

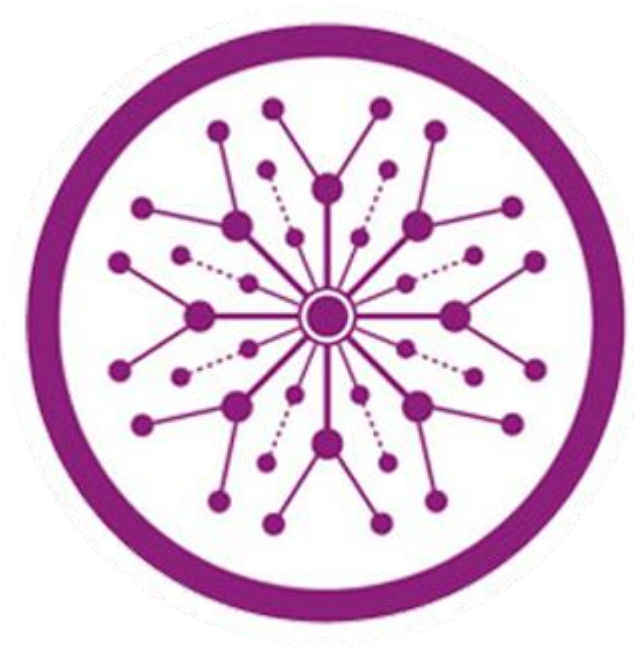
Learning Management System

Final Year Project

Session 2018-2022

A project submitted in partial fulfillment of the degree of

BS in Computer Science



Department of Computer Science

Faculty of Computer Science & Information Technology

The Superior University, Lahore

Fall 2021

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Plagiarism Free Certificate

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Designation: Lecturer

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Project Report

Learning Management System(LMS)

Change Record

Author(s)	Version	Date	Notes	Supervisor's Signature
Saif Iftikhar, Moazzam Khan, M. Ahmed Ali	1.0	19-03-2021	Started working on the project	
Saif Iftikhar, Moazzam Khan, M. Ahmed Ali	1.1	08-05-2021	Added chat bot, recommendation system and Assignment/Quizzes Notification	
Saif Iftikhar, Moazzam Khan, M. Ahmed Ali	1.2	25-05-2021	Was advised to add graphics type animations	
Saif Iftikhar, Moazzam Khan, M. Ahmed Ali	2.0	28-05-2021	Supervisor has approved the project and advised to initiate the project through research work.	

APPROVAL

PROJECT SUPERVISOR

Comments: _____

Name: _____

Date: _____ Signature: _____

PROJECT MANAGER

Comments: _____

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HEAD OF THE DEPARTMENT

Comments: _____

Date: _____ Signature: _____

Dedication

*This work is dedicate to my family, friends and everyone who showered me
With their love and support. I am especially thankful to those who presented
Challenges to my work and I pray for them because without their resistance I
Would never have been able to achieve what I did.*

Acknowledgements

I am thankful to my supervisor who has guided us well throughout the semester. As well as the people, that provided us with their honest opinions and reviews. Who made time for us for conducting their interview from their busy schedules, I would also like to thank my friends and family that provided us with the opportunity and support for developing this project.

Executive Summary

This proposal is for our final year Project of "LMS". The purpose of this project is to create a onetime solution platform where users can submit, perform quizzes online, check plagiarism, download lectures, view grade sheet etc. This is helpful for Teachers and students in many ways, especially when teacher and student time is so precious. With this student and teacher will be on one platform where they can submit their assignments and download lectures of the subjects and did not need to rely on other students. Students will get updates of upcoming quizzes and assignments who are due. As well as teacher requires a significant amount of time to check plagiarism of student's assignments of one class and if they are doing this with some sort of software then they need to buy their license in order to use that software. Teacher need to check quizzes and compile their results, but with our product, these are all done automatically and this will save precious time of teachers so that they can concentrate on students, so that students can give maximum output.

The summary contain the following elements:

- Enable a teacher to perform a quiz online of students and result of that class will be generate on that time.
- Check plagiarism between assignments of that class.
- Students can view deadlines of quizzes and due assignments
- Students can download lectures

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Chapter 1

Introduction

Chapter 1: Introduction

In this chapter, the readers will be introduced to the basic idea of the documented product named **LMS**, the motivation behind it. This chapter will provide the reader with the project plan that will be carried out the development process of this product. It will include the responsibilities matrix, work breakdown structure. In addition, the Gantt chart. Finally, the chapter concludes with a brief outline of the document to prepare the reader for what has to come and what to expect.

Our solution is to provide facility to students and teachers on one platform by giving them authority in different ways. Students will submit their assignments, they can view deadlines of the assignments, and upcoming quizzes that are due as well as they can download lecture's data section wise that teacher has uploaded for students. Students can do quizzes online and the result compilation will be easy for teacher.

1.1. Background

Speaking from the experience, students face many difficulties by using different websites for plagiarism checking and online quizzes and grade-sheet. Students check their plagiarism on different websites and for getting data, they normally look for cloud services where they can easily download the data but that consumes time. Students also search for different websites where they can test their exams preparation by quizzes in form of **MCQS**. Therefore, we are providing one time solution to our users by checking plagiarism, online quizzes and view their grade-sheet on one website. This can solve many problems of students and save many time. We are making a solution that is according to user requirement. We are providing one time solution in form of a website named **LMS**.

1.2. Motivations and Challenges

Many universities provide an online portal for the ease of their students and faculty members. But UMS didn't provide the functionalities of online quizzes and instant result compilation. Google form is one of the best online service available that we can use for conducting quizzes. There are many websites used for checking plagiarism but we are inspired by Turnitin plagiarism technique because its result is very accurate. And we are using third party API for checking plagiarism in documents. We are also providing lectures data to the students from where they can easily download the lecture data. If we give one time solution, in which these functionalities are performed. That can be a big challenge. Many difficulties may appear but this one time

solution can solve many problems of students because there is site which is giving one time solution for these functionalities.

1.3. Goals and Objectives

To solve the above-mentioned problem, it is our goal to create a single platform for the students as well as for the teachers. Because teachers can take online quizzes and there will be auto-updated grade-sheet which can decrease their burden of work.

- Develop a website where students and the teachers can take benefits.
- Students can get lecture data easily
- Auto-updated grade-sheet for the teachers
- It aims to give the easiest way for users.
- Notifications alerts for the students if a new event appear.
- We will also provide the Key logging as well for security purpose.

Objectives of **LMS** is to provide an efficient way to deal with the matters that came across in teacher and student life. As we know teacher needed to check quizzes maintains student semester data and provide them the helping material. Teacher also need to check many assignments that will consume lots of time checking how much plagiarism is in between assignments. Student also need reminders and sometime need to rely on svls to update them related to quiz and assignments that are due.

1.4. Literature Review/Existing Solutions

- **UMS:**

Superior university provides university management system for the ease of students and their faculty members. Most of the ums did not have the functionality of online quiz like superior university management system.

- **Digiskills:**

Virtual university is providing Digiskill learning management system for the students. In digiskill students can perform online quizzes and also there is a functionality of providing grade sheet of the quizzes.

- **Google form:**

Google form is a web-based app used to create forms for data collection purposes. Data gathered using in the form is typically stored in a spreadsheet. Although there are other online survey apps, google forms is an excellent free option.

- Feature 1: Online quiz
- Feature 2: Grade sheet

Websites	Feature 1	Feature 2
UMS	×	✓
DigiSkills LMS	✓	✓
Google form	✓	×

Table 1: Competitive analysis

1.5. Gap Analysis

The portal that we are providing can take online quizzes. Students can download lectures and submit their assignments online. We are using an API for checking plagiarism between assignments.

- Make it user-friendly and hassle-free to make the users stay.
- Assures the security of the data.
- Used a third party tool for check plagiarism.
- Quizzes for the students will be kept secret
- Generates alarming notifications of the upcoming quizzes and assignments.
- Test the system on multiple platforms and devices to make sure that it is free of bugs doesn't cause user any problem.
- Develop the online portal for the ease of students and teachers.

1.6. Proposed Solution

There are many solutions available for these types of situations but we are going to do this with the solutions that are as follows:

The quiz is going to be upload in the specific format otherwise, quiz will not acceptable. With this type of solution, system does not need to rely on different situations instead only one format is available.

1.7. Project Plan

This product plan will be overseen through following WBS and Gantt outline:

1.7.1. Work Breakdown Structure

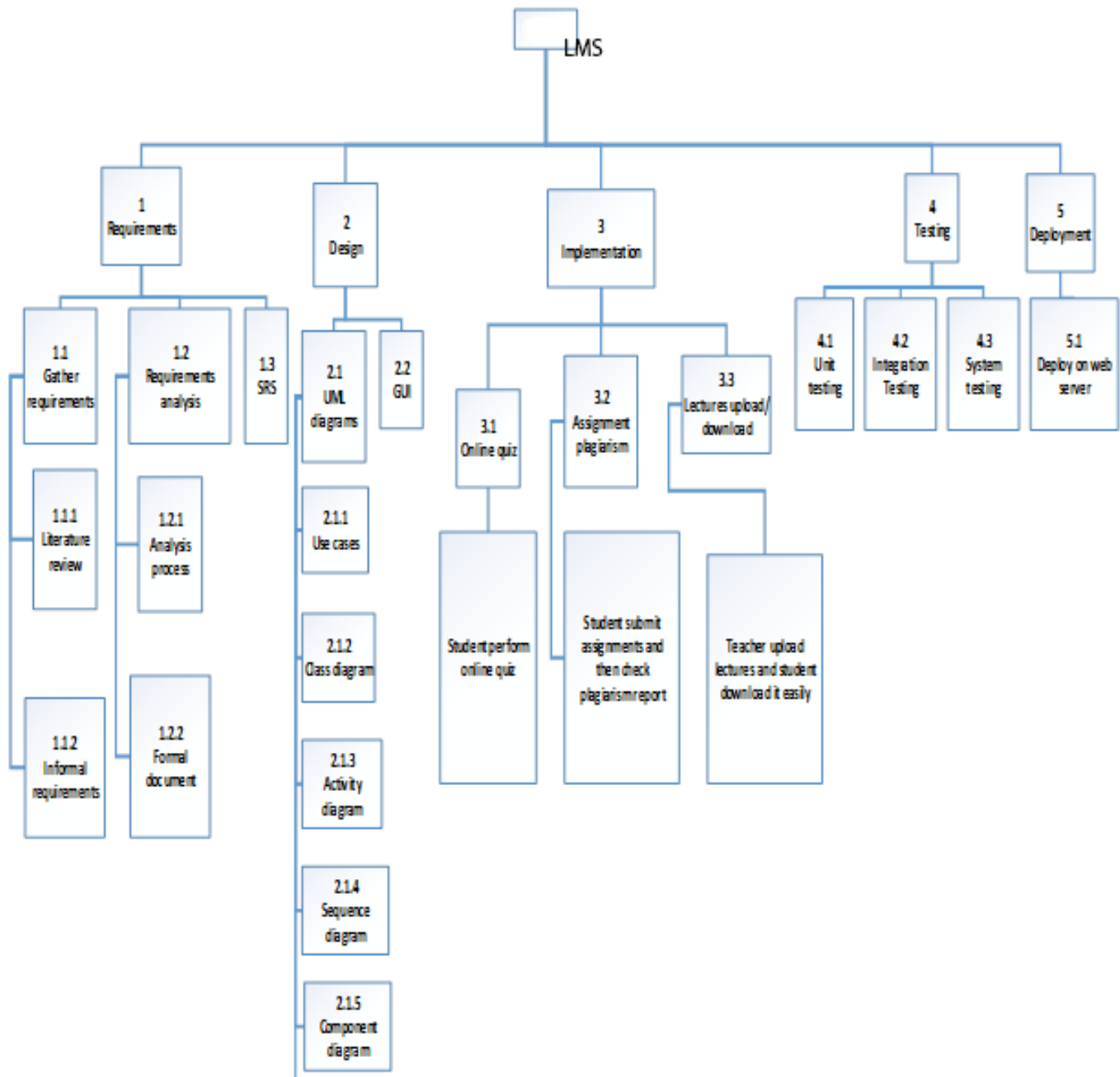


Figure 1: Work Breakdown Structure

1.7.2. Roles & Responsibility Matrix

WBS#	WBS Deliverable	Activity #	Activity to Complete the Deliverable	Duration (# of Days)	Responsible Team Member(s) & Role(s)
01	Requirement Gathering & Analysis and SRS	01	• Gather requirements • Literature review • Informal-requirements • requirement Analysis • Analysis process • Formal document • SRS	40 days	Requirements gathering and analysis done by all the team members Saif, Moazzam, Ahmed.
02	Design	02	• UML diagrams • use cases • class diagram • activity diagram • sequence diagram • component diagram • deployment diagram • GUI	54 days	UML diagrams done by the collaboration with all team members Saif , Moazzam , Ahmed implement that design through HTML, CSS, Bootstrap.

03	Implementation	03	• online quiz • Student perform online quiz • assignment plagiarism • Students check plagiarism • lecture upload and download • Teacher upload lectures students download them.	80 days	Saif, Moazzam, Ahmed: Does all the backend coding implementations.
04	Testing	04	• unit testing • integration testing • system testing	120 days	Saif do unit testing. Moazzam do integration testing. And checks efficiency and security. Ahmed do system testing.
05	Deployment	05	• deployment on web server	07 days	Deployment done by all the team.

Table 2: Roles and responsibility matrix

1.7.3. Gantt chart

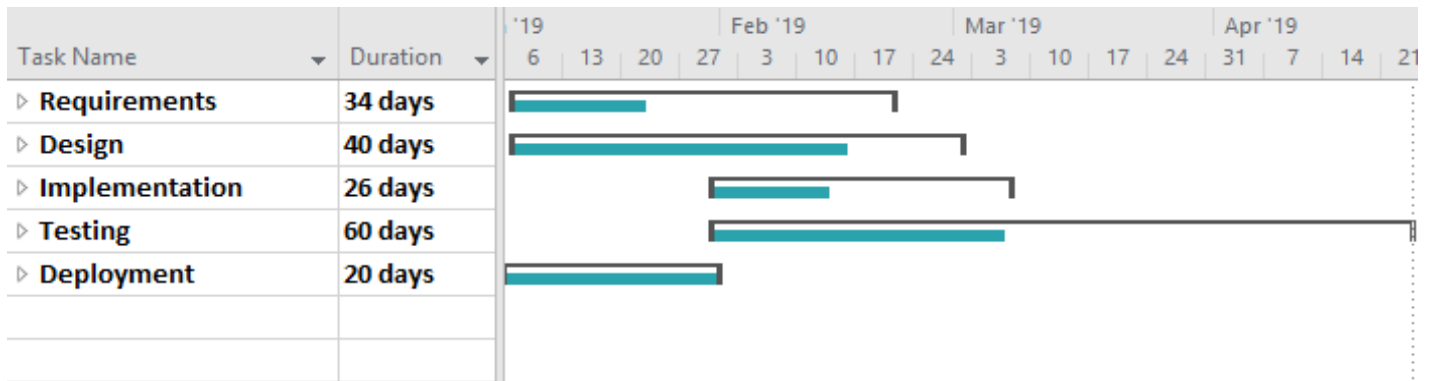


Figure 2: Gantt chart

Chapter 2

Software Requirement Specifications

2.1. Introduction

2.1.1. Purpose

The purpose of this documentation is to provide detailed knowledge about our software system requirements, functional and non-functional requirements. This document contains introduction, description of our project, External Interfaces that will explain the user interaction with our system, functional requirements, features our system will provide, and it contains the non-functional requirements section, which will explain the efficiency and effectiveness of system.

Our system provides a platform where user can easily interact with the system and can use the functionalities that provided. Our system will give you update with auto updated result-sheet and will check the plagiarism of student assignment documents. Our system will also take online quizzes of students and will also keep you update with new events. Another functionality of our system is to give students lectures data of the class. Our system will perform all of these functionalities in an efficient manner. A login will be given to all of the students through which user will login for the first time and then he can change his login to protect his data.

2.1.2. Document Conventions

This archive follows Calibri design and the text dimension is 12. Flagrant text has used to underscore areas and stressed text has used to name and perceive charts and the all text are defended.

2.1.3. Intended Audience and Reading Suggestions

Many people like will read this document:

- Team Manager
- Team Leader
- Developers
- Testers
- Users

The documentation is organize approximately in order of increasing specificity.

- Scope of product
- Functional requirements
- Use cases
- DFDs
- Non-functional requirements

2.1.4. Product Scope

This is fully dedicated for the convenience of students and the university staff and faculty. Our goal is to make a system smart enough to solve the problems of the students and also provide him convenience about university related problems. Our goal is to solve as much problems of the students all the facilities that help him in education field.

2.1.5. References

This document is formed by helping from these sites and documents:

- <https://www.scribd.com/doc/14649618/SRS-of-University-Management-System-by-Balwinder-Singh-Vehgal>,

Author name:

Balwinder-Singh-Vehgal.

Title:

SRS of software university management system.

Source:

Scribd

- <https://ieeexplore.ieee.org/abstract/document/7563123>

Author name:

Fu Yue

Title:

A study of student information management software

Source:

IEEE

2.2. Overall Description

2.2.1. Product Perspective

Our system is like a university management system that can perform specific tasks. Our system has many functionalities like uploading lectures by the teachers to keep them up to date with the class activities. Students will not need to wait for the class representative to keep them update with class activities. Most important feature is plagiarism checking through which students will study more. Another important feature is online quizzes that system will check and gives back the result sheet. Result sheet will be generate by the system that automatically generates the result sheet in efficient manner. Our system is inspire by the different university management systems and the Turnitin tool used for checking the plagiarism of the documents inspires plagiarism feature of our system.

2.2.2. Product Functions

Our system will capable of performing the following tasks:

- Plagiarism checking

Our system will check the plagiarism of the documents that has been upload. If the system found any plagiarism in the document, report will be directly, send to teachers as well as to students.

- Online quizzes

Teachers will give the question paper to the system and mention the time. Our system will take that quizzes and generates the notification to the student accounts. In addition, the online quizzes will be perform by the system in the university lab.

- Lectures data

Our system will also have the lectures data. The activities that had performed in the class will be upload on our system so that the students will not face any difficulty according to documents.

- Automated grade-sheet

Automated grade-sheet is another important feature of our system. Where the marks of paper and online quizzes will be mention. Online assignment and quizzes will be auto uploaded by the system and the teacher will upload remaining marks.

2.2.3. User Classes and Characteristics

There are two types of users interacting with the system:

- Students
- Teachers
- Admin

2.2.4. Operating Environment

This software would be operated in Php core and Java script environment, while it would be connected with Mysql as a scalable database that helps in retrieving and receiving data.

This product will be effectively carry out on the frameworks in general, which have window 7, 8, 8.1 and 10.

Our framework is viable with work area programs as well as portable programs.

2.2.5. Design and Implementation Constraints

The following are the constraints of implementation:

- Developers have to complete this system in minimum time say 6 months.
- The languages which will be used in this project is PHP, Bootstrap3, Html and CSS3.
- The Case tool to implement this product is Sublime text and xampp.
- For testing JMeter and Grinder will be used.

2.2.6. User Documentation

- We make a blog and help section in system for online help of users.
- We will give safety disclaimers for users.
- We will also provide the tutorials video that how to use the website on social media
- Like YouTube and Facebook.

2.2.7. Assumptions and Dependencies

Following are the some

- The website will be that much simple (complexity level is low)
- Ambiguity must be minimize into the document
- Format for the quiz will be easy and understandable by the machine.
- Our research is authentic and according to the standards. The system would continue to get updating data from developer side.
- For plagiarism, we will use PHP API's.

2.3. External Interface Requirements

The user interface for the software shall be compatible to any browser such as INTERNET EXPLORER, GOOGLE CHROME or MOZILLA FIREFOX by which user can access to our website.

The user interface shall be implement by using HTML, CSS and bootstrap.

2.3.1. User Interfaces

The UI of our site is straightforward. As of now, we plan our GUI by utilizing a falling template and bootstrap. Since our two primary clients one is an understudy and the subsequent one is an instructor so we construct our GUI by getting the necessities of the two clients.

As in our university ums, we just need 2 fields for login. In our website, we just type the ID and default password for both student and teacher. The student has different options in GUI and teachers has different options.

2.3.2. Hardware Interfaces

Equipment interfaces decides the site similarity with the gadgets it would execute and run on. For our site the equipment connection points are Cell phone, PC, Work area, Macintosh, iPad.

2.3.3. Software Interfaces

Our website is develop on framework of PHP language called LARAVEL. LARAVEL is the famous and strong framework for developing websites.

For fetching data from our database, we use MySQL. Because we have strong command in MySQL.

2.3.4. Communications Interfaces

Our website uses the HTTP protocol for communication over the internet and for the intranet; communication will be through TCP/IP protocol suite.

2.4. System Features

In this section, we simply define the features of our website. The main features of our website are plagiarism checking, online quiz, multiple dashboard, Chabot and lectures uploading.

2.4.1. System Feature 1

Plagiarism checking

2.4.1.1. Description and Priority

In this feature, student submit the assignment and after some time our website tells the plagiarism of the assignment.

2.4.1.2. Stimulus/Response Sequences

When student login with their account, if any assignments upload by the teacher. The student just response that they submit the assignments and after some time website responses that the plagiarism of the assignment.

2.4.1.3. Functional Requirements

REQ-SF1-1: <Assignment upload> teacher upload the assignment and student just submit the assignment.

REQ-SF1-2: <Plagiarism checking> after the student submit their assignment website response against the assignment and tells the plagiarism of assignment.

2.4.2. System Feature 2

Online Quiz

2.4.2.1. Description and Priority

This section relates to both student and teacher. Teacher has option to upload a quiz document file and just or website convert it into quiz format.

2.4.2.2. Stimulus/Response Sequences

The teacher just uploads the document and student perform online quiz. After some time, our website responds against the quiz and calculate marks of the correct answers.

2.4.2.3. Functional Requirements

REQ-SF2-1: <Teacher upload quiz> this requirement we need in our website. The teacher just uploads the document file and our website just change it into quiz format.

REQ-SF2-2: <Student perform quiz> after teacher upload quiz our website create a notification for student which tells the quiz has been uploaded. Student just open it and perform quiz.

2.4.3. System Feature 3 (and so on)

Lectures uploading and downloading

2.5. Other Nonfunctional Requirements

2.5.1. Performance Requirements

In plagiarism checking we are relaying on the API of plagiarism technique that will ensure us that it will produce effective results according to our requirement as well as maintaining grade sheet and saving data techniques to record semester wise data of students. The algorithm and techniques are need to be smart so that it will response time to time whenever it needed.

2.5.2. Safety Requirements

Providing the safety of data so that teacher essential information as well as maintain grade sheet information so that non-authorize user cannot access that data.

2.5.3. Security Requirements

Providing maximum security so that our data cannot be breach. For achieving maximum security, we are going to apply different checks that can assure the authorize user is accessing the require data.

2.5.4. Software Quality Attributes

- User friendly
- Easy to remember functionalities
- It can easily accommodate updates that can come time by time
- Fast and quick answers
- Responsive at any situation
- Reliable Response of answers
- Accurate Display of Information
- Maintainability of the system updates

2.5.5. Business Rules

Inter-operability is the need of the software for the commercial purpose.

2.6. Other Requirements

In order to use this website for better response and efficient way we require much better data set techniques for doing our work. As we know that on daily basis, new and new updates are coming. With that the efficiency of doing the work is also becoming more advance and for plagiarism, we are viewing different API and we are viewing different techniques for our quiz document that can upload in the require format so that teacher do not need to make many changes while uploading document.

Chapter 3

Use Case Analysis

Chapter 3: System Analysis

This part portray about framework use cases and how the various entertainers are cooperating with the framework. In use case main functionalities of the system are defined that are divided in different modules e.g. major use case in which all functionalities of the system are defined is divide into renter, consumer and admin module and each actor interacting with module and performing his module functionalities.

3.1. Use Case Model

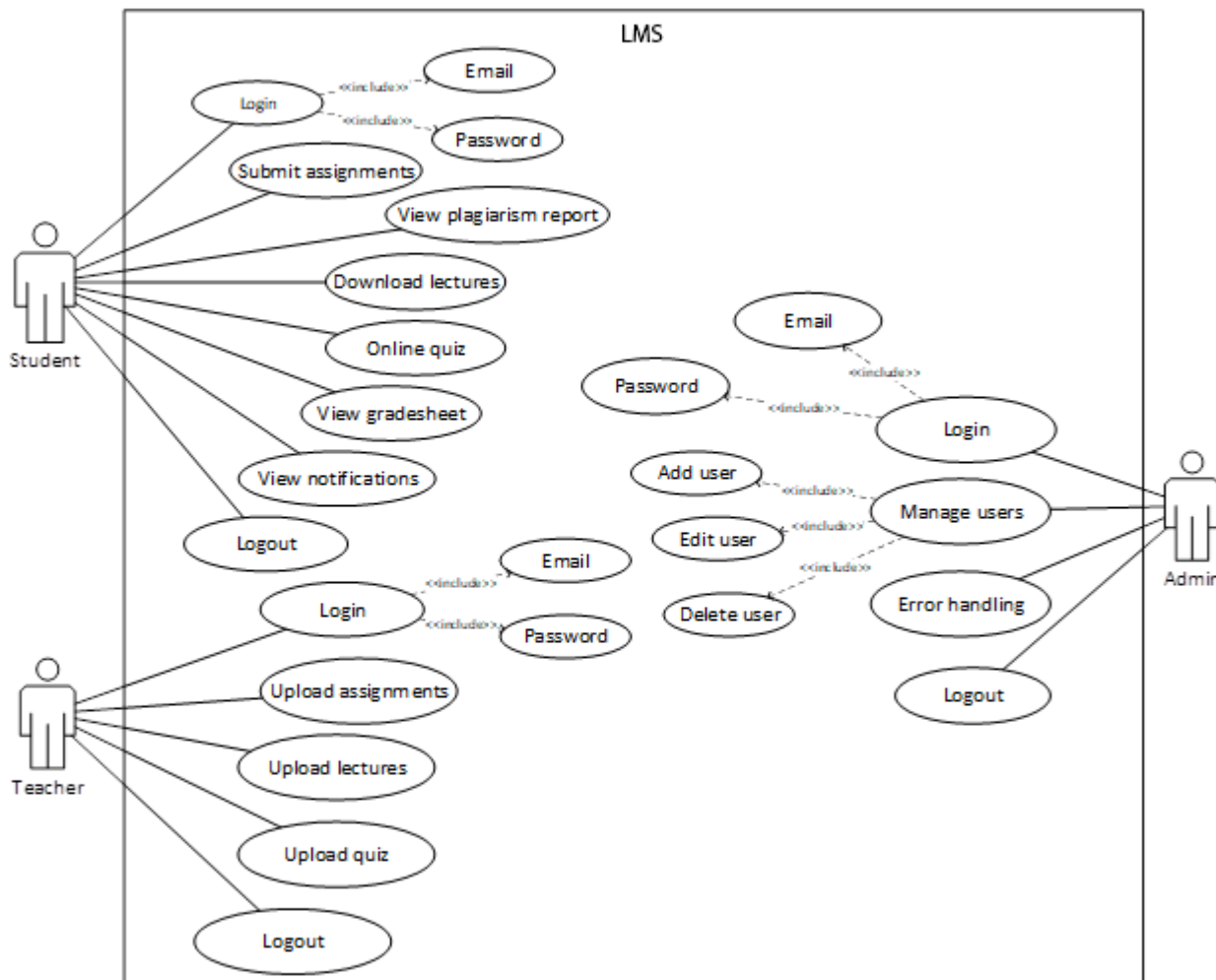


Figure 3: Use Case

3.2. Fully Dressed Use Cases

USE CASE FOR STUDENT

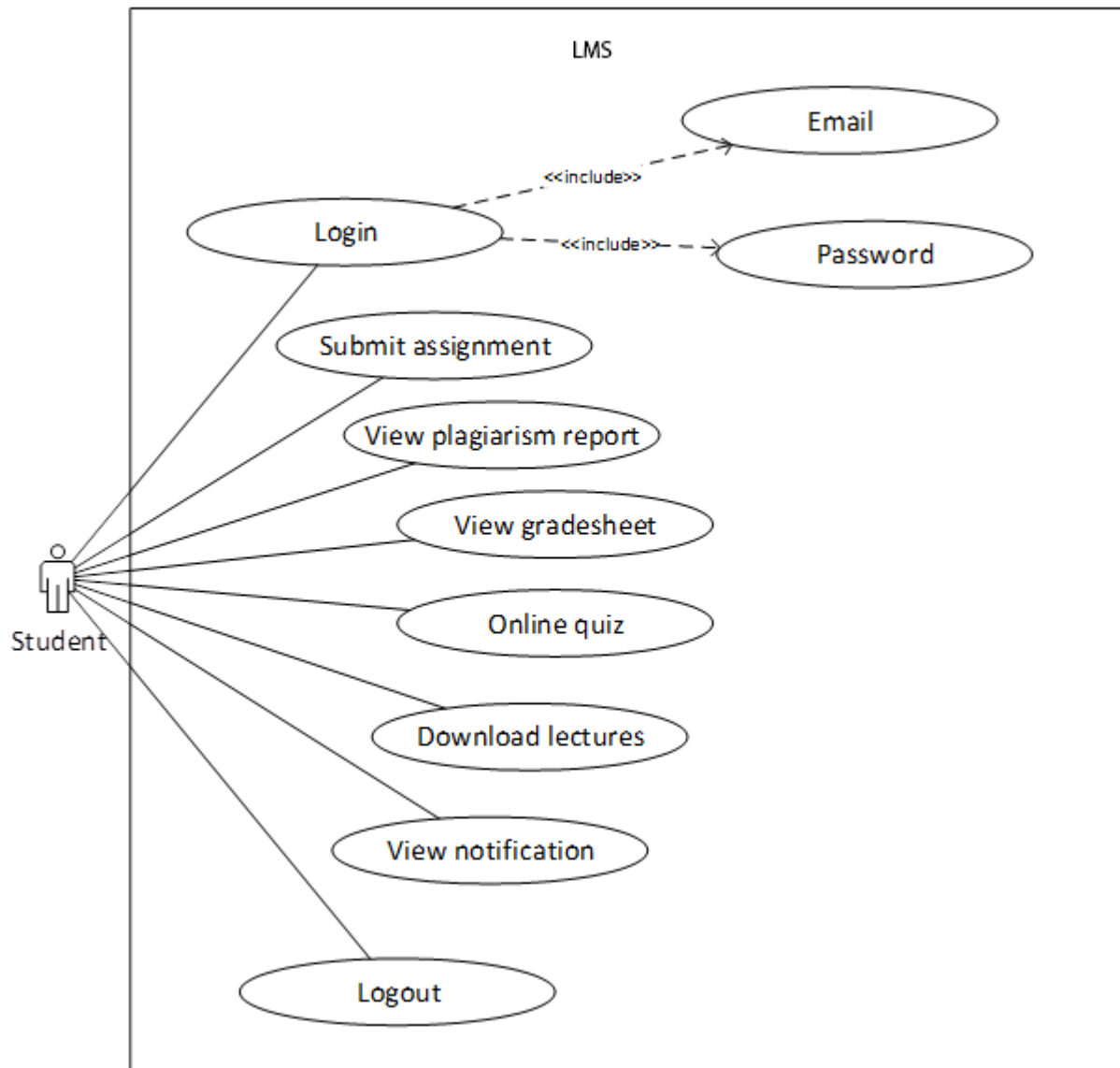
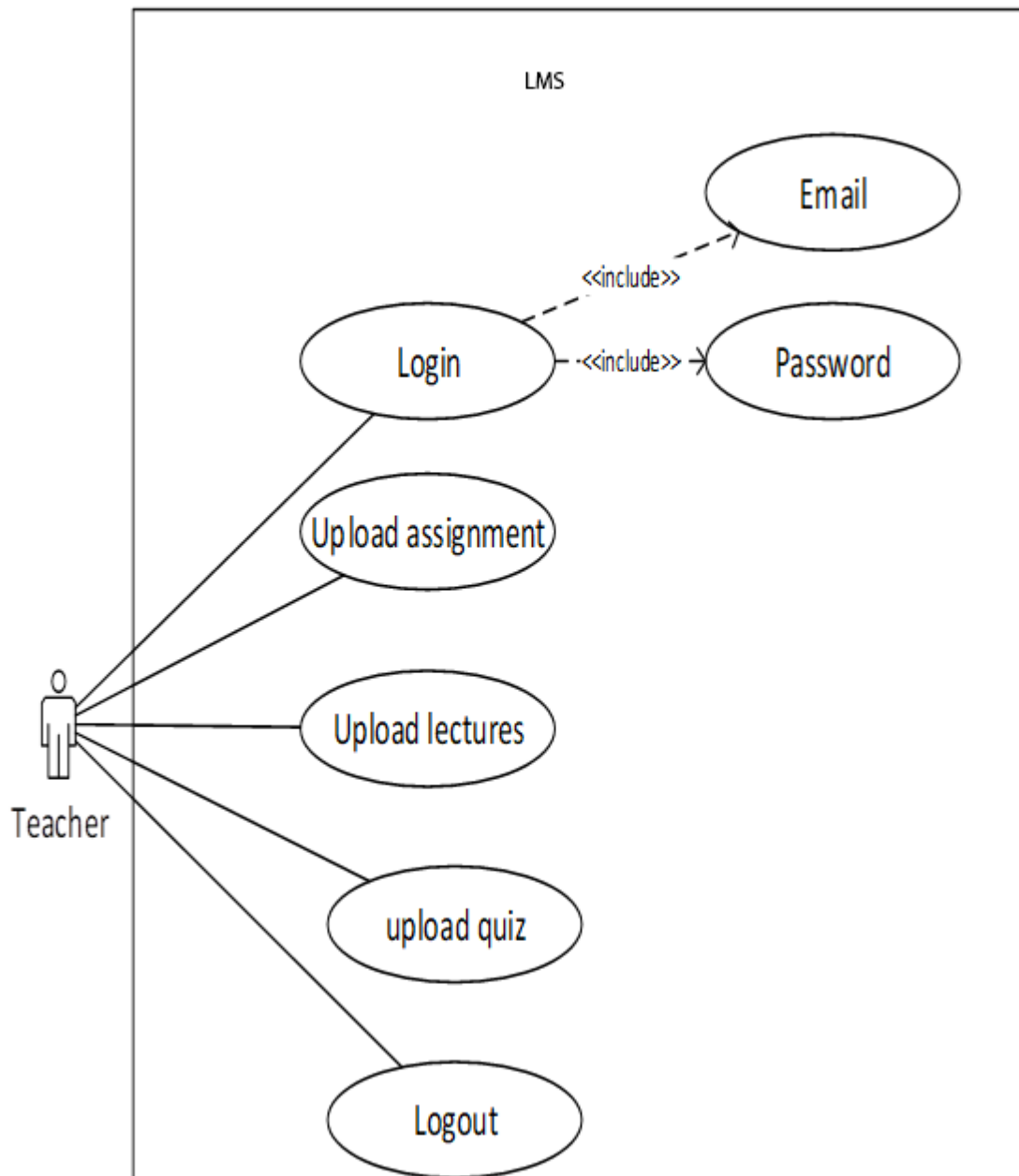
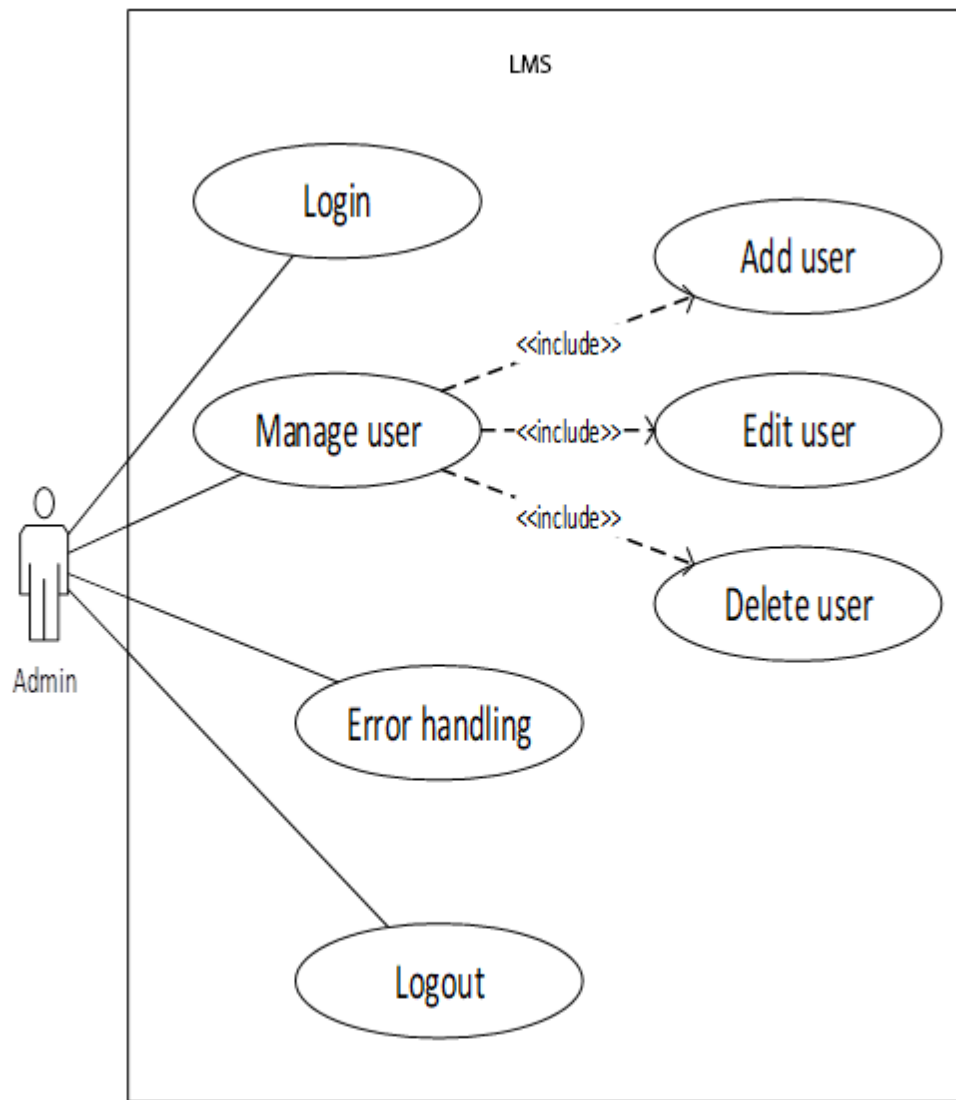


Figure 4: Use Case for student

USE CASE FOR TEACHER**Figure 5: Use case for teacher**

USE CASE FOR ADMIN**Figure 6: Use case for admin**

Chapter 4

System Design

Chapter 4: System Design

This chapter contains the key-diagrams and models to visually represent the system. The system design has been briefed below:

The application will follow client server architecture. This is an online application and the server will manage the delivery of most of the resources.

4.1. Architecture Diagram

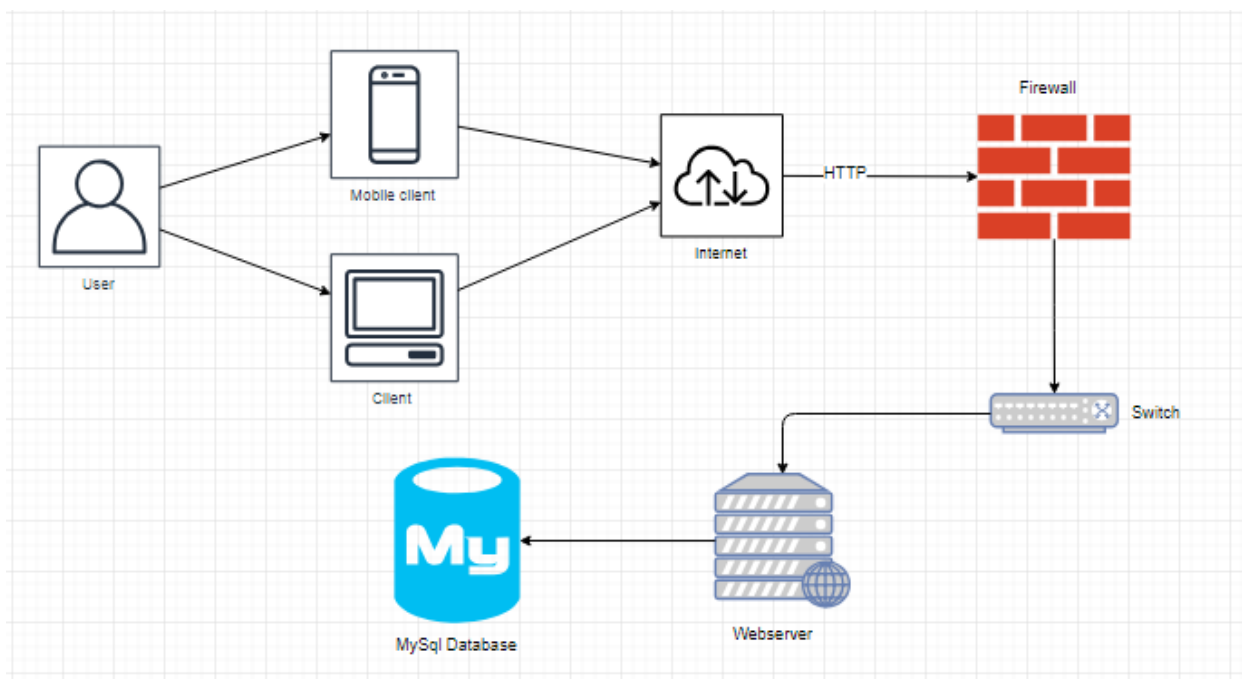


Figure 7: Architecture diagram

4.2. Domain Model

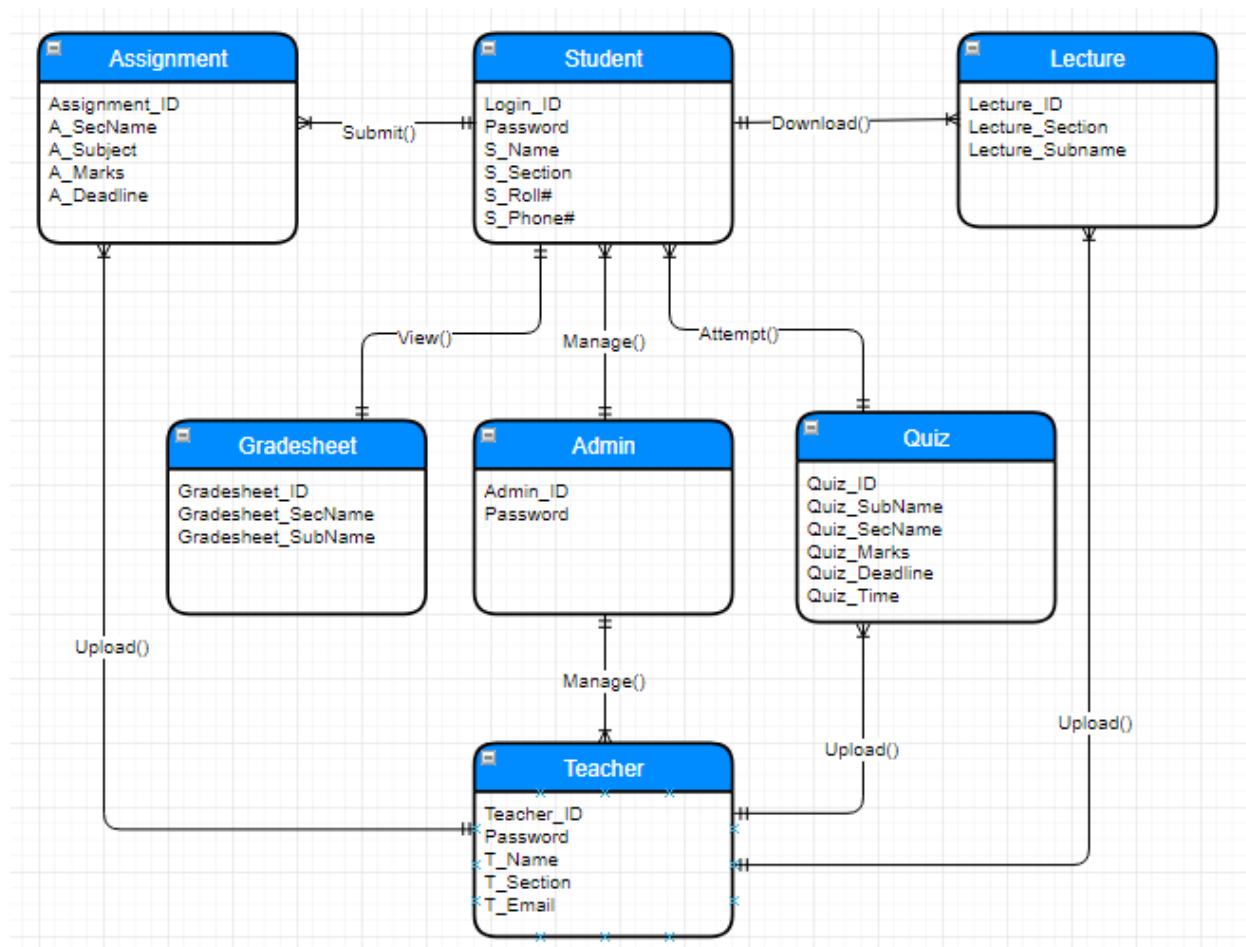


Figure 8: Domain model

4.3. Entity Relationship Diagram with data dictionary

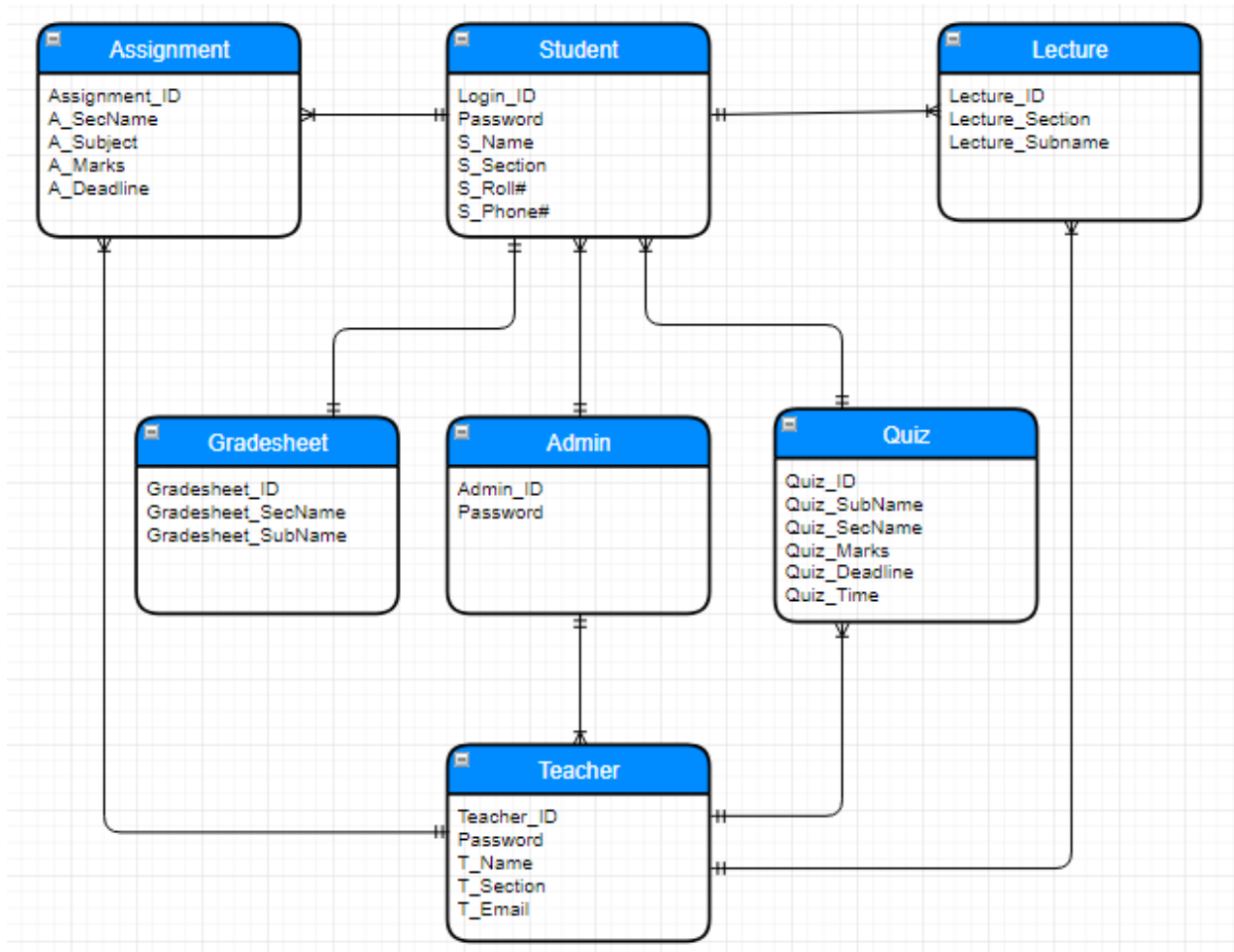


Figure 9: Entity relationship diagram

Student			
Attributes	Data Types	Null-able	Description
Login_ID (PK)	Int	No	The identity number of this entity
Password	varchar	No	The password required to login to admin account
S_name#	varchar	No	The name of this entity
S_Roll#	varchar	No	Roll No required of this entity
S_Section	varchar	No	Section required of this entity
S_Phone#	varchar	No	Phone number required of this entity

Table 3: ERD1 Student

Lectures			
Attributes	Data Types	Null-able	Description
Lecture_ID (PK)	Int	No	The identity number of this entity
Lecture_section	varchar	No	The section required for this entity
Lecture_subname	varchar	No	Subject name for this entity

Table 4: ERD2 Lectures

Assignments			
Attributes	Data Types	Null-able	Description
Assignment_ID	Int	No	The identity number of this entity
A_SecName	varchar	No	Section name required for the assignments
A_Subject	varchar	No	Subject name required for assignments
A_Marks	Float	No	Marks of the assignments.
A_Deadline	dateTime	No	Date/Time for the assignments.

Table 5: ERD3 Assignments

Grade-sheet			
Attributes	Data Types	Null-able	Description
Gradesheet_ID (PK)	Int	No	The identity number of Grade-sheet
Gradesheet_SecName	varchar	No	Section name required for the grade sheet
Gradesheet_SubName	varchar	No	Subject name required for the grade sheet.

Table 6: ERD4 Grade sheet

Admin			
Attributes	Data Types	Null-able	Description
Admin_ID (PK)	Int	No	ID required to login to admin account.
Password	varchar	No	The password required to login to admin account

Table 7: ERD5 Admin

Quiz			
Attributes	Data Types	Null-able	Description
Quiz_ID (PK)	Int	No	The identity number of the quiz.
Quiz_SubName	Varchar	No	Subject name of the quiz.
Quiz_SecName	Varchar	No	Section name required to conduct quiz.
Quiz_Marks	Int	No	Marks of the quiz.
Quiz_Deadline	DateTime	No	Time announced to students for the quiz.
Quiz_Time	DateTime	No	Time duration of the quiz.

Table 8: ERD6 Quiz

Teacher			
Attributes	Data Types	Null-able	Description
Teacher_ID (PK)	Int	No	Identity number of the teacher.
Password	varchar	No	The password required to login to teacher account.
Teacher_Name	varchar	No	Name required for this entity.
Teacher_Section	varchar	No	Teacher section number required for this entity.
Teacher_Email	Mail	No	Teacher Email required for this entity.

Table 9: ERD7 Teacher

4.4. Class Diagram

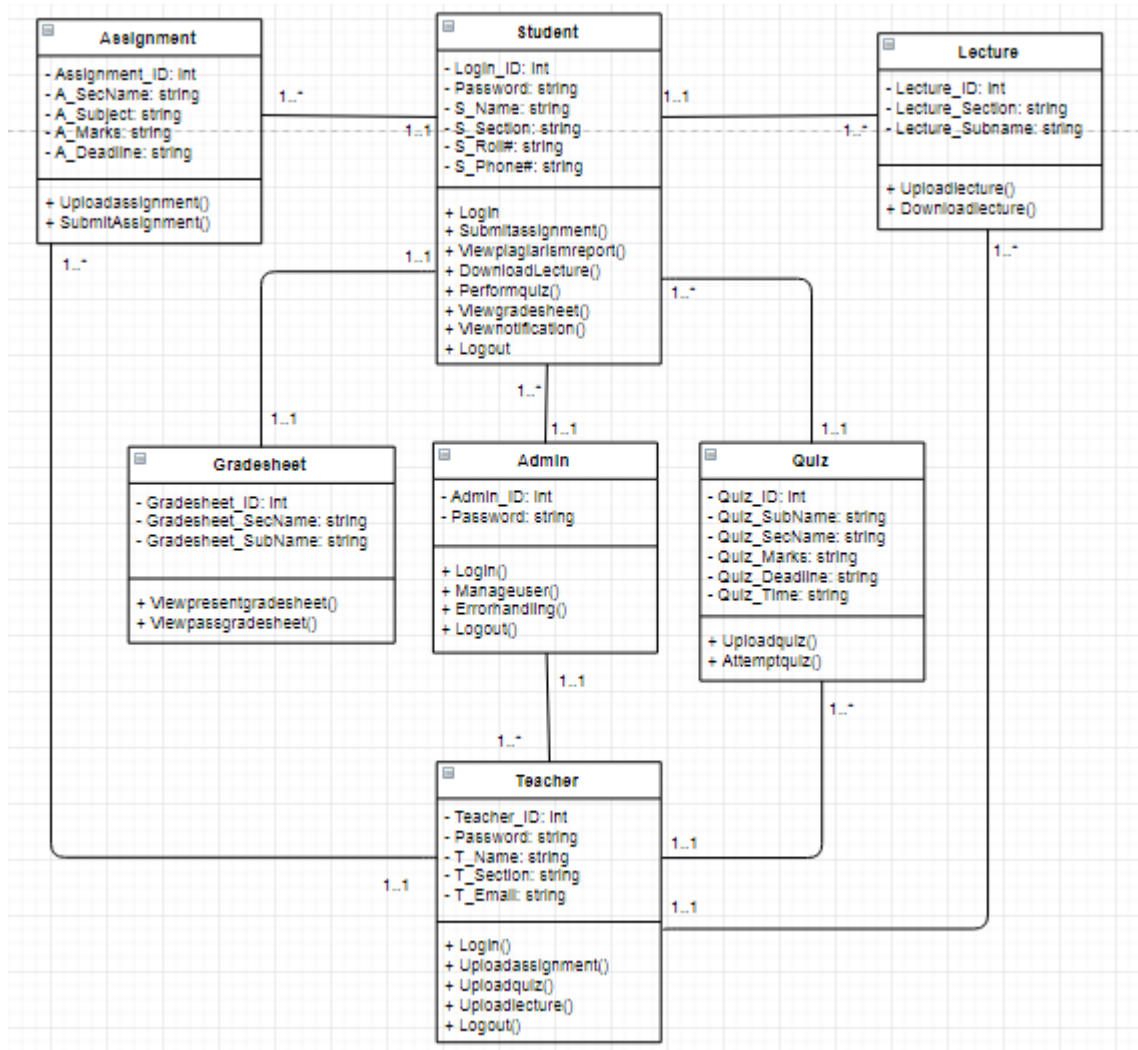


Figure 10: Class diagram

4.5: Sequence / Collaboration Diagram

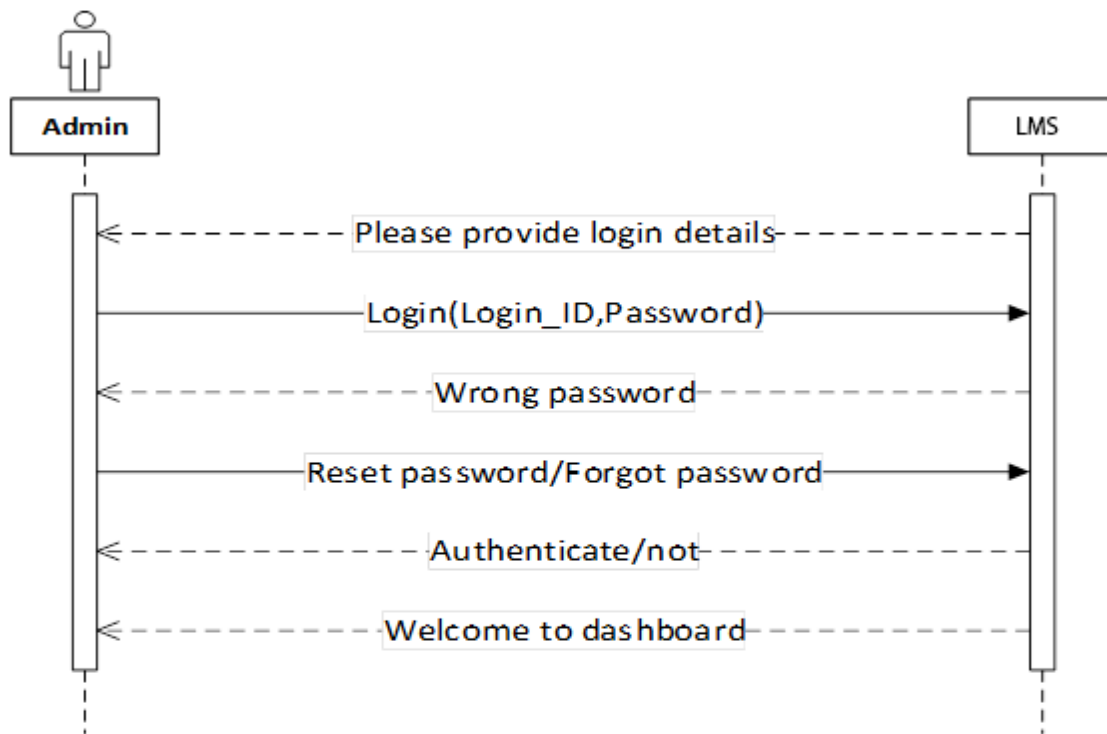
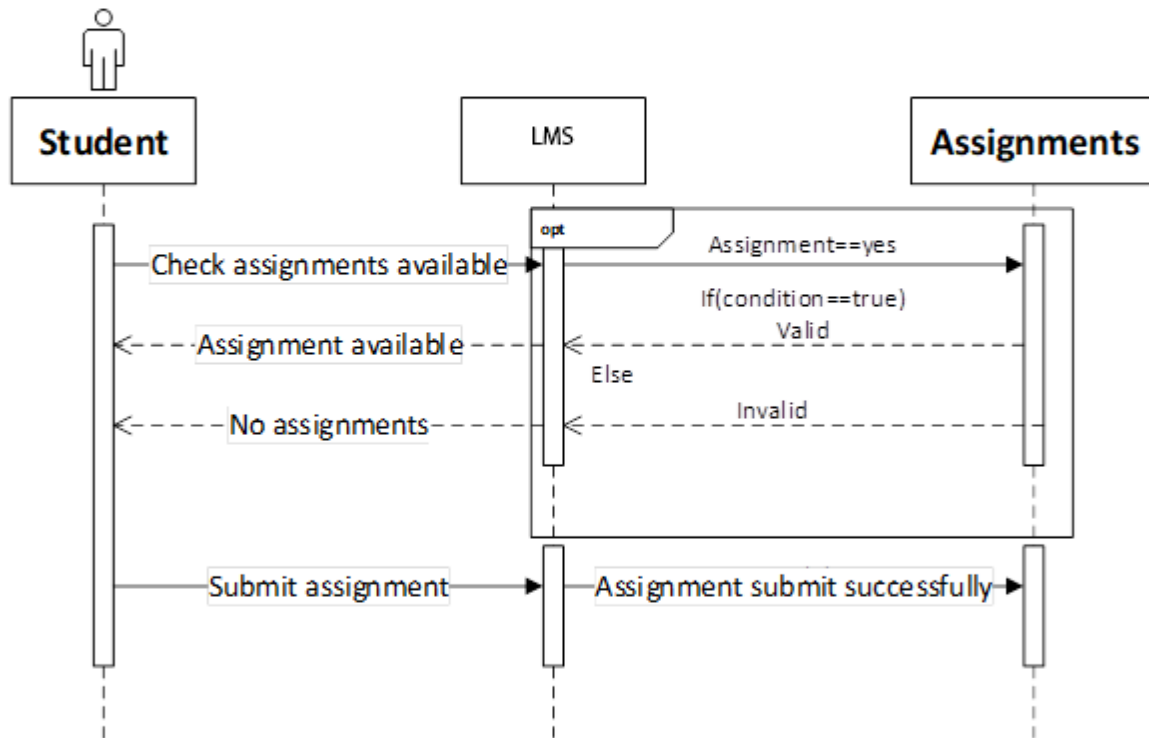


Figure 11: Login

**Figure 12: Assignments**

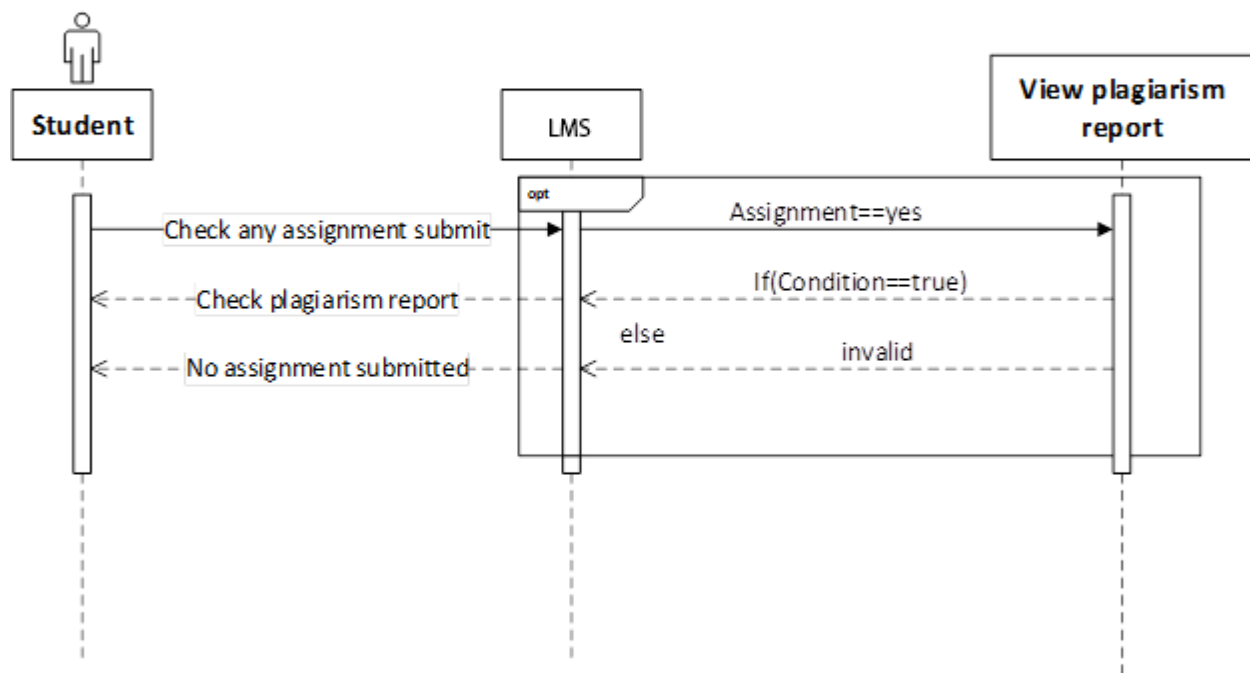
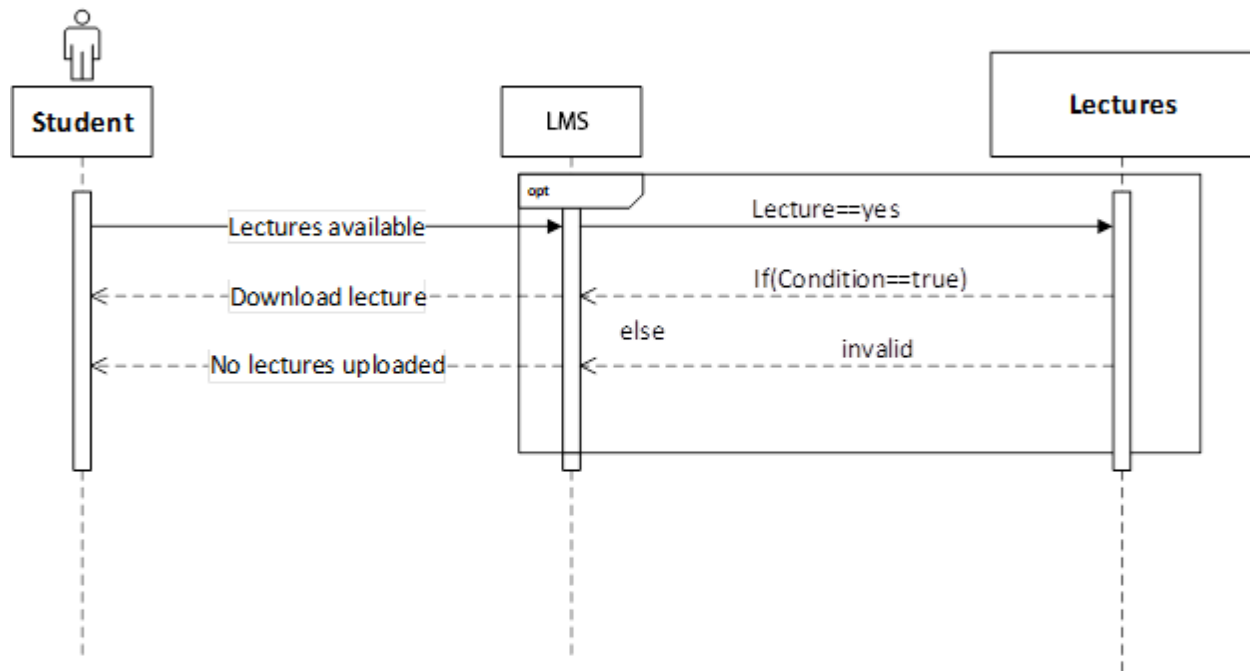


Figure 13: Plagiarism report

**Figure 14: Lectures**

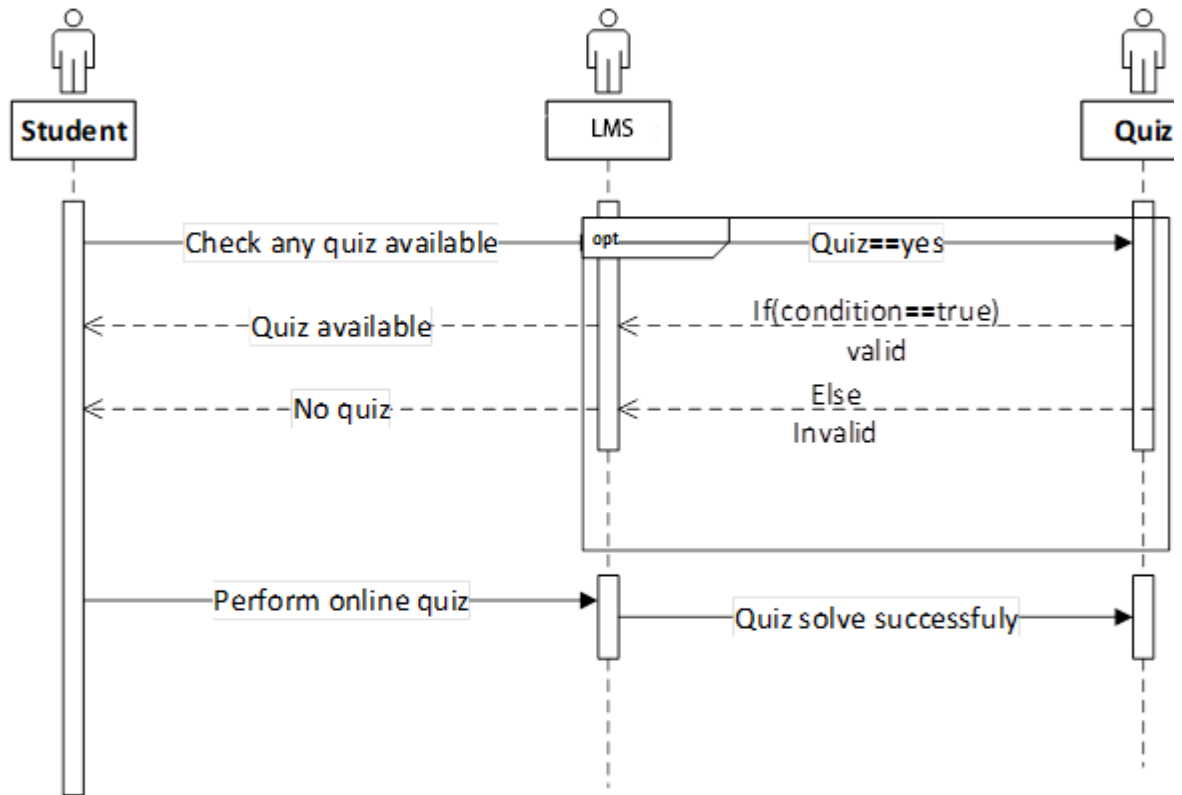
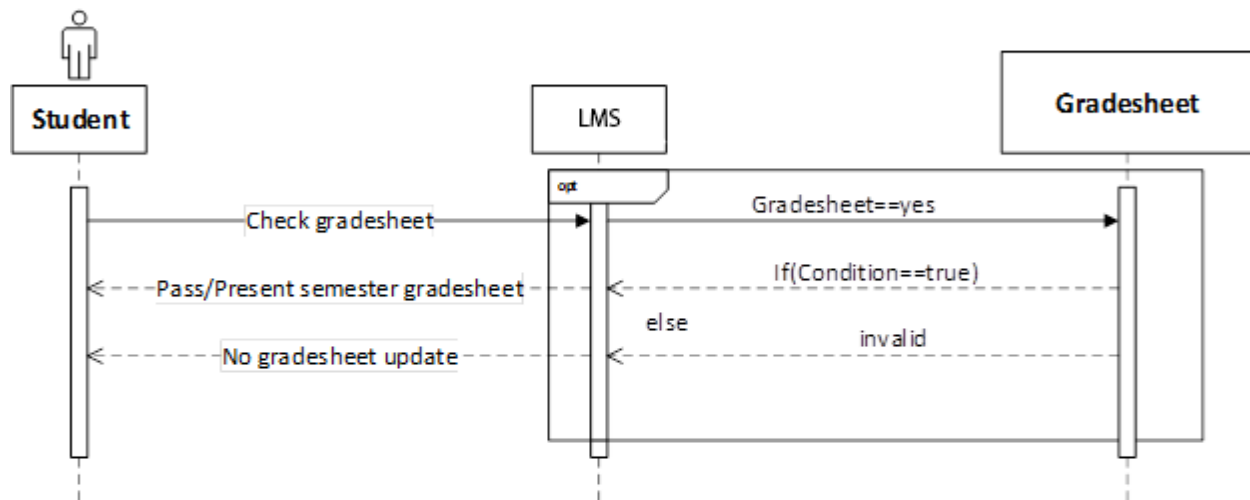
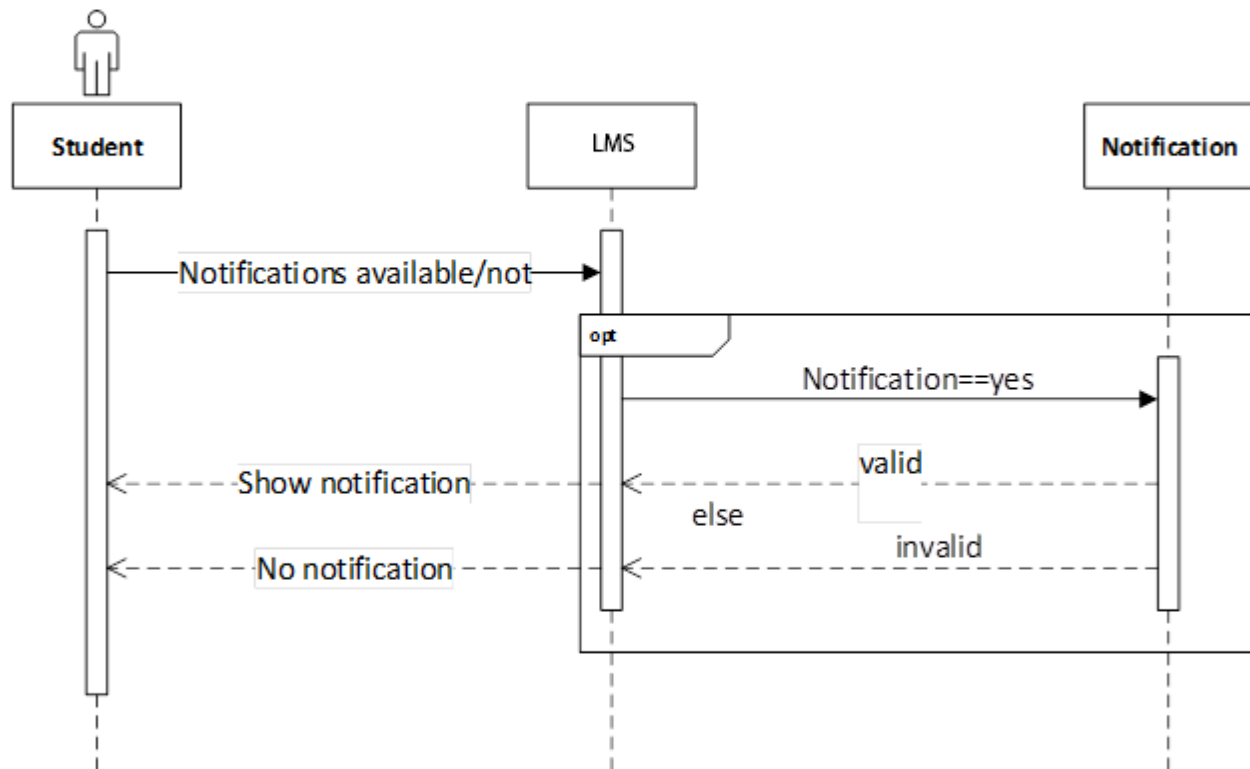
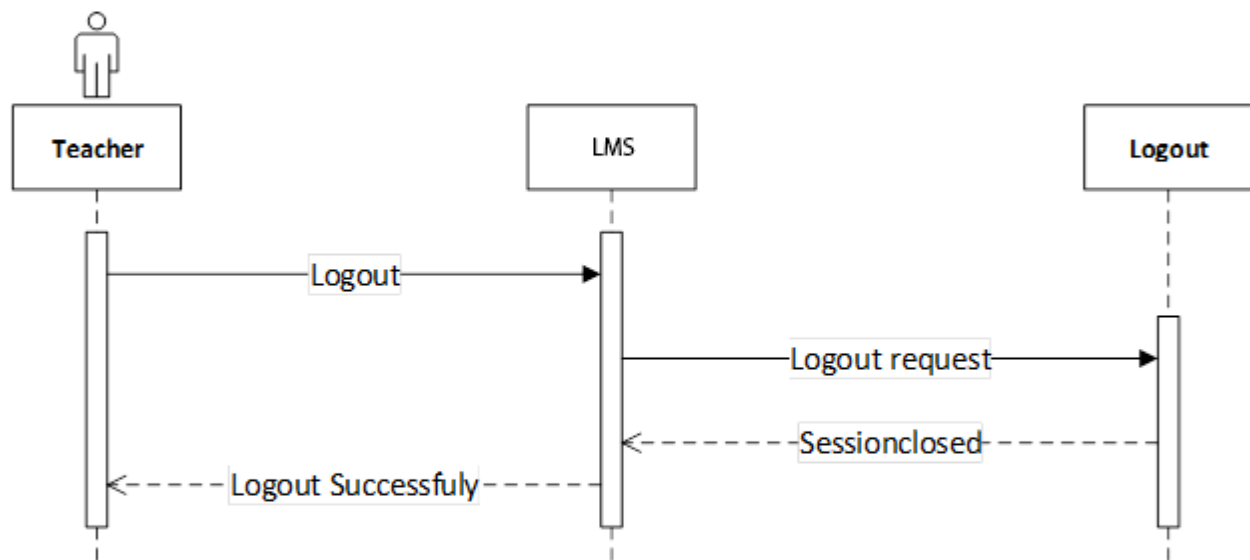
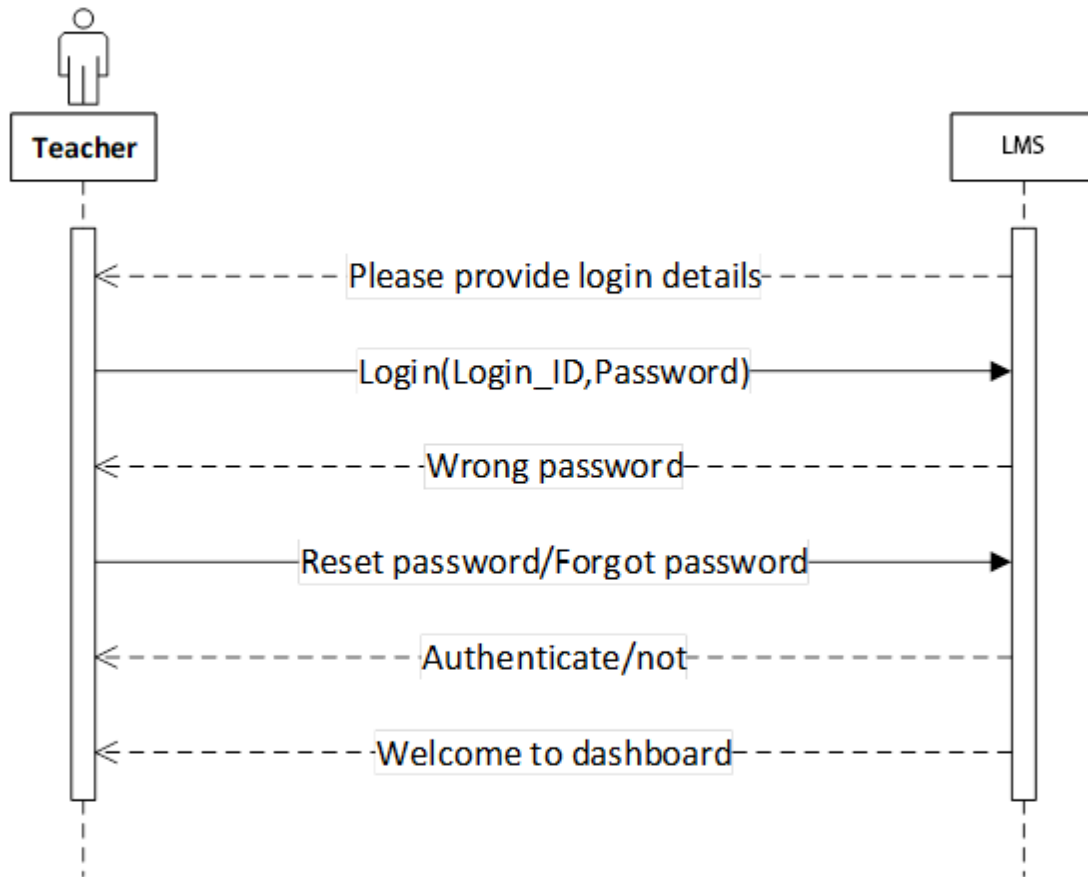


Figure 15: Quiz

**Figure 16: Grade sheet**

**Figure 17: Notification**

**Figure 18: Logout**

**Figure 19: Login**

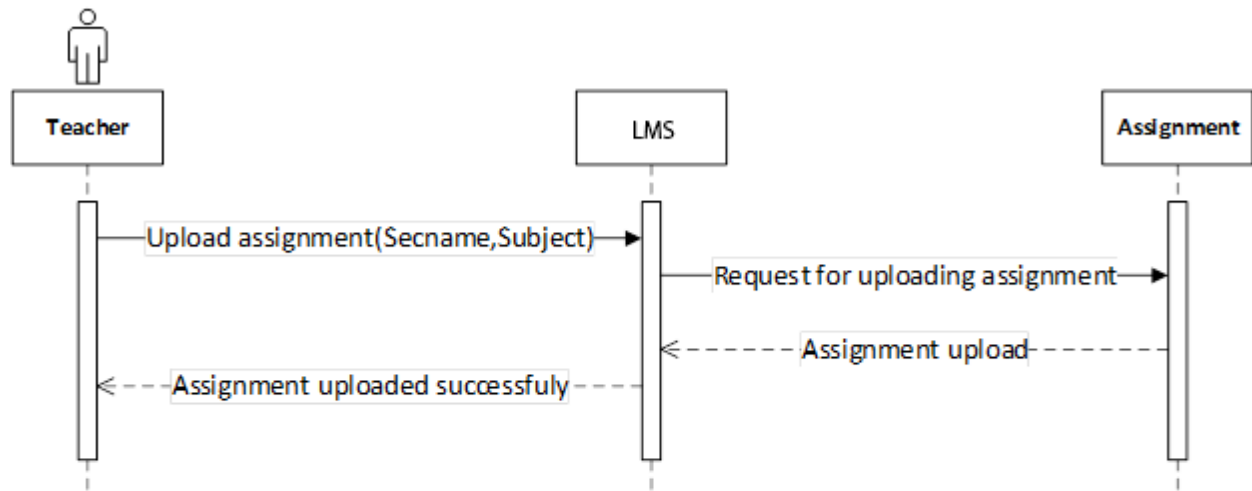


Figure 20: Upload assignment

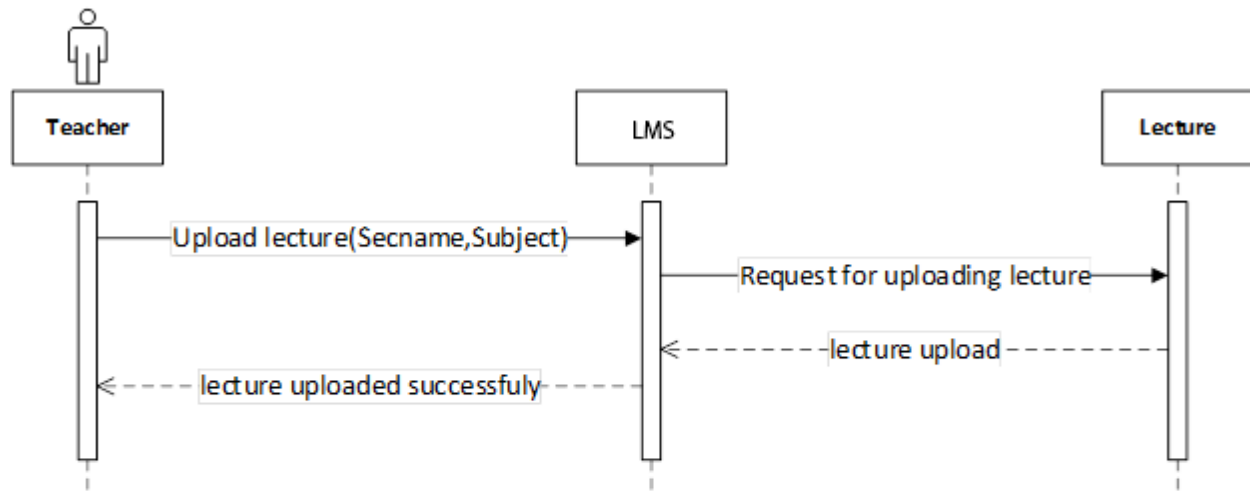


Figure 21: Upload lecture

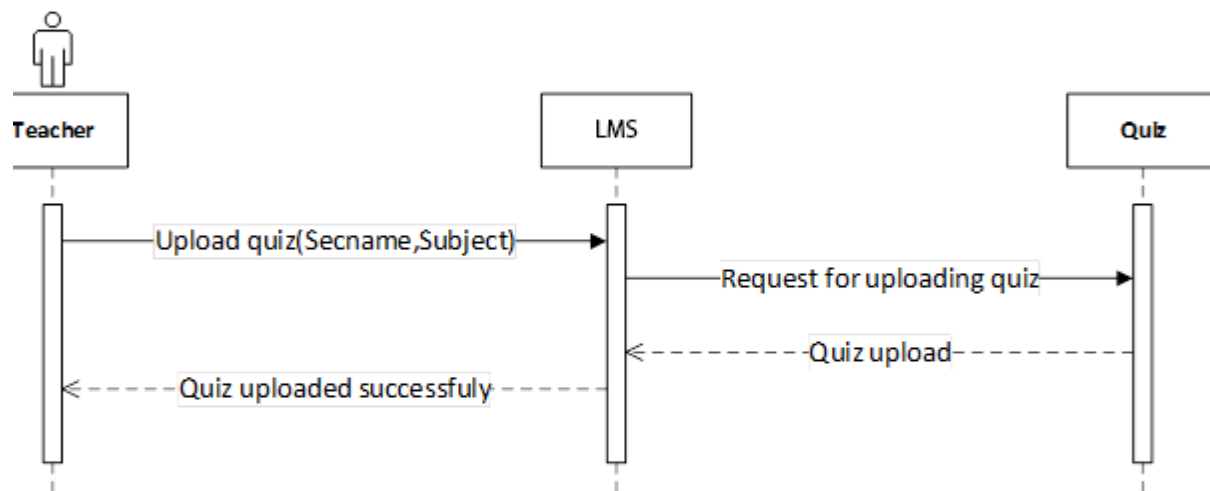
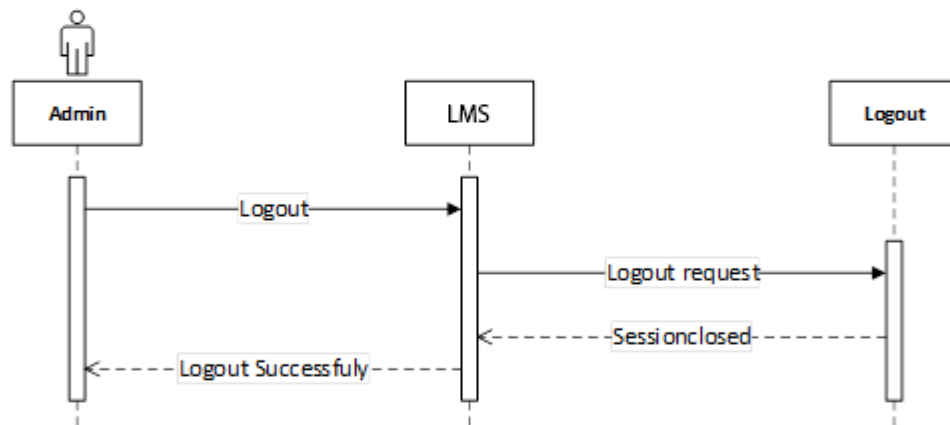


Figure 22: Upload quiz

**Figure 23: Logout**

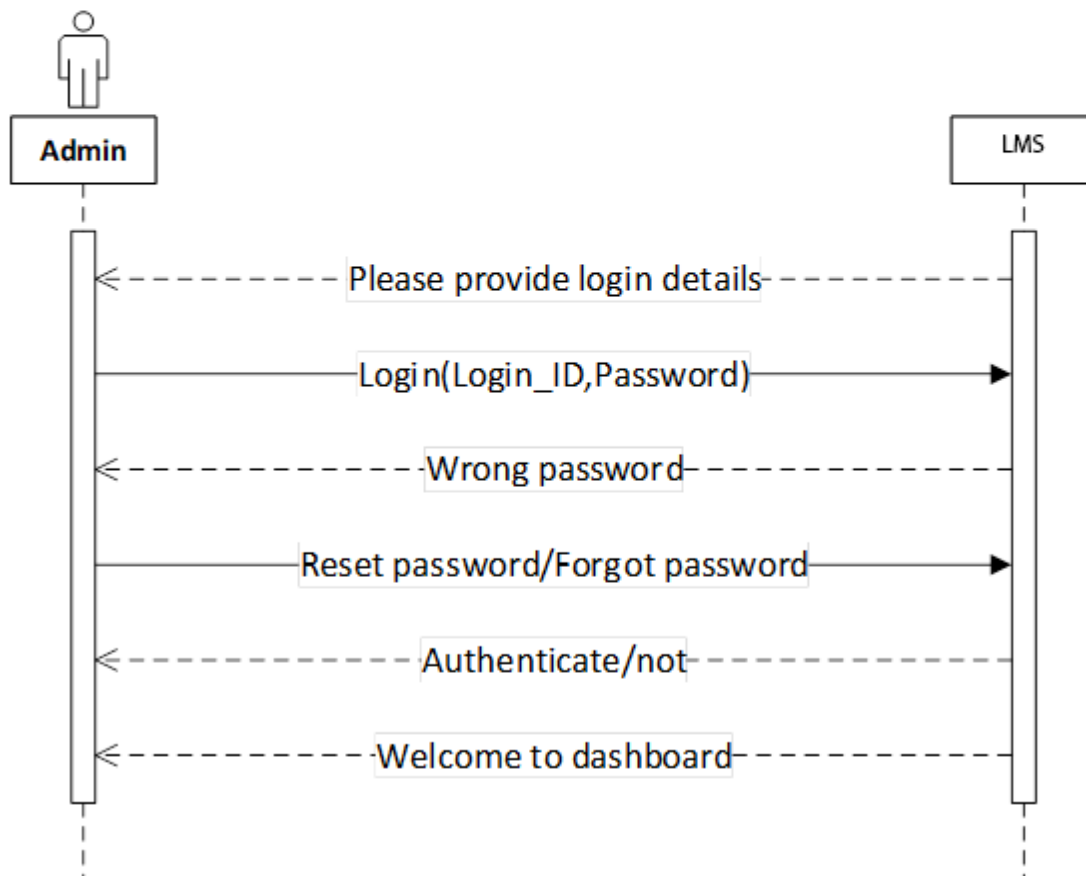


Figure 24: Login

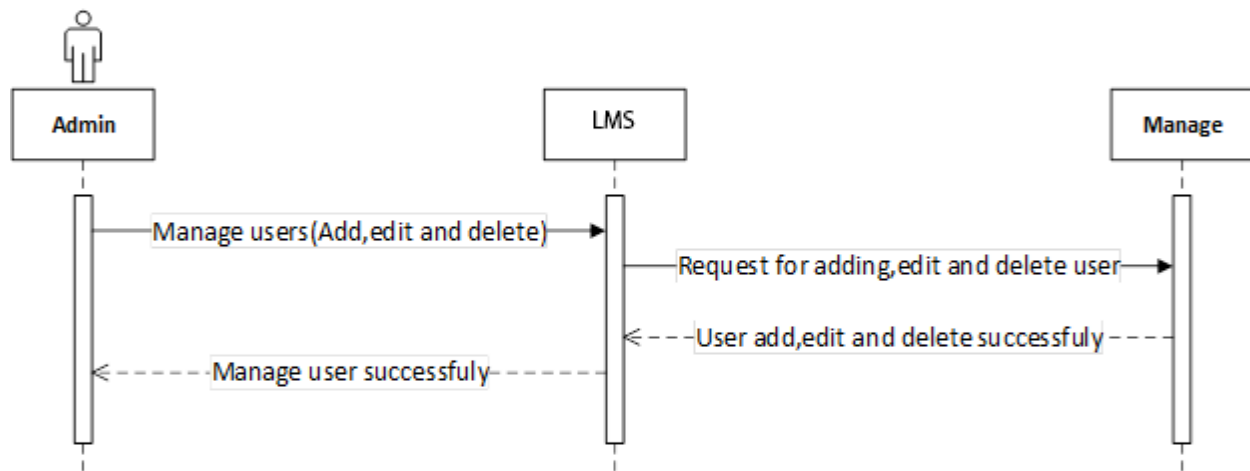


Figure 25: Manage users

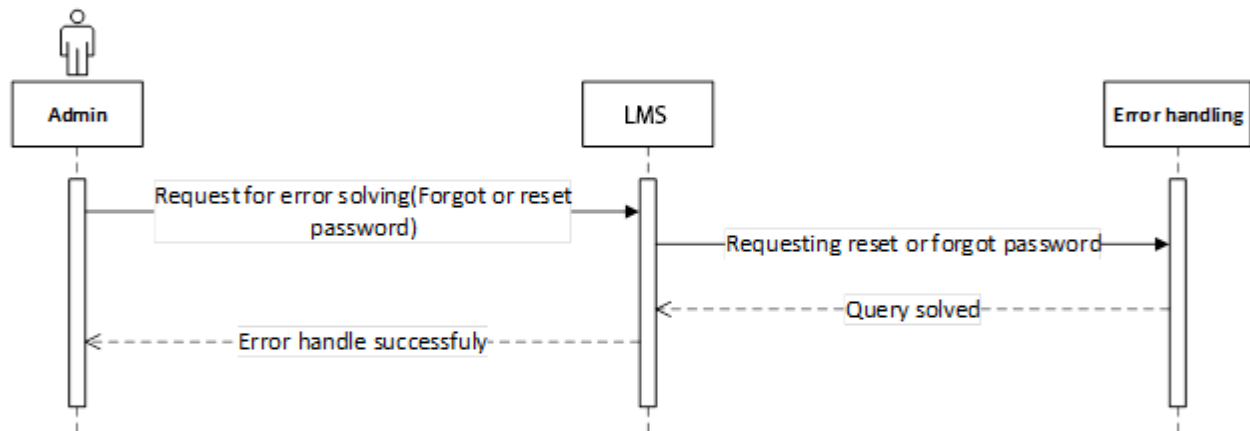


Figure 26: Error handling

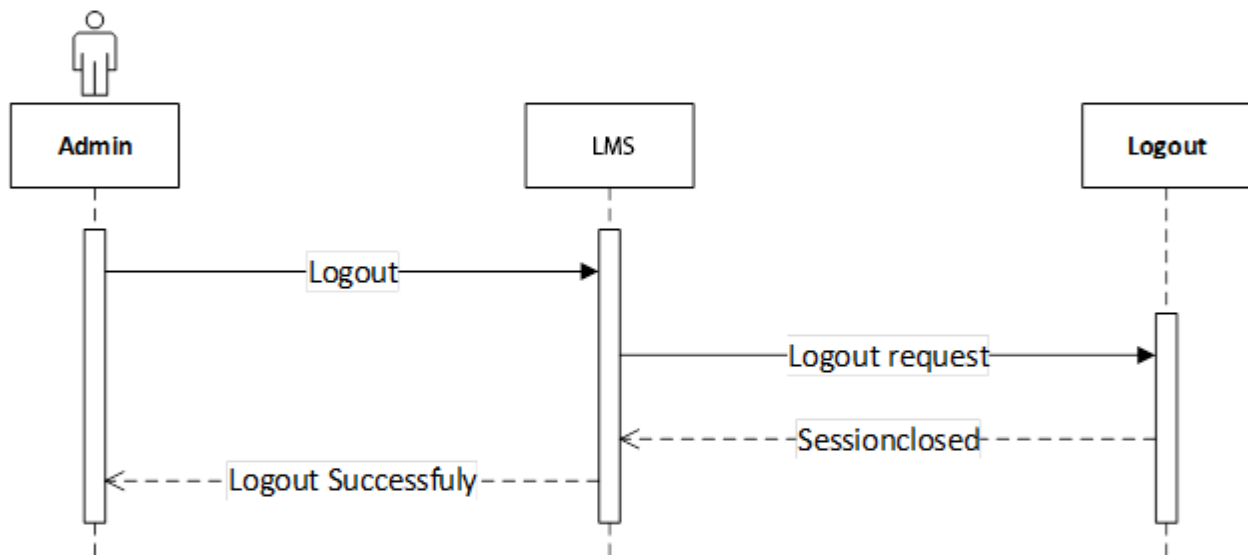


Figure 27: Logout

Operation contracts

OP1

Operation Name: login

Pre-conditions:

- User has provided the correct credentials.
- User is registered.

Post-Conditions:

- User is logged into his account.
- User can perform operation.

OP2

Operation Name: Submit Assignment:

Pre-conditions:

- Student must be login.
- Students submit assignments before time.

Post-Conditions:

- Student submit assignments.

OP3

Operation Name: view plagiarism reports:

Pre-conditions:

- Student must be login.
- Student should submit assignments first.

Post-Conditions:

- Student checks their plagiarism reports.

OP4

Operation Name: download lectures:

Pre-conditions:

- Student must be login.

Post-Conditions:

- Students will download lectures.

OP5

Operation Name: online quiz:

Pre-conditions:

- Student must be login.
- Teacher must upload quiz first.

Post-Conditions:

- Student attempts quiz in time.

OP6

Operation Name: grade sheet:

Pre-conditions:

- Student must be login.
- Students must attempts quizzes or assignments first.

Post-Conditions:

- Students checks their marks.

OP7

Operation Name: Notification Alert:

Pre-conditions:

- Student must be login.
- Teacher generates new events.

Post-Conditions:

- Student will read the alert and respond back.

OP8

Operation Name: logout:

Pre-conditions:

- Student must be login.

Post-Conditions:

- The student will be logged out of the system

OP9

Operation Name: login

Pre-conditions:

- Teacher has provided the correct credentials.
- Teacher is registered.

Post-Conditions:

- Teacher is logged into his account.
- Teacher can perform operation.

OP10

Operation Name: upload assignments:

Pre-conditions:

- Teacher must be login.
- Teacher must assign to section or class.

Post-Conditions:

- Teacher upload assignments with deadline time.

OP11

Operation Name: uploads lectures:

Pre-conditions:

- Teacher must be login.
- Teacher must be assigned to section or class.

Post-Conditions:

- Teacher upload lectures with deadline time.

OP12

Operation Name: uploads quiz:

Pre-conditions:

- Teacher must be login.
- Teacher must be assigned to section or class.

Post-Conditions:

- Teacher upload quiz with deadline time.

OP13

Operation Name: logout:

Pre-conditions:

- Teacher must be login.

Post-Conditions:

- The Teacher will be logged out of the system

OP14

Operation Name: login

Pre-conditions:

- Admin has provided the correct credentials.
- Admin is registered.

Post-Conditions:

- Admin is logged into his account.
- Admin can perform operation.

OP15

Operation Name: Manage users

Pre-conditions:

- Admin must be login
- Admin must have users.

Post-Conditions:

- Admin manages different operations

OP16

Operation Name: Error handling.

Pre-conditions:

- Admin must be login
- Admin must have error requests.

Post-Conditions:

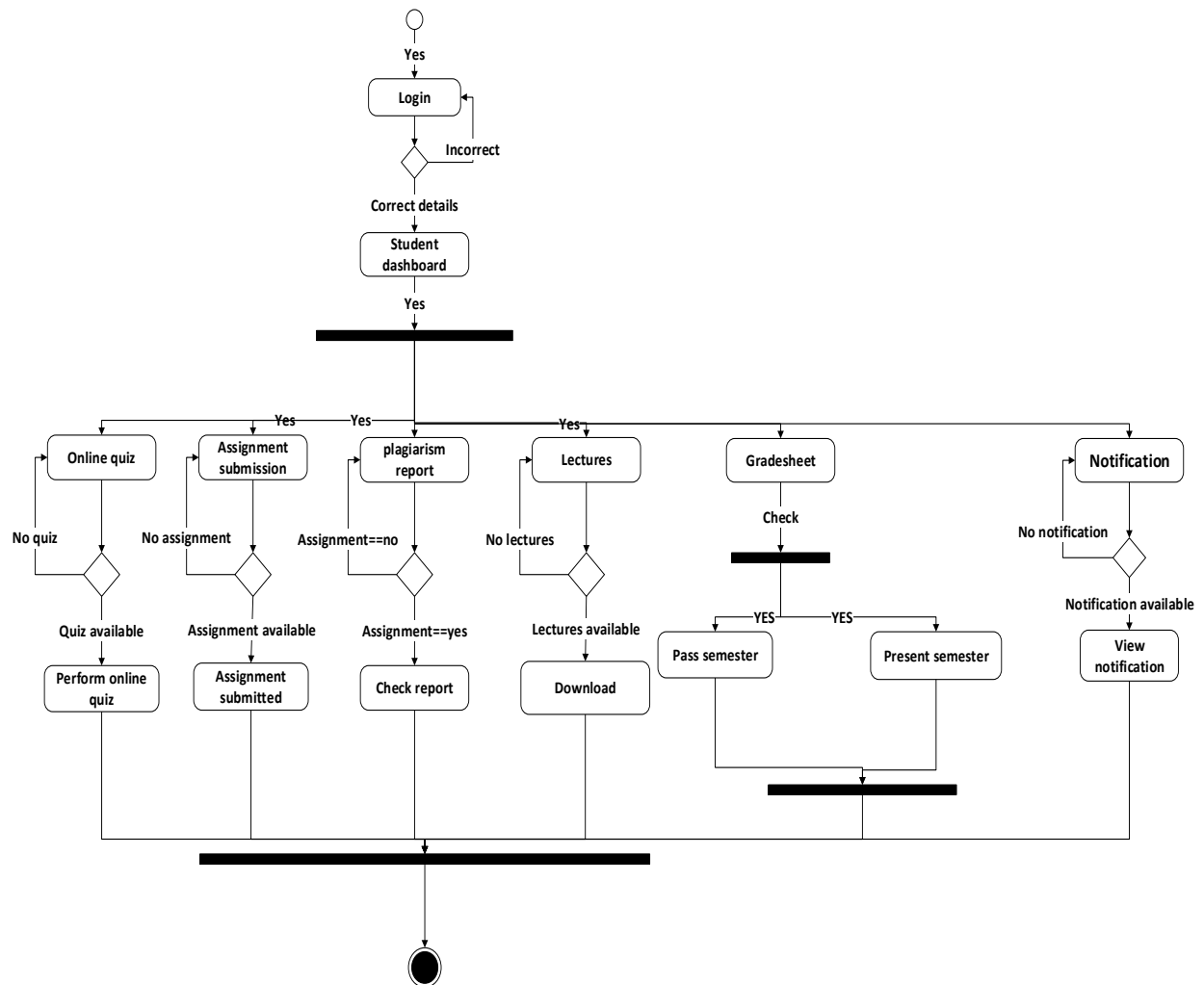
- Admin removed error handling requests of teachers and students.
- Admin solved successfully.

OP17**Operation Name:** logout:**Pre-conditions:**

- Admin must be login.

Post-Conditions:

- The Admin will be logged out of the system.

4.7: Activity Diagram:**Figure 28: Activity diagram of student**

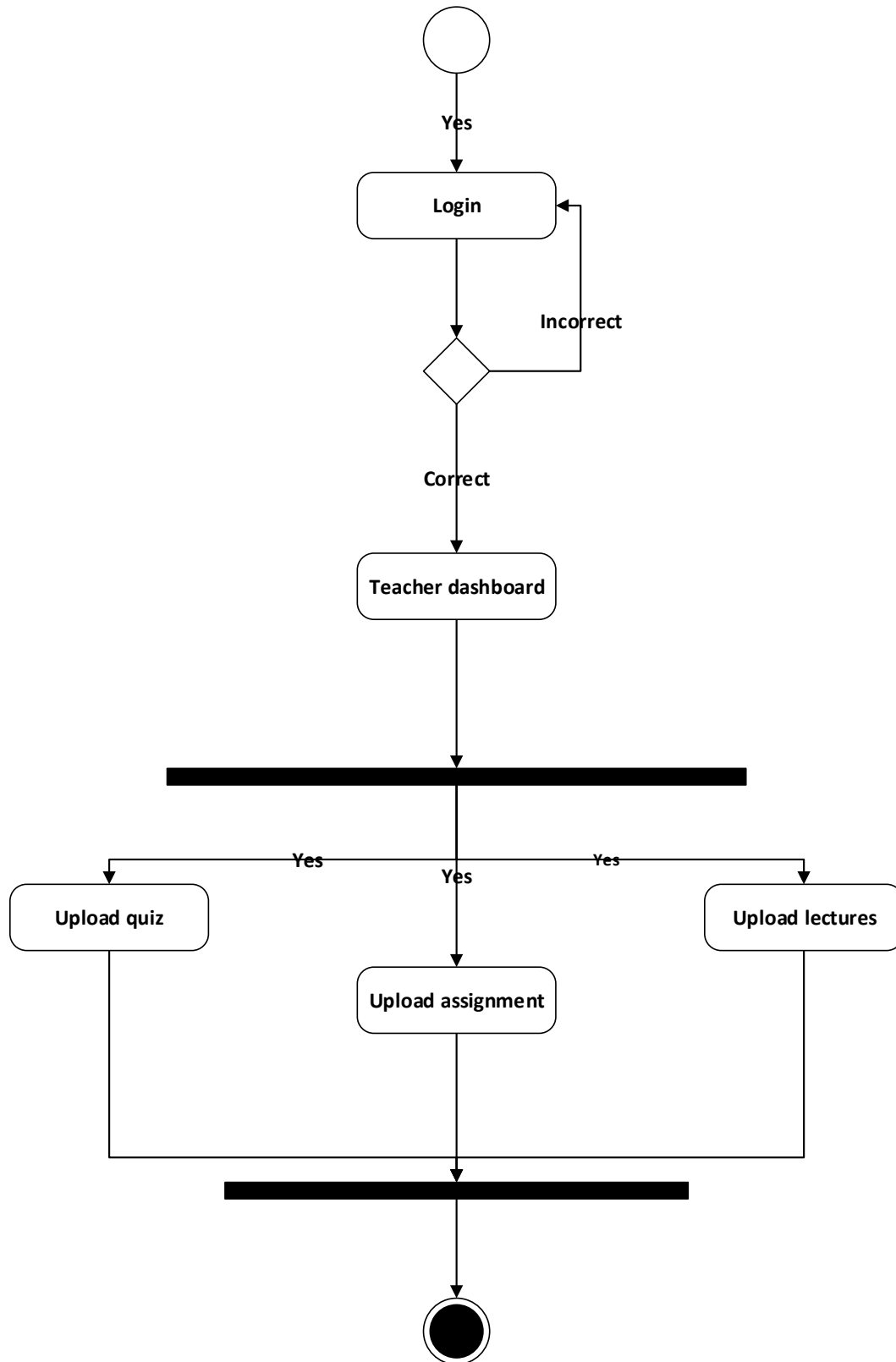


Figure 29: Activity diagram of teacher

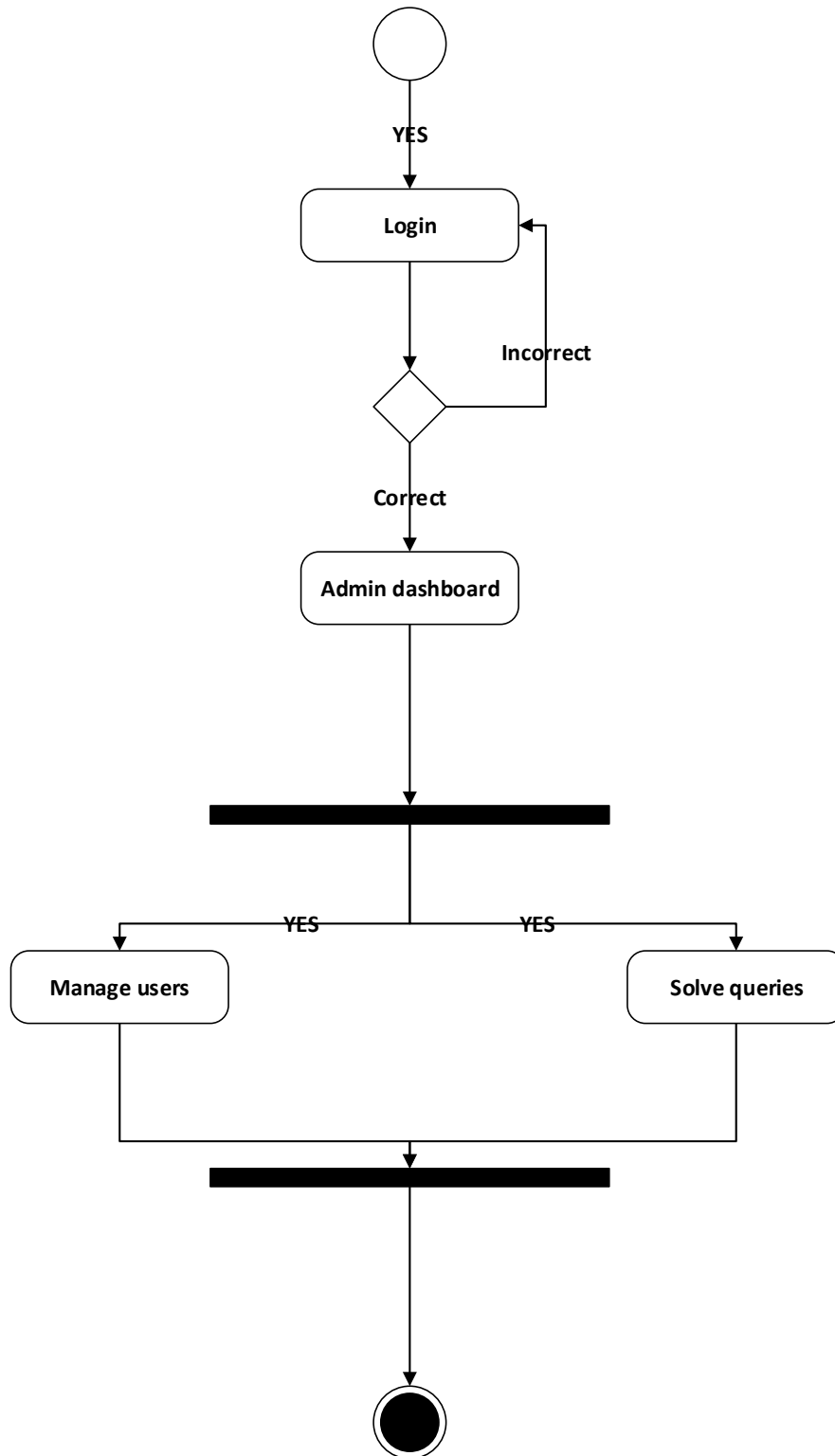


Figure 30: Activity diagram of admin

4.8: State Transition Diagram

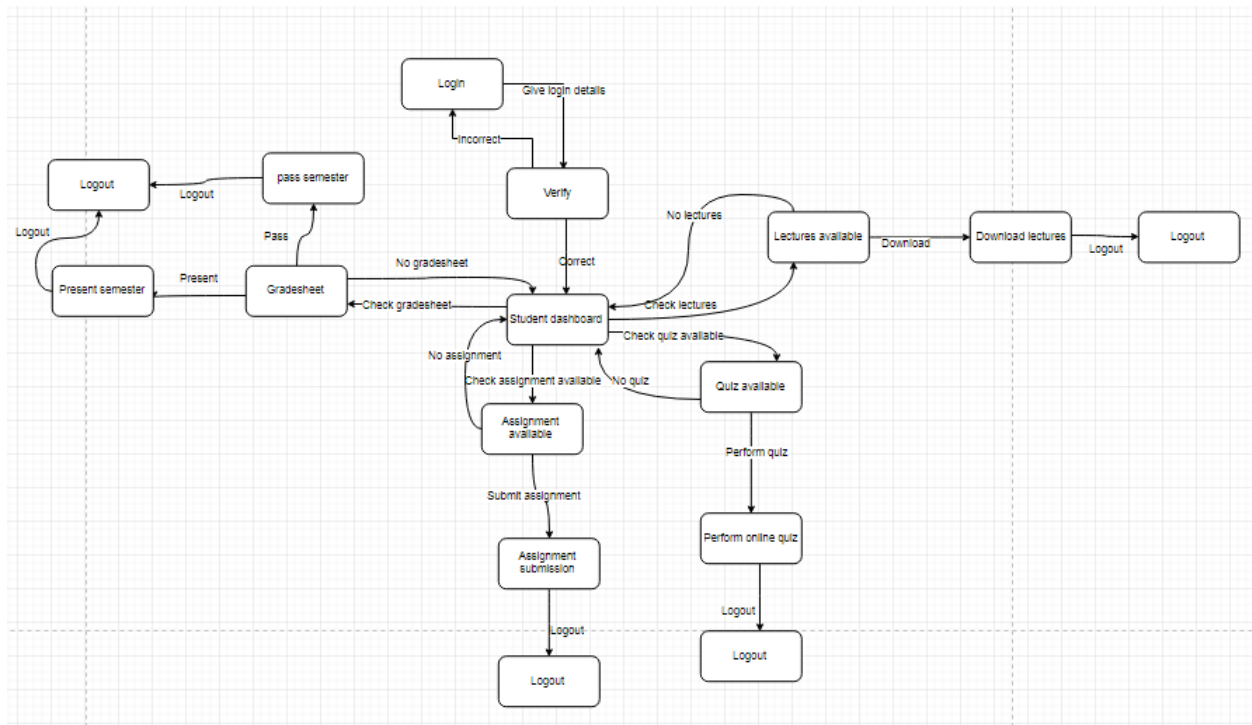


Figure 31: State diagram for Student

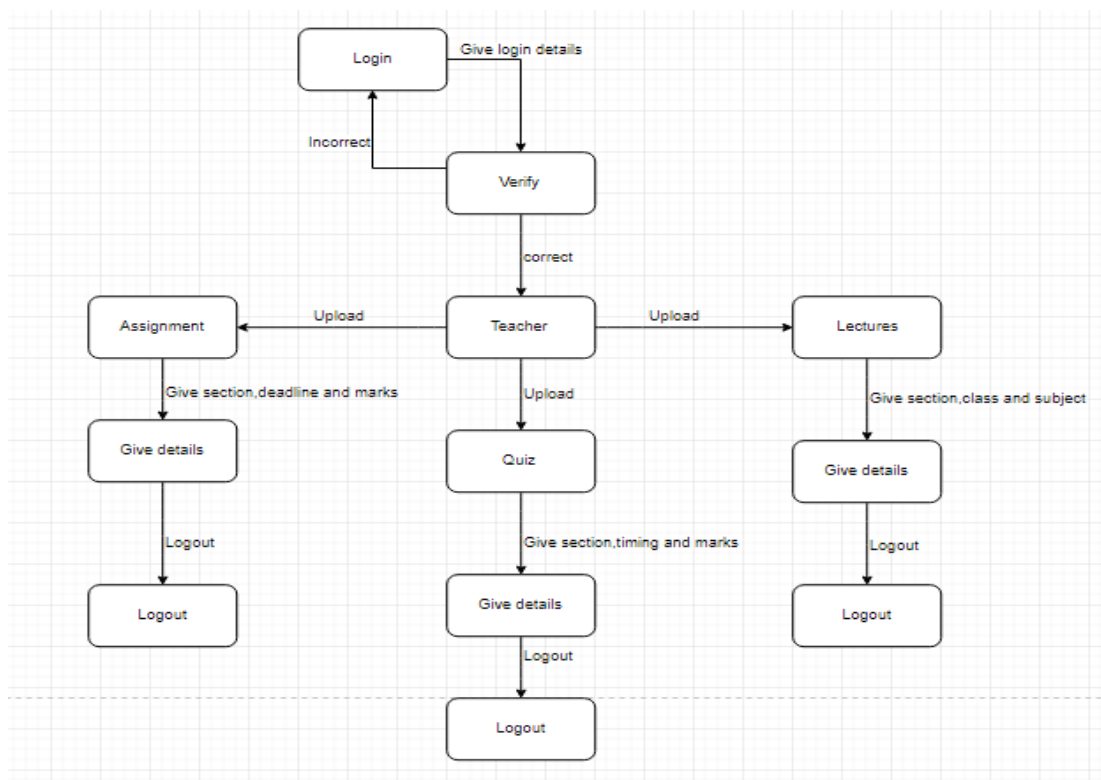


Figure 32: State diagram for teacher

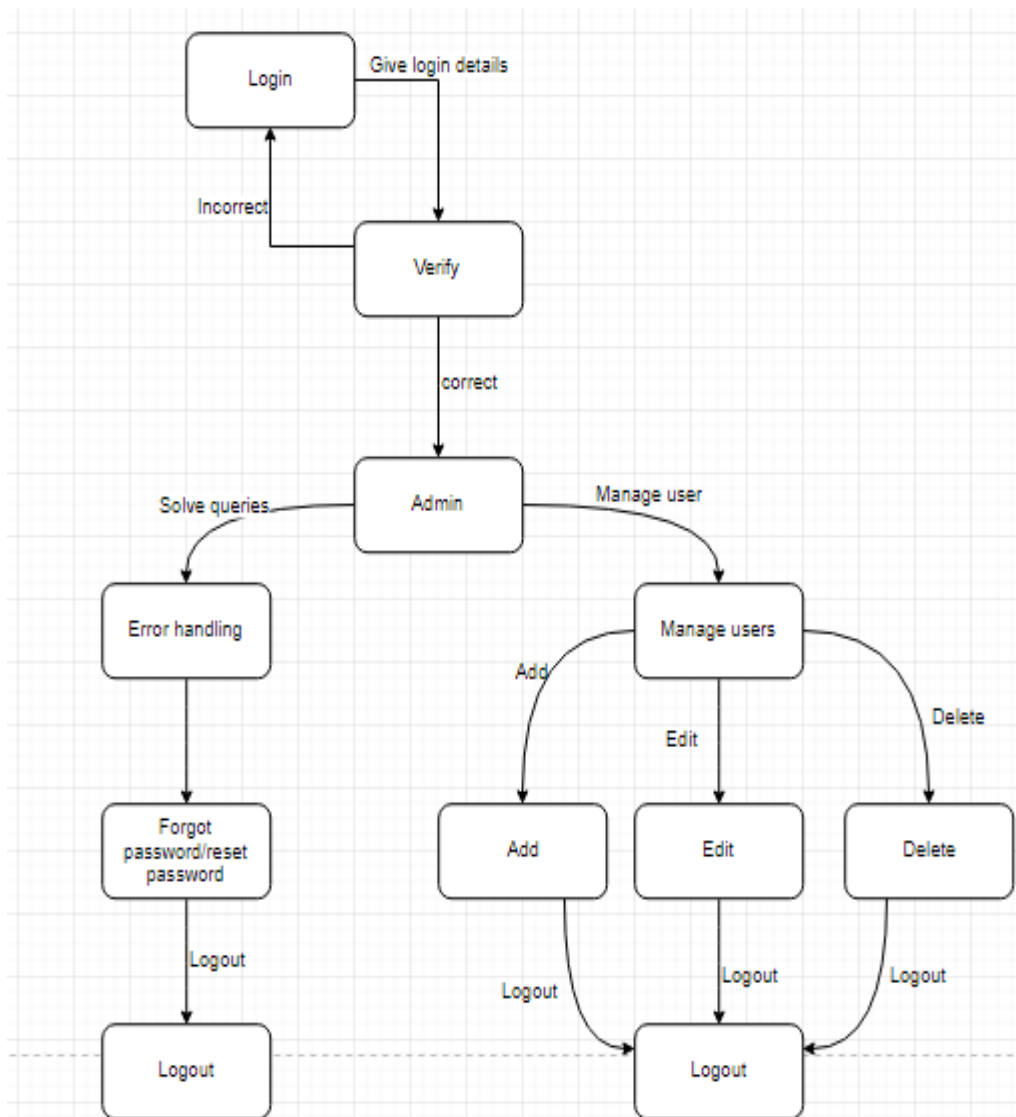


Figure 33: Activity diagram for admin

4.9: Component diagram

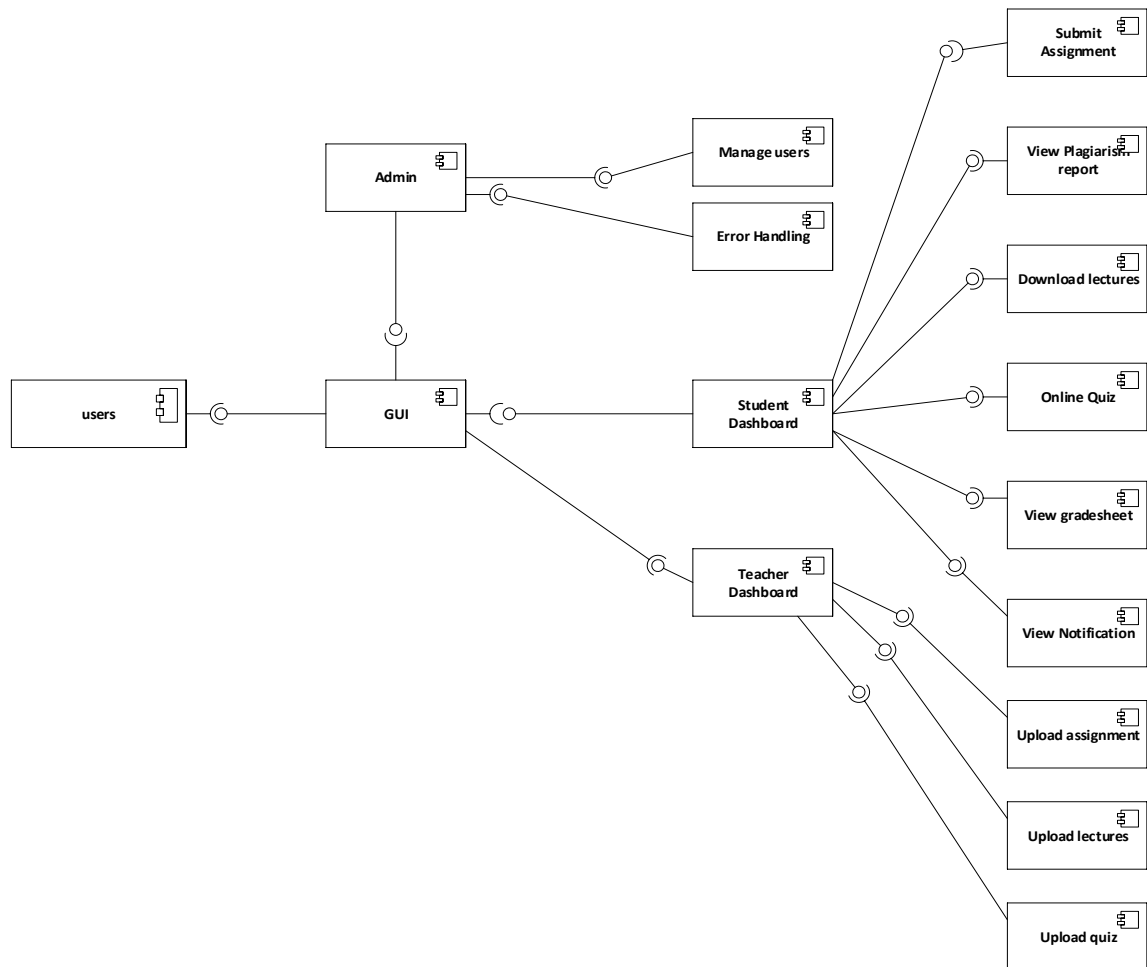


Figure 34: Component diagram

4.9: Deployment Diagram

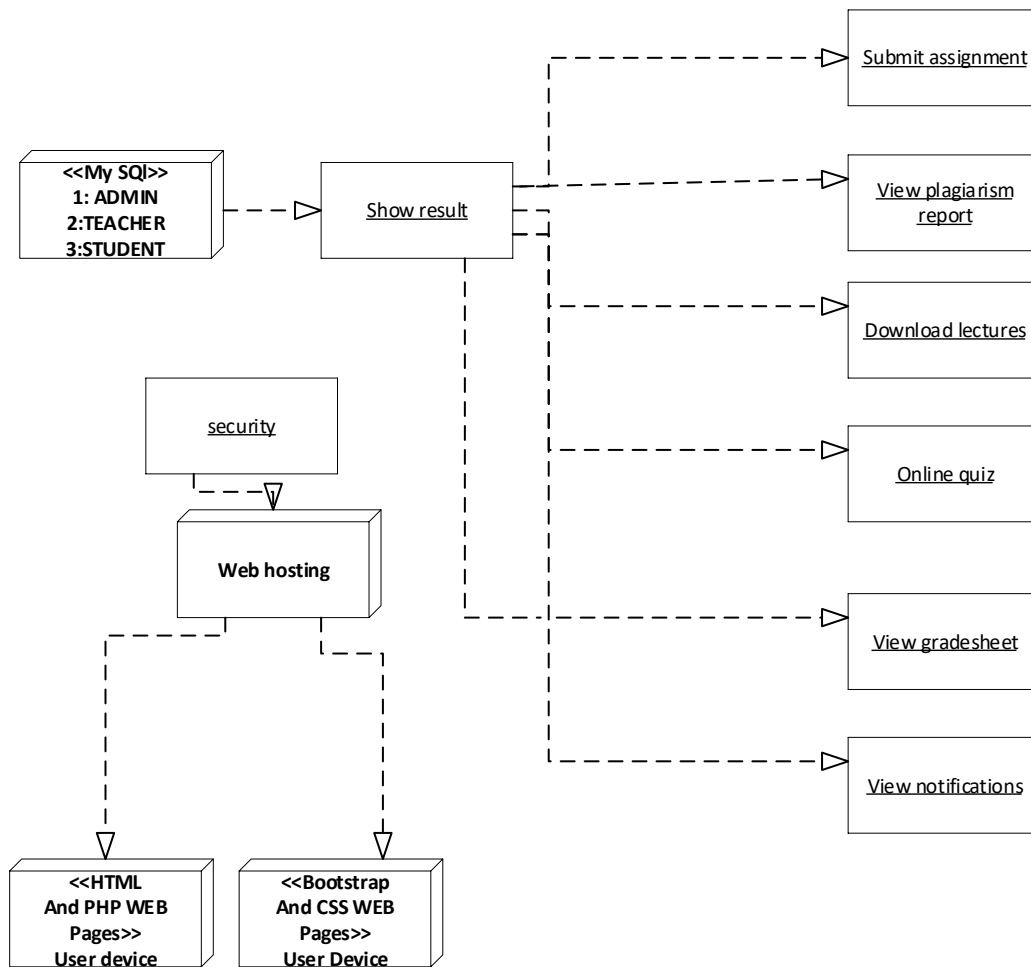


Figure 35: Deployment diagram

4.10: Data Flow Diagram

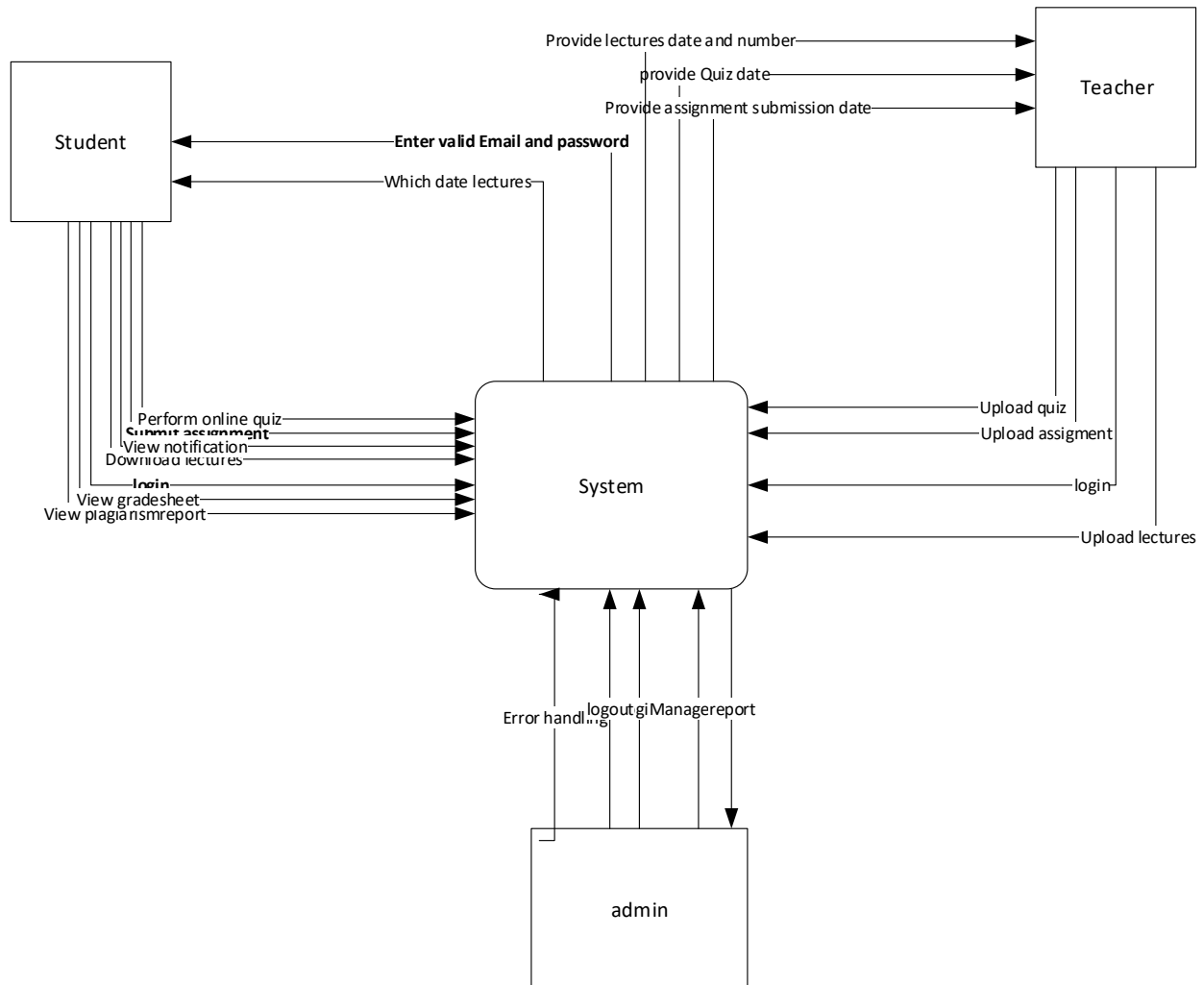


Figure 36: Data flow diagram Level 0

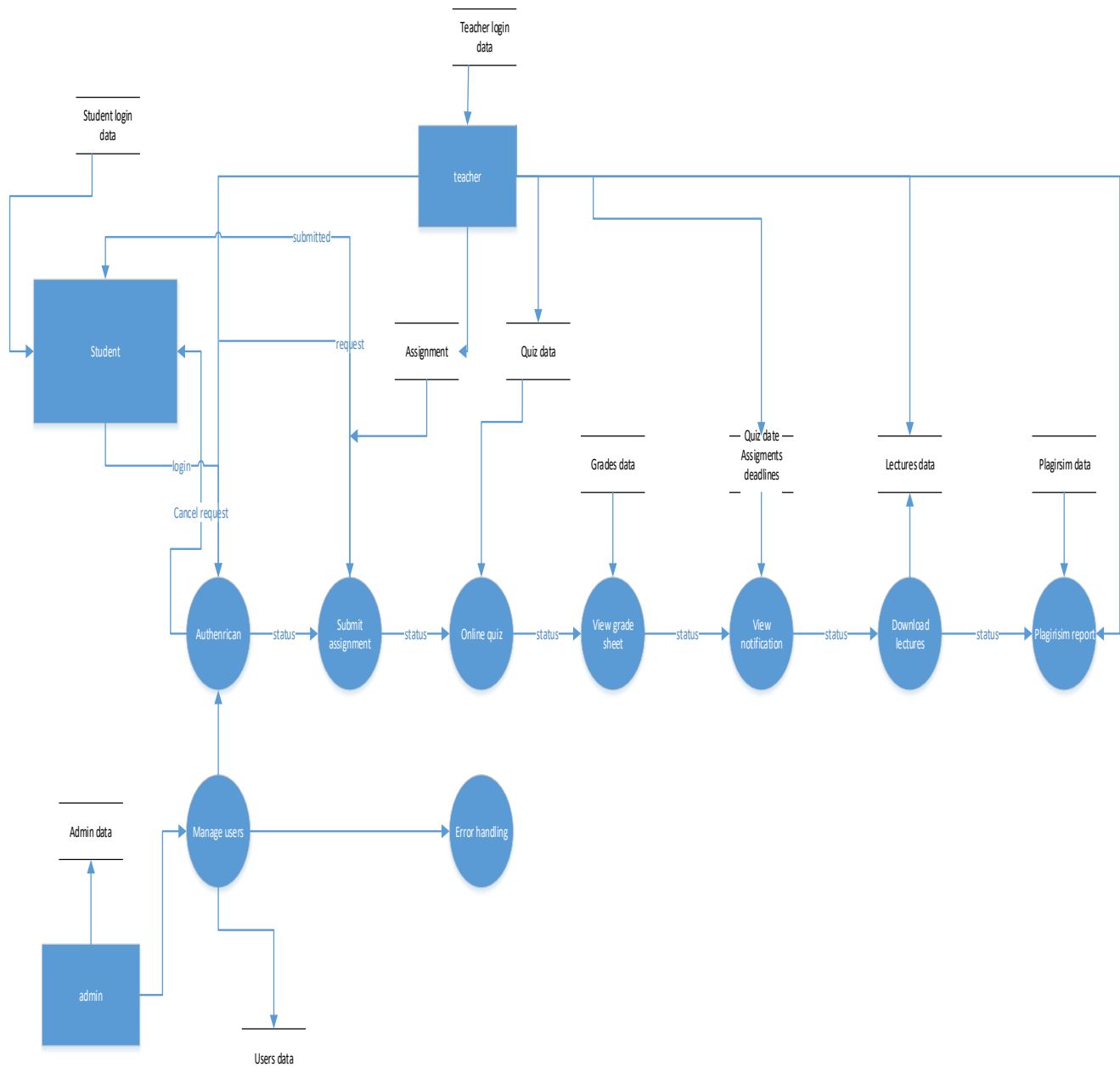


Figure 37: Data flow diagram level 1

Chapter 5

Implementation

Chapter 5: Implementation

The section is only a higher perspective on our task, which advancements, strategies, best practices, and norms of code, outsider libraries and instruments we will use to finish our undertaking. We will involve Waterfall technique for the Execution of this framework. We get all the fundamental data of all the advancement stages including prerequisite social affair, examination, plan, execution, testing and organization. In execution, we foster the stage and we check either the framework satisfies the prerequisites.

Requirement Gathering & Analysis	In this stage, we will accumulate the significant necessities in general and every one of the prerequisites and resources important are prepared for breaking down. Blunders and bugs are pinpoint during investigation and fixed. Then, at that point, the plausibility in the various areas of execution are form (counting time and cost).
Planning	In this stage plan will be lay out on the premise on the broke down information and prerequisites. The time and cost for each SDLC stage will likewise be choose.
Design	In this stage, improvement model will be select and information base will be plan. Supervisor will confirm it.
Implementation	After plan stage execution as indicated by the necessities.
Testing	Testing will really take a look at necessities and usefulness. Both dynamic and static testing will be perform. Progressively through testing apparatuses and statically to check each line of code physically. Static testing will lessen blunders upon execution and permit us to observe mistakes that in any case are truly challenging to track down. V&V will be apply to check assuming the framework satisfies the prerequisites.
Deployment	After tests are finished and no further blunders are find, the framework will be send. A disclosure of blunders or in the event that a change are perform as indicated by necessity, relapse testing will be perform.

Table 10: Implementation

5.1. Important Flow Control/Pseudo codes

Admin Panel:

- Logs in
- Checks activity log
- View error-handling reports
- Decision Making, removes and verifies account
- Edit profile

Teacher Panel:

- Logs in
- Uploads assignments
- Uploads quizzes
- Publishes lectures data
- Updates quizzes data and time

Student Panel:

- Logs in
- View new events quizzes/assignments
- Submit assignments
- Check plagiarism reports
- Downloads lectures
- Views grade-sheet
- Perform quizzes

5.2. Components, Libraries, Web Services and stubs

Components, Libraries:

Bootstrap4, PHP, JavaScript, HTML, CSS

Web services:

Web hosting and web services

5.3. Deployment Environment

Browser:

Safari
Chrome
Firefox

Operating system:

Window 7, 8, 8.1, 10.

5.4. Tools and Techniques

Mysql
Xampp
Sublime Text
Adobe Photoshop

Languages:

PHP, JAVA Script, HTML5, CSS3

5.5. Best Practices / Coding Standards

- Files MUST use only <? PHP and <? = tags.
- Files MUST use only UTF-8 without BOM for PHP code.
- Class constants MUST be declare in all upper case with underscore separators.
- Method names MUST be declare in Camel Case.
- Must use date time function for PHP

5.6. Version Control

GIT

GIT is a form control framework for following changes in PC records and organizing work on those documents among various individuals. It is basically use for source-code the board in programming advancement, however it will be use, to monitor changes in any arrangement of documents.

Chapter 6

Testing and Evaluation



Chapter 6: Testing and evaluation

The assessment is done by the tree of standards from the essential measures up. The technique for still up in the air by the choice standards. The variation which is granted the most noteworthy grade should be the best one. Because of the intricacy of LMS and countless measures it is fundamental that the dynamic model permits us to acquire the last appraisal, yet additionally a definite halfway investigation of individual components. In this manner we can identify flimsy parts and detriments of the framework, which can be utilized as the reason for framework enhancements. The benefits and weakness of the frameworks are reflected in Practical climate, Usability, Course examination, Mentoring and didactics, Evaluation and Guidelines support for Chalkboard, CLIX and Moodle LMS.

6.1. Use Case Testing

Use cases describe the process flows through a system based on its most likely use this makes the test cases derived from use cases particularly good for finding defects in the real-world use of the system.

Table 6.1.1 Admin Screen

Test Case ID: 1				Test Design By: Moazzam Khan		
Test Module Name: Admin Dashboard Screen				Test Design Date: 28 Nov 2021		
Test Priority: High				Test Executed by: M. Ahmed Ali		
Test Title/Name: To test Admin Dashboard screen is showing all Functional Requirement				Test Executed Date: 28 Nov 2021		
Description: Test Admin Dashboard screen is showing all Functional Requirement						
Pre-condition: Open site and Login to Admin Dashboard						
Dependencies:						
Step	Test Step	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1.	Login to Admin Dashboard		Admin page is shown	Admin page is shown	Pass	
2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass	
3.	Select entity of choosing		Entity selection was successful	Entity selection was successful	Pass	
4.	Assign task		Task Added Successfully	Task Added Successfully	Pass	
Post-condition: Admin pages work successfully						

Table 6.1.2 Teacher Screen

Test Case ID: 2				Test Design By: Moazzam Khan		
Test Module Name: Teacher Dashboard Screen				Test Design Date: 30 Nov 2021		
Test Priority: High				Test Executed by: Saif Iftikhar		
Test Title/Name: To test Teacher Dashboard screen is showing all Functional Requirements				Test Executed Date: 30 Nov 2021		
Description: Test Teacher Dashboard screen is showing all Functional Requirements						
Pre-condition: Open site and Login to Teacher Portal						
Dependencies:						
Step	Test Step	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1.	Login to Teacher Portal		Teacher page is shown	Teacher page is shown	Pass	
2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass	
3.	Select Class of choosing		Class selection was successful	Class selection was successful	Pass	
4.	Assign Task		Task Added Successfully	Task Added Successfully	Pass	
Post-condition: Teacher pages work successfully						

Table 6.1.3 Student Screen

Test Case ID: 3				Test Design By: Moazzam Khan		
Test Module Name: Student Dashboard Screen				Test Design Date: 5 Dec 2021		
Test Priority: High				Test Executed by: Saif Iftikhar		
Test Title/Name: To test Student Dashboard screen is showing all Functional Requirements				Test Executed Date: 05 Dec 2021		
Description: Test Student Dashboard screen is showing all Functional Requirements						
Pre-condition: Open site and Login to Student Portal						
Dependencies:						
Step	Test Step	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1.	Login to Student Portal		Student page is shown	student page is shown	Pass	
2.	Wait for Backend to respond		Backend response is successful	Backend response is successful	Pass	
3.	Enroll Course of choosing		Course enrolled successful	Course enrolled successful	Pass	
4.	Select Class of choosing		Class selection was successful	Class selection was successful	Pass	
5.	Attempt Task		Task Attempt Successfully	Task Attempt Successfully	Pass	
Post-condition: Student pages work successfully						

6.2. Equivalence partitioning

The equivalence partitions are usually derived from the requirements specification for input attributes that influence the processing of the test object test cases are designed to cover each partition at least once.

6.3. Boundary value analysis

Equivalence partitioning is not a stand-alone method to determine test cases it is usually supplemented by boundary value analysis.

Boundary value analysis focuses on values on the edge of an equivalence partition or at the smallest value on either side of an edge.

6.4. Data flow testing

Information stream testing utilizes the control stream diagram to investigate the irrational things that can happen to information thought of information stream inconsistencies prompts test way determination techniques that fill the holes between complete way testing and branch or proclamation testing.

Is the name given to a gathering of test frameworks considering picking routes through the program control stream to research courses of action of events associated with the circumstance with data objects.

6.5. Unit testing

Unit testing permits the developer to refactor code at a later information ensure the module actually works accurately by testing the pieces of a program first and afterward testing the amount of its parts reconciliation testing become a lot more straightforward unit testing gives a kind of living documentation of the framework.

Unit Testing Status for Our system:

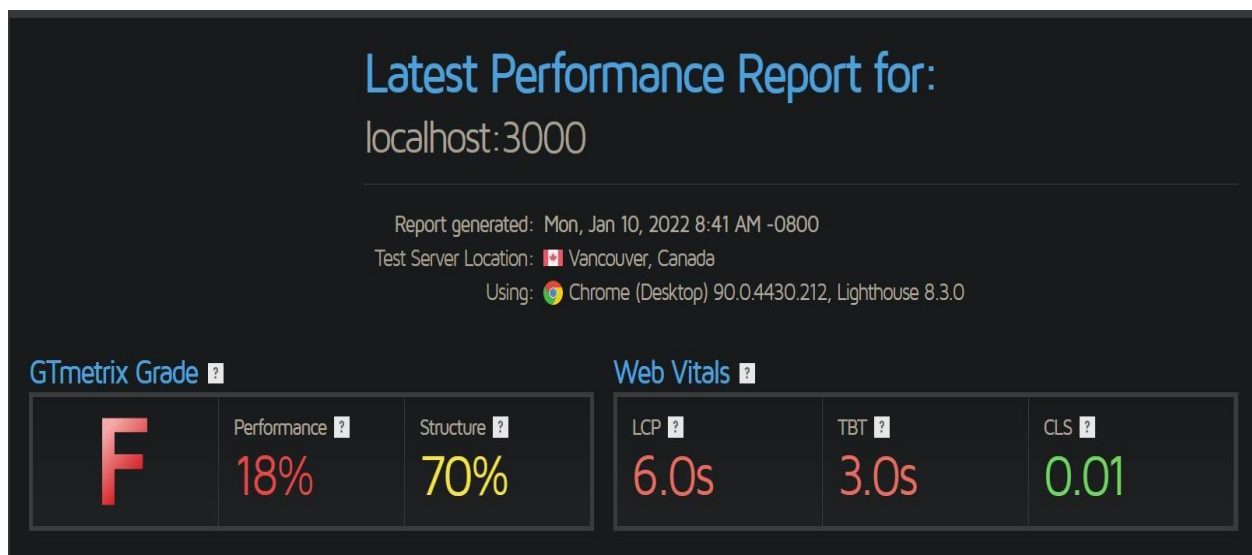
- ✓ Student Module Working Properly tested by Moazzam on 1 Dec, 2021
- ✓ Teacher Module Working Properly tested by Moazzam on 1 Dec, 2021
- ✓ Admin Module Working Properly tested by Moazzam on 2 Dec, 2021
- ✓ Quiz/Assignment Module Working Properly tested by Moazzam on 2 Dec, 2021
- ✓ Course Module Working Properly tested by Moazzam on 3 Dec, 2021
- ✓ Dashboard Module Working Properly tested by Moazzam on 3 Dec, 2021

6.6. Integration testing

In light of the incorporation methodology select a part to be tried unit test every one of the classes in the part assembled chosen part do any fundamental fix-up important to make the joining test functional.

6.7. Performance testing

Execution testing is as of now not a good to have testing process in reality as we know it where end clients expect significantly more from the exhibition of use visual studio 2010 extreme gives the capacity to make and modify load testing to test the presentation of utilization.



6.8. Stress Testing

Stress testing is defined as a type of software testing that verified the stability & reliability of the system this test mainly determines the system on its robustness and error handling under extremely heavy load conditions the goal of stress testing is to analyze the behavior of the system after a failure This test mainly determines the system on its robustness and error handling under extremely heavy load conditions.

These are the types of stress testing which is used to test the system with unusual parameters or conditions that are unlikely to occur in a real scenario. It is used to find defects in unexpected scenarios like

- A large number of users logged at the same time.
- If Database has gone offline when it is accessed from a website.
- When a large volume of data is inserted to the database simultaneously.

Table 6.8 Stress Testing

Test Case ID: 1				Test Design By: Moazzam Khan		
Test Type 1: Multiple users logged at the same time Test Type 2: If Database has gone offline when it is accessed from a website Test Type 3: Upload Larger amount of Data				Test Design Date: 21 Dec 2021		
Test Priority: High				Test Executed by: Saif Iftikhar		
Test Title/Name: Stress Test check for different scenario				Test Executed Date: 21 Dec 2021		
Description: Stress Test for System response on a high load						
Pre-condition: Open site and Login						
Dependencies:						
Step	Test Step	Test Date	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1.	Login from multiple servers and system at the same time		System don't wait for long response from server	System don't wait for long response from server	Pass	
2.	Database gone offline		No Data loss and will save whenever the Database will live.	No Data loss and will save whenever the Database will live.	Pass	
3.	Upload high amount of data		Data loads successfully without downing the server	Data loads successfully without downing the server	Pass	
Post-condition: Stress Test pass successfully						

Chapter 7

Summary, Conclusion and Future Enhancements

Chapter 7: Summary, Conclusion & Future Enhancements

7.1. Project Summary

This proposal is for our final year Project of, "LMS". The purpose of this project is to create a onetime solution platform where users can submit, perform quizzes online, check plagiarism, download lectures, view grade sheet etc. This is helpful for Teachers and students in many ways, especially when teacher and student time is so precious. With this student and teacher will be on one platform where they can submit their assignments and download lectures of the subjects and did not need to rely on other students. Students will get updates of upcoming quizzes and assignments who are due. As well as teacher requires a significant amount of time to check plagiarism of student's assignments of one class and if they are doing this with some sort of software then they need to buy their license in order to use that software. Teacher need to check quizzes and compile their results, but with our product, these are all done automatically and this will save precious time of teachers so that they can concentrate on students, so that students can give maximum output.

7.2. Achievements and Improvements

So, far we have achieved great skills in handling market affairs, relations, and responsibilities while working with an already existing market business. We have come to know the dealings in the market and gathered much more experience. Similarly, we have also improved our coding skills during development. Our project was in React language, which we had already studied in our previous semester but we didn't have much grip on the language until we implemented it ourselves in the development of this project. So, yes this fyp project has had a huge impact on our achievements and improvements.

7.3. Critical Review

This market project is executed by the development of best-in-class e-commerce website for a business that is actually providing services in 2 fields, where one is electrical and the other is chemical. In the electrical field, they are selling, repairing, and installing generators, solar panels. In the chemical field, they are selling different chemicals, as well as providing services in water treatment plants (treating industry's chemical mixed water, and freeing it up from chemical substances before disposing into rivers, to prevent ecosystem)

So, far this particular company is running a physical business and they want to expand their business by going digital. They want their services to be online, so that a large number of people use their services, all over Pakistan.

Therefore, as our FYP project, we are developing a website that would have a touch of e-commerce for the products, they are selling. We will also include an appointment form for the customers to get their repairing services and water treatment services.

We are also adding a recommendation system, which tells the users the estimated cost, for the products to be installed e.g; if a customer is looking to install solar panels in a house or any property, he is not sure what would be the estimated cost, and how much panels would be needed. This is where our recommendation system would come into play. We will give him options of how many lights, fans, TV, AC, refrigerator, and many other electrical appliances needed to be run on the solar panel. The customer would choose according to his requirements and he would get the total amount in front of him, on which he could place an order by entering details. The details would be recorded in our firebase database, and we would contact that person, after receiving the details, to proceed with the order.

7.4. Lessons Learnt

While developing the website, we encountered a number of errors in the execution of the project. There was also a time we got frustrated while solving the errors. We used to consult seniors, take help from the internet and books but still, a reasonable and conclusive solution was not being discovered by us to solve the errors. But we didn't lose hope or lose determination. We kept sticking to the project, kept ourselves busy in finding solutions and finally we were able to succeed in our goals. This is a story of the whole FYP, where in the development phase we were stuck in unlimited errors. But as a famous quote for a software developer says "an individual is not a software developer if he/she cannot overcome the challenge of errors and its solutions".

Well, this is the area we always thrive off.

So, the lesson we learned is, do not lose your focus on achieving goals and objectives of life. Yes, you will encounter various challenges but keep facing them and you will ultimately find a valuable solution.

7.5. Future Enhancements/Recommendations

Right now we are developing the web application for this business and it is in the English language. For our future enhancements, we will also develop a user-friendly mobile application, since most of the users these days have smartphones so a better opportunity to reach them is through the mobile app. Moreover, the majority of the population in Pakistan cannot read English so the Urdu version of the website would help them to understand each and everything on the website. Since, we are targeting every individual residing in Pakistan, so our target market is everyone.

Additionally, with our unique and easy concept of solar installation through online medium. We also want to grow the concept of solar panels usage in Pakistan. After all, it is a sustainable way of getting energy and since Pakistan get a great amount of sunlight so the solar panel is a great way of generating power which can reduce a huge burden on the economy as well.

Appendices

Appendix A: Information / Promotional Material

A learning the board framework (LMS) is a product application or electronic innovation used to arrangement, carry out and evaluate a particular learning process. It is utilized for eLearning rehearses and, in its most normal structure, comprises of two components: a server that plays out the base usefulness and a UI that is worked by teachers, understudies and overseers.

Commonly, a learning the executives framework furnishes an educator with a method for making and convey content, screen understudy interest and survey understudy execution. A learning the executives, framework may likewise furnish understudies with the capacity to utilize intelligent highlights, for example, strung conversations, video conferencing and conversation gatherings.

LMSES are oftentimes utilized by organizations, everything being equal, public government offices, nearby states, conventional instructive foundations and internet/eLearning-based establishments. The frameworks can work on conventional instructive techniques, while likewise setting aside associations time and cash. A powerful framework will permit educators and heads to effectively oversee components, for example, client enrollment, content, schedules, client access, correspondence, certificates and notices.

The High level Distance Learning bunch, supported by the US Division of Guard, has made a bunch of details called Shareable Substance Article Reference Model (SCORM) to empower the normalization of learning the board frameworks.

A.1. Broacher



LMS

Open Source & Custom Branded
Fully Managed or On Premise LMS



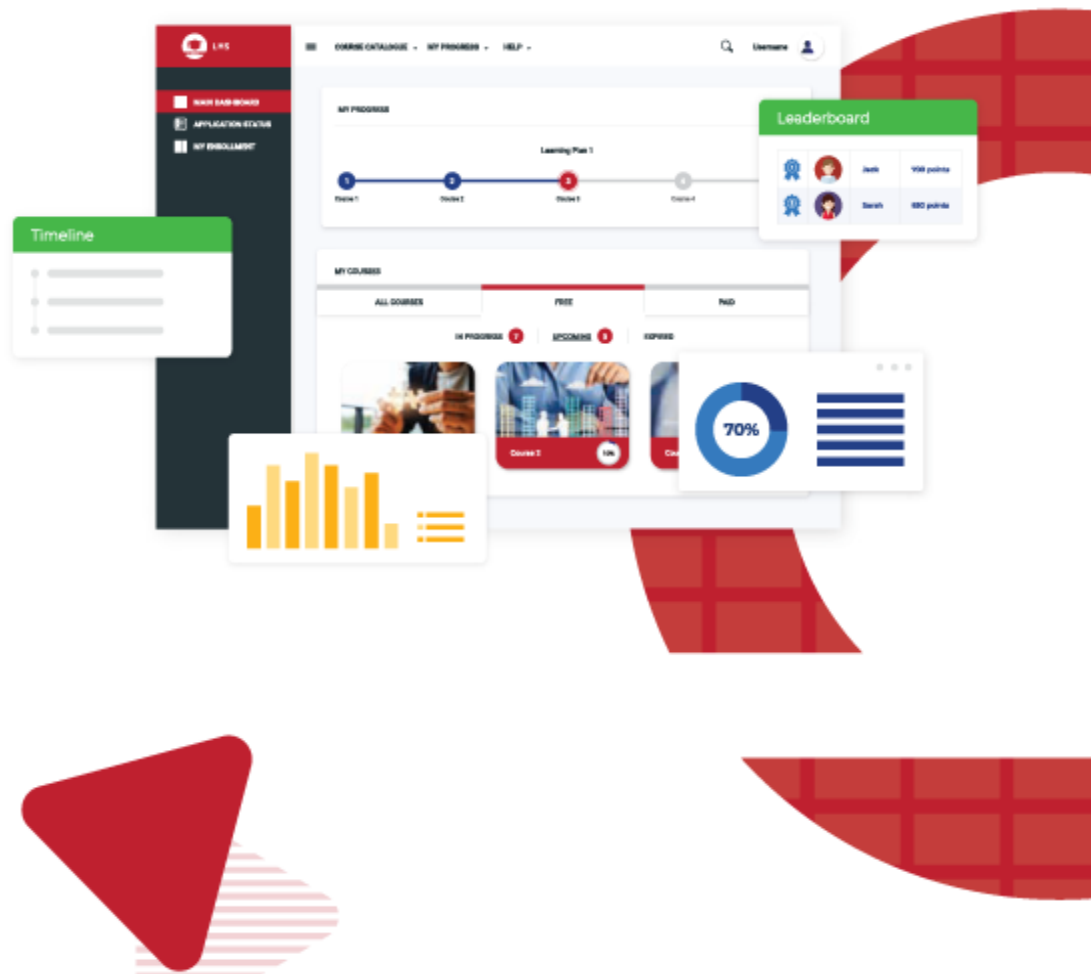
About LMS.

Our learning platform aimed at providing a single robust, secure and integrated system for educators, administrators and learners to create personalised learning environments.

The platform is built on open source resources that power tens of thousands of learning environments worldwide, trusted by large and small institutions and organisations like Shell, London School of Economics, State University of New York, Microsoft and Open University.

The core LMS's worldwide numbers of more than **90 million** users across both academic and enterprise level usage makes it the world's most widely used learning platform.

With over **years of development** guided by social constructionist pedagogy, our LMS delivers a powerful set of learner-centric tools and collaborative learning environments that empower both teaching and learning. A simple interface, drag-and-drop features, and well-documented resources along with ongoing usability improvements make easy to learn and use.



Fully customized custom LMS based on World No. 1 LMS Engine

1

Fully white labelled, 100% ownership, on-premise or on-cloud.

2

Discover the power of world No.1 eLearning experience made for your company.

3

Continuous support - freedom of customization.

Why eLearning?

High profile corporations states that eLearning is the second most valuable training method. This is given that eLearning saves businesses at least 50% when they replace traditional instructor-based training with e-Learning. Not to mention that eLearning cuts down instruction time by up to 60%. Here are several important business advantages of eLearning:



Reduced training costs

The benefits of cloud-based Learning Management Systems become factors for businesses require cost-effective and flexible training methods.



Offers accessibility and versatility

Elearning works because all relevant training information is stored in the cloud and employees can access these training resources 24/7 from any type of electronic device.



Rapid deployment of content

Use web conferencing feature to rapidly develop and deploy a webinar that focuses on the core skills that need to be cultivated.



Access information when they need it most

eLearning materials are stored online so employees can access important resources any time they encounter a difficult situation.



Improved knowledge retention

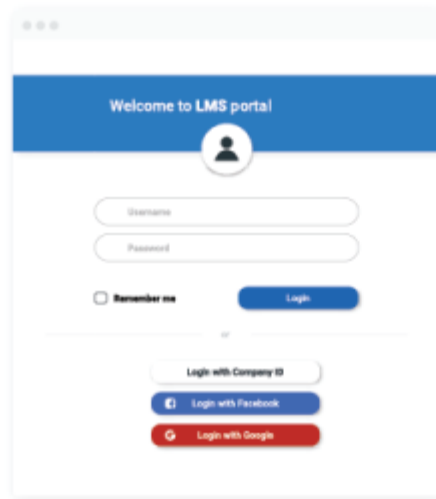
Giving access to interactive, reality-based scenarios, games and assessments enable employees to digest the information more effectively.

LMS Case Studies



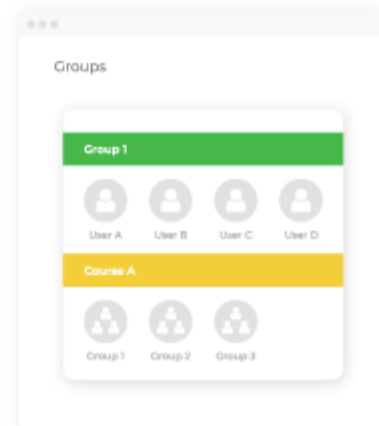
Client	Maxis Berhad
Year of Development	2017 - NOW
User Base	3000+
Audience	Maxis Staff & Vendors

All features available and extendable



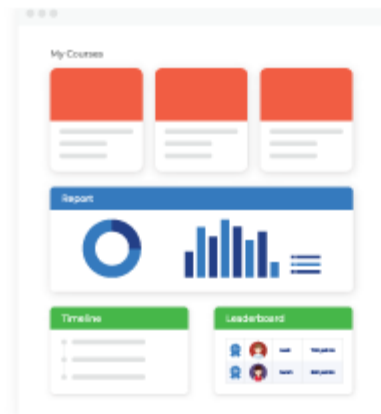
Single Sign On

Multiple built in single sign on support or use external database for single sign on.



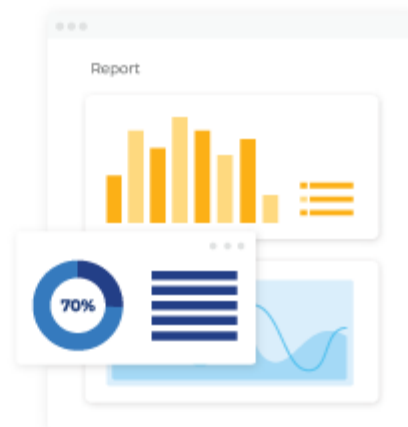
Groups Mode

Teachers can give assignments based on their groups or individual based.



User Dashboards

Customizable user dashboards.
Custom dashboard contents for different roles.
Unlimited dashboard widgets.



Reporting & Logs

The system is capable to record each activity log by every member for reference. Statistics and charts also available in readable format.

A.2. Flyer



A.3. Standee



A.4. Banner

LMS Case Studies

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LMS Case Studies



Client	Maxis Berhad
Year of Development	2017 - NOW
User Base	3000+
Audience	Maxis Staff & Vendors

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The main keywords of our project which are basically also the main features of the project.

[A] Chat bot

[B] Recommendation System

[C] Quizzes/Assignment Notification

[D] Dashboard

[E] Add/Drop Courses

[F] E-Learning

[G] Logging onto LMS

[H] Lectures