Project: Coaching Control System

Submitted By:

Shaon Roy Joy

ID: 171-35-1895

Department of Software Engineering

Daffodil International University

Supervised By:

Ms. Nusrat Jahan
Lecturer (Senior Scale)

Department of Software Engineering

Daffodil International University

A project submitted in partial fulfillment of the requirement for the degree of Bachelor of Science in Software Engineering.

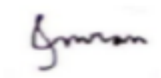
Department of Software Engineering

Daffodil International University

APPROVAL

This project titled on **"Coaching Control System"** ,submitted by **Shaon Roy Joy (ID: 171-35-1895)** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

BOARD OF EXAMINERS



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Faculty of Science and Information Technology
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Department of Computer Science and Engineering
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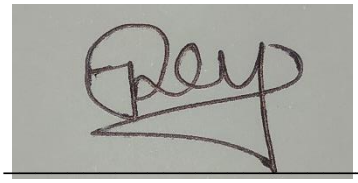
DECLARATION

It hereby declere that the project titled **"Coaching Control System"** ia an original record done by me under the supervision of Nusrat Jahan, Senior Lecturer, Department of Software Engineering, Daffodil International University. It also declere that nithor this project nor any part of this has been submitted elesewhere for award of any degree.



Shaon Roy Joy

Student ID: 171-35-1895

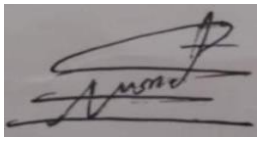
Batch: 22

Department of Software Engineering

Faculty of Science & Information Technology

Daffodil International University

Certified by:



Nusrat Jahan

Senior Lecturer

Department of Software Engineering

Faculty of Science & Information Technology

Daffodil International University

ACKNOWLEDGEMENT

In this current world of competition there is a race of existence in which those who are having will come forward to succeed. Project is a bridge between theoretical and practical working. It is true that I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals.

On the very start this report, I would like to stretch my cordial & heartfelt obligation towards all the personages who have helped me in this endeavor. Without their active guidance, help, cooperation and encouragement I would not have made advancement in the project.

First of all I would like to thank the Almighty God for guiding me to work on the right pathway of life. Without the grace of God I could not complete this project.

I would like to express my gratitude towards my parents and members of Daffodil International University for their kind and co-operation and encouragement which helped me in completion of this project.

I would like to sincerely thank the Head (In-Charge) Dr. Imran Mahmud, Department of Software Engineering. And also all the honorable teachers who teach me in such an interesting and understandable way full of enjoyment and make extra efforts to teach me and help me grow. I am always grateful for their kindness and support.

I am highly indebted to Ms. Nusrat Jahan Senior Lecturer Department of Software Engineering for his guidance and constant supervision as well as for providing necessary information regarding the project & also his valuable suggestions and support on completion of this project in its present.

I am grateful to my Department staff members, Lab technicians and Non-teaching staff members for their extreme help throughout my project.

And at last but not the least I would like to express my love to my batch mate, who directly or indirectly helped me to finish this task.

DEDICATION

This project is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time.

ABSTRACT

"Coaching Control System" is a web-based application where

There are many coaching centers in our country. One person has many coaching centers or branches. Manually it is very difficult to collect all information regularly from all branches. Then, coaching centers are not monitored properly and the quality of coaching gets down. If they use a system that collects data from all branches and provides it to the owner then the owner can monitor every place and take proper steps. Owner can verify all branches and headmaster. If an issue occurs then the Owner can assign a coordinator to solve the problem.

Owners get feedback from coaching students according to coaching. It will help them to improve education quality.

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CHAPTER 1

INTRODUCTION

1.1 Project Overview:

There are many coaching centers in our country. One person has many coaching centers or branches. Manually it is impossible to collect all information regularly from all branches. Then, coaching centers are not monitored properly and the quality of coaching gets down. If they use a system that collects data from all branches and provides it to the owner then the owner can monitor every place and take proper steps. Owner can verify all branches and headmasters.
If an issue occurs, the Owner can assign a coordinator to solve the problem.
Owners get feedback from coaching students according to coaching. Headmaster also plays a role in the system. Headmaster can assign teachers and submit their performance in the system. Teachers can add students in specific classes. In my system the teacher will input data like student attendance, result and other extracurricular activity. Teachers also provide students with a username and password to access the system. Using this system, students can send any feedback like any problem they have faced. It will help them to improve education quality.

1.2 Project Purpose:

The main purpose of this project- This time is very critical for covid-19. This time is very bad for the whole human race. There is no substitute for online education worldwide at the present time. All educational institutions are now offering lessons online. The coaching owner can improve the quality of education by observing it properly. Manually it is impossible to collect all information regularly from all branches. Then, coaching centers are not monitored properly and the quality of coaching gets down. If occurs any problem then the owner can assign a coordinator to solve the problem. This will further improve the education of the students.

1.2.1 Background: Coaching Control System is a web based application which is totally computerized system design for Coaching owner, headmaster, teachers and students. It mainly developed for coaching owner can improve the quality of education by observing it properly. The purpose of the system is to make a platform where owner can easily observed all coaching branches. This system is very user friendly and easy to use.

1.2.2 Benefit: Using this system owner can easily find the situation of coaching branches. Owner can collects data from all branches and also monitor every place and take proper steps. He or she can also find out all information of all branches. Branch headmaster can easily see all the information of coaching. Teachers can see all student information. This will greatly improve the quality of education.

1.2.3 Goal: The main goal of my application is further improvement in the quality of education and also build a platform where coaching owner can easily enquiry all branches, so that the owner can observe in an easy way. And save their time and money.

1.3 Stakeholders:

There are seven types of stakeholder in this project.

1. The system developer
2. Users (Owner, Headmaster, Teacher, Student)
3. Quality Tester
4. Web developer

1.4 Proposed System Model

Proposed system model basically describes which model to follow for developing the system. What is the project about and what are the new features in the project than other existing projects? For this system I think the waterfall model is perfect. Why and how they are working are describing details below, figure [1]

1.4.1 Waterfall-Model

Our proposed system model is a waterfall model. Because-

- Our requirements are very clear and fixed.
- Easy to arrange tasks
- Clearly defined stages.
- Simple and easy to understand and easy to use.
- Strong disciplined process.

1.4.2 How We Used Waterfall

1. First of all first gathering requirements. The requirements for the software in terms of both the design and functionality is taken.

2. When all the requirements are complete to gather. Then an architecture of the system is drawn to simplify the process of implementation.

3. According to blueprint design start to implement the system.

4. When implementation is complete the implementation software now verified and tested by the teams one's the system testing is complete, ted overturn the system to implement further changing the requirements can't be done.

5. Setting up of the system or software after a developer runs and testing is done.

6. Regular updating, verification and debugging of the software.

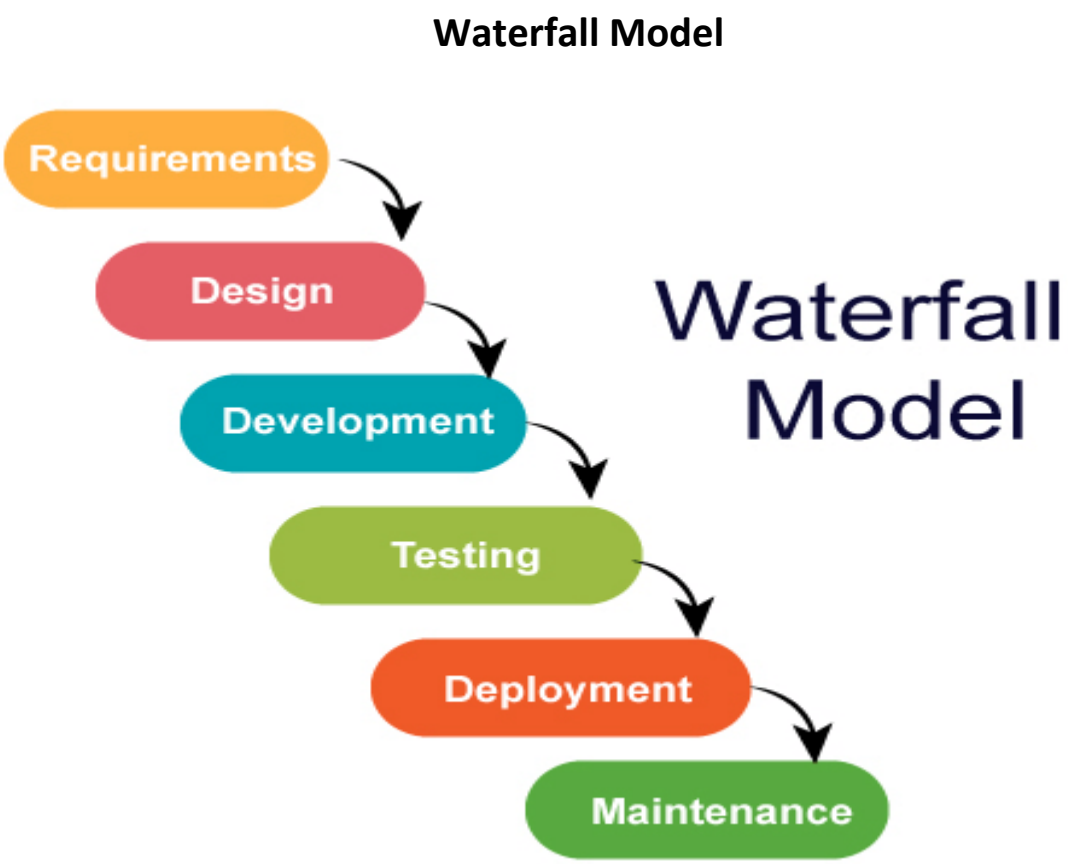

Fig 1 : Project proposed model

1.5 Project Schedule

Project scheduling is a mechanism to communicate what tasks need to get done and which organizational resources will be allocated to complete those tasks in what timeframe. A project schedule is a document collecting all the work needed to deliver the project on time. A schedule is commonly used in the project planning and project portfolio management parts of project management.[1]

1.5.1 Gantt Chart

A Gantt chart is a series of horizontal lines shows the amount of work done or production completed in certain periods in relation to the amount planned for those periods, figure [2]

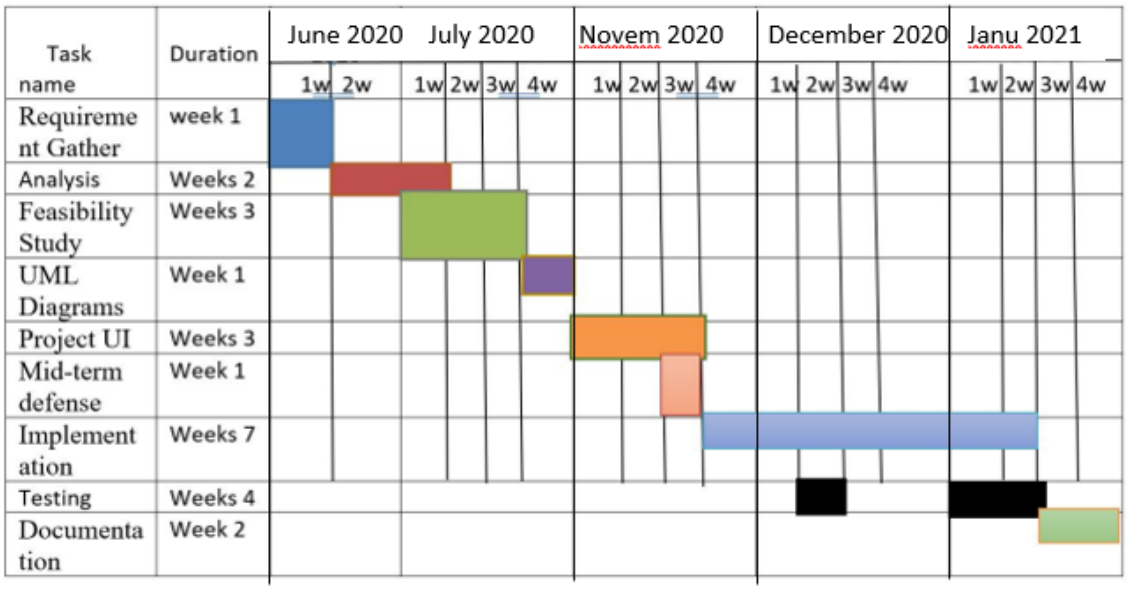

Fig 2 : Gantt chart

1.5.2 WBS Planning For Development Phase

1. Project plan [12 June 2020 to 18 June 2020]
2. Requirement gathering [24 June 2020 to 27 June 2020]
    - Analysis [27 June 2020 to 3 July 2020]
    - Brainstorming
    - Interview
    - Observation
    - Implementation Analysis
4. Feasibility study [5 July 2020 to 15 June 2020]
5. Design [03 Nov 2020 to 05 Dec 2020]
    - System design
    - Database design and Implementation
    - UML design
    - System User Interface (UI)
6. Development [10 August 2020 to 10 September 2020]
    - User Module (candidate)

- Administrator Module

7. Testing [11 January 2020 to 15 January 2020]
    - Test plan
    - Test Case
    - Test Execution

1.6 Related Work

There are a lot of Coaching Management System. They mainly focus on attendance system or student tracking system or specifies a part only. They develop a one side tracing system. But they cannot focus on the maintenance system. So in this application coaching owner find all braches information and also find headmaster list, branch list and student feedback list. This application has unique facilities like owner easily find headmaster, find all information, see student feedback, send coordinator.

1.7 Problem Statements

In this application, I face many problems for building the system. Headmaster and teacher verification is the big issue in this application. Another problem is accepts and reject system in this code in the Django framework. It is difficult to work with new technology. As there is no application like this so it is hard to collect the requirements. It is difficult to handle the user base authentication. To design a responsive and user friendly user interface was really a big challenge.

1.8 Proposed Solution

In my proposed system, I am going to provide solutions for only authorized person can login. I try to know the technology that I use in this system in depth. It is very user friendly. A fake person cannot enter the system because first of all need to check. To design a user friendly and responsive user interface I prefer the most commonly used CSS framework bootstrap.

CHAPTER 2

SOFTWARE REQUIREMENTS SPECIFICATION

2.1 Software Requirements Specification

A software requirements specification is the official representation of what the system developer should implement. The SRS fully describes what the software will do and how it will be expected to redact and also includes the cost of the entire software. SRS is a complete description of the behavior of a system to be developed. SRS should comprise both the definition of user requirements and also the specification requirements the documents provide the whole overview of the software. Because of SRS developers can easily understand the requirements of software and know what they should implement.

2.2 Functional Requirements

- Users can register and login in the system.
- Coaching owner can see his/ her all branches.
- The owner can verify headmasters.
- The owner can see all headmaster list.
- The owner will be able to see all the information of all branch.
- The owner can get feedback from student.
- Headmaster can verify teachers.
- The Headmaster will be able to see all the information of his branch.
- The Headmaster will be able to assign teacher to the class.
- Teacher will be able to add student in classroom.
- Teacher will be able to add student result.
- Student will be able to send feedback to the owner.

2.3 Non-Functional Requirements

- Users can change their passwords.
- This website is capable enough to handle users without affecting its performance.
- The software is portable. So moving from one OS to another OS does not create any problem.
- All the system data is protected and it concerns the security of the data. So it is reliable.
- The system's user interface is easy to understand and user friendly.

2.4 Software Requirements

Operating system: Windows 10

Frontend: HTML, CSS, Bootstrap, JavaScript.

Backend: Django (Python)

Database: SqLite

Code Editor: PyCharm Community Edition 2020.3

2.5 Hardware Requirements

Processor: Intel core i5

RAM: 4GB

Hard Disk: 1TB HDD

CHAPTER 3

SYSTEM ANALYSIS

3.1 USE CASE DIAGRAM

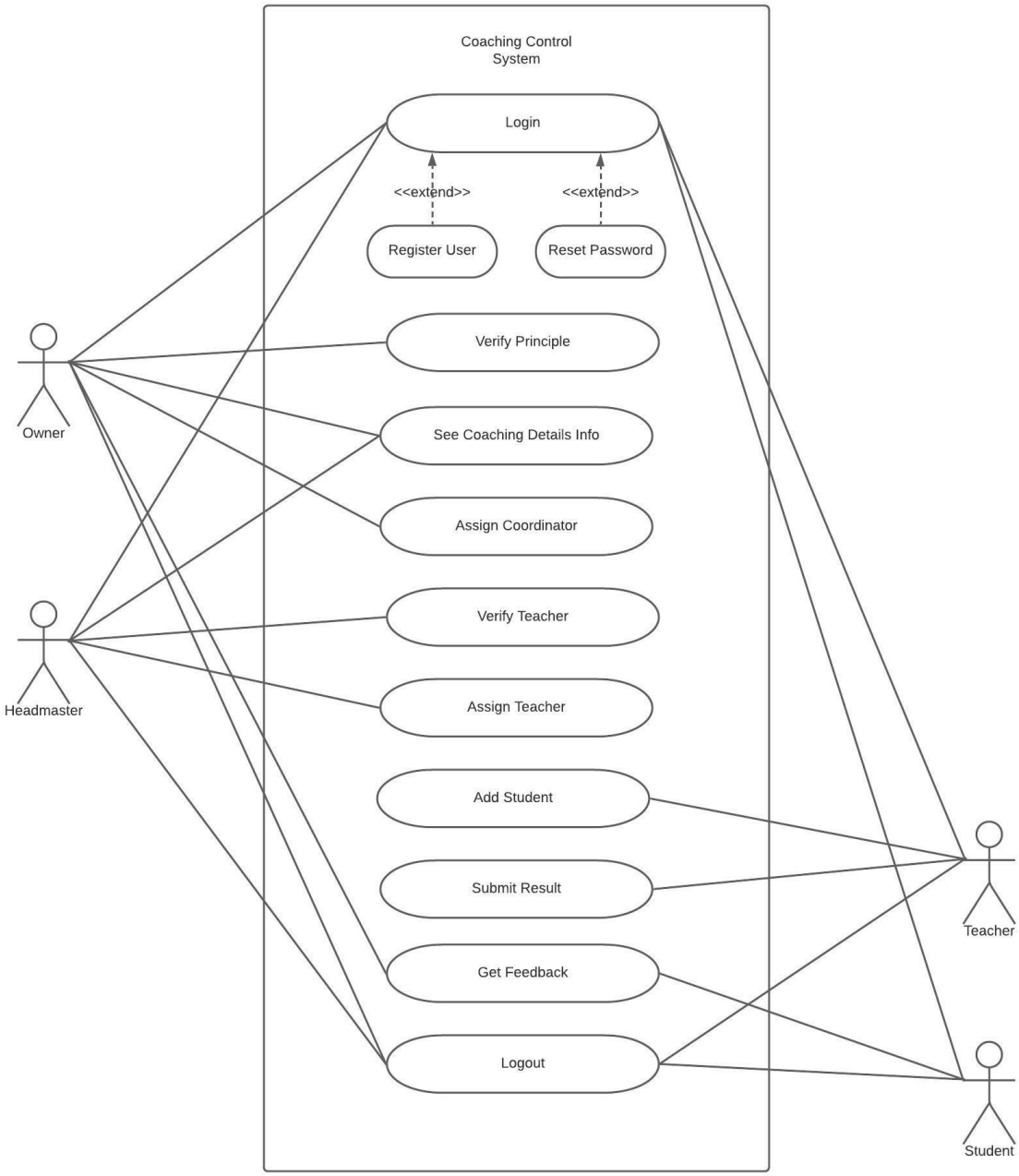

Fig 3 : Use Case Diagram

3.2 USE CASE DESCRIPTION

Use Case Name	Headmaster Verification
Actor	Headmaster, Owner
Description	Owner can verify all headmaster of all coaching branch when they enter the system.
Precondition	Headmaster must be legal.
Trigger	By clicking on headmaster verification button
Flow of Events	• Headmaster will register himself with proper information. • Owner will get all information from headmaster • Owner verify headmaster with proper verification.
Post Condition	Headmaster will added the system.

Tab 1: Headmaster Verification

Use Case Name	See School Information
Actor	Owner, Headmaster, Teacher, Student
Description	Owner can see all information of all coaching individually.
Precondition	Must be save all data in system
Trigger	By clicking See Information button
Flow of Events	• Owner can check all coaching information • Owner can see Headmaster, Teacher, Student Activity • Owner will click See Information button
Post Condition	Owner can see all School Information

Tab 2: School Information

Use Case Name	Communicate with Headmaster
Actor	Owner, Headmaster
Description	Owner will be Communicate with Headmaster
Precondition	Headmaster must be verified
Trigger	By clicking communicate with Headmaster button
Flow of Events	• Owner can communicate with Headmaster • Owner can sent notification to Headmaster
Post Condition	By clicking on the button then communicate with Headmaster

Tab 3: Communicate with Headmaster

Use Case Name	Assign coordinator to School
Actor	Owner, Coordinator
Description	When any problem occurs then owner can assign a coordinator to solve the problem.
Precondition	When happened any problem
Trigger	By clicking Coordinator assign button
Flow of Events	• Owner can assign a coordinator • Coordinator can take action with owner permission
Post Condition	By clicking on the button then assign coordinator

Tab 4: Assign coordinator to School

Use Case Name	Get Feedback from Student
Actor	Owner, Student
Description	Owner will get feedback from student using the system.
Precondition	When happened any problem
Trigger	By clicking Student feedback button
Flow of Events	• Owner can get Student feedback • When get logical feedback then take action
Post Condition	By clicking on the button then get feedback

Tab 5: Get Feedback from Student

Use Case Name	Headmaster Login
Actor	Headmaster
Description	Provide correct username and password when the Headmaster want to access the system
Precondition	Headmaster should remain in the login page
Trigger	By clicking on the login button
Flow of Events	• Two text fields to give input of the username and password respectively • Write the username and password on that field and click the login button
Post Condition	Store in the database

Tab 6: Headmaster Login

Use Case Name	Teacher Verification
Actor	Headmaster, Teacher
Description	Headmaster can verify all Teacher of coaching when they enter the system
Precondition	Teacher must be authentic
Trigger	Headmaster verify teacher
Flow of Events	• Teacher will register himself with proper information • Headmaster will get all information from teacher • Headmaster verify teacher with proper verification
Post Condition	By clicking on the button then verify

Tab 7: Teacher Verification

Use Case Name	Assign teacher to class or subject
Actor	Headmaster, Teacher
Description	Headmaster assign teacher all class or subject
Precondition	Assign teacher to class who perfect for each classes
Trigger	Assign teacher of all classes by clicking on the button
Flow of Events	• Headmaster can assign teacher • Headmaster select teacher with schedule
Post Condition	By clicking on the button then conform teacher

Tab 8: Assign teacher to class or subject

Use Case Name	Headmaster Login
Actor	Headmaster, Teacher
Description	Provide correct username and password when the teacher want to access the system
Precondition	Teacher should remain in the login page
Trigger	Assign teacher of all classes by clicking on the button
Flow of Events	• Two text fields to give input of the username and password respectively • Write the username and password on that field and click the login button
Post Condition	Store in the database

Tab 9: Headmaster Login

Use Case Name	Add student
Actor	Teacher, Student
Description	Teacher can add student in the system
Precondition	Student must be authentic
Trigger	By clicking add student button
Flow of Events	• Teacher add student when the student is new or not registered • Teacher add student when student is authentic
Post Condition	By clicking on the add student button

Tab 10: Add student

Use Case Name	Upload result
Actor	Teacher, student
Description	Teacher will upload all subject result
Precondition	Student must be attend examination
Trigger	By clicking on upload result button
Flow of Events	• Student attend exam and teacher give marks • Input subject result • Teacher upload result subject wise • Click on upload button
Post Condition	Store in the database

Tab 11: Upload result

Use Case Name	Provide username and password
Actor	Teacher, student
Description	Teacher provide username and password when a student is not registered
Precondition	When Student is new or has not username and password
Trigger	Click provide username and password link
Flow of Events	• Teacher give a username and password to student • Student can access the system when he or she get a username and password
Post Condition	Student can access the system

Tab 12: Provide username and password

Use Case Name	Student Login
Actor	Teacher, Student
Description	Provide correct username and password when the student want to access the system
Precondition	Teacher should remain in the login page
Trigger	Assign teacher of all classes by clicking on the button
Flow of Events	• Two text fields to give input of the username and password respectively • Write the username and password on that field and click the login button
Post Condition	Store in the database

Tab 13: Student Login

Use Case Name	Send Feedback
Actor	Teacher, Student
Description	Student give feedback about coaching branch, any other issues or suggestion
Precondition	When student get any issues or suggestion and send feedback
Trigger	Student click write and send button
Flow of Events	• Student can share personal opinions • Student will send feedback about coaching, teacher or other problem • Student will write any suggestion and send
Post Condition	Store in the database

Tab 14: Send Feedback

3.3 Activity Diagram

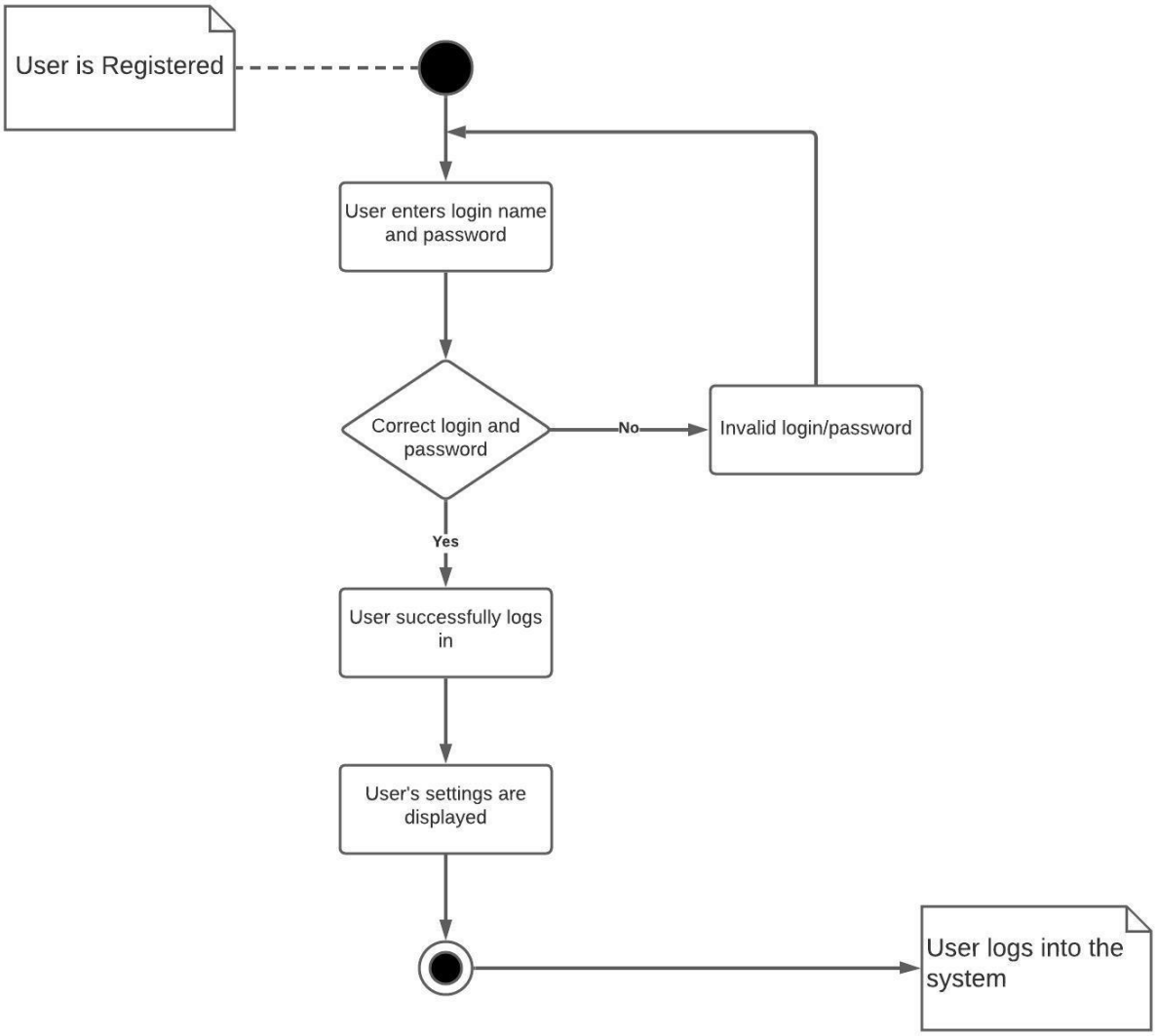

Fig 4 : Activity Diagram of User Registration

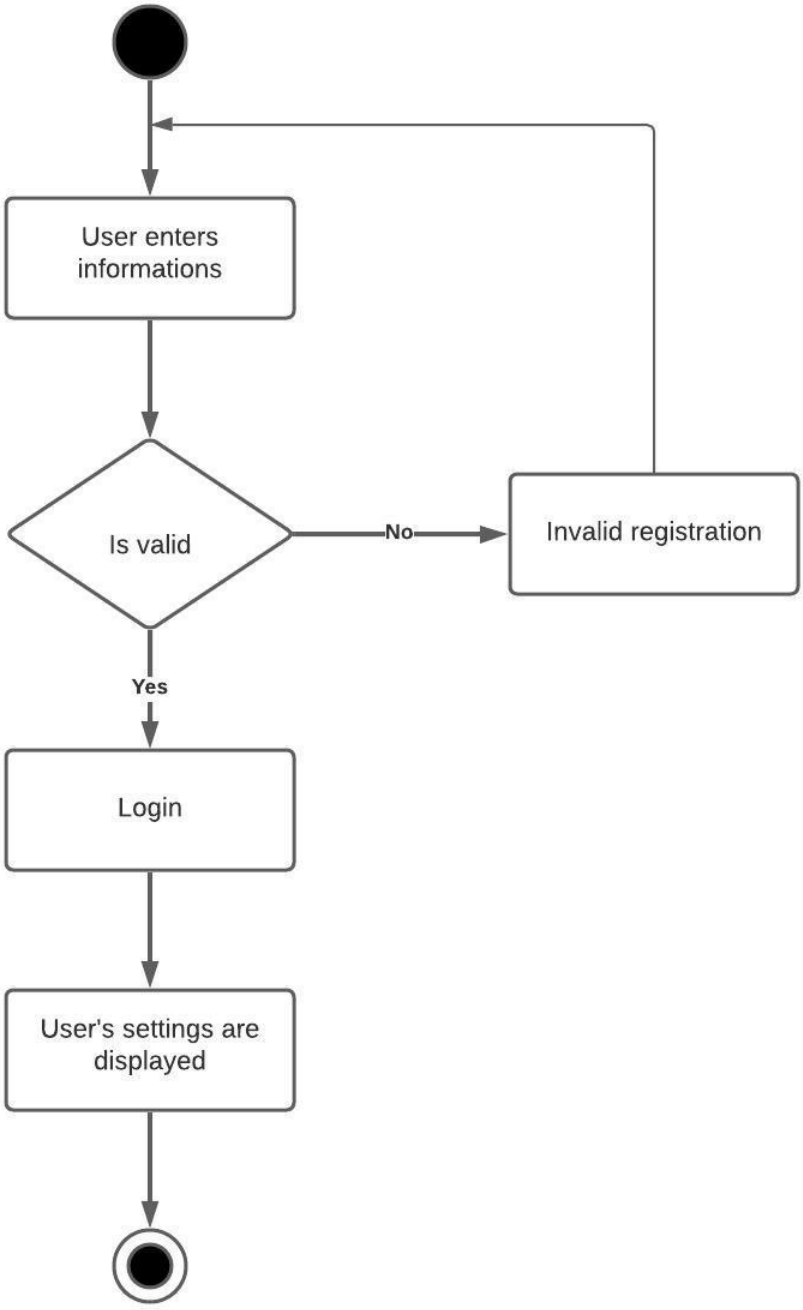

Fig 5 : Activity Diagram of User Login

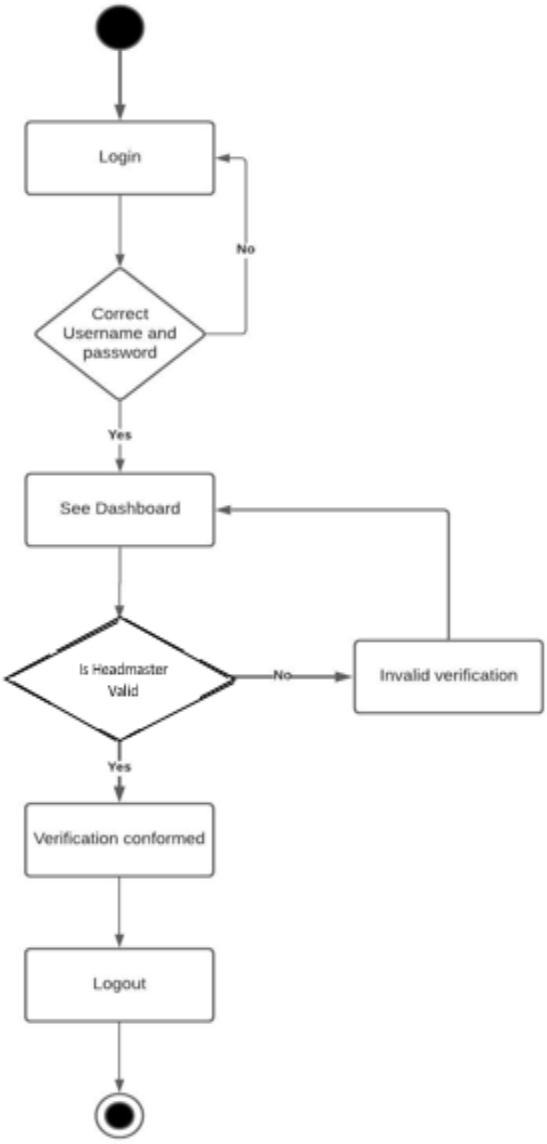

Fig 6 : Activity Diagram of Headmaster Verification

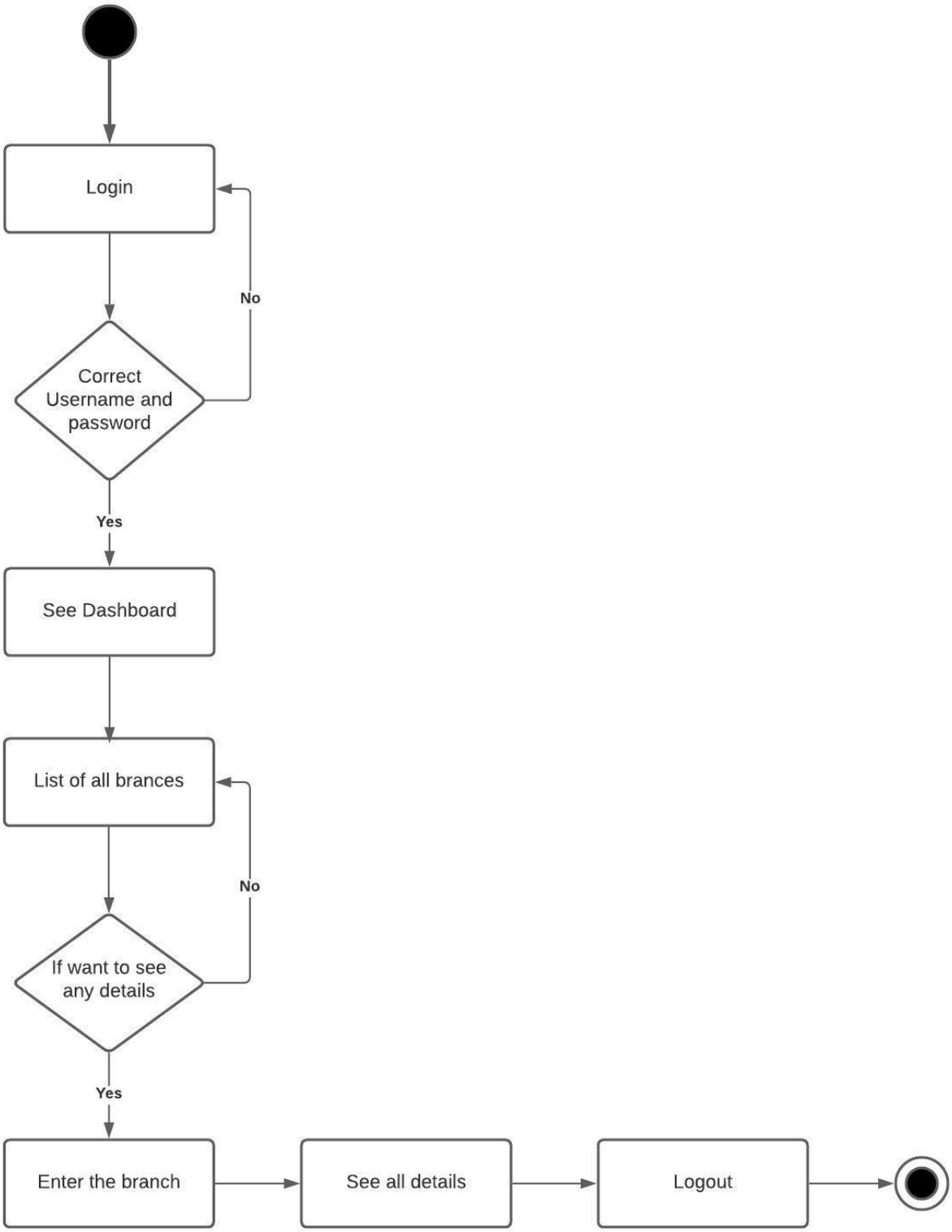

Fig 7 : Activity Diagram of all Coaching Branch Information

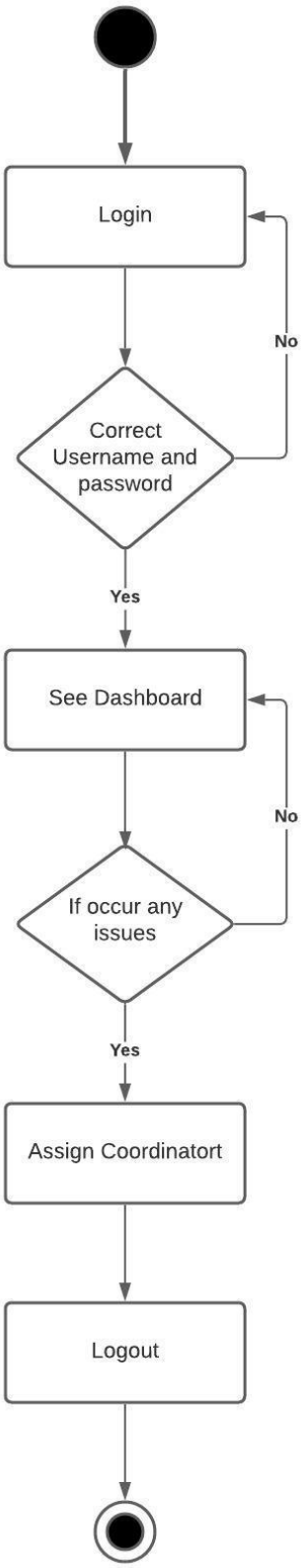

Fig 8: Activity Diagram of Assign Coordinator

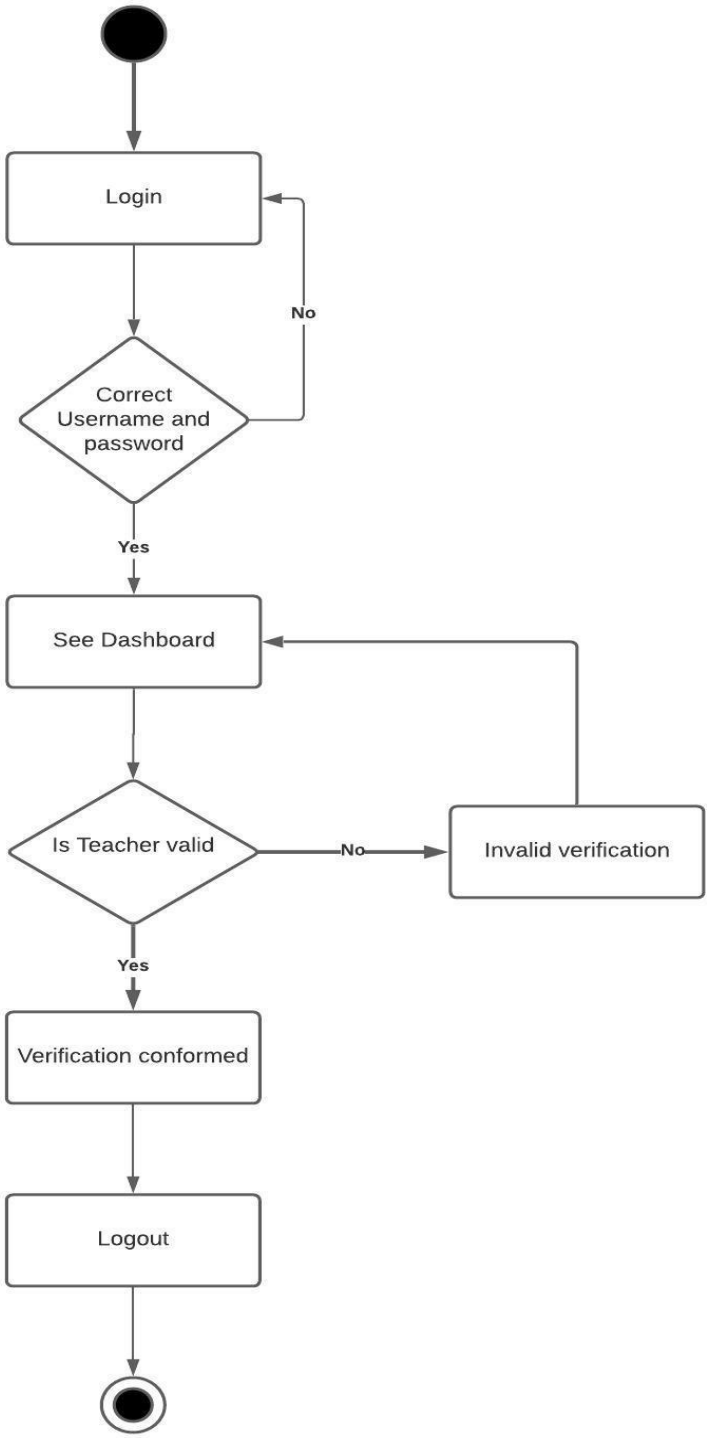

Fig 9: Activity Diagram of Teacher Verification

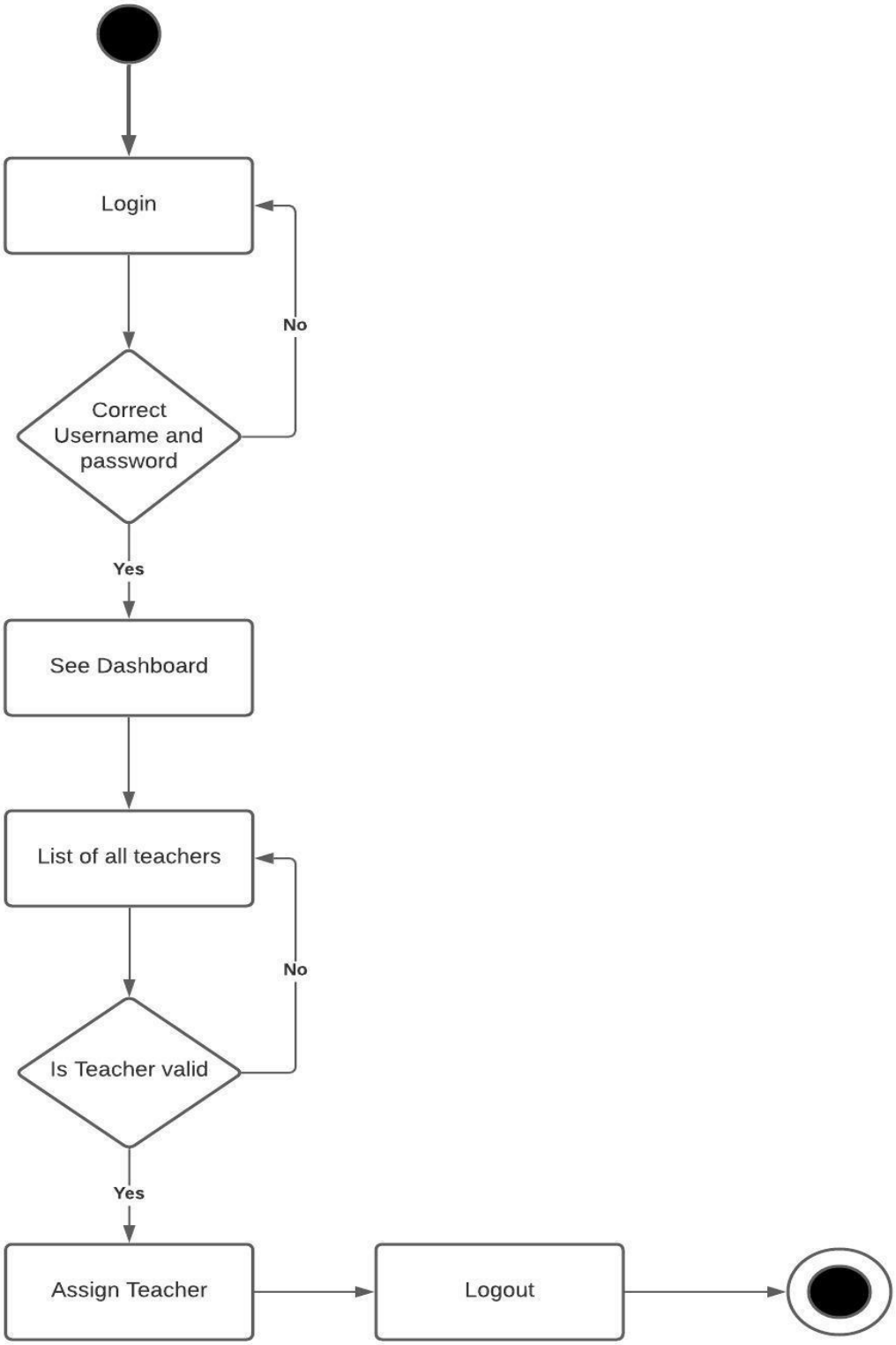

Fig 10: Activity Diagram of Assign Teacher

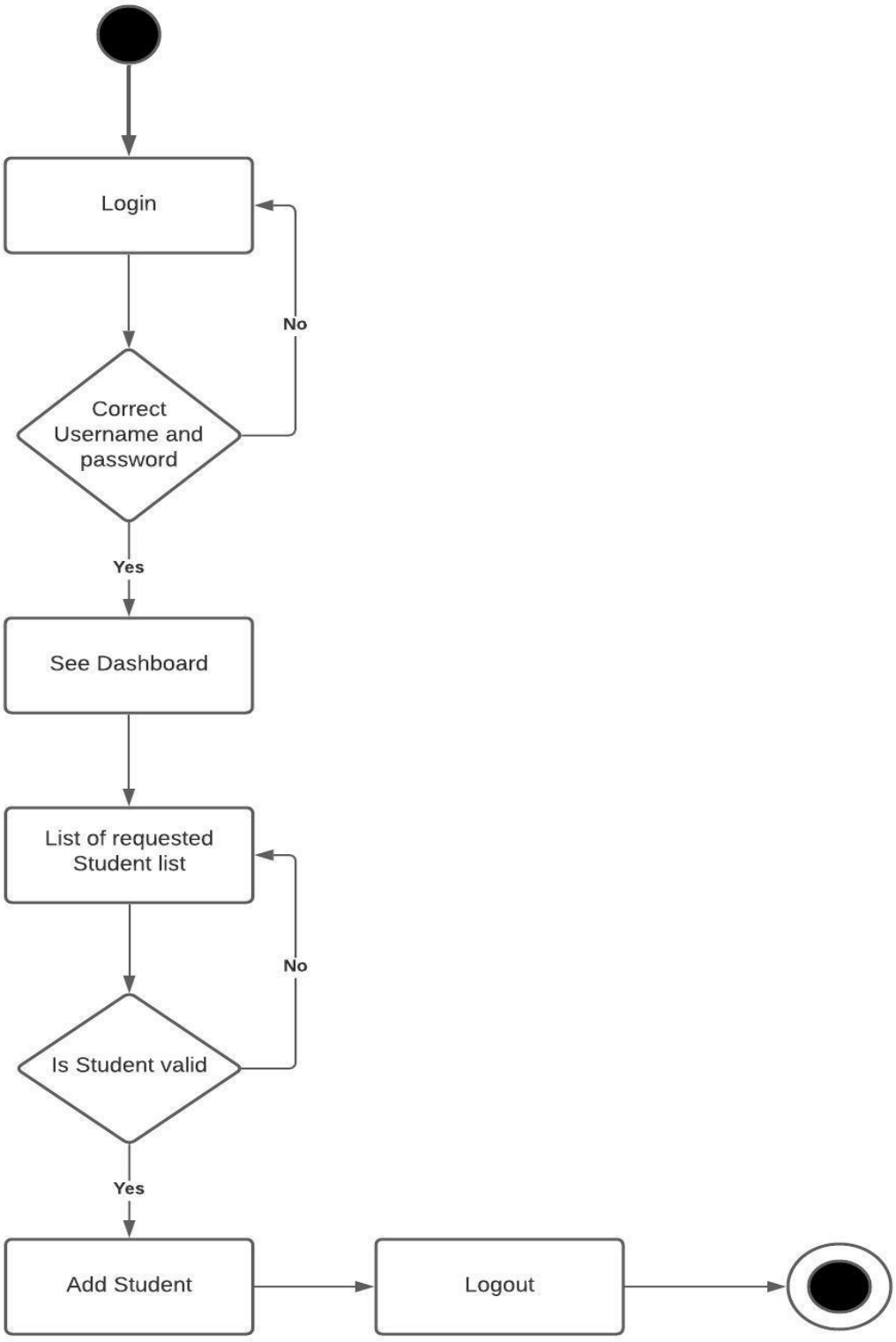

Fig 11: Activity Diagram of Add Student

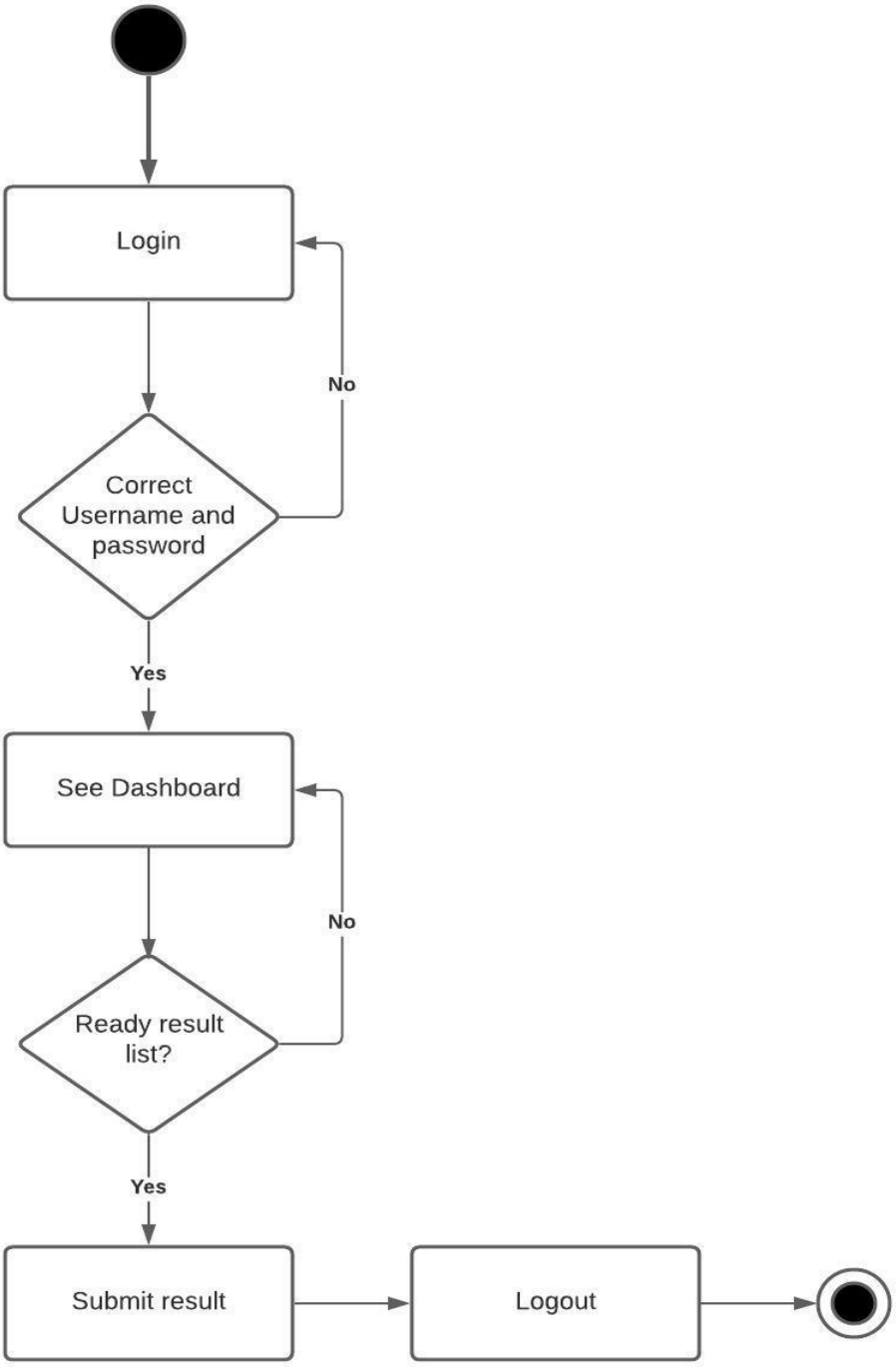

Fig 12: Activity Diagram of Submit Student Result

3.3 Sequence Diagram

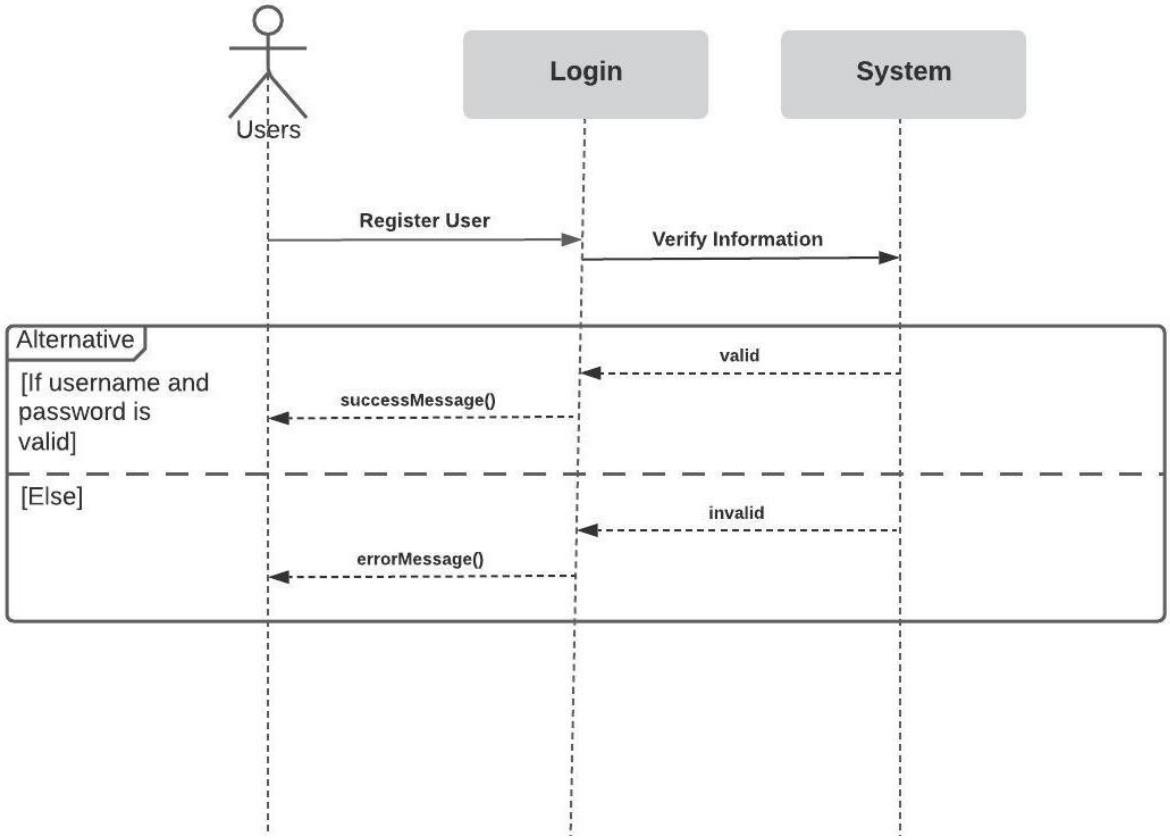

Fig 13: Sequence Diagram for Registration

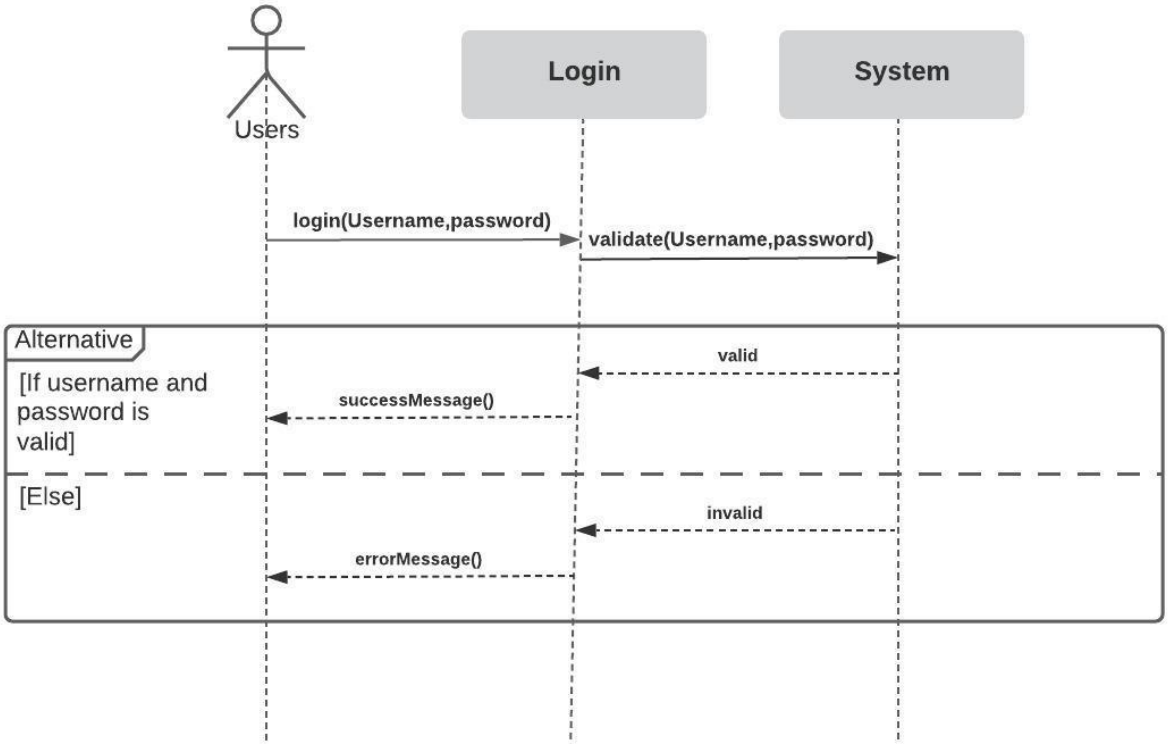

Fig 14: Sequence Diagram for Login

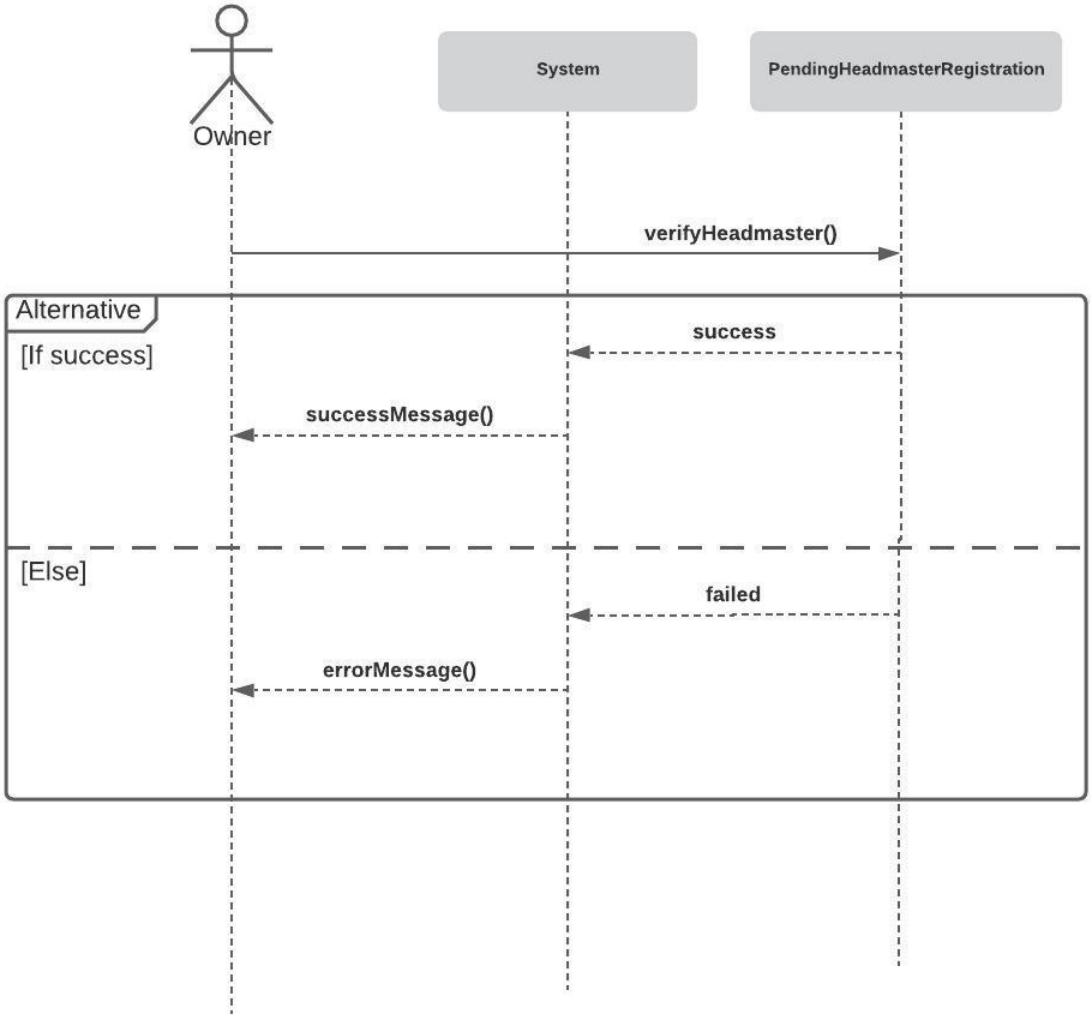

Fig 15: Sequence Diagram for Headmaster Verification

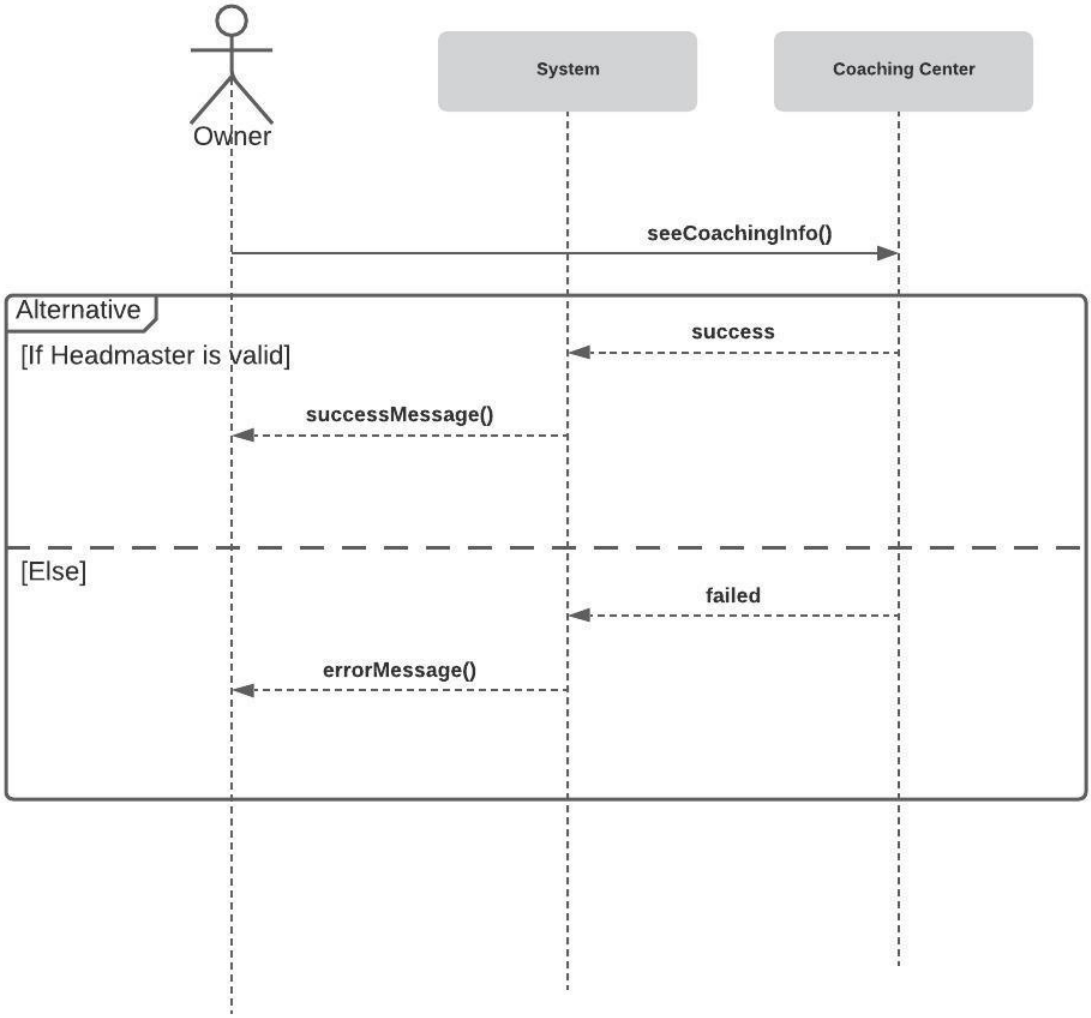

Fig 16: Sequence Diagram for Coaching Information

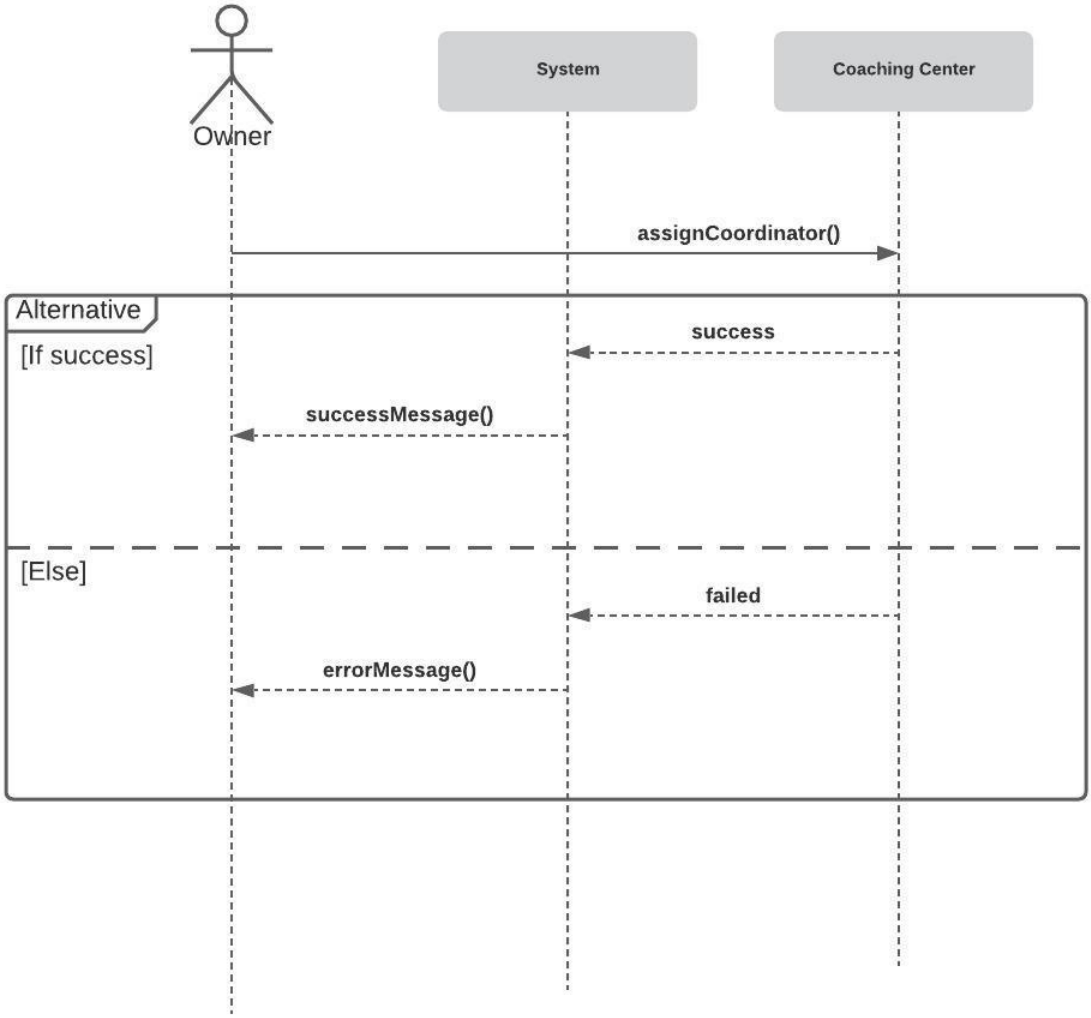

Fig 17: Sequence Diagram for Assign Coordinator

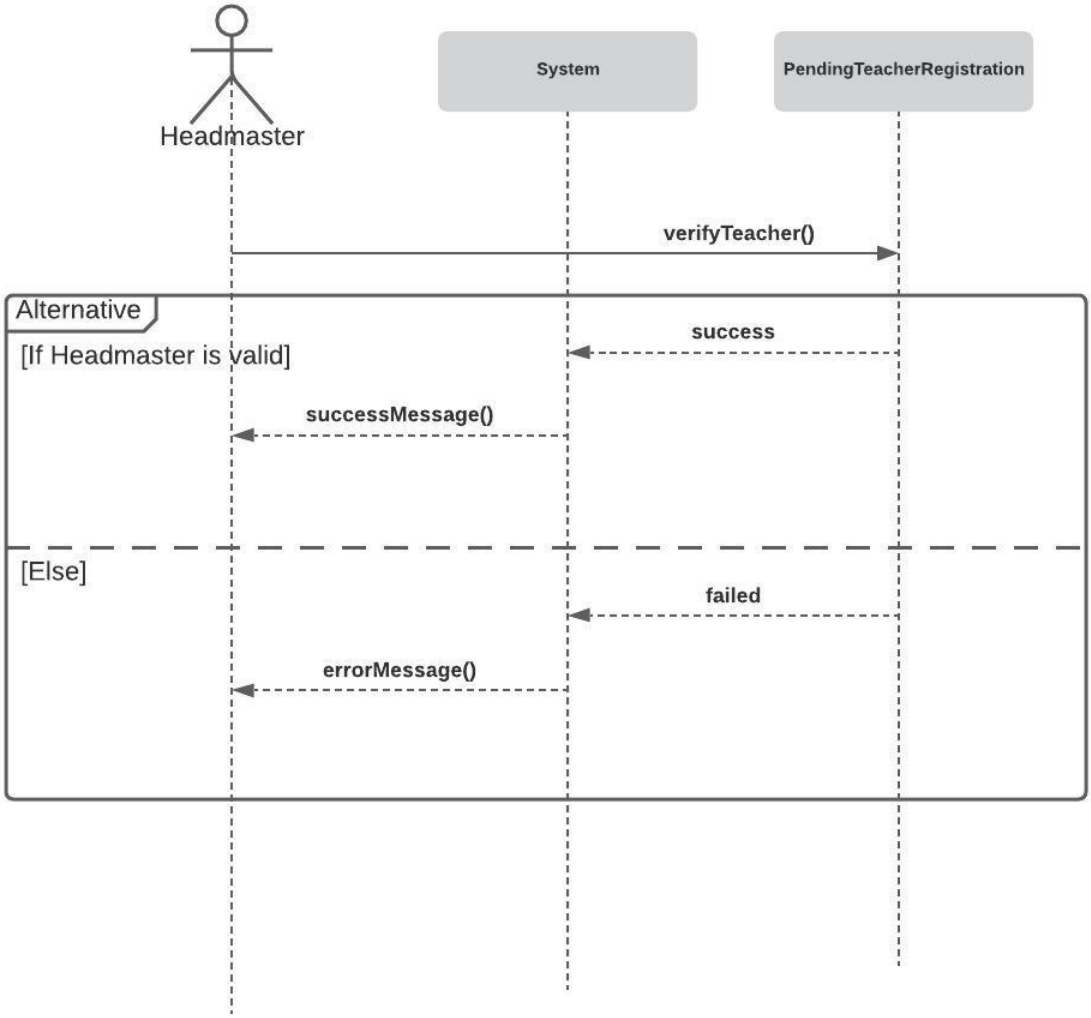

Fig 18: Sequence Diagram for Teacher Verification

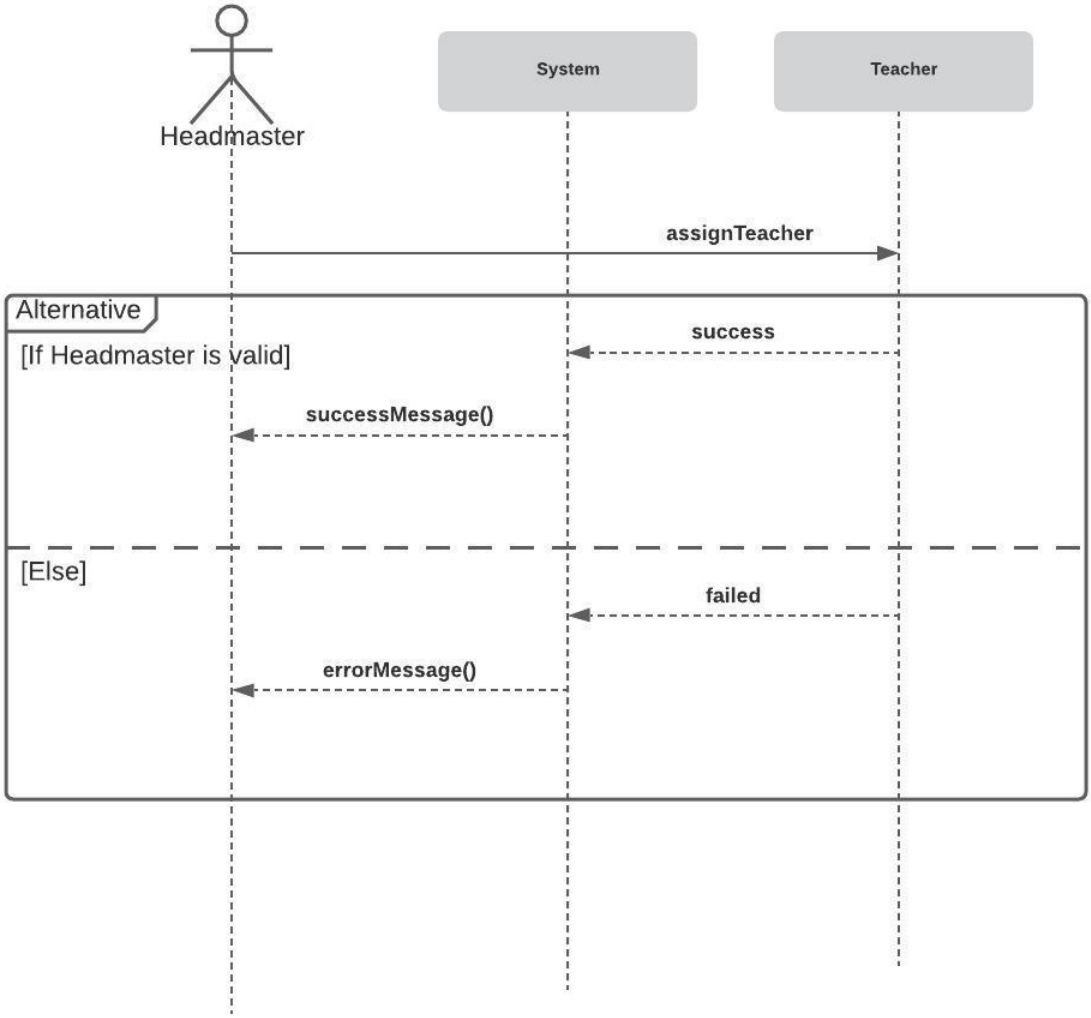

Fig 19: Sequence Diagram for Assign Teacher

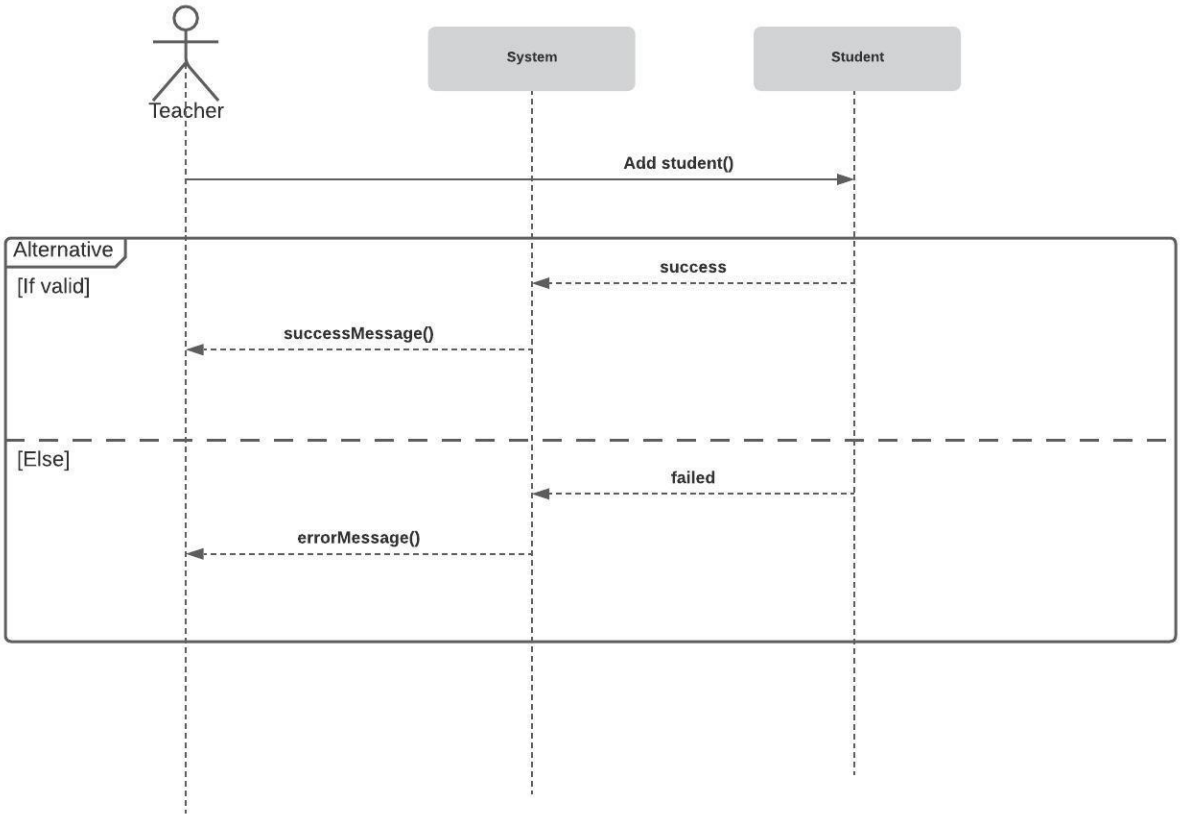

Fig 20: Sequence Diagram for Add Student

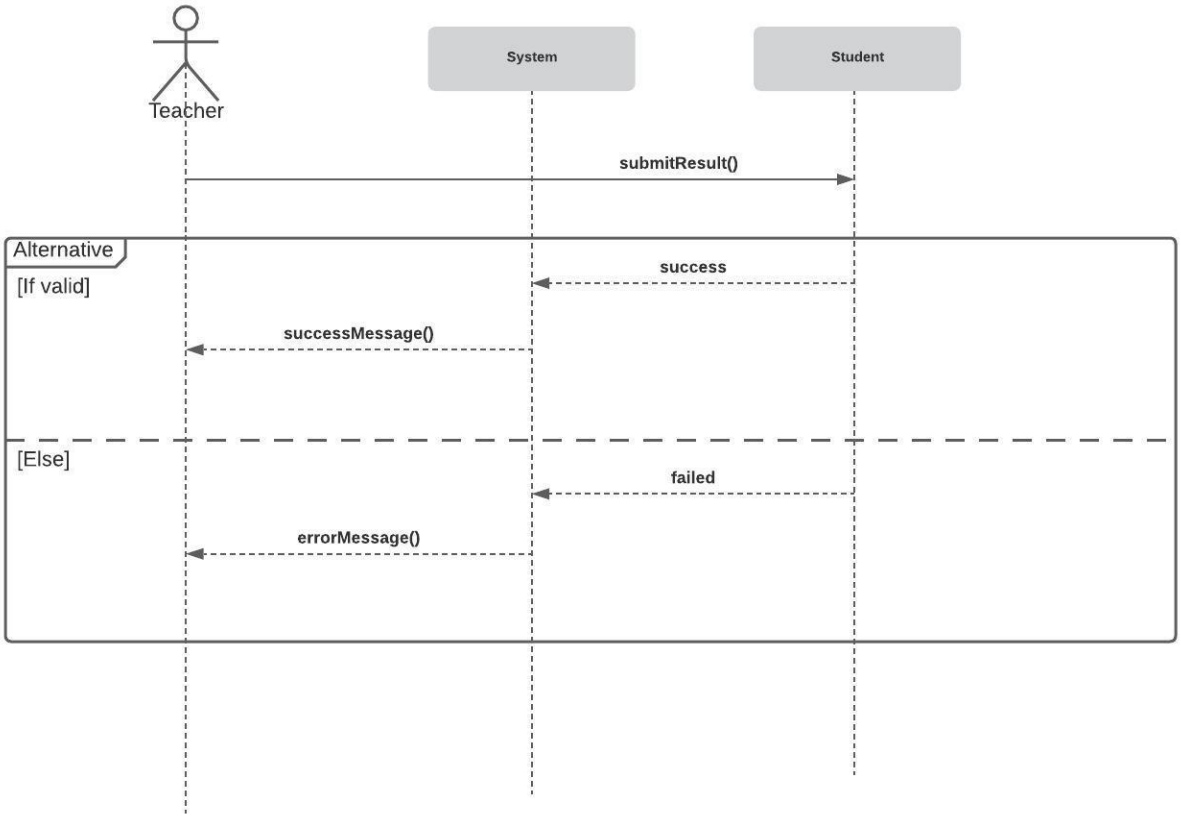

Fig 21: Sequence Diagram for Student Result

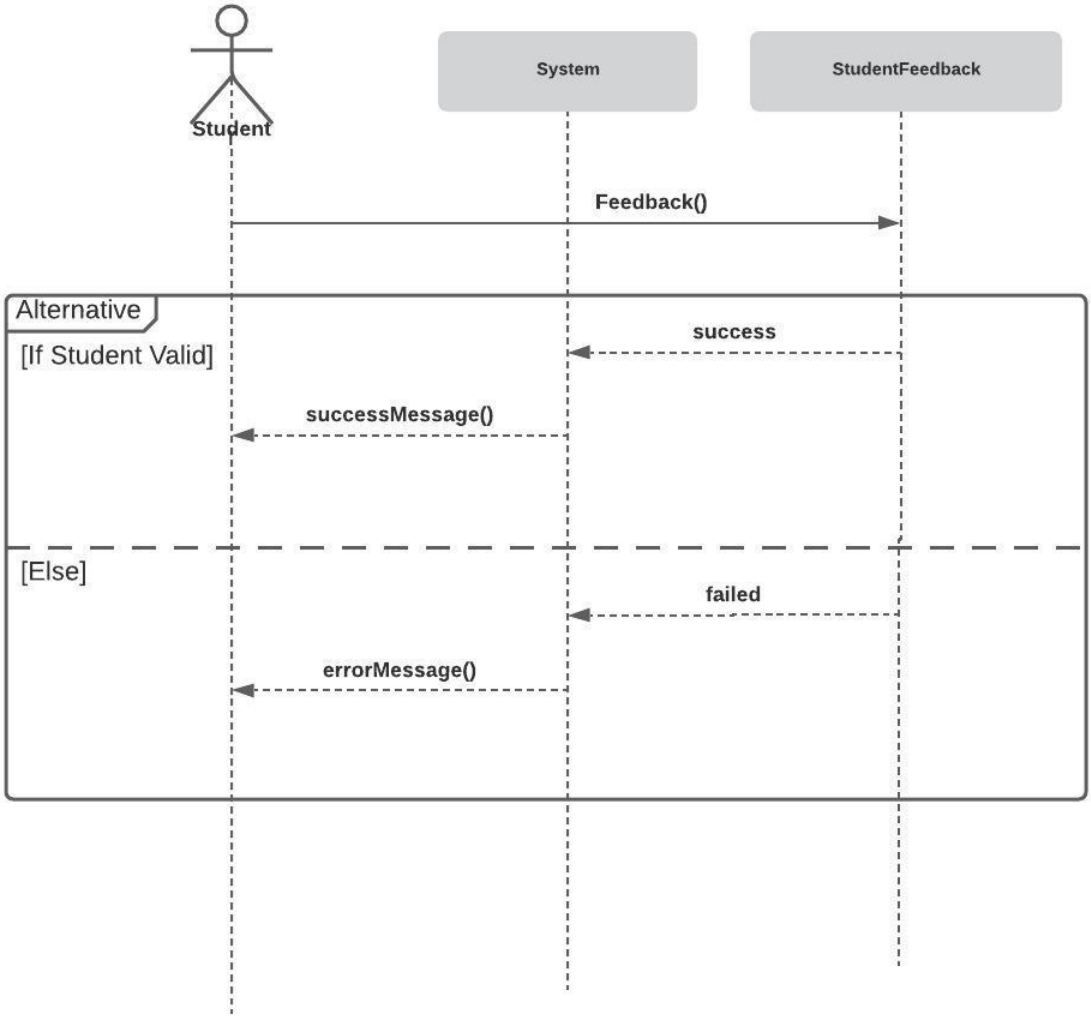

Fig 22: Sequence Diagram for Student Feedback

3.3 ENTITY RELATIONSHIP DIAGRAM

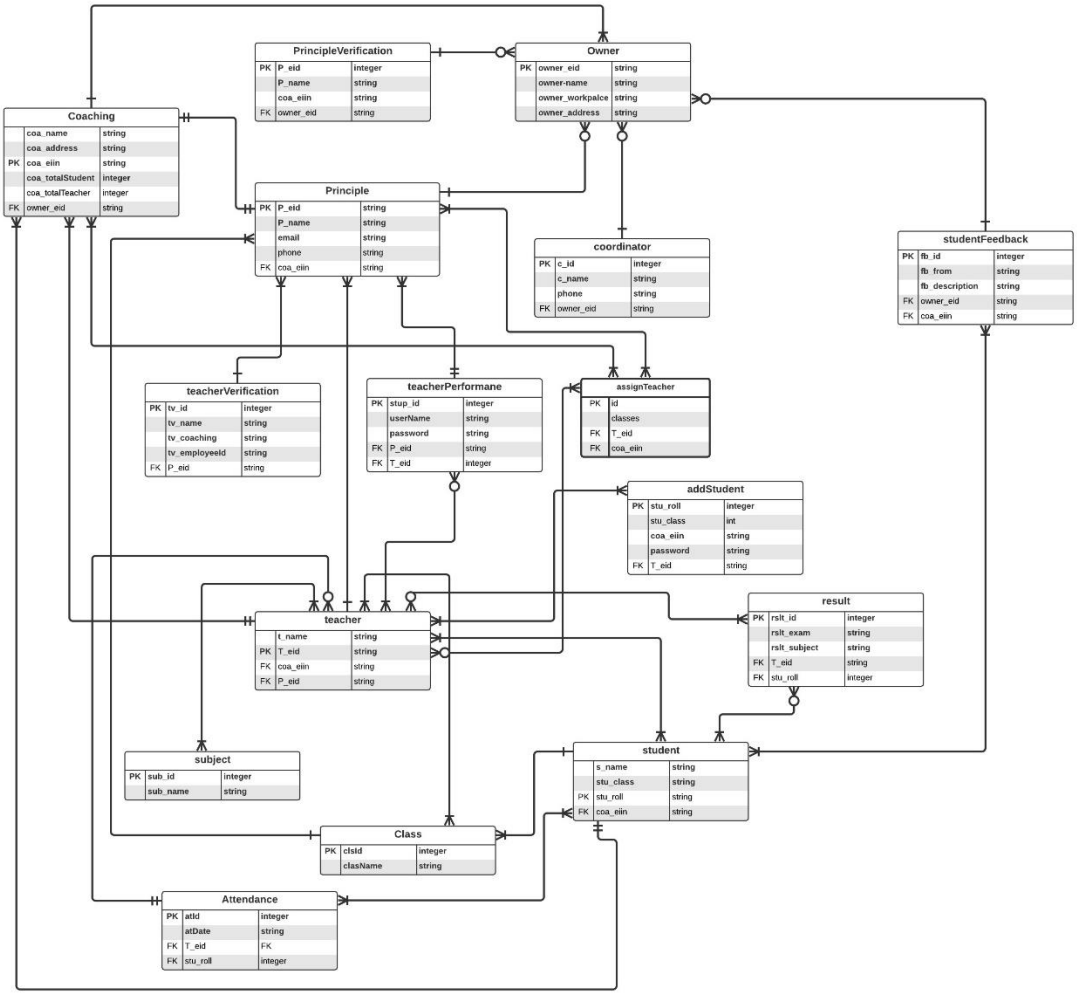

Fig 23: ERD Diagram

CHAPTER 4

DEVELOPMENT TOOL & TECHNOLOGY

4.1 Development Technology

1. HTML
2. CSS (Cascading Style Sheet)
3. Bootstrap JavaScript
4. Django (Python web framework)

4.2 Development Tools and Platforms

1. Pycharm (code editor)
2. Chrome browser
3. Command line terminal
4. Github Localhost

CHAPTER 5

USER INTERFACE

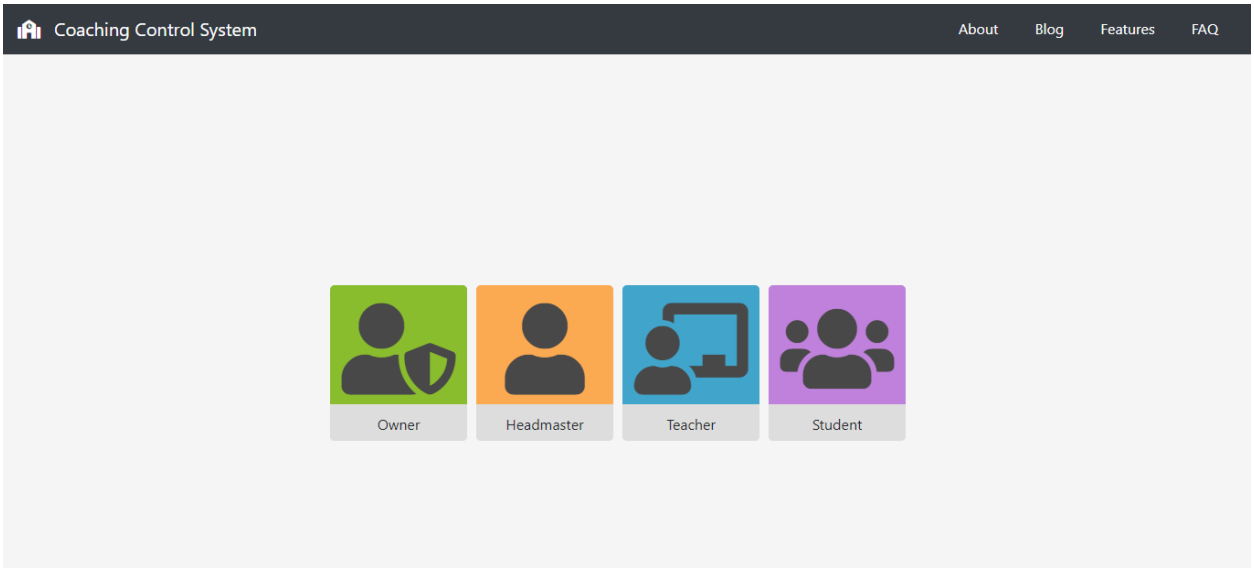

Fig 24: Home Page

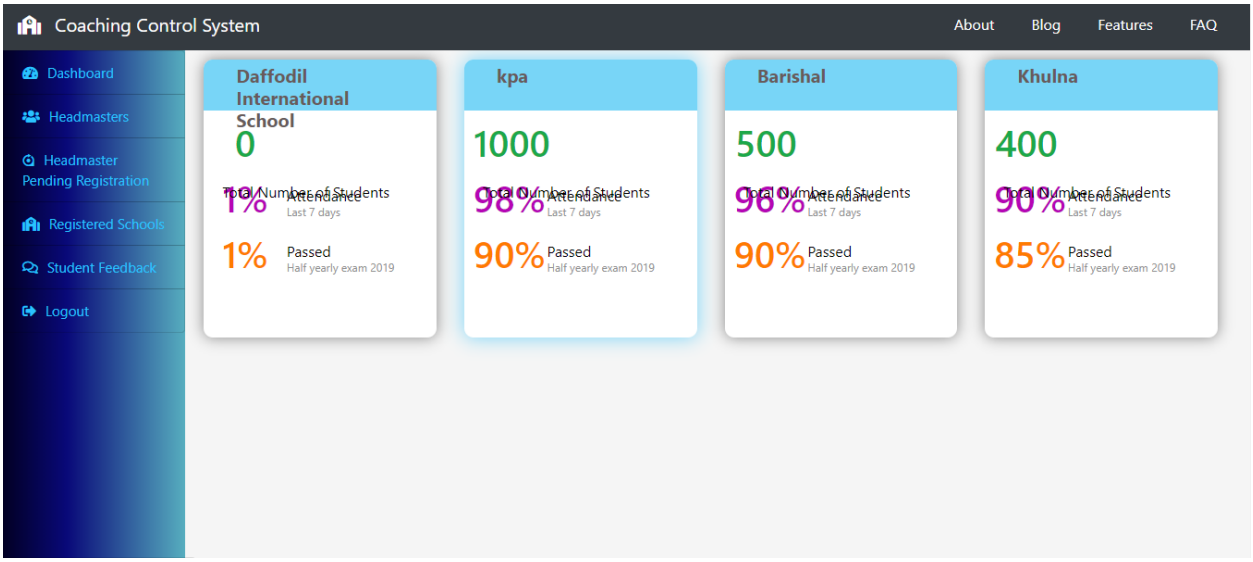

Fig 25: Owner Dashboard

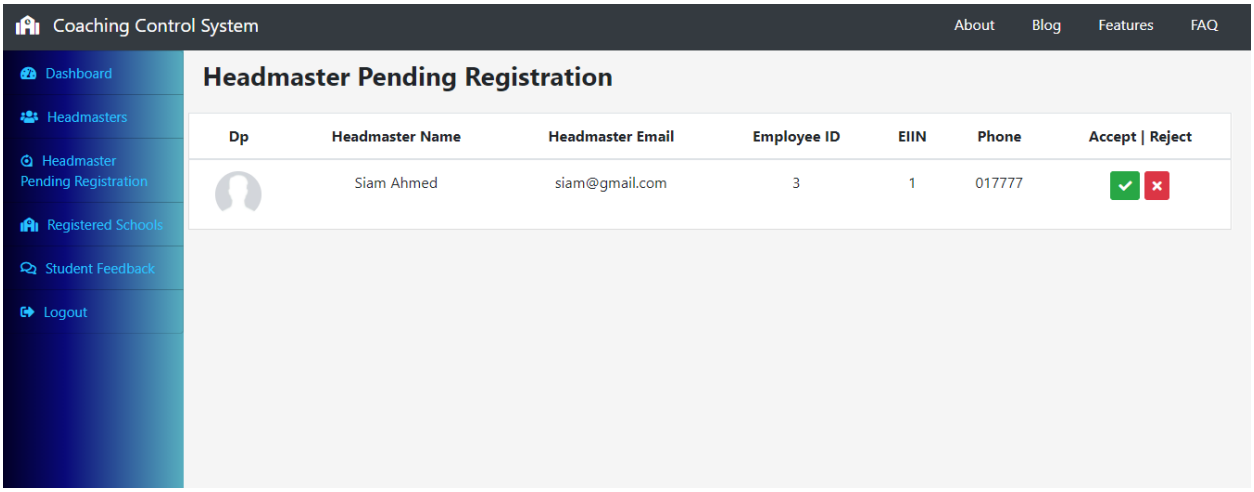

Fig 26: Headmaster pending request list

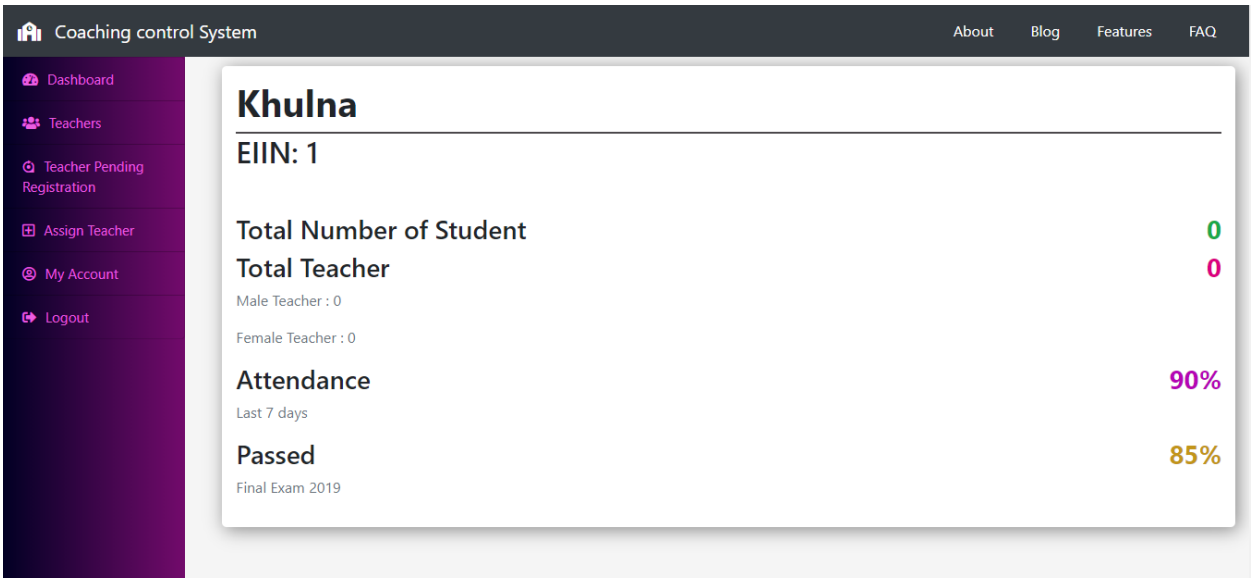

Fig 27: Headmaster dashboard

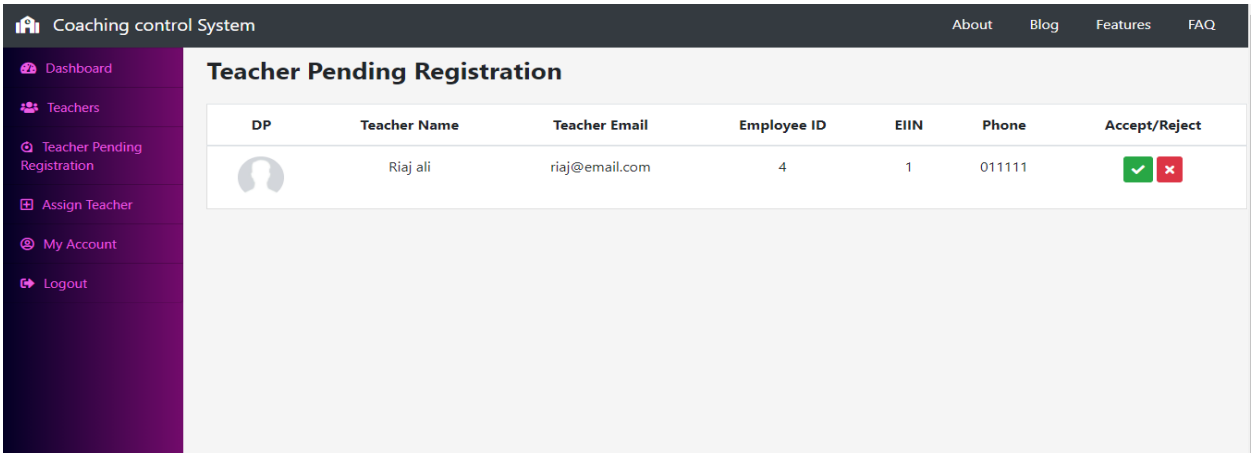

Fig 28: Teacher request list

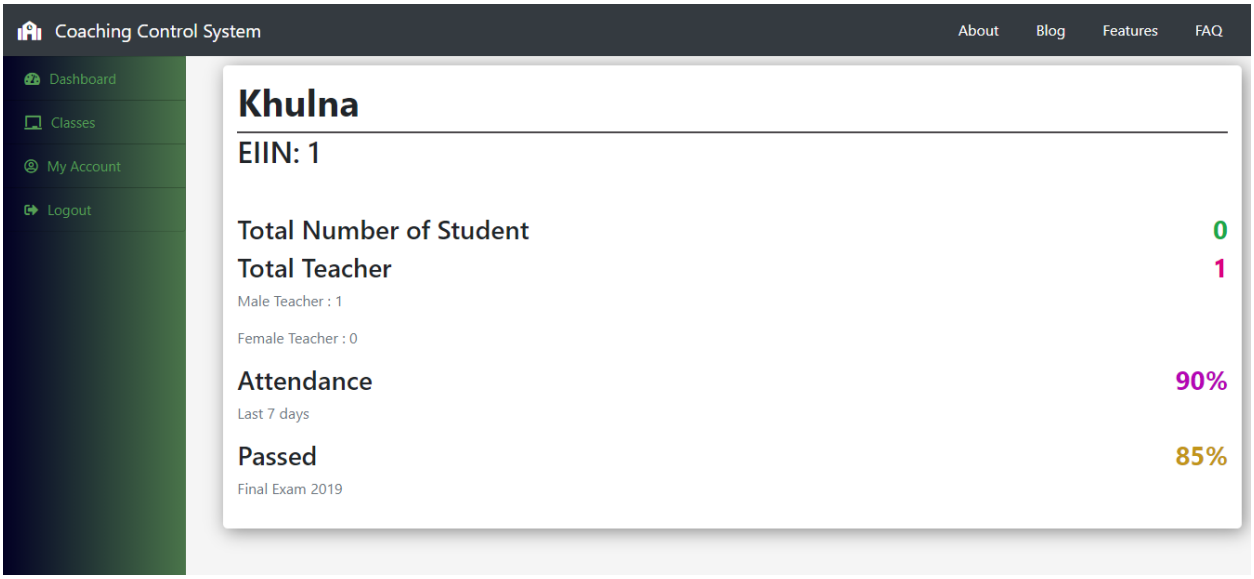

Fig 29: Teacher dashboard

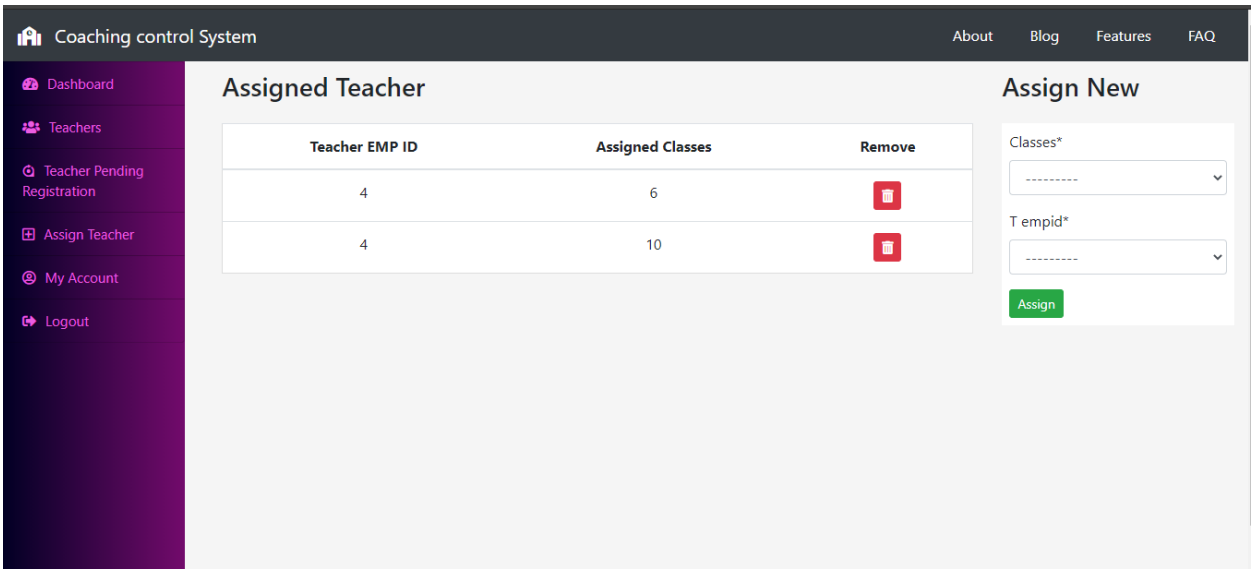

Fig 30: Assign teacher list

CHAPTER 6

SYSTEM TESTING

6.1 INTRODUCTION TO SYSTEM TESTING:

Testing is a method to check whether the actual software product matches expected requirements and to ensure that software product is Defect free. It involves execution of system components using manual or automated tools to evaluate one or more properties of interest. The purpose of software testing is to identify errors, gaps or missing requirements in contrast to actual requirements. Test plan is one of the standard documents that should be produced in most software engineering projects. The test plan should be written as soon as requirements have been identified. The system will be tested with sample data to see how it would handle input and output functions as well as extreme data or conditions to determine the system behavior in overloaded situations, which will directly slow the system that behaves in failure, or extreme situations.

Test Case No – 1

Test Case 1			Test case name: Registration	
System: Coaching Control System			Subsystem: N/A	
Design by: Joy			Design Date:	
Executed by:			Executed Date:	
Short Description: Target of this case is to registration for access into the system				
Precondition: Users should have proper information.				
Step	Action	Response	Pass/Fail	Comment

1	User data is save in the database	System redirect the user to login page	Pass	
Post Condition: Users can login to the system for access to the system.				
Fail Case: If users do not fulfill the form system cannot save the data.				

Tab 15: Test Case No – 1

Test Case No – 2

Test Case 2		Test case name: Login		
System: Coaching Control System		Subsystem: N/A		
Design by: Joy		Design Date:		
Executed by:		Executed Date:		
Short Description: Target of this case is that the user can login to the system.				
Precondition: Users should have proper information.				
Step	Action	Response	Pass/Fail	Comment
1	Enter correct username and password successfully	System redirect the user to home page	Pass	
Post Condition: User can access to the system				
Fail Case: If username and password do not match, users can not access the system.				

Tab 16: Test Case No – 2

Test Case No – 3

Test Case 3		Test case name: Headmaster Verification		
System: Coaching Control System		Subsystem: N/A		
Design by: Joy		Design Date:		
Executed by:		Executed Date:		
Short Description: Target of this case is verify headmaster and accepted.				
Precondition: Headmaster must be legal.				
Step	Action	Response	Pass/Fail	Comment
1	Headmaster verification successfully	System store the information to the database	Pass	
Post Condition: Headmaster can access to the system				
Fail Case: If headmaster is not legal, he/she can not access the system.				

Tab 17: Test Case No – 3

Test Case No – 4

Test Case 4			Test case name: See Coaching Information	
System: Coaching Control System			Subsystem: N/A	
Design by: Joy			Design Date:	
Executed by:			Executed Date:	
Short Description: Target of this case is coaching owner see all information of all branches.				
Precondition: Must be save all information of all branch individually.				
Step	Action	Response	Pass/Fail	Comment
1	Access all information	System store the information to the database	Pass	
Post Condition: Owner can see all information.				
Fail Case: If owner is not legal, owner cannot access the system.				

Tab 18: Test Case No – 4

Test Case No – 5

Test Case 5			Test case name: Assign coordinator	
System: Coaching Control System			Subsystem: N/A	
Design by: Joy			Design Date:	
Executed by:			Executed Date:	
Short Description: When any problem occurs in any branch then owner can assign a coordinator to solve the problem.				
Precondition: When happened any problem				
Step	Action	Response	Pass/Fail	Comment
1	Assign coordinator	System take a report	Pass	
Post Condition: Solve the issue.				
Fail Case: If owner cannot access, owner cannot see feedback.				

Tab 19: Test Case No – 5

Test Case No – 6

Test Case 6		Test case name: Get Feedback from Student		
System: Coaching Control System		Subsystem: N/A		
Design by: Joy		Design Date:		
Executed by:		Executed Date:		
Short Description: Owner will get feedback from student using the system.				
Precondition: When happened any problem				
Step	Action	Response	Pass/Fail	Comment
1	Get message from student	System store the information to the database	Pass	
Post Condition: Check messages.				
Fail Case: If owner cannot access, owner cannot see feedback.				

Tab 20: Test Case No – 6

Test Case No – 7

Test Case 7		Test case name: Teacher Verification		
System: Coaching Control System		Subsystem: N/A		
Design by: Joy		Design Date:		
Executed by:		Executed Date:		
Short Description: Target of this case is verify teacher and accepted.				
Precondition: Teacher must be legal.				
Step	Action	Response	Pass/Fail	Comment
1	Teacher verification successfully	System store the information to the database	Pass	
Post Condition: Teacher can access to the system				
Fail Case: If teacher is not legal, he/she cannot access the system.				

Tab 21: Test Case No – 7

Test Case No – 8

Test Case 8			Test case name: Assign teacher to class or subject	
System: Coaching Control System			Subsystem: N/A	
Design by: Joy			Design Date:	
Executed by:			Executed Date:	
Short Description: Headmaster assign teacher all class or subject.				
Precondition: Assign teacher to class who perfect for each classes.				
Step	Action	Response	Pass/Fail	Comment
1	Assign teacher successfully	System store the information to the database	Pass	
Post Condition: Teacher take that class.				
Fail Case: If headmaster is not assign class, teacher cannot take class.				

Tab 22: Test Case No – 8

Test Case No – 9

Test Case 9		Test case name: Teacher add student		
System: Coaching Control System		Subsystem: N/A		
Design by: Joy		Design Date:		
Executed by:		Executed Date:		
Short Description: Add student.				
Precondition: Student must be authentic.				
Step	Action	Response	Pass/Fail	Comment
1	Add student successfully	System store the information to the database	Pass	
Post Condition: Student can attend in class.				
Fail Case: If teacher is not legal, teacher cannot add student.				

Tab 23: Test Case No – 9

Test Case No – 10

Test Case 10			Test case name: Teacher add student result	
System: Coaching Control System			Subsystem: N/A	
Design by: Joy			Design Date:	
Executed by:			Executed Date:	
Short Description: Teacher will upload all subject result.				
Precondition: Student must be authentic.				
Step	Action	Response	Pass/Fail	Comment
1	Result upload successfully	System store the information to the database	Pass	
Post Condition: Student can get result.				
Fail Case: If teacher is not legal, teacher cannot upload result.				

Tab 24: Test Case No – 10

Test Case No – 11

Test Case 11			Test case name: Send student feedback	
System: Coaching Control System			Subsystem: N/A	
Design by: Joy			Design Date:	
Executed by:			Executed Date:	
Short Description: Student give feedback about coaching, any other issues or suggestion.				
Precondition: Student must be authentic.				
Step	Action	Response	Pass/Fail	Comment
1	Send message successfully	System store the information to the database	Pass	
Post Condition: Owner can get student message.				
Fail Case: If student is not authentic, cannot send.				

Tab 25: Test Case No – 11

CHAPTER 7

CONCLUSION

In our country one person has many coaching centers or branches. Manually it is very difficult to collect all information regularly from all branches. This time is very critical for covid-19. This time is very bad for human race. There is no substitute for online education worldwide at the present time. All educational institutions are now offering lessons online. The coaching owner can improve the quality of education by observing it properly. Using this system owner, headmaster and teacher can smartly work for developing education system with great communication.

7.1 Github Link:

https://github.com/shaonroyjoy

7.2 Limitations

- The main limitation is legality check is manually.
- There is no student attendance system.

7.3 Obstacles and Achievement

Obstacles:

- Adjustment of new technology and new environment.
- Facing deadline.
- Collecting data from various sources is very difficult.

Achievement:

- Successfully completed the project.
- Learning many thing and new technologies.
- Knowledge about documentations and development.

7.4 Future Work

Though this application works properly. But I have to add some new advanced features to make the systems up to date. The future work will be coming soon like-

- Automatic legality check
- Student attendance

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[7] ER diagram:

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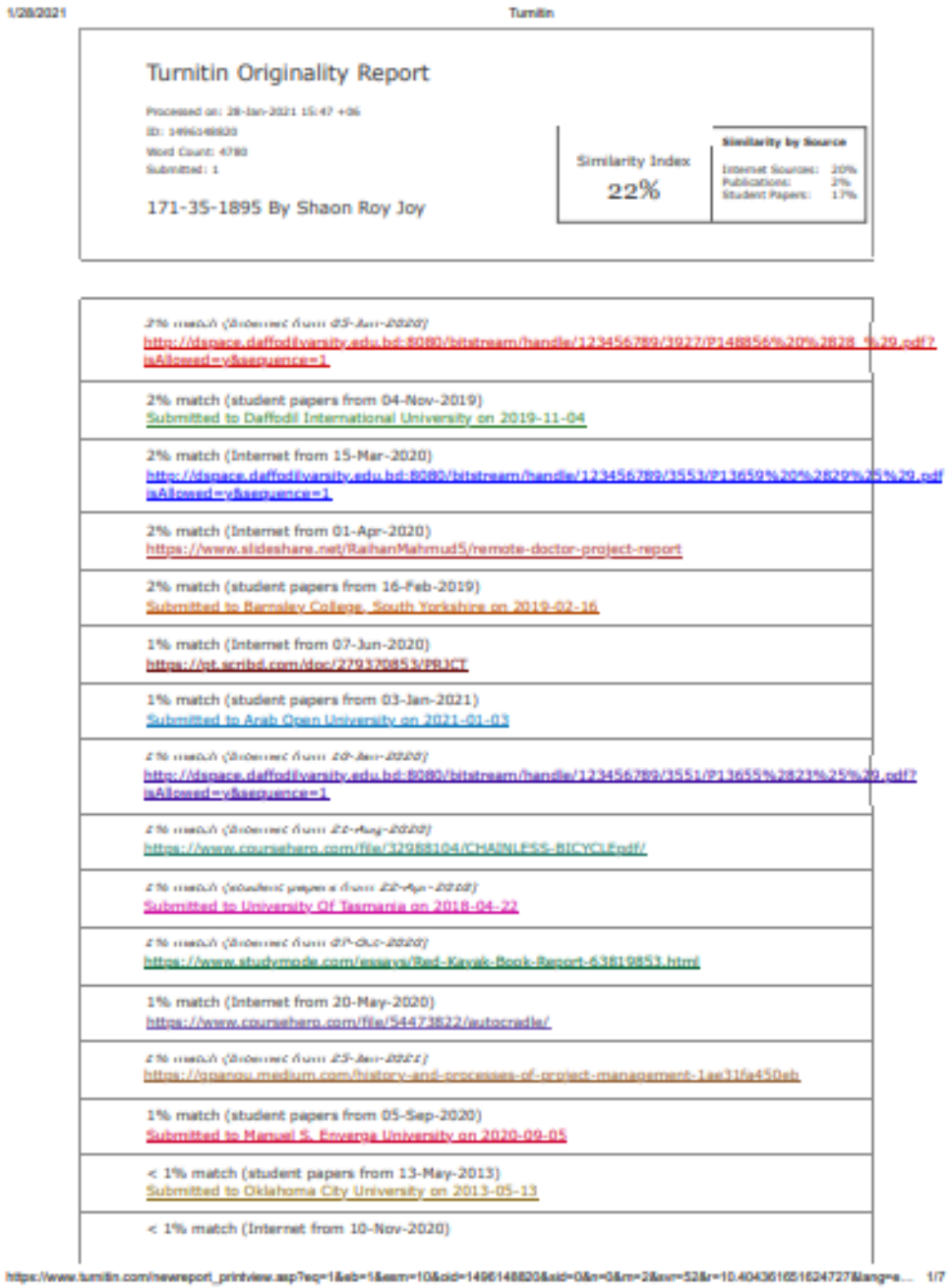
Plagiarism Test Report



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Project: Coaching Control System Submitted By: Shaon Roy Joy ID: 171-35-1895 A project submitted in partial fulfillment of the requirement for the degree of Bachelor of Science in Software Engineering, Department of Software Engineering Daffodil International University Copyright © 2020 by Daffodil International University DECLARATION I hereby declare that the project title "Coaching Control System" is an original record done by me under the supervision of Ms. Nusrat Jahan, Senior Lecturer, Department of Software Engineering, Daffodil International University towards the partial fulfillment of requirement for the award of degree of Bachelor of Science in Software Engineering during the period of 2017-2021. I also state that this project has not been submitted anywhere in the partial fulfillment for any degree of this or any other University.ACKNOWLEDGEMENT In this current world of competition there is a race of existence in which those who are having will come forward to succeed. Project is a bridge between theoretical and practical working. It is true that I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals On the very start this report, I would like to stretch my cordial &heartfelt obligation towards all the personages who have helped me in this endeavor. Without their active guidance, help, cooperation and encouragement I would not have made advancement in the project. First of all I would like to thank the Almighty God for guiding me to work on the right pathway of life. Without the grace of God I could not complete this project. I would like to express my gratitude towards my parents and members of Daffodil International University for their kind and co-operation and encouragement which helped me in completion of this project. I would like to sincerely thank the Head (In-Charge) Dr. Imran Mahmud, Department of Software Engineering. And also all the honorable teachers who teach me in such an interesting and understandable way full of enjoyment and make extra efforts to teach me and help me grow. I am always *grateful for their kindness and support. I am highly indebted to Ms. Nusrat Jahan Senior* Lecturer Department of Software Engineering for his guidance and constant supervision as well as for providing necessary information regarding the project & also his valuable suggestions and support on completion of this project in its present. I am grateful to my Department staff members, Lab technicians and Non-teaching staff members for their extreme help throughout my project. And at last but not the least I would like to express my love to my batch mate, who directly or indirectly helped me to finish this task. ABSTRACT "Coaching Control System" is a web-based application where There are many

coaching centers in our country. One person has many coaching centers or branches. Manually it is very difficult to collect all information regularly from all branches. Then, coaching centers are not monitored properly and the quality of coaching gets down. If they use a system that collects data from all branches and provides it to the owner then the owner can monitor every place and take proper steps. Owner can verify all branches and headmaster. If an issue occurs then the Owner can assign a coordinator to solve the problem. Owners get feedback from coaching students according to coaching. It will help them to improve education quality. Table of Contents DECLARATION ACKNOWLEDGEMENT ABSTRACT CHAPTER 1 1. INTRODUCTION 1.1.1 Project Overview 1.2 Project purpose 1 .2.1 Background 1 .2.2 Benefit 1 .2.3 Goal 1.3 Stakeholder 1.4 Proposed System Model 1.4.1 Waterfall-Model 1.4.2 How We Used Waterfall 1.5 Project Schedule 1.5.1 Gantt Chart 1.5.2 WBS *Planning for Development Phase 1.6 Related Work 1.7* Problem Statements 1.8 Proposed Solution CHAPTER 2 2. SOFTWARE REQUIREMENT SPECIFICATION 2. 1 Software Requirement Specifications 2.2 Functional Requirements 2.3 Non-Functional Requirements 2.4 Software Requirements 2.5 Hardware Requirements 2 3 4 7 7 7 8 8 8 8 9 9 9 10 11 11 11 12 13 13 13 13 13 14 14 CHAPTER 3 3. SYSTEM ANALYSIS 3.1 Use Case Diagram 3.2 Use Case Description 3.3 Activity Diagram 3.4 Sequence Diagram 3.5 Entity Relationship Diagram CHAPTER 4 4. DEVELOPMENT TOOL & TECHNOLOGY 4.1 Development Technology 4.2 Development Tools & Platforms CHAPTER 5 5. USER INTERFACE CHAPTER 6 6. SYSTEM TESTING 6.1 Introduction to System Testing CHAPTER 7 7.1 Github link 7.2 Limitations 7.3 Obstacles and Achievement 7.4 Future work 8. REFERENCES 15 16 23 32 42 43 43 44 47 59 59 59 59 60 CHAPTER 1 INTRODUCTION 1.1 Project Overview There are many coaching centers in our country. One person has many coaching centers or branches. Manually it is impossible to collect all information regularly from all branches. Then, coaching centers are not monitored properly and the quality of coaching gets down. If they use a system that collects data from all branches and provides it to the owner then the owner can monitor every place and take proper steps. Owner can verify all branches and headmasters. If an issue occurs, the Owner can assign a coordinator to solve the problem. Owners get feedback from coaching students according to coaching. Headmaster also plays a role in the system. Headmaster can assign teachers and submit their performance in the system. Teachers can add students in specific classes. In my system the teacher will input data like student attendance, result and other extracurricular activity. Teachers also provide students with a username and password to access the system. Using this system, students can send any feedback like any problem they have faced. It will help them to improve education quality. 1.2 Project Purpose The main purpose of this project- This time is very critical for covidi-19. This time is very bad for the whole human race. There is no substitute for online education worldwide at the present time. All educational institutions are now offering lessons online. The coaching owner can improve the quality of education by observing it properly. Manually it is impossible to collect all information regularly from all branches. Then, coaching centers are not monitored properly and the quality of coaching gets down. If occurs any problem then the owner can assign a coordinator to solve the problem. This will further improve the education of the students. 1.2.1 Background: Coaching Control System is a web based application which is totally computerized system design for Coaching owner, headmaster, teachers and students. It mainly developed for coaching owner can improve the quality of education by observing it properly. The purpose of the system is to make a platform where owner can easily observed all coaching branches. This system is very user friendly and easy to use. 1.2.2 Benefit: Using this system owner can easily find the situation of coaching branches. Owner can collects data from all branches and also monitor every place and take proper steps. He or she can also find out all information of all branches. Branch headmaster can easily see all the information of coaching. Teachers can see all student information. This will greatly improve the quality of education. 1.2.3 Goal: The main goal of my application is further improvement in the quality of education and also build a platform where coaching owner can easily enquiry all branches, so that the owner can observe in an easy way. And save their time and money. 1.3 Stakeholders There are seven types of stakeholder in this project. 1. The system developer 2. Users (Owner, Headmaster, Teacher, Student) 3. Quality Tester 4. Web developer 1.4 Proposed System Model Proposed system model basically describes which model to follow for developing the system. What is the project about and what are the new features in the project than other existing projects? For this system I think the waterfall model is perfect. Why and how they are working are describing details below, figure [1] 1.4.1 Waterfall-Model Our proposed system model is a waterfall model. Because- ? Our requirements are very clear and fixed. ? Easy to arrange tasks ? Clearly defined stages. ? Simple and easy to understand and easy to use. ? Strong disciplined process. *1.4.2 How We Used Waterfall 1. First* of all first gathering requirements. The requirements for the software in terms of both the design and functionality is taken. 2. When all the requirements are complete to gather. Then an architecture of the system is drawn to simplify the process of implementation. 3. According to blueprint design start to

implement the system. 4. When implementation is complete the implementation software now verified and tested by the teams one's the system testing is complete, test overturn the system to implement further changing the requirements can't be done. 5. Setting up of the system or software after a developer runs and testing is done. 6. Regular updating, *verification and debugging of the software.* *Waterfall Model Figure 1: Project proposed* model 1.5 Project Schedule Project scheduling is a mechanism to communicate what tasks need to get done and which organizational resources will be allocated to complete those tasks in what timeframe. A project schedule is a document collecting all the work needed to deliver the project on time. A schedule is commonly used in the project planning and project portfolio management parts of project management.] 1] 1.5.1 Gantt Chart A Gantt chart is a series of horizontal lines shows the amount of work done or production completed in certain periods in relation to the amount planned for those periods. figure [2] Figure 2: Gantt chart 1.5.2 WBS Planning For Development Phase 1. Project plan [12 June 2020 to 18 June 2020] 2. Requirement gathering [24 June 2020 to 27 June 2020] o Analysis [27 June 2020 to 3 July 2020] o Brainstorming o Interview o Observation o Implementation Analysis 4. Feasibility study [5 July 2020 to 15 June 2020] 5. Design [03 Nov 2020 to 05 Dec 2020] o System design o Database design and Implementation o UML design o System User Interface (UI) 6. Development [10 August 2020 to 10 September 2020] o User Module (candidate) o Administrator Module 7. Testing [11 January 2020 to 15 January 2020] o Test plan o Test Case o Test Execution 1.6 Related Work There are a lot of Coaching Management System. They mainly focus on attendance system or student tracking system or specifies a part only. They develop a one side tracing system. But they cannot focus on the maintenance system. So in this application coaching owner find all braches information and also find headmaster list, branch list and student feedback list. This application has unique facilities like owner easily find headmaster, find all information, see student feedback, send coordinator. 1.7 Problem Statements In this application, I face many problems for building the system. Headmaster and teacher verification is the big issue in this application. Another problem is accepts and reject system in this code in the Django framework. It is difficult to work with new technology. As there is no application like this so it is hard to collect the requirements. It is difficult to handle the user base authentication. To design a responsive and user friendly user interface was really a big challenge. 1.8 Proposed Solution In my proposed system, I am going to provide solutions for only authorized person can login. I try to know the technology that I use in this system in depth. It is very user friendly. A fake person cannot enter the system because first of all need to check. To design a user friendly and responsive user interface I prefer the most commonly used CSS framework bootstrap. CHAPTER 2 SOFTWARE REQUIREMENTS SPECIFICATION 2.1 Software Requirements Specification A software requirements specification is the official representation of what the system developer should implement. The SRS fully describes what the software will do and how it will be expected to redact and also includes the cost of the entire software. SRS is a complete description of the behavior of a system to be developed. SRS should comprise both the definition of user requirements and also the specification requirements the documents provide the whole overview of the software. Because of SRS developers can easily understand the requirements of software and know what they should implement. 2.2 Functional Requirements o Users can register and login in the system. o Coaching owner can see his/ her all branches. o The owner can verify headmasters. o The owner can see all headmaster list. o The owner will be able to see all the information of all branch. o The owner can get feedback from student. o Headmaster can verify teachers. o The Headmaster will be able to see all the information of his branch. o The Headmaster will be able to assign teacher to the class. o Teacher will be able to add student in classroom. o Teacher will be able to add student result. o Student will be able to send feedback to the owner. 2.3 Non-Functional Requirements o Users can change their passwords. o This website is capable enough to handle users without affecting its performance. o The software is portable. So moving from one OS to another OS does not create any problem. o All the system data is protected and it concerns the security of the data. So it is reliable. o The system's user interface is easy to understand and user friendly. 2.4 Software Requirements Operating system: Windows 10 Frontend: HTML, CSS, Bootstrap, JavaScript. Backend: Django (Python) Database: SqLite Code Editor: PyCharm Community Edition 2020.3 2.5 Hardware *Requirements Processor: Intel core i5 RAM: 4GB Hard Disk:: 1TB* HDD CHAPTER 3 SYSTEM ANALYSIS 3.1 USE CASE DIAGRAM Figure 3: Use Case Diagram 3.2 USE CASE DESCRIPTION Use Case Name Headmaster Verification Actor Headmaster, Owner Description Owner can verify all headmaster of all coaching branch when they enter the system. Precondition Headmaster must be legal. Trigger By clicking on headmaster verification button Flow of Events ? Headmaster will register himself with proper information. ? Owner will get all information from headmaster ? Owner verify headmaster with proper verification. Post Condition Headmaster will added the system. Use Case Name See School Information Actor Owner, Headmaster, Teacher, Student Description Owner can

see all information of all coaching individually. Precondition Must be save all data in system Trigger By clicking See Information button Flow of Events ? Owner can check all coaching information ? Owner can see Headmaster, Teacher, Student Activity ? Owner will click See Information button Post Condition Owner can see all School Information Use Case Name Communicate with Headmaster Actor Owner, Headmaster Description Owner will be Communicate with Headmaster Precondition Headmaster must be verified Trigger By clicking communicate with Headmaster button Flow of Events ? Owner can communicate with Headmaster ? Owner can sent notification to Headmaster Post Condition By clicking on the button then communicate with Headmaster Use Case Name Assign coordinator to School Actor Owner, Coordinator Description When any problem occurs then owner can assign a coordinator to solve the problem. Precondition When happened any problem Trigger By clicking Coordinator assign button Flow of Events ? Owner can assign a coordinator ? Coordinator can take action with owner permission Post Condition By clicking on the button then assign coordinator Use Case Name Get Feedback from Student Actor Owner, Student Description Owner will get feedback from student using the system. Precondition When happened any problem Trigger By clicking Student feedback button Flow of Events ? Owner can get Student feedback ? When get logical feedback then take action Post Condition By clicking on the button then get feedback Use Case Name Headmaster Login Actor Headmaster Description Provide correct username and password when the Headmaster want to access the system Precondition Headmaster should remain in the login page Trigger By clicking on the login button Flow of Events ? Two text fields to give input of the username and password respectively ? Write the username and password on that field and click the login button Post Condition Store in the database Use Case Name Teacher Verification Actor Headmaster, Teacher Description Headmaster can verify all Teacher of coaching when they enter the system Precondition Teacher must be authentic Trigger Headmaster verify teacher Flow of Events ? Teacher will register himself with proper information ? Headmaster will get all information from teacher ? Headmaster verify teacher with proper verification Post Condition By clicking on the button then verify Use Case Name Assign teacher to class or subject Actor Headmaster, Teacher Description Headmaster assign teacher all class or subject Precondition Assign teacher to class who perfect for each classes Trigger Assign teacher of all classes by clicking on the button Flow of Events ? Headmaster can assign teacher ? Headmaster select teacher with schedule Post Condition By clicking on the button then conform teacher Use Case Name Headmaster Login Actor Headmaster, Teacher Description Provide correct username and password when the teacher want to access the system Precondition Teacher should remain in the login page Trigger Assign teacher of all classes by clicking on the button Flow of Events ? Two text fields to give input of the username and password respectively ? Write the username and password on that field and click the login button Post Condition Store in the database Use Case Name Add student Actor Teacher, Student Description Teacher can add student in the system Precondition Student must be authentic Trigger By clicking add student button Flow of Events ? Teacher add student when the student is new or not registered ? Teacher add student when student is authentic Post Condition By clicking on the add student button Use Case Name Upload result Actor Teacher, student Description Teacher will upload all subject result Precondition Student must be attend examination Trigger By clicking on upload result button Flow of Events ? Student attend exam and teacher give marks ? Input subject result ? Teacher upload result subject wise ? Click on upload button Post Condition Store in the database Use Case Name Provide username and password Actor Teacher, student Description Teacher provide username and password when a student is not registered Precondition When Student is new or has not username and password Trigger Click provide username and password link Flow of Events ? Teacher give a username and password to student ? Student can access the system when he or she get a username and password Post Condition Student *can access the system Use Case Name Student Login Actor Teacher, Student Description* Provide correct username and password when the student want to access the system Precondition Teacher should remain in the login page Trigger Assign teacher of all classes by clicking on the button Flow of Events ? Two text fields to give input of the username and password respectively ? Write the username and password on that field and click the login button Post Condition Store in the database Use Case Name Send Feedback Actor Teacher, Student Description Student give feedback about coaching branch, any other issues or suggestion Precondition When student get any issues or suggestion and send feedback Trigger Student click write and send button Flow of Events ? Student can share personal opinions ? Student will send feedback about coaching, teacher or other problem ? Student will write any suggestion and send Post Condition Store in the database 3.3 Activity Diagram Figure 4: Activity Diagram of User Registration Figure 5: Activity Diagram of User Login Figure 6: Activity Diagram of Headmaster Verification Figure 7: Activity Diagram of all Coaching Branch Information Figure 8: Activity Diagram of Assign Coordinator Figure 9: Activity Diagram of Teacher Verification Figure 10: Activity Diagram of Assign Teacher

Figure 11: Activity Diagram of Add Student Figure 12: Activity Diagram of Submit Student Result 3.4 SEQUENCE DIAGRAM Figure 13: Sequence Diagram for Registration Figure 14: Sequence Diagram for Login Figure 15: Sequence Diagram for Headmaster Verification Figure 16: Sequence Diagram for Coaching Information Figure 17: Sequence Diagram for Assign Coordinator Figure 18: Sequence Diagram for Teacher Verification Figure 19: Sequence Diagram for Assign Teacher Figure 20: Sequence Diagram for Add Student Figure 21: Sequence Diagram for Add Student Figure 22: Sequence Diagram for Student Feedback 3.5 ENTITY RELATIONSHIP DIAGRAM Figure 23: ERD Diagram CHAPTER 4 DEVELOPMENT TOOL & TECHNOLOGY 4.1 Development Technology 1. HTML 2. CSS (Cascading Style Sheet) 3. Bootstrap JavaScript 4. Django (Python web framework) 4.2 Development Tools And Platforms 1. Pycharm (code editor) 2. Chrome browser 3. Command line terminal 4. Github Localhost CHAPTER 5 USER INTERFACE Fig: Home Page Fig: Owner Daseboard Fig: Headmaster pending request list Fig: Headmaster dashboard Fig: Teacher request list Fig: Teacher dashboard Fig: Assign teacher list CHAPTER 6 SYSTEM TESTING 6.1 INTRODUCTION TO SYSTEM TESTING: Testing is a method to check whether the actual software product matches expected requirements and to ensure that software product is Defect free. It involves execution of system components using manual or automated tools to evaluate one or more properties of interest. The purpose of software testing is to identify errors, gaps or missing requirements in contrast to actual requirements. Test plan is one of thestandard documents that should be produced in most software engineering projects. The test plan should be written as soon as requirements have been identified. The system will be tested with sample data to see how it would handle input and output functions as well as extreme data or conditions to determine the system behavior in overloaded situations, which will directly slow the system that behaves in failure or extreme situations. Test Case No – 1 Test Case 1 Test case name: Registration System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Target of this case is to registration for access into the system Precondition: Users should have proper information. Step Action Response Pass/Fail Comment 1 User data is save in the database System redirect the user to login page Pass Post Condition: Users can login to the system for access to the system. Fail Case: If users do not fulfill the form system cannot save the data. Test Case No – 2 Test Case 2 Test case name: Login System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Target of this case is that the user can login to the system. Precondition: Users should have proper information. Step Action Response Pass/Fail Comment 1 Enter correct System redirect username and the user to home password page successfully Pass Post Condition: User can access to the system Fail Case: If username and password do not match, users can not access the system. Test Case No – 3 Test Case 3 Test case name: Headmaster Verification System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Target of this case is verify headmaster and accepted. Precondition: Headmaster must be legal. Step Action Response Pass/Fail Comment 1 Headmaster System store the verification information to the successfully database Pass Post Condition: Headmaster can access to the system Fail Case: If headmaster is not legal, he/she can not access the system. Test Case No – 4 Test Case 4 Test case name: See Coaching Information System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Target of this case is coaching owner see all information of all branches. Precondition: Must be save all information of all branch individually. Step Action Response Pass/Fail Comment 1 Access all information System store the information to the database Pass Post Condition: Owner can see all information. Fail Case: If owner is not legal, owner cannot access the system. Test Case No – 5 Test Case 5 Test case name: Assign coordinator System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: When any problem occurs in any branch then owner can assign a coordinator to solve the problem. Precondition: When happened any problem Step Action Response Pass/Fail Comment 1 Assign coordinator System take a report Pass Post Condition: Solve the issue. Fail Case: If owner cannot access, owner cannot see feedback. Test Case No – 6 Test Case 6 Test case name: Get Feedback from Student System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Owner will get feedback from student using the system. Precondition: When happened any problem Step Action Response Pass/Fail Comment 1 Get message from System store the student information to the database Pass Post Condition: Check messages. Fail Case: If owner cannot access, owner cannot see feedback. Test Case No – 7 Test Case 7 Test case name: Teacher Verification System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Target of this case is verify teacher and accepted. Precondition: Teacher must be legal. Step Action Response Pass/Fail Comment 1 Teacher System store the verification information to the successfully database Pass Post Condition:

Teacher can access to the system Fail Case: If teacher is not legal, he/she cannot access the system. Test Case No – 8 Test Case 8 Test case name: Assign teacher to class or subject System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Headmaster assign teacher all class or subject. Precondition: Assign teacher to class who perfect for each classes. Step Action Response Pass/Fail Comment 1 Assign teacher System store the Pass successfully information to the database Post Condition: Teacher take that class. Fail Case: If headmaster is not assign class, teacher cannot take class. Test Case No – 9 Test Case 9 Test case name: Teacher add student System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Add student. Precondition: Student must be authentic. Step Action Response Pass/Fail Comment 1 Add student System store the successfully information to the database Pass Post Condition: Student can attend in class. Fail Case: If teacher is not legal, teacher cannot add student. Test Case No – 10 Test Case 10 Test case name: Teacher add student result System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Teacher will upload all subject result. Precondition: Student must be authentic. Step Action Response Pass/Fail Comment 1 Result upload System store the successfully information to the database Pass Post Condition: Student can get result. Fail Case: If teacher is not legal, teacher cannot upload result. Test Case No – 11 Test Case 11 Test case name: Send student feedback System: Coaching Control System Subsystem: N/A Design by: Joy Design Date: Executed by: Executed Date: Short Description: Student give feedback about coaching, any other issues or suggestion. Precondition: Student must be authentic. Step Action Response Pass/Fail Comment 1 Send message successfully System store the information to the database Pass Post Condition: Owner can get student message. Fail Case: If student is not authentic, cannot send. CHAPTER 7 PROJECT SUMMARY 7.1 Github Link: https://github.com/ shaonroyjoy 7.2 Limitations o The main limitation is legality check is manually. o There is no student attendance system. 7.3 Obstacles and Achievement Obstacles: o Adjustment of new technology and new environment. o Facing deadline. o Collecting data from various sources is very difficult. Achievement: o Successfully completed the project. o Learning many thing and new technologies. o Knowledge about documentations and development. 7.4 Future Work Though this application works properly. But I have to add some new advanced features to make the systems up to date. The future work will be coming soon like- o Automatic legality check o Student attendance REFERENCES [1] Proposed system model https://www.guru99.com/what-is-sdlc-or-waterfall-model.html [2] Gantt chart: https://www.projectmanager.com/gantt-chart [3] SRS: https://searchsoftwarequality.techtarget.com/definition/software- requirements-specification [4] Use case diagram: https://lucid.app/documents#/dashboard?folder_id=home&browser=icon [5] Activity diagram: https://lucid.app/documents#/dashboard?folder_id=home&browser=icon [6] Sequence diagram: https://lucid.app/documents#/dashboard?folder_id=home&browser=icon [7] ER diagram: https://lucid.app/documents#/dashboard?folder_id=home&browser=icon [8] Test case: https://www.guru99.com/software-testing-introduction-importance.html http://softwaretestingfundamentals.com/test-case/ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60