Education Center Application
Requirement Specification

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1.Executive Summary

1.1 Project Overview

This project presents a simple application which is Web-Based and consists in facilitating the management of a foreign language course center. Today, more than ever, foreign languages are being embraced by people and the focus on them is very large. People every day more and more are turning to the centers that offer these services to learn a foreign language that they intend to use in the future. Knowing how precious time is nowadays and being that we are lucky to live in the age of technology, there is a need for different applications that save us time and make our lives easier, our application will do something like that. Through this application, people can be informed in real time with a click on the Internet and see every service that the center offers in the explanation of foreign languages, such as the different language levels, the schedules that are developed, the payments for each lesson, the equipment with certificates for the protection of the language, the offers that the center offers if more than one is followed program at the same time, the documents required for registration and will also be able to see reviews of students who have completed a certain program in the course center. The student will also be able to have information about the texts that will be used in each program of the given language. At the end of each program, each student will be able to give a review in which they will show the experience and the impact that the service has left. Also, the student will be informed about the payment method as well as account numbers and contact numbers for any questions and email addresses.This application, in addition to the students, will also help the staff in the good management of the center.In addition to the students, those who will use the application will be the professors of the center who will give the language lectures, as well as the manager of the center. Each professor will be able to assign timetables in accordance with the timetables requested by student groups, taking into account their requests for certain timetables.Also, the professors will present the program for each language in which they give lectures and will be responsible for keeping a record of the students' participation in the class during school hours. Each professor will also mark every day the working hours he works in the center as well as keep a record of the hours he worked outside the schedule. Also, each professor must notify in advance in case of cancellation of the lesson on his part for various reasons so that the students are informed and have a good organization of their time.The manager of the center is the main person who leads the center.The respective prices for each program are approved by the manager and are made visible to the students who will apply.Also, the manager has access to the working hours of each teacher to calculate the salary he will receive each at the end of the month, taking into account the overtures worked by each of the staff members. Also, the manager is the one who approves the permit for the staff in cases where it is requested by the person.

1.2 Purpose and Scope of this Specification

The purpose of this specification is to assess the current state of the product design and to document the entire process based on design issues and the audience.This specification encompasses several aspects of the process being discussed in an as broad scope as possible. For that reason, in this scope we address the following:

- In depth documentation of the features of the product
- Technical overview of the application processes and views
  - o This is discussed in Part 2.1 and throughout the document
- User and System Requirements
- Components & Functional/non-functional requirements
  - o These are discussed in Part 3 in some detail

- Definition of users' means of using and accessing the product
  - o Use cases/scenarios discussed in Part 4
- Dependencies and Constraints
  - o These are discussed in Part 2.4/5 of the Document

Aspects not included in the scope are as follows:

- Legislative requirements for the product
- Auditing and financial considerations of the product

1. Product/Service Description

2.1 Product Context

This app will allow students to be informed and communicate freely with the teachers. Every student registered in a certain program has access to the schedule, the program,the task assigned by the teacher, etc. On the other hand, every teacher will record the students' absences during the lessons, he will adjust the schedules, enter the hours he has worked into the system, and he will be in charge of changing the schedule according to the agreement with the students. Every unregistered student will be able to be informed about programs and tactics, prices , schedules and contact methods. On the other hand, the manager of the center will be able to control the activities of the teachers on a daily basis, as well as deal with the calculations of working hours as well as the maintenance of the center.

2.2 User Characteristics

The following users are part of the application:

Student:

Student will have a number of different options such as :

* Student will be able to check the languages in which he can register along with the respective levels.

* Student will be able to check the schedules and prices for each category.

* The student will be able to see a short description of the teaching method and the groups that are formed.

* The student will be able to see reviews of students who have previously received service near the center.

* Student will be able to register in the program he wants by filling out a form with personal data.

* Student who attended and completed the course will be able to write a review about the service at the center.

Teachers:

Teachers will have a number of different options such as :

* to have access to their personal data regarding the monthly performance.

* The teacher sets the lesson times according to flexibility after agreeing with the fixed group.

* Determines the topics that will be developed in each language program that will be explained.

* Teacher keeps notes and puts in the system about the participation of individuals in the lesson.

* Teacher keeps a note and enters the working hours into the system together with the additional hours for the salary calculation every end of the month.

* Teacher will notify if there will be schedule changes or if any of the working days will be missed.

Center manager:

The Center manager will have a number of different options such as :

*Check and set the salaries of each employee.

* Check how many hours each teacher has worked include overtime.

* Check the number of people registered for each program.

* Sets the prices for each language program offered by the center.

* Check the contract related to each client for legal irregularities.

1.3 **Assumptions**

- It is assumed that the staff is familiar with the English.
- It is assumed that the clients have a basic knowledge of smartphones or ps.
- The mobile devices are assumed to have either iOS or Android operating systems.
- The administrative and management functions will be managed using a web interface and this assumes an active internet connection and a device which has access to the internet (laptop, PC, mobile device).
- It is assumed that the admin will have access rights to the data entered by the student, as well as the teacher, which apart from the form, can access other students' data only if the patient allows it. This data is accessed as stated in the related Albanian law on data protection.
- It is assumed that the information provided by the student is entirely confidential. The student will have confidential rights to view and update their personal information on the system.

1.4 Constrains

The system will potentially have the following constraints:

- Every student, teacher and manager must log in and/or register with their personal username.
- There should be provided fast internet connection so as the app can work properly.
- The student should be logged in to send the form and contact the teacher or manager. Otherwise he/she will be considered as a visitor.

1.5 Dependencies

- The teacher cannot view the diary of the student if he/she has not given permission to the teacher.
- The student needs to have logged in so as he/she can contact a teacher and fill in a form with.

- The teacher cannot decide the consult hors without checking the timetable suggested by students who have found the most suitable schedule according to their needs.
- If a teacher is not available to consult at any case,that consultation will be notified that it will be replaced another day.
- In order to finalize the form of registration, the student waits for the confirmation from the teacher or manager.
- The student cannot send the form if he/she has not made the payment for the service that is being provided with.

3.Requirements

3.1 Functional requirements

Req#	Requirement	Comments	Priority	Date reviewed	SWE rvwd /approved
R_01	The app will offer different views for different user levels (students, teachers, managers)	The app will offer different views for different user levels	1	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_02	The manager's account must have the most important privileges of the system.	The manager account has full access to all functionalities and can view any data in real time.	1	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_03	Users should accept The conditions to proceed with registration.	When the user creates his account, he should review and accept terms and conditions in order to continue with the registration	1	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_04	The teacher has access to the students information.	The student will have only one profile and it can be viewed by every teacher he/she is having the lessons. It means that a teacher can access grades and attendance history.	1	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

R_05	Students can contact with The teachers through the app	Students can text the teachers if he/she has any problem with timetable.	1	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_06	Students make payment online	The students can pay for the service they take, through the app using payment methods.	2	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_07	In this app, all teachers can have their own profile linked to the students they work with.	The profiles are created and managed by the administrator.	1	01/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_08	The app should give the Student information about the prices for each service.	This is done in order to be transparent with the students .	2	09/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_09	The app should provide the users with a map to find the center	They choose The right path to come to out center.	1	09/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_10	The managers can create, update and delete the services of the center.	To be up to dates with the center changes.	2	09/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_11	The students can leave a review for anything they want	To help others in the future or the center itself students can leave positive or negative comments	2	25/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_12	The teachers can update their availability	To help others contact or meet them teachers can set even they are available or not	2	25/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

R_13	The manager can set the salaries of each employee	Manager calculates the hours worked and set the salaries for the employee	1	25/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_14	Each user can change the password	For its own account, each user can change the password for his own privacy	3	25/04/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_15	The teachers can contact the manager	As employees teachers can have questions or information to give to the manager	2	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_16	In this app, students can check their work	Every student can check their presence, their work done or the assignments that they have to do soon	1	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_17	Teachers can update the work done and the grades of students	Teachers are going to check the work done by students and give them the points deserved	1	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_18	Each user can delete his own account	If anytime any user does not want anymore to intercept with the center they can delete their account	3	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_19	The manager can create, update and delete the services of the course center.	Managers can add a new group or delete an old one based on some points that they work	2	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_20	Teachers can add or remove a session	If a teacher wants to remove a session based on his agenda or add a new one that is needed	2	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

R_21	Students can ask questions and reply	There is a part of the app which can help students clear their informations	1	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_22	Managers can set a day off in special cases	Manager twice a year shows others the semester timetable, but he can change it if anything else happened	3	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_23	Students can check the teacher and center availability	If students want to talk with anyone of the staff they have to check their availability	3	01/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_24	The app should provide a search functionality for courses.	Users should be able to search for specific courses based on language, level, or other criteria to find relevant options.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_25	Teachers can upload teaching materials and resources.	Teachers should have the ability to upload and share teaching materials such as lesson plans, worksheets, or audio/video files with their students	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_26	The app should send notifications to students and teachers.	Notifications should be sent for important updates, such as class cancellations, schedule changes, assignment deadlines, or new messages.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_27	Students can track their progress and performance.	The app should provide a feature for students to monitor their language learning progress, view their grades, and track their overall performance.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_28	The app should support multiple languages.	The user interface of the app should be available in multiple languages to cater to users from different language backgrounds.	3	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

R_29	The app should have a user-friendly interface.	The interface should be intuitive, easy to navigate, and visually appealing to enhance the user experience for all types of users.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_30	The app should ensure data security and privacy.	Appropriate measures should be implemented to safeguard user data, protect privacy, and prevent unauthorized access to sensitive information.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_31	The app should provide a support/contact option.	Users should have a means to contact the support team or seek assistance if they encounter any issues or have inquiries regarding the app or its functionalities.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_32	The app should have a responsive design for different devices.	The app should be designed to adapt and provide optimal user experience across various devices, including mobile phones, tablets, and desktop computers.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_33	The app should have a user authentication system.	users should be required to authenticate themselves through a secure login process to access their respective accounts and ensure data confidentiality.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_34	The user will log in by email and password	Each level of the user has his own email and a unique password	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_35	Students can view their assigned teachers.	Each student should be able to see the list of teachers assigned to them for their language courses.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_36	Teachers can view their assigned students.	Each teacher should have access to the list of students assigned to them for the language courses they teach	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

R_37	Teachers can communicate directly with their assigned students.	Teachers should have a communication channel, such as messaging or email, to interact with their assigned students for course-related discussions, feedback, or answering questions.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_38	Teachers can provide feedback to students.	Teachers should have the ability to provide feedback to their assigned students on their performance, assignments, progress, or any other relevant aspects of the language courses.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_39	The manager can reassign teachers if needed.	The manager should have the capability to reassign teachers to different language courses or groups in case of schedule changes, teacher availability changes, or other reasons.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_40	The manager can monitor the performance of teachers.	The manager should have access to performance metrics and evaluations of teachers, including student feedback, attendance records, and any other relevant indicators, to assess and monitor their teaching effectiveness.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_41	The manager can generate reports and analytics.	The manager should have the capability to generate reports and analytics based on various data points, such as student performance, teacher evaluations, course popularity, or any other relevant metrics, to aid in decision-making and improving the language learning platform.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_42	The manager can monitor student progress and performance.	The manager should have access to student progress reports, grades, attendance records, or any other relevant information to assess and monitor their	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

		language learning progress and overall performance.			
R_43	The manager can communicate with teachers.	The manager should have a communication channel, such as messaging or email, to directly communicate with teachers for administrative matters, announcements, or addressing any concerns or inquiries.	1	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela
R_44	The manager can provide guidance and support to teachers.	The manager should be able to offer guidance, support, and professional development opportunities to teachers, assisting them in their teaching methods, classroom management, or any other aspects to enhance their performance.	2	20/05/2023	A.Biba B.Kruci D.Qyra E.Kopaci J.Findiku L.Nela

3.2 Non-Functional requirements

3.2.1 Product Requirements

3.2.1.1 User Interface requirements

- The system will be a web-based application; thus, it can be accessed by the following browsers: Chrome, Mozilla Firefox, Safari, Microsoft Edge.
- The user interface will be grouped into 3 main interfaces related with the role of the user.

Log in Interface

Before the users log in to interact with the system there will be a navigation bar where users can choose how they want to log in .After they chose ,they will have the log in interface .It is accessible to all users. It has the input fields for the necessary details, such as the username and password. The submit button will enable users to log in and access the other pages.

Student Interface

-To the students, firstly there will be displayed the home page which includes four categories that make the link to other pages with different functionalities.Each of the categories will be displayed using icons and label to be easily determined by the students .On the top there will be a navigation bar for quick navigation through the app.

-In the GetInfo section, there will be displayed 4 options: Check Language , Check Schedule, Check Prices, Review.

-In the Registration section, there will be displayed a form with all the required input boxes ,there will be the option to make the payment and a button to make the submission of the form.

-In the Learn section,t here will be a chat icon to send the user to a chat section to communicate with the teachers , also the student can call in the course center by clicking the phone icon, or can write messages in the chat boxes, also there will be the camera icon to join in online meetings.

-In the dairy page, the student will be provided with empty pages to write notes for the taken online lessons and to write their review about the center.

Teacher Interface

-In the teacher interface,there will be displayed all the needed buttons to make the link with other pages. One page will show the information for students where the filtering options will make the searching quicker and easier. In the teacher interface there should also be a calendar to show all the dates marked with color in case the lesson is canceled and to keep the participation of the students.The second page will show the Notification section in which will be displayed a number of options ,they will be notified if schedule change or any other change.In MyInfo section there will be two options ,to have access in their personal data regarding their monthly performance and will have empty pages to keep notes and a entering the working hours, there will be also a menu with all the languages that the center offers to help them to choose the language they will perform.

Manager Interface

-The manager of the system will have access to all the dedicated interafaces and also, he/she can make limited customizations to the necessary features.The system administrator is the only user who can give access permissions to all the other users, so the only way of accessing the system is through a log in where it will require the email and password.

-A similar design will be used for the prospect, customer, and account creation interfaces. The designated user will add the information about these entities in the field forms, where each field will be grouped according to how relevant or connected it is to the others.

3.2.1.2 Usability

The software should have an intuitive user interface that is simple to use and navigate, as well as be user-friendly.

Accessibility

The system can only be accessed if the user has a reliable internet connection and the system administrator has set up an account for them.

Aesthetics: The application should have a visually appealing and professional design that reflects the brand and mission of the language center.

Interactivity: The application should be interactive and engaging, with features such as animations, videos, and interactive quizzes to enhance the learning experience.

Consistency: The application should have a consistent look and feel throughout, with consistent branding, typography, and color schemes.

Scalability: The system should be designed to scale up or down to accommodate changes in demand, such as seasonal fluctuations or sudden spikes in traffic.

Maintainability: The system should be easy to maintain and update, with clear documentation and support resources for developers and system administrators.

Responsiveness

While there are situations where users need to access their profile or features through a different device, the system will be desktop and mobile friendly. The architecture of the system will be intricate in terms of service uptime. The primary goal of this architecture is to build comparable clones of the system settings so that, in the event that one copy goes down, a load balancer can send traffic to the remaining replica using the same port and IP address.

Flexibility

• The system will be dynamically flexible, which means that it will automatically allocate memory and resources to support these requests based on the amount of requests.

3.2.1.3 Efficiency

Efficiency

-Almost all system features are automated, which reduces human error while generating intricate workflows including customer journeys, marketing automations, and payrolls.

• Depending on the users' access levels to the system, training videos on how to use it properly will be made available to them.

• The system will display clear and self-explanatory error messages for every unusual behavior.

3.2.1.3.1 Performance requirements

- The subscription tier that the business selects will have a significant impact on the software's performance, as higher operational costs result from the demand for additional resources. The system's performance is also limited by the network connection since the user's network connection's bandwidth must equal the server's capacity.
- Could computing will ensure that the system maintains a constant level of performance. When a service has default settings that indicate whether performance is sufficient or not, it will increase resource allocation as necessary to maintain stable performance metrics.
- The storage of data can be done using the same principle. Depending on the subscription, the system will ask the cloud storage provider for increased storage capacity if the amount of data is growing.
- Users do not need powerful devices to use the system because it is primarily server-side based, meaning that most processes are run by the server rather than the user's device.

3.1.2.3.2 Space requirements

- The expected number of users which can use the system simultaneously without any performance drop is maximum 400 users with the most expensive subscription tier.
- Recommended device requirements:
- For PC and laptops:
- CPU → 2GHz Dual Core
- User device memory: 4GB RAM, 100 GB HDD or SSD
- Ethernet connection speed: 20 Mbps

3.2.1.4 Dependability Requirements

Availability

• The system must function well throughout business hours and be accessible around-the-clock.

• The system must to be accessible from any location.

• The system need to be accessible from any machine with a browser set up.

• The system should only be accessible if the device using it has an internet connection.

Reliability

The system will have a cloud service that will control the required resources to function at the anticipated level of performance.

Monitoring

Through the cloud computing platform, the system will be watched for each GET/POST request and will offer the essential information about the request's destination, return value, and ability to identify anomalies in the request body.

The platform for system management will keep track of and automatically perform any necessary steps in relation to the system's load balancing as well as routine backups without impacting the service.

Maintenance

Through the cloud computing platform, the system will be watched for each GET/POST request and will offer the essential information about the request's destination, return value, and ability to identify anomalies in the request body.

The platform for system management will keep track of and automatically perform any necessary steps in relation to the system's load balancing as well as routine backups without impacting the service.

Integrity

Each credential that the system administrator creates will be stored in a secure environment that neither users nor developers will be able to access.

Only if the user is in the same department can each manager on each section add new lower-level users to the system, based on the privileges that they have.

To access system features and their profile, each user must enter their created credentials, such as their email address and password.

3.2.1.5 Security Requirements

The personal data of all users of this system will be safeguarded in accordance with the existing regulations and legislative standards in Albania. The Commission for Personal Data Protection,located in Albania, grants licenses to institutions, organizations, and corporations that enable them to handle personal and sensitive data pertaining to users of information systems.The data protection laws in Albania are primarily governed by the Law No. 9887 "On Personal Data Protection" (known as the "Albanian Data Protection Law"). This law was adopted in 2008 and provides regulations for the collection, processing, storage, and transfer of personal data in Albania. law grants individuals certain rights, including the right to be informed, the right to access their personal data, the right to rectify or erase their personal data, and the right to object to the processing of their personal data. Any use of personal data for the purpose of damaging the image or sharing personal information is punishable according to the penal code of the Republic of Albania

3.2.2 Organizational Requirements

3.2.2.1. Environmental Requirements

Because the system will be cloud-based and demand-based, every resource allotted will be utilized to the fullest extent possible without wasting storage space or computational power. By using less computer power, the system is more effective and uses less energy.

3.2.2.2 Operational Requirements

In the following paragraphs, we will specify the operational requirements separated in three categories according to the three user categories as specified in the initiation of our project:

-Teachers:

1- The teaching staff will be able to upload teaching materials regularly and the system enables later modifications or updates to the stream.

2- Professors will be able to accept students request if there are new students that will become part of the class.

3 – Teachers can post and deliver statements any time and the section will be open to comments or questions.

4 – In the end of a class, professors will have the chance to share data with the participants of the class regarding statistics linked to the performance of the class or group divisions in cases of group projects.

5 – The teaching staff will use several communication channels considering the fact that our system consists of several users of different categories. The teachers will be able to choose between: opening a communication chat with the manager, with their colleagues, with the entire class or with a certain student only.

6 – In the end of the course or in other special cases, the teaching staff can choose to deliver a certificate-like format to the contributors or to the students they mentored.

7 – Operations such as delete, edit, add and read will be available in every section of the app (data management).

8 – In the profiles of this user category the option of "update agenda" will be available as well.

9 - The application will be available 24/7.

10 – Part of the application for users registered as teachers will be the section containing data regarding the working hours (regular and overtime) , bonuses, holidays and certain time intervals where the center will be closed (e.g Christmas and Holiday Season or the summer interval). The program will include a calculator that will enable the teaching staff the prior calculation of their monthly salary.

11 – Only individuals that have priorly signed the employment contract and have been admitted by the manager of the firm will be able to log in to the app.

-Students:

1 – Students will be able to get and send notifications to their teacher as well as to another student that is part of the same class .

2 – Students may submit an assignment in the class stream or post questions if something is unclear.

3 – The app shall automatically send a notification to the student in cases where the class is canceled or substitute lesson is planned.

4 - The application will be available to the students 24/7.

5 – Only students that have already signed the contract, finished the payments procedures and gotten approved by the respective teacher will be able to log in to the app.

-Manager:

1 – The manager will manage the data linked to legal and financial affairs of the company such as: employment contracts, service contracts, tax payments, renting fees, balance sheets, etc.

2 – The manager will have in disposition a communication channel with the professors, but not with the students.

3 – The manager will be able add or delete the profile of teachers based on their employment contract.

4 – The manager will get a notification days before the contract of an employee of the center expires.

5 – The manager will be able to post announcements in the center and respond to questions coming from the employees.

6 – In the profile of the manager will be a database containing information related to the general number of courses, employees and registered students.

7 – The manager will automatically be registered in the system and is considered as the "master" of it.

8 - The application will be available 24/7.

These operations will be handled by the data management team (software developers).

3.2.3 External Requirements

3.2.3.1 Regulatory Requirements

Regulatory Requirements

Throughout the entire process of the development of this software, the team will follow all the Privacy Terms. The provisions of law on the protection of personal data and relevant sublegal acts will also displayed to all the users of the application in a certain section of their profiles together with other legal affairs. Users sessions will be logged, but their identities will remain anonymous.

3.2.3.2 Ethical Requirements

It is extremely important to handle the data of all the students, professors and the manager very carefully.The availability and visibility of personal information and other data shared in the system will be limited and personal information needed for registration of an individual such as: name, surname, email address, phone number, age, citizenship, etc will remain confidential unless a contract renovation is needed or other documentation such as a letter of recommendation must be delivered to a certain individual. Even in these cases, the permission of the person must be firstly granted before continuing with the procedures. The team of developers will grant the data security by taking cautious measures such as asking the user before sending or attaching something and displaying the information corresponding to the legal acts regarding the privacy terms for all first-time users. It is the responsibility of the manager of the business to emphasize the importance of these legal requirements by informing the students and teachers about the legal measures that will be taken in cases of detection of violation of privacy terms. Since the app can be visited only by active people that are part of the center, any attempt of third parties to log in will fail and the team of developers may share the record of the unsuccessful user session with the manager. Information stored in the app shall not be exchanged or sold to other irrelevant bodies, institutions or organizations and the people whose contract expired shall be granted the safer profile cancelation, considering here the principles of data discrepancy.

1.6 Domain Requirements

This app operates in the private educational field, and its main purpose is to facilitate the work of a small company that courses in several foreign languages. The users who access the app have to be included in one of the login access categories. All users need to have a stable Internet connection. This app manages all the operations related to our course center, but it also provides additional functions as well, such as calculating prices and getting notifications on special holidays, regarding grades and achievements. Different types of users have their own facilities. To log in as a student you also can give your own review so it can be shown to our app so we can help others decide about us. on the other hand, we have teachers who using our app will be able to connect virtually with their students. The manager using this app will be provided the opportunity to calculate and set the salaries of each employee, set prices, and check contracts.

4.Software Designs

4.1User Scenarios

Student

S_U1: User is not registered

1.The user can view the website

2.The user can view the services offered

3.The user can access the verified information

4.The user can initiate a chat to get more information

S_U2: Student signs in for the first time

1.User chooses to sign in by pressing the specified button

2.Student is diverted to Sign in activity.

3.Student gives the desired data in arrange to form their account.

4.User clicks Ok

5.Registration is effective and total.

S_U3: The user fills out a frame
1. The user is enlisted.
2. The user must fill in a shape with the fitting data with respect to the choice of courses he wishes to get to and also check the course outline and progress
3. The user fills out the frame accurately.
4. The user submits the shape .
5. The user holds up for the teacher's response.

S_U4: User contacts with teacher by message

1. User opens the contact segment.
2. User chooses the message alternative.
3. Teacher gets message and answers to it.
4. In case no arrangement is found, the user has the choice to inquire for an arrangement.
5. In the event that the arrangement is found, at that point it is continued with the prescription.

S_U6: User seek information regarding to the center from the MyInfo section.

1. User clicks the option to read from the choosen section, and the specified view is loaded.

2. The user has access to verified information.

S_U7: Student withdraw from a course.

1.User visits the website and logs into her understudy account.
2.User navigates to the "My Courses" area.
3.User finds the course she needs to pull back from and clicks on the course title.
4. The course subtle elements page opens, showing data approximately the course.
5.The student finds the "Pull back" choice inside the course subtle elements page and clicks on it.
6.An affirmation pop-up shows up, inquiring student to affirm her withdrawal.
7.The user clicks on the "Affirm" button to continue with the withdrawal.
8.The framework forms her ask and shows a affirmation message, affirming that user has effectively pulled back from the course
9.The user gets an e-mail notice containing the withdrawal affirmation points of interest.

Teacher

S_T1: Teacher creates an account

1. Teacher logs in to the app using their preferred way as a regular user.
2. By supplying the required extra fields, the administrator designates the teacher's profile as an employee.
3. The Teacher's View is given to the teacher the next time she registers in.

S_T2: Teacher is not an employee of the center anymore.

1. The teacher's account is removed from the list of employees by the administartor.
2. As a regular user, the teacher has access to the app.

S_T3: Teacher opens the app as an already signed in user.

1. The user's existence in the employee list is checked.
2. If the result is positive, the Teacher's particular View is displayed.
3. A dashboard comprising "My Agenda," " MyCourses," "My Services," My Notes&Suggestions" and "Communication Stream" is displayed to the teacher

S_T4:Teacher apply to take the courses

1. In the beginning of the year ,the teacher should apply to take the courses she/he will share.
2. On the Home screen ,Teacher accesses the Dashboard

3. Teacher taps “MyCourses”
4. The Teacher uses the floating bar to select the courses on each day of the current or coming week, then submits.
5. This information is given to the manager , who adapts the schedule to meet these requirements

S_T5: Teacher views the personal agenda

1. The user selects the “My Agenda” tab from the dashboard.
2. A tabbed interface containing “Today’s Schedule” ,“Schedule Changes” and “Post Announcement” is shown to the teacher.
3. On each tab the teacher will see a list of all changes of schedule and all the given notices ,sorted by tart time.

S_T6:Teacher manages her students and lessons with assignments also.

1. Teacher selects “My Courses” from the drop down menu.
2. A list of courses is displayed.
3. One of the records on the list is pressed by the teacher.
4. The selected course page with all the data is displayed
5. A teacher can conduct online lesson ,post assignments ,post teaching materials.

S_T7: Teacher starts a new course and accept enrollment requests.

1. The teacher selects a course.
2. The teacher selects the number of students in that class ,can accept or not if the class has started
3. The teacher selects the schedule together with the students.
4. The teacher fill out the link to create the online class for that course ,which the students will have access to that link
5. The teacher keep track of course progress and use a graphic chart to see the progress for each student registered in the course.
6. The individual lesson is assigned a price by the teacher ,which is then added to the total lesson cost.

S_T8: Teacher keeps notes for every course and make reviews and suggestions

1.Teacher selects “My Notes&Suggestions” from the drop down menu.

2.The teacher submits the review, suggestion, or proposal.

3.The manager receives the submission and reviews it.

4.The manager takes action on the submission, which may include implementing the suggestion or proposal, providing feedback to the teacher, or taking no action.

5.The teacher selects the class for which notes need to be taken.

6.The teacher takes attendance and marks the attendance of each student in the system.

7.The teacher records notes about the participation and engagement levels of each student in the system.

S_T9: Teacher communicate with the manager to provide information regarding the courses, the presence, and to ask questions

1.The teacher selects “Communication Stream” from the drop down menu.

2. The teacher drafts a message, including the required details and/or the appropriate question(s).

3. The management receives the message from the teacher.

4. The manager gets and reads the communication.

5. The management writes a rejoinder and sends it to the teacher

6. The teacher reads the response after receiving it.

S_T10: Teacher controls her salary and bonuses

1.The teacher selects “My services” from the drop down menu.

2.The salary and bonus computation page is displayed by the system.

3.The teacher enters their work schedule, any overtime, vacations, and other pertinent information.

4.The system uses the entered information to determine the teacher's pay and bonuses.

5.The teacher can observe the system's calculated compensation and bonuses.

6.The teacher confirms the pay and benefits.

Manager

S_U1:Salary Management:
1.Set salaries for modern employees.
2.Conduct yearly execution surveys and alter pay rates in like manner.

S_U2:Work Hours Tracking:
1.Review overtime hours worked by teachers and favor extra minutes pay on the off chance that fundamental.
2.Explore and address any disparities in teachers' work hours.

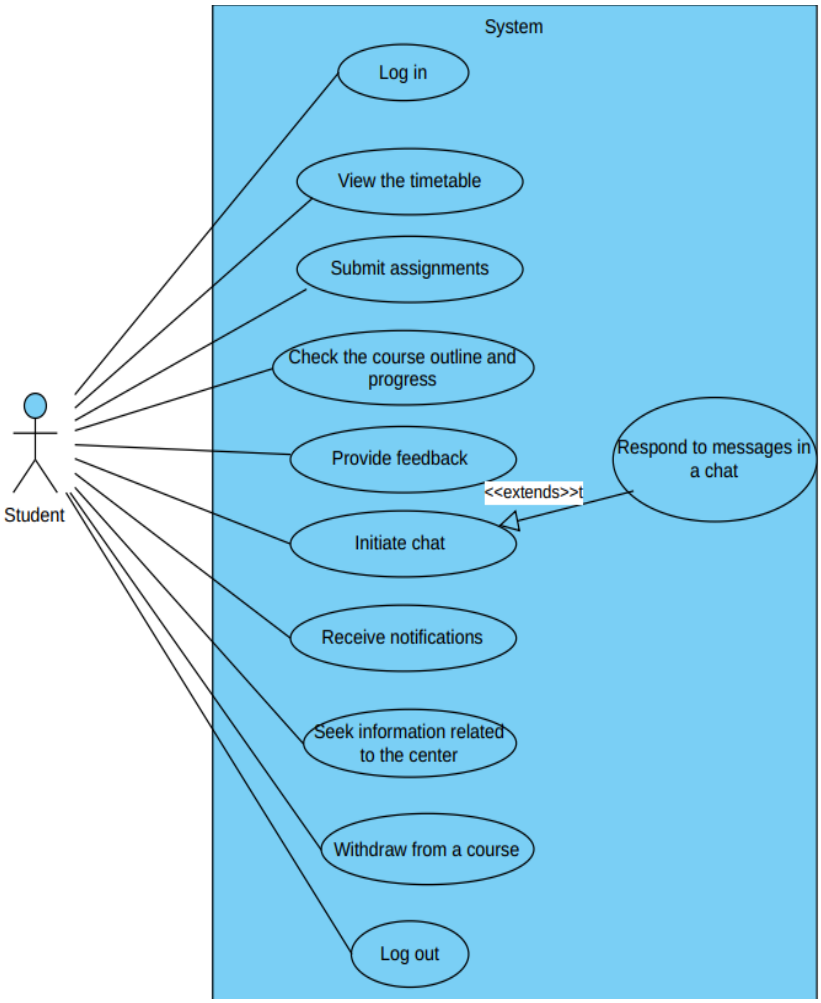
S_U3:Program Enrollment:
1.Analyze enrollment numbers for each dialect program.

2.Recognize reasons for moo enrollment and take suitable measures to extend enlistments.

S_U4:Estimating Management:
1.Survey advertise patterns and costs related with running dialect programs.
2.Alter program costs to stay competitive and meet budgetary objectives.

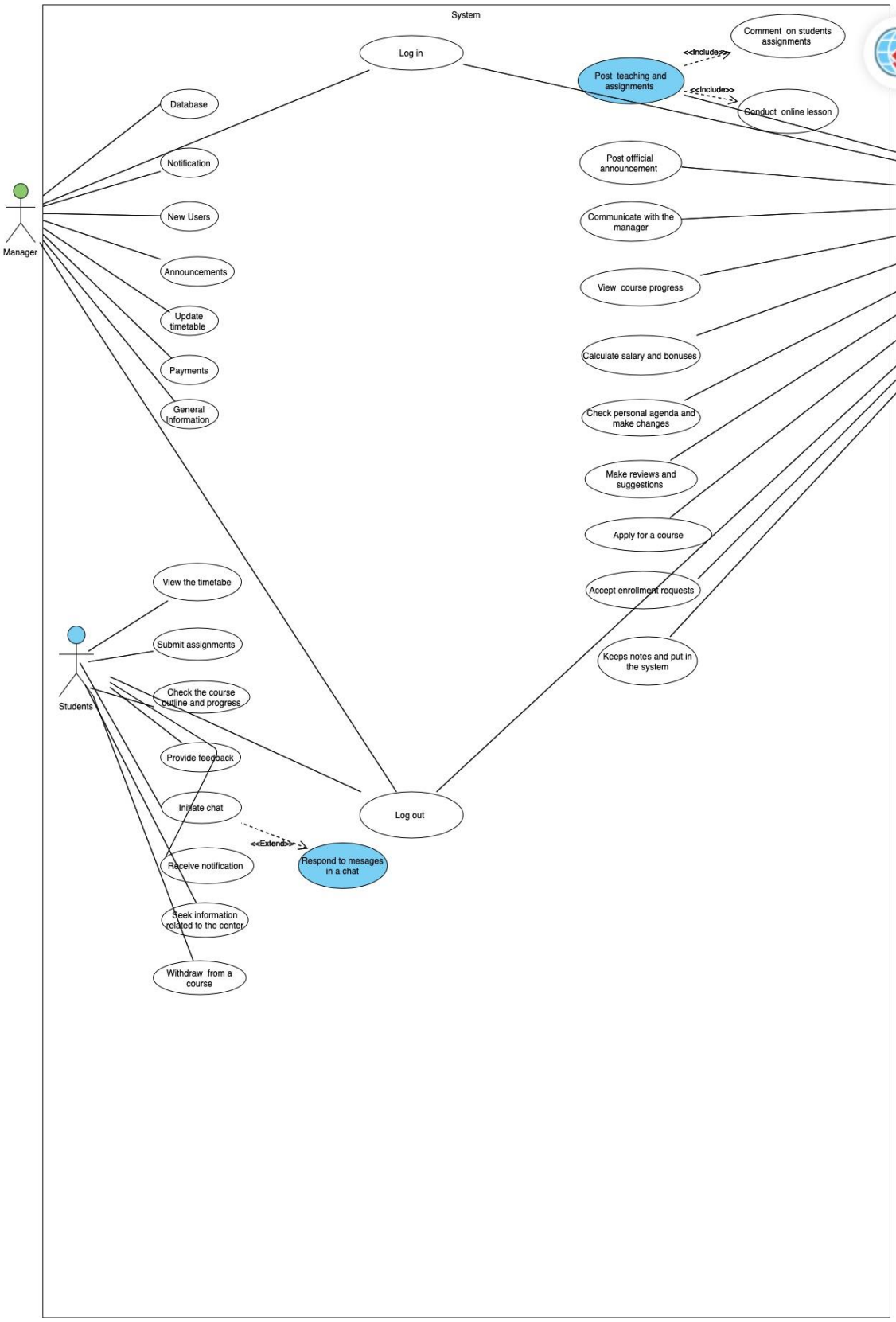
S_U5:Contract Review:
1.Identify contracts that are terminating before long and start dialogs for reestablishment.
2.Recognize any legitimate abnormalities in contracts and take vital activities to resolve them.

4.2 Use Cases




System
Log in
Comment on student assignments
<<Include>>
Post teaching and assignments
<<Include>>
Conduct online lesson
Post official announcements
Communicate with the manager
View course progress
Calculate salary and bonuses
Check personal agenda and make changes
Make reviews and suggestions
Apply for a course
Accept enrollment requests
Keeps notes and put in the system
Log out
Teacher


System
Log in
Database
Notification
New Users
Announcements
Update timetable
Payments
General Information
Log out
Manager



4.3 Use Case Extended

UC Name (UC-1.1)	Login
Summary	This use case describes the process of a student logging into the app.
Dependency	-
Actors	Student (Primary Actor)
Preconditions	The student must have a registered account in the app.
Description of the main sequence	-The student opens the app. -The app displays the login screen. -The student enters his/her registered email/username and password. -The app verifies the login credentials. -If the login credentials are recognized, the app directs the user to the home screen. -If the login credentials are invalid, the app displays an error message.
Description of the alternative sequence	-The student forgets the password. -The student clicks on the "forgot password" link on the login screen. -The app asks the student to enter their registered email address. -The app sends a password reset link to the student's email. -The student clicks on the link and sets a new password. -After that, the student must use the new password to log in.
Non functional requirements	-Performance: The app should be able to handle login requests quickly, without any delay. -Security: The login credentials and password reset link should be securely stored to prevent unauthorized access.
Postconditions	If the main sequence has been followed and the login credentials are valid, the student is successfully logged in and can further navigate the app's features.

UC Name (UC-1.2)	Timetable
Summary	This use case describes the process of a student checking their own timetable in the app.
Dependency	-
Actors	Student (Primary Actor)
Preconditions	-The student must be logged in to the app. -The student must have registered courses in the center.
Description of the main sequence	-The student navigates to the "Timetable" section of the app. -The app displays the student's timetable for the current semester. -The student can view their course schedule, including course names, times and professors.
Description of the alternative sequence	-The student selects the option “Timetable” without enrolling in a course. -The app will not display any data in this case.
Non functional requirements	-Performance: The app should be able to load the timetable quickly, without significant delay. -Usability: The timetable display should be user-friendly and easy to navigate.
Postconditions	If the main sequence has been followed, the student can view his/her own timetable.

UC Name (UC-1.3)	Assignments
Summary	This use case describes the process of a student submitting assignments through the app.
Dependency	-The student must be logged in to the app. -The student must be firstly enrolled in the course for which they are submitting the assignment.
Actors	Student (Primary Actor)
Preconditions	-The student must be logged into the app. -The student must be registered for the course for which they are submitting the assignment. -The student must turn in the assignment within the deadline.
Description of the main sequence	-The student navigates to the "Assignments" section of the app. -The app displays the complete list of assignments for the student's registered course/s. -The student selects the assignment they want to submit (in case there are several upcoming assignments). The app displays the details of the selected assignment, including the deadline, the assignment content and the requirements. -The student uploads the file they want to submit as their assignment. -The app confirms the submission and a notification is delivered to the student that the assignment has been turned in successfully.
Description of the alternative sequence	- If the student tries to submit an assignment after the deadline, the app displays an error with a text message that the submissions after the deadline are not possible.
Non functional requirements	-Performance: The app should be able to process and upload assignment files quickly, if the student has a stable Internet connection. -Security: The submitted assignments should be securely stored and transmitted to the staff for evaluation. No other actors involved in the app will be able to view the content of the work that was turned in. -Usability: The assignment submission process should be user-friendly and the steps linked to it should be easily comprehensible.
Postconditions	If the main sequence has been followed just as explained above, the student has successfully submitted his/her assignment through our app within the deadline.

UC Name (UC-1.4)	Course Outline
Summary	The student can view the topics that will be covered in the course, check the progress of the course, and view the evaluation methods applied in that specific course.
Dependency	-
Actors	Primary Actor: Student
Preconditions	-The student must log in to the system. -The student must be enrolled in the course for which he/she wants to read more information.
Description of the main sequence	-The student selects the course for which they want to view the outline (in case the student is enrolled in several courses in our center). -The system displays the course outline, which includes the topics covered in the course, the course schedule and the name of the professor of the subject. -The student can view their performance in the course as well and check the feedback or grades received from the teacher.
Description of the alternative sequence	-
Non functional requirements	-Performance: The system should display the course outline and the interim grades quickly. -Security: The system should allow only the students already enrolled in the course to read more details and information about it.
Postconditions	The student can view the course outline, course progress and personal performance in the course if the main sequence has been followed just as described above.

UC Name (UC-1.5)	Provide Feedback
Summary	The student should be able to provide the center with some feedback after he/she has successfully completed a course.
Dependency	-
Actors	Primary Actor: Student
Preconditions	-The student must be registered or stored in the database managing the student's accounts. -The student must have completed a course in order to be able to proceed with the feedback section.
Description of the main sequence	-The student logs in into the app. -The student goes to the feedback section. -The system automatically displays a format with several questions for the student to provide feedback. -The student fills out the form. -The student submits the answers. -The system stores the feedback in the database after retrieving the responses from the user.
Description of the alternative sequence	-
Non functional requirements	-Performance: The system should be able to handle a large number of responses without crashing or causing any slow-down in the app. -Security: The system should ensure that feedback is submitted securely and the retrieved answers should be visible only to the managers of the database of the center.
Postconditions	The student's feedback is stored in the system and the student can view a text message on the screen that the answers have been successfully turned in.

UC Name (UC-1.6)	Chats
Summary	This use case allows the students to communicate with their professor or classmates through one-to-one chats (private chats).
Dependency	-
Actors	-Primary actor: Student -Secondary actors: Professor, Classmates
Preconditions	-The student logs in into the system. -The students that the user wants to chat with must be in the same class/classes .
Description of the main sequence	-The student selects the chat feature in the system. -The student selects the person they want to chat with (the options provided by the app will include only their professor and classmates). -The system generates a one-to-one chat. -The student sends a message to the selected individual. -The selected person receives the message and a notification that a new message has arrived. The selected person may or may not respond back. The app supports only text messages, no phone or video calls. -The conversation continues until one of the two users chooses the option to end the conversation.
Description of the alternative sequence	-If the selected person is not currently logged into the system, the student will still be able to successfully send a message. -If the student wants to send a file or any other attachment, the chat will provide him/her with the respective steps that he/she needs to follow.
Non functional requirements	-The messages should be delivered promptly (if both of the users have a stable Internet connection). -Restrictive measures will be taken to prevent unauthorized access.
Postconditions	-The student and the selected user can continue to communicate through the chat feature as long as they are both logged in and have not ended the conversation. -The chat history will be saved for both of the individuals. However, the delete option will be provided to both of the users that enter a chat conversation.

UC Name (UC-1.7)	Receive Notification
Summary	The student receives a notification when there is a new post or announcement in their class stream in the app.
Dependency	This use case depends on the class schedule and announcements being posted by the teacher who conducts the lesson.
Actors	Student: primary actor who gets the notification
Preconditions	-The student is already registered in the class where an announcement has been posted. -The teacher has posted a new announcement or update.
Description of the main sequence	-The system detects that a new post or announcement has been added. -The system sends a notification to the student. -The notification appears on the student's device (mobile phone, tablet, or computer), in case the student is connected with Internet.
Description of the alternative sequence	-If the student has disabled notifications for the app in his/her device, no notification will be delivered. -If the student is not connected to the Internet, the notification will not be received until they connect.
Non functional requirements	-Performance: The notification should be sent in real-time, with minimal delay in case of any device anomaly or a poor Internet connection.
Postconditions	The student has received the notification about the new announcement.

UC Name (UC-1.8)	Information Retrieval
Summary	The student can retrieve information about the center, staff, courses, prices, monthly offers, etc. , by navigating the app.
Dependency	-
Actors	Student
Preconditions	The student must have an active account in the app.
Description of the main sequence	-The student logs in into the app. -The student chooses "Information" section. -The student selects between several options such as: staff, prices, offers, etc. -The app displays the relevant information.
Description of the alternative sequence	If the desired information is not available, the student can directly contact the center's staff by using the contact information that will be attached in the “Information” section of the app.
Non functional requirements	-The app must be able to handle multiple requests for information retrieval. -The app must have an optimal performance based on the device’s parameters where the user is using the app.
Postconditions	The system user has successfully retrieved the information.

UC Name (UC-1.9)	Withdraw
Summary	This use case describes the process of deleting a student's account from the system after they have completed a course in the center or if the student submits a withdraw format, which implies that he/she would like to withdraw from the class.
Dependency	This use case depends on the completion of the student's course and their registration status in the center.
Actors	Student
Preconditions	-The student has completed a course in the center. -The student requests to withdraw from the system.
Description of the main sequence	-The student submits a request to withdraw from the system. -The system verifies if the student has already completed the course from which he/she would like to withdraw from and if that is not the case, the system will display a message informing the user that the course is not fully completed yet. However, if the student chooses to continue with the withdraw procedures, the app will provide him/her with the steps. -The system sends a confirmation message to the user, informing the student that their account will be deleted. -The system deletes the student's account and all associated data (as dictated by the privacy terms).
Description of the alternative sequence	-If the student is actively registered in another course in the center, the system informs the student that they cannot cancel their account without withdrawing from all of the courses they are currently attending in the center. -The system will also display links and contact information, suggesting to the user to contact the staff for more information in this case.
Non functional requirements	-Security: The system must ensure that the student's personal data is deleted securely and cannot be accessed by unauthorized personnel. The personal information of the attendants will not be saved in the database. In the records of the center will be saved only information linked to statistical studies.

	-Performance: The system must delete the student's account and all associated data as soon as the user has completed the relevant procedures.
Postconditions	The student's account has been deleted from the system.

UC Name (UC-1.10)	Logout
Summary	The use case describes how the already logged in student chooses to log out of the app.
Dependency	-
Actors	Primary actor: Student
Preconditions	The student must already be logged into the app.
Description of the main sequence	-The student clicks on the "Logout" button. -The system displays a confirmation message asking the user if they are sure they want to log out. -The student confirms that they want to log out by clicking on the "Yes" option. -The system logs out the student.
Description of the alternative sequence	-If the student chooses “No” when the confirmation message is displayed, the student will remain in the app and the logout will fail.
Non functional requirements	-Security: The system must ensure that the student's login credentials are securely stored and transmitted during the logout process. -Performance: The logout process should take no more than 8 seconds to be completed.
Postconditions	The student is logged out of the app.

Use Case_2.1	Log in
Summary	This use case describes the process of logging into the online course management system for teachers.
Dependency	None
Actors	Primary actor:Teacher
Preconditions	-The teacher must download the application -The teacher must have valid login credentials for the online course management system.
Description of the Main Sequence	-The teacher accesses the course management system's login page. - The teacher is prompted by the system to input their username and password, which serve as login information. - The user inputs their login information. -The system checks the login information. -The system logs the teacher into their account and displays the dashboard if the login information is accurate. -The system displays an error message and asks the teacher to reenter their login information if the login credentials are invalid.
Description of the Alternative Sequence	If the system is unable to verify the login credentials due to technical issues, it displays an error message and prompts the teacher to try again later.
Non functional requirements	Performance: The system must be able to verify login credentials within 5 seconds. Security: The system must use secure encryption protocols to protect the teacher's login credentials and personal information.
Postconditions	If the main sequence has been followed, the teacher is successfully logged into their account and can access the dashboard.

Use Case_2.2	Post Teaching and Assignments
Summary	Once logged in, the teacher visits the course page and adds readings, assignments, and other resources for her students to access. She sends an invitation to every student enrolled in the course as well as sets an online lesson or meeting for the following day.
Dependency	This use case depends on the successful completion of the "Login" use case and also includes the use case 2.3 and use case 2.4
Actors	Primary Actor: Teacher Secondary Actor: Students
Preconditions	The user is logged into the system. The teacher is enrolled as an iteacher for the course. The course has already been created and enrolled with the students.
Description of the Main Sequence	- The user accesses the course page. - The teacher determines whether or not to post learning resources. - The teacher either creates the materials personally or uploads them to the system. - The assignments are made by the teacher and published on the course page. -The teacher decides to arrange an online lesson. -The teacher invites all enrolled students to the lesson and chooses the day and time for it. -The teacher checks and verifies the readings, assignments, and syllabus.
Description of the Alternative Sequence	- If the teacher encounters any technical issues, she contacts the technical support team. -If the teacher is not enrolled as a teacher for the course, she contacts the administrator.
Non functional requirements	-Performance: The system must be able to handle the uploading and storage of large files, as well as the scheduling of online lessons and invitations to all enrolled students. -Security: The system must ensure the confidentiality and integrity of the uploaded teaching materials, assignments, and online lesson information.
Postconditions	-Teaching materials and assignments have been successfully posted on the course page. -An online lesson has been scheduled and an invitation has been sent to all enrolled students.

Use Case _2.3	Post Official Announcement
Summary	This use case describes how to post formal announcements on the course page to let students know about any unforeseen circumstances.
Dependency	This use case depends on the successful completion of the "Login" use case.
Actors	-Primary Actor: Teacher -Secondary Actor: None
Preconditions	-The teacher must be logged into the system. -The teacher must have access to the course page where the announcement is to be posted.
Description of the Main Sequence	-The teacher navigates to the website for the course where the notice must be posted. -The teacher selects "Post Announcement" from the menu. -The system launches the form for creating announcements. -The announcement's title, description, and date are filled in by the teacher. -The notification is published on the course page by the teacher by clicking the "Post" button. -The announcement is saved by the system, and the software displays it on the course page.
Description of the Alternative Sequence	In case the teacher encounters any technical issue while posting the announcement, she may retry posting the announcement or seek technical support.
Non functional requirements	-Performance: The system must be able to post the announcement within 10 seconds of clicking the "Post" button. -Security: The system must authenticate the teacher before allowing her to post the announcement to ensure that only authorized personnel can post announcements.
Postconditions	The official announcement is published on the course page. The students enrolled in the course can view the announcement on the course page.

Use Case_2.4	Communicate with the manager
Summary	Teacher needs to communicate with the manager to provide information regarding the courses, the presence, and to ask questions. She sends a message through the designated communication stream to the manager and waits for a response.
Dependency	None
Actors	• Teacher (primary actor) • Manager (secondary actor)
Preconditions	• The teacher is logged in to the communication platform. • The manager is available to receive and respond to messages.
Description of the Main Sequence	-The teacher navigates to the communication stream designated for communicating with the manager. -The teacher composes a message, providing the necessary information and/or asking the question(s). -The teacher sends the message to the manager. -The manager composes a response and sends it back to the teacher (if already logged in in the app).
Description of the Alternative Sequence	If the manager is not available to receive and respond to messages, the chat will remain open, unless the teacher chooses to end the chat. If the manager does not respond in a timely manner, the teacher may need to send a follow-up message or use another method of communication to reach the manager.
Non functional requirements	-Performance: The communication platform should be reliable and responsive, allowing messages to be sent and received in a timely manner. -Security: The communication platform should be secure and protect the privacy of the messages being sent.
Postconditions	The teacher has successfully communicated with the manager and received a response, or has sent a follow-up message or used another method of communication to reach the manager.

Use Case_2.5	View Course Progress
Summary	The teacher is able to view the progress of each individual student and of the class in general. She checks how her students are doing and identifies areas where they may need additional support.
Dependency	None
Actors	Primary actor: Teacher
Preconditions	The teacher must have access to the course management system. The teacher must be logged in to the course management system.
Description of the Main Sequence	-The teacher navigates to the course progress section of the course management system. -The teacher selects the class or individual student she wants to view progress for. -The system displays the progress report for the selected student or class. -The teacher reviews the progress report and notes areas where additional support may be needed.
Description of the Alternative Sequence	-
Non functional requirements	Performance: The system must display progress reports in a timely manner. Security: The system must ensure that progress reports are only accessible to authorized users. The visibility for this section of the app will be restricted.
Postconditions	The teacher has reviewed the progress report and identified areas where additional support may be needed

Use Case_2.6	Calculate salary and bonuses
Summary	This use case describes the process of calculating the salary and bonuses for a teacher using the online system. The teacher inputs various factors, such as working hours, overtime, bonuses and paid leaves to determine their salary for the month.
Dependency	-
Actors	Primary actor: Teacher
Preconditions	The teacher has a valid and active account in the online system. The teacher has worked for the current month and is eligible for payment.
Description of the Main Sequence	-The teacher logs into the online system. -The system displays the salary and bonus calculation page. There will be an online automatic calculator in case the teacher would like to have a preview of the final sum they expect to receive. -The teacher inputs their working hours, overtime, holidays, and any other relevant factors. -The system calculates the teacher's salary and bonuses based on the inputted factors. -The system displays the calculated salary and bonuses to the teacher. The user may choose to save this record or just leave it as a draft.
Description of the Alternative Sequence	-If the teacher encounters an error while inputting their information, the system displays an error message and prompts the teacher to re-enter the information.
Non functional requirements	-Performance: The system should be able to calculate the salary and bonuses accurately and efficiently within a reasonable time frame (in optimal conditions, it is estimated that this operation should be completed in no more than 8 seconds). -Security: The system should ensure the privacy and security of the teacher's personal and financial information.
Postconditions	The teacher's salary and bonuses for the current month are calculated and saved in the system.

Use Case_2.7	Check personal agenda and make changes
Summary	The teacher checks her personal agenda and makes changes to the schedule in cases where the class cannot be conducted in a certain time interval. She updates the online system with the new schedule.
Dependency	This UC depends on the system having a personal agenda feature (timetable) and a functionality to update schedules.
Actors	Teacher
Preconditions	-The teacher is logged in to the online system. -The teacher has a need to change the schedule due to unavoidable circumstances (bad weather condition, health-related issues, etc).
Description of the Main Sequence	-The teacher navigates to her personal agenda feature on the online system. -The teacher reviews her schedule for the upcoming weeks. -The teacher identifies the exact time interval she would like to postpone or cancel. -The teacher selects a new date and time for the class. -The teacher updates the online system with the new schedule. -The online system sends a notification to the students regarding the change in schedule.
Description of the Alternative Sequence	-If the teacher does not review her schedule, she may miss a conflict or potential conflict in the schedule. If the teacher does not identify any conflicts, she does not need to make any changes to the schedule. -If the online system fails to update with the new schedule, the use case is aborted.
Non functional requirements	Performance: The online system should be responsive to the teacher's requests, and the updates should be reflected immediately. Security: The online system should have appropriate access controls to ensure only authorized users have access to the personal agenda feature.
Postconditions	-The teacher's personal agenda is updated with the new schedule. -The students are notified of the change in schedule.

Use Case_2.8	Make reviews and suggestions
Summary	The teacher submits reviews, suggestions, or proposals to the manager to improve the quality of courses and contribute to the development of the center.
Dependency	-
Actors	The teacher The manager
Preconditions	The teacher has access to the designated sector to submit reviews and suggestions. The manager has access to review and consider the submissions.
Description of the Main Sequence	-The teacher accesses the designated sector to submit a review, suggestion, or proposal. -The teacher writes the content of the submission, providing specific details and examples as necessary. Not all of the data fields will be mandatory. -The teacher submits the review, suggestion, or proposal. -The manager receives the submission and reviews it. -In this use case, only the person who collects the reviews, the manager, will be able to handle the data received.
Description of the Alternative Sequence	If the teacher encounters technical difficulties while accessing or submitting the review or suggestion, the teacher contacts technical support to resolve the issue.
Non functional requirements	The system must be able to handle a large number of submissions at any given time. The system must maintain the confidentiality of the submissions and protect them from unauthorized access.
Postconditions	The teacher's submission has been received and is being considered by the manager.

Use Case_2.9	Apply for a course
Summary	This use case describes the process of a teacher applying for a course by filling out an application form online and submitting it for review.
Dependency	-
Actors	Teacher
Preconditions	The teacher has access to the online application form. The teacher has selected the course they wish to apply for.
Description of the Main Sequence	-The teacher logs into the online system and navigates to the course application form. -The teacher fills out the required fields in the application form, including their personal information, contact details, and academic qualifications. In the options provided and generated by the system, only the subjects related to the expertise of the professor will be displayed as an option. -The teacher selects the course/s for and provides any additional information required for the course application. This form will also provide the teacher with the feature to append or attach any other documentation such as: CV, qualifications, etc. -The teacher submits the completed application form for review.
Description of the Alternative Sequence	-If the teacher encounters any difficulties filling out the form, they contact the system administrator for assistance. Throughout the entire process, the information contact will be provided, so that the user can also be directly supported by the respective staff. -If the course they wish to apply for is not available, the teacher contacts the system administrator to inquire about the availability of the course or may write something in the section sector.
Non functional requirements	-Performance: The online system must be able to handle a large number of concurrent course applications without experiencing any delays or crashes. -Security: The system must ensure the privacy and confidentiality of the teacher's personal and academic information.
Postconditions	The teacher's application form is submitted for review. The system sends a confirmation message to the teacher acknowledging receipt of the application.

Use Case_2.10	Accept Enrollment Requests
Summary	This use case involves the teacher accepting enrollment requests on behalf of the students and keeping a record of the number of students in the class.
Dependency	-
Actors	Teacher: Primary actor who initiates the use case. Students: Secondary actors who request enrollment in the class.
Preconditions	-The teacher is authorized to accept enrollment requests for the class. -The class has available spots for enrollment.
Description of the Main Sequence	-The teacher receives an enrollment request from the manager of the system. After a student has signed the enrollment contract with our institution and contacted the staff for their decision about the program they would like to pursue, the manager sends to the teacher an enrollment request. -The teacher checks if the class has available spots for enrollment. If the class has available spots, the teacher accepts the enrollment request and adds the student to the class roster. -The teacher updates the class roster with the new student's information. -The teacher sends a notification to the student confirming their enrollment in the class. -The teacher updates the record of the number of students in the class. The changes will be reflected in the database of the manager as well.
Description of the Alternative Sequence	If the class does not have available spots, the teacher rejects the enrollment request and notifies the student that the class is full through firstly having a conversation with the manager that administers the app.
Non functional requirements	-Performance: The use case must be executed within a reasonable time frame to ensure that the enrollment process is not delayed. -Security: The enrollment information of the students must be kept secure and only accessible to authorized personnel.
Postconditions	The record of the number of students in the class is updated to reflect the new enrollment. The student is either added to the class roster or notified that the class is full.

Use Case_2.11	Keep notes and put in the system
Summary	The teacher keeps notes and inputs information about the participation of individuals in the lesson into the system, tracking attendance and engagement levels of each student.
Dependency	-
Actors	Teacher
Preconditions	The teacher has already conducted the lesson.
Description of the Main Sequence	-The teacher logs in to the system. -The teacher selects the class. -The teacher takes attendance and marks the attendance of each student in the system. -The teacher records grades about the participation and engagement levels of each student in the system. -The teacher saves the grades and attendance data in the system.
Description of the Alternative Sequence	-
Non functional requirements	-Performance: The system must be able to handle a large number of classes and students, and it should be able to save data in real-time without any delay. -Security: The system should have appropriate access control mechanisms to ensure that only authorized personnel can view and modify data.
Postconditions	The attendance and engagement levels of each student are recorded in the system for the class conducted by the teacher.

Use Case_2.12	Logout
Summary	This use case describes the process of logging out of the system by the teacher after completing her tasks for the day.
Dependency	-
Actors	Teacher
Preconditions	The teacher must be logged in to the system.
Description of the Main Sequence	-The teacher selects the "Logout" option from the system interface. -The system confirms that the teacher wants to log out of the system. -The system logs the teacher out of the system.
Description of the Alternative Sequence	-
Non functional requirements	-The system should log out the teacher within a reasonable amount of time, preferably less than 5 seconds. However, there may be a delay in case of a poor Internet connection or in case the performance of the device where the app is downloaded is not optimal. -The system should be secure and ensure that unauthorized access is prevented during the log out process.
Postconditions	The teacher is logged out of the system and directed to the login page.

UC Name (UC-3.1)	Login
Summary	This use case describes how the manager of the center logs in into the app.
Dependency	-
Actors	Primary actor: Manager
Preconditions	The manager of the center must have a priorly established account by the app developers in order to proceed with the login part.
Description of the main sequence	-The manager opens the app and the login page is displayed. -The manager enters their username and password. -The system verifies the manager's credentials and if they are correct, the manager will log in. The system displays the home page.
Description of the alternative sequence	-If the manager enters an incorrect username or password, the system displays an error message and prompts the manager to try again.
Non functional requirements	-Security: The system must ensure that the manager's login credentials are securely stored and not transmitted to third parties. -Performance: The login process should take no more than 8 seconds to complete (it depends on the device’s performance or Internet connection).
Postconditions	The manager is successfully logged in to the app and can access the app’s features.

UC Name (UC-3.2)	Database
Summary	The use case describes how the manager will be able to keep a database containing information regarding the number of courses, students, employees, etc.
Dependency	-
Actors	Primary actor: Manager
Preconditions	The manager must already be logged in to the app.
Description of the main sequence	-The manager navigates to the database section of the app. -The system displays the current database containing information regarding various areas such as: the number of courses, students, staff, etc. -The manager can add, update or delete data from the database as needed. -The system saves the changes made to the database.
Description of the alternative sequence	-
Non functional requirements	-Performance: The system should be able to handle a large amount of data and respond quickly to queries and updates made by the user of the system. -Security: The system must ensure that the data in the database is secure and only accessible by the manager. The option of the “Database” in the app will be shown only in case the user was logged in with the manager’s credentials, which are already recognized in the system.
Postconditions	The database is updated with any modification made by the manager.

UC Name (UC-3.3)	Notification
Summary	The manager will receive notifications for staff contract termination, teacher messages (if one of the teachers has invited the manager to a conversation in a private chat) or in case the timetable was modified by one or more of the professors.
Dependency	This use case depends on the Database use case.
Actors	Primary Actor: Manager
Preconditions	-
Description of the main sequence	1-The system detects that the termination of a staff contract is approaching or a teacher has written to the manager. 2-The system detects that the manager user was invited to a chat and a new message has arrived. 3-The system detects new operations and changes in the timetable database. -The system sends a notification to the manager via the app.
Description of the alternative sequence	If the manager has deactivated notifications for the app, the notification will not be sent, unless the manager logs in.
Non functional requirements	-Performance: Notifications should be delivered to the manager in a timely manner (in case of a contract termination, 10 days prior to the event; in case of messages, within some seconds, if the device has a stable Internet connection). -Security: Notifications should be delivered securely to avoid any data breaches.
Postconditions	The manager receives a notification for the approaching termination of a staff contract or if a teacher has written to him/her.

UC Name (UC-3.4)	New Users
Summary	This use case describes the process for the manager to register new users (teachers and students) in the app.
Dependency	-
Actors	-Primary actor: manager -Secondary actor: New user (teacher or student)
Preconditions	-The manager must be logged in to the app. -We assume that the manager already has the necessary information to register a new user (such as name, age, email address, etc.). These information were passed to the manager with the consent of the individual in the moment of signing the contract to pay the course fee in exchange for the center's service.
Description of the main sequence	-The manager selects the "Register New User" option in the app. -The app presents a form for the manager to fill in the necessary information for the new user. -The manager fills in the required fields for the new user. -The manager clicks "create new user" to register the new user. -The system saves the new user's information in the database. -The app sends a confirmation email to the new user containing their login credentials (single use credentials).
Description of the alternative sequence	-If the manager enters incomplete or invalid information in the format, the app displays an error message and returns the manager back to the format. -If the app encounters an error while saving the new user's information, the app displays an error message and prompts the manager to try again, showing with red the fields that he/she needs to check.
Non functional requirements	-Performance: The app should register new users within a reasonable amount of time, on average less than 10 seconds. -Security: The app should encrypt the new user's password and protect their personal information, respecting the privacy terms and regulations.
Postconditions	The new user is registered in the app and can log in using the credentials he/she received per e-mail.

UC Name (UC-3.5)	Announcements
Summary	The manager will be able to post announcements to the teachers only and not directly to the students.
Dependency	-
Actors	Primary actor: Manager
Preconditions	-The manager must be logged in -There must be at least one teacher registered in the app (the center must have at least one employee in the position of a teacher).
Description of the main sequence	-The manager selects the "Announcements" option from the main menu. -The app displays a form where the manager can enter the details of the announcement, such as the title, content, and date. -The manager selects the option to post the announcement. -The app saves the announcement and sends it to all the registered teachers. -The app confirms that the announcement has been successfully sent by displaying a text message to the user.
Description of the alternative sequence	-If the manager decides not to post the announcement by clicking “No” when he/she is asked to post the announcement, the use case will end. -If the manager does not select anything and simply logs out when receiving the confirmation message by the system, the announcement will be saved as a draft.
Non functional requirements	-Performance: The app should be able to send the announcement to all registered professors within 30 seconds. -Security: The app should ensure that only registered teachers (that also have an active account in the system) receive the announcement.
Postconditions	-The announcement is successfully sent to all registered teachers. -We emphasize that the announcement is not visible to the students.

UC Name (UC-3.6)	Update Timetable
Summary	The use case allows the manager to check and update the timetable and schedule of the staff.
Dependency	-
Actors	Primary Actor: Manager
Preconditions	-We assume here that the manager already has the necessary permissions to update the timetable and schedule of the employees. -The timetable and schedule data should already be implemented and available in the system.
Description of the main sequence	-The manager logs in into the app. -The system presents the manager with the option to update the timetable and schedule. -The manager selects the option to update the timetable and schedule. -The system firstly displays the existing timetable and schedule data. -The manager modifies the timetable and schedule data as required and the changes will be saved in the system. -The system updates the timetable and schedule data and these updates will be visible to the other actors as well. -The system notifies the manager that the update has been successful and a notification is sent to the professors and students.
Description of the alternative sequence	-
Non functional requirements	The system must be able to handle multiple users without affecting performance.
Postconditions	-The updated timetable and schedule data is saved in the app. -The manager is notified that the update has been successful and a notification is delivered to the staff and enrolled students to inform about the modifications.

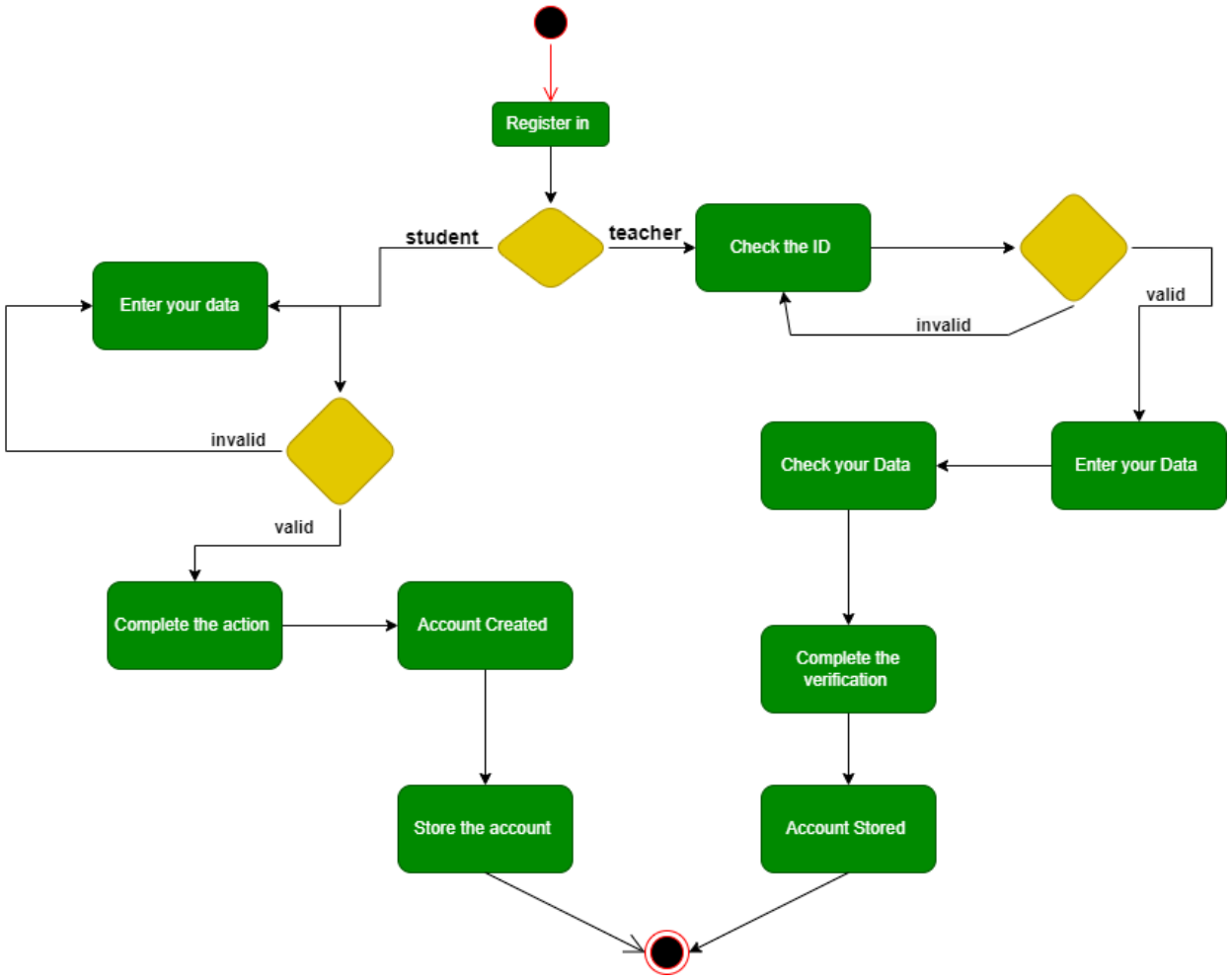
UC Name (UC-3.7)	Payments
Summary	The use case allows the manager to check the working hours of the staff as well as their salary in order to prepare the financial documents related to taxes and bank operations.
Dependency	-
Actors	-Primary Actor: Manager -Secondary Actors: Staff
Preconditions	-The manager will be able to access the staff's working hours and salary data. -The staff's working hours and salary data should be available in the system, but the visibility will be restricted to other third parties or unrelated individuals.
Description of the main sequence	-The manager logs in to the system. -The system presents the manager with the option to view the staff's working hours (including overtime and paid/unpaid leaves) and salary data. -The manager selects the option to view the staff's working hours and salary data. -The system presents the working hours and salary data for each staff member. -The app will provide the manager with an automatic calculator that will give him/her a preview regarding the final sum to be issued. -The manager will also be provided with the option to attach all the financial record and data related to a certain employee in a final document.
Description of the alternative sequence	-
Non functional requirements	-The system must be secure and protect sensitive data from unauthorized access (employees data should remain confidential). -The system must be able to handle large amounts of data without affecting performance.
Postconditions	-The payment sheet data is saved in the system's database of the manager. -The manager is notified that the operation has been successful.

UC Name (UC-3.8)	General Information
Summary	This use case describes the process of updating the “Information” section for students already enrolled or not in a course program in the center to set the prices, offers for each program offered by the firm and provide general information.
Dependency	-
Actors	Primary actor: Manager
Preconditions	The manager must be logged into the system
Description of the main sequence	-The manager selects the "Update Information" option from the system menu. -The system displays the current form and data. -The manager chooses the data fields to be modified and the system will automatically respond by providing him/her with the option’s category he can choose from. -The manager saves the updated information, that will later on be visible for all the system’s actors. -The system confirms that the changes have been saved.
Description of the alternative sequence	If the manager decides not to update the information, they can cancel the operation at any time by selecting the "Cancel" button. In this case, the form will remain the same and the other system’s users will not be informed that someone tried to modify this section’s content.
Non functional requirements	-The system must have a high level of security to prevent unauthorized access to sensitive information. Only the manager should be able to modify the content of this area. -The system must be able to handle a large amount of users without any slow-down.
Postconditions	The information section has been updated and a text message that the updates have been successful will be displayed to the manager.

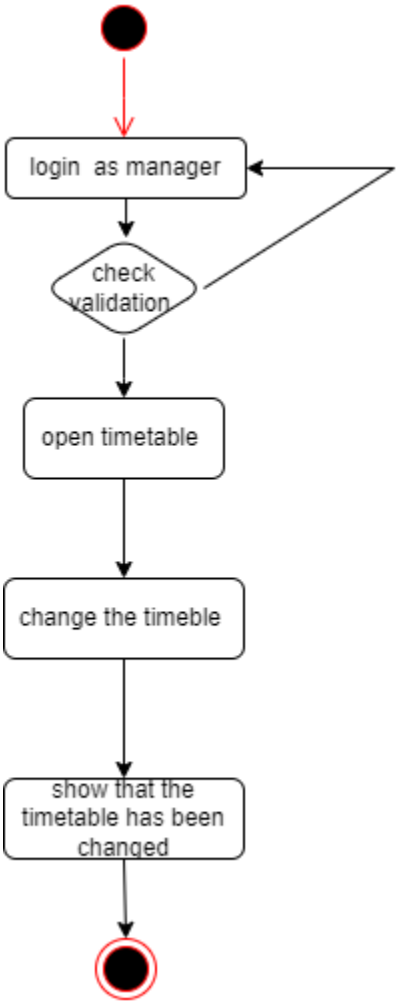
UC Name (UC-3.9)	Logout
Summary	The manager logs out of the app.
Dependency	-
Actors	Primary actor: Manager
Preconditions	The manager is already logged in.
Description of the main sequence	-The manager clicks on the "Logout" button. -The system displays a confirmation message asking if the manager is sure he/she wants to log out. -The manager confirms by clicking "Yes". -The system logs out the manager.
Description of the alternative sequence	-If the manager clicks on the "Logout" button but decides afterwards not to log out, they can click "Cancel" on the confirmation message. -The system will return the manager to the previous page.
Non functional requirements	-Performance: The logout process should be fast and responsive. -Security: The logout process must ensure that the manager's session is terminated and all associated data is cleared.
Postconditions	The manager is logged out of the app.

4.4 Activity Diagrams

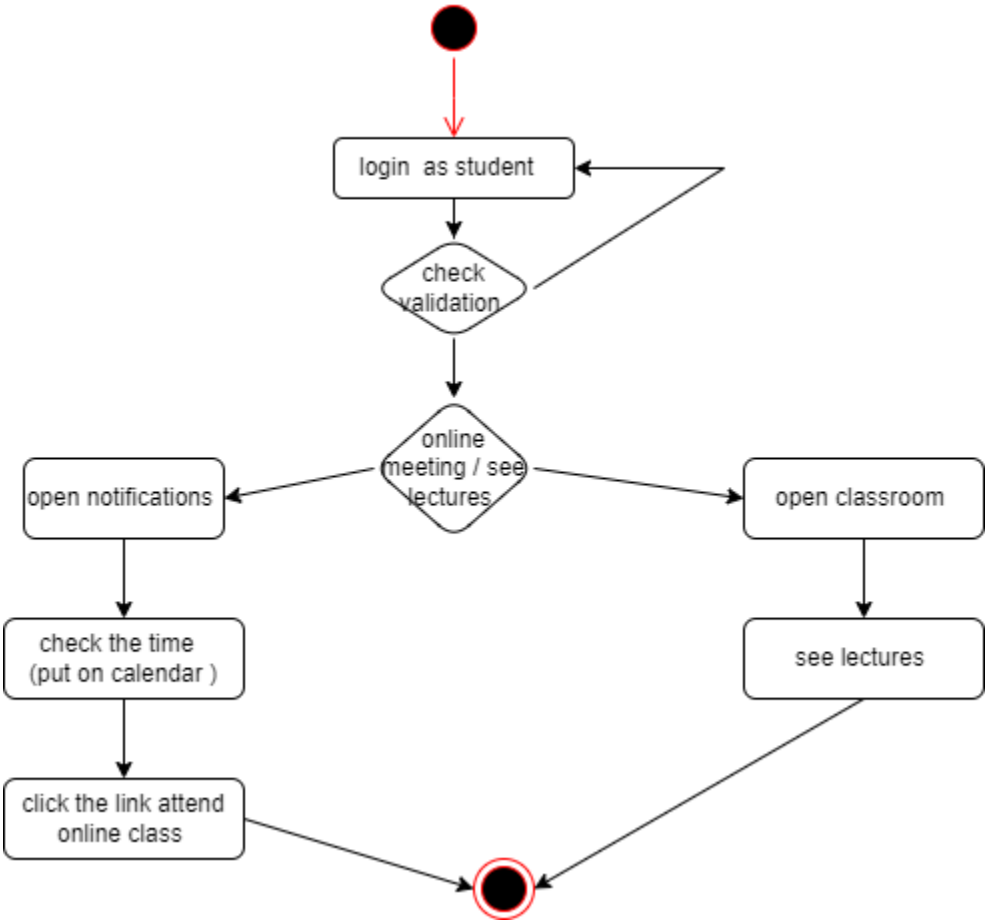
Register Activity Diagram



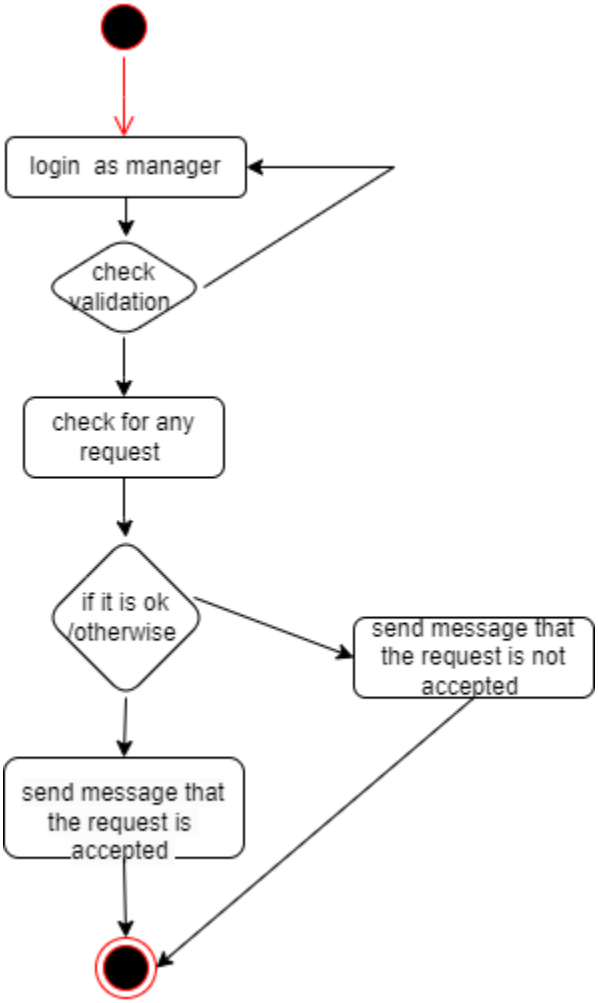
Timetable Activity Diagram



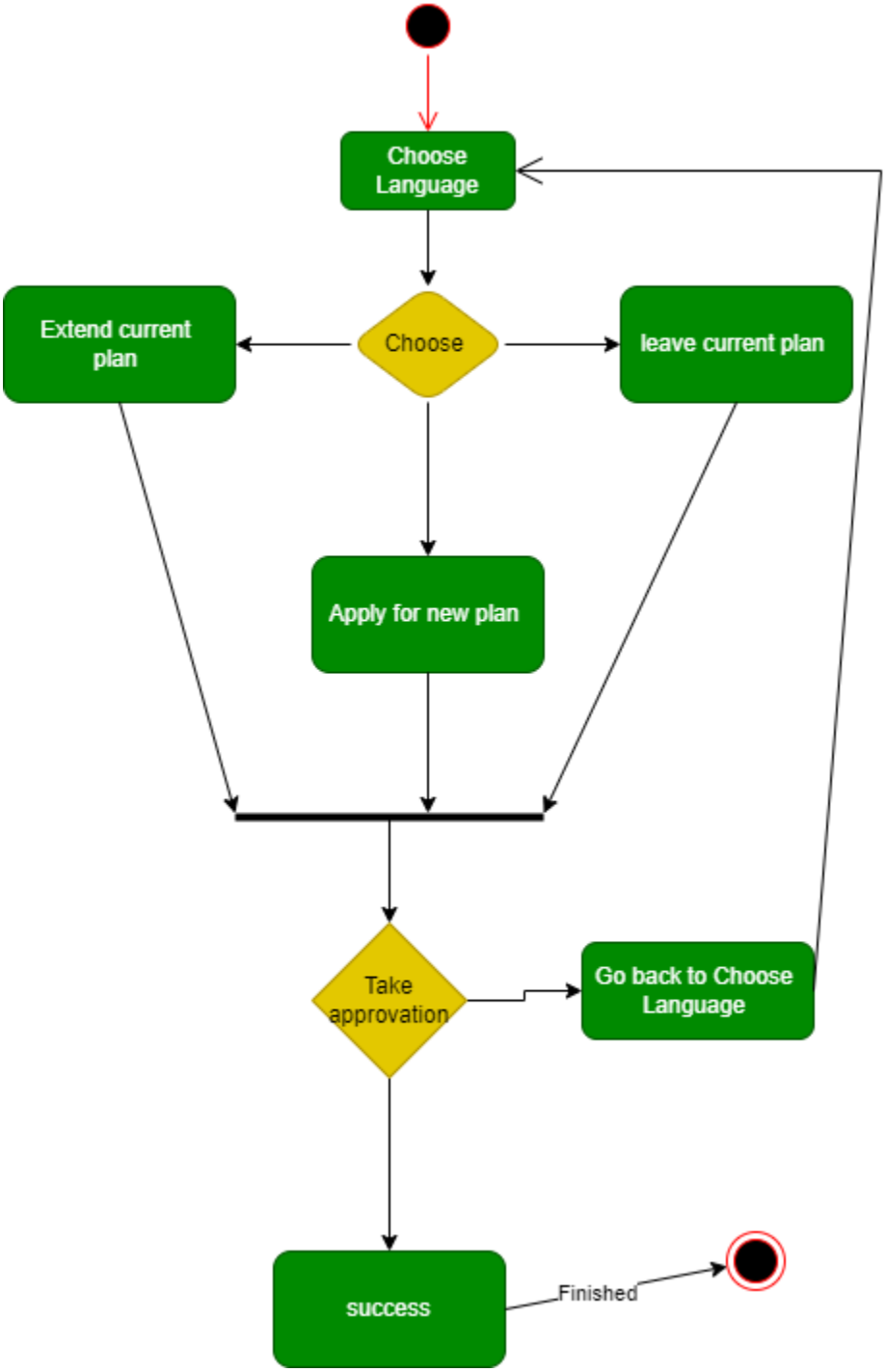
Student Activity Diagram



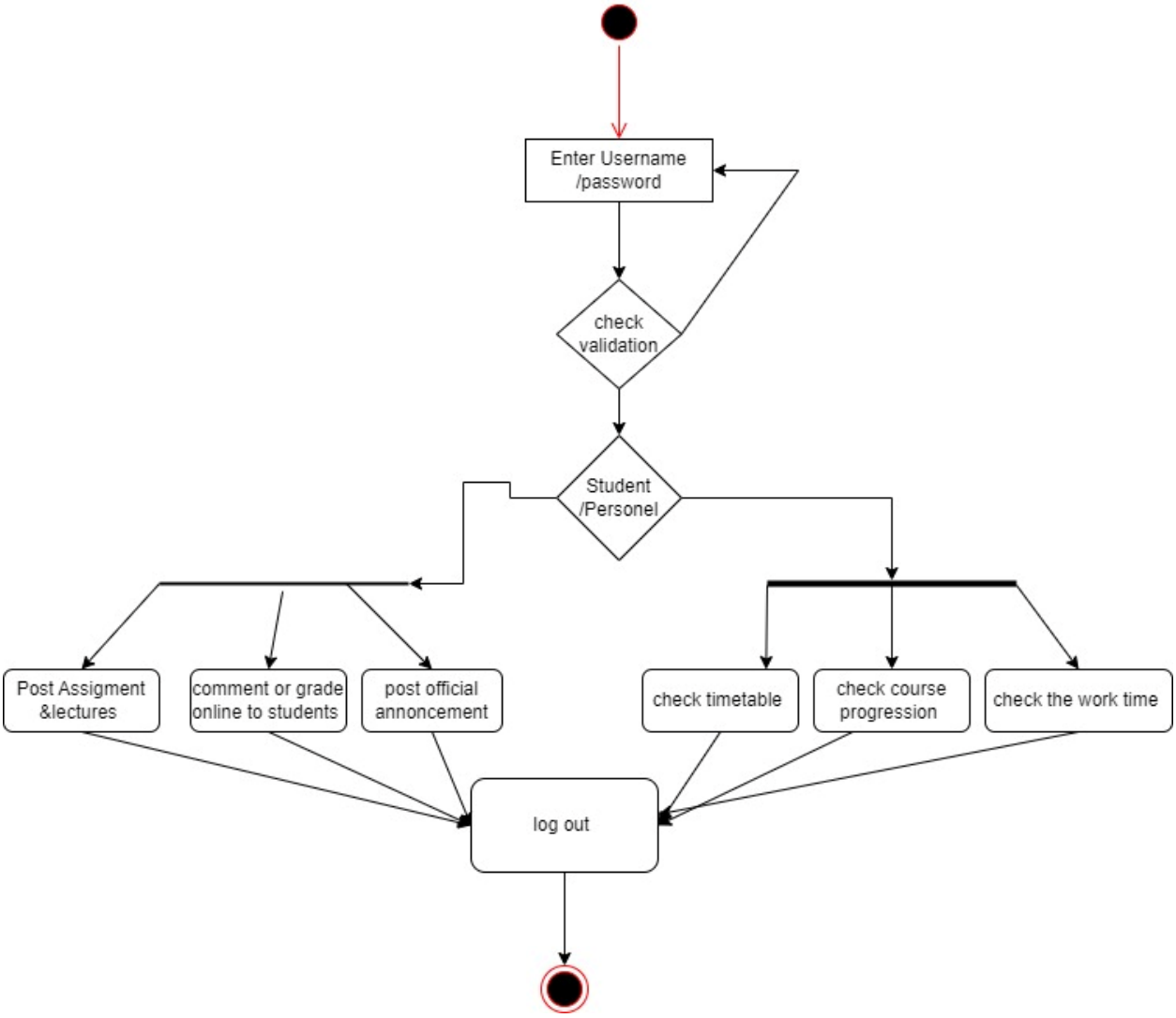
Request Activity Diagram



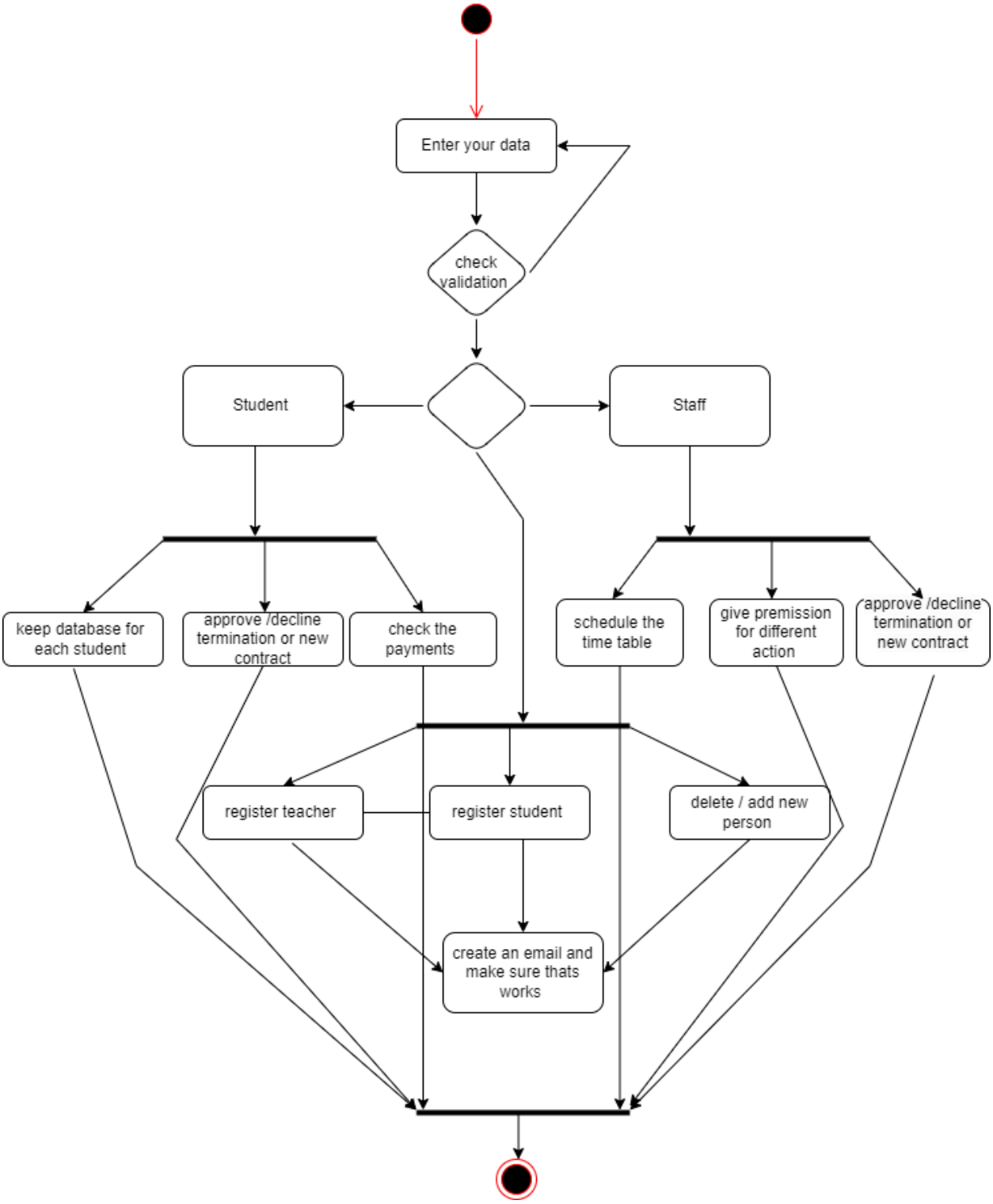
Plan Activity Diagram



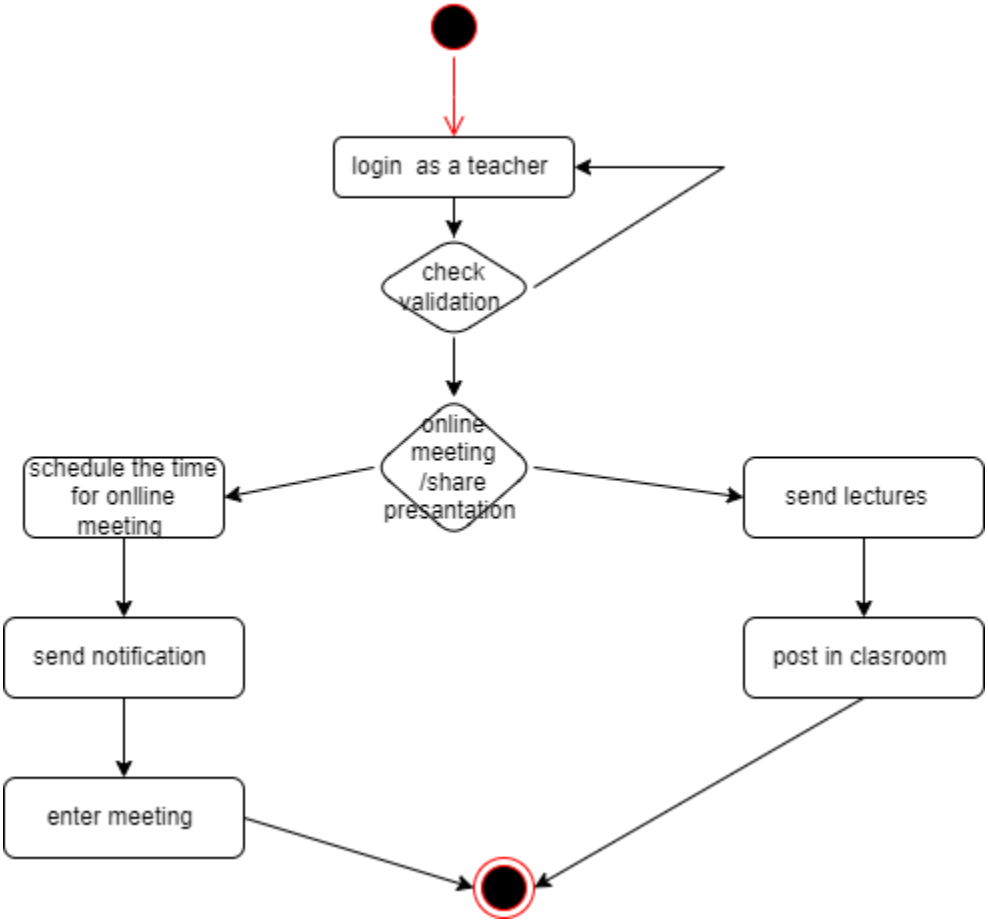
Teacher Activity Diagram



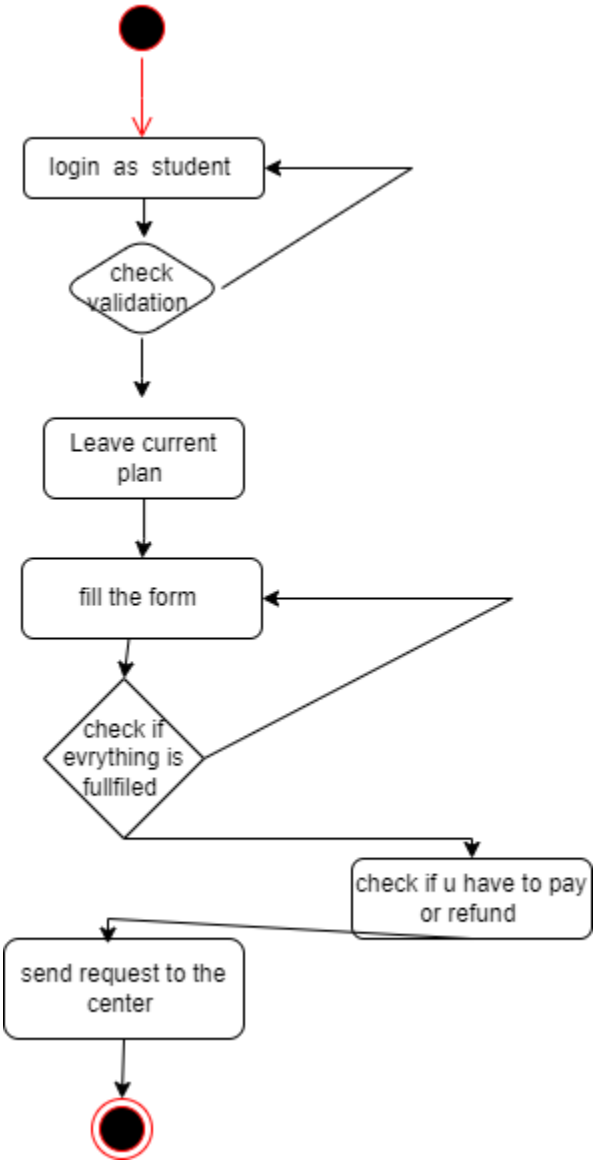
Manager Activity Diagram



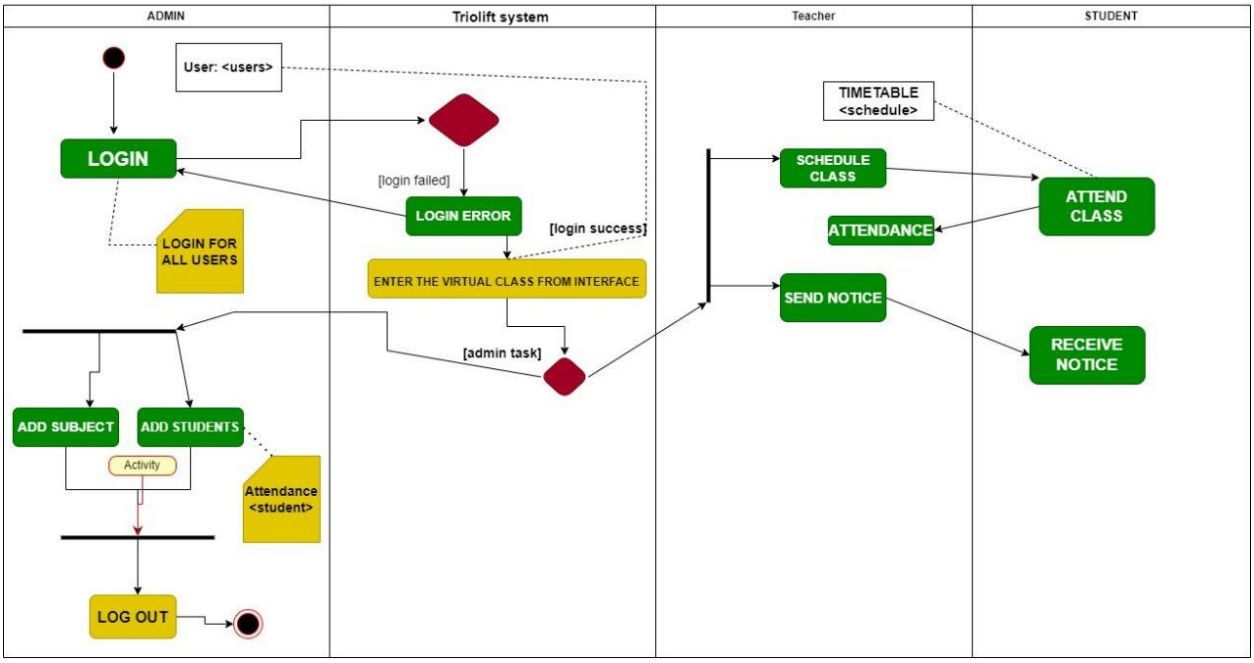
Personel Activity Diagram



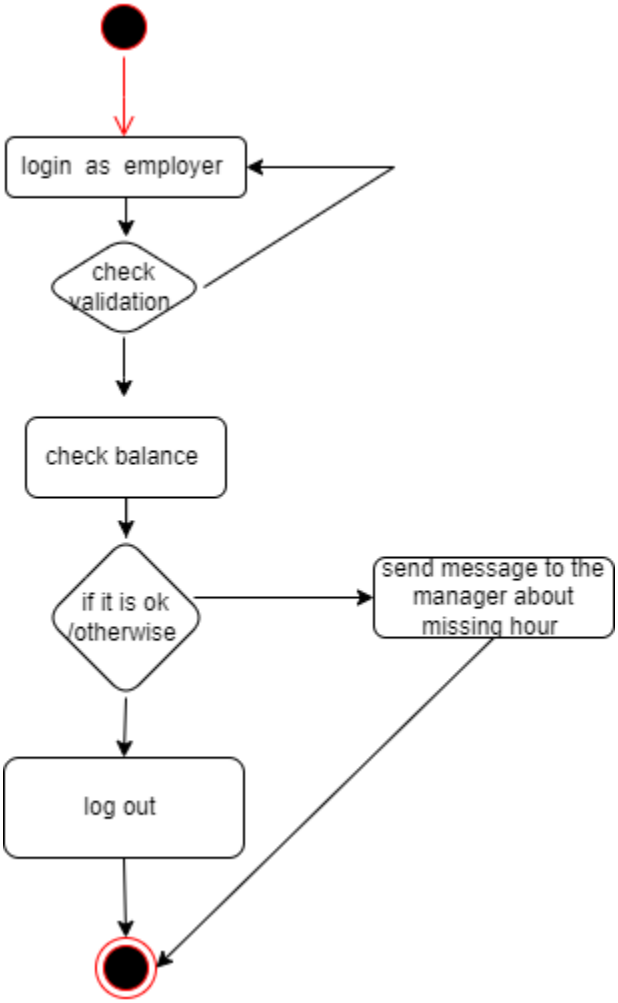
Leave Current Plan Activity diagram



Main Activity Diagram

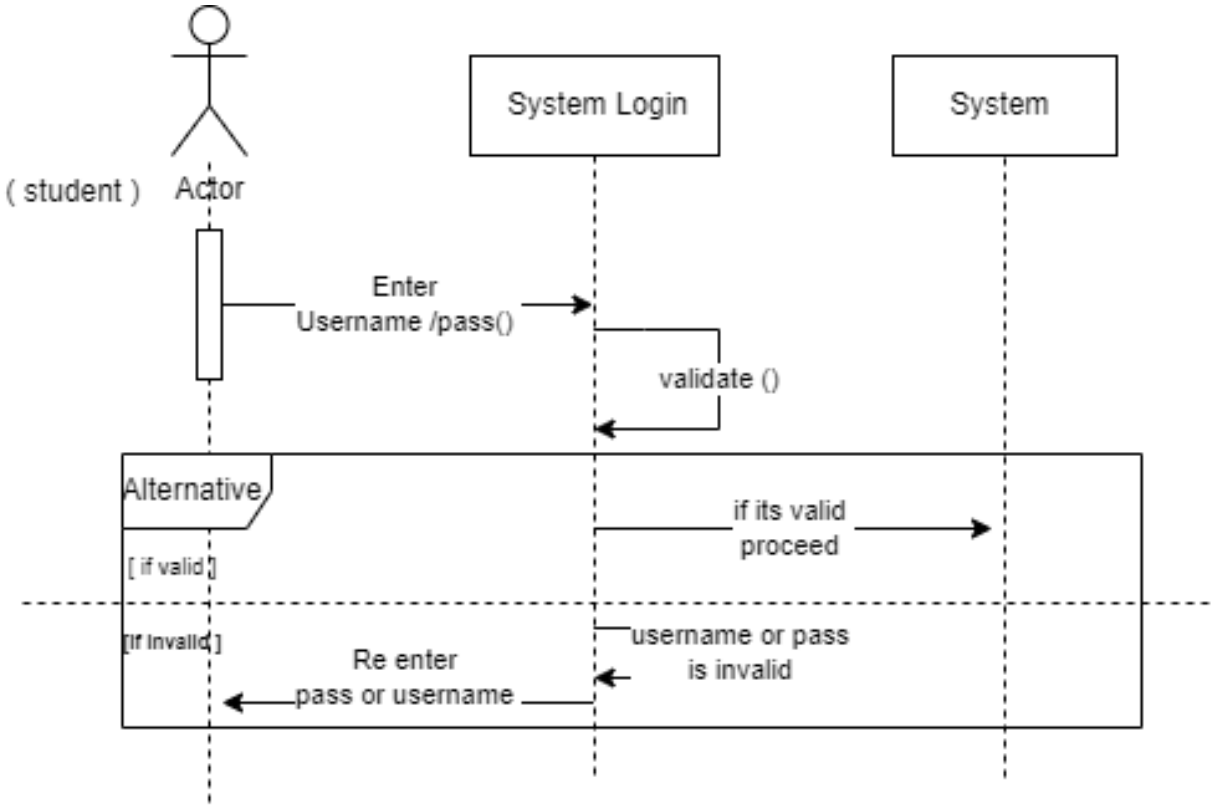


Salary Activity Diagram

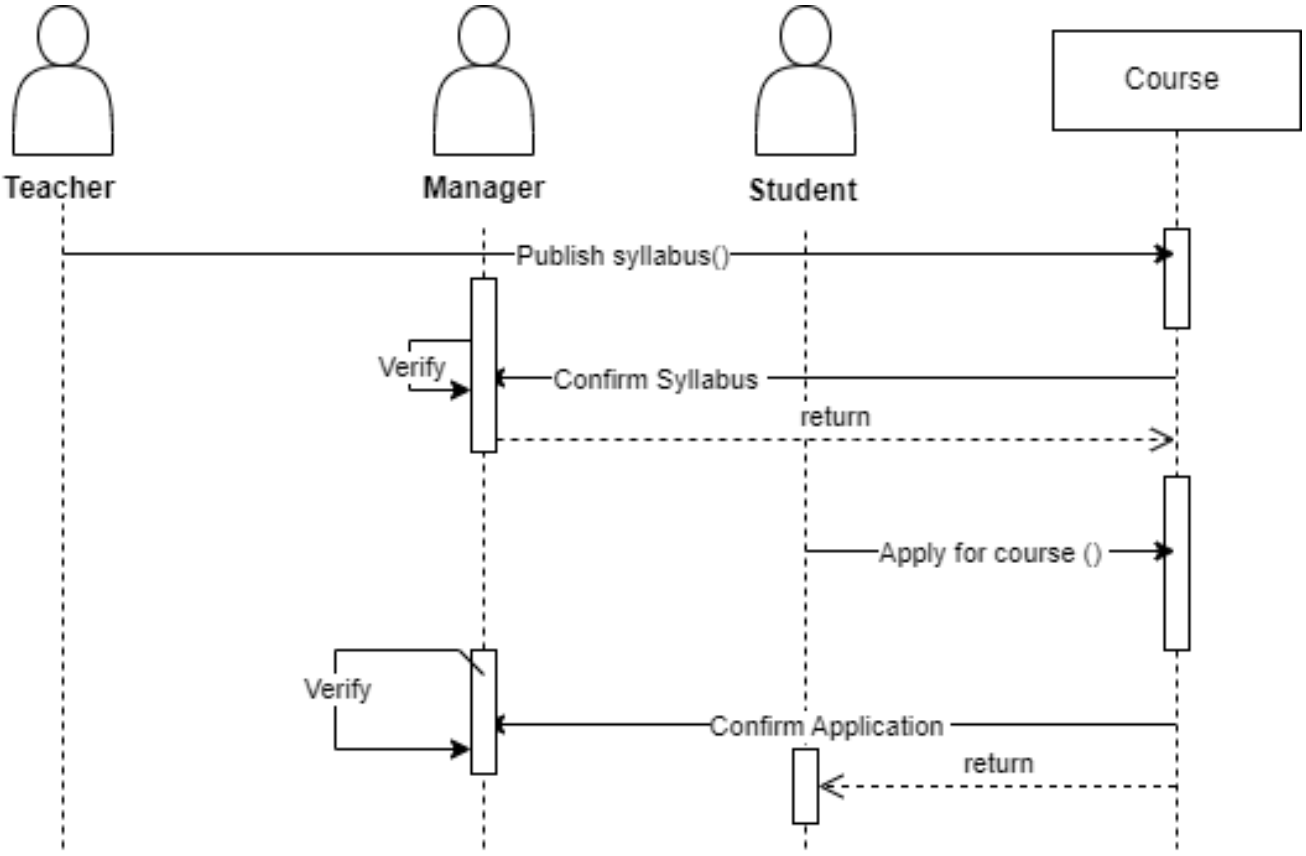


4.5 Sequence diagrams

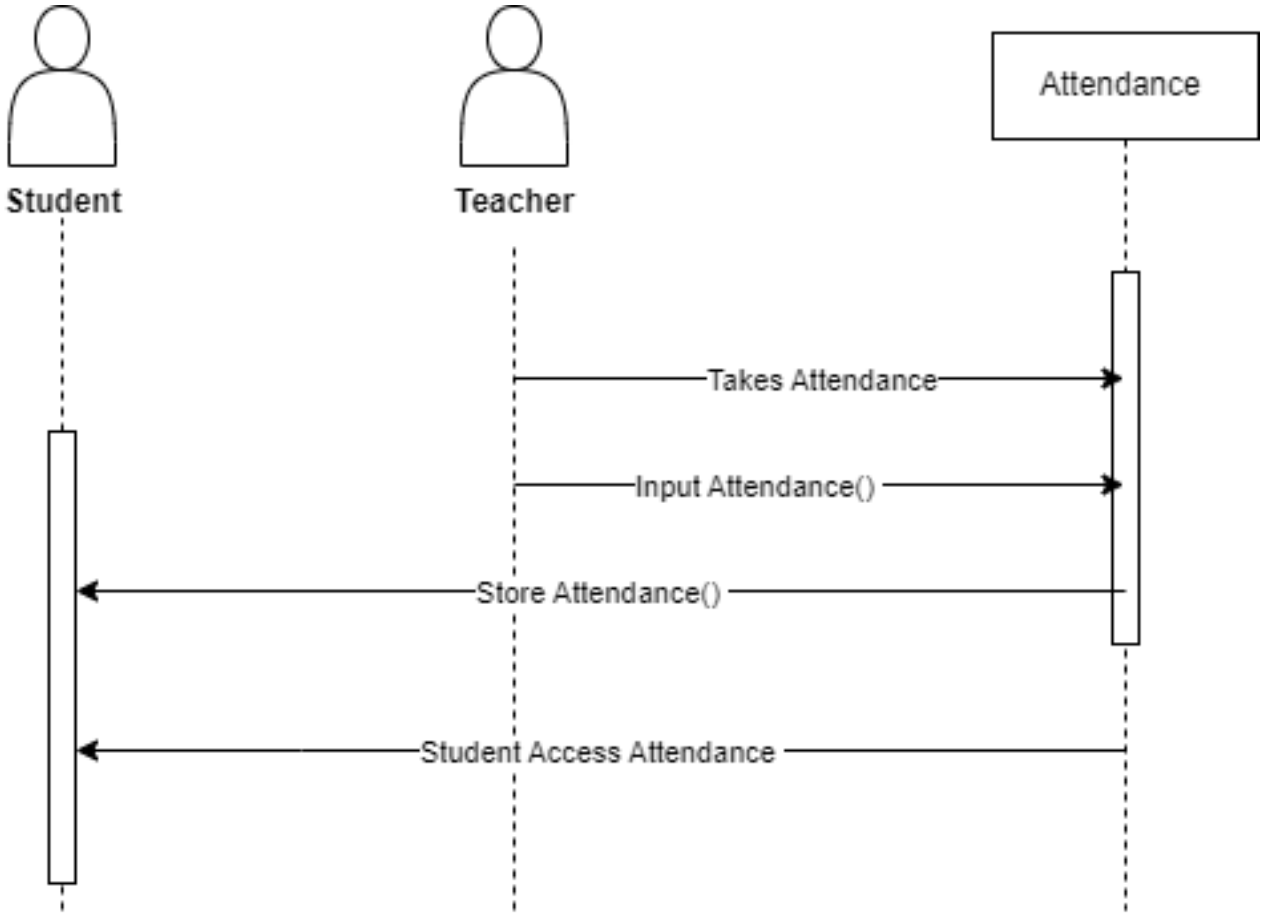
Log in Sequence Diagram



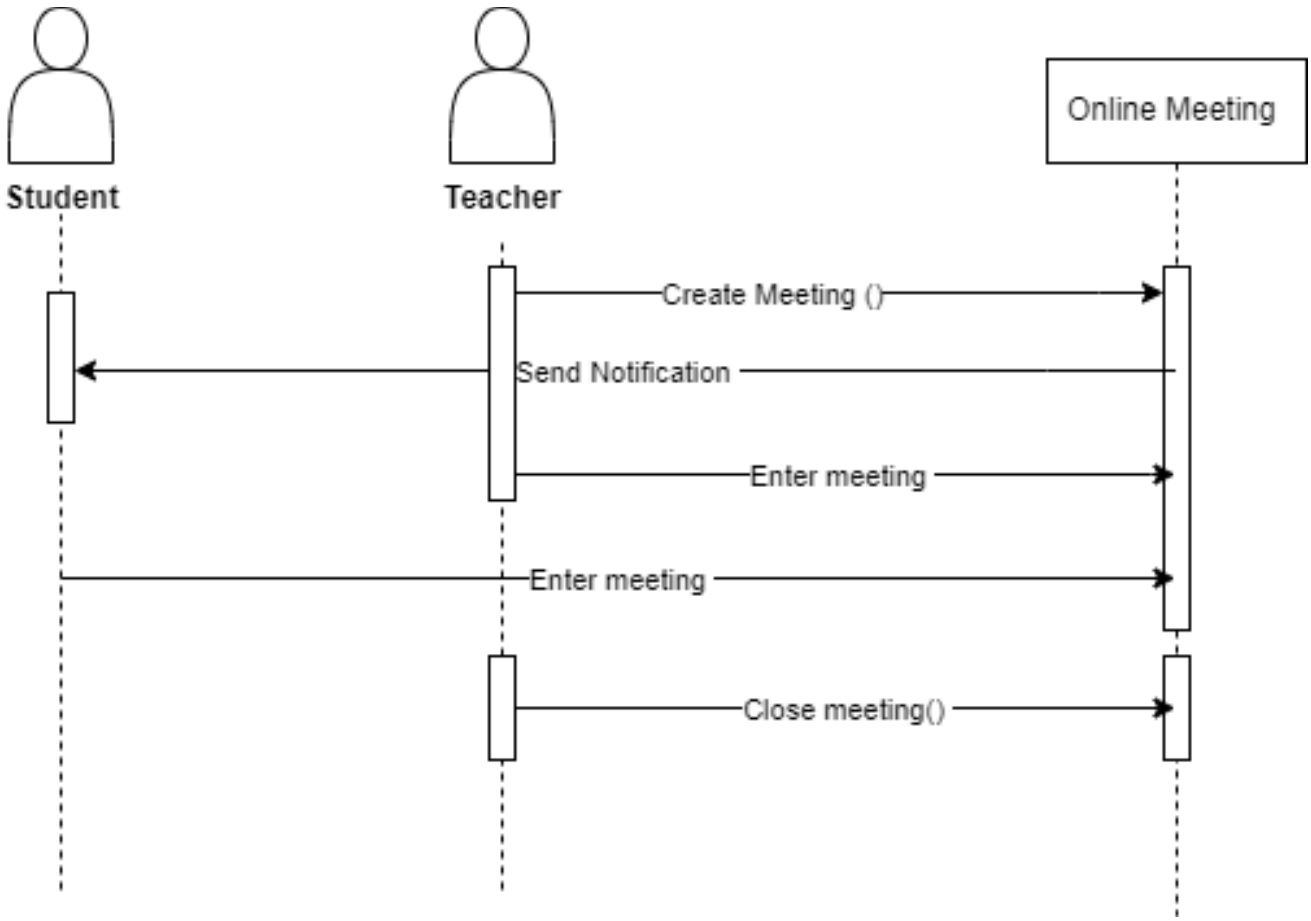
Course Sequence Diagram



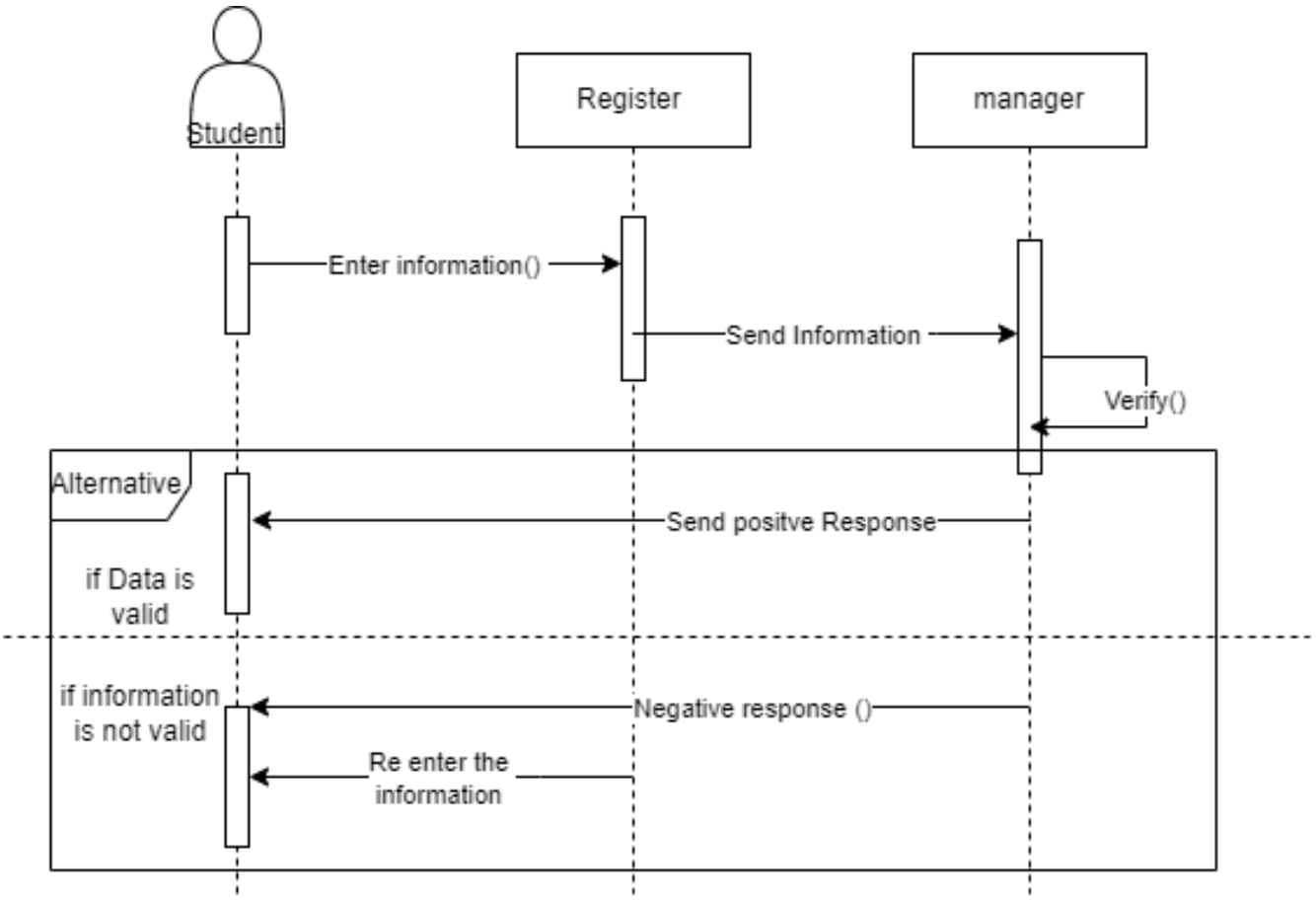
Attendance Sequence Diagram



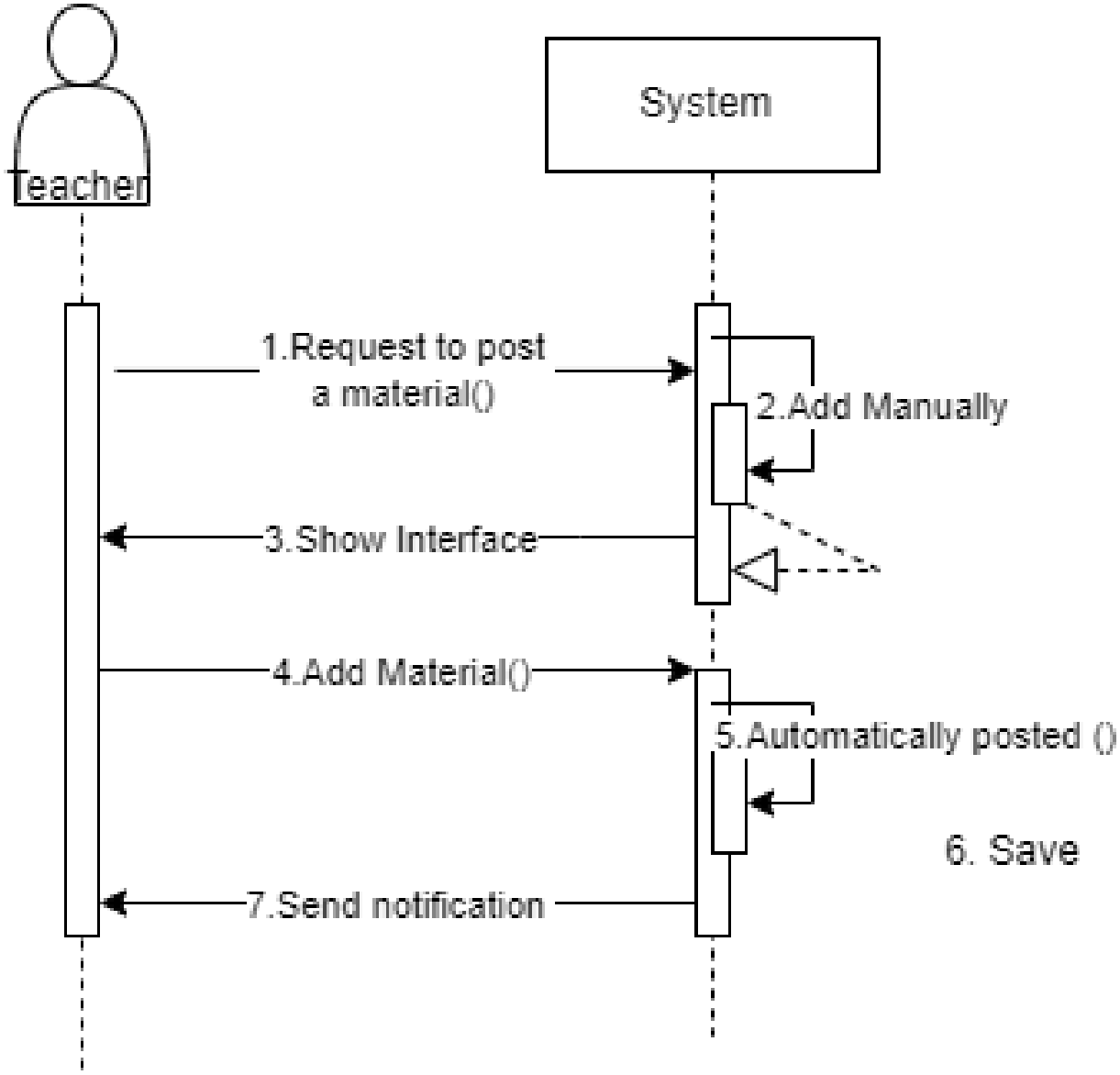
Meeting Sequence Diagram



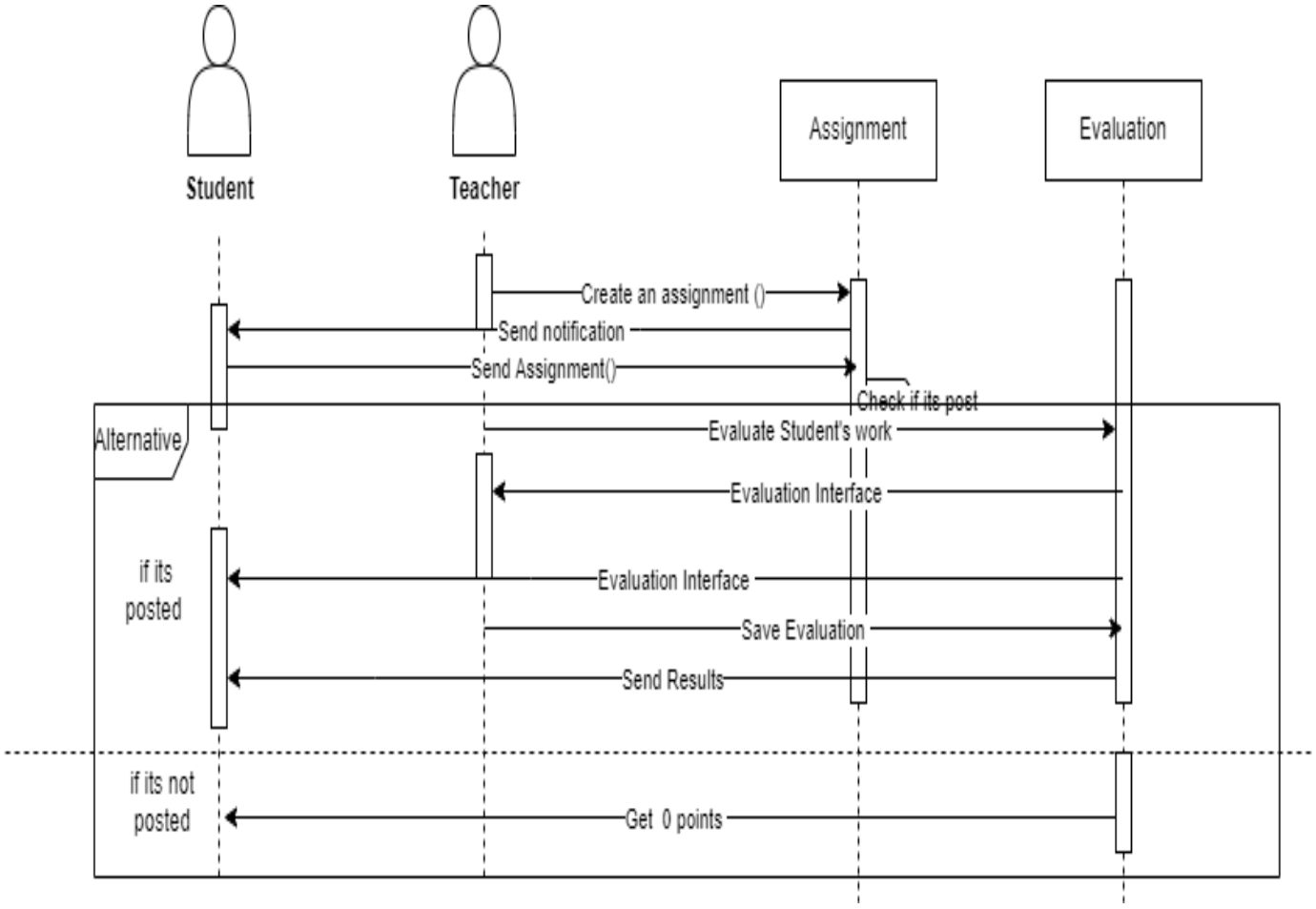
Register Sequence Diagram



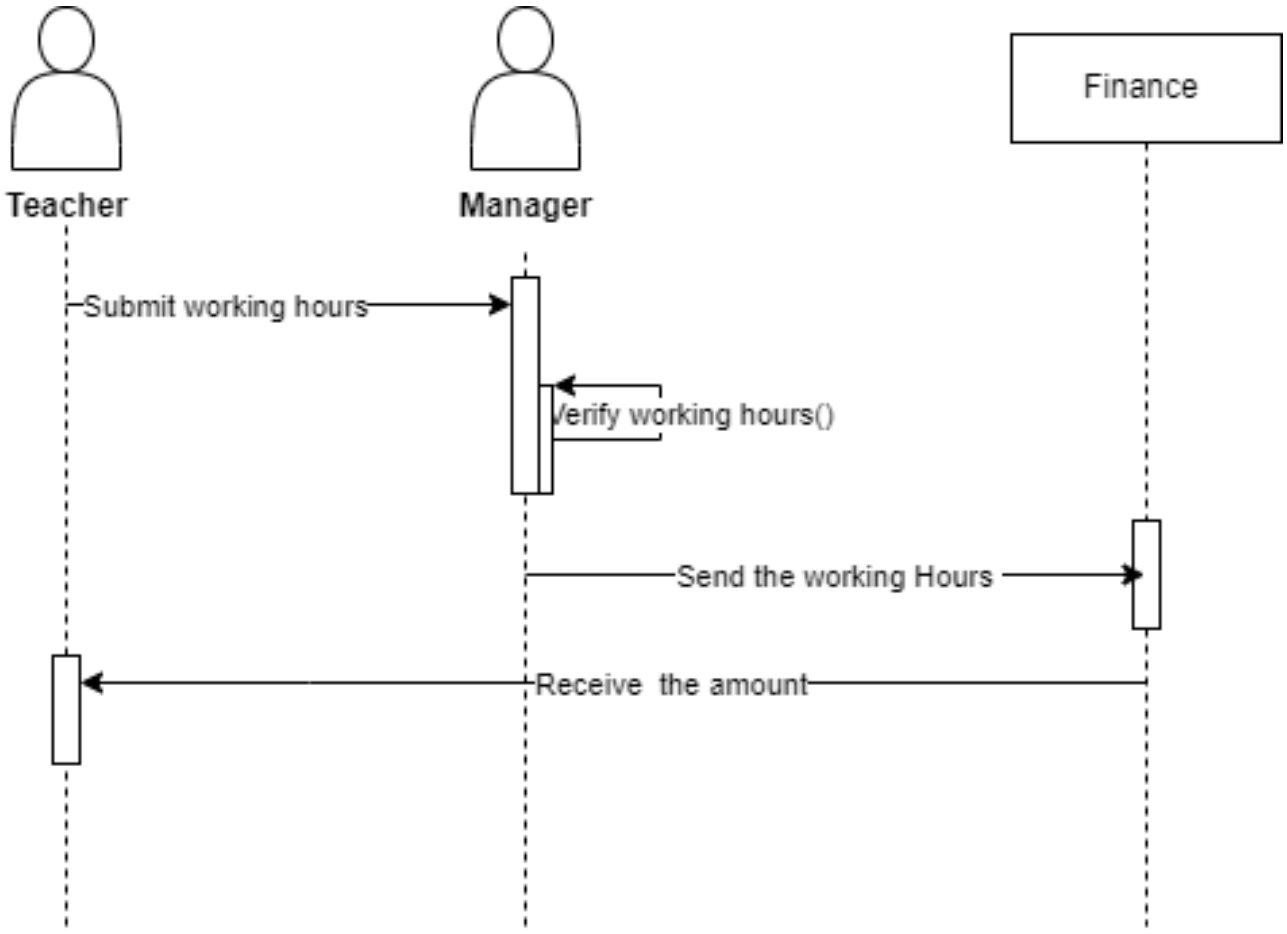
Add material Sequence Diagram



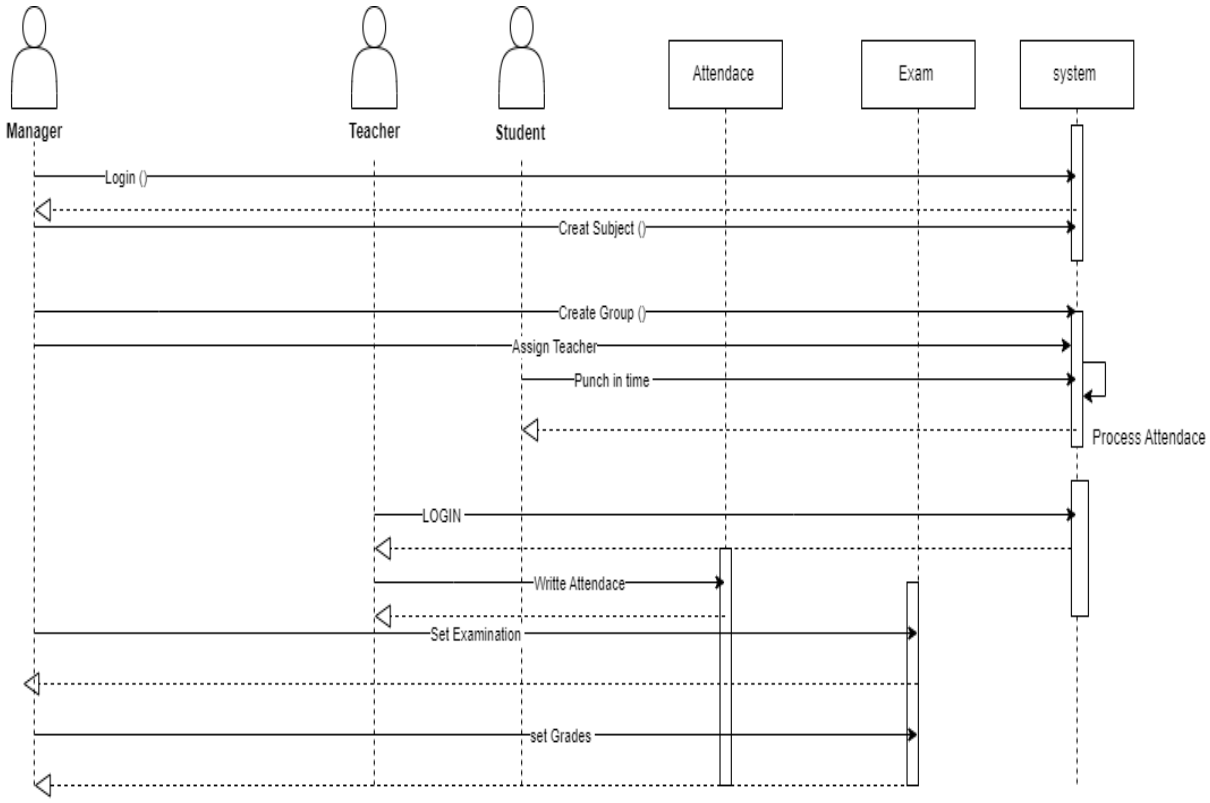
Evaluation Sequence Diagram



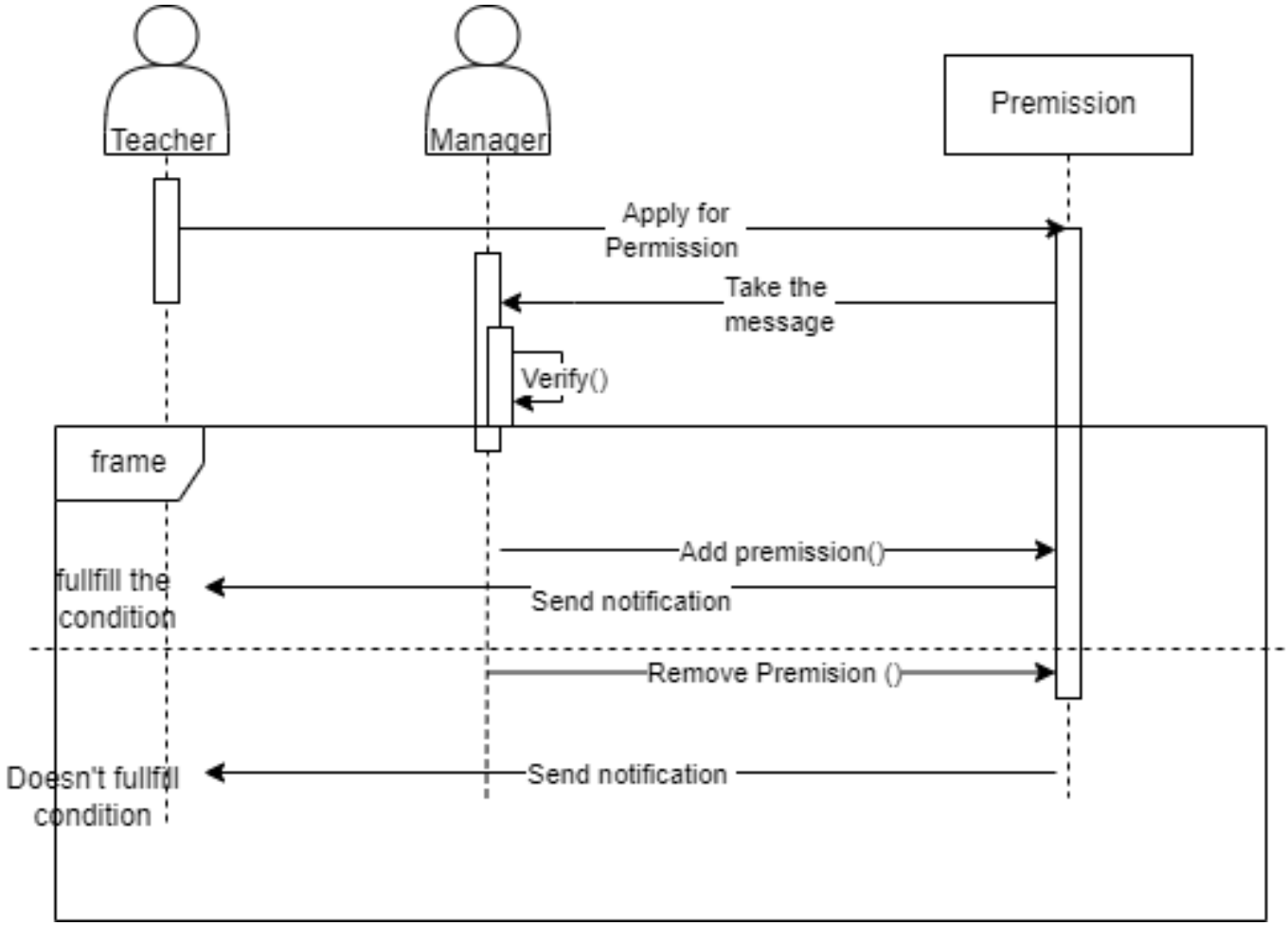
Payment Sequence Diagram



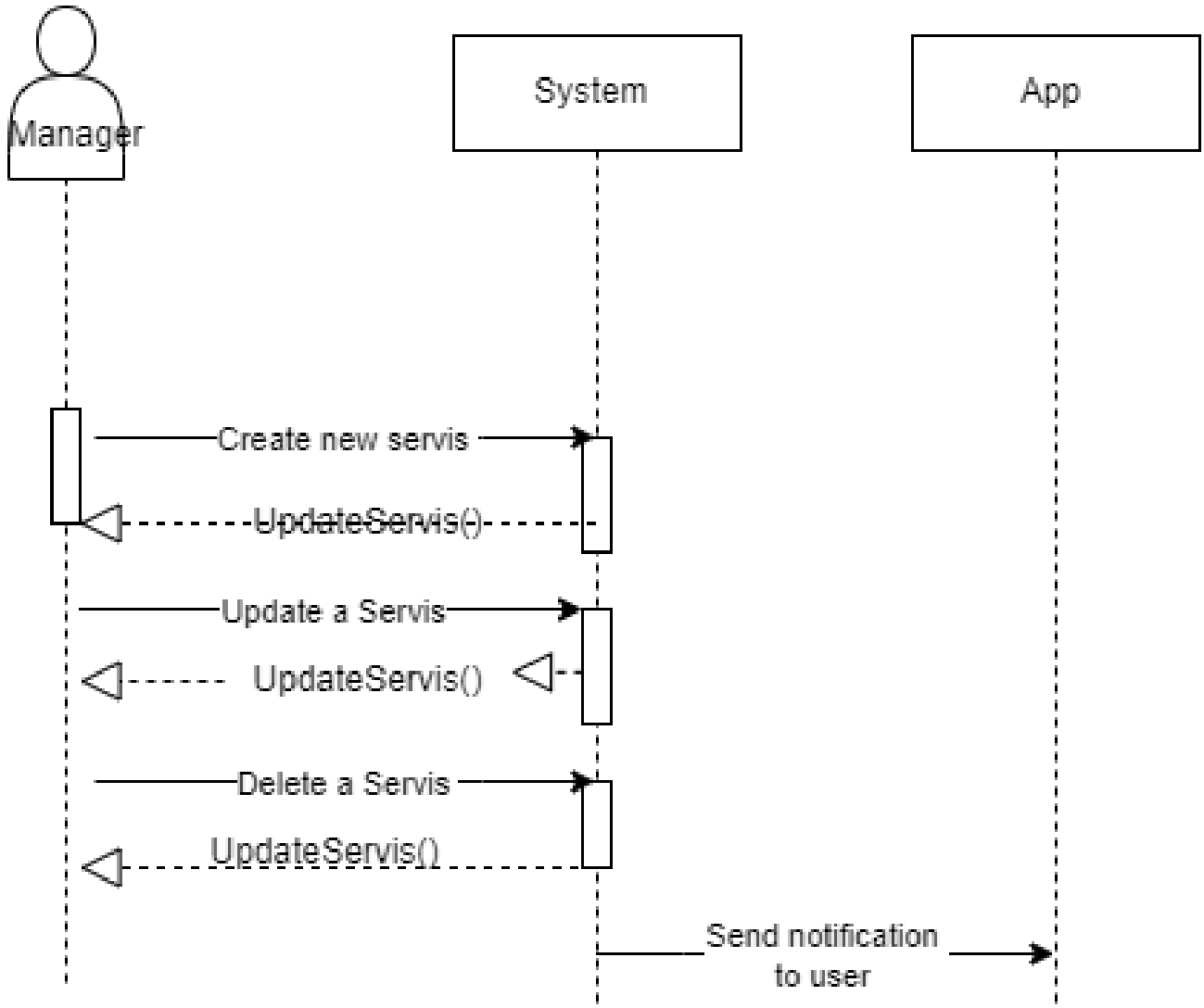
Main sequence diagram



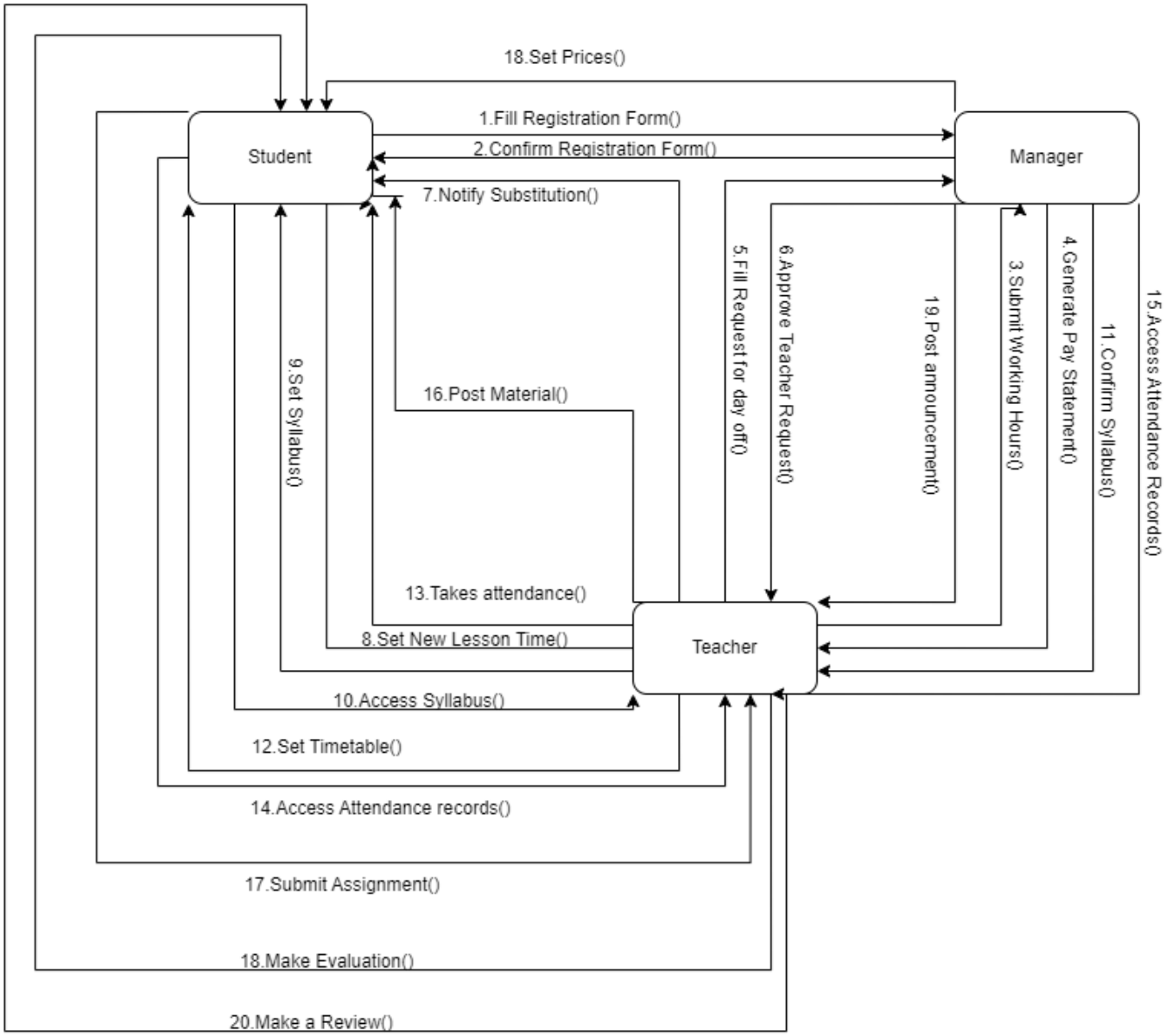
Premission Sequence Diagram



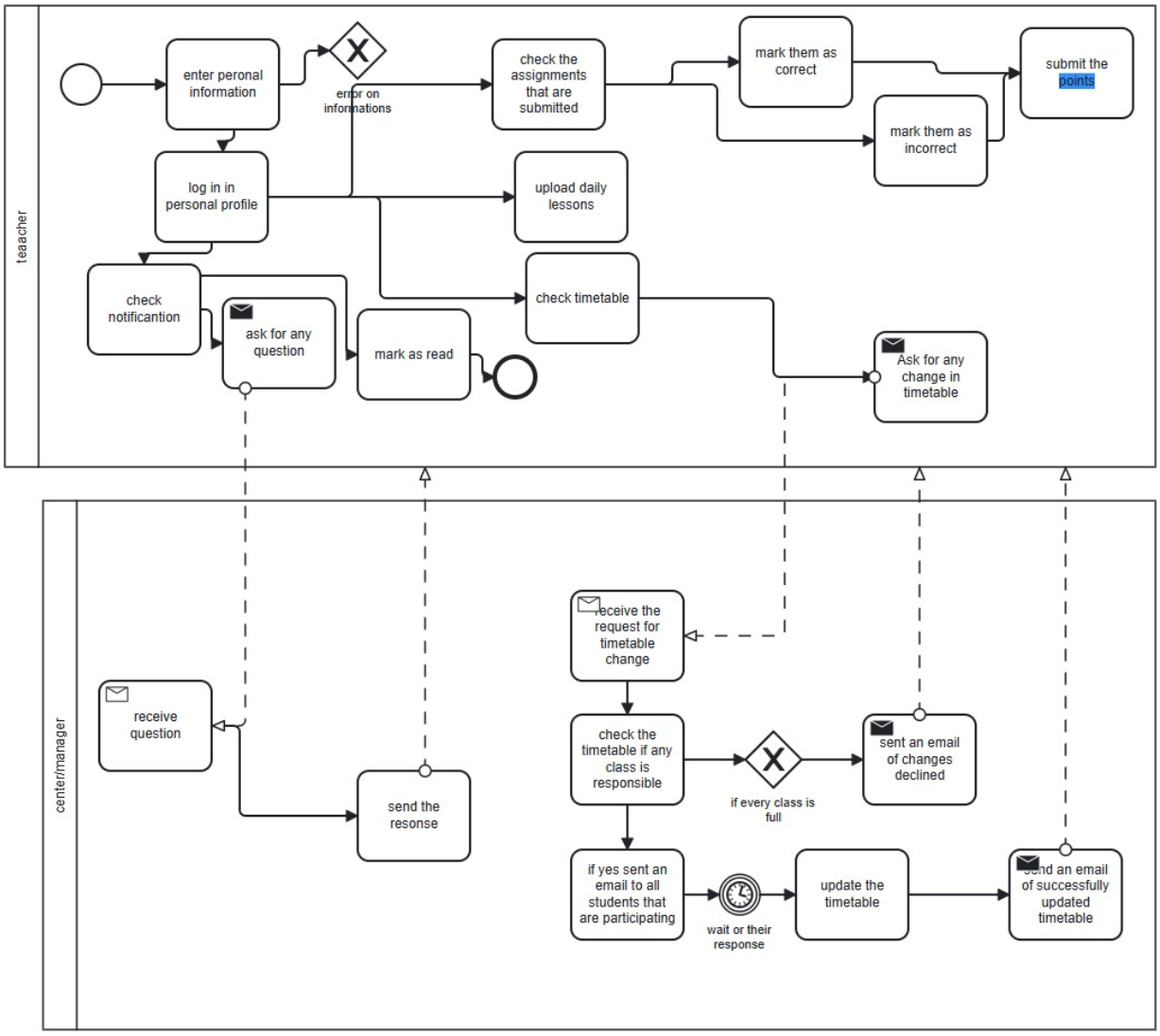
Changes Sequence diagram

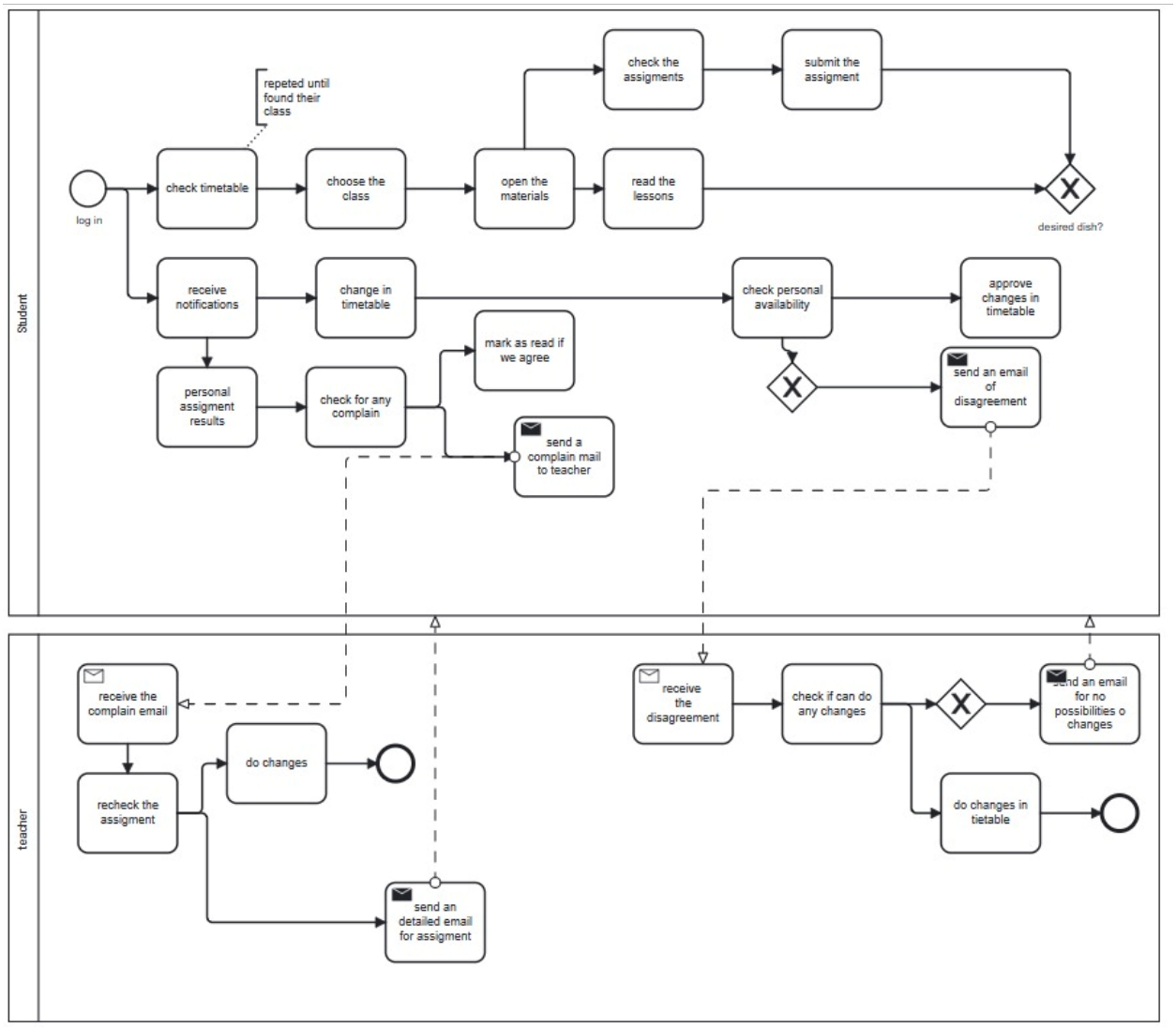


4.6 Collaboration diagrams

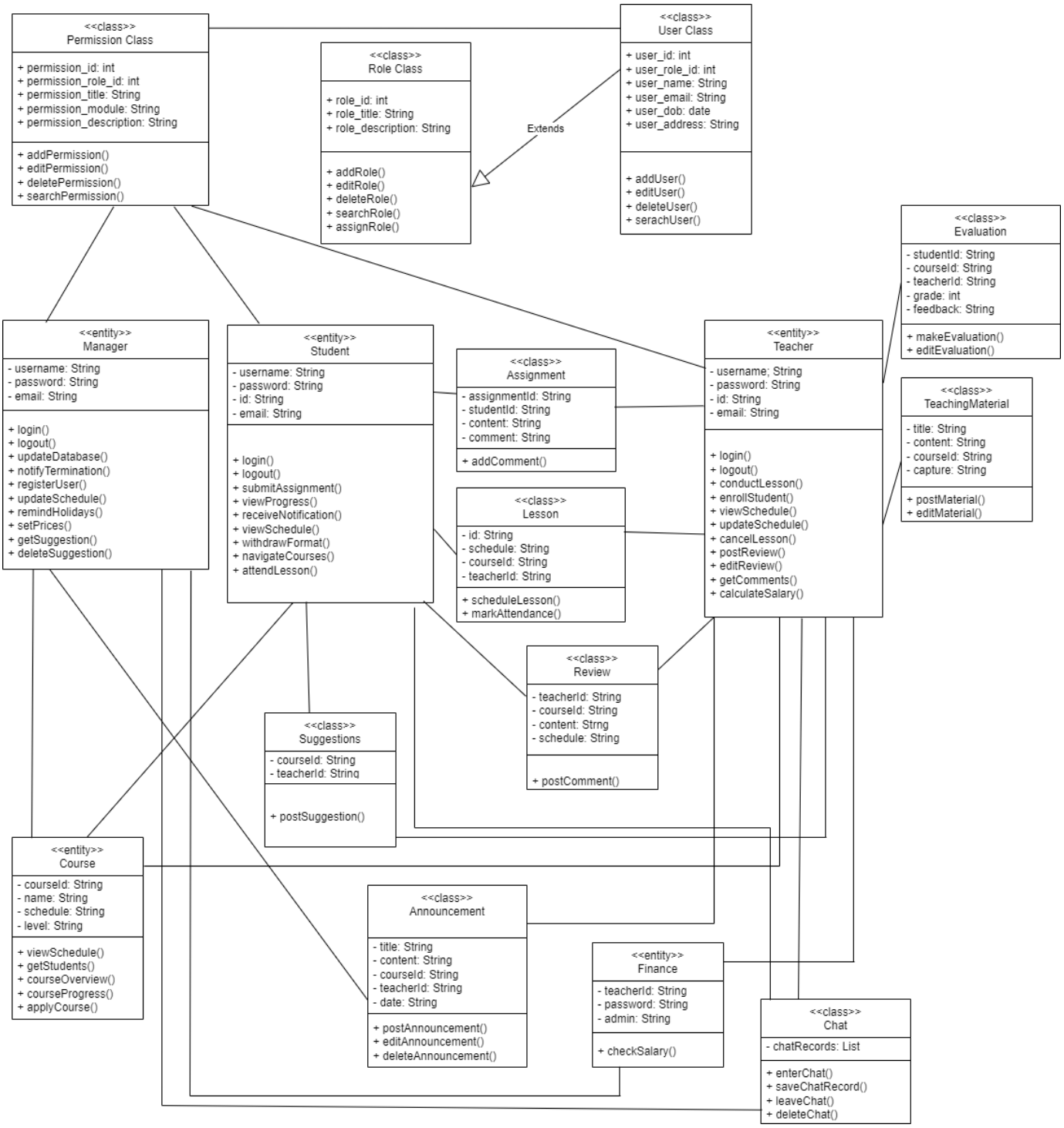


4.7 BPMN diagrams

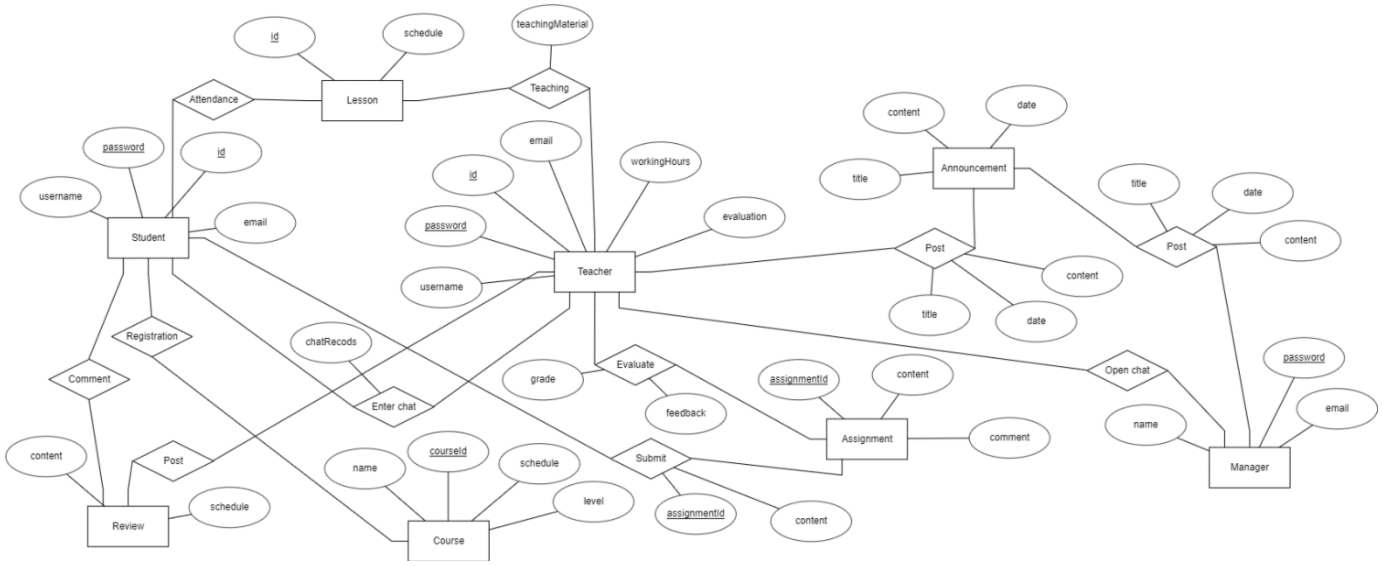



Student
repeted until found their class
check the assigments
submit the assigment
log in
check timetable
choose the class
open the materials
read the lessons
desired dish?
receive notifications
change in timetable
check personal availability
approve changes in timetable
mark as read if we agree
personal assigment results
check for any complain
send an email of disagreement
send a complain mail to teacher
teacher
receive the complain email
receive the disagreement
check if can do any changes
send an email for no possibilities o changes
do changes
recheck the assigment
do changes in tietable
send an detailed email for assigment

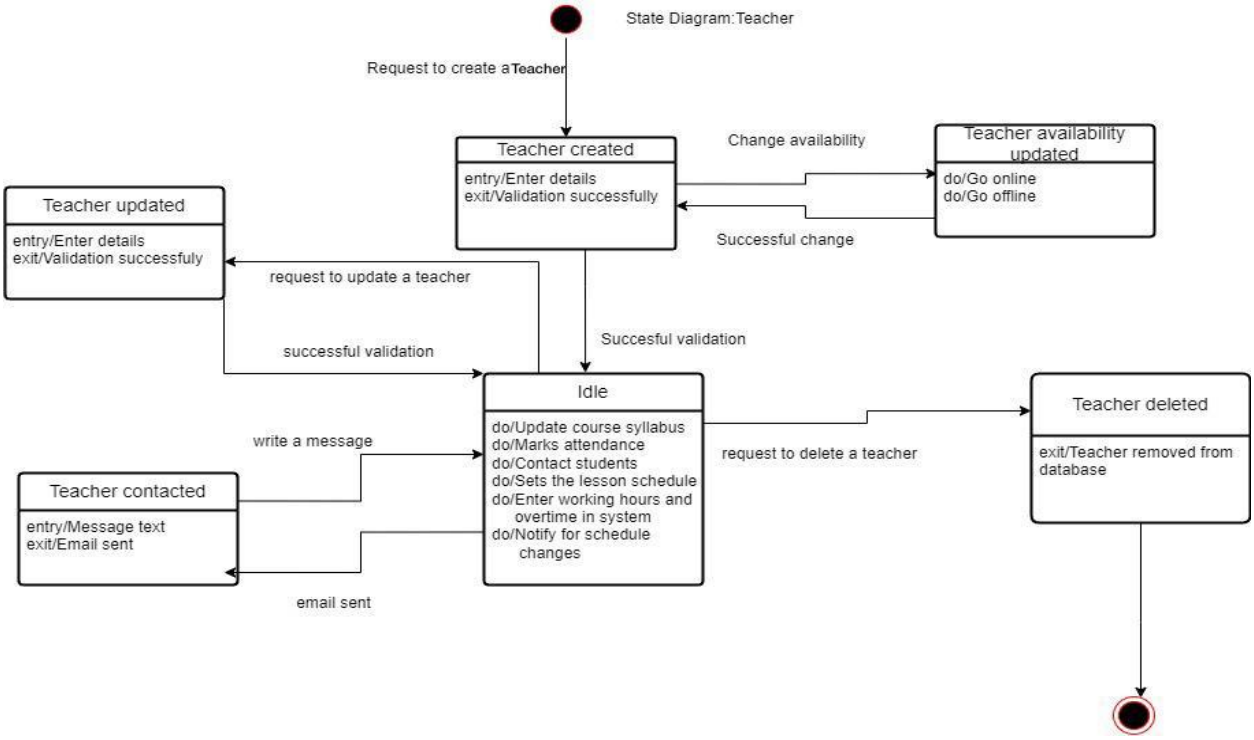
4.8 Class diagrams

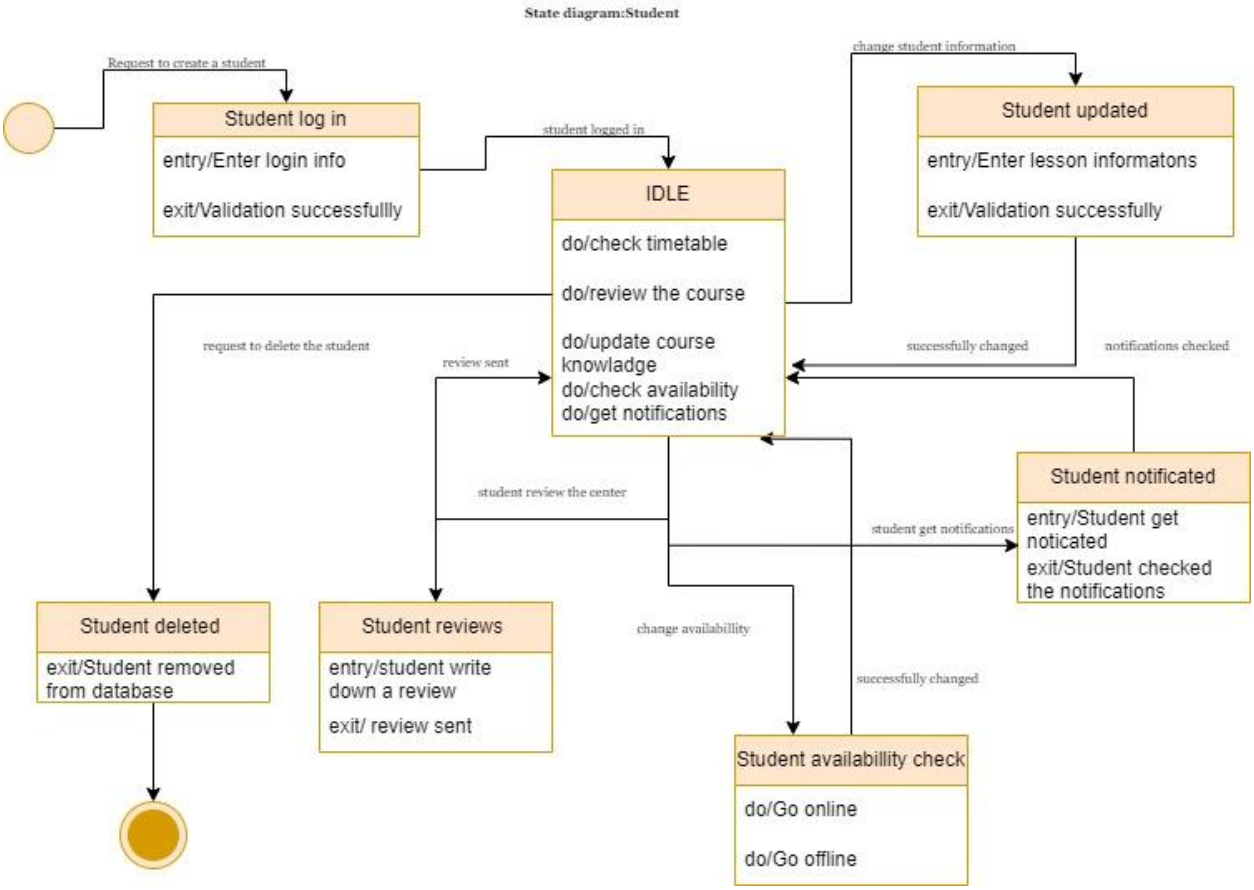


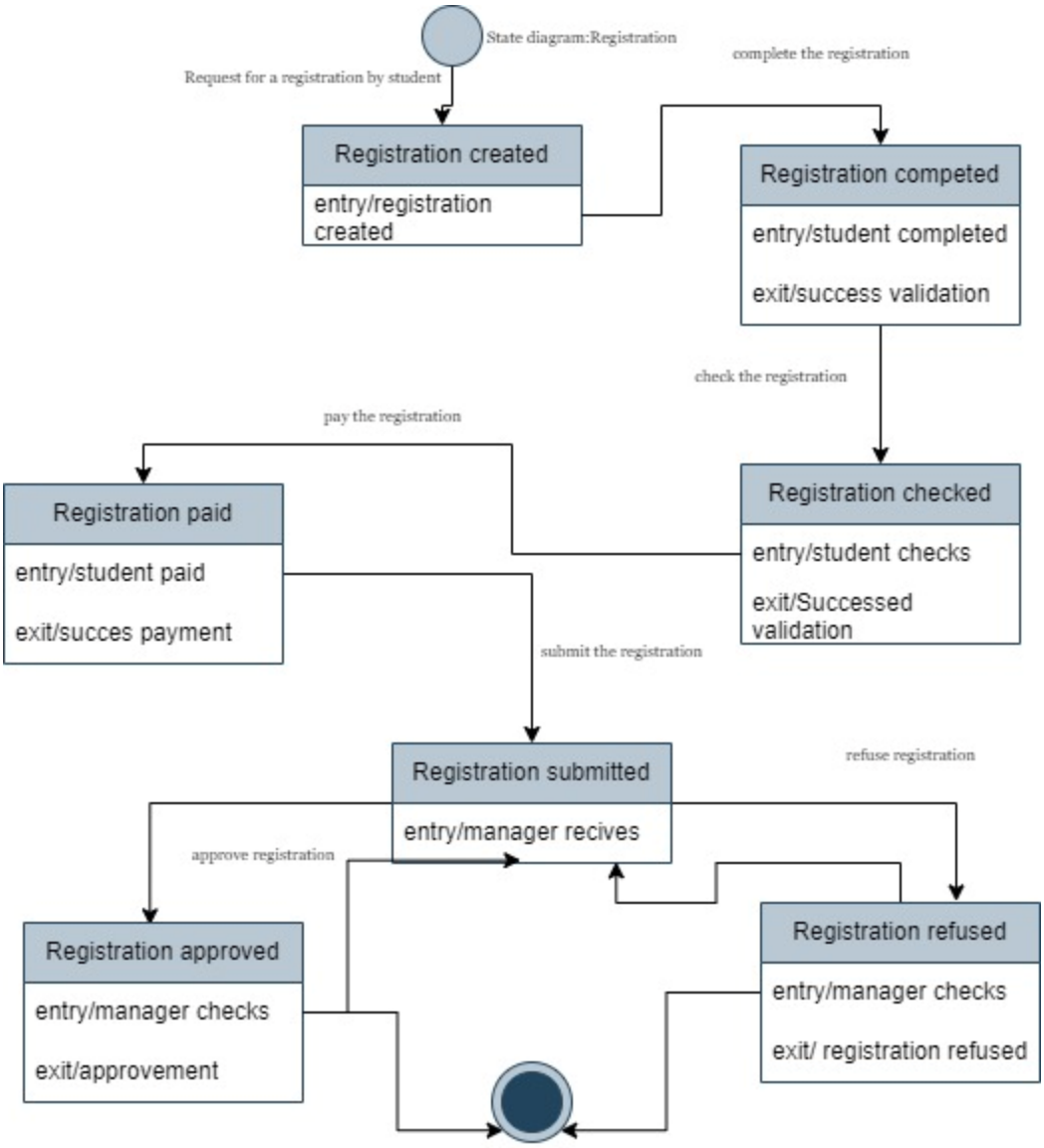
4.9 Entity Relation Diagram

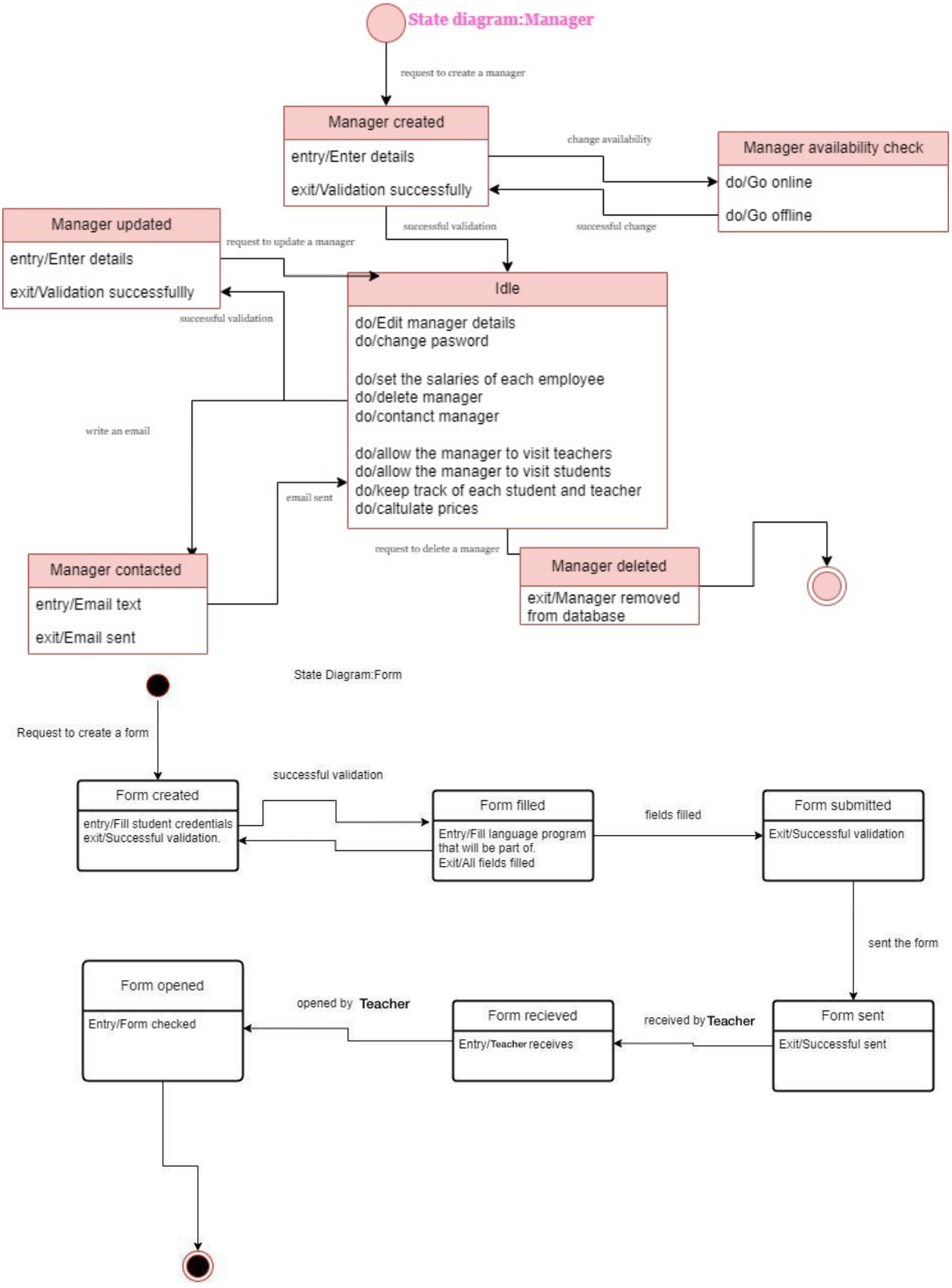


4.10 State diagrams

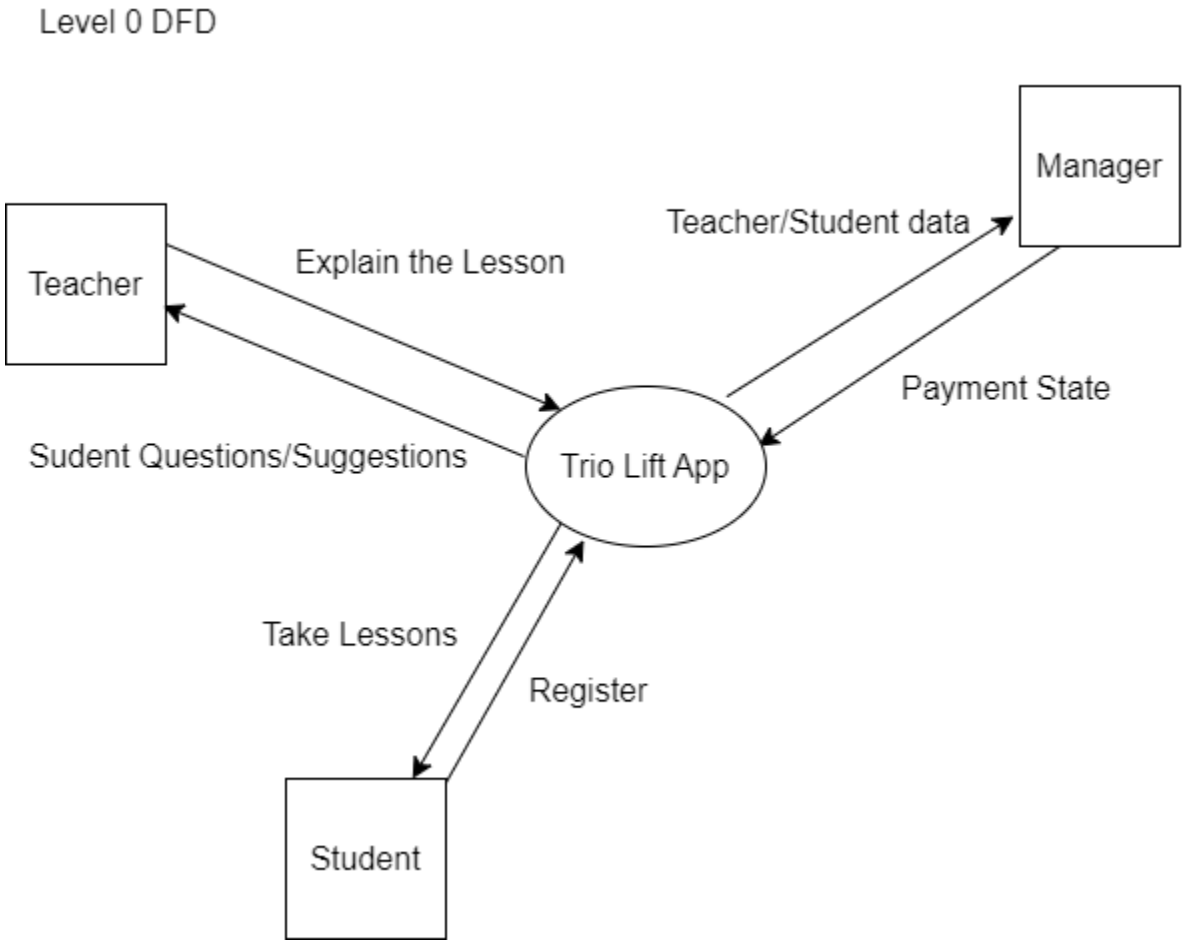



State diagram:Student
Request to create a student
Student log in
entry/Enter login info
exit/Validation successfullly
student logged in
IDLE
do/check timetable
do/review the course
do/update course knowladge
do/check availability
do/get notifications
change student information
Student updated
entry/Enter lesson informatons
exit/Validation successfully
request to delete the student
review sent
successfully changed
notifications checked
student review the center
student get notifications
Student notificated
entry/Student get noticated
exit/Student checked the notifications
Student deleted
exit/Student removed from database
Student reviews
entry/student write down a review
exit/ review sent
change availabillity
successfully changed
Student availabillity check
do/Go online
do/Go offline

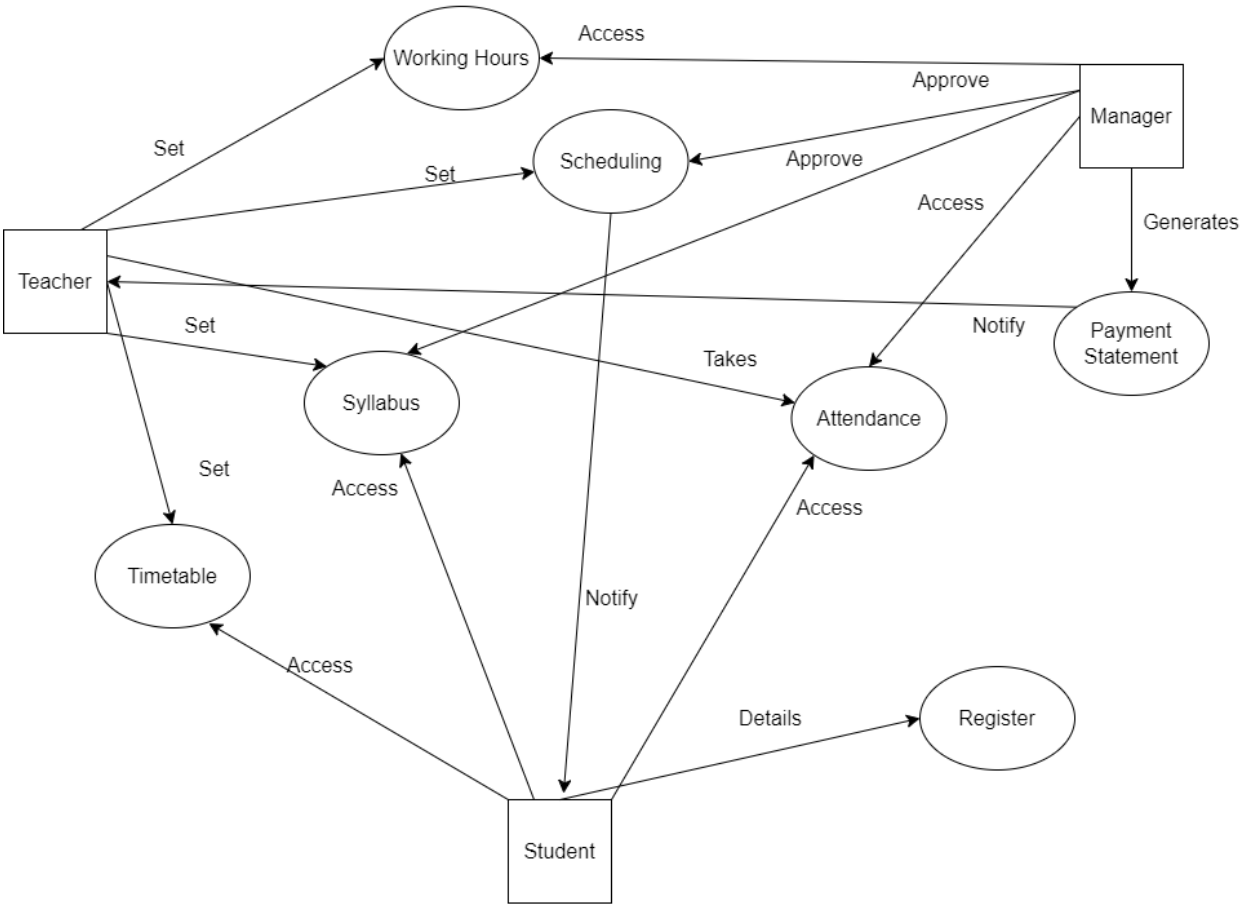

State diagram:Registration
Request for a registration by student
Registration created
entry/registration created
complete the registration
Registration competed
entry/student completed
exit/success validation
check the registration
Registration checked
entry/student checks
exit/Successed validation
pay the registration
Registration paid
entry/student paid
exit/succes payment
submit the registration
Registration submitted
entry/manager recives
refuse registration
approve registration
Registration approved
entry/manager checks
exit/approvement
Registration refused
entry/manager checks
exit/ registration refused

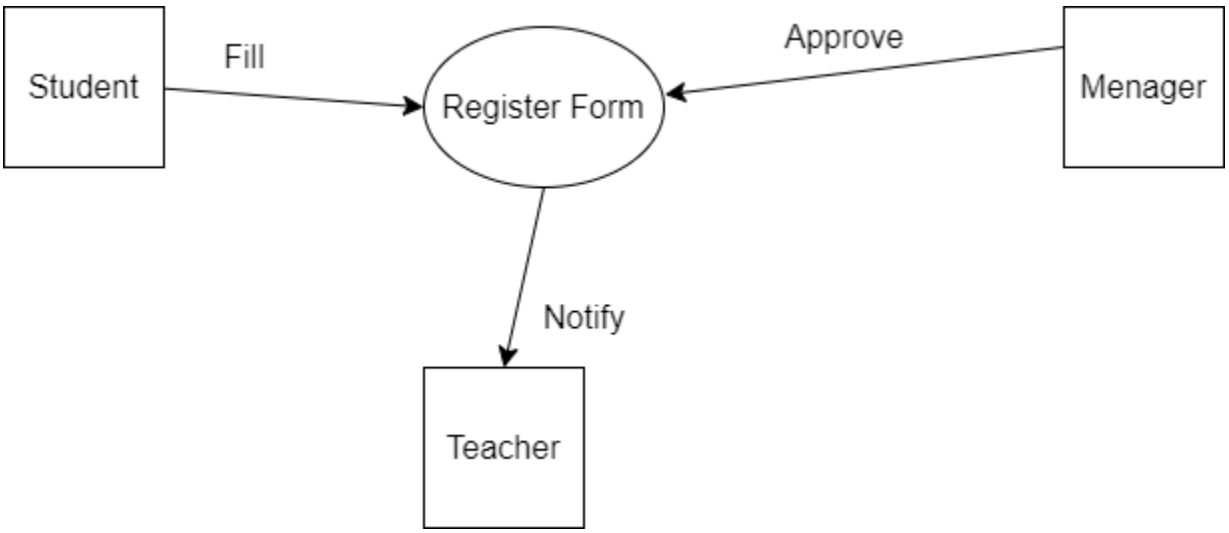

State diagram:Manager
request to create a manager
Manager created
entry/Enter details
exit/Validation successfully
change availability
Manager availability check
do/Go online
do/Go offline
successful change
successful validation
Manager updated
entry/Enter details
exit/Validation successfullly
request to update a manager
successful validation
Idle
do/Edit manager details
do/change pasword
do/set the salaries of each employee
do/delete manager
do/contanct manager
do/allow the manager to visit teachers
do/allow the manager to visit students
do/keep track of each student and teacher
do/caltulate prices
write an email
email sent
request to delete a manager
Manager contacted
entry/Email text
exit/Email sent
Manager deleted
exit/Manager removed from database
State Diagram:Form
Request to create a form
Form created
entry/Fill student credentials
exit/Successful validation.
successful validation
Form filled
Entry/Fill language program that will be part of.
Exit/All fields filled
fields filled
Form submitted
Exit/Successful validation
sent the form
Form sent
Exit/Successful sent
received by Teacher
Form recieved
Entry/Teacher receives
opened by Teacher
Form opened
Entry/Form checked

4.11 Data flow diagrams

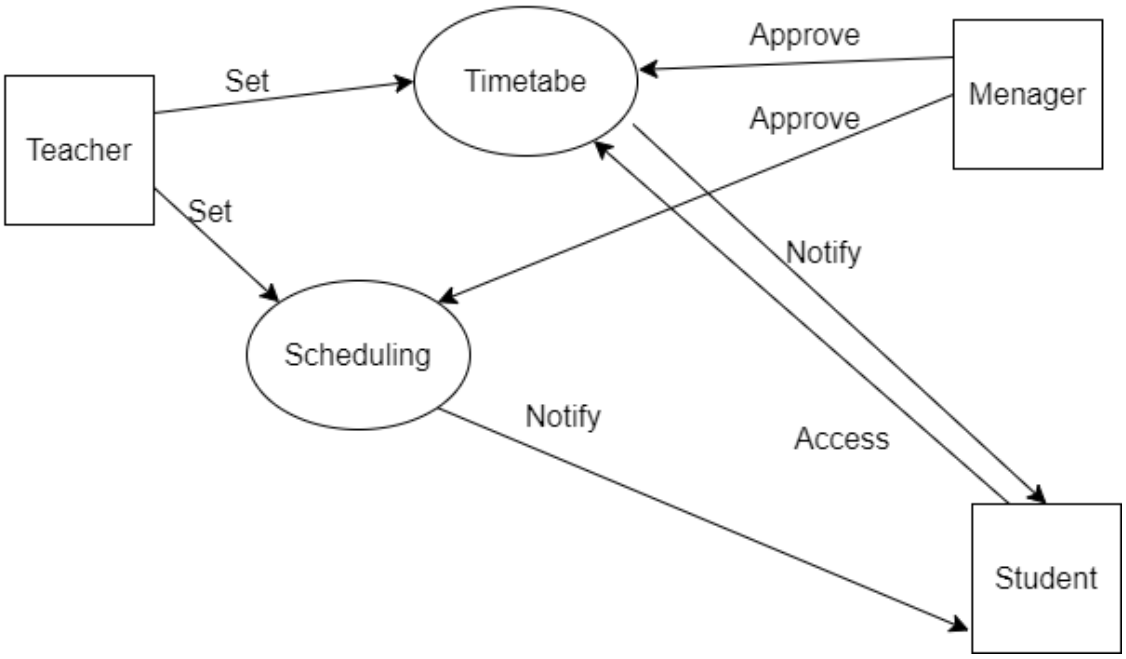


Level 1 DFD

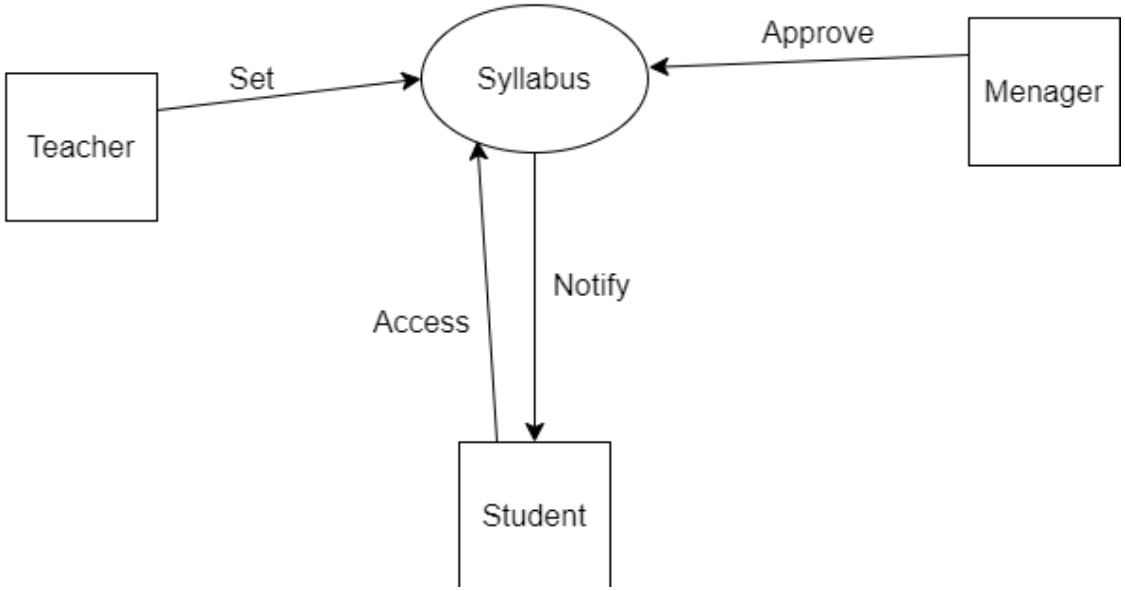

Working Hours
Access
Approve
Manager
Set
Scheduling
Set
Approve
Access
Generates
Teacher
Notify
Payment Statement
Set
Takes
Syllabus
Attendance
Set
Access
Access
Timetable
Notify
Access
Details
Register
Student


Student
Fill
Register Form
Approve
Menager
Notify
Teacher

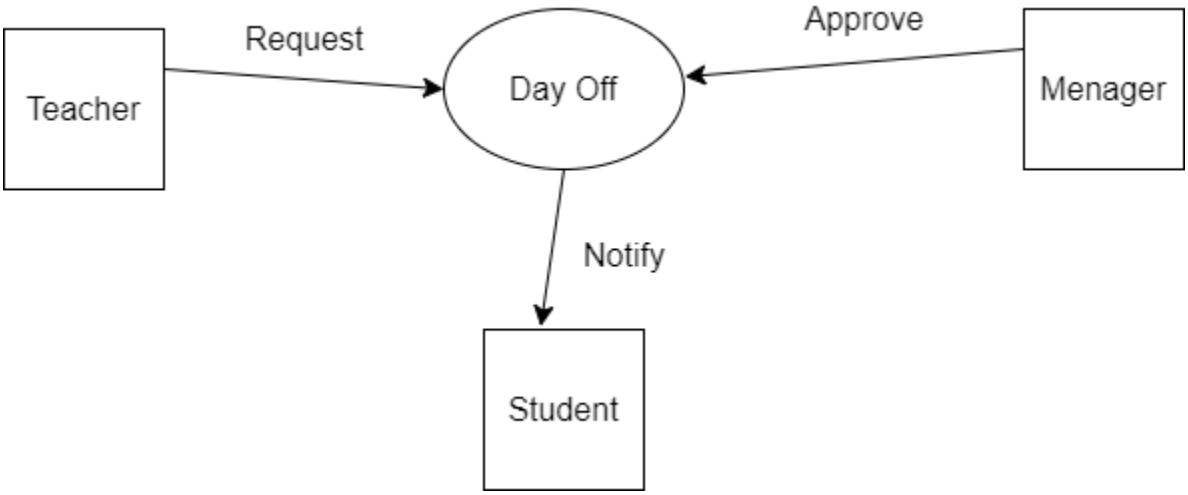
Level 2 DFD Timetable/Scheduling



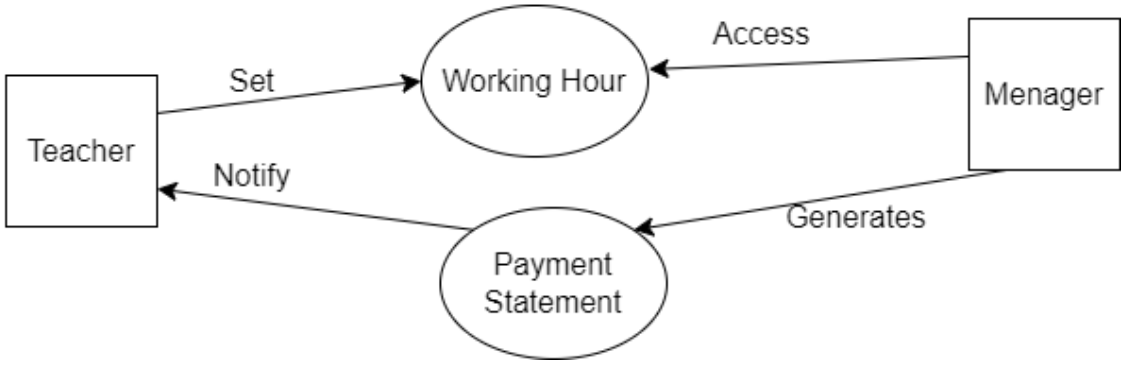
Level 2 DFD Syllabus



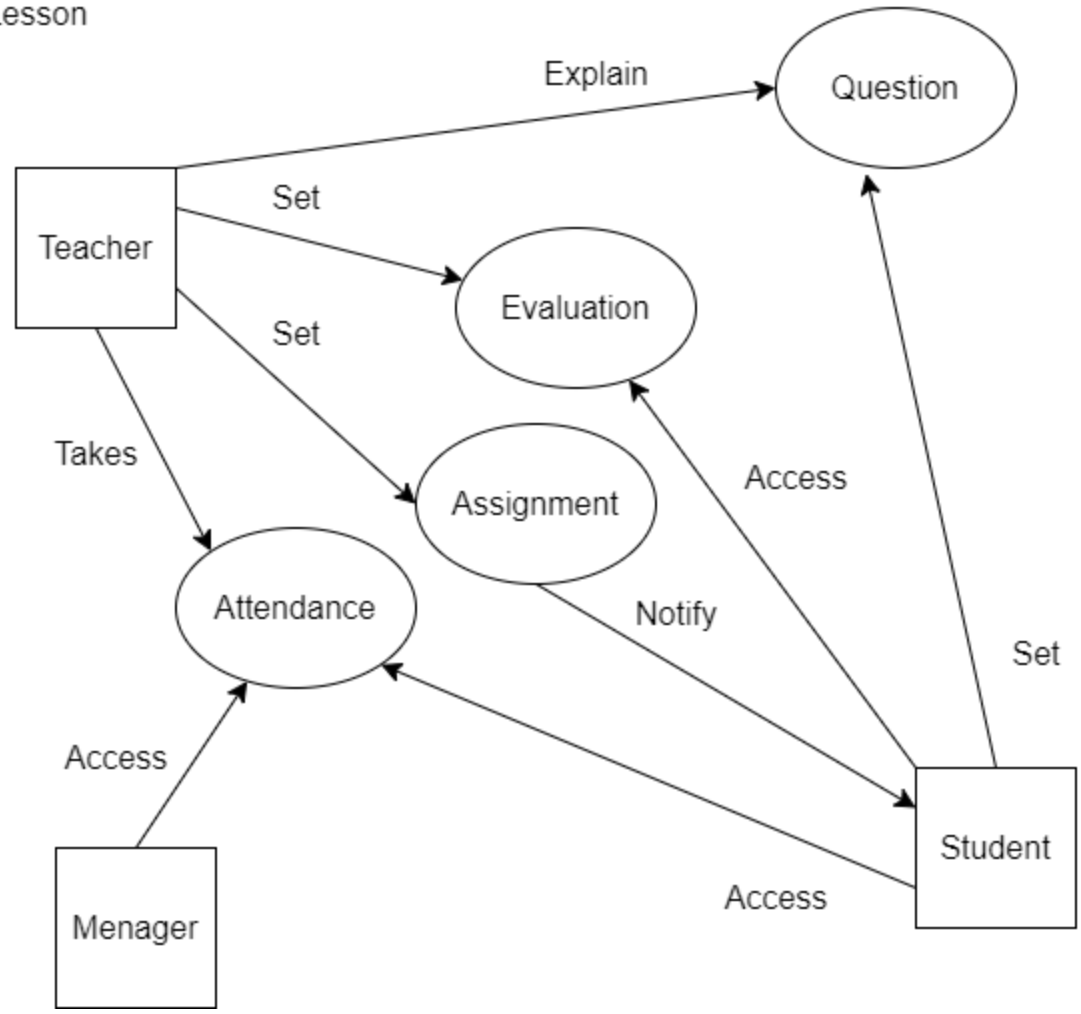
Level 2 DFD Day Off



DFD Level 2
Generate Payment

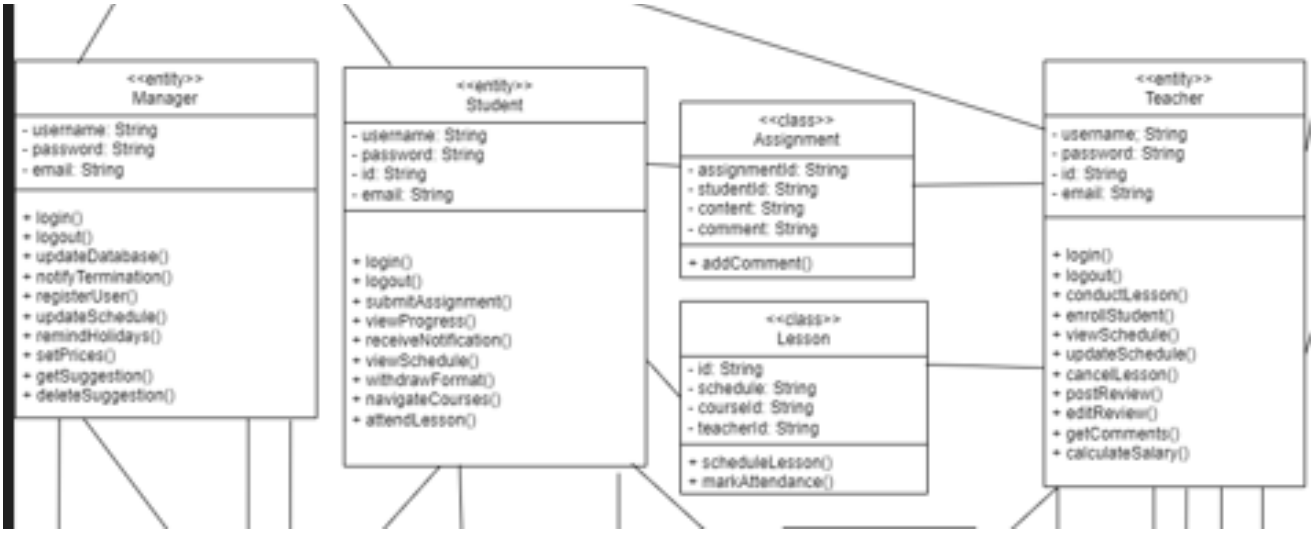


DFD Level 2
Lesson



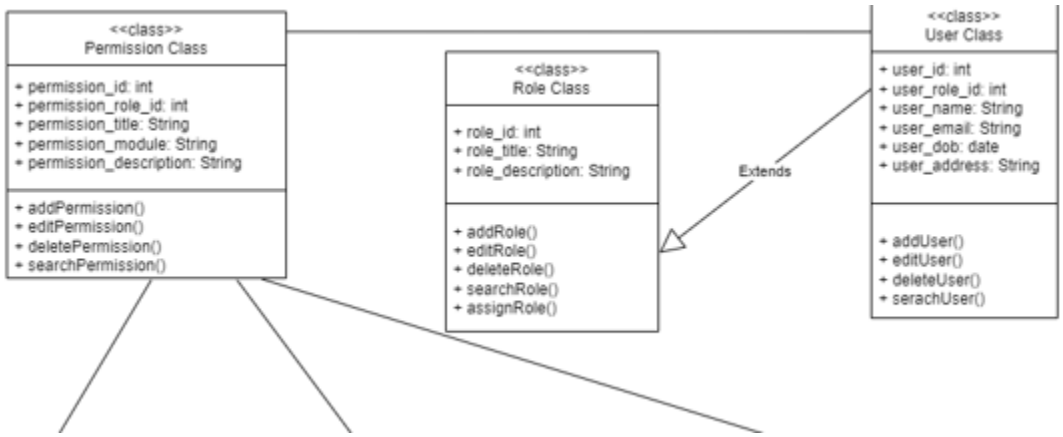
5. Design Patterns

In our project, we have implemented the Factory Method design pattern to replace direct object construction calls, such as using the new operator, with calls to a specific factory method. This design pattern is used when we need to create different types of objects of various classes in a more flexible and decoupled manner.



The Singleton design pattern is a creational pattern that ensures a class has only one instance and provides a global access point to that instance. In this program, we utilize the Singleton pattern for the Student class to generate suggestions for a student.

The Abstract Factory design pattern is employed in the creation of the Permission class, where the Role and User classes implement this abstract class. Since the Role and User classes are related to each other with slight differences, the Abstract Factory pattern is applicable in this scenario.



The Bridge design pattern is utilized to divide the Teacher class into subclasses (child classes) that represent different types of teaching materials and evaluations. By applying this design pattern, the functionalities of the Teacher class are enhanced, allowing for better flexibility and extensibility in managing different teaching materials and evaluation methods.