

2.3.1. Software Requirement

- Operating System: Windows 7 and others.
- Front End: XML
- Back End: JAVA
- Database: Firebase server
- IDE: Android Studio

2.3.2. Hardware Requirement

Client side:

- Android Mobile with minimum 5.1.1 version is required.
- RAM: Minimum 2GB

Server side:

- RAM: Minimum 8GB
- Hard disk space: 8GB

2.4. User requirement

- Every user should be comfortably work with computer.
- Every user must have basic knowledge of English.

2.5. Constraints

- Graphical user interface is only in English.
- Email ID and password is used for identification of user and there is no facility for guest.
- Only registered users will be authorized to use the services.
- This system is working for single server.

2.6. Conclusion

In this phase, we understand the software requirement specifications for the system. We arrange all the required components to develop the project in this phase itself so that we will have a clear idea regarding the requirements before designing the project. Thus we will proceed to the design phase followed by the implementation phase of the project.

CHAPTER – 3: Testing And Validation

3.1. Introduction

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software.

Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems.

The following are the Testing Objectives:

- Testing is a process of executing a program with the intent of finding an error
- A good test has a high probability of finding an as yet undiscovered error.
- A successful test is one that uncovers an as yet undiscovered error.

3.2. Design of test case

The objective is to design tests that systematically uncover different classes of errors and do so with a minimum amount of time and effort. Testing cannot show the absence of defects, it can only show that software defects are present.

3.2.1. Integration Testing

Modules integrated by moving down the program design hierarchy. Can use depth first or breadth first top down integration verifies major control and decision points early in design process. Top-level structure tested most. Depth first implementation allows a complete function to be implemented, tested and demonstrated and does depth first implementation of critical functions early. Top down integration forced (to some extent) by some development tools in programs with graphical user interfaces. Begin construction and testing with atomic modules (lowest level modules).Bottom up integration testing as its name implies begins construction and testing with atomic modules. Because modules are integrated from the bottom up, processing required for modules subordinate to a given level is always available and the need for stubs is eliminated.

3.2.2. Validation Testing

Validation testing is aims to demonstrate that the software functions in a manner that can be reasonably expected by the customer. This tests conformance the software to the Software Requirements Specification.

3.2.3. Alpha and Beta Testing

Alpha Testing

It's an acceptance testing conducted by the developed environment.

Beta Testing

It's an acceptance testing conducted by the multiple customers in the customer environment.

3.2.4. System Testing

Software is only one component of a system. Software will be incorporated with other system components and system integration and validation test performance.

3.3. Validation

Validation aims to demonstrate that the software functions in a manner that can be reasonably expected by the user. An experiment has done for checking the consistency for the user requirements regarding the username and password which should be validated through the server and the username and password should be matched.

3.4. Conclusion

In this way we also completed the testing phase of the project and ensured that the system is ready to go live. Thus we developed a system that provides a paperless examination.

CHAPTER – 4: Project Management

4.1. Project Planning

Project Planning is concerned with identifying and measuring the activities, milestones and deliverables produced by the project. Project planning is undertaken and completed sometimes even before any development activity starts. Project planning consists of following essential activities:

- Scheduling manpower and other resources needed to develop the system.
- Staff organization and staffing plans.
- Risk identification, analysis, and accurate planning.
- Estimating some of the basic attributes of the project like cost, duration and efforts. The effectiveness of the subsequent planning activities is based on the accuracy of these estimations.
- Miscellaneous plans like quality assurance plan, configuration management plan, etc.

Project management involves planning, monitoring and control of the people, process, and the events that occurs as the software evolves from a preliminary concept to an operational implementation. Cost estimation is a relative activity that is concerned with the resources required to accomplish the project plan.

4.2. Project Scheduling:

The scheduling is the peak of a planning activity, a primary component of software project management. When combined with estimation methods and risk analysis, scheduling establishes a roadmap for project management. The characteristics of the project are used to adapt an appropriate task set for doing work.

4.3. Risk Management:

Risk management consists of a series of steps that help a software development team to understood and manage uncertain problems that may arise during the course of software development and can plague a software project.

Risks are the dangerous conditions or potential problems for the system which may damage the system functionalities to very high level which would not be acceptable at any cost. So in order to make our system stable and give its 100% performance we must have identify those risks, analyse their occurrences and effects on our system and must prevent them to occur.

4.3.1. Risk Identification:

Risk identification is a first systematic attempt to specify risks to project plan, Scheduling resources, and project development. It may be carried out as a tea process using brainstorming approach.

Technology risk:

Technical risks concern implementation, potential design, Interfacing, testing, and maintenance problems like Database Corruptness and Garbage Collection.

People Risks:

These risks are concerns with the team and its members who are taking part in developing the system. Like Leaking an important data, Failure of the administration, Lack of knowledge, Lack of clear product vision, Technical staff conflict and Poor communication between people.

Tools Risks:

These are more concerned with tools used to develop the system. Like Tools containing virus.

General Risks:

General Risks are the risks, which are concerned with the mentality and resources. Like Lack of resources can cause great harm to efficiency and timely productivity, rapidly changing requirements, Changes in requirements can cause a great harm to implementation, designing and schedule of developing the system and insufficient planning and task identification.

4.3.2. Risk Analysis:

"Risk analysis = risk assessment + risk management + risk communication." Risk analysis is employed in its broadest sense to include:

Risk assessment:

Involves identifying sources of potential harm, assessing the likelihood that harm will occur and the consequences if harm does occur. For this project It might be: - System Crash.

Risk management:

Evaluates which risks identified in the risk assessment process require management and selects and implements the plans or actions that are required to ensure that those risks are controlled.

Precautions taken to make risks minimal are as under: - Periodical backups are taken to avoid major loss in case of system crash.

Risk communication

Involves an interactive dialogue between stakeholders and risk assessors and risk managers which actively informs the other processes.

Steps taken for risk communication is as under: - 1) Probability of certain risks is negotiated with client and 2) All the possible risks are listed out during communication and project is developed taking care of that risks.

CHAPTER – 5: System Design

5.1. Data Flow Diagram:

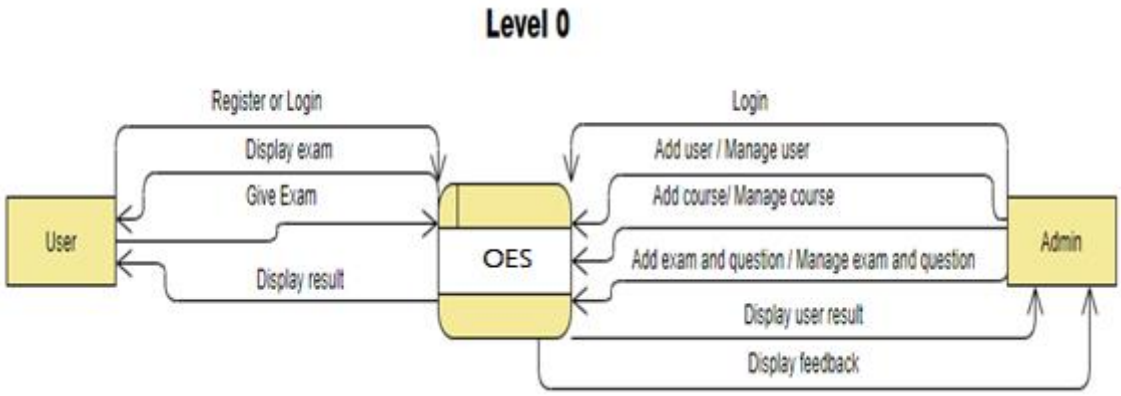


Figure 1: DFD level 0

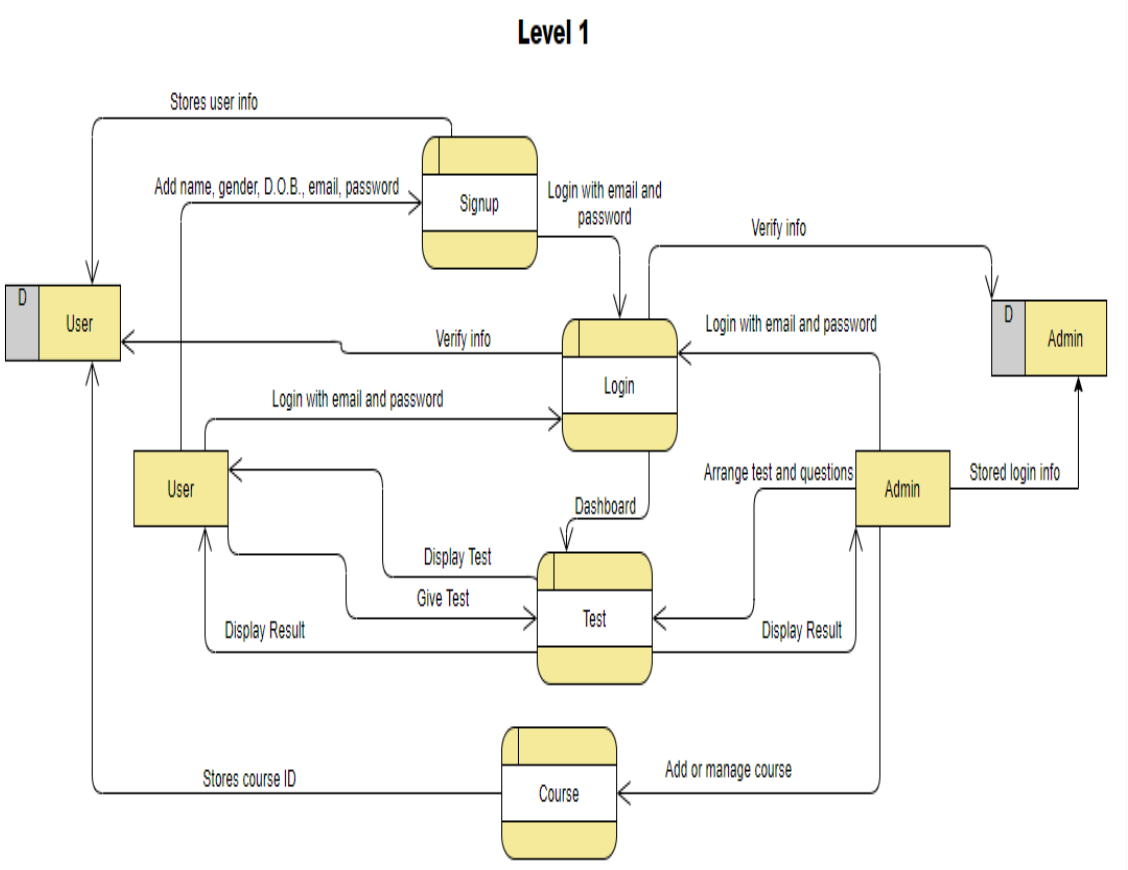


Figure 2: DFD level 1

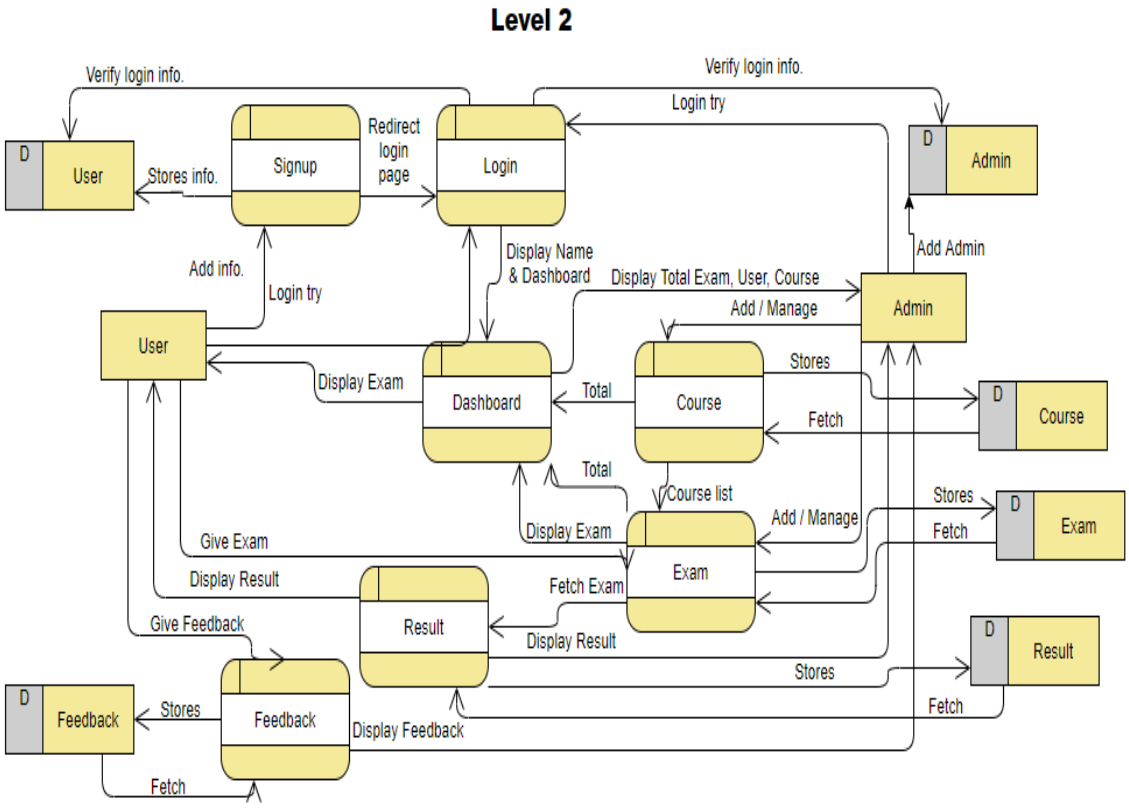


Figure 3: DFD level 2

5.2. Class Diagram:

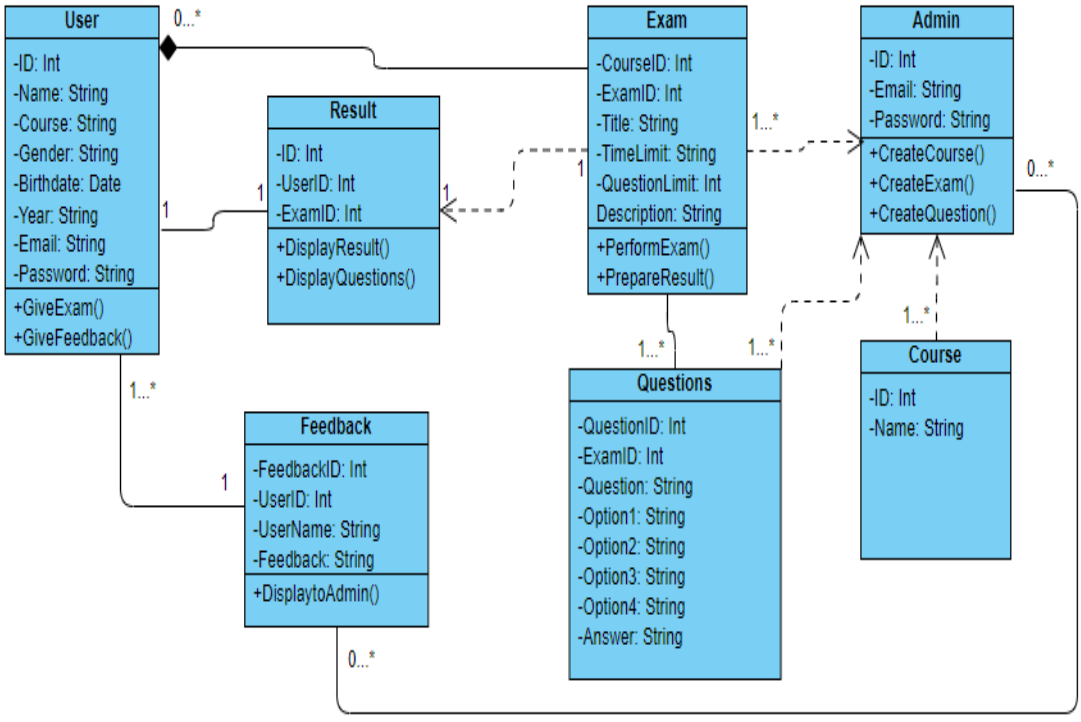


Figure 4: Class Diagram

5.3. Use case diagram:

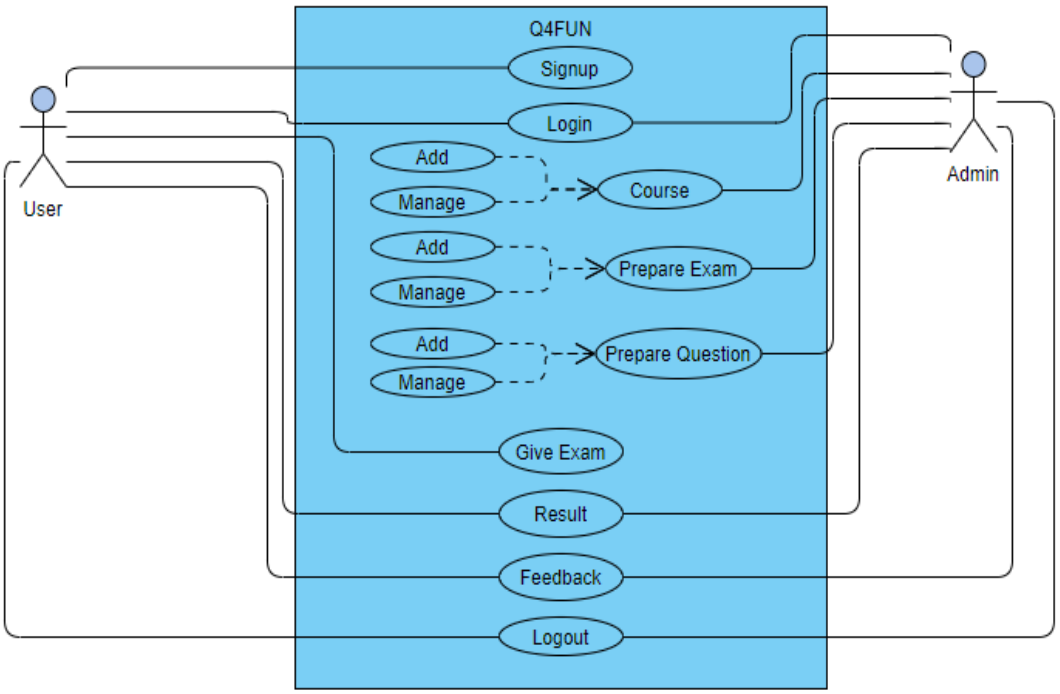


Figure 5: Use case diagram

5.4. Activity Diagram:

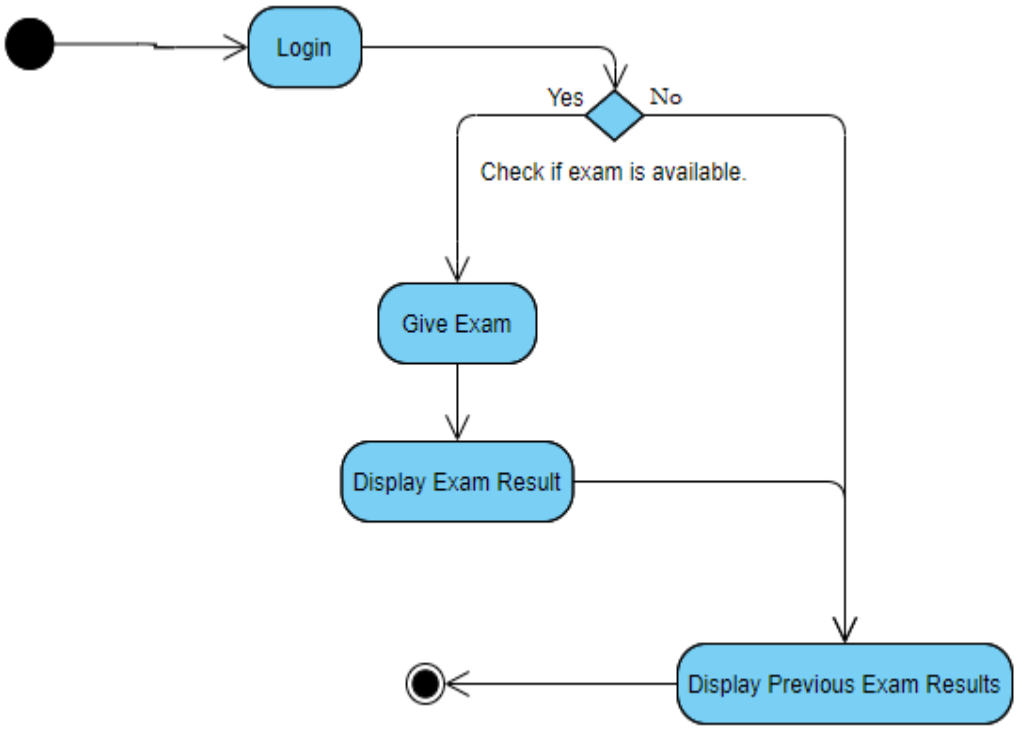
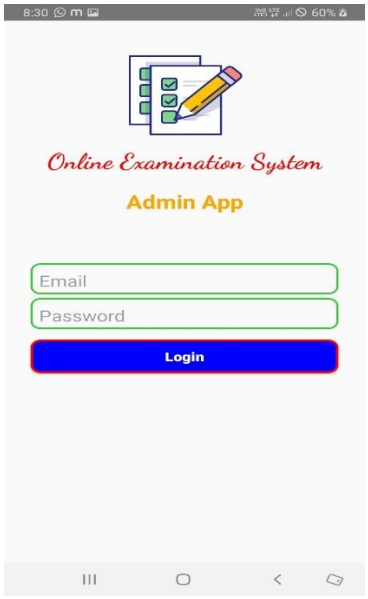


Figure 6: Activity Diagram

CHAPTER – 6: Screenshots

6.1. Admin Login Activity:



6.2. Admin Add Course:

CHAPTER – 7: Limitations, Future Enhancement, Conclusion And References

7.1. Limitations:

Though we tried our best in developing this system but as limitations are parts of any system so are of our system. Some limitations of Online Examination system are as under:

- Low storage capacity for free but we can upgrade with subscription.
- Communication between admin and user.

7.2. Future Enhancement:

There is always a scope for enhancements in any developed system, especially when our nature of the project is iterative waterfall which allows us to rethink on the method of development to adopt changes in the project. Below mentioned are some of the changes possible in the future to increase the adaptability, and efficiency of the system.

- More attractive GUI (Graphical user interface).
- Paragraph writing also (For Theory based)

7.3. Conclusion:

Online Examination System is an app. The key concept is to minimize the amount of paper and convert all forms of documentation to digital form. The user with minimum knowledge about computer can be able operate the system easily.

7.4. References

YouTube videos

developer.android.com website

Firebase Docs