

Online Teaching Management System



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Dated: _____

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Acknowledgment

In the name of ALLAH, Most Beneficent, Most Merciful.

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Abstract

In Pakistan, the students and the tutors have very less online sources to upload their detailed qualifications and basic information's. The students are facing difficulties in finding the Tutors for the respective courses, they want to continue at their home or by studying online. Also, those students if find any of the tutor, the tutors cannot join these students because of the distance problem and the fee structure proposed, so rarely tutors can join the students.

This project involves development of a web based system that allow tutors to share their qualifications and tutorial experiences, student search new tutors, apply for the new tutors, rate the tutors with whom they are taking tuition. This project provides facility to the students and tutors on a single platform. The system will be helpful for administrator to maintain information of users.

This system is only for the students and the tutors. People get registered themselves on this platform and then be able to avail the facilities being provided. Administrator registers users, so no one except registered users can use this platform.

We are developing this application in Notepad++ using HTML, JavaScript, PHP language and SQL Server (version-2008).

There will always be a backup of the web application so administrators can use it in case of any web crash or data loss.

Preface

In Chapter 1, the overall introduction of system about Online Teaching Management System is provided. In the chapter it is discussed about the problems occurring to the students to find a Tutor for their respective courses and after that a proposed system is introduced. It is also discussed about the scope, objective, project organization and project management plan in this chapter.

In Chapter 2, we discussed about the functions of the product and the requirements of the system such as: Specific Requirements which includes external interface, user interface, hardware interface, software interface and communication protocols. We also discussed about the use cases and to describe the interaction of user and system, system sequence diagrams (SSDs) were also provided.

In Chapter 3, we discussed about the design overview, also we discussed about the chosen architecture design of the system and alternative architecture designs. Some of the activity diagrams regarding to our functionalities were also provided there. Sequence diagrams are presented in this chapter which show how objects operate with one another and in what order. At the end data flow diagram is given which describes the flow of information for a process or system. It also explains the structure of system by showing the interaction between the system's entities and the processes.

In Chapter 4, we discussed about the implementation of the system in which it is described about the language used for the development of system. Also it is discussed why chosen language is used what are its benefits to select this language. Description about the user interfaces with screen images also provided which is telling how the interface will look like and how user will communicate with system by using them.

In Chapter 5, we discussed about the testing techniques used for the testing. Also it is discussed about the testing tools, testing approaches and testing plan. Test cases are also given in this chapter which are testing all the functions/ test cases of the system.

In Chapter 6, we have discussed about the conclusion of all the system, what we built, what the problem were and what system we proposed for that problem. We have also discussed about the possible enhancement of system which can be made future

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Chapter 1

Introduction

In this chapter we shall discuss about the web application we are going to develop. Using this product students and tutors will be able to avail some, but useful facilities such as Tutor can taught students via home tuition or online. Students can search the tutor for the respective subjects or fields. So tutors have to upload basic information about themselves. It will be a user friendly web application and students and tutors will save their time by using it. The system has some boundaries such as it is only used by the students and the tutors and it has only the above mentioned facilities.

The chapter describes that why the “online teaching management system” is needed and what its advantages are. It also outlines the major functions and objectives of the system and the major constraints associated with the system. In short, we can say that this chapter provides an overview of the proposed system.

1.1 Problem Definition

The students are facing difficulties in finding the tutors for the respective courses, they want to continue at their home or by studying online. Also, those students if find any of the tutor, these tutors cannot join these students because of the distance problem and the fee structure proposed, so rarely tutors can join them. The tutors did not have any platform where they could upload their expertise and their qualifications. There is no online source for the tutors to upload their detailed qualifications and basic information's. So, the students have to wander here and there to find the tutors for their respective fields. The tutors and the students both are not satisfied because there is not any valuable source from which they can avail their desired facilities.

1.2 Proposed System

This is a web based system that allows users to avail different facilities on a single platform. The main components of this system are: Users such as tutors and students can properly upload their Academic Information's. The tutors will registered themselves to become the members to upload their qualifications and the desired students can search them. Students can find best available tutors located in their areas with fair fee structures. Tutors who are the users are able to search the jobs easily. Tutors are able to find and add the students who want to join them in the nearest possible areas. The tutors also can upload the lectures or tutorials for the students who have missed the lecture or cannot join the online session due to some reason. Students can also apply for a desired tutor and also they have to upload information about their subjects or classes. Besides all these, students can upload their feedbacks about the tutors by which the tutor have been ranked in the respective areas of subjects.

1.3 Scope

This web-based application provides a platform for the tutors in which the tutors can upload their qualifications and expertise. Students can search the tutors for the respective subjects or fields. Tutor has to upload basic information about themselves. Students can also find the tutors for their respective subjects. Student also have to upload information about their subjects or classes. An Admin can control the flow of website. Students can upload their feedbacks about the tutors by which the tutors have been ranked in the respective areas of subjects.

1.4 Objective

The main objective of the system is to save the time of the user (Tutors and student). The tasks related to this project can be done on a single platform. The main objective of this project is to facilitate the users with different services such as:

For Tutors: to upload the basic, academic information's, qualifications and to upload the video tutorials for the students.

For Students: to find a tutor and to apply for that tutor, to upload the information about the subjects and the degrees they are enrolled in, student also can upload feedbacks about the tutors by which the tutor have been ranked in the respective areas of subjects.

For Administrator: he/she can control the flow of the system, he/she have rights to delete any information uploaded on the system.

In the project, a student will visit the website. He/she has to entered the required information about his/her city (residential area, etc.), degree or subjects for which he/she was applying, and then apply for the desired tutor from a list and then select either he/she wants to study as a home tuition or to study through online sessions. By following the procedure, the students can find the best available tutors located in their areas.

1.5 Project Organization

Project organization describes about the process model being used, roles and responsibilities and it tells about the technologies being used to implement the system.

1.5.1 Software Process Model

In this system V model (Verification and Validation) is being used. V - Model is an extension of the waterfall model and is based on the association of a testing phase for each corresponding development stage. This means that for every single phase in the development cycle, there is a directly associated testing phase. This is a highly disciplined model and next phase starts only after completion of the previous phase. The V-shaped model should be used for small to medium sized projects where requirements are clearly defined and fixed [1].

1.5.2 Roles and Responsibilities

The administrator is playing a major role in this web application. Admin registers new users and keep their information stored in database also he/she can see the user's activities and can handle the different problems occurring in this application.

1.5.3 Tools and Technology

In this website, Notepad++ is being used to implement PHP and to handle the SQL database server which will be used.

1.6 Project Management Plan

The purpose of such a document is to provide a comprehensive baseline of what has to be achieved by the project, how it is to be achieved, who will be involved, how it will be reported and measured and how information will be communicated. It should be used as a reference for any decision that is made on the project and for clarification of unclear areas.

	📌	Name	Duration	Start	Finish	Predecesso...	Resource Names
1	✔	☐ Online Tutor Finding	66 days?	2/27/17 8:00 AM	5/29/17 5:00 PM		
2	✔	Understand Problem	1 day?	2/27/17 8:00 AM	2/27/17 5:00 PM		M. Hassan Jamal
3	✔	Making of SPMP Documnt	6 days?	2/28/17 8:00 AM	3/7/17 5:00 PM	2	M. Hassan Jamal;MS Word;Project Libre
4	✔	☐ Analysis Phase	30 days?	3/8/17 8:00 AM	4/18/17 5:00 PM		
5	✔	Gather Requirements	2 days?	3/8/17 8:00 AM	3/9/17 5:00 PM		M. Hassan Jamal
6	✔	Refine Requirements	2 days?	3/10/17 8:00 AM	3/13/17 5:00 PM	5	M. Hassan Jamal;Project Supervisor
7	✔	Making of Document V1	1 day?	3/15/17 8:00 AM	4/18/17 5:00 PM	5;6	M. Hassan Jamal;MS Word
8	✔	☐ Identify Specific Requirements	25 days?	3/15/17 8:00 AM	3/16/17 5:00 PM		
9	✔	☐ External Interface Requirements	2 days?	3/15/17 8:00 AM	3/15/17 5:00 PM		
10	✔	User Interface	1 day?	3/15/17 8:00 AM	3/15/17 5:00 PM		M. Hassan Jamal
11	✔	Hardware Interface	1 day?	3/15/17 8:00 AM	3/15/17 5:00 PM		M. Hassan Jamal
12	✔	Software Interface	1 day?	3/15/17 8:00 AM	3/15/17 5:00 PM		M. Hassan Jamal
13	✔	Communication Protocols	1 day?	3/16/17 8:00 AM	3/16/17 5:00 PM		M. Hassan Jamal
14	✔	Making of Document V2	1 day?	3/15/17 8:00 AM	3/30/17 5:00 PM	7;10;11;12;13	M. Hassan Jamal;MS Word
15	✔	☐ Software Product Features	12 days?	3/15/17 8:00 AM	3/16/17 5:00 PM		
16	✔	Identify Use Cases	2 days?	3/17/17 8:00 AM	3/28/17 5:00 PM		M. Hassan Jamal
17	✔	Refine Use Cases	8 days?	3/29/17 8:00 AM	3/30/17 5:00 PM	16	M. Hassan Jamal;Project Supervisor
18	✔	Making of Document V3	2 days?	3/30/17 8:00 AM	4/4/17 5:00 PM	14;16	M. Hassan Jamal;MS Word
19	✔	☐ Software System Functions	4 days?	3/30/17 8:00 AM	3/31/17 5:00 PM		
20	✔	Identify System Functions	2 days?	4/3/17 8:00 AM	4/3/17 5:00 PM		M. Hassan Jamal
21	✔	Refine System Functions	1 day?	4/4/17 8:00 AM	4/4/17 5:00 PM	20	M. Hassan Jamal;Project Supervisor
22	✔	Making of Document V4	1 day?	4/5/17 8:00 AM	4/6/17 5:00 PM	20;21;18	M. Hassan Jamal;MS Word
23	✔	☐ Identify Software System Attributes	2 days?	4/5/17 8:00 AM	4/5/17 5:00 PM		
24	✔	Reliability	1 day?	4/5/17 8:00 AM	4/5/17 5:00 PM		M. Hassan Jamal
25	✔	Availability	1 day?	4/5/17 8:00 AM	4/5/17 5:00 PM		M. Hassan Jamal
26	✔	Security	1 day?	4/5/17 8:00 AM	4/5/17 5:00 PM		M. Hassan Jamal
27	✔	Maintainability	1 day?	4/5/17 8:00 AM	4/5/17 5:00 PM		M. Hassan Jamal
28	✔	Portability	1 day?	4/5/17 8:00 AM	4/5/17 5:00 PM		M. Hassan Jamal
29	✔	Making of Document V5	1 day?	4/6/17 8:00 AM	4/6/17 5:00 PM	22;24;25;26...	M. Hassan Jamal;MS Word
30	✔	☐ Database Requirements	2 days?	4/7/17 8:00 AM	4/10/17 5:00 PM		
31	✔	Identify Database Requirements	1 day?	4/7/17 8:00 AM	4/7/17 5:00 PM		M. Hassan Jamal
32	✔	Making of Document V6	1 day?	4/10/17 8:00 AM	4/10/17 5:00 PM	29;31	M. Hassan Jamal;MS Word
33	✔	☐ Making of Final SRS Document	6 days?	4/11/17 8:00 AM	4/18/17 5:00 PM		
34	✔	Refining SRS Document	6 days?	4/11/17 8:00 AM	4/18/17 5:00 PM	32	M. Hassan Jamal;Project Supervisor
35	✔	☐ Design Phase	29 days?	4/19/17 8:00 AM	5/29/17 5:00 PM		
36	✔	☐ Develop Design	13 days?	4/19/17 8:00 AM	5/5/17 5:00 PM		
37	✔	Develop Architectural Design	2 days?	4/19/17 8:00 AM	4/20/17 5:00 PM		M. Hassan Jamal
38	✔	Review Architectural Design	2 days?	4/21/17 8:00 AM	4/24/17 5:00 PM	37	M. Hassan Jamal;Project Supervisor
39	✔	Develop Interface Design	2 days?	4/25/17 8:00 AM	4/26/17 5:00 PM		M. Hassan Jamal
40	✔	Review Interface Design	2 days?	4/27/17 8:00 AM	4/28/17 5:00 PM	39	M. Hassan Jamal;Project Supervisor
41	✔	Create Sequence Diagram	2 days?	5/1/17 8:00 AM	5/2/17 5:00 PM		
42	✔	Create Design Class Diagram	3 days?	5/3/17 8:00 AM	5/5/17 5:00 PM		
43	✔	☐ Develop Algorithms	11 days?	5/8/17 8:00 AM	5/22/17 5:00 PM		
44	✔	Draw Flow Chart	2 days?	5/8/17 8:00 AM	5/9/17 5:00 PM		
45	✔	Write Pseudo Code	3 days?	5/10/17 8:00 AM	5/12/17 5:00 PM	44	
46	✔	Review Pseudo Code	2 days?	5/15/17 8:00 AM	5/16/17 5:00 PM	45	
47	✔	Draw Decision Table	2 days?	5/17/17 8:00 AM	5/18/17 5:00 PM		
48	✔	Review Decision Table	2 days?	5/19/17 8:00 AM	5/22/17 5:00 PM	47	
49	✔	☐ Evaluate Design	5 days?	5/23/17 8:00 AM	5/29/17 5:00 PM		
50	✔	Validate Design	2 days?	5/23/17 8:00 AM	5/24/17 5:00 PM		
51	✔	Verify Design	2 days?	5/25/17 8:00 AM	5/26/17 5:00 PM		
52	✔	Review & Refine Design	1 day?	5/29/17 8:00 AM	5/29/17 5:00 PM		
53	✔	Finalize Documentation	1 day?	2/27/17 8:00 AM	2/27/17 5:00 PM		

Figure 1. 1 Project Management Plan

Chapter 2

Software Requirements Specifications

This chapter of the document specifying the general factors that affects the product and its requirements, providing a background for the requirements of the software. It also describes the summary of the functions that the software will perform. It also describes the user capabilities and their interest.

2.1 Product Overview

This product allows the administrator to register users on system and approve the tutors. The student can upload ads, view announcements, and also can search the tutors. The tutor can also upload and view announcements, upload videos and tutorials and can arrange online tutorials for students. This facilitate students to find the desired tutors available at their location.

2.1.1 Stakeholders

Administrator, Students and Tutors from different areas of country are stakeholders.

2.1.2 Major Functions

Major functions of this system are:

- Registration of the students and tutors.
- Tutors can upload announcements, tutorials and can arrange online sessions.
- Students can make request via message to tutors for tuition.
- Admin can approve tutors, add students and can perform other necessary functions.

2.1.3 Major Inputs and Outputs

Major inputs and outputs tell about the possible input entered by the users and in answer of those inputs what will be the out of the system.

Major Inputs

Major inputs of the users can be: entering the user id and password to sign in, uploading advertisements and search advertisements about tutors and students, uploading of tutorials or videos and arranging the online sessions by tutors. Users can enter information to search the tutors online.

Major Outputs

Major output will be shown by system against those inputs which are entered by the user. If a user uploads the advertisement, then system will show output about the successful posting or can show any error in case of any mistake. If the student search the tutors online, then system will show the list of relevant tutors or can show error message in case of any mistake.

2.1.4 Definitions, Acronyms and Abbreviations

Acronyms	Definitions
UC	Use Case
Users	Tutor, Student
Admin	Administrator

Table 2. 1 Acronyms and Definitions

2.2 Specific Requirements

2.2.1 External Interface Requirements

External interface requirements are:

User Interfaces

The user interfaces are made with user-friendly colour combination. Interfaces are made responsive, so that they can be opened easily on any type of screen width. For this purpose, Bootstrap is used on the website interfaces that makes the website responsive.

Software Interfaces

The Website can be run on any operating system with any web browser. It is due to its responsiveness and compatibility features. Software requirements for client side are web browser of any type.

Hardware Interface

There is no hard and tough hardware required to run our application. Even it can be run using processor with Windows XP. The website can be open in any browser using any device. But it is recommended to use a better machine to run website perfectly.

Communication Protocols

The website shall use the HTTP protocol for communication over the internet.

2.3 Software Product Features

The admin can avail following features:

- Sign In
- Approve the Tutor
- Sign Out

The student can avail following features:

- Sign In to the website
- Apply for the Tutor
- Rate Tutor
- Search Tutor
- Attend Online Session
- Sign Out

The tutor can avail following features:

- Sign In to the website
- Add the Students
- Upload Announcements
- Upload Videos/Tutorials
- Arrange Online Session
- Sign Out

2.4 Software System Attributes

2.4.1 Reliability

The system is reliable if it provides accurate results of queries made by any user. There would be no ambiguous or wrong result of queries.

2.4.2 Availability

The system is available on the internet and can be accessed from devices like desktop, laptop, tablet and mobile phone. It responses the queries instantly and system will not be available in case of any crash happened in this system.

2.4.3 Security

Only registered users use this platform and the system's back-end servers can only be accessible to authenticated administrators. Unauthenticated users can't use this system. This system is secured from SQL injection attacks. In future if this project is deployed at high level, then the conversation can be secured by encryption and decryption.

2.4.4 Maintainability

The administrator will handle all the website content and take immediate actions in case of system failure.

2.4.5 Portability

This system is portable as it is platform independent. It provides same features either it is running on Windows or Linux.

2.4.6 Performance

This system is fast enough to provide the results of queries in no time. Multiple users can use this system at the same time.

2.5 List of Use Cases

1. Sign Up
2. Sign In
3. Approve Tutor
4. Add the Student(s)
5. Rate Tutor(s)
6. Search Tutor(s)
7. Upload Announcement(s)
8. Upload Videos/Tutorials
9. Arrange Online Sessions
10. Sign Out

2.6 Use Case Diagram

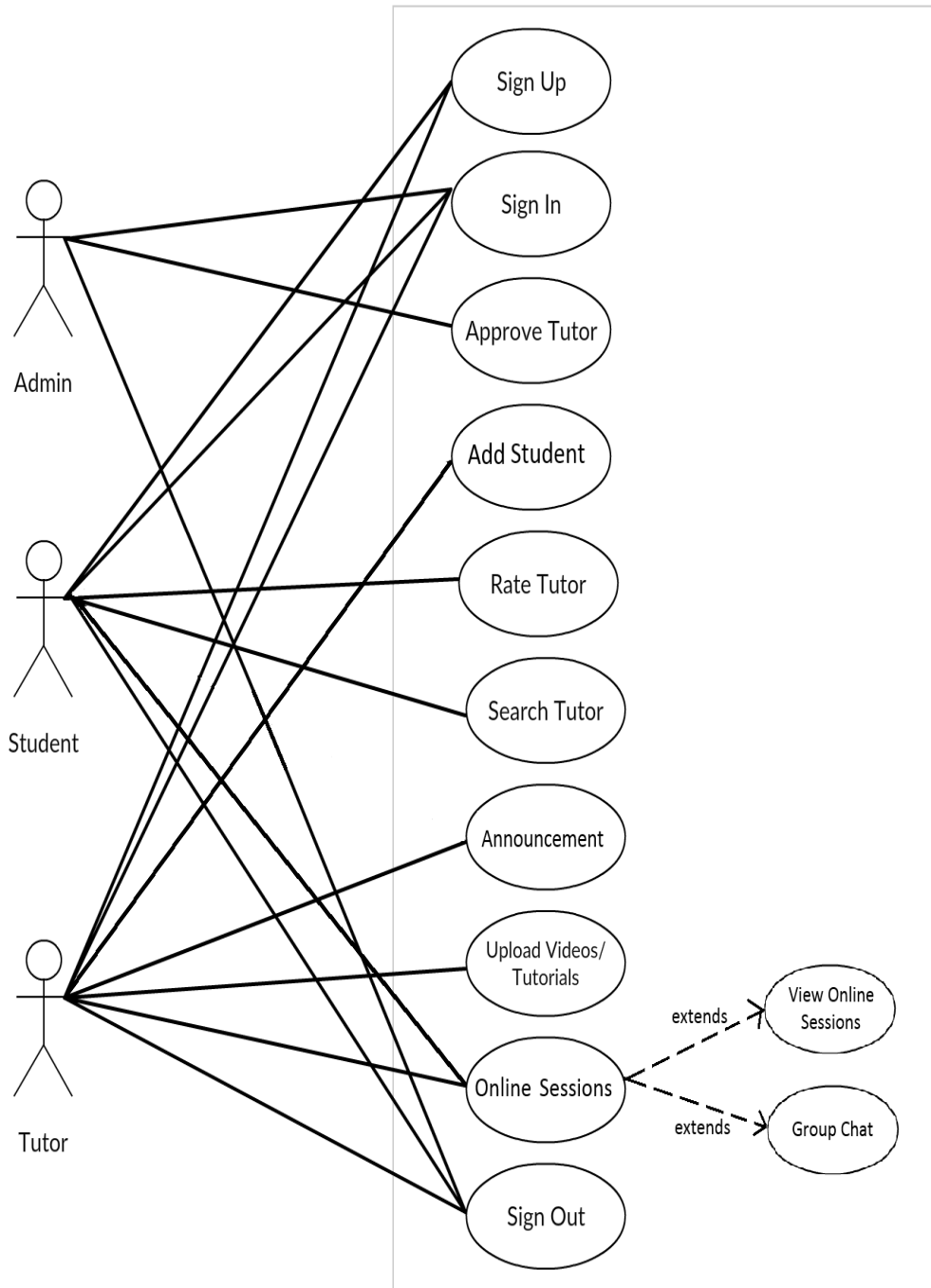


Figure 2. 1 Use Case Diagram

2.7 Use Case Details

2.7.1 Sign Up

The user selects the sign-up option and then system shows the registration panel after providing the Details and press sign-up button.

Name	UC1: Sign Up
Primary Actor	User.
Pre-Conditions	The web home page will be opened.
Post-Conditions	User will be registered successfully.
Main Scenario	<ol style="list-style-type: none"> 1. User Selects sign-up option. 2. The system asks to enter the required details. 3. The user enters the details. 4. The system checks the details. 5. User registered successfully.
Alternative Scenario	<ol style="list-style-type: none"> 1) The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 4) Some Details are missing. <ol style="list-style-type: none"> a) The system prompts user to enter complete information.

Table 2. 2 UC Sign Up

2.7.2 Sign In

The user or admin selects the sign-in option and then system shows the sign-in panel after providing Username and Password and press sign-in button.

Name	UC2: Sign In
Primary Actor	User and Administrator
Pre-Conditions	User and Administrator have a valid User Name and Password
Post-Conditions	User and Administrator will be logged in
Main Scenario	<ol style="list-style-type: none"> 1. User Selects login option. 2. The system asks to enter an ID and password. 3. The user enters id and password. 4. The system checks id and password. 5. User logs in.
Alternative Scenario	<ol style="list-style-type: none"> 2) The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 5) ID or password is incorrect. <ol style="list-style-type: none"> a) The system prompts user to enter correct information.

Table 2. 3 UC Sign In

2.7.3 Approval of Tutor(s)

The tutor provides personal information to the administrator by filling the online registration form.

Name	UC3: Approval of Tutor
Primary Actor	Tutor and Administrator
Pre-Conditions	Tutor has to register himself/herself.
Post-Conditions	Tutor has been approved by the Administrator successfully.
Main Scenario	<ol style="list-style-type: none"> 1. Tutor opens the sign-up panel. 2. System shows the relevant panel. 3. Tutor enters required information and clicks the register button. 4. The system prompts message of successful registration. 5. The administrator approves the tutor after seeing the rating given by the students. 6. The successful approval message to the tutor has been sent.
Alternative Scenario	<ol style="list-style-type: none"> 1) The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 5) User doesn't fill all the required fields. <ol style="list-style-type: none"> a) The system prompts message 'fill the form correctly'.

Table 2. 4 UC Approval of Tutor

2.7.4 Add Student (s)

The student will apply for the tutor after seeing the information of the tutor provided on the tutor's profile.

Name	UC4: Add Student
Primary Actor	Tutor
Pre-Conditions	Tutor is registered.
Post-Conditions	Tutor has added the student successfully.
Main Scenario	<ol style="list-style-type: none"> 1. Tutor search for the student in the student list. 2. System shows the relevant student list. 3. Tutor clicks on the add student button provided on the student's profile. 4. The system prompts message of successfully applied.
Alternative Scenario	<ol style="list-style-type: none"> 1) The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. • The Add Student button isn't working. <ol style="list-style-type: none"> a) No event will be called.

Table 2. 5 UC Apply for the Tutor

2.7.5 Rate the Tutor(s)

The student will give the review about the tutor after taking the demo classes and tuition.

Name	UC5: Rate the Tutor
Primary Actor	Student
Pre-Conditions	Student logged in and takes the classes from the tutor.
Post-Conditions	Student rated the tutor successfully.
Main Scenario	<ol style="list-style-type: none"> 1. Student open the profile of the tutor. 2. The system will display the profile of the tutor. 3. Student will rate the tutor to his/her services. 4. The system will prompt a message of successful rated the tutor.
Alternative Scenario	<ol style="list-style-type: none"> 1. The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator.

Table 2. 6 UC Rate the Tutor

2.7.6 Search the Tutor(s)

The student searches the tutor according to his/her requirements or his/her qualifications.

Name	UC6: Search the Tutor
Primary Actor	Student
Pre-Conditions	The student is logged in.
Post-Conditions	Student searches the tutor successfully.
Main Scenario	<ol style="list-style-type: none"> 1. The student selects the city first. 2. The student selects the relevant degree. 3. The system displays the list of relevant tutors. 4. The student then select a subject from a dropdown list. 5. The system displays the list of tutors relevant to the subject.
Alternative Scenario	<ol style="list-style-type: none"> 1. The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 4. The student can't select a subject. <ol style="list-style-type: none"> a) System will prompt message 'select a subject first!'

Table 2. 7 UC Search the Tutor

2.7.7 Upload Announcement(s)

Tutor will be the registered one who wants to upload an announcement. Tutor opens upload announcement panel and fills the form and upload that announcement.

Name	UC7: Upload Announcement
Primary Actor	Tutor
Pre-Conditions	The tutor is registered.
Post-Conditions	Tutor uploaded the announcement(s) successfully.
Main Scenario	<ol style="list-style-type: none"> 1. Tutor open upload announcement panel. 2. The system will display the relevant panel to the tutor. 3. Tutor will enter the relevant information and submit it. 4. The system will prompt a message of successful announcement submission.
Alternative Scenario	<ol style="list-style-type: none"> 1. The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 3. The tutor has not filled the full form. <ol style="list-style-type: none"> a) The system prompts message to fill all the fields.

Table 2. 8 UC Upload Announcement

2.7.8 Upload Videos/Tutorials

The tutor will upload the tutorials for the students who missed the previous classes so that they can cover the course by watching the tutorials.

Name	UC8: Upload Video/Tutorial
Primary Actor	Tutor
Pre-Conditions	Tutor is registered.
Post-Conditions	Tutor uploaded the tutorial successfully.
Main Scenario	<ol style="list-style-type: none"> 1. The tutor opens the upload tutorial panel. 2. The system displays the relevant panel to the user. 3. The user opens uploads the tutorial. 4. The system prompts the message ‘tutorial uploaded successfully’.
Alternative Scenario	<ol style="list-style-type: none"> 1. The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 3. The user has not uploaded the tutorial. <ol style="list-style-type: none"> a) The system prompts message to upload a video.

Table 2.9 UC Upload Video/ Tutorial

2.7.9 Arrange Online Sessions

The tutor will arrange the online session for the students to who can't take the tuition at home or living far from the tutor's location.

Name	UC9: Arrange Online Session
Primary Actor	Tutor
Pre-Conditions	Tutor is registered.
Post-Conditions	Tutor arranged online sessions successfully.
Main Scenario	<ol style="list-style-type: none"> 1. The tutor clicks on a course. 2. The system displays the relevant options. 3. The tutor clicks on the online session button. 4. The live streaming will be started.
Alternative Scenario	<ol style="list-style-type: none"> 1. The system fails at any time. <ol style="list-style-type: none"> a) The system rolls back all the changes made by the administrator. 3. Online Session button has been clicked. <ol style="list-style-type: none"> a) The system prompts message 'Sorry! Something went wrong'.

Table 2. 10 UC Arrange Online Session

2.7.10 Sign Out

User clicks on Sign-out button and system sign-outs the user from the system.

Name	UC10: Sign Out
Primary Actor	User
Pre-Conditions	User will be signed-in.
Post-Conditions	User signed-out successfully.
Main Scenario	<ol style="list-style-type: none"> 1. User clicks sign-out button. 2. System sign-outs user from the system.
Alternative Scenario	<ol style="list-style-type: none"> 3. System fails at any time. <ol style="list-style-type: none"> a) System rolls back all the changes made by administrator.

Table 2. 11 UC Sign Out

2.8 Database Requirements

An Entity Relationship Diagram (ERD) is a snapshot of data structures. An Entity Relationship Diagram shows entities (tables) in a database and relationships between tables within that database. For a good database design it is essential to have an Entity Relationship Diagram.

There are three basic elements in ER-Diagrams:

- Entities are the "things" for which we want to store information. An entity is a person, place, thing or event.
- Attributes are the data we want to collect for an entity.
- Relationships describe the relations between the entities.

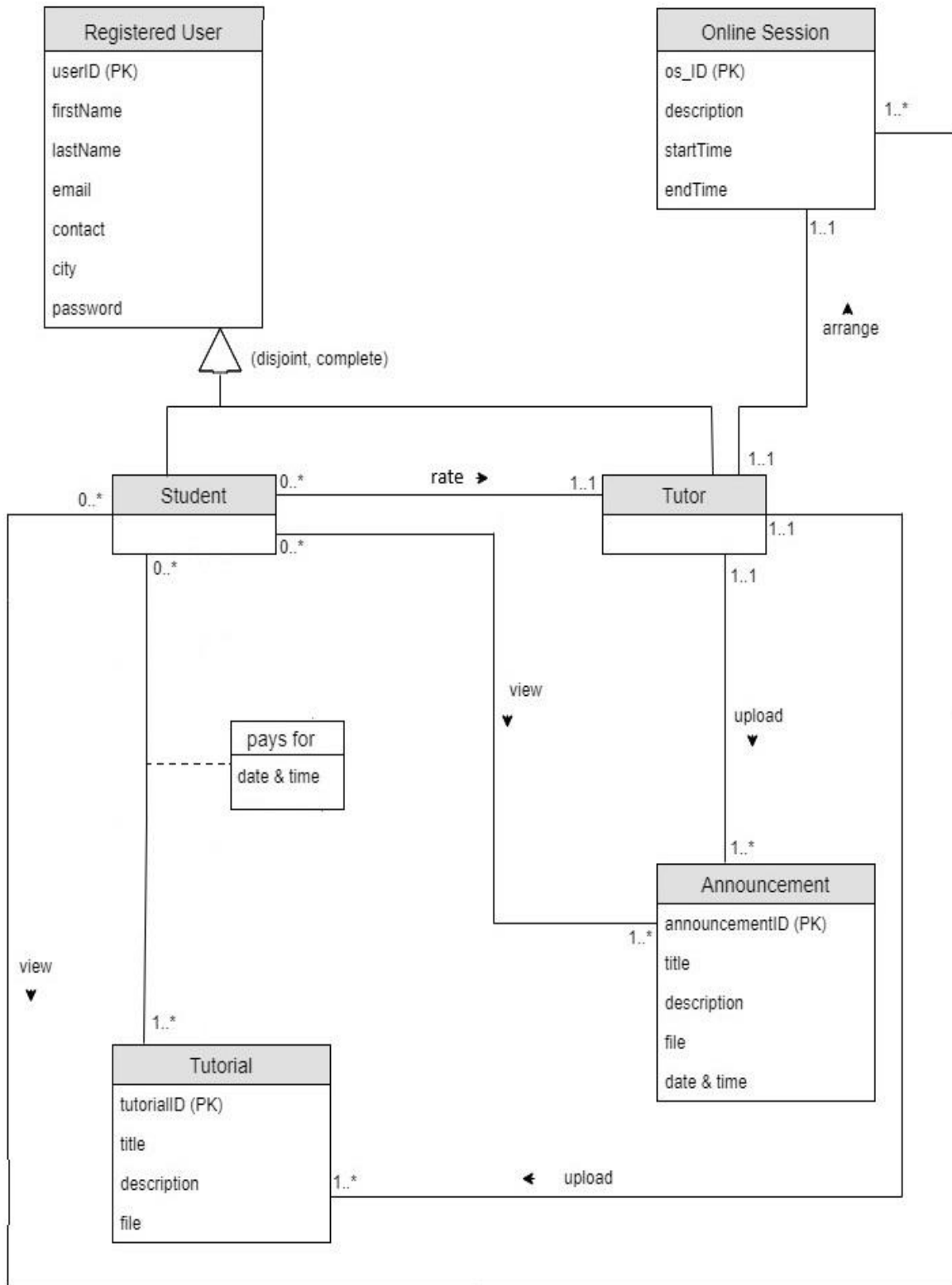


Figure 2. 2 Database Design (ERD)

2.9 System Sequence Diagram

In software engineering, a **system sequence diagram** (SSD) is a sequence diagram that shows, for a particular scenario of a use case, the events that external actors generate their order, and possible inter-system events [6].

2.9.1 Sign Up

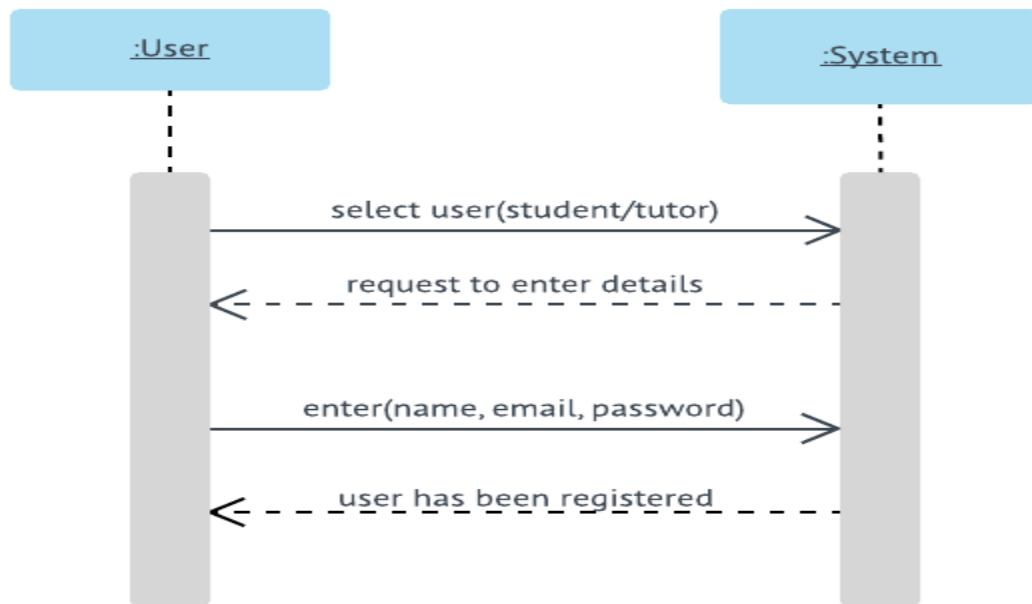


Figure 2. 3 SSD (Sign Up)

2.9.2 Sign In

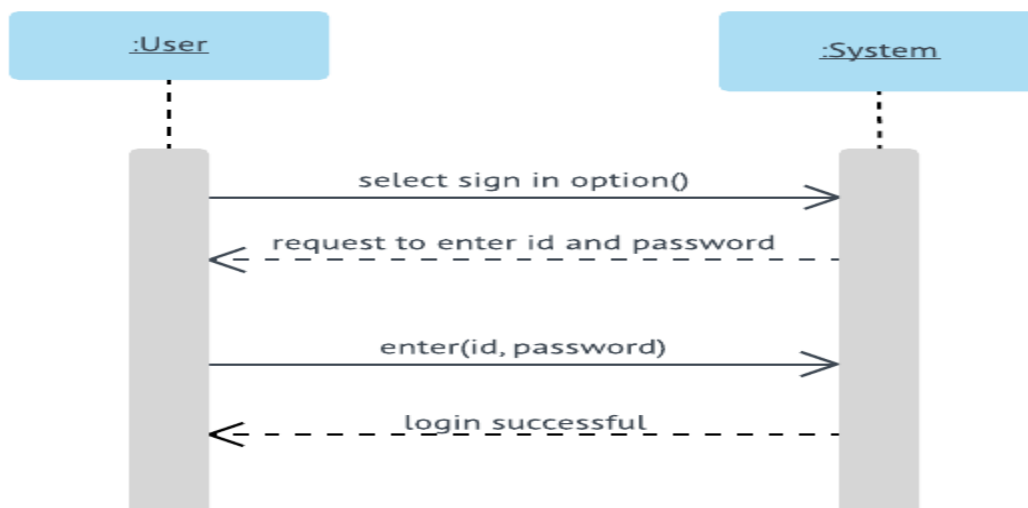


Figure 2. 4 SSD (Sign In)

2.9.3 Approve Tutor

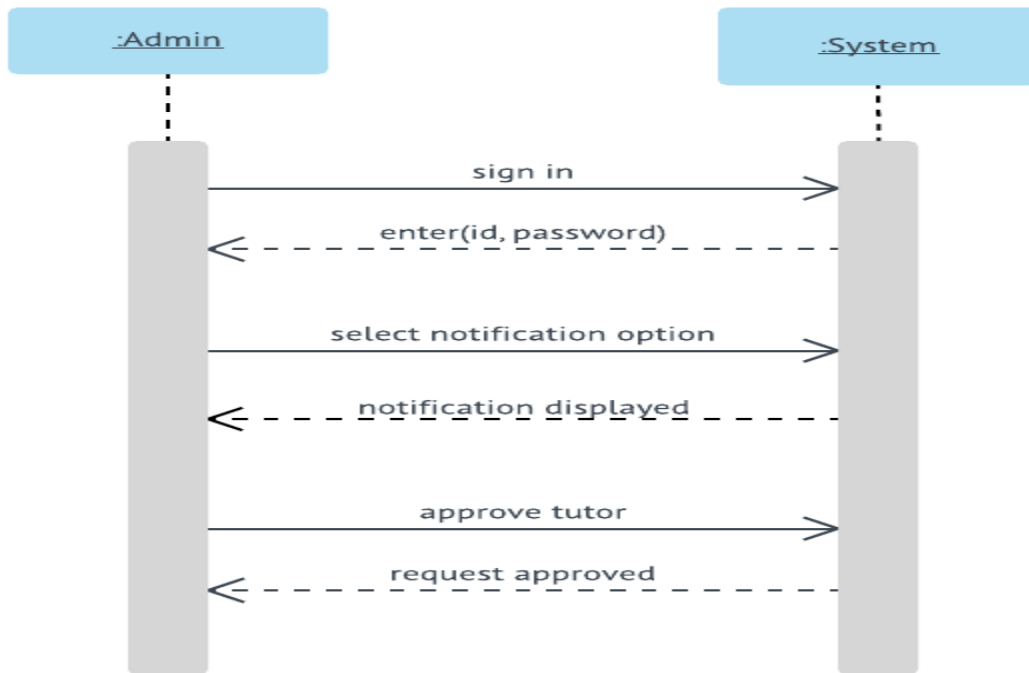


Figure 2. 5 SSD (Approve Tutor)

2.9.4 Rate Tutor

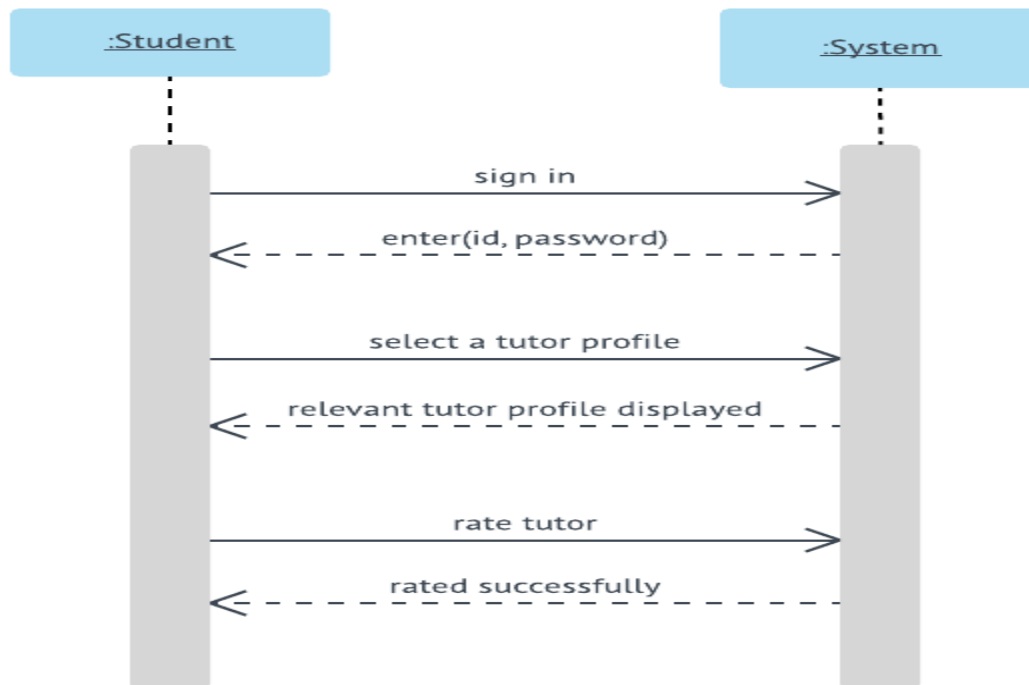


Figure 2. 6 SSD (Rate Tutor)

2.9.5 Search Tutor

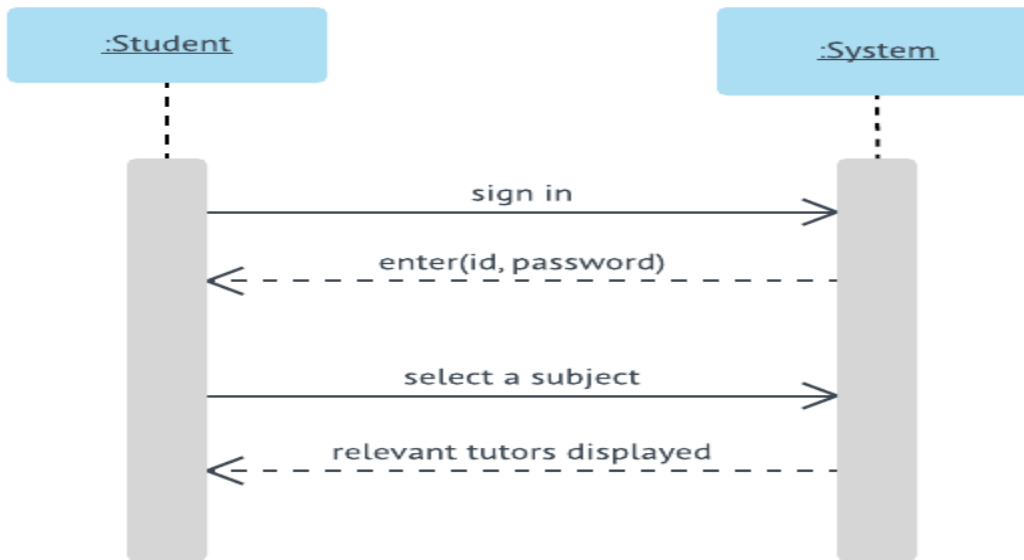


Figure 2. 7 SSD (Search Tutor)

2.9.6 Upload Announcement

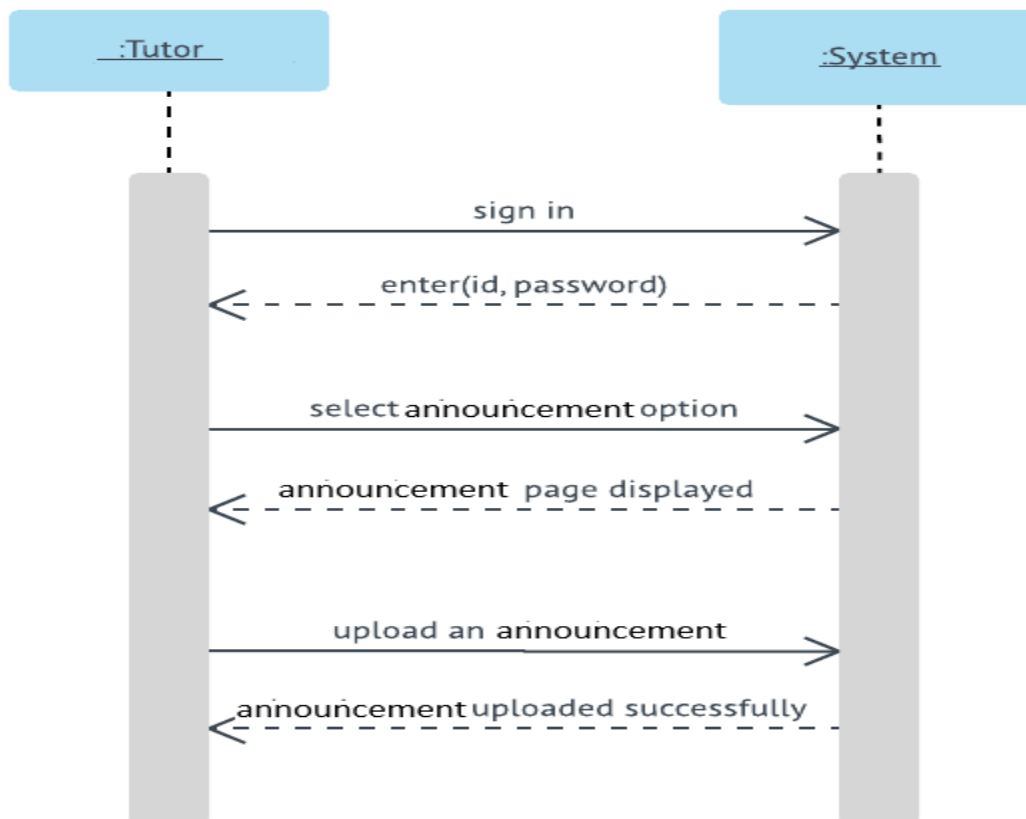


Figure 2. 8 SSD (Upload Announcement)

2.9.7 Upload Video/ Tutorial

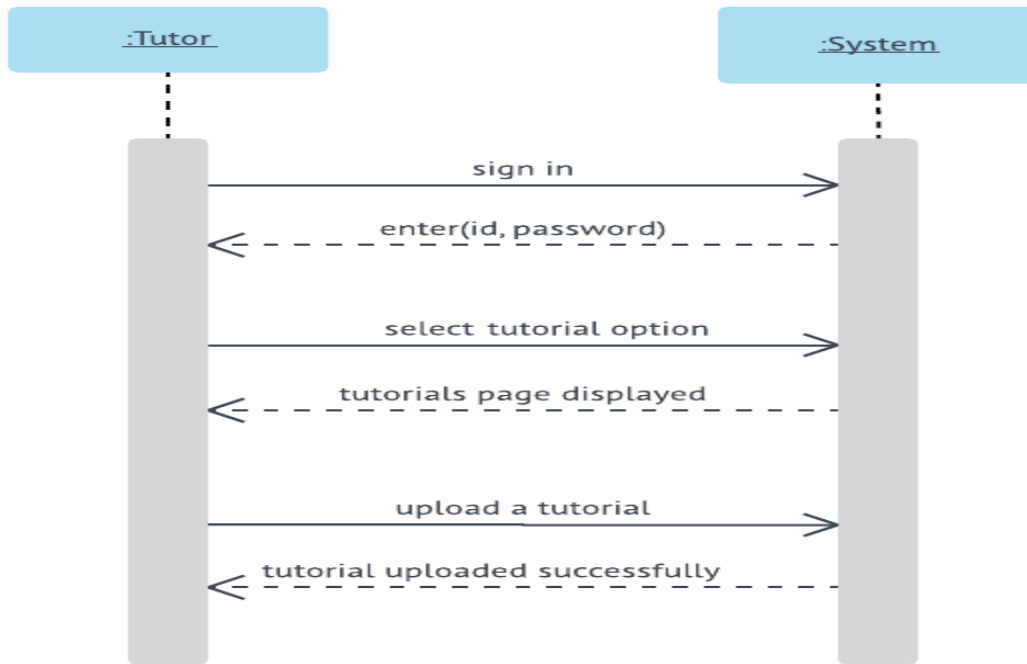


Figure 2. 9 SSD (Upload Video/Tutorial)

2.9.8 Arrange Online Session

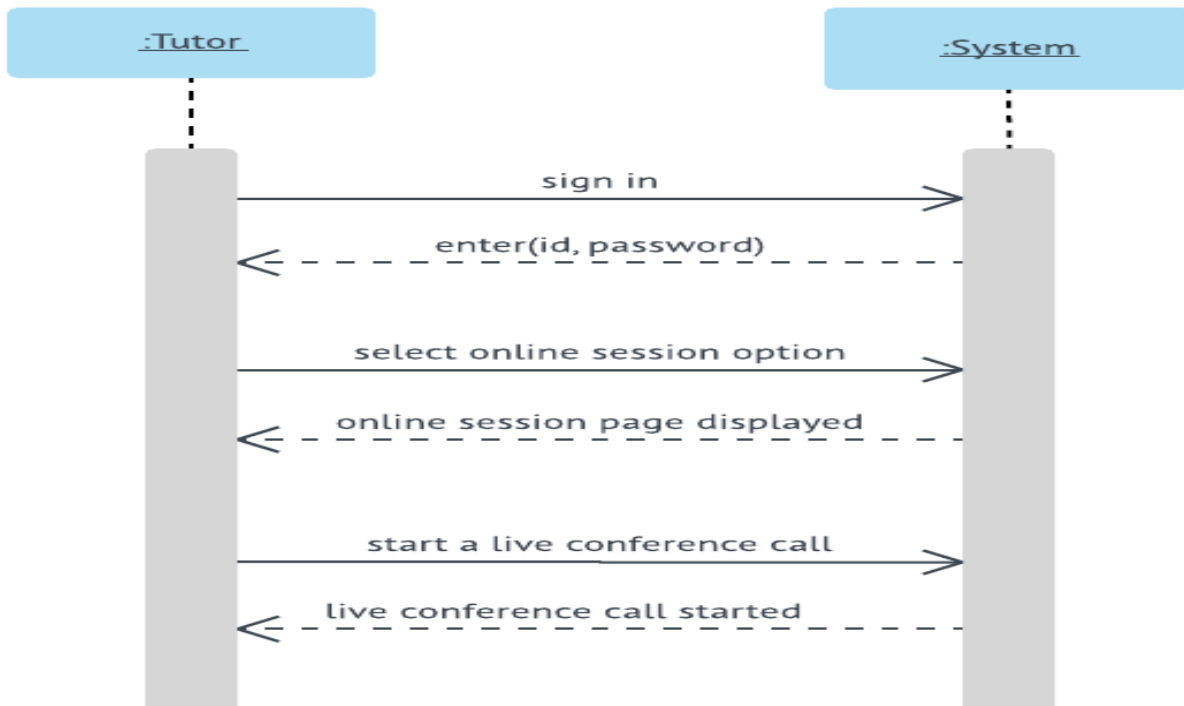


Figure 2. 10 SSD (Arrange Online Session)

Chapter 3

Software Design Description

In this chapter, we are discussing about the design of the system. It is being discussed that what is the system architecture design, how it will work and what are the alternative architecture designs. It is also being discussed about the system interface description. In this chapter system sequence diagrams (SSD) are also present which are providing information about interaction between system and user. Screen images of user interfaces are also provided in this chapter which clears that how user will interact with the system.

3.1.1 Design Overview

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development [2].

3.1.2 Requirements Traceability Matrix

The Requirements Traceability Matrix (RTM) is a document that links requirements throughout the validation process. The purpose of the Requirements Traceability Matrix is to ensure that all requirements defined for a system are tested in the test protocols [3].

Requirement Id	Requirement Name	Activity Diagram	System Sequence Diagram	Test Cases	Interface
UC-1	Sign Up	Fig. 3.3	Fig. 2.3	5.3.1	Fig. 4.1
UC-2	Sign In	Fig. 3.4	Fig. 2.4	5.3.2	Fig. 4.2
UC-3	Approve Tutor	Fig. 3.5	Fig. 2.5	5.3.3	Fig. 4.3
UC-4	Add Student			5.3.4	Fig. 4.4
UC-5	Rate Tutor		Fig. 2.6	5.3.5	
UC-6	Search Tutor		Fig. 2.7	5.3.6	Fig. 4.6
UC-7	Upload Advertisement	Fig. 3.6	Fig. 2.8	5.3.7	Fig. 4.7
UC-8	Upload Tutorials	Fig. 3.7	Fig. 2.9	5.3.8	Fig. 4.8
UC-9	Arrange Online Sessions		Fig. 2.10	5.3.9	
UC-10	Sign Out	Fig. 3.8			

Table 3. 1 Requirements Traceability Matrix

3.2 System Architecture Design

The architectural design of a system emphasizes the design of the systems architecture that describes the structure, behaviour and more views of that system and analysis.

3.2.1 Chosen System Architecture

Model View Controller or MVC as it is popularly called, is a software design pattern for developing web applications. A MVC pattern is made up of the following three parts: Model - The lowest level of the pattern which is responsible for maintaining the data. View - This is responsible for displaying all or a portion of the data to the user. Controller - Software Code that controls the interactions between the Model and View [4].

3.2.2 Discussion of Alternative Designs

Model View Presenter (MVP) is a derivation of the MVC architectural pattern, and is used mostly for building user interfaces. In MVP the presenter assumes the functionality of the "middle-man". In MVP, all presentation logic is pushed to the presenter.

Model View ViewModel (MVVM) is a software architectural pattern. MVVM abstracts a view's state and behaviour in the same way, but a Presentation Model abstract a view (creates a view model) in a manner not dependent on a specific user-interface platform. MVVM and Presentation Model both derive from the Model View Controller pattern (MVC). [5]

3.2.3 Architectural Diagram

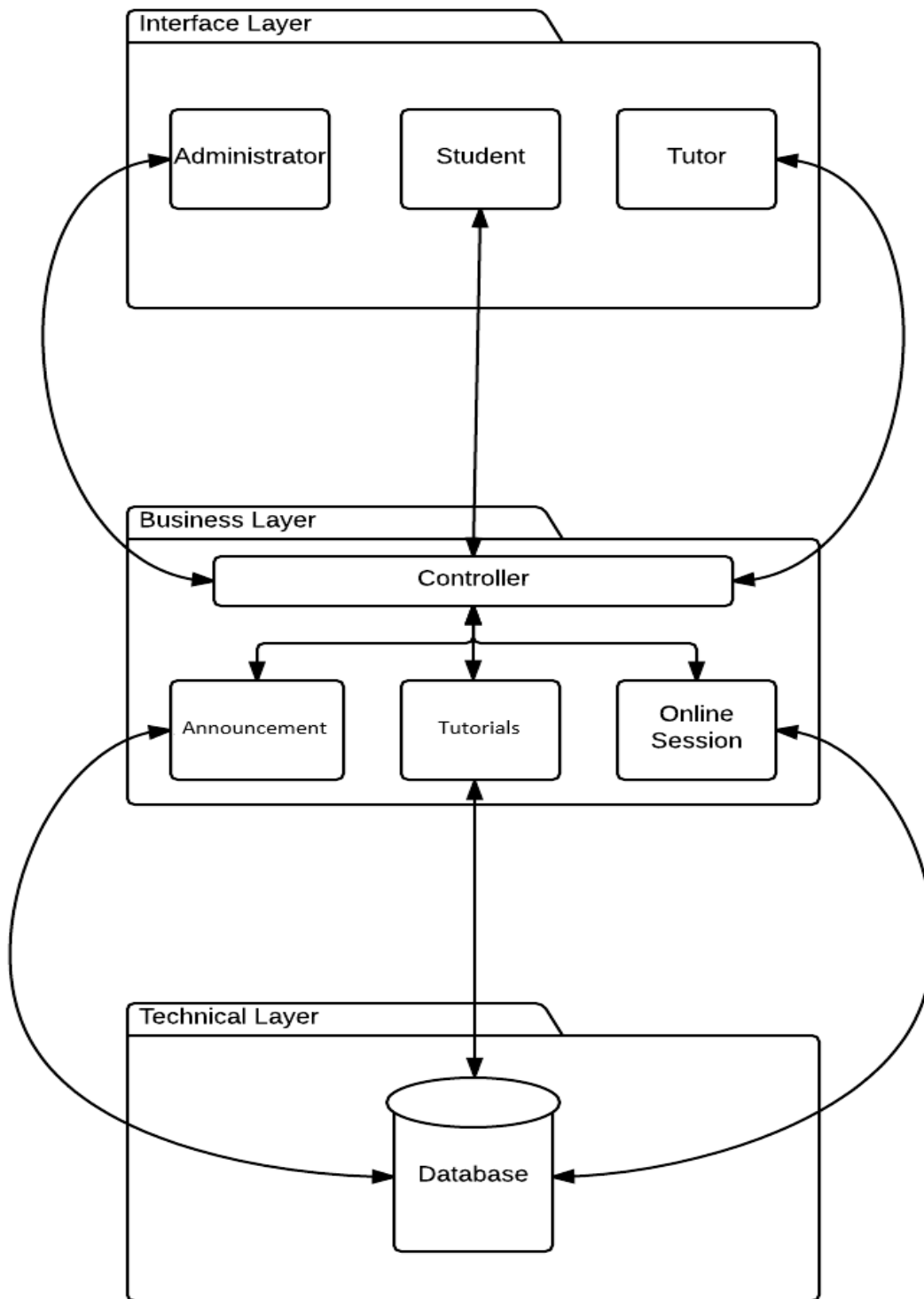


Figure 3. 1 Architectural Diagram

3.3 Domain Model

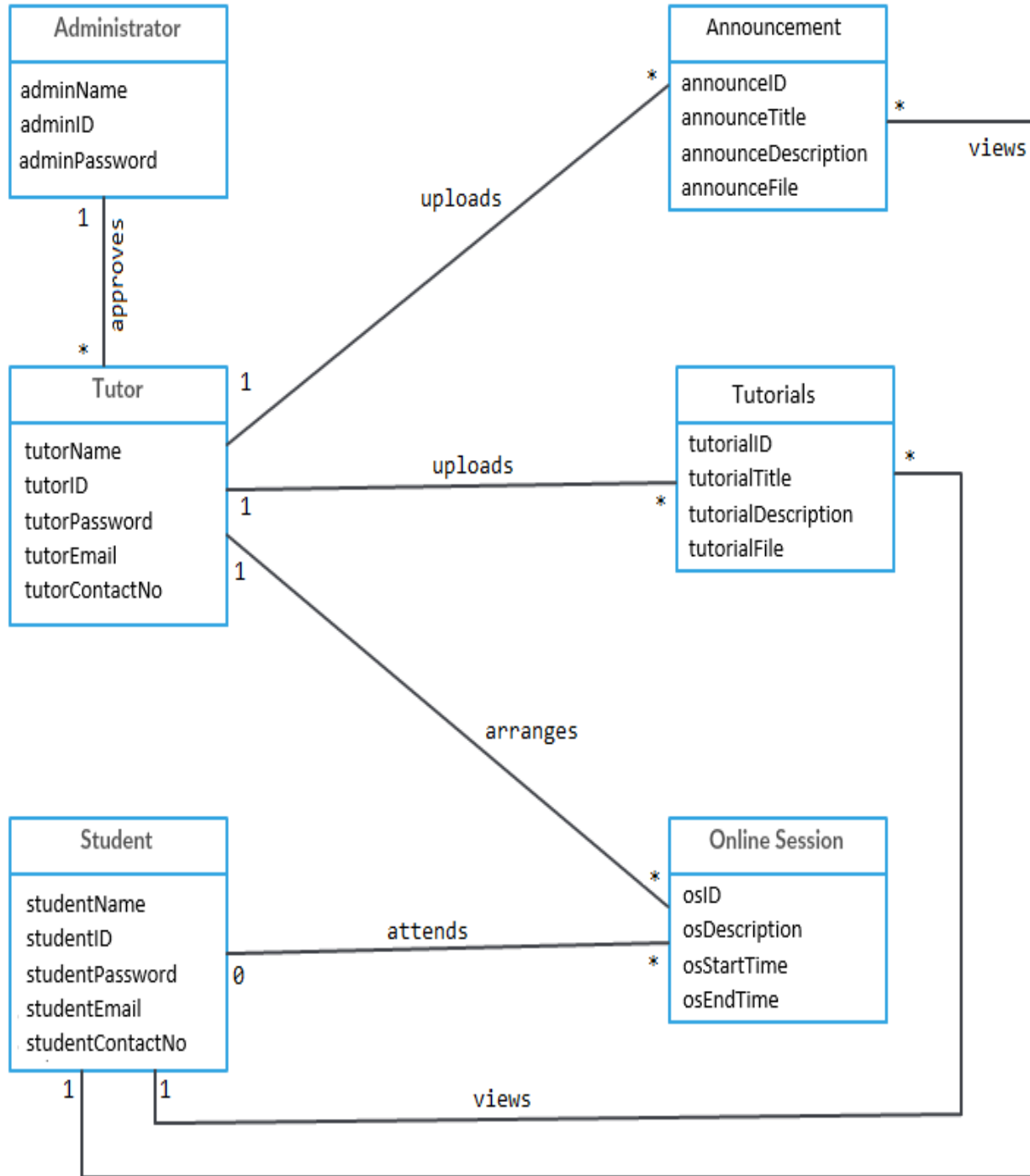


Figure 3. 2 Domain Model

3.4 Detailed Description of Components

The component is uniquely identifiable input, part, piece, assembly or subassembly, system or subsystem that is required to complete or finish an activity, item, or job and performs distinctive and necessary functions in the operation of a system.

3.5 Activity Diagrams

An activity diagram is a graphical representation of an executed set of procedural system activities and considered a state chart diagram variation. Activity diagrams describe parallel and conditional activities, use cases and system functions at a detailed level [7].

3.5.1 Sign Up

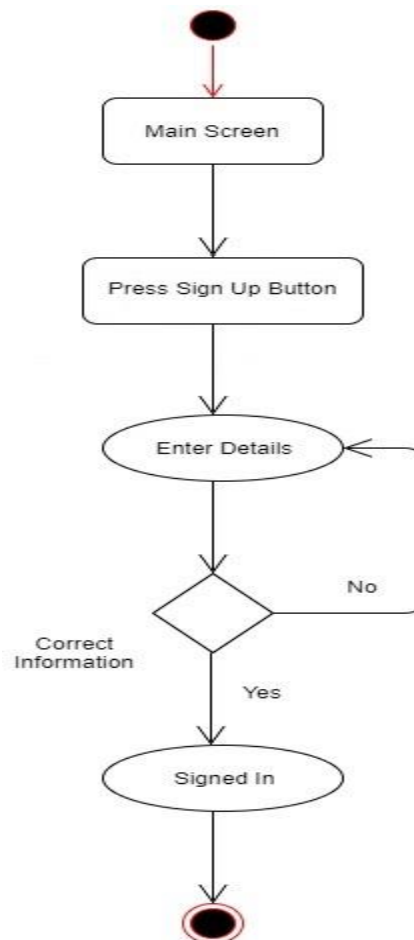


Figure 3. 3 AD (Sign Up)

3.5.2 Sign In

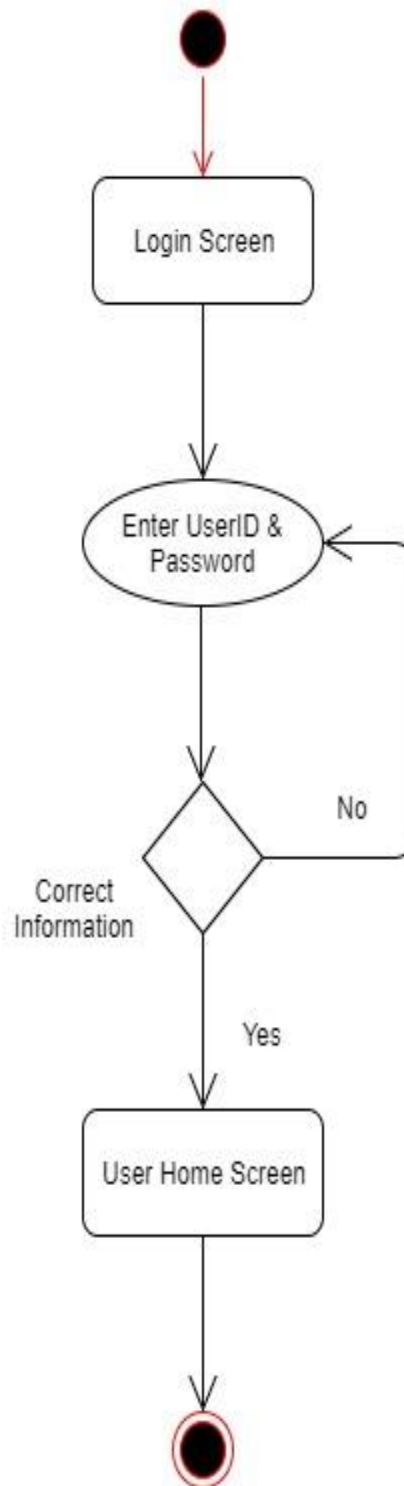


Figure 3. 4 AD (Sign In)

3.5.3 Approve Tutor

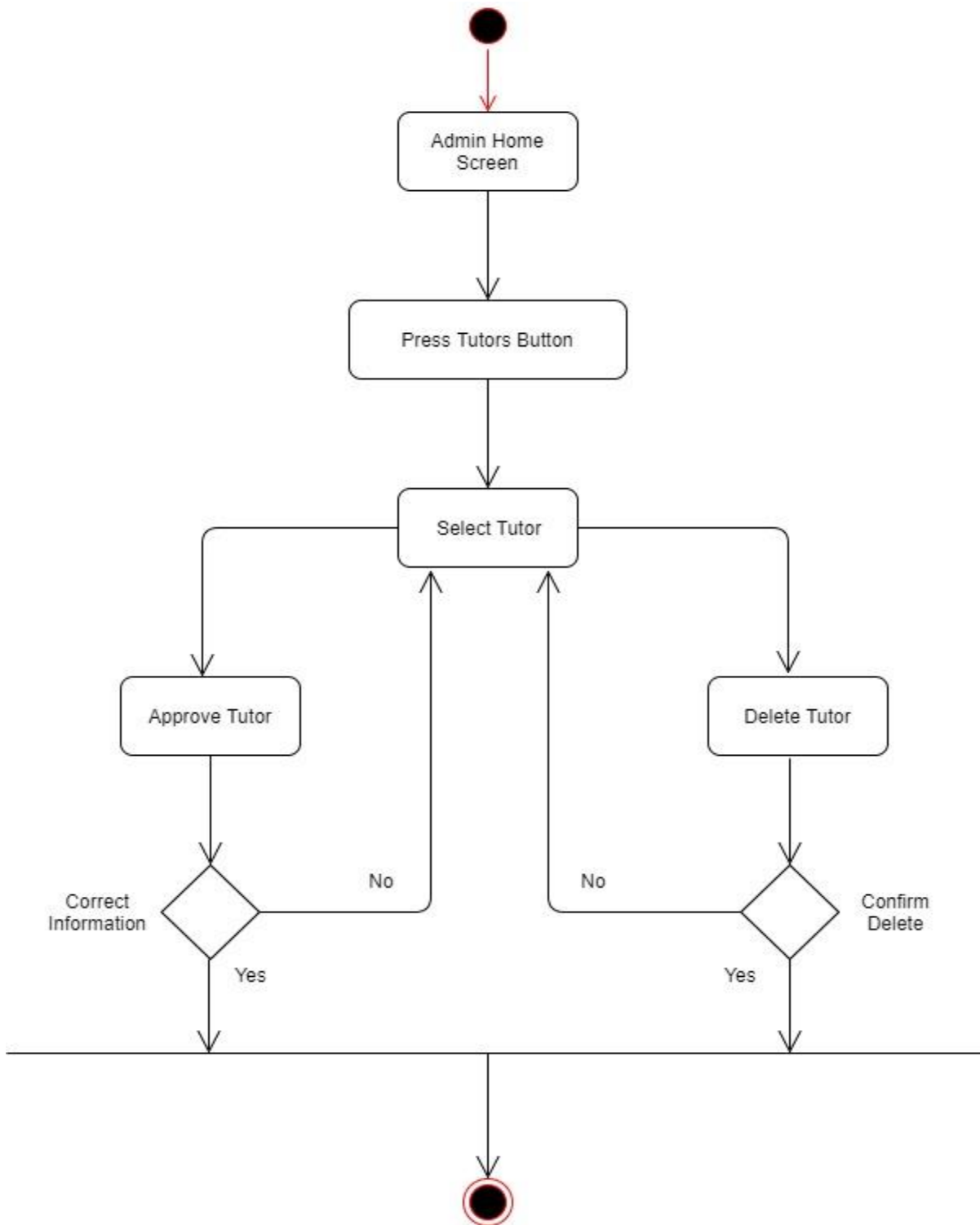


Figure 3. 5 AD (Approve Tutor)

3.5.4 Upload Announcement

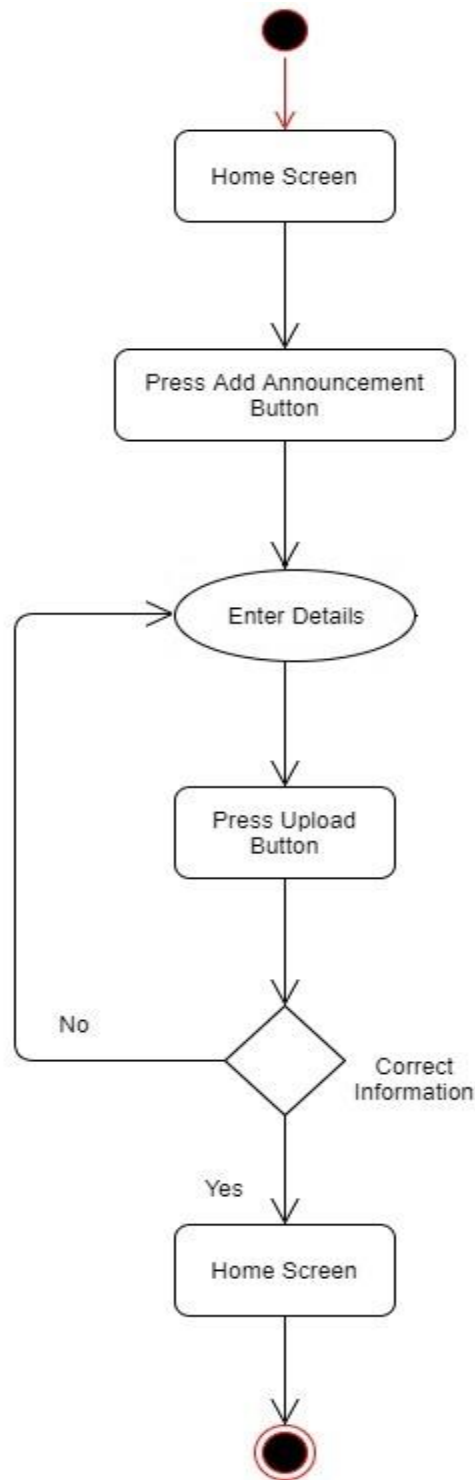


Figure 3. 6 AD (Upload Announcement)

3.5.5 Upload Videos/ Tutorials

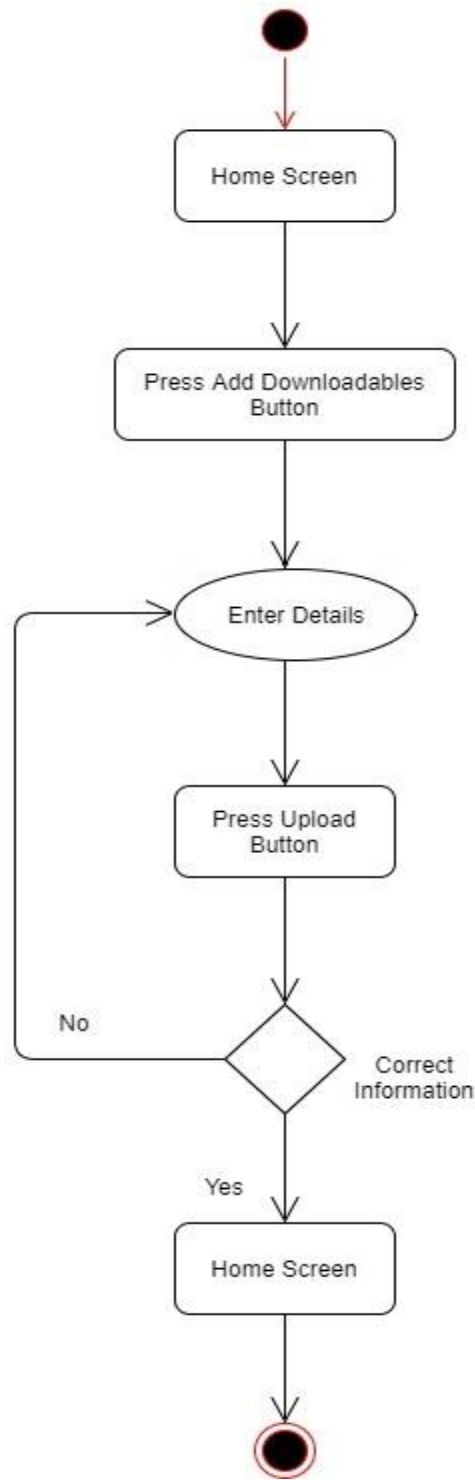


Figure 3. 7 AD (Upload Videos/Tutorials)

3.5.6 Sign Out

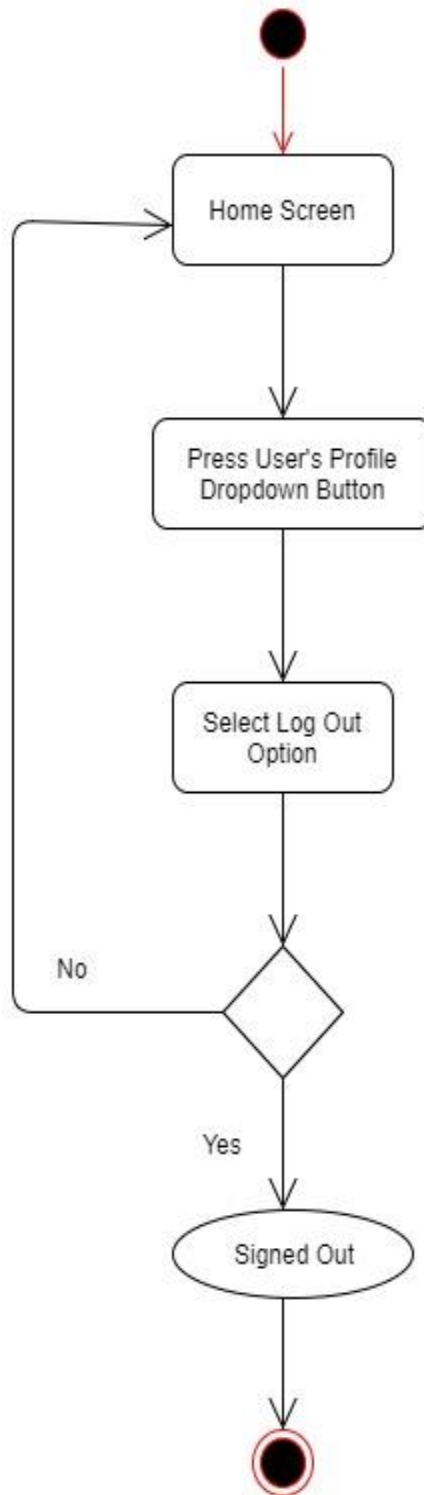


Figure 3. 8 AD (Sign Out)

Chapter 4

Software Implementation

After the design phase, the implementation phase comes. This chapter is related to system implementation. The chapter mentions the tools, framework, platforms and database used to develop the application. In this phase we decide how to implement our design and which techniques to use. At last some interfaces are provided to visualize the application.

4.1 System Definition

System will mainly be composed of two parts

- Database Server
- An Web Application

4.1.1. Database Server

System requires of a Database Server which is used to store all data about tutors, students, announcements, tutorials, online session and other required data in the project.

4.1.2. Web Application

System consists of a web Application which will be used as UI (User Interface). User will be able to access data from server using this web application, and student will search the tutor, apply for tutor and can rate tutor. Tutors will upload announcements and tutorials and can arrange online sessions for students.

4.2 Development Tools

Notepad++

Notepad++ is a text editor and source code editor for use with Microsoft Windows. It supports tabbed editing, which allows working with multiple open files in a single window.

WampServer

WampServer refers to a software stack for the Microsoft Windows operating system, created by Romain Bourdon and consisting of the Apache web server, OpenSSL for SSL support, MySQL database and PHP programming language.

4.2.1. Language Selection

Building a web app comes down to some major languages: PHP, SQL, JavaScript, HTML and CSS. PHP is a widely used open source general purpose scripting language that is especially suited for web development and can be embedded into HTML.

4.2.1.1 PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. Originally created by Rasmus Lerdorf in 1994, the PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive acronym PHP: Hypertext Pre-processor. PHP code may be embedded into HTML code, or it can be used in combination with various web template systems, web content management systems, and web frameworks.

Why PHP?

Following are the main features:

4.2.1.2 Loosely Typed Language

PHP supports variable usage without declaring its data type. It will be taken at the time of the execution based on the type of data it has on its value.

4.2.1.3 Cross Platform Compatibility

It is used to create the desktop application by using advanced PHP features.

4.2.1.4 Variable Variables

PHP allows changing the variable name dynamically by using variable variables.

4.2.1.5 Real-Time Access Monitoring

PHP provides access logging by creating the summary of recent accesses for the user.

4.2.1.6 Error Reporting

It has some predefined error reporting constants to generate a warning or error notice.

4.2.1.7 Traits

PHP is a single inheritance language. The traits concept is used to cover inheritance limitation and support inheritance at multiple levels.

4.3 User Interface Design

4.3.1 Description of User Interface

The interfaces used in this web application are very simple so an ordinary user can also use this application very easily. The elements such as: images, buttons and colours used in this web application are attractive to users. Moreover to make this web application responsive bootstrap is used so it can be used on different devices such as computer, tablet and mobile easily.

4.3.2 Screen Images

4.3.2.1 Sign Up



Figure 4. 1 UI (Sign Up)

4.3.2.2 Sign In



Figure 4. 2 UI (Sign Up)

4.3.2.3 Approve Tutor

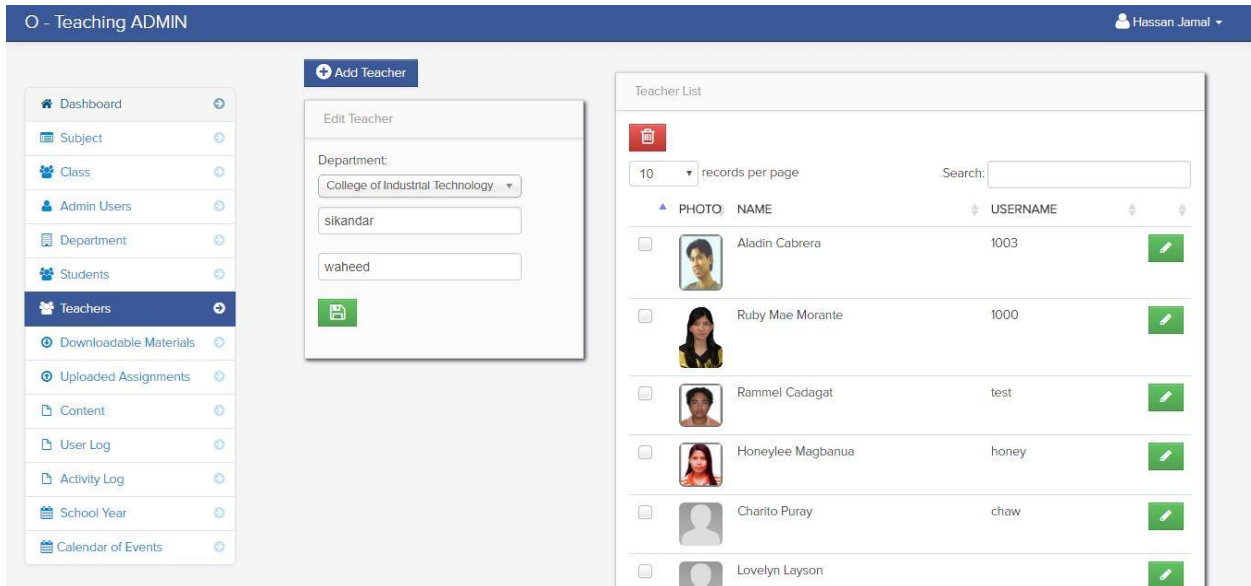


Figure 4. 3 UI (Approve Tutor)

4.3.2.4 Add Student

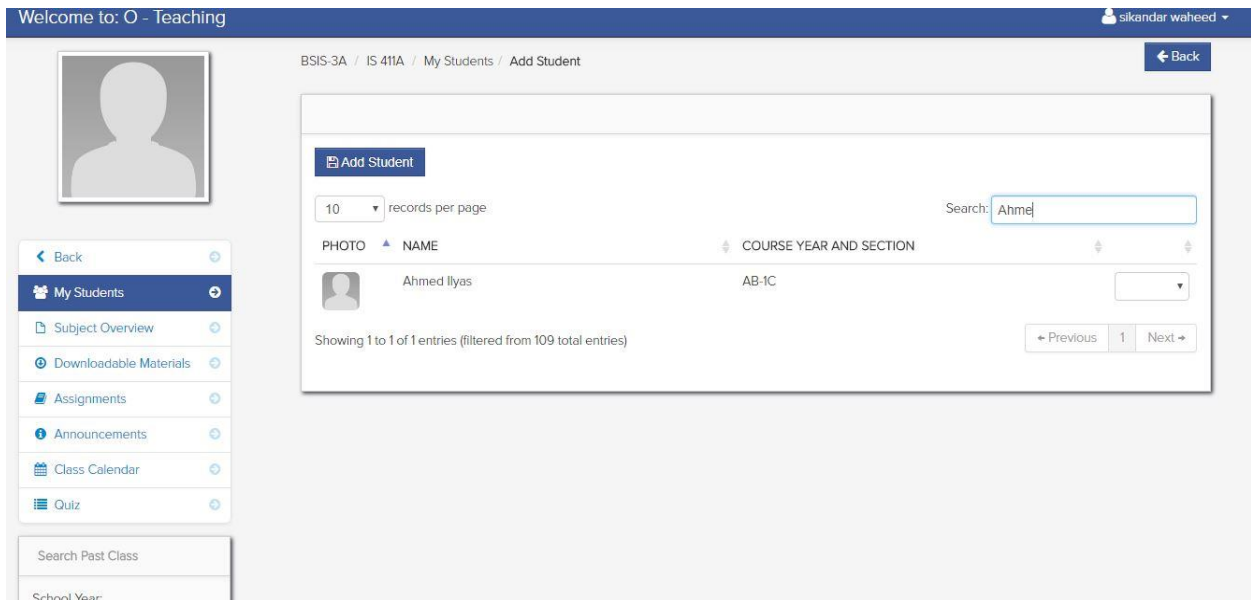


Figure 4.4 UI (Add Student)

4.3.2.5 Search Tutor

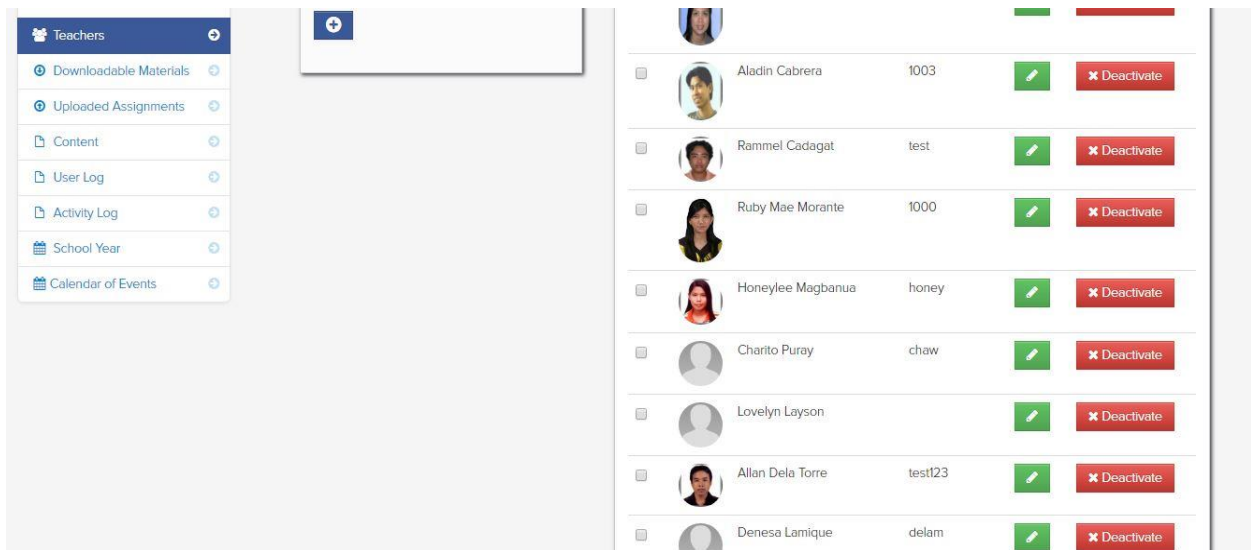


Figure 4.5 UI (Search Tutor)

4.3.2.6 Upload Announcement

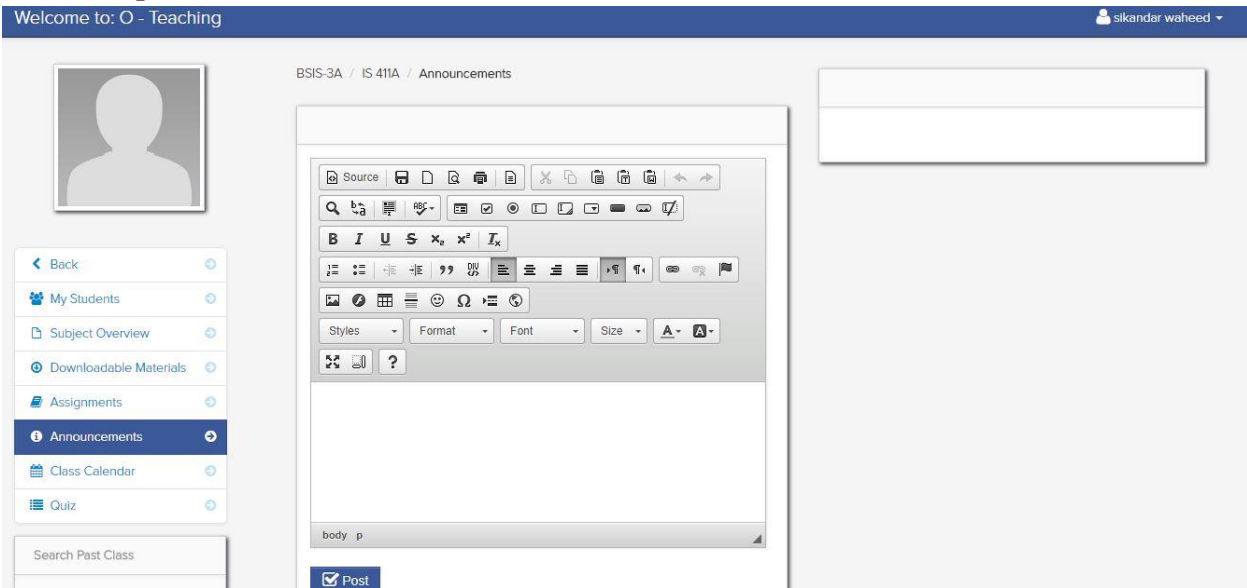


Figure 4. 6 UI (Upload Announcement)

4.3.2.7 Upload Tutorials

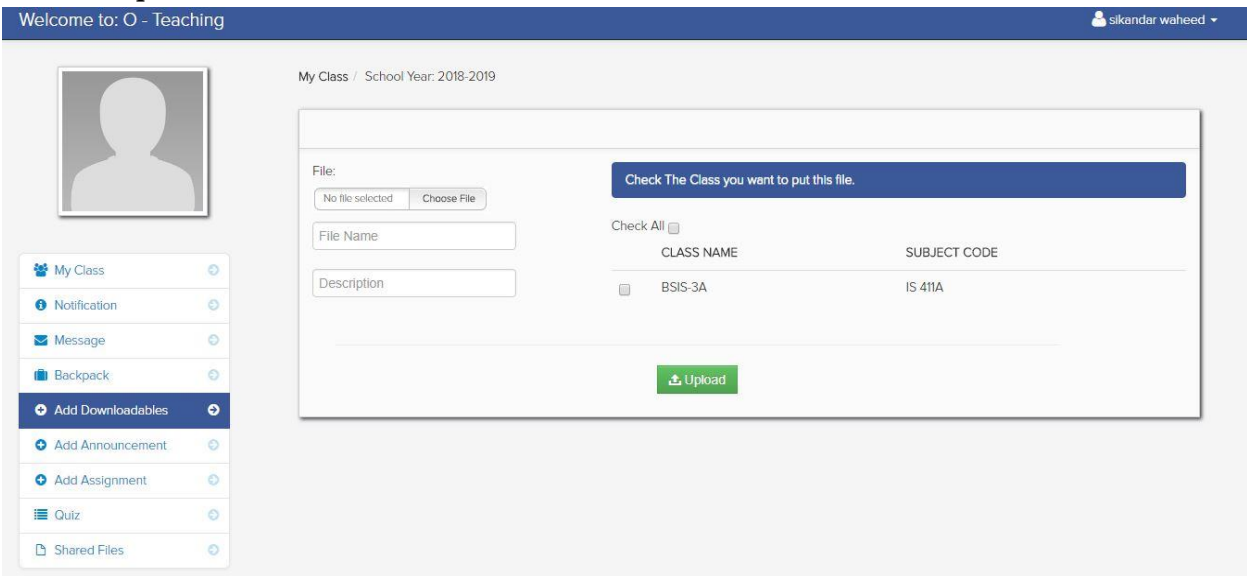


Figure 4. 7 UI (Upload Video/Tutorial)

Chapter 5

Software Test Documentation

Software testing is a process of executing a program or application with the intent of finding the software bugs. It can also be stated as the process of validating and verifying that a software program or application or product: Meets the business and technical requirements that guided its design and development, works as expected and can be implemented with the same characteristic.

5.1 Test Approach

A test approach is the test strategy implementation of a project, defines how testing would be carried out. Test approach has two techniques:

Proactive – An approach in which the test design process is initiated as early as possible in order to find and fix the defects before the build is created.

Reactive - An approach in which the testing is not started until after design and coding are completed [8].

5.2 Test Plan

Test planning, the most important activity to ensure that there is initially a list of tasks and milestones in a baseline plan to track the progress of the project.

5.2.1 Testing Tools and Environment

Black-box testing is a method of software testing that examines the functionality of an application without peering into its internal structures or workings. This method of test can be applied virtually to every level of software testing. It typically comprises most if not all higher level testing, but can also dominate unit testing as well. Specific knowledge of the application's code/ internal structure and programming knowledge in general is not required. The tester is

aware of what the software is supposed to do but is not aware of how it does it. For instance, the tester is aware that a particular input returns a certain, invariable output but is not aware of how the software produces the output in the first place [9].

5.3 Test Cases

Test cases are built around specifications and requirements, i.e., what the application is supposed to do. Test cases are generally derived from external descriptions of the software, including specifications, requirements and design parameters. Although the tests used are primarily functional in nature, non-functional tests may also be used. The test designer selects both valid and invalid inputs and determines the correct output, often with the help of an oracle or a previous result that is known to be good, without any knowledge of the test object's internal structure [10].

5.3.1 Sign Up

ID	T001
Description	Administrator will register user on the system.
Tester	Admin
Setup	Login as an administrator.
Instructions:	<ol style="list-style-type: none"> 1. Select “Register here” option. 2. Enter ID ghazanfar@qau.edu.pk. 3. Enter password “987654”. 4. Enter other details 5. Press sign up button.
Expected Results	User with ID ghazanfar@qau.edu.pk will be registered on system.
Actual Results	User with ID ghazanfar@qau.edu.pk is registered on system.
Verdict	Pass

Table 5. 1 TC (Sign Up)

5.3.2 Sign In

ID	T002
Description	User can sign in to the system.
Tester	User
Setup	Register user with ID hassanjamal7141@gmail.com and

	password 123456.
Instructions	1. Enter ID hassanjamal7141@gmail.com 2. Enter password “123456”. 3. Press login Button.
Expected Results	User with ID hassanjamal7141@gmail.com should be logged in to the system.
Actual Results	User with ID hassanjamal7141@gmail.com was logged in to the system.
Verdict	Pass

Table 5. 2 TC (Sign In)

5.3.3 Approve Tutor

ID	T003
Description	Administrator will approve the tutor.
Tester	Administrator
Setup	1. Login as administrator. 2. Check the requests received from the tutor who has applied.
Instructions	1. Login as administrator. 2. Check the requests of applied tutors. 3. Verify the given details. 4. Approve the tutor.
Expected Results	Tutor will be approved.
Actual Results	Tutor was approved.
Verdict	Pass

Table 5. 3 TC (Approve Tutor)

5.3.4 Apply for Tutor

ID	T004
Description	Apply for tutor.
Tester	Student
Setup	1. Login as student. 2. Apply for the tutor from the given list.

Instructions	<ol style="list-style-type: none"> 1. Login as student. 2. Search for the tutor. 3. Select a tutor. 4. Press apply button.
Expected Results	Student should applied for a tutor.
Actual Results	Student has applied for a tutor.
Verdict	Pass

Table 5. 4 TC (Apply for Tutor)

5.3.5 Rate Tutor

ID	T005
Description	Rate the tutor.
Tester	Student
Setup	<ol style="list-style-type: none"> 1. Login as student. 2. Rate the tutor.
Instructions	<ol style="list-style-type: none"> 1. Login as student. 2. Select the tutor's profile. 4. Select the rating stars.
Expected Results	Tutor will be rated.
Actual Results	Tutor was rated.
Verdict	Pass

Table 5. 5 TC (Rate Tutor)

5.3.6 Search Tutor

ID	T006
Description	Search the tutor.
Tester	Student
Setup	<ol style="list-style-type: none"> 1. Login as student. 2. Search a tutor from the given list.
Instructions	<ol style="list-style-type: none"> 1. Login as student.

	<ol style="list-style-type: none"> 2. Select a course. 4. Check for the high rated tutor. 4. Select a tutor.
Expected Results	Tutor will be searched.
Actual Results	Tutor was searched.
Verdict	Pass

Table 5. 6 TC (Search Tutor)

5.3.7 Upload Announcement

ID	T007
Description	Announcement will be uploaded on the system.
Tester	Tutor
Setup	<ol style="list-style-type: none"> 1. Login as tutor 2. Upload announcement for student.
Instructions	<ol style="list-style-type: none"> 1. Login as tutor. 2. Open the announcement portal. 3. Select upload announcement option. 4. Open and fill the form. 5. Press upload button.
Expected Results	Announcement will be submitted.
Actual Results	Announcement was submitted.
Verdict	Pass

Table 5. 7 TC (Upload Announcement)

5.3.8 Upload Videos/Tutorials

ID	T008
Description	Tutorial will be uploaded on the system.
Tester	Tutor
Setup	<ol style="list-style-type: none"> 1. Login as tutor. 2. Upload video or tutorial.
Instructions	<ol style="list-style-type: none"> 1. Login as tutor.

	<ol style="list-style-type: none"> 2. Open the tutorial portal. 3. Select upload tutorial option. 4. Browse a video from the system. 5. Press upload button.
Expected Results	Tutorial will be uploaded.
Actual Results	Tutorial was uploaded.
Verdict	Pass

Table 5. 8 TC (Upload Video/Tutorial)

5.3.9 Arrange Online Sessions

ID	T009
Description	Online session will be arranged for the students.
Tester	Tutor
Setup	<ol style="list-style-type: none"> 1. Login as tutor. 2. Arrange online session for students.
Instructions:	<ol style="list-style-type: none"> 1. Login as tutor. 2. Open the session portal. 3. Select online session option. 4. Start a live conference call.
Expected Results	Online session will be arranged.
Actual Results	Online session was arranged.
Verdict	Pass

Table 5. 9 TC (Arrange Online Session)

Chapter 6

Conclusion and Future Enhancement

After the completion of design and implementation the chapter of Conclusion and Future Enhancement comes. This chapter is providing the conclusion of product (developed system) and it is also in this chapter it is discussed about the future enhancement can be made in product.

6.1 Conclusion

The name of developed product is Online Teaching Management System which is a web based application. This web application is containing different modules such as: Announcements, Tutorials/Downloadable and Online Sessions.

The problem definition is the Students are facing difficulties in finding Tutors for the respective courses, they want to continue at home or by studying online. Also, those students if find any of the Tutor, these Tutors cannot join these students because of the Distance Problem and the fee structure proposed, so rarely Tutors can join them. The tutors did not have any platform where they could upload their expertise and their qualifications. There is no online source for the tutors to upload their detailed qualifications and basic information's. So, the students have to wander here and there to find the Tutors for their respective fields. The tutors and the students both are not satisfied because there is not any valuable source from which they can avail their desired facilities.

The proposed solution regarding to this problem definition is that this is a web based system that allows users to avail different facilities on a single platform. The main components of this system are: Users such as Tutors and Students can properly upload their Academic Information's. The tutors will registered themselves to become the Members to upload their qualifications and the desired students can search them. Students can find best available Tutors located in their areas with fair fee structures. Tutors who are the Users are able to search the jobs easily. Tutors are able to find and add the Students who want to join them in the nearest possible areas. The tutors also can upload the lectures or tutorials for the Students who have missed the lecture or cannot join the online session due to some reason. Students can also apply for a desired Tutor and also they have to upload information about their subjects or classes. Besides all these, Students can

upload their feedbacks about the Tutors by which the Tutor have been ranked in the respective areas of subjects.

Also this system has defined scope which is, this web-based application provides a platform for the tutors in which the tutors can upload their qualifications and expertise. Students can search the tutors for the respective subjects or fields. Tutor has to upload basic information about themselves. Students can also find the Tutors for their respective subjects. Student also have to upload information about their subjects or classes. An Admin can control the flow of website. Students can upload their feedbacks about the tutors by which the tutors have been ranked in the respective areas of subjects.

This system is developed using PHP programming language, SQL server is used for database and Notepad++ is being used to implement PHP. This system is purely web based and can be accessed from anywhere using web browser. Interfaces are user friendly and are responsive so user from different devices (laptop, mobile, tablets) can use this system easily.

6.2 Future Enhancement

The different future enhancements which can be made in future for this system were.

- **Online Examination (Midterm, Terminal Exams)**
- **Online Result Submission.**

References

- [1] P. Mohapatra, Software Requirement Specifications Software Engineering A lifecycle approach.
- [2] https://en.wikipedia.org/wiki/Systems_design#cite_note-1 (retrieved on December 2016)
- [3] <http://www.ofnisystems.com/services/validation/traceability-matrix/> (retrieved on January 2017)
- [4] https://www.tutorialspoint.com/struts_2/basic_mvc_architecture.htm (retrieved on February 2017)
- [5] https://en.wikipedia.org/wiki/Model%E2%80%93view%E2%80%93presenter#cite_note-1 (retrieved on April 2017)
- [6] Chapter 10, Based on Craig Larman, and Anuradha Dharani's notes
- [7] <https://www.techopedia.com/definition/27489/activity-diagram> (retrieved on January 2018)
- [8] https://www.tutorialspoint.com/software_testing_dictionary/test_approach.htm (retrieved on May 2017)
- [9] Patton, Ron (2005). *Software Testing* (2nd Ed.). Indianapolis: Sams Publishing
- [10] https://en.wikipedia.org/wiki/Test_case (retrieved on May 2017)