E-School System

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2021

Declaration

We declare that this thesis is our own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

Name of Student (s) Signature of Student (s)

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Maduranga D V S
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Date:

Dedication

We humbly dedicate this project to the enhancement of School Students in from grade 6 to grade 11 and Teachers.

We believe this project usable for students who are aim to develop their knowledge that is worthy of in the counting implementation of subject matters in school syllabus and teachers who are willing to share their knowledge among others.

We finally dedicate this project to; our families whose untiring support and assistance have made possible the fruition of our efforts and our friends for their cooperation while conducting the study.

Acknowledgements

We would like to express our first special thanks of gratitude to our supervisor Mr: Chaman Wijesiriwardane, who gave us golden support to do this project.
Secondly we would like to thank our mentor Mr: S. Hettihewa, who gave this project us on “Nanasala – Kalawana”.
Next to him are our parents, whom we are greatly indebted for us brought up with love and encourage to this stage.
In addition to, our friends who helped us a lot in finalizing this project within the limited time frame.
We have no valuable words to express our thanks, but our heart is still full of the favors received from every person.

Abstract

"E-School System" is one step further from Smart School since it provides cloud based user-friendly, powerful features to boost the school operations, enhance student efficiency. Next step is to automate the examination process along with a problem-based learning system. It would provide a good exposure for students to the world of problem-based learning in an interactive way. Even though the requirement is in E-School System, we think that such a platform will be useful to any student. To fulfill that, we decided to provide a platform which is public but having access control for those who are willing to keep their materials visible only for their institute.

A registered user has a role of teacher or student and have different facilities. Another user is the admin who can maintain and handle the system. Students of grade 6 to grade 11 to will have access to get papers, quizzes and also get support from the community. Video lessons have become a buzz in these days and paid users will have access for them too.

Mobile application will be provided for both iOS and android to watch videos, attempt quizzes and other basic functions.

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Chapter 1

Introduction

1.1 Introduction

This “E-School System” mainly focuses on student’s convenience and time. Even there are many tuition classes in the country, many of classes are not based on questions papers. Therefore we try to refer students to a problem-based education system through this project. In additionally, this system provides videos for subjects and grades separately and details about teachers. Therefore, parents can find teachers for their children.

Even though there are some educational systems in the country, the lack of connection between students and teachers leads to unsuccessful learning teaching system. Hence, a way to communicate with students, facility to teachers to post their availability to conduct classes are some mainly focused requirements. User friendly system may help students to achieve their goals.

Background and motivation

As a list, here is the major importance of creating this platform.

- Reduce the time wastage of students.
- Ability to post teacher’s posts to correct audience.
- Ability to find solutions for most of educational problems.
- Provide day counter for student’s exam.
- Easily accessible video lessons and papers for students
- A community to discuss and solve student’s questions

Current education process wastes time of both the student and the examiner. This system provides a good way to learn for students. It can use at anytime, anywhere as student’s convenient.

1.2 Problem in Brief

- Although many people in an innovative society prefer an online education system, it is difficult to find the right one for it.
- Current education process wastes time of students and is not effective or efficient for a complete learning cycle of a student.
- Although there are many forms of self-studying for students in higher education, it is difficult to find right ways for school children for learning.

1.3 Aim and Objectives

1.3.1. Aim

The aim of this project is providing an efficient and effective solution to be integrated with E-School System for better education and learning process.

1.3.2. Objectives

To achieve the above aim, the following objectives will be achieved.

- Analyzing all the requirements and Designing the Web portal and the Mobile applications.
- Developing basic functionalities: question uploading, answering, marking, discussion part and etc.
- Update number of remaining days for exams.
- Periodically updating papers by admin panel.

1.4 Proposed Solution

After considering all those issues regarding educational institutes and their clients; students, we propose a “Student Management System” which is capable to give solutions for the problems that occur to stakeholders of an educational institute.

- Advertisement box
- Profiles of teacher and student
- Count-down for examinations
- Ask question box(Comment Area)
- Question paper 6-11 students (Online MCQ, Model & Past papers)
- Video of the subject's lessons
- Developed mobile application for this E-School system

For all Students

- Attempt online quizzes
- View papers
- View video lesson by a payment
- Post questions and comments

For all Teachers

- upload the course materials
- View learning materials
- Answers the students questions
- Post their information to get private classes

For Admin

- Add new items (papers, videos)
- Add new admins
- Approve advertisements, video access
- Manage teacher's advertisements, commercial advertisements, comments and etc.

1.5 Summary

This chapter provides a brief description about our project. In the next chapter we will describe about the existing system like our system.

Chapter 2

Technology Adapted

2.1 Introduction

This is about what are the technologies we used in our project and why those are appropriate to solve the problem. When choosing suitable technologies we consider about compatibility, flexibility and processing speed.

2.2 Angular

Angular is a JavaScript open source front-end framework that is mainly used to develop single page web applications. It is a continuously growing and expanding framework which provides better ways for developing web applications. It changes the static HTML to dynamic HTML. It is an open source project which can be freely used and changed by anyone. It extends HTML attributes with Directives, and data is banded with HTML.

2.3 Nodejs

Node.js is a server-side platform built on Google Chrome's JavaScript Engine. Node.js was developed by Ryan Dahl in 2009 and its latest version is v0.10.36. Node.js is an open source, cross-platform runtime environment for developing server-side and networking applications. Node.js applications are written in JavaScript, and can be run within the Node.js runtime on OS X, Microsoft Windows, and Linux.

2.4 Express

Express.js is a web application framework for Node.js. It provides various features that make web application development fast and easy which otherwise takes more time using only Node.js.

Express.js is based on the Node.js middleware module called connect which in turn uses http module. So, any middleware which is based on connect will also work with Express.js.

2.5 MongoDB

MongoDB is a NoSQL database which stores the data in form of key-value pairs. It is an **Open Source**, **Document Database** which provides high performance and scalability along with data modeling and data management of huge sets of data in an enterprise application.

MongoDB also provides the feature of Auto-Scaling. Since, MongoDB is a cross platform database and can be installed across different platforms like Windows, Linux etc.

2.6 Ionic

Ionic is an advanced HTML5 hybrid mobile application framework. A big advantage of using Ionic is that the code base remains the same for all mobile platforms and the UI/UX looks like a native mobile platform. Ionic is several technologies that are neatly bundled and managed together. Ionic as a stack of several frameworks

Chapter 3

Approach

3.1 Introduction

We are developing the software system using the technologies mentioned above. The system contains several functional sections. Those are user login/authentication, post questions, comment area, view/download papers, view video lessons by a payment, admin panel, teacher's advertisement section, other paid advertisement section, MCQ questions/answers section and exam day reminder section. Each section and description for those are described in this chapter.

3.2 System Description

- User Login/Authentication

This section provides login and signing up facility for users. If the user is new (s)he needs to sign up by filling a form. A new user has the capability of viewing /downloading papers, access lesson videos by a payment, post questions in discussion panel and add teachers advertisements if the user is registered as a teacher.
If the user forgot the password (s)he can get their password to their email address. An user can view their own profile and can edit any of their information.

- **Post Questions/Comments**

Anyone can post questions in the discussion panel, edit their posts. Those posts can be viewed by both registered and unregistered users but only registered users can add comments and edit or delete their own comments on those posts in discussion panel. Those posts will be organized by date of publish.

- View/Download Papers

A registered user can view/download papers for each subject in each grade. If the user is a teacher, (s)he can upload or update papers. User can search for particular paper by the subject.

- View Video Lessons

In this section, video lessons and tutorials will be available for each subject. A registered user can access these lessons by a payment through online. If the user is a teacher, (s) he can upload video lessons to this section. User can search for particular video by the subject.

- Admin Panel

In the login section admins can log in by switching login to admin login. Once an admin is logged in, dashboard will be appeared. Admin panel has capabilities of registering new admins, approving advertisements, approving video access for users, remove/delete papers and videos, upload papers and videos and remove unwanted comments, teacher's advertisements, inbox messages.

- Teacher's Advertisement Section

If the registered user is a teacher, (s) he can post an advertisement about tuition classes. These advertisements will be categorized by area, type of class (common/individual), subject and grade. All registered and unregistered users can view these advertisements and they can search for a particular class by the area with the search tab provided.

- Paid advertisement Section

All registered and unregistered users can view commercial advertisements that are available in the home page. These advertisements will be changed and presented like a slide show in the home page. These will be automatically deleted at the date set by the admin.

- Exam day Reminder Section

A registered user can add their upcoming exam date to this section. Then the system will notify the remaining days and time to that particular user every time they register. And they can edit and update it

3.3 Summary

In this chapter we described about the solution we made with the reference to users, inputs, outputs, process.

Analysis and Design

4.1 Introduction

Once we started developing the solution we designed the UML diagrams for the system to understand the basic and non-basic needs, understand the most appropriate software process model, create the most effective plan and reduce the risks that occur when developing a web application.

4.2 Requirements

4.2.1 Functional requirements

- Students, Teachers and Admin should be able to login to the system.
- Admin should be able to register a new admin.
- Admin should be able to approve payments, advertisements, and videos.
- Students and Teachers can comment.
- Admin can check comments and remove not suitable comments.
- Students can download papers and videos.
- Admin can view user's profiles.

4.2.2 Non-functional requirements

- User friendly interface.
- Good security system.
- Less time to loading and performing tasks.

4.3 System Diagrams

4.3.1 ER diagram

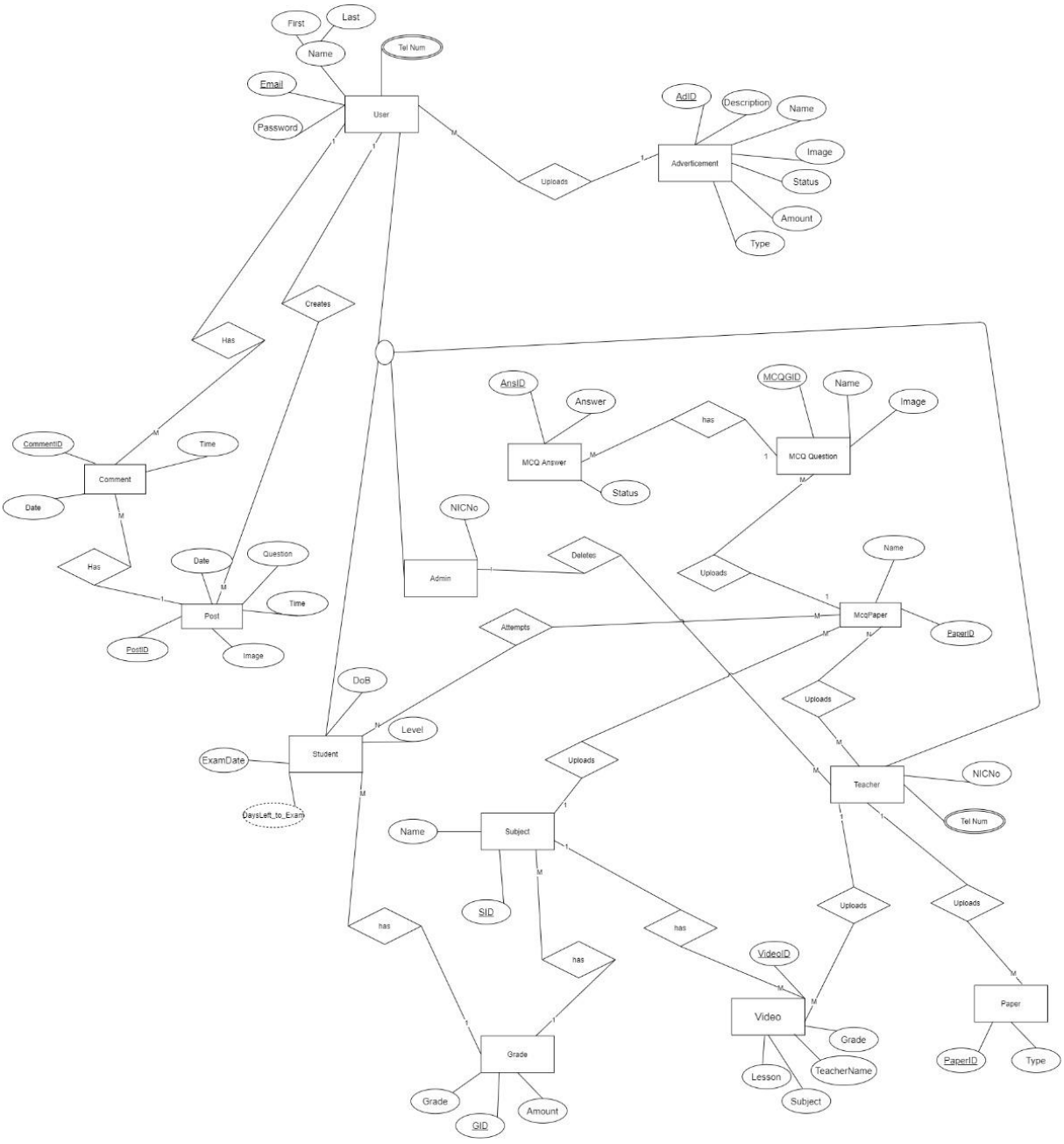

Figure 5.1

4.3.2 Use case Diagram

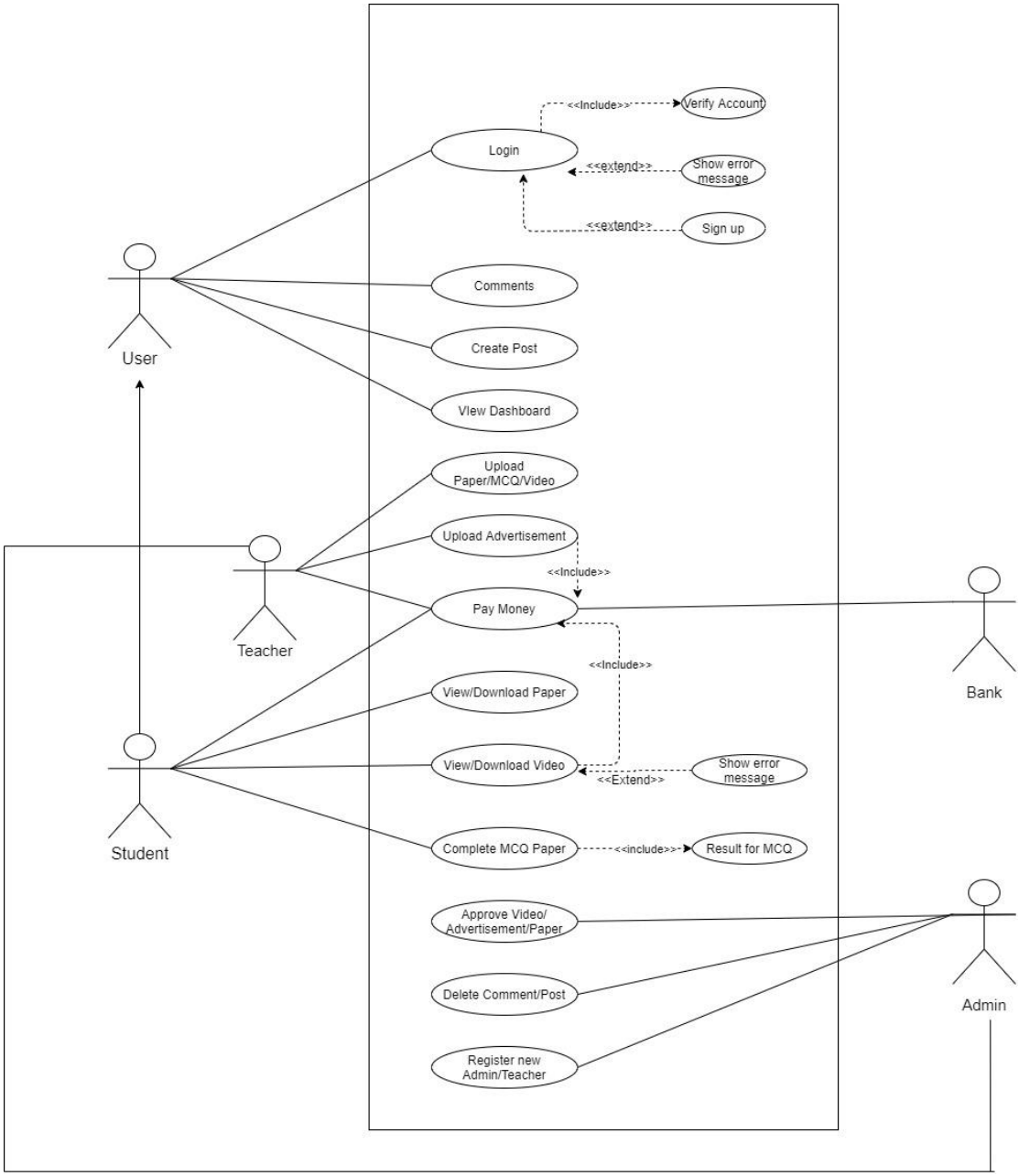
Verify Account
<<Include>>
Login
<<extend>>
Show error message
<<extend>>
Sign up
User
Comments
Create Post
View Dashboard
Upload Paper/MCQ/Video
Upload Advertisement
<<Include>>
Teacher
Pay Money
Bank
<<Include>>
View/Download Paper
View/Download Video
<<Extend>>
Show error message
Student
Complete MCQ Paper
<<include>>
Result for MCQ
Approve Video/ Advertisement/Paper
Delete Comment/Post
Register new Admin/Teacher
Admin

Figure 5.2

4.3.3 Class Diagram

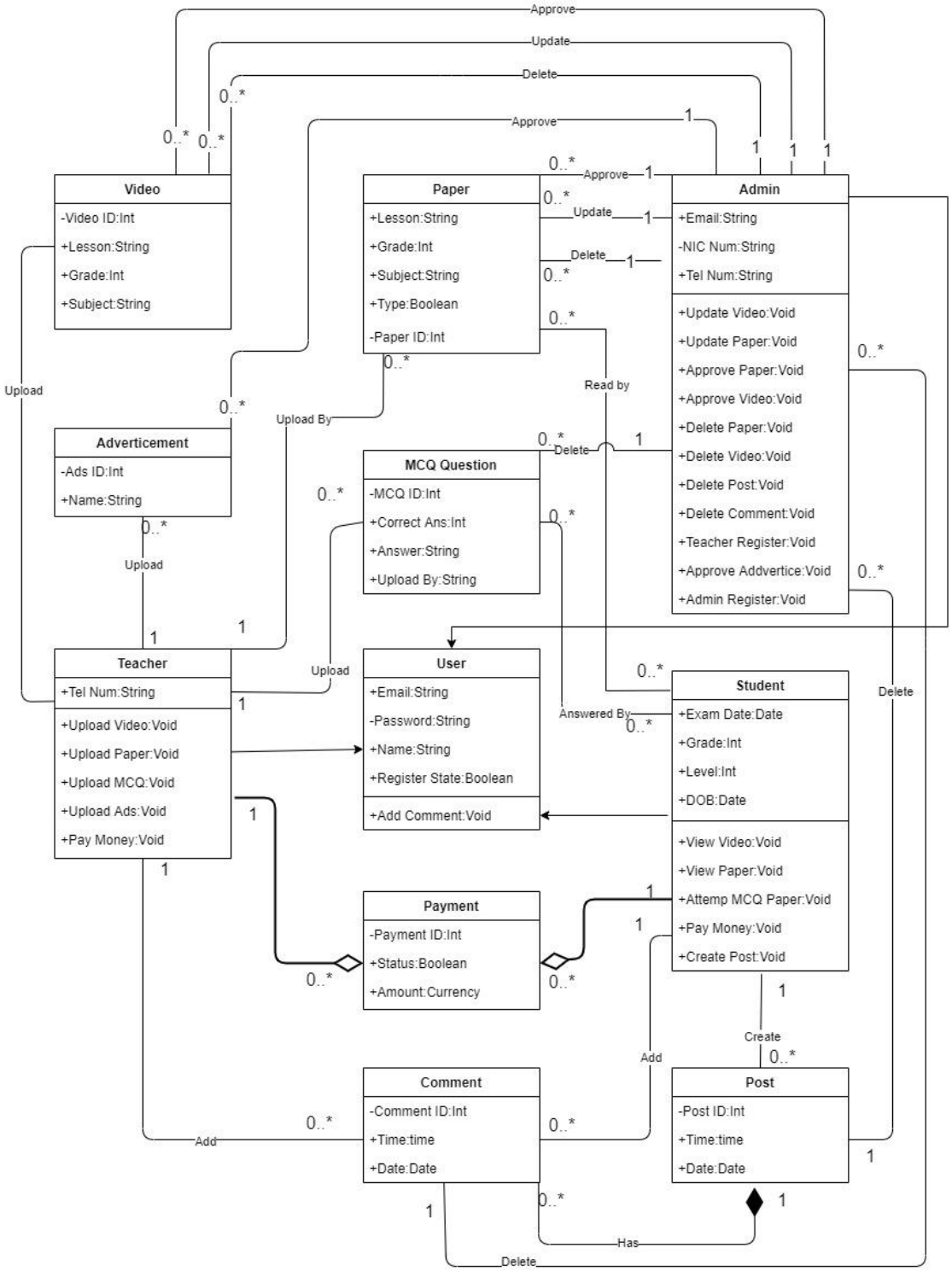

Figure 5.3

4.3.4 Activity Diagrams

Activity Diagram for User Login

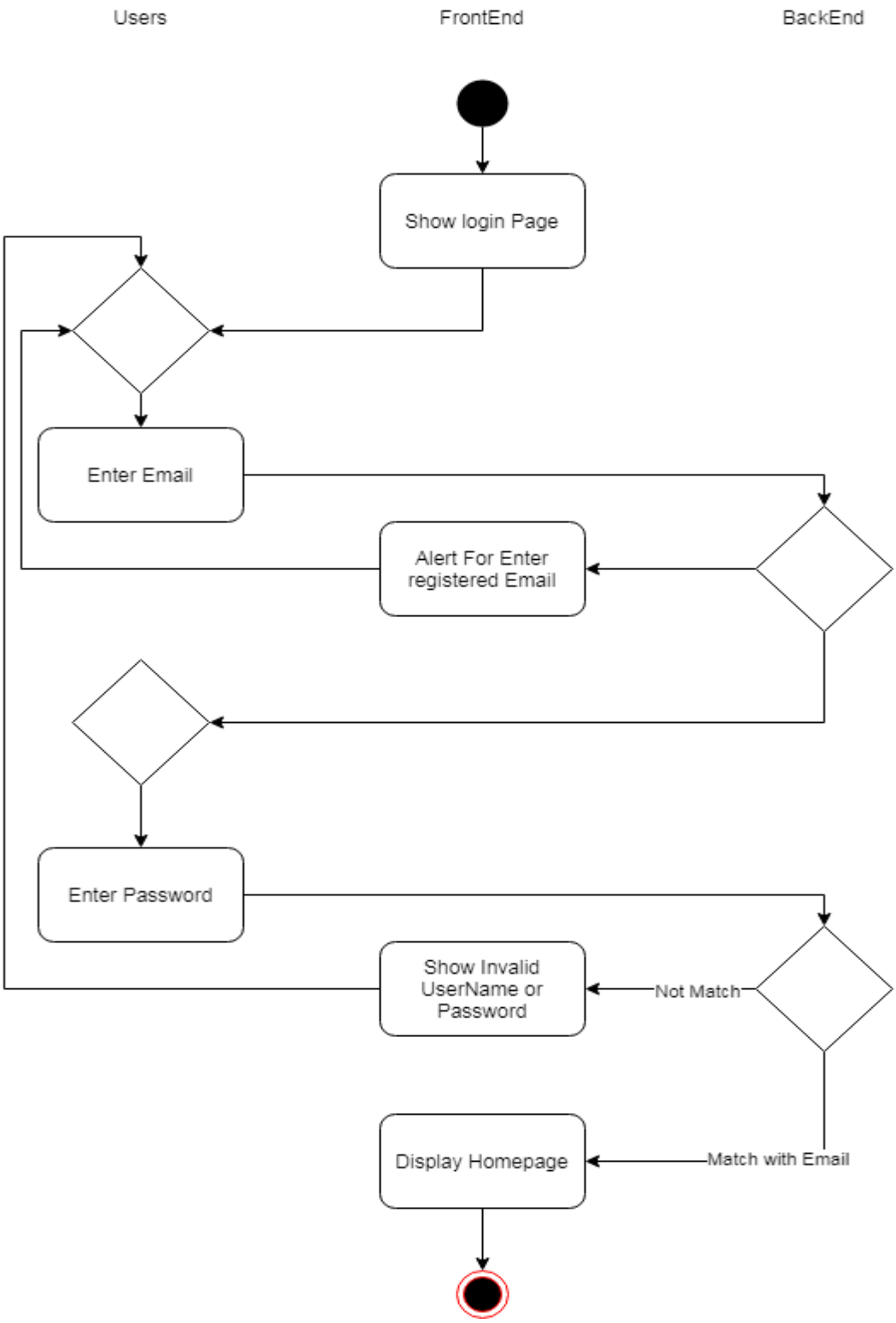

Figure 5.4

Activity Diagram for Student Registration

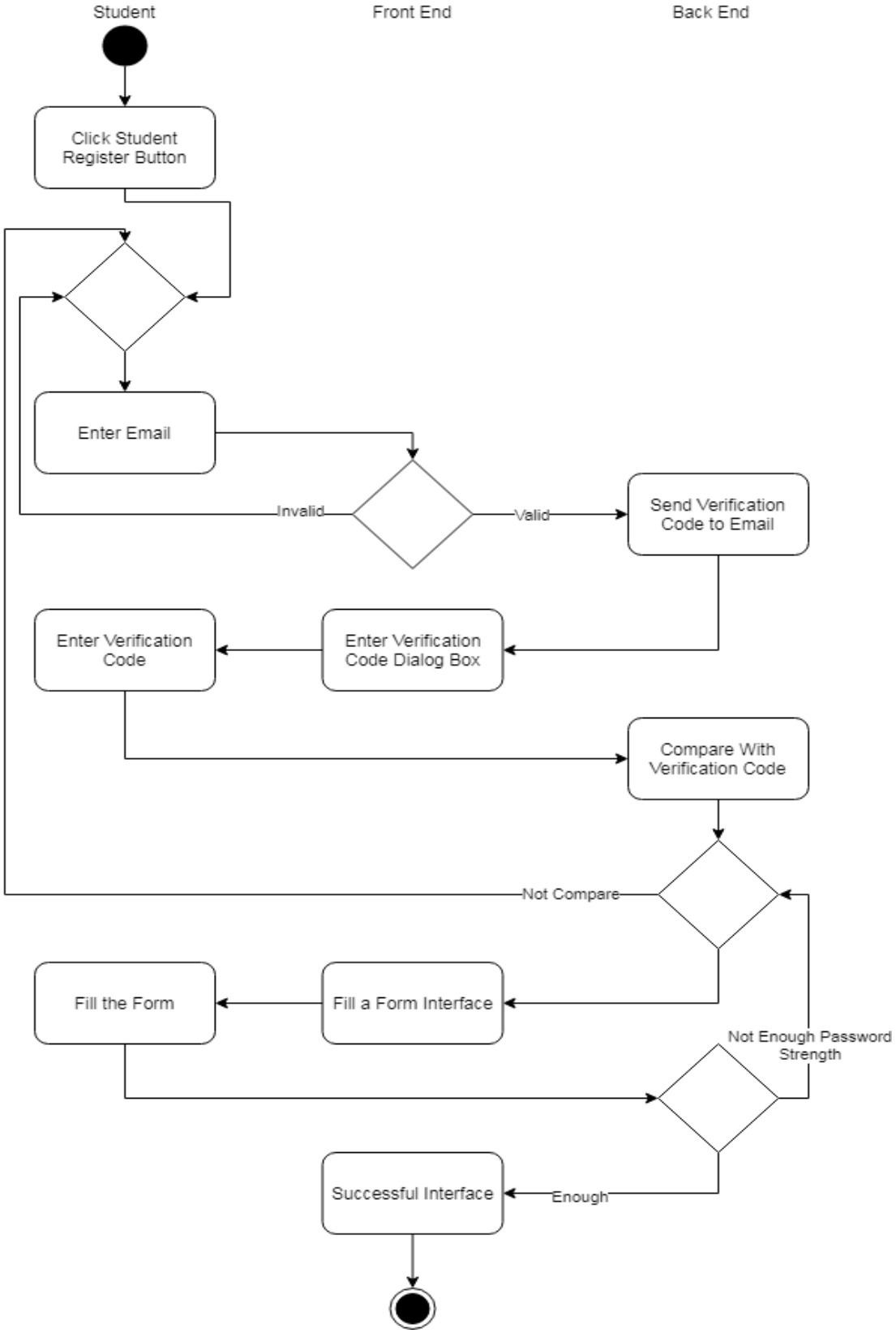

Figure 5.5

Activity Diagram for Teacher Registration

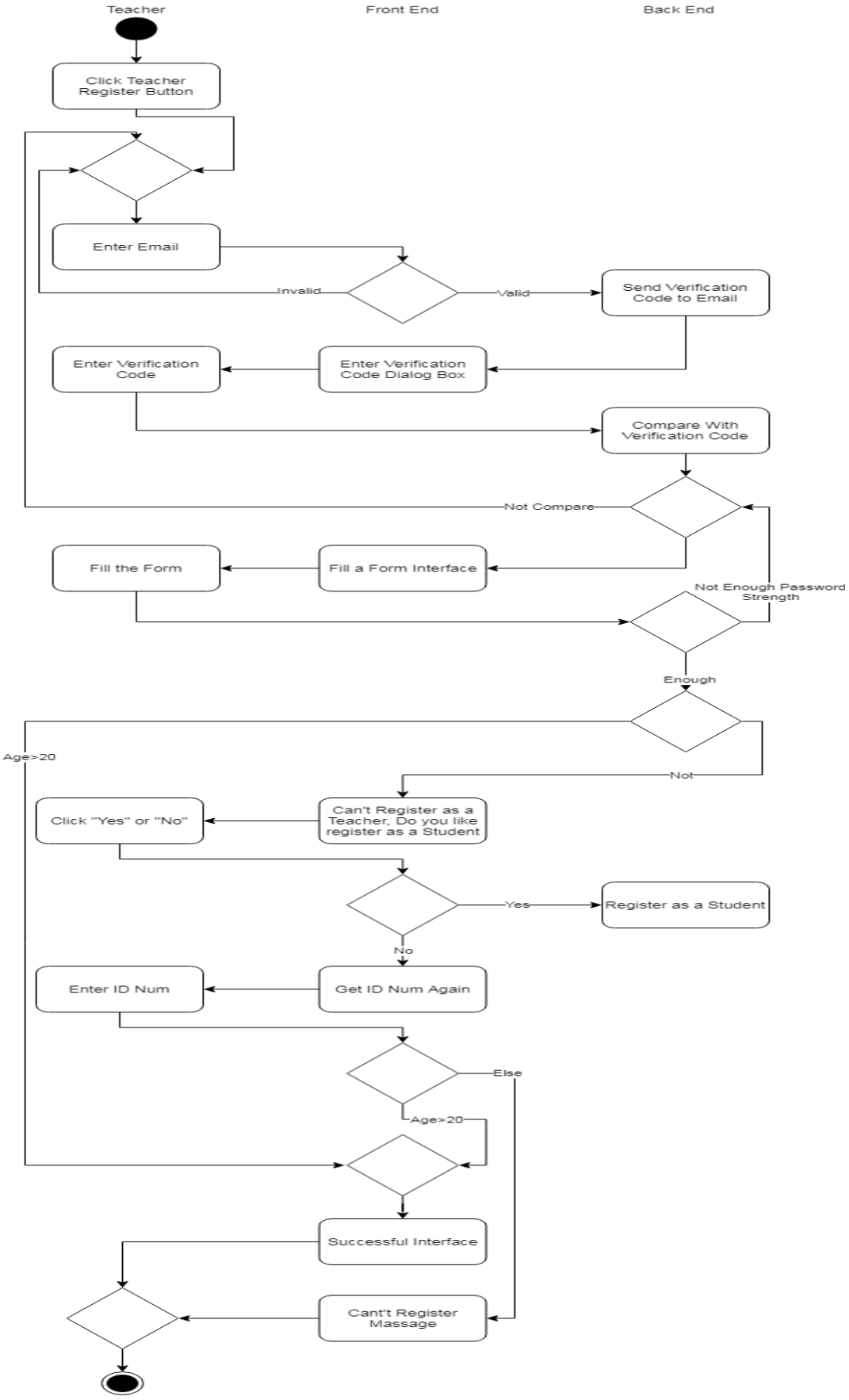

Figure 5.6

Activity Diagram for Teacher's Advertisement

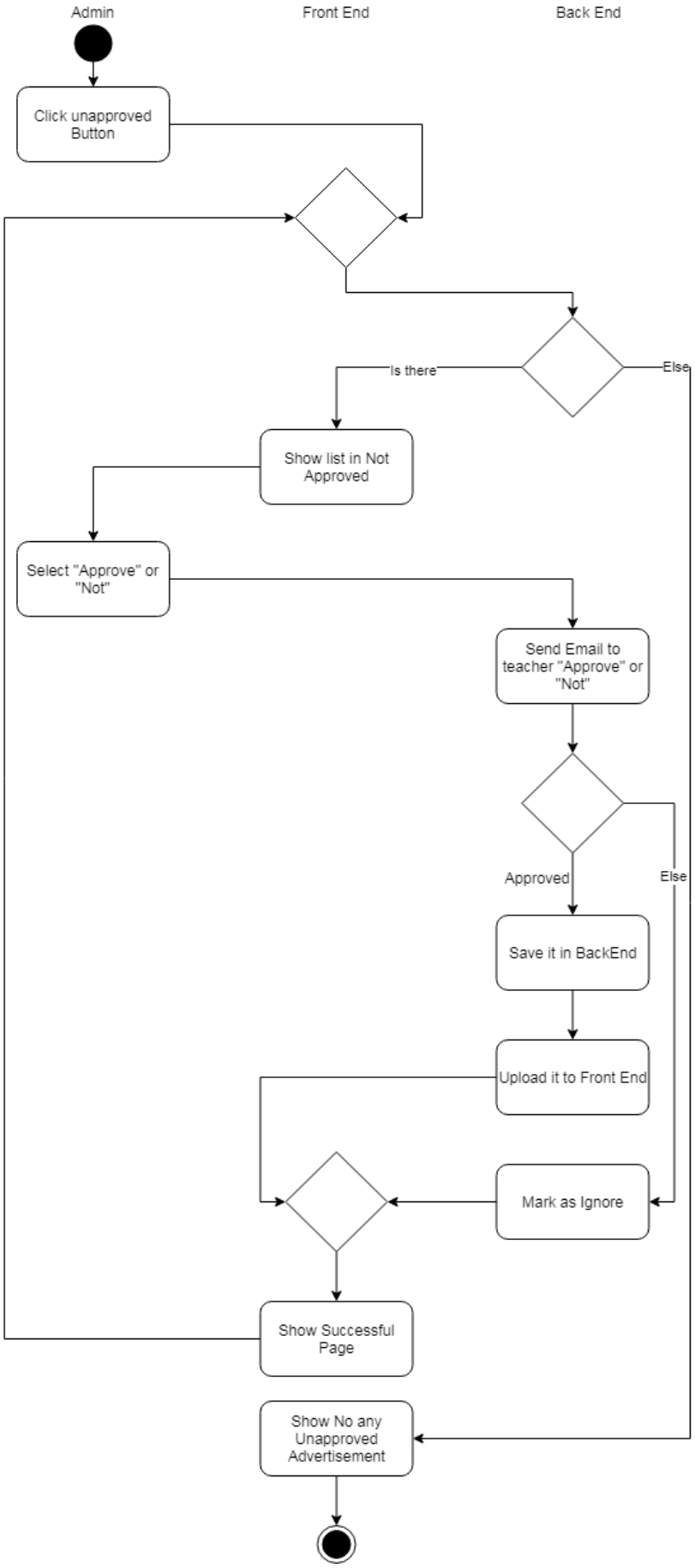

Figure 5.7

Activity Diagram for Delete Chat

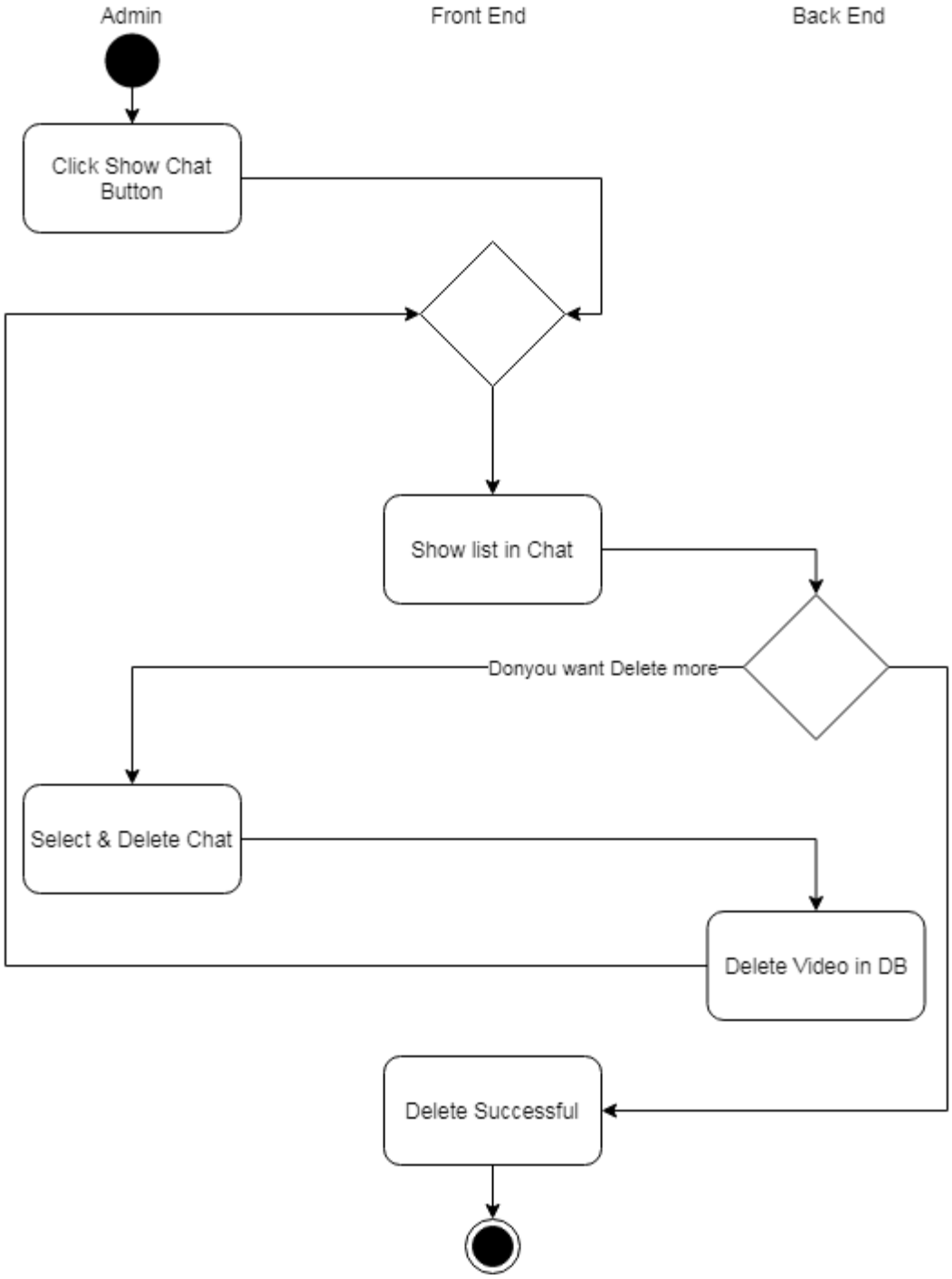

Figure 5.8

Activity Diagram for Delete Paper

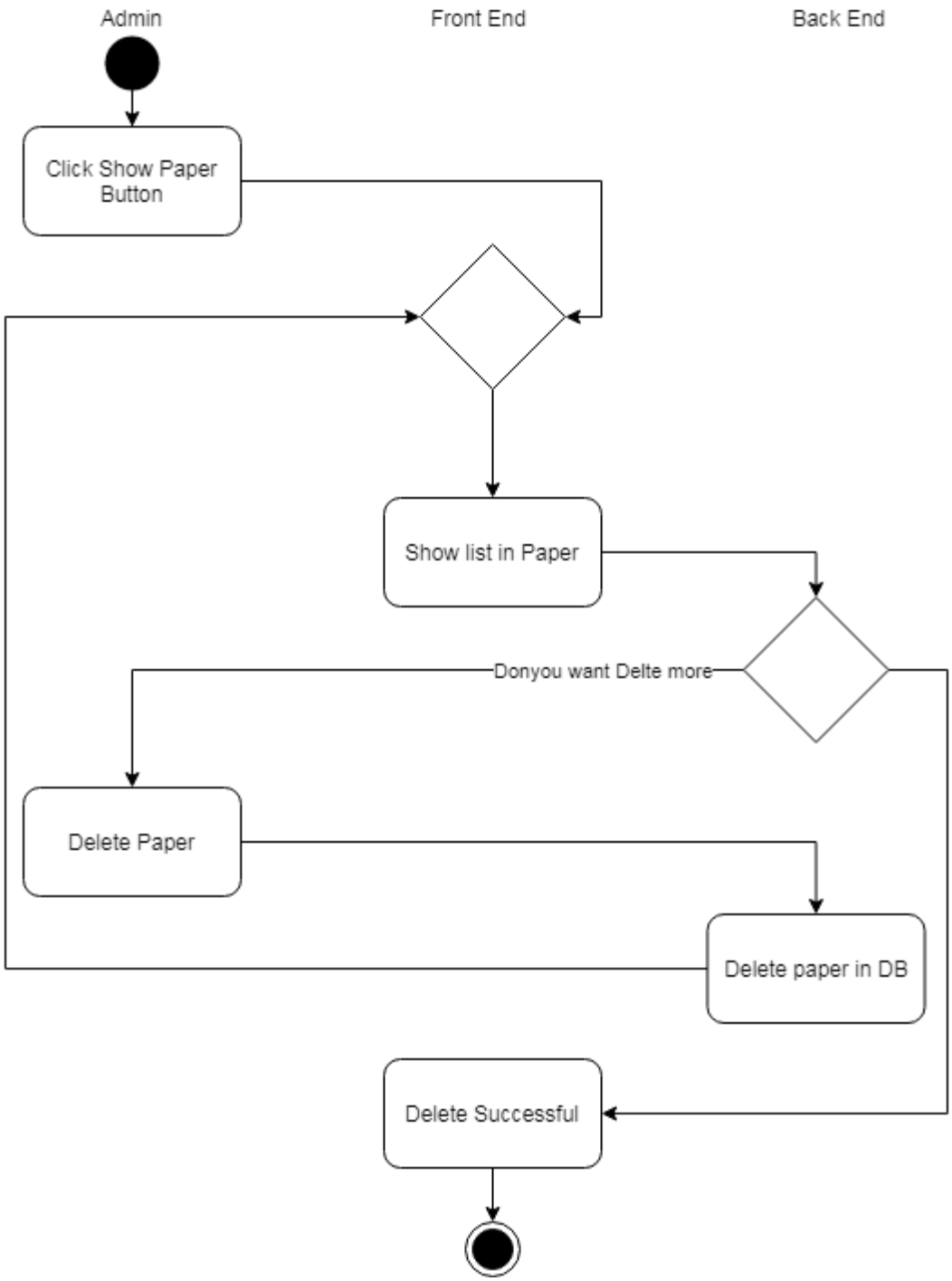

Figure 5.9

Activity Diagram for Delete Video

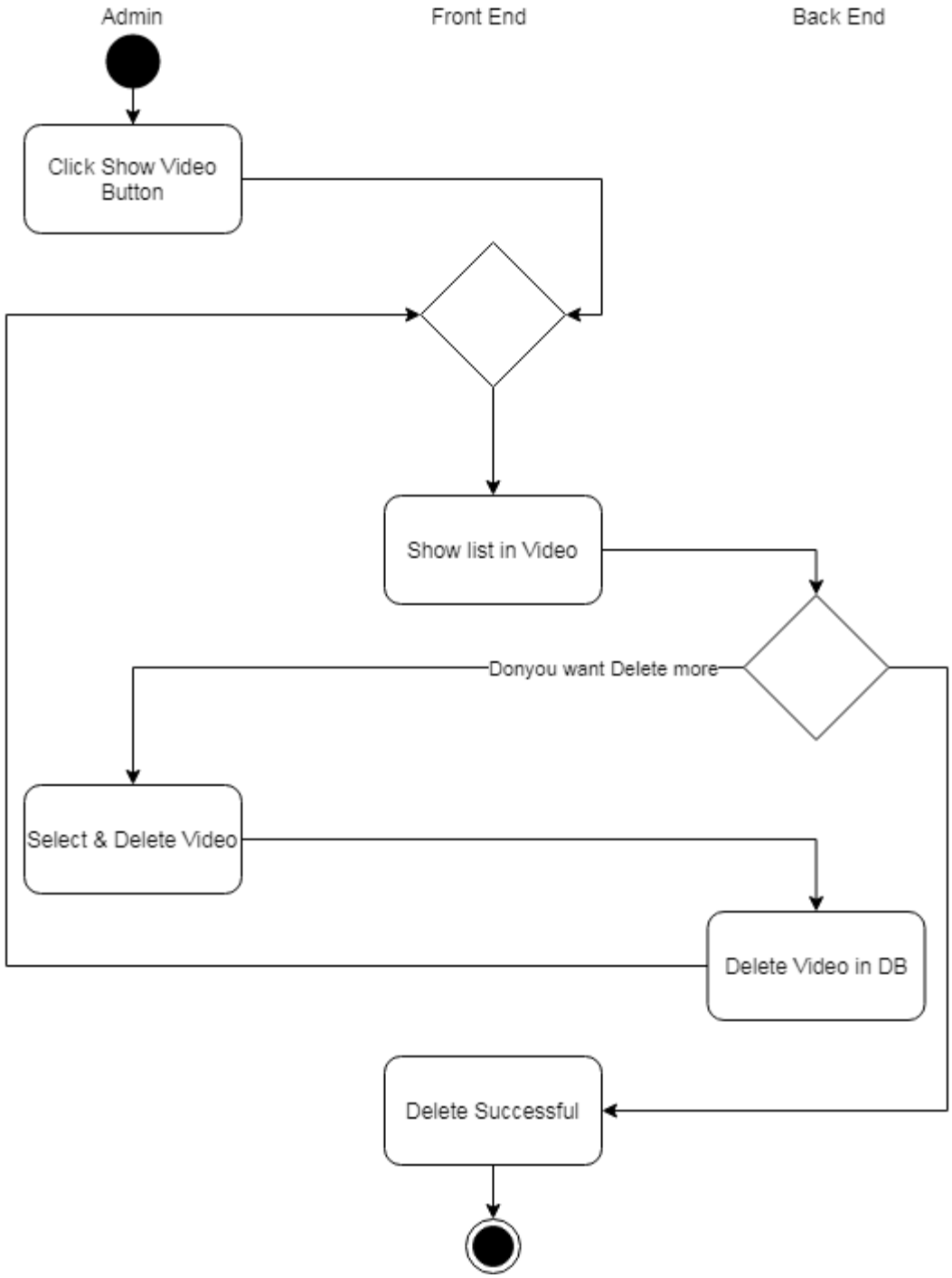

Figure 5.10

Activity Diagram for Upload Advertisement

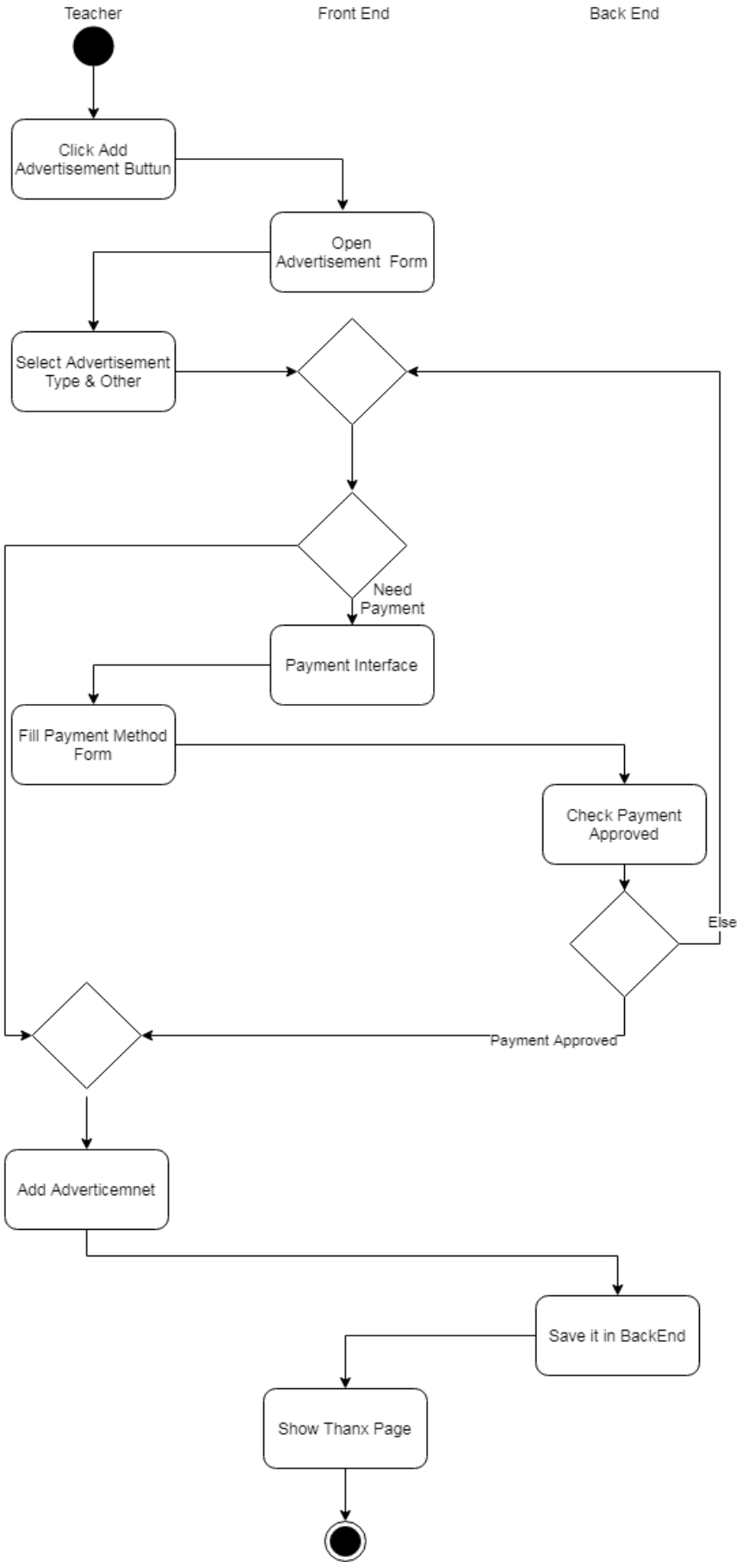

Figure 5.11

Activity Diagram for Upload MCQ Question

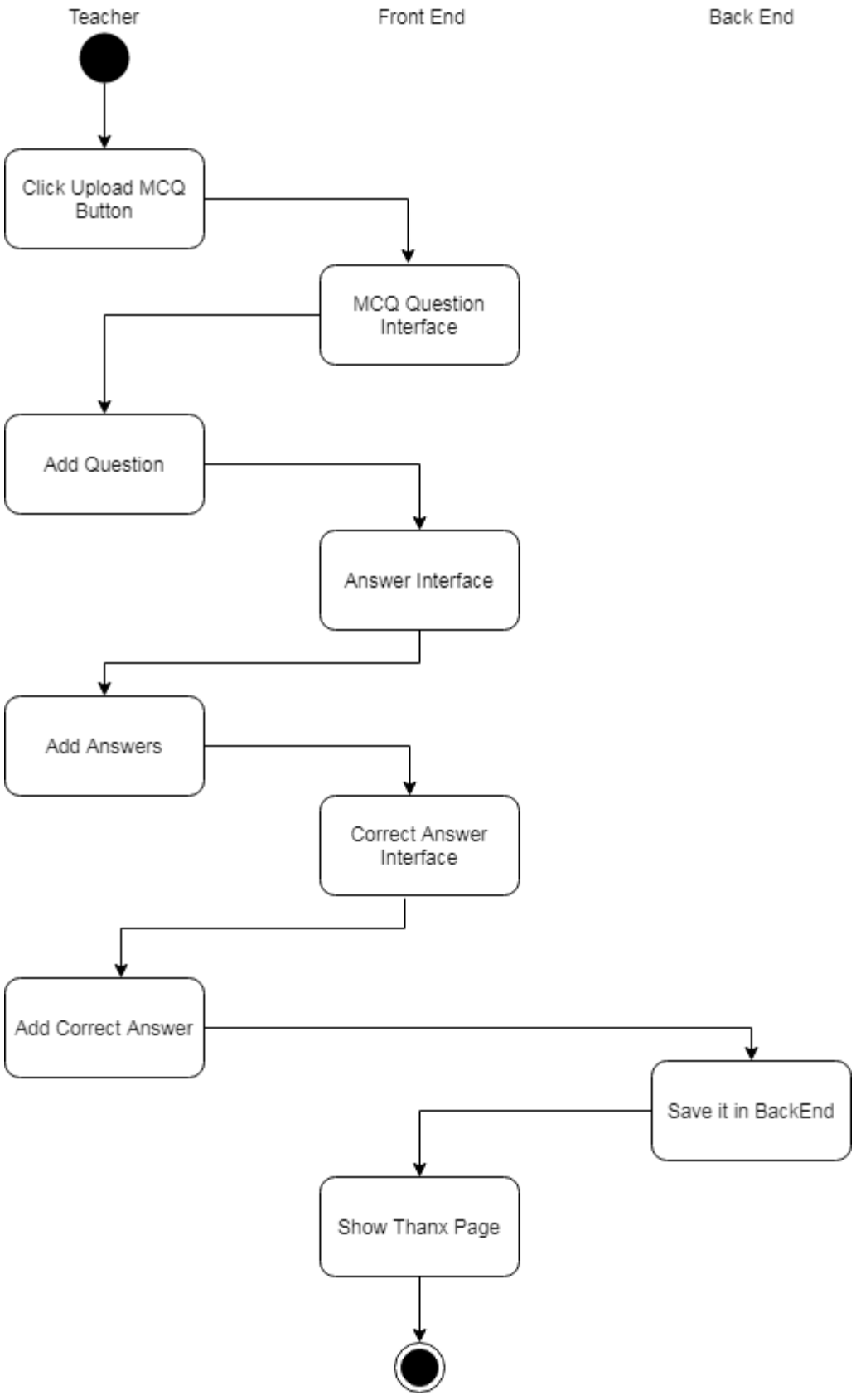

Figure 5.12

Activity Diagram for Document Download

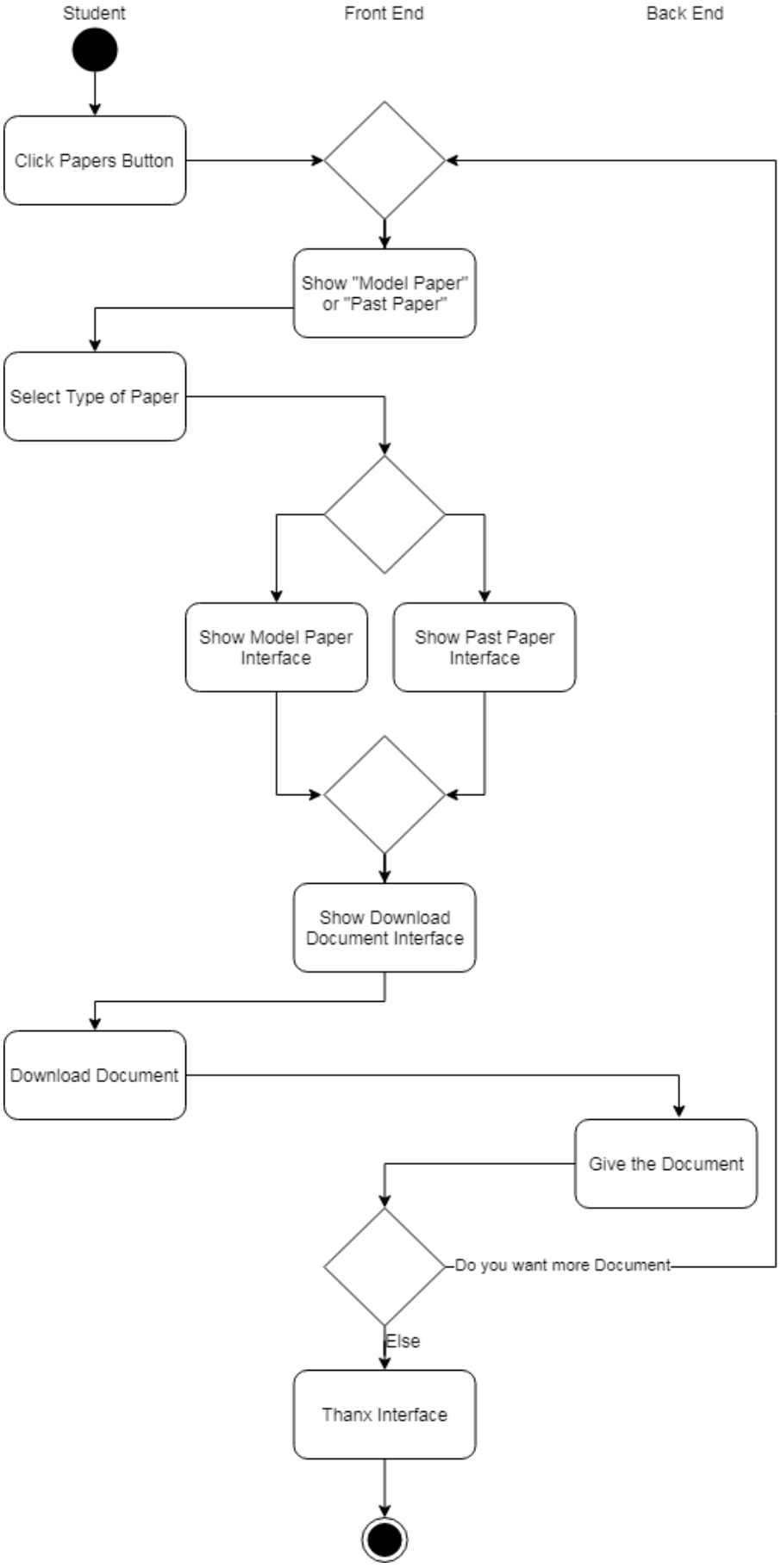

Figure 5.13

5.3.5 Sequence Diagrams

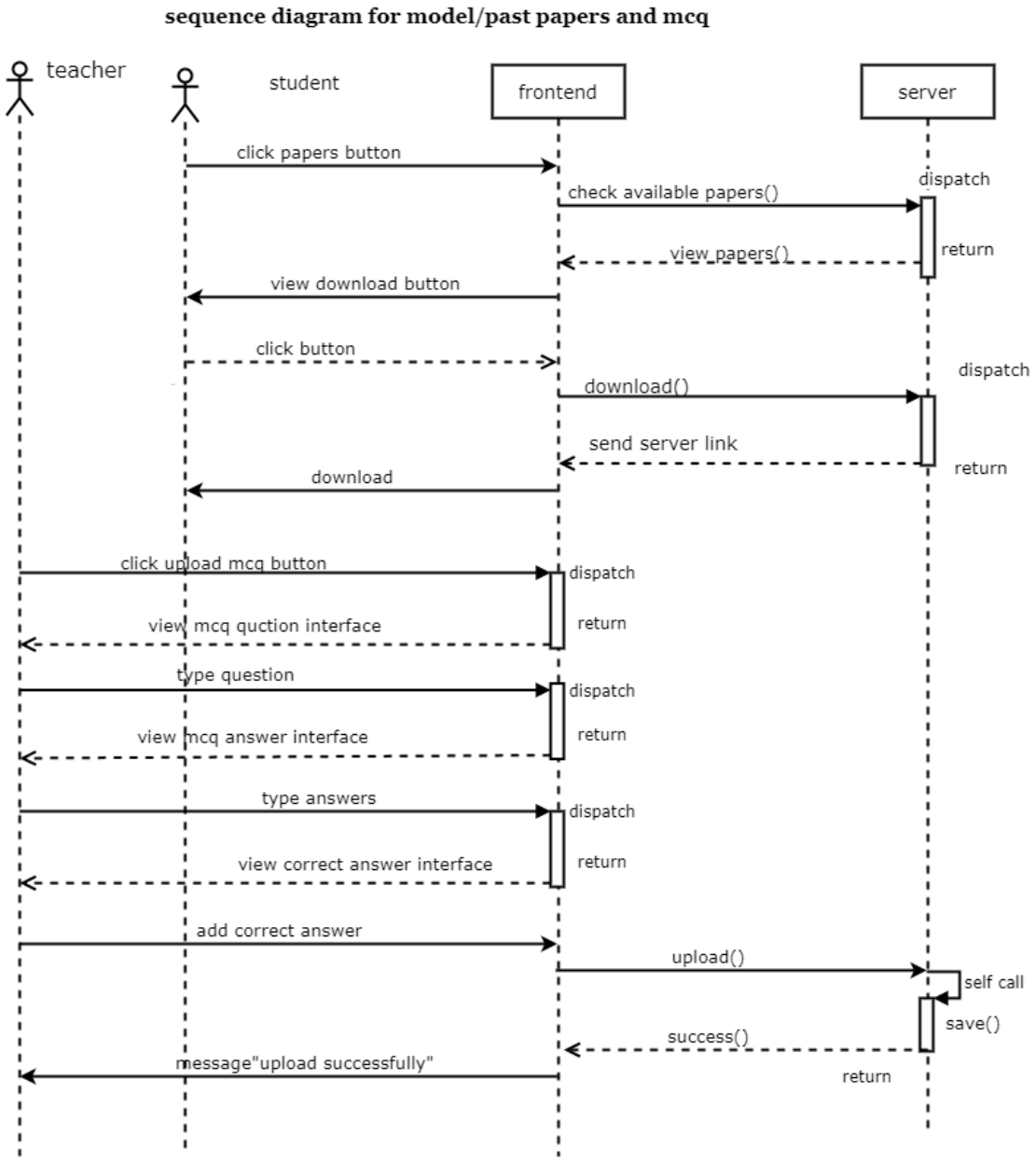

Figure 5.14

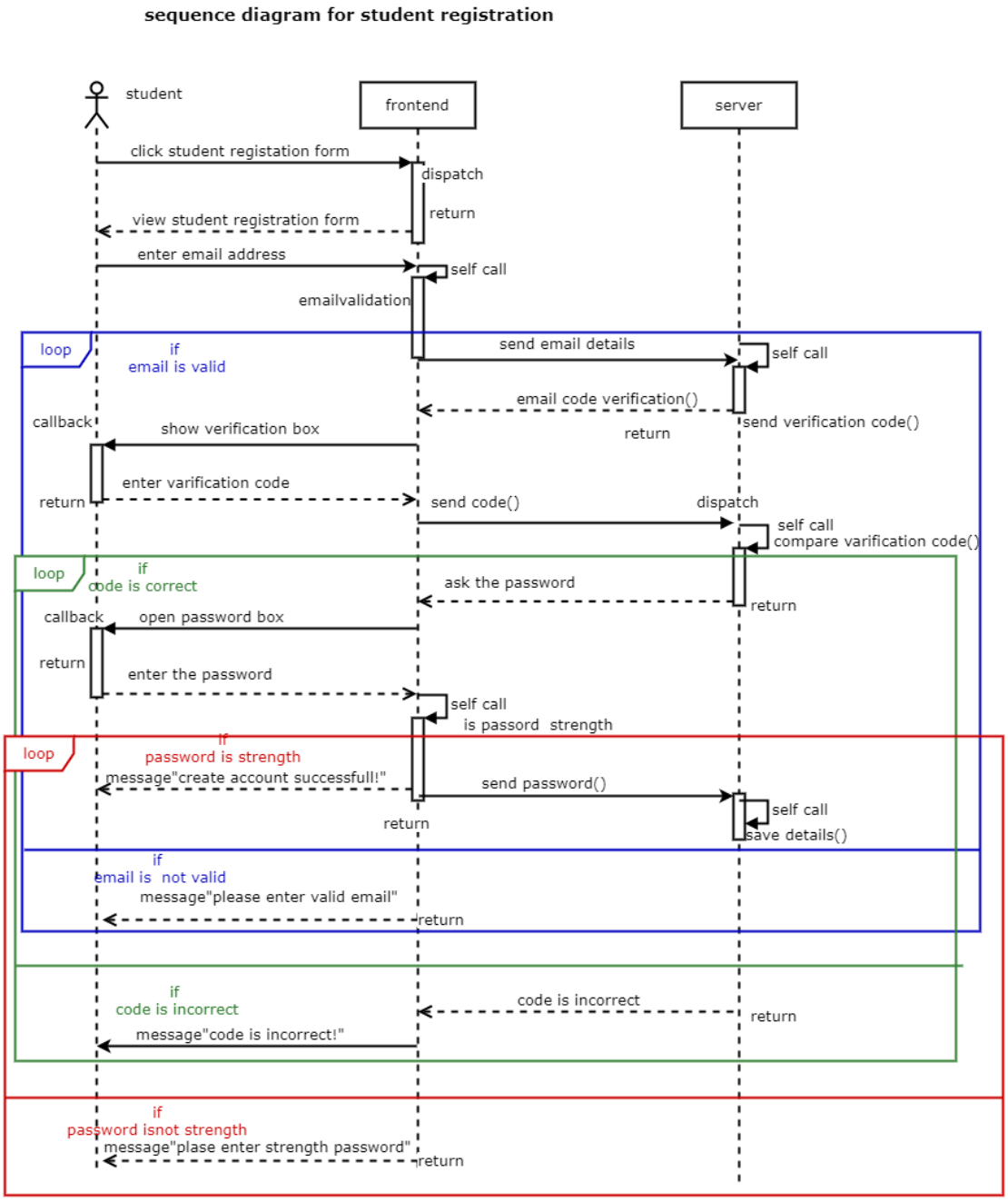
sequence diagram for student registration
student
frontend
server
click student registation form
dispatch
return
view student registration form
enter email address
self call
emailvalidation
loop
if
email is valid
send email details
self call
email code verification()
send verification code()
return
callback
show verification box
enter varification code
return
send code()
dispatch
self call
compare varification code()
loop
if
code is correct
ask the password
return
callback
open password box
return
enter the password
self call
is passord strength
loop
if
password is strength
message"create account successfull!"
send password()
self call
save details()
return
if
email is not valid
message"please enter valid email"
return
if
code is incorrect
code is incorrect
return
message"code is incorrect!"
if
password isnot strength
message"plase enter strength password"
return

Figure 5.15

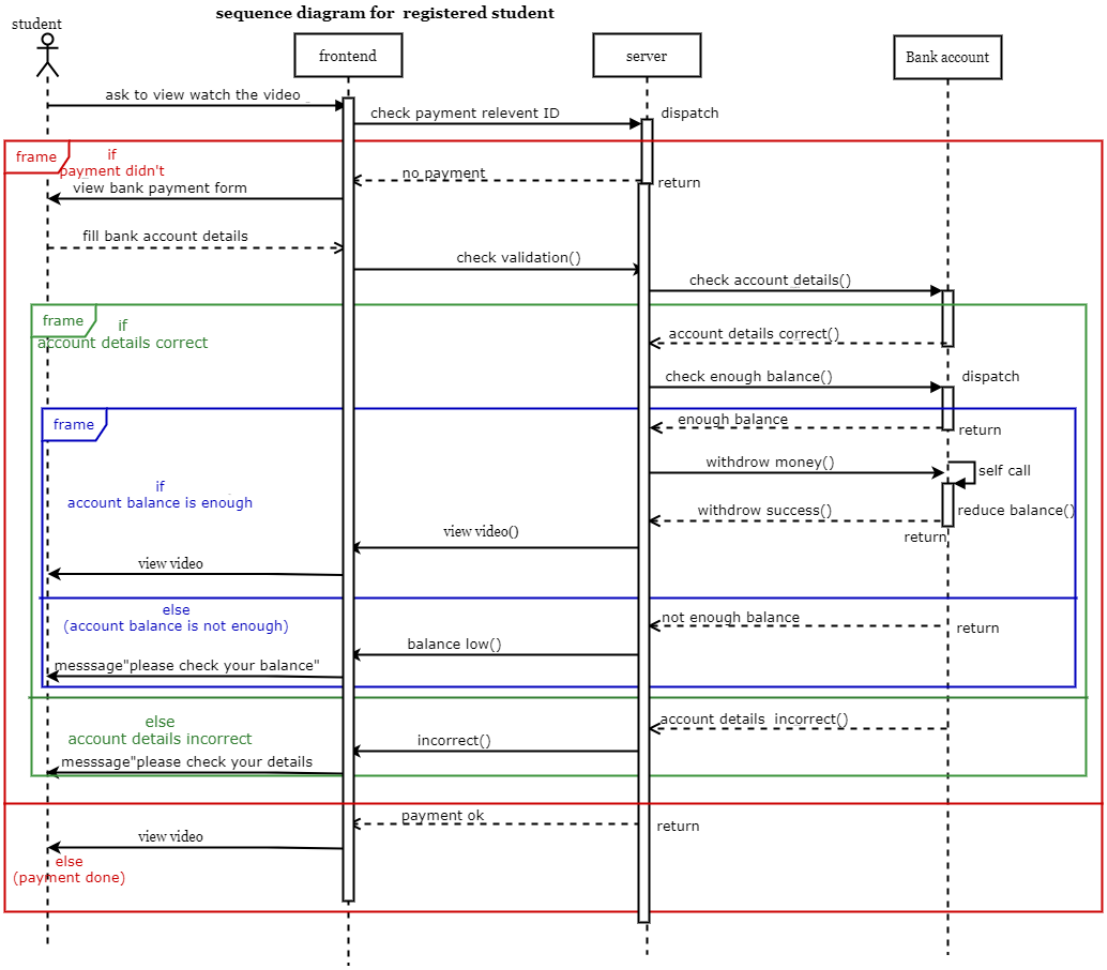
sequence diagram for registered student
student
frontend
server
Bank account
ask to view watch the video
check payment relevent ID
dispatch
frame
if
payment didn't
no payment
return
view bank payment form
fill bank account details
check validation()
check account details()
frame
if
account details correct
account details correct()
check enough balance()
dispatch
frame
enough balance
return
withdrow money()
self call
if
account balance is enough
withdrow success()
reduce balance()
return
view video()
view video
else
(account balance is not enough)
not enough balance
return
balance low()
messsage"please check your balance"
else
account details incorrect
account details incorrect()
incorrect()
messsage"please check your details
payment ok
return
view video
else
(payment done)

Figure 5.16

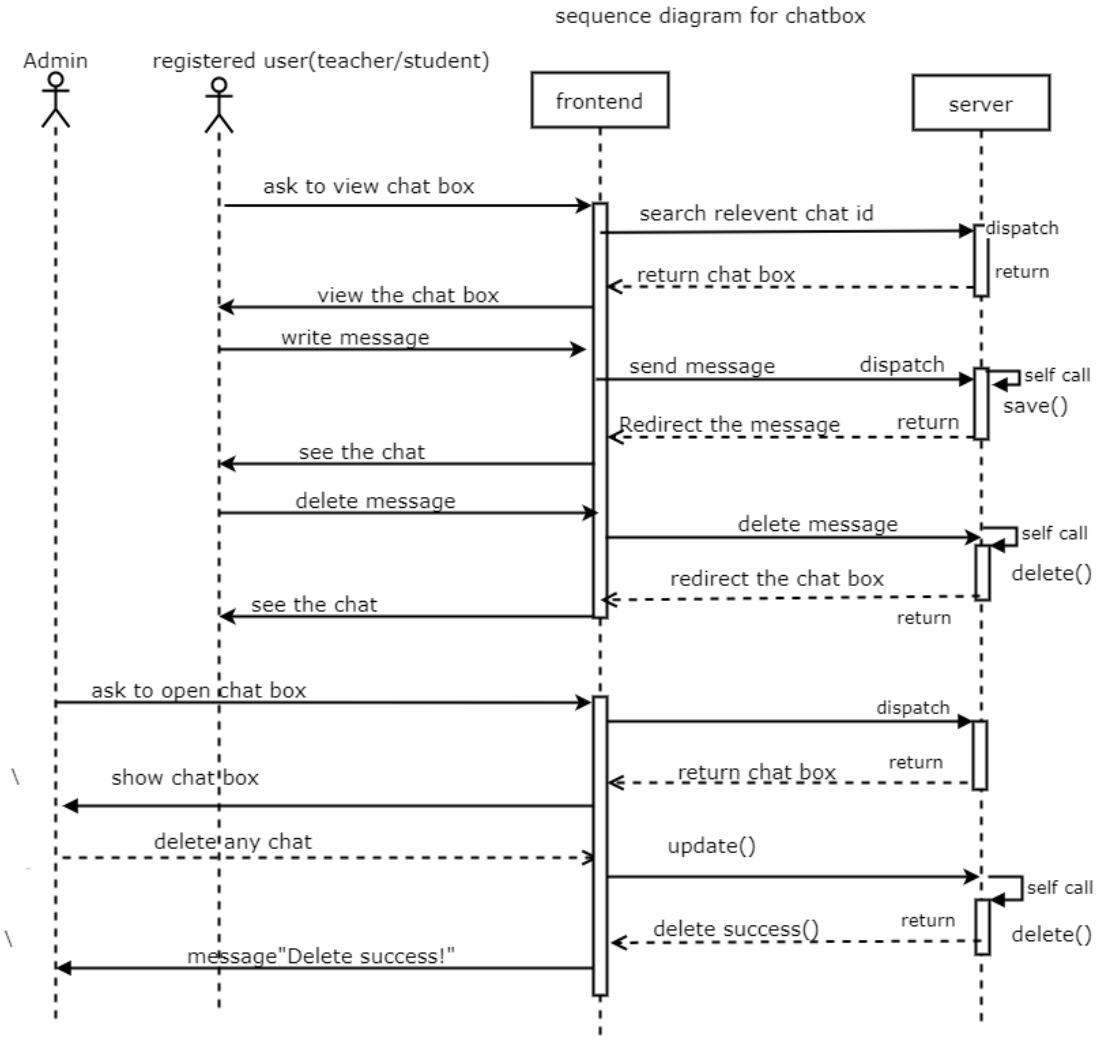
sequence diagram for chatbox
Admin
registered user(teacher/student)
frontend
server
ask to view chat box
search relevent chat id
dispatch
return
return chat box
view the chat box
write message
send message
dispatch
self call
save()
Redirect the message
return
see the chat
delete message
delete message
self call
delete()
redirect the chat box
see the chat
return
ask to open chat box
dispatch
return
return chat box
show chat box
delete any chat
update()
self call
delete()
return
delete success()
message"Delete success!"

Figure 5.17

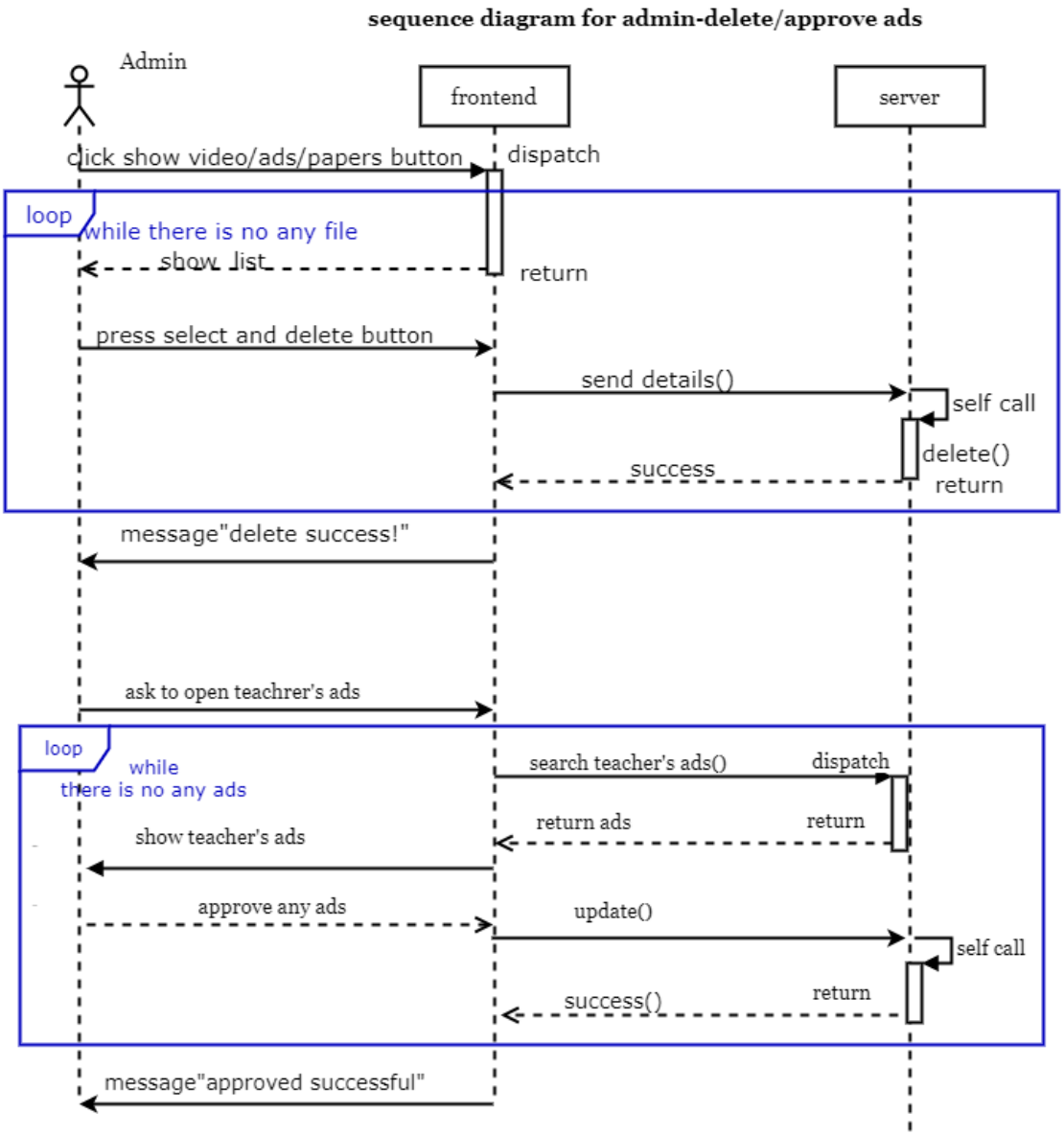
sequence diagram for admin-delete/approve ads
Admin
frontend
server
click show video/ads/papers button
dispatch
loop
while there is no any file
show list
return
press select and delete button
send details()
self call
delete()
success
return
message"delete success!"
ask to open teachrer's ads
loop
while
there is no any ads
search teacher's ads()
dispatch
return ads
return
show teacher's ads
approve any ads
update()
self call
success()
return
message"approved successful"

Figure 5.18

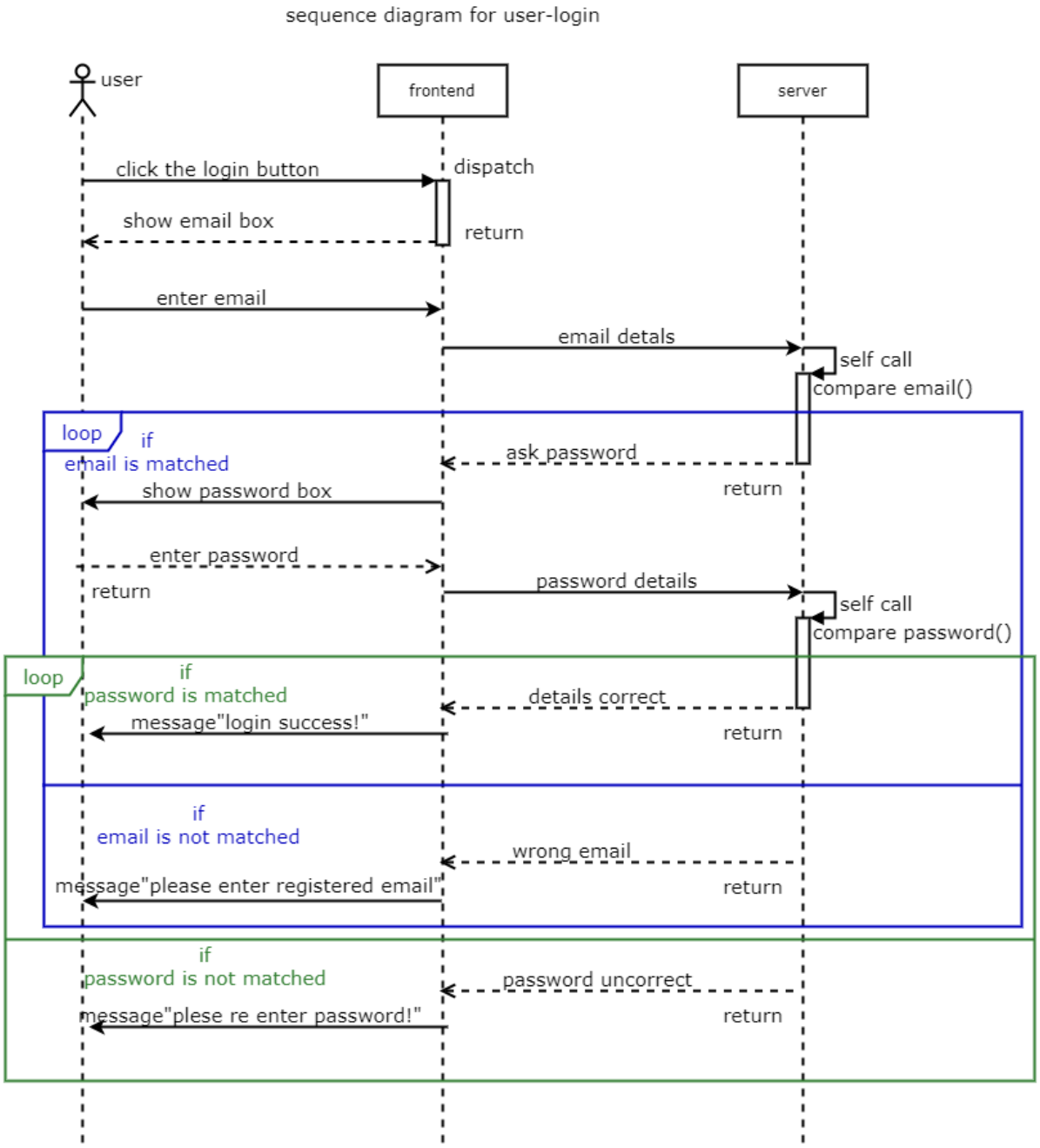
sequence diagram for user-login
user
frontend
server
click the login button
dispatch
show email box
return
enter email
email detals
self call
compare email()
loop
if
email is matched
ask password
return
show password box
enter password
return
password details
self call
compare password()
loop
if
password is matched
details correct
return
message"login success!"
if
email is not matched
wrong email
return
message"please enter registered email"
if
password is not matched
password uncorrect
return
message"plese re enter password!"

Figure 5.19

Chapter 5

Implementation

As our implementation process first, we requested for a document containing all need from the client. However, then we arranged some physical and virtual meetings to discuss about the project further.

Then for the planning process we divided the project to several parts and distributed them among members. Then for better control of the project we decided to use git for version controlling. We started using Github as a platform and then created two repositories for backend and Web-frontend to continue the work.

A team member implemented the user login authentication for the web-app. This authentication contains gathering information from the users who wish to register to the system. Also email validation is available for the sign up form.

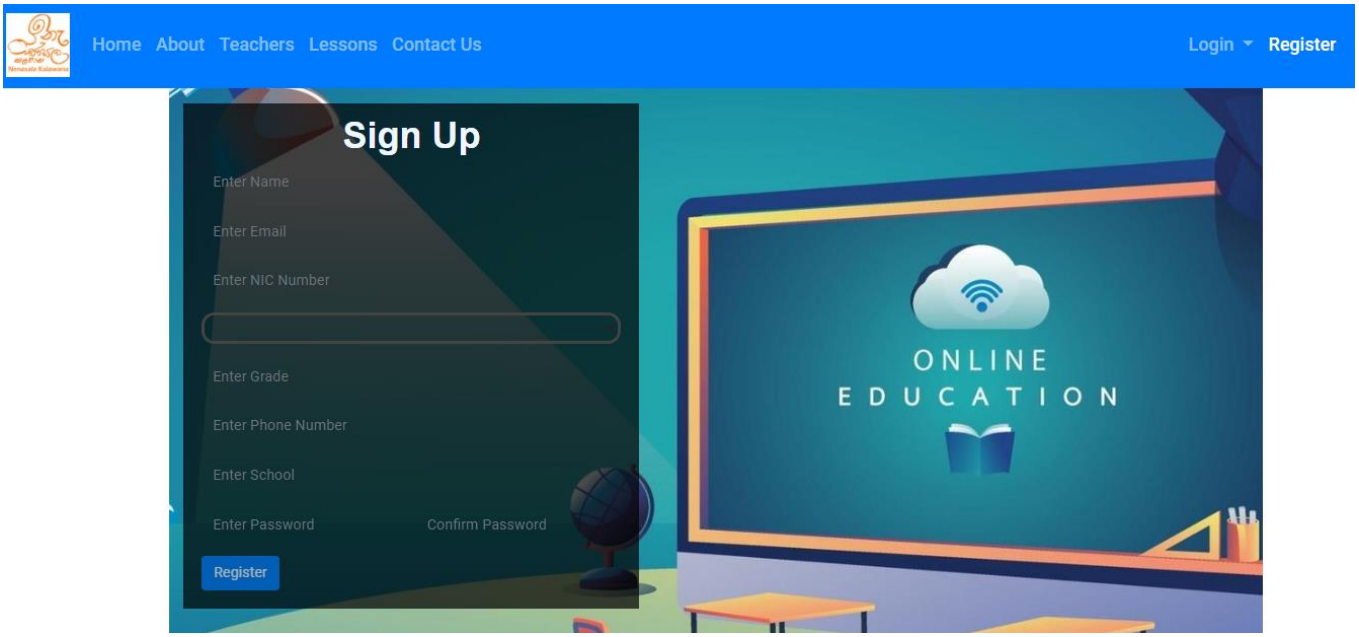

Figure 6.1

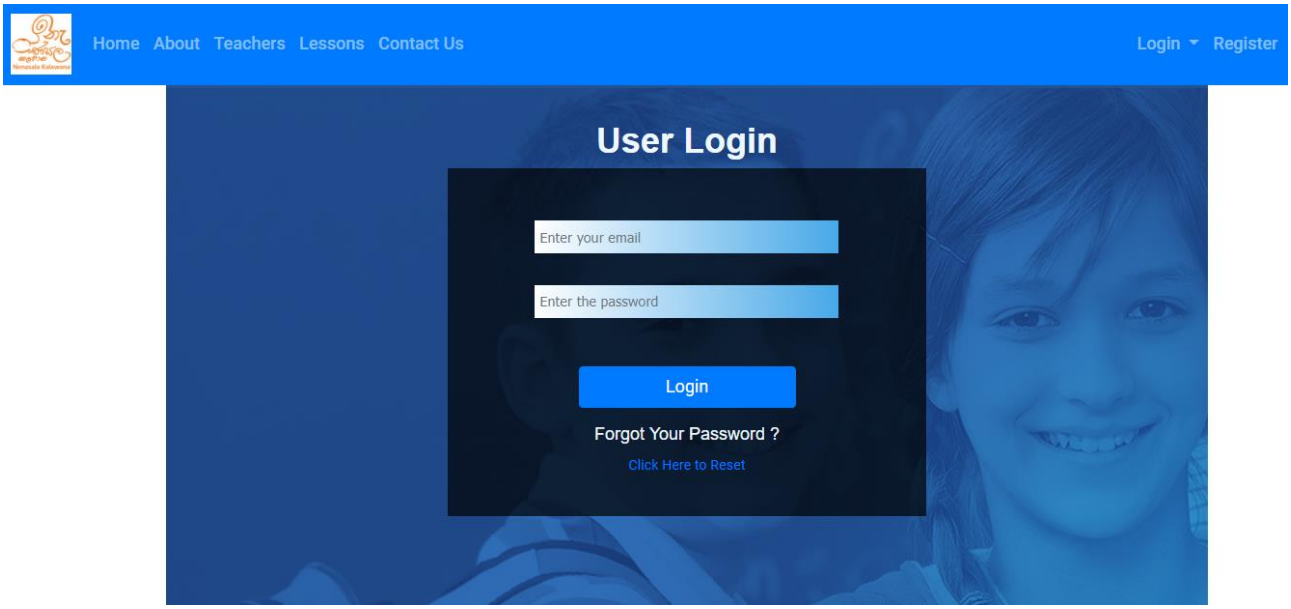

Figure 6.2

Another main milestone of our project is to implementing admin panel and admin authentication.

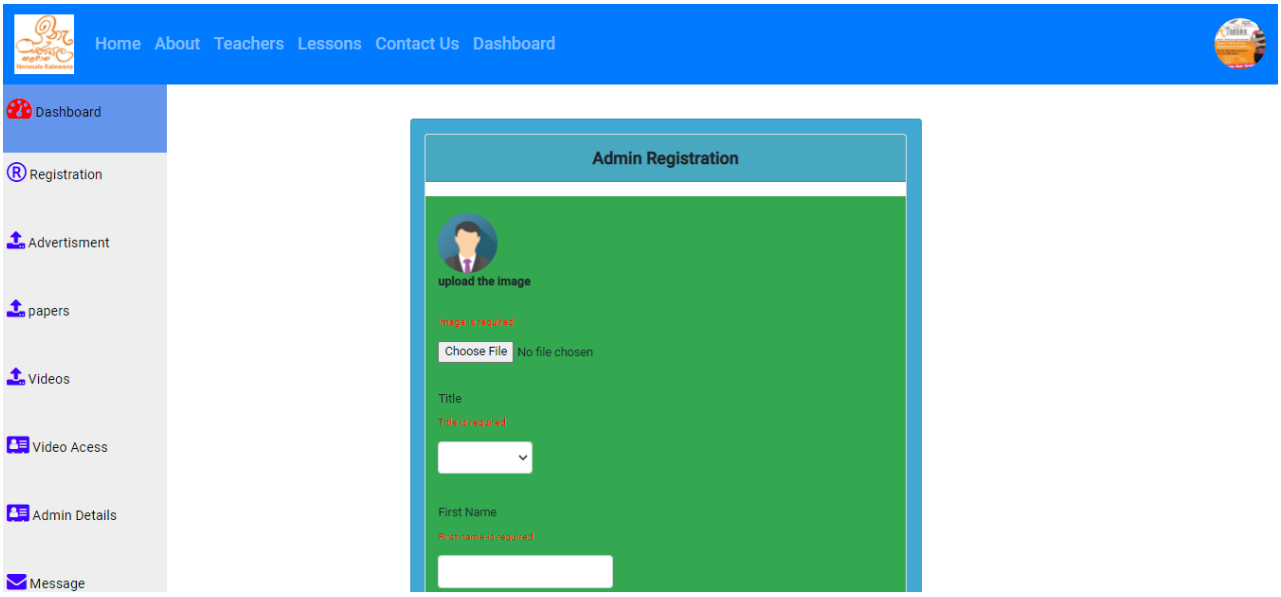

Figure 6.3

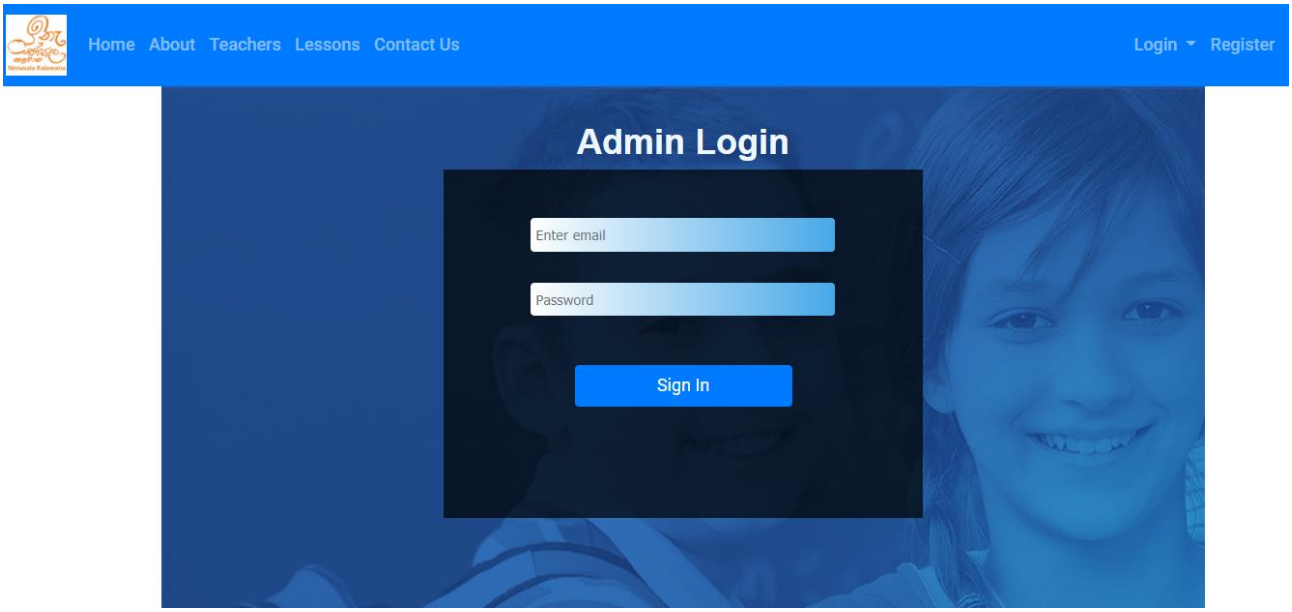

Figure 6.4

Another main part of the system is teacher's advertisement section. Providing facility of access teachers advertisement front, search bar to search teachers with the area is implemented.

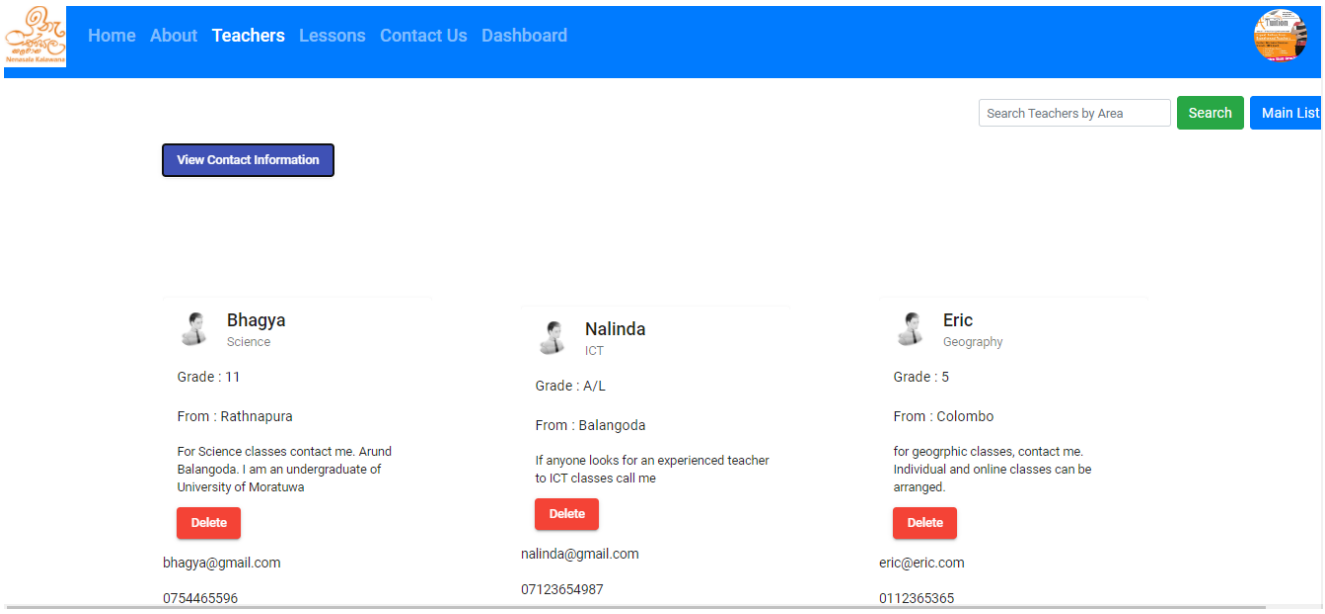

Figure 6.5

Also we implemented the front end to add teachers to this list.

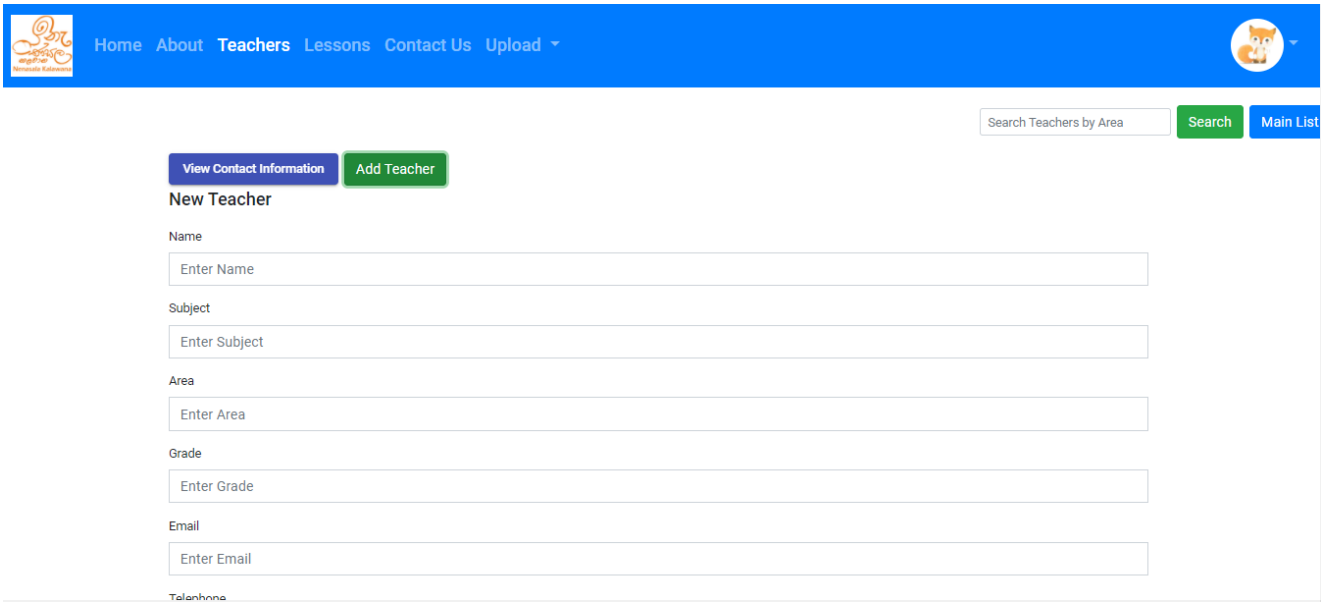

Figure 6.6

Next we have implemented a sample page for categorize by grades.

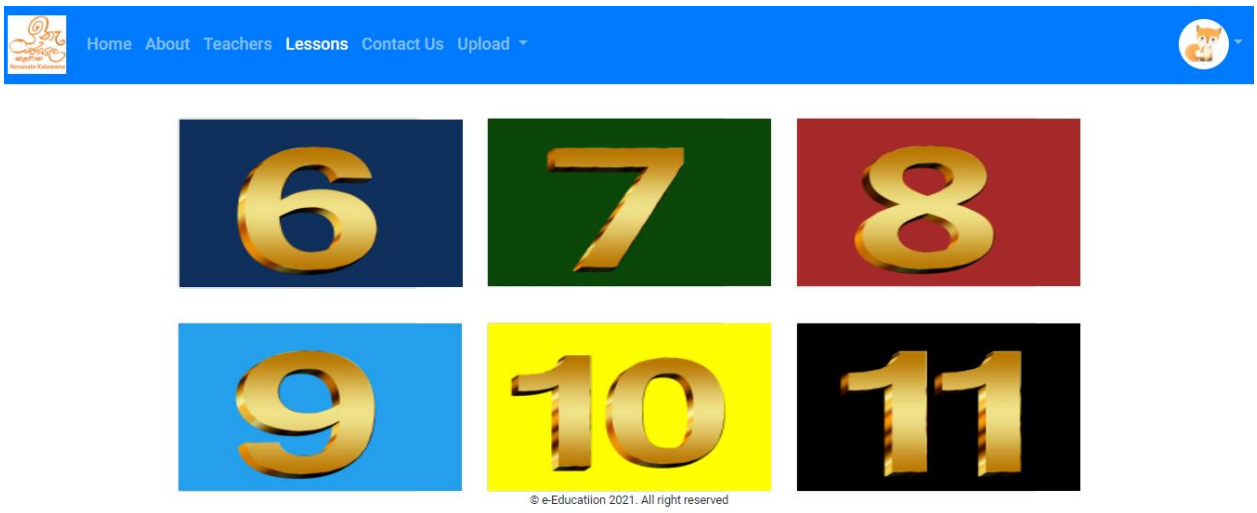

Figure 6.7

Video Lesson Section Frontend

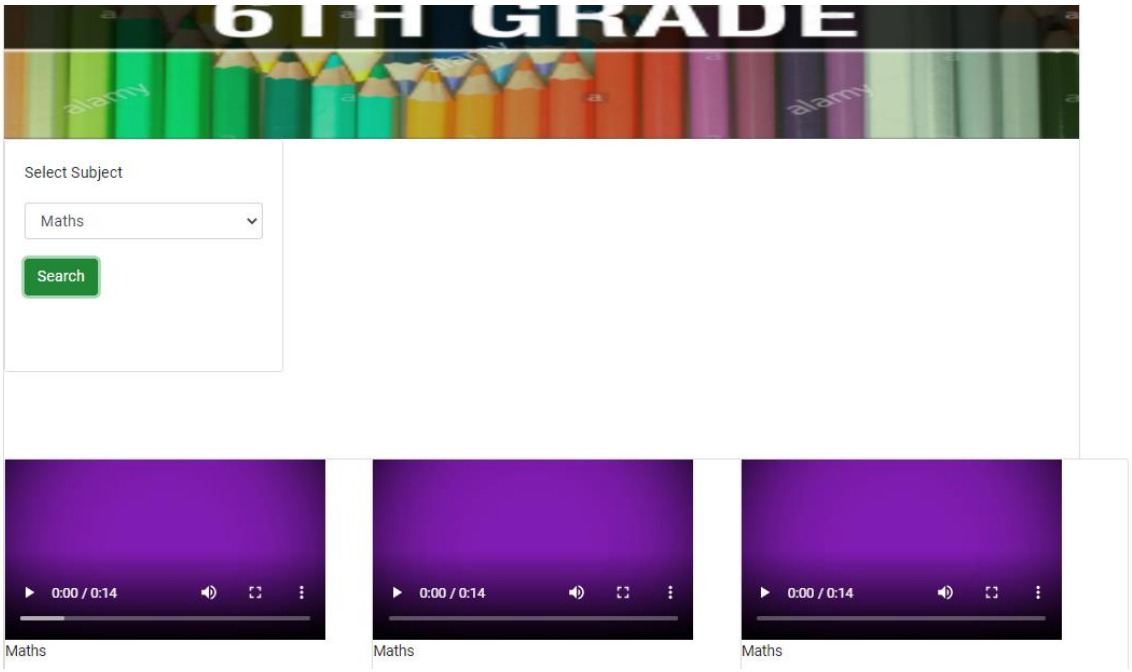

Figure 6.8

Papers Section Frontend

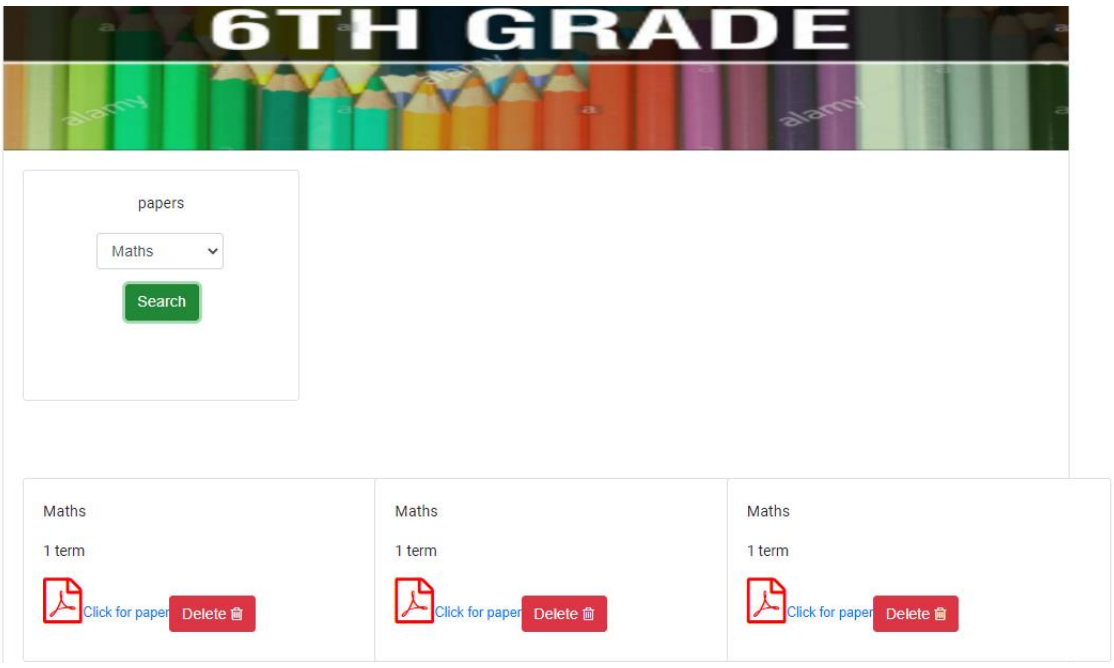

Figure 6.9

Advertisement upload section

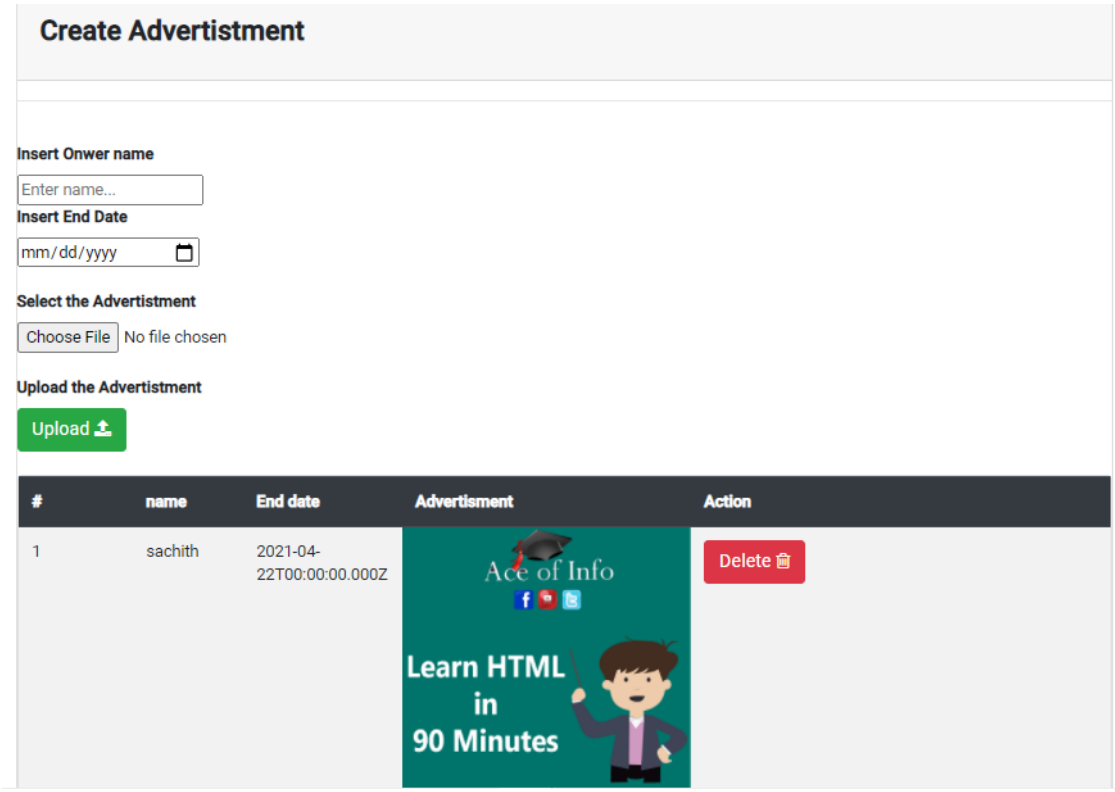

Figure 7.0

User Profile View and Edit Section

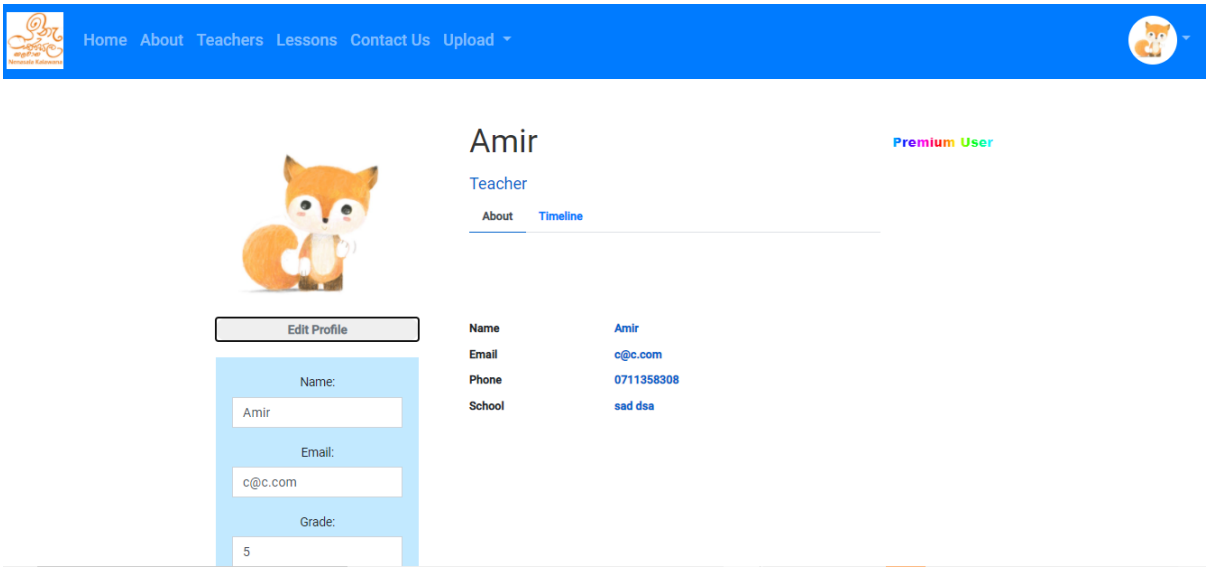

Figure 7.1

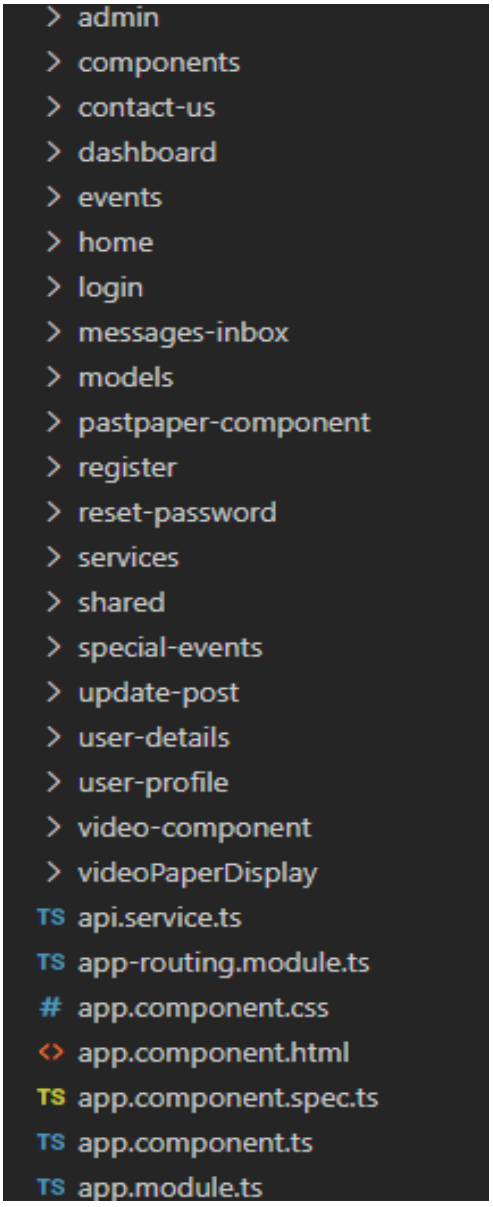

Figure 7.2

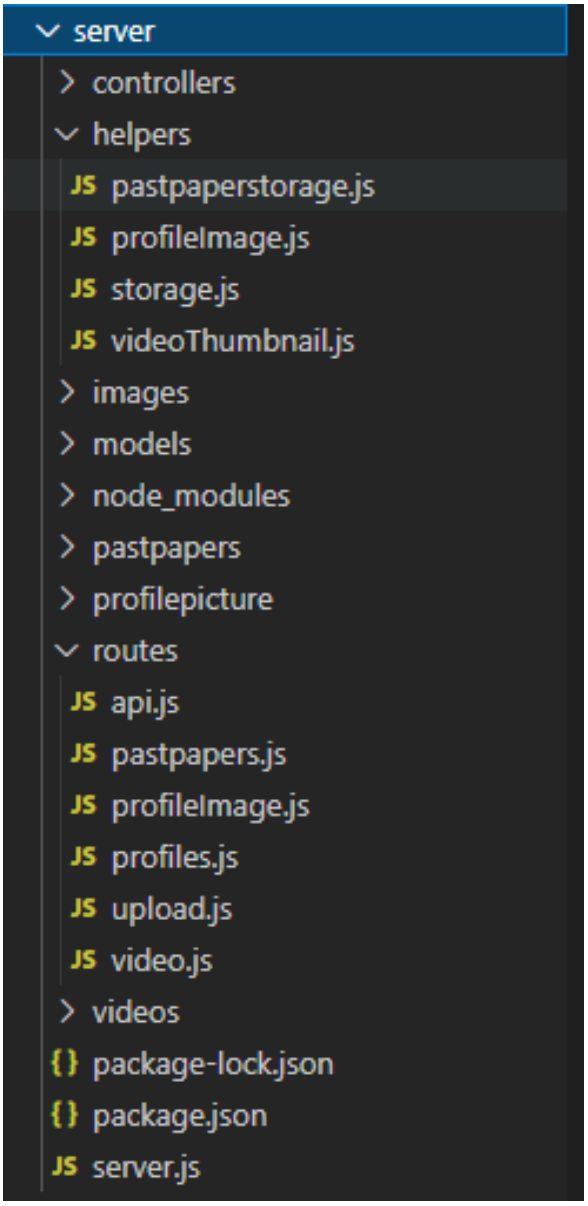

Figure 7.3

Mobile Application

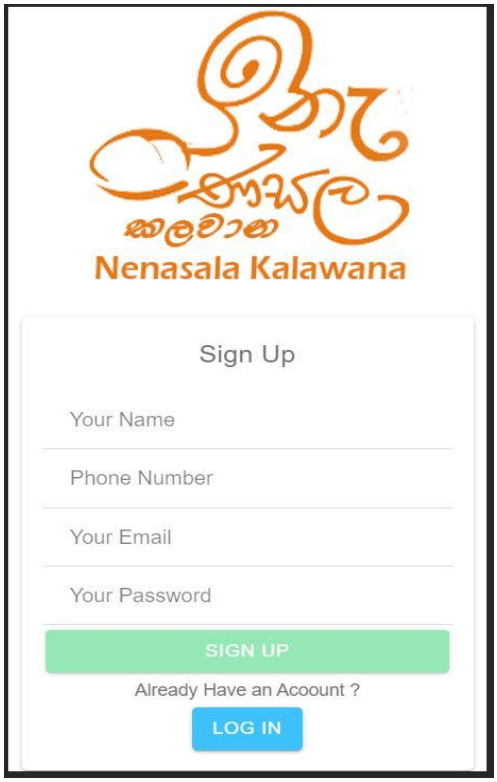

Figure 7.4

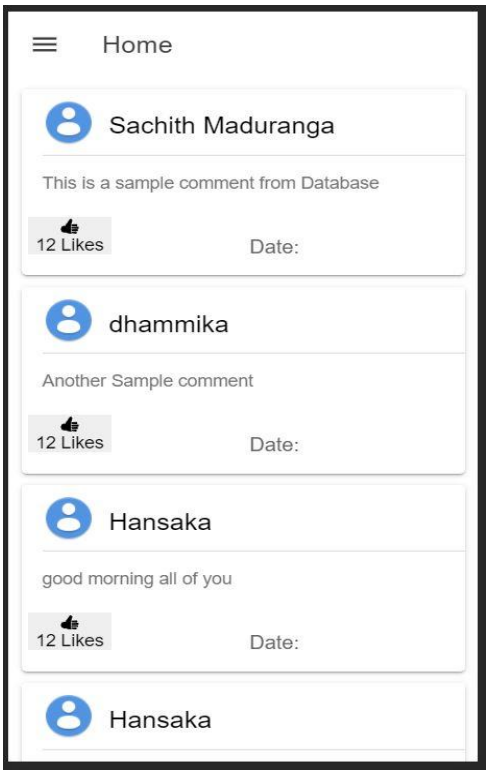

Figure 7.5

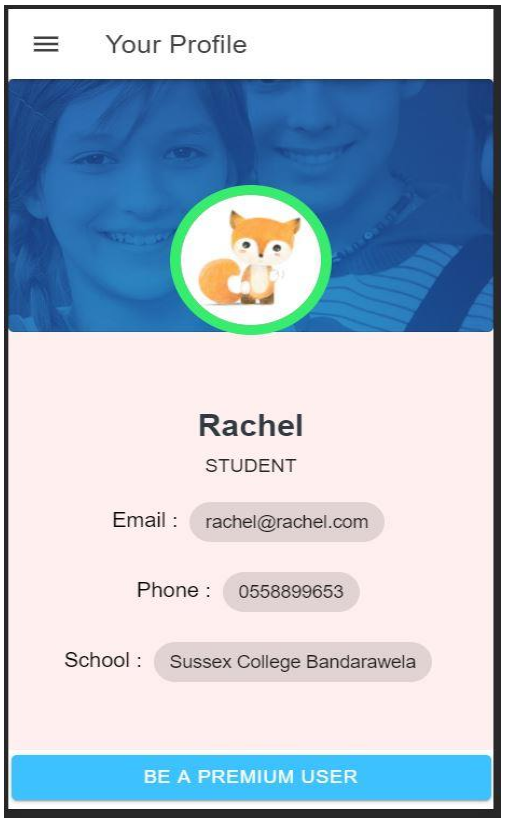

Figure 7.6

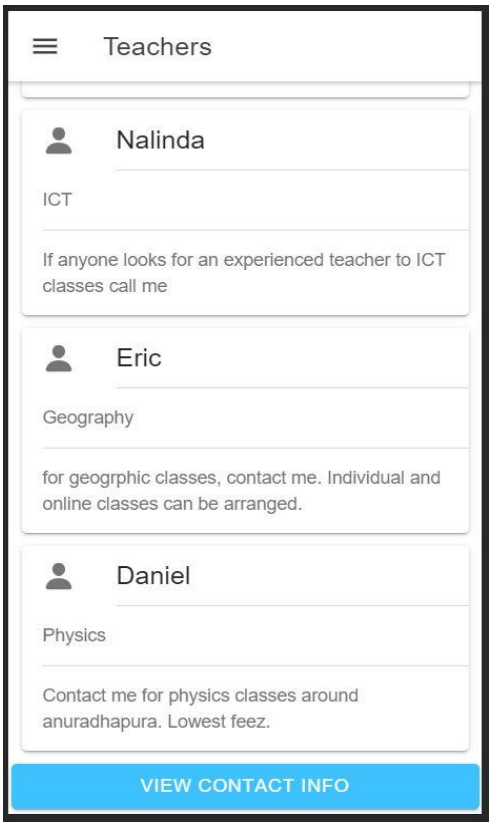

Figure 7.7

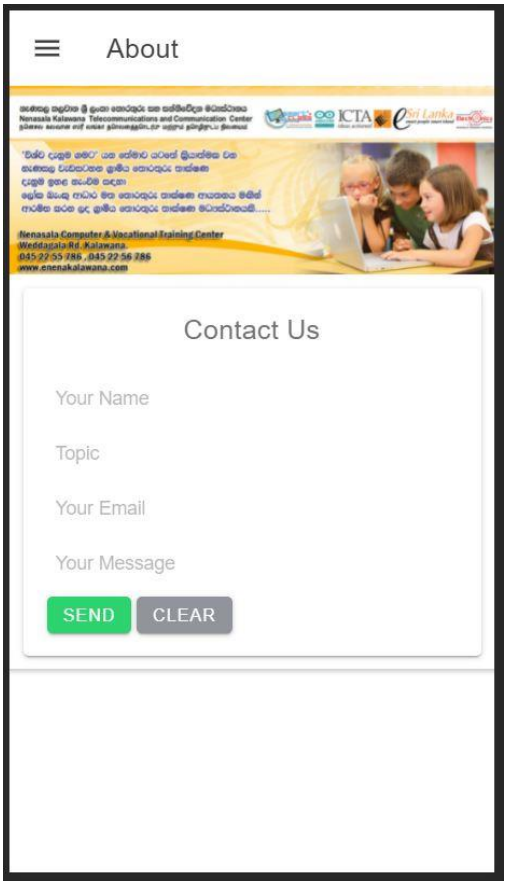

Figure 7.8

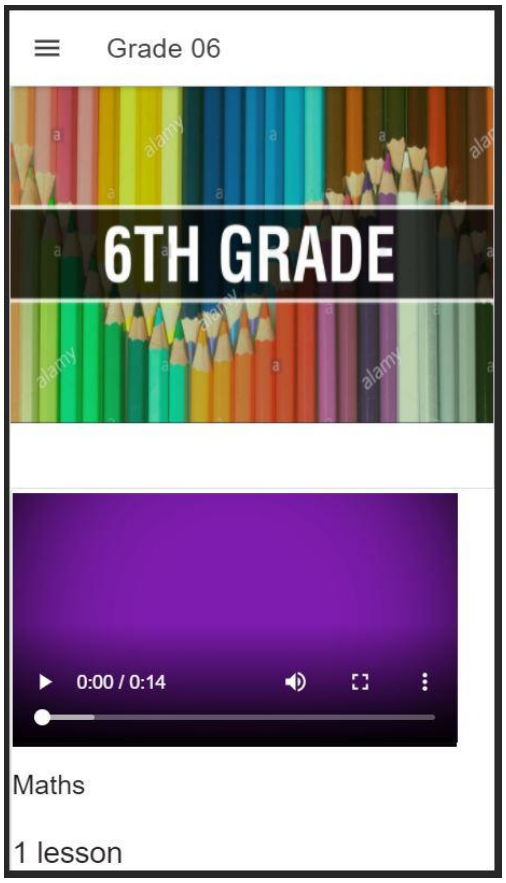

Figure 7.9

Evaluation & Conclusion

6.1 Introduction

This chapter discusses how efficient the implemented solution is in achieving the predefined objectives. It is elaborated through experiments as testing and results.

6.2 Testing and Results

User centric and system centric evaluation methods were used for evaluating each component. Under user centric level the utility and the value of the system to the user were evaluated. Different test procedures were followed to mock the user interaction and the respective outputs were analyzed.

Test Case	Module	Test Data	Expected Result	Test Result
T101	Login	Correct Username Correct Password	Direct to the Home page.	Pass
T102	Login	Correct Username Incorrect Password	Display Error Message.	Pass
T103	Login	Incorrect Username Correct Password	Display Error Message.	Pass
T104	Login	Forgot Password	Redirects to Reset Password web page.	Pass
T105	Login	Incorrect Password Incorrect Username	Display Error Message.	Pass
T107	Login	Empty Username and Password	Display Error Message	Pass
T108	Reset Password	Incorrect Email	Display Error Message	Pass
T109	Reset Password	Correct Email	Send password as an email to user	Pass

T201	Signup	Invalid Username	Register Button Deactivate	Pass
T202	Signup	Invalid Email	Register Button Deactivate	Pass

T203	Signup	Invalid Name	Register Button Deactivate	Pass
T204	Signup	Invalid Password	Register Button Deactivate	Pass
T205	Signup	Not equal password and confirm password	Register Button Deactivate	Pass
T207	Signup	All the fields are valid and click the register button	Send the user data to the database and register. Redirect to home page as an User	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T301	User Profile	When User is not logged In	Not Showing any profile	Pass
T302	User Profile	When User is logged In	Showing Logged User profile	Pass
T303	User Profile	Show Editable Profile Data	Showing Data of Logged In User in Editing Section	Pass
T304	User Profile	Edit Profile Data	Show a successful message when data changed	Pass
T305	User Profile	Edit Profile Data and Log Again	Show edited User Data in Profile	Pass
T306	User Profile	Monthly Subscription amount Paid User	Show “Premium User” in profile	Pass
T307	User Profile	A Student Enter Upload Videos or Papers Section	Display Error Message	Pass
T308	User Profile	A Teacher Enter Upload Videos or Papers Section	Successfully Redirected to Upload Section	Pass

T401	Premium User	Payment Gateway Button	Available for Unpaid Users in profile	Pass
T402	Premium User	Make a payment	Redirected to company payment gateway	Pass
T403	Premium User	Admin Click a Button to Provide Access for particular User	Successfully Upgraded the User to Premium	Pass
T404	Premium User	Non-Premium User Access the Video Section	Display Error Message	Pass
T405	Premium User	Premium User Access the Video Lessons	Successfully Accessed	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T501	Teacher Advertisement	Display teacher advertisements	Show basic information of teacher advertisements	Pass
T502	Teacher Advertisement	Contact Information button click	Show contact information of teachers	Pass
T503	Teacher Advertisement	When a Student is Logged In	Not Showing add teacher button	Pass
T504	Teacher Advertisement	When a Teacher Logged In	Show Add Teacher Button	Pass
T505	Teacher Advertisement	Add New Advertisement	Show new advertisement in the list	Pass
T506	Teacher Advertisement	Search by Area	Show results	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T601	Contact Us	Empty Data Fields	Disable Send Button	Pass
T602	Contact Us	Input all fields and send	Send Message for admins	Pass
T603	Contact Us	Messages Inbox for admins	Displaying Inbox messages	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T701	Advertisement module	Submit only png, gif and jpeg file format	Display Error Message.	Pass

T702	Advertisement module	Select the end date of Advertisements	Upload Button is not visible.	Pass
T703	Advertisement module	Filling the name	Upload Button is not visible.	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T801	Papers	Empty Data Fields	Disable upload Button	Pass
T802	Papers	papers display for admin	Displaying papers of admin dashboard	Pass
T803	Papers	Input all fields and upload	Send papers for admins	Pass
T804	Papers	Only pdf file upload	Display error message	Pass
T805	Papers	Search by subject	Show results	Pass
T806	Papers	Delete papers	Only admin can see the delete button	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T901	Videos	Empty Data Fields	Disable upload Button	Pass
T902	Videos	papers display for admin	Displaying papers of admin dashboard	Pass
T903	Videos	Input all fields and upload	Send papers for admins	Pass
T904	Videos	Only mp4,mkv file upload	Display error message	Pass
T905	Videos	Search by subject	Show results	Pass
T906	Videos	Delete videos	Only admin can see the delete button	Pass

Test Case	Module	Test Data	Expected Result	Test Result
T1001	Admin Login	Correct Username Correct Password	Direct to the Home page.	Pass
T1002	Admin Login	Correct Username Incorrect Password	Display Error Message.	Pass
T1003	Admin Login	Incorrect Username Correct Password	Display Error Message.	Pass
T1004	Admin Login	Forgot Password	Redirects to Reset Password web page.	Pass
T1005	Admin Login	Incorrect Password Incorrect Username	Display Error Message.	Pass
T1007	Admin Login	Empty Username and Password	Display Error Message	Pass

T1101	Admin Signup	Invalid Username	Register Button Deactivate	Pass
T1102	Admin Signup	Invalid Email	Register Button Deactivate	Pass
T1103	Admin Signup	Invalid Name	Register Button Deactivate	Pass
T1104	Admin Signup	Invalid Password	Register Button Deactivate	Pass
T1105	Admin Signup	Not equal password and confirm password	Register Button Deactivate	Pass
T1106	Admin Signup	All the fields are valid and click the register button	Send the user data to the database and register.	Pass

T1201	Discussion panel	Enter empty comment	comment Button Deactivate	Pass
T1202	Discussion panel	Enter comment	comment Button activate	Pass
T1203	Discussion panel	Adding comment unregistered user	show annonymus name	Pass
T1204	Discussion panel	Adding comment registered user	Show user name	Pass
T1205	Discussion panel	Adding comment registered user	Show member registered date	Pass
T1206	Discussion panel	Adding comment registered user	Show comment date	Pass

T1207	Discussion panel	Enter empty reply	reply Button Deactivate	Pass
T1208	Discussion panel	Enter reply	reply Button activate	Pass
T1209	Discussion panel	Adding comment with photo	show photo and comment	Not archived
T1210	Discussion panel	Adding photo comment only	Show photo	Not archived
T1211	Discussion panel	Delete button	Delete comment	Not archived

T1301	countdown	Don’t enter date	Show default date	Pass
T1302	countdown	Edit date	Update exam date	Pass
T1303	countdown	Edit date	Update countdown	Pass
T1304	countdown	Deseble countdown	Hide countdown	Not archived
T1305	countdown	Update expired date	Show “expired”	Pass

Reference

1). What is angular ?

(https://docs.angularjs.org/guide/introduction)

2). What is MEAN Stack ?

(https://www.sitepoint.com/introduction-mean-stack/)

3). Why use angular ?

(https://medium.com/madhash/why-are-developers-still-using-angular-b9ef29d1f97f)

4). Why use MongoDB as database ?

(https://medium.com/@MKulinski/why-you-should-be-using-mongodb-505d537ee89b#:~:text=Unlike%20most%20commonly%20used%20SQL,right%20out%20of%20the%20box!)

5). Why use NodeJS ?

(https://medium.com/quick-code/top-10-reason-why-you-should-use-node-js-5926b4d1f2c1#:~:text=Time%20Web%20Application%3A-,Node.,as%20non%2Dblocking%20driven%20servers.).

6). What is version control ?

(https://www.atlassian.com/git/tutorials/what-is-version-control)

Appendix A

Individual Contribution

184083K - Kumarasinghe A.D.N.D

I'm responsible for implementing the front end and backend of MCQ question/answer section which has capabilities of updating/uploading/deleting MCQ questions, provide live results of the MCQ quiz for anyone who participated and provide correct answer.

Admin authentication backend implementing is also my responsibility.

In the mobile application I'm responsible for providing a section for separate lessons for students categorized by grade and subject. Also quiz questions for each lesson in the mobile app. At the end of each lesson, a student can give answers for quiz questions and see marks.

I'm also responsible for keeping track of each student who is registered and provide them a level based on what they have done so far in the MCQ questions.

184198R – Maduranga D.V.S

I'm responsible for implementing the frontend and backend of login user authentication. In the process of registering user, I'm responsible for validating their NIC number and email address.

Also, the front end and the backend of teacher's advertisements section, search bar to find particular teacher with the area, adding a new teacher advertisement to list.

Contact Us module frontend and backend. Facility for users to send messages to admins and facility for admins to check them. Also, I'm responsible for creating the user profile of registered users, show their details and provide facility to edit the profile.

Also, I'm responsible for the payment gateway for accessing videos. I'm responsible for providing admins facility to upgrade any user to premium by checking the payment.

In the mobile application, I'm responsible for implementing Login/user authentication to identify the user.

In the mobile app, contact us form with message facility will be implemented by me. Also, the frontend of the teacher advertisement of the mobile app will be implemented by me.

User profile section of the mobile app will be also implemented by me.

184011P – Ariyadasa U.R.B.M.

In this system I'm responsible for the UI design of teacher's advertisements section. And I implemented frontend and backend for about page. In addition to I add a map for contact us page.

The backend for papers is my responsibility. Also, Home Page UI Design and Dashboard UI design is my responsibility.

In the mobile application I'm responsible for UI design, video lesson section of frontend. Also, the about us section of the mobile application is my responsibility. The Map showing the location of the company is also implemented in mobile application.

In those sections mentioned above, users will have the capability of viewing video lessons by paying the necessary fee, view video from the mobile app.

184136D – Rajapaksha R.A.D.P.

I'm responsible for implementing the frontend of admin panel and frontend and backend of admin authentication. In the admin panel dashboard of the web app will be available which will give capability of uploading/deleting papers and videos. Paid advertisements in the home page will be displayed as slide show and automatically deleted on the day provide by admin.

Also I'm responsible for implementing frontend and backend of video lesson section which will provide videos lessons for paid users and organize them according to the grades and subjects. Also I'm responsible for implementing the frontend of the paper section.

I'm also responsibility for providing facility of search papers and videos by the grade and subject.

I'm also responsible for implement database of admins and providing facility of removing unwanted teacher advertisements. Also, I'm responsible to select and remove registered users.

184020R – Bandara K.D.H.S.

I'm responsible for implementing the frontend of discussion panel which will be available in the home page. In this discussion panel facility of posting questions by students, facility of posting comments for both students and teachers and facility of deleting and updating comments will be available. I'm responsible for providing both frontend and backend for those mentioned.

Also I'm responsible for creating frontend for taking data from the students to get the date of the upcoming exam dates. Then the frontend to calculate the remaining days and time for the upcoming exam will be counted and notify each student everyday.

In the mobile application, I'm responsible for implementing both fronted and backend of discussion panel. In the panel posting questions by students, comment facility to both teachers and students will be available.

Also In the mobile application I'm responsible for implementing frontend for displaying remaining days for exam days for each student and notify them.

Appendix B

Gantt Chart

Time Duration	2020																				2021							
	Aug				Sep				Oct				Nov				Dec				Jan				Feb			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Learning About Technologies																												
Designing Structural Diagrams																												
Designing Behavioral Diagrams																												
Implementing UI																												
Interim Report submission																												
Implementing Functional and Non-functional Requirements																												
Creating and Connecting Database																												
Completing Functional Requirements																												
Completing non- Functional Requirements																												
Testing Error																												
Completing Project																												