



Epoka University

**Faculty of Engineering and Architecture Department of Computer
Engineering CEN302 – Software Engineering**

N'Tech MS Documentation



N'TECH MS Documentation

N'TECH MS Requirements Specification

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N'TECH REQUIREMENTS SPECIFICATION

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1. Executive Summary

1. Project Overview

Nowadays, where technology is all around us, every company and business are trying to digitalise their activities by providing real time management and service. Building a platform where management and service can be incorporated in a single system might be the key to efficiency and productivity, providing a user-friendly environment for all types of users. However, developing and implementing these systems in the market often faces a lot of challenges.

Considering the rapid development of digital tools, we expect to find every service online, but here in Albania, many areas of life and economy are stuck in the traditional ways. This might come as a result of lacking user-friendly and easy to use softwares which businesses can incorporate in their daily activity.

There is no denying that technological developments have revolutionized many sectors worldwide, however, our country has a long way ahead to touch the highest points of this new world.

We are proposing a solution for one of the most common types of businesses in our country, Learning Centres (aka. Course centers/Academies). Every learning center in Albania keeps the student's information in hardcopy files or excel sheets. They are usually stored physically, which might not be very convenient, causing problems in data collection and storage. Course management, timetables, payments and materials, which usually are a responsibility of the receptionist or the assigned manager, might also represent issues in the overall management of these centers.

2. Purpose and Scope of this Specification

The software's purpose is to facilitate the daily activities and overall management of a Learning Centre in Albania. Initially, this platform will be available for a Tech Academy, providing a better management of their courses and students.

The web application should allow the students the possibility to access at any time their personal profile. It should make the process of teaching easier for the lecturers and it should also provide an efficient solution for administrative procedures, such as: student registration, course selection, timetables and payments. These operations can be done by the receptionist and a site manager, who will mostly deal with managerial and financial issues.

This documentation is written for all users of the software. It gives detailed information about how the platform works and its facilities.

2. Product/Service Description

Learning Centers, or else known as Academies, are very common in Albanian's market. These centers offer a variety of courses, starting from several foreign languages like English, Italian, French, German, etc. There are a lot of centers which

offer courses in mathematics, literature, physics or any other school subjects in order for students of all ages and levels to advance in their studies or to prepare for state exams.

Recent years, there has been an increase in the number of Learning Centers which offer IT-related courses, starting with Microsoft Office courses, programming languages, IT or network support, cybersecurity, robotics and different technological tools. These courses are generally offered for different age groups, giving everyone the opportunity to explore.

Considering the high demand for these courses, Learning Centres usually experience issues in managing their services. Digitalising everyday tasks like course management, timetables, payments and materials, will increase work-place productivity and will provide employees and students the best learning experience. This implementation will provide a friendly environment to navigate and a safe space to store student's records.

1. Product Context

Our software is an online platform for a Tech Academy, called N'tech, which offers a variety of IT-related courses. It is thought to be an independent system that will be available for four types of users: students, lecturers, manager, receptionist. This system is internal (self-contained) to the Academy and shows no relations between other institutions or other entities.

2. User Characteristics

There are four types of users that will interact with the system:

1. Student:

- Can look at general information about the Learning Center (home page)
- Can log in to their personal account
- Can view his personal profile
- Can apply in open call courses (one or more than one)
- Can log in to their account to access their information and progress
- Can access his active or passed courses
- Can access his course cards containing general information about the course

- Can look at the materials uploaded by the lecturer
- Can contact the lecturer by sending an email
- Can leave a feedback about the course

2. Professor:

- Can log in to their personal account
- Can view and download his personal information
- Can access his course cards containing general information about the courses
- Can view a course and add new materials
- Can edit or delete existing material
- Can view all students enrolled in his course
- Can edit a student status (satisfactory/unsatisfactory) in the end of the course

3. Receptionist:

- Can register a student
- Can search a student
- Can view all students and their credentials
- Can edit a student's credentials
- Can delete a student record
- Can search a professor
- Can view all professors and their credentials
- Can view the timetable

4. Manager:

- Can perform CRUD operations (create, read, update, delete) on students, professors and courses

- Can manage financial operations (accepting student payments)
- Can create, edit, delete an open call for a course where students can apply
- Can create, edit, delete and view ongoing groups
- Can assign professors and students to specific groups
- Can view all students and their credentials
- Can edit a student's credentials
- Can view all professors and their credentials
- Can edit a professor's credentials
- Can delete a professor record
- Can accept or confirm monthly payments by students
- Can access general statistics

3. Assumptions

- Ø It is assumed that some actions performed behind the scenes are performed according to law.
- Ø It is assumed that the receptionist account is created by the manager of the learning center.
- Ø It is assumed that while adding/enrolling a new student receptionist should verify all the needed documents as well as contact the manager to verify the payment of the course. That is why only the receptionist can do this.
- Ø It is assumed that while adding a new lecturer the manager should verify all the needed documents. That is why only the manager can do this.
- Ø It is assumed that while assigning a lecturer a course the manager has verified the qualifications of the lecturer. That is why only the manager can do this.
- Ø It is assumed that while making the timetable the receptionist has a list of the working hours for the lecturers. That is why only the receptionist can do this.
- Ø It is assumed that lecturers will have a grading system (satisfactory or not satisfactory to pass the course) for their students. That is why only the lecturers can do this.

Ø It is assumed that personal information about the lecturer , student and receptionist is fully confidential. The only one that can watch this information is the manager, so it is his responsibility to whom he shows or exports this information to.

Ø It is assumed that the manager is responsible for deleting the lecturers from the learning center.

Ø It is assumed that a lecturer can post his/her slides to the students in this portal. Here a student can make a comment to the slides by sending an email that will be available to students by pressing the send email button.

Ø It is assumed that all the communication between student and lecturer is made by email.

Ø It is assumed that the slides will be google drive files so that the student will have easier access to them and download them.

Ø It is assumed that the receptionist, lecturer and manager will be trained to use this software.

Ø It is assumed that the receptions, lecturer and manager will be equipped with a computer connected to the internet, in order to access this web application.

Ø It is assumed that the manager is always in the learning center and the course selection will be talked with the student and he will be aware about the course selection.

4. Constraints

- Receptionist, lecturer and manager should all have personal computers during working hours in order to access this web program.
- Receptionist, lecturer and manager should all know how to use this program in order to know their capabilities and duties in order not to interfere with each other.
- This project is also constrained by the internet connection. Since it is a web application, it is crucial to have a stable internet connection. This internet is mainly needed to fetch data from the database. But it is also mainly needed to make it possible for the lecturer to upload their materials as well as making possible communication with the students and lecturers.
- If the internet connection is not stable then the communication with the database won't be able to fetch the information. It may create traffic on the network bringing sometimes timeout request error, or very slow responses.

5. Dependencies

Receptionist - student

- If the receptionist is not registered then he cannot register a student to the learning center.

Student - lecturer

- A lecturer cannot see students that are not in his course.
- The student cannot see his/her status after the course is completed unless the lecturer updates it.
- The student cannot see any online material if the lecturer doesn't post anything.

Manager - lecturer.

- If the manager isn't available then a lecturer cannot register.
- If the manager doesn't assign a lecturer to a group, then the lecturer has no access to his/her class.

Manager - student

- If the manager has not verified the payment then the students' account may be blocked.
- If the manager doesn't assign students into groups, then they can't access course materials.

3. Requirements

Priority Definitions

The following definitions are intended as a guideline to prioritize requirements.

- Priority 1 – The requirement is a “must have” as outlined by policy/law
- Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
- Priority 3 – The requirement is a “nice to have” which may include new functionality

It may be helpful to phrase the requirement in terms of its priority, e.g., "The value of the employee status sent to DIS **must be** either A or I" or "It **would be nice** if the application warned the user that the expiration date was 3 business days away". Another approach would be to group requirements by priority category.

- A good requirement is:
 - Correct
 - Unambiguous (all statements have exactly one interpretation)
 - Complete (where TBDs are absolutely necessary, document why the information is unknown, who is responsible for resolution, and the deadline)
 - Consistent
 - Ranked for importance and/or stability
 - Verifiable (avoid soft descriptions like "works well", "is user friendly"; use concrete terms and specify measurable quantities)
 - Modifiable (evolve the Requirements Specification only via a formal change process, preserving a complete audit trail of changes)
 - Does not specify any particular design
 - Traceable (cross-reference with source documents and spawned documents).

1. Functional Requirements

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
FR_01	The software should have different views for different user levels.	The view for receptionist, the student, lecturer and manager will be different.	1	17/03/2024	23/05/2024
FR_02	The user accounts have to be secured by passwords.	Ethics will be maintained by hashing the passwords before saving them in the database.	1	17/03/2024	23/05/2024
FR_03	After the user has taken the password he/she can edit it.	Login will be performed by using email and password. (student and lecturer)	2	17/03/2024	23/05/2024

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
FR_04	The receptionist should be able to add a new student.	The receptionist is the only user that is responsible for adding a new student.	2	17/03/2024	23/05/2024
FR_05	The information entered by the receptionist while creating or changing information about a specific user should be first validated.	It is important that all the information entered is accurate.	1	17/03/2024	23/05/2024
FR_06	The receptionist should be able to edit the personal information of a student.	The receptionist is the only responsible user for editing the information of a student.	-2	17/03/2024	23/05/2024
FR_07	The receptionist should be able to delete an existing student.	The receptionist is the only responsible user for deleting an existing student.	-2	17/03/2024	23/05/2024
FR_08	The receptionist should be able to view all the students of the learning center.	All the students of the learning center can be listed in order for the receptionist to see them.	-1	17/03/2024	23/05/2024
FR_09	The receptionist should be able to view the full profile of a student.	In order to verify things when needed or to make the necessary updates, the receptionist should be able to view the current information of the student.	-1	17/03/2024	23/05/2024
FR_10	The receptionist should be able to search for a specific student.	The learning center will have many students, so it would be efficient to have a search tool.	-1	17/03/2024	23/05/2024
FR_11	The receptionist should be able to view all the lecturers of the learning center in a list.	All the lecturers of the learning center can be listed in order for the receptionist to see them.	-1	17/03/2024	23/05/2024

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
FR_12	The receptionist should be able to search for a specific lecturer.	It is supposed that the learning center will have many lecturers, therefore it would be efficient to have a search possibility.	4	17/03/2024	23/05/2024
FR_13	The receptionist should be able to upload, view and delete the timetable.	It has to be a coordination between courses, lectures and classrooms.	2	17/03/2024	23/05/2024
FR_14	The student should be able to view his personal information.	The system should display the information for each student.	1	17/03/2024	23/05/2024
FR_15	The student should be able to view the posted materials of the course.	Each course will have its specific materials posted by the lecturer.	1	17/03/2024	23/05/2024
FR_16	The student should be able to download a PDF version of the final certificate of the course.	The student may want to have a hardcopy file of his certificate.	3	17/03/2024	23/05/2024
FR_17	The student should be able to apply for preferred courses.	The student may want to enroll in specific courses that the learning center provides.	1	17/03/2024	23/05/2024
FR_18	The student should be able to contact the lecturer.	An email will be sent to his lecturer.	2	17/03/2024	23/05/2024
FR_19	A student can leave feedback for the course.	A student should be able to rate and comment on the service offered in the learning center.	3	17/03/2024	23/05/2024
FR_20	Each user should be able to look at the general information of the learning center.	All users can see the general information of the learning center.	1	17/03/2024	23/05/2024

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
FR_21	The web application has to be responsive.	The users should be able to access this web application from many devices.	1	17/03/2024	23/05/2024
FR_22	The manager should be able to view the timetable.	As the manager, he needs to check what courses are being held at any instance of time.	1	17/03/2024	23/05/2024
FR_23	The manager should be able to open new calls for group creation.	In order to announce which course will start soon, the manager needs to post it.	1	17/03/2024	23/05/2024
FR_24	The manager should be able to edit a call.	In case of any change, he should be able to reflect it to the system.	1	17/03/2024	23/05/2024
FR_25	The manager should be able to delete a call.	After the course will be created, there will be no need for the call anymore.	1	17/03/2024	23/05/2024
FR_26	The manager should be able to create a new course.	The manager is the only user responsible for adding a new course to the curriculum.	1	17/03/2024	23/05/2024
FR_27	The manager should be able to create a new group.	After the course has been created, now a group for that course can be created.	1	17/03/2024	23/05/2024
FR_28	The manager should be able to add a new lecturer.	The manager is the only user that is responsible for adding a new lecturer.	1	17/03/2024	23/05/2024
FR_29	The manager should be able to edit the personal information of a lecturer.	The manager is the only responsible user for editing the information of a lecturer.	2	17/03/2024	23/05/2024
FR_30	The manager should be able to delete an existing lecturer.	The manager is the only responsible user for deleting the	1	17/03/2024	23/05/2024

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
		information of a lecturer.			
FR_31	The manager should be able to view the full profile of a lecturer.	In order to verify things when needed, the manager should be able to view the current information of the lecturer.	3	17/03/2024	23/05/2024
FR_32	The manager should be able to confirm the monthly payment for each student.	The manager is the only user that has access to the financial information.	1	17/03/2024	23/05/2024
FR_33	The manager should be able to assign a lecturer to each group.	The manager is the only user that is responsible for this.	1	17/03/2024	23/05/2024
FR_34	The manager should be able to assign a maximum number of students to each group.	The manager is the only user that is responsible for adding students to classes.	1	17/03/2024	23/05/2024
FR_35	The manager should be able to assign a student to an existing group.	If a student wants to join a specific ongoing group, under the learning center regulations, the manager can add him/her.	1	17/03/2024	23/05/2024
FR_36	The manager should be able to view a list of all ongoing and completed groups.	In case he needs to update, check or view some data.	1	17/03/2024	23/05/2024
FR_37	The manager should be able to edit an ongoing group.	If some changes need to be done, the manager is responsible for this operation.	2	17/03/2024	23/05/2024
FR_38	The manager should be able to delete an ongoing group.	Under certain circumstances, the manager may need to	2	17/03/2024	23/05/2024

Req#	Requirement	Comments	Priority	Date Rvwd	SME Reviewed / Approved
		delete an ongoing group.			
FR_39	The manager should be able to generate and look at periodic reports, capturing all important stats for the center.	The manager is the only user who has access to such information.	3	17/03/2024	23/05/2024
FR_40	The lecturer should be able to view all his students in a specific group..	The lecturer needs to have a list of his students.	1	17/03/2024	23/05/2024
FR_41	The lecturer should be able to post course materials regularly.	The lecturer needs to have a way to post materials (google drive link)	1	17/03/2024	23/05/2024
FR_42	The lecturer should be able to verify the completion of the course for each student of the group and issue certificates.	The lecturer needs to have a way to validate the completion of a course from a student.	2	17/03/2024	23/05/2024
FR_43	The lecturer should be able to view his profile and download it as a pdf.	The lecturer can use his own profile as a cv or as a record of his experience.	3	17/03/2024	23/05/2024
FR_44	Each user should be able to look at the general information of the center (homepage)	All users can see the general information of the center.	1	17/03/2024	23/05/2024

2. Non-Functional Requirements

1. Product Requirements

1. User Interface Requirements

In addition to functions required, we are going to describe the characteristics of each interface which are supported from the sketches attached at the Appendix D.

The User interface can be grouped in 5 main interfaces:

1. Login Interface

Will contain:

- The header bar contains the system's logo, "N'Tech" and three buttons: Home, Log In which redirects us to where we currently are and Courses which lists all of the institutions courses.
- In the body, three icons will be shown, one for each user: receptionist, student, lecturer. These icons will serve as buttons to log in the system. When the button is pressed the login form is displayed. A similar approach will be taken for the manager login but instead of an icon we will have a small clickable text at the bottom corner, in an attempt to add a security measure for accessibility.
- The log in form contains fields <Email> and <Password>. When the "LogIn" button is pressed the information is validated and the respective interface is shown to the user (manager/lecturer/student/receptionist) or an error notification indicating a wrong email or password will be shown.

2. Student Interface

Will contain:

- The header bar containing "N'Tech" logo and four buttons: Apply , My Courses, Profile and Log Out.
- The default page will be the "Profile" page. There we will have a "Welcome Ms. <Name><Surname>!" message, greeting each student and below we will have an area containing all personal information.
- The "**Apply**" button will allow the student to see all currently opened course calls that the manager has posted. They can click on those that they wish to participate in and announce themselves as an applicant which the manager will later confirm to be put in the newly opened course.
- The "**My Courses**" button allows the student to view all their personal courses, those Ongoing as well as the ones they have already completed. There they will find cards with general information about each course like: course name, start and expected end date, the course's lecturer as well as the time and classroom where it is held. If they press on one of the cards another screen will be displayed where they can view the specific courses' materials that the lecturer has made available and a "**Send email!**" button.
- The "**Send email!**" button will open up a simple form with a textfield and a send button where the student can write a message to the lecturer and it will automatically be sent in their email.
- The "**Profile**" button will allow the student to see all their personal information.
- The "**Log Out**" will terminate the current session and will resend the user to the main page.

- At the bottom of the page there will be a “Contact” area where we will have the phone number, email address as well as the physical address of the academy. This will be present in all interfaces.

3. Lecturer Interface

Will contain:

- The header bar containing “N’Tech” logo and three buttons: My Courses, Profile and Log Out.
- The default page will be the “**Profile**” page. There we will have a “Welcome Professor <Name><Surname>!” message, greeting each professor and below we will have an area containing all personal information of the professor, such as name, surname, courses they are currently teaching, courses they are able to teach etc. At the bottom corner there will also be a “Download page” button, giving the professor the chance to download their page with personal info in the form of a CV.
- The “**My Courses**” button allows the lecturer to view all the courses they are teaching, those Ongoing as well as the ones they have already completed. There they will find cards with general information about each course like: course name, start and expected end date, number of students taking it as well as the time and classroom where it is held. If they press on one of the cards another screen will be displayed where they can view the specific courses’ students list and the materials they have previously uploaded.
- There is an “Add Material” button which allows the professor to add a new link containing course materials for a specific week. It opens up a new form where we can put the “Week”, “Topic”, “Description” as well as “Link” or “Add file”. There we press the “Post” button to upload this information for the students to access.
- The **List of students** screen will show us a table with all the students in this course and a few of their information like Name, Surname and email. There will also be a “Status” column which the professor can change into “**Satisfactory**” & “**Unsatisfactory**” at the end of the course, depending on each students’ performance.
- The “**Log Out**” will terminate the current session and will resend the user to the main page.
- At the bottom of the page there will be a “Contact” area where we will have the phone number, email address as well as the physical address of the academy. This will be present in all interfaces.

4. Receptionist Interface

Will contain:

- The header bar containing “N’Tech” logo and four buttons: “Students”, “Professors”, “Timetable” and “Log out”.
- The default page will be the “**Students**” page. There will be a big table containing all of the students registered in the academy and some of their information like Name, Surname, Email as well as a Status, “Active” if the student is currently enrolled in at least one course, and “Inactive” otherwise, they could either not yet be enrolled in any course or have been previously in the past and have completed them all.
- There will be a “**Register Student**” button which will allow the receptionist to register a new person in the academy, an exclusive right they hold. This will open a form where they will be required to enter the students information.
- The “**Professors**” button will open up a similar page to the previously mentioned but instead of students we will see a full list of the professors and their information.
- On both these displays we will have a search bar.
- The “**Timetable**” button will open a big timetable, containing all the classes of the academy in a week, the lecturers, day & time, classroom.
- The “**Log Out**” will terminate the current session and will resend the user to the main page.

5. Manager Interface

Will contain:

- The header bar containing “N’Tech” logo and four buttons: “Statistics”, “Open Calls”, “Timetable”, “Courses”, “Lecturers” and “Log out”.
- The default page will be the “**Statistics**” page. There will be different graphs and tables representing specific stats referring to valuable information of the center.
- The “**Timetable**” button will open a big timetable, containing all the classes of the academy in a week, the lecturers, day & time, classroom.
- The “Open Calls” button will open a new page where all the active calls will be listed as cards. Each card will have 3 buttons : Edit , Delete and View Student. <View Student> button will open a list of all the applicants of that call up to that moment. There will be an <Add a call> button which will allow the manager to create a new call. This will open a form where it will be required to enter the necessary information to create the call.
- The “**Courses**” button will open a new page which generally will contain information about the courses. It will be divided into 2 categories : ongoing and completed courses. For the ongoing courses there will be displayed a table containing: Course name, Start Date, End Date, No of students enrolled, Price, Time and Classroom. There

- will be 4 buttons associated with each course (row) : Check Payments, Status , Edit, Delete.
- The <Check Payments> button will open a new table consisting of each student and a list of its payments represented with checkboxes. Besides that, there will be a <Block student> button that will allow the manager to freeze the student's account if he hasn't done the payments.
- The <Status> button will allow the manager to change the status of the course from ongoing to completed.
- Similarly to this, we will have completed courses as well. There will be a table displaying all the needed information : Course Name , Start Date, End Date, Lecturer, No of students who satisfied the course , Price and a <Get students> button which will return a list of all the students who have completed the course and their respective evaluation (satisfactory/unsatisfactory).
- There will be an <Add Student> button which will allow the manager to add a student to an ongoing group by selecting from the provided drop down.
- The <Add Course> button will allow the manager to create a new course to the curriculum of the learning center. This will open a form where it will be required to enter the necessary information to create the course.
- The <Add Group> button will allow the manager to create a group from scratch with its own data without any call. This will open a form where it will be required to enter the necessary information to create the group.
- The “**Lecturer**” page will have another table displaying the name of the lecturer and a button <Show profile> which will open a card with all his personal information. This card will be editable and deletable from the manager.
- The <Add Lecturer> button will allow the manager to add a new lecturer to the system. This will open a form where it will be required to enter the necessary information to create the lecturer.

3.2.1.2 Learnability

- Receptionists are expected to acquire proficiency in using the system after only a few hours of practice.
- Lecturers are expected to acquire proficiency in using the system after only a few hours of practice.
- The manager is expected to become proficient in using the system after only a brief period of practice, typically within a few hours.
- After the training, the manager should possess a complete understanding of each component of the system.

- After completing this training, experienced users should maintain an average error rate of no more than three.
- Students won't need specific training as the system is intuitively designed.
- This documentation can function as a user manual for either the receptionists or the lecturers at the academy.
- The user of the system carries responsibility for their own actions.

3.2.1.3 Accessibility

- Each user receives their own username and password upon registration in the system.
- The receptionist, lecturer and the manager affiliated with the academy have access to the system.
- The students enrolled in that academy have access to the system.
- Registered users have the ability to access the system from any location and at any time.

3.2.1.4 Efficiency

- Once users have familiarized themselves with the system, they will be capable of completing each operation within minutes.
- Every operation will be fast and occur in real-time.

3.2.1.5 Memorability

- The system's ease of use eliminates the requirement to memorize its functions.
- If users return to the system after a period of not using it, they can use the system and all the services it offers without the smallest problem.
- The user interfaces are designed to be easy understandable by the user (pictures, icons, buttons, descriptions etc.)

3.2.1.6 Errors

- Each time sensitive data is entered in the system a double check procedure is applied where the user confirms the entered data.
- If a problem occurs it can be edited and corrected immediately.

3.2.1.7 Satisfaction

- The system is engineered to be user-friendly and easy to navigate.

3.2.1.8 Capacity

This system will be developed to encompass all the requirements of an academy managing courses. The application will serve the needs of students, lecturers, the receptionist and manager simultaneously. It will operate in real-time, ensuring that any modifications made are promptly reflected for other users based on their authorization levels. The application will be hosted on a web server.

2. Organizational Requirements

Environmental Requirements:

- **Hardware Requirements:** Personal computers with at least the minimal working parameters are needed to access the system.
- **Operating System Compatibility:** System compatible for Windows, macOS, as long as a database service is provided.
- **Network connection:** Must be connected to the internet to access the system. The network connection must be stable in order to reduce latency.
- **Deployment Requirements:** A database service like SSMS must be connected to the system in order to provide the client-server connection.

Latency:

The latency of the program will depend on the:

- Internet connection strength
- Database size
- Algorithm efficiency used to fetch data from the database

Operational Requirements

Availability:

- The Learning Center application guarantees 24/7 availability, ensuring uninterrupted access for users
- Accessible to all users with a PC and internet connection, enabling data retrieval from anywhere
- Development focuses on uptime reliability, crucial for managing sensitive and time-varying data
- Scheduled maintenance will be performed without impacting system functionality. Unscheduled maintenance will aim to keep downtime under 1 hour

Monitoring:

- The Learning Center's system prioritizes security and reliability to prevent crashes
- Regular reports generated by the maintenance team aid in problem detection and system enhancement
- Field validation ensures data accuracy during various operations, with clear error messages for users

Maintenance:

- Modular development enables easy addition of new features, ensuring scalability
- Protocols are established for resolving system malfunctions, including restart procedures and contacting maintenance
- Users are promptly notified of software updates or bug fixes

Development Requirements

Operations:

- The Learning Center provides a range of operations for users, including log-in, access to personal information, and CRUD(create, read, update, delete) operations for lecturers and students
- Access to the system is restricted to authorized personnel only, ensuring data security
- Various functionalities like viewing academic records, leaving feedback, and accessing monthly statistics are available
- Peak usage times are identified based on user demand, ensuring optimal system performance

Standards Compliance:

- The Learning Center complies with existing standards for academy management systems, ensuring alignment with regulatory requirements
- Personal and academic information follows prescribed formats and standards set by educational authorities
- Adherence to the law and Ministry of Education regulations is paramount in the Learning Center's development

Portability:

- The Learning Center's web-based system ensures consistent operation across different devices and operating systems
- Users only require a computer or mobile phone with internet access to utilize the platform effectively

3.2.3 External Requirements

- Requirements which arise from factors which are external to the system and its development process e.g. interoperability requirements, legislative requirements, etc.

1. Regulatory Requirements

The Authorization and Authentication factors:

- The user authentication will be using email, password.
- Authorization will be based on the user type. Each user will access only the respective courses.
- Using tokens for the currently logged user.
- If the user tries to log in with the wrong credentials a message will be shown to him/her.

2. Ethical Requirements

- **Privacy Protection:** In this way we ensure password protection from any entity. The data is supposed to be private, regarding our policy, no data is allowed to be shared outside the institution, as there are no third parties involved.
- **Data Security:** All passwords entered from the users, are hashed and then stored to the database.
- **Transparency and Accountability:** The system is user friendly and allows accessibility for every user. Only the specified actions can be performed by certain users and only specified interfaces can be accessed according to the user role. Every user is responsible for their own actions in the system.
- **User Empowerment:** The user interface is thought to be intuitive and easy to use. The software is usable by all individuals, regardless of their abilities.

3. Legislative Requirements

1. Security Requirements

The information kept in the system's database is considered to be sensitive information. Therefore, we should make sure that the security of our system is high. According to the law No.9887, dated 10.03.2008, as amended with law No.48/2012, "On the Protection of Personal Data", the personal information of each user should be private and possible to be accessed only by the specified actors. Therefore, this information is secured with hashed passwords. Moreover, the manager and the

receptionists have to be careful with the usage of the personal information of the students.

2. Protection

To protect the system from malicious or accidental access, modification, disclosure, destruction, or misuse we will take the following precautions:

- Encrypt the most sensitive information such as passwords using hashing method to protect privacy.
- We will keep track of the activity of each user, such that in case of a problem the user will be held responsible.
- The receptionist is responsible for the personal data authenticity of the students enters; hence the system is not responsible.
- To make sure that some action is intentional and not accidental, most of the actions of the users are protected by a pop up window to confirm that action.
- Each student will see only the courses related to him/her.
- Manager will see the data of the receptionist , student and lecturer.

3. *Domain Requirements*

This web application operation in online learning of a learning center. The purpose is to post online courses for their students. Our online course platform serves as a comprehensive solution for delivering educational content and facilitating learning experiences in a digital format. We aim to make learning more accessible and

convenient for students and lecturers alike. The system should provide a personal account for every student so they can keep track of their courses and progress.

4. User Scenarios/Use Cases

4.1.1 User Scenarios

4.1.1.1 User Scenarios List

Nr	Name	Description
US_01	User logs in	Users:Students,receptionist,lecturers and manager login using username and password
US_02	Change Password	Users:Students,receptionist,lecturers and manager can change their password
US_03	Add a new student user	Receptionist creates an account for a new student
US_04	Students list	View all students
US_05	All lecturers (lecturers list)	Receptionist views all the lecturers
US_06	Search student	Search for a specific student
US_07	Search lecturer	Receptionist searches for a specific lecturer
US_08	Update student	Receptionist updates personal information of a specific student
US_09	Delete Student Account	Receptionist can delete a student account
US_10	Uploading materials	Lecturer can upload weekly materials which will be displayed in his profile and also in student profiles, in the materials card

US_11	Lecturer can download his profile	Lecturers can download their profile information which they can use in their CV or personal achievements
US_12	View Information	Receptionist can view students and lecturers information (name, surname, email, status)
US_13	Edit Information	Receptionist can edit or delete students information
US_14	Contacting the Lecturer	Students contact the lecturer via email.
US_15	Download course's certificate	Students can download their course's certificate.
US_16	View statistics	The manager can view monthly statistics generated by the system.
US_17	Leave feedback	Students can leave feedbacks for each course
US_18	User logs out	Manager, receptionist, students and lecturers can log out from their accounts
US_19	Open new calls	Manager can open new course calls for the students to apply.
US_20	Edit call	Manager updates the content of a call
US_21	Delete call	Manager deletes a call.
US_22	Create new course	Manager adds a new course to the curriculum.
US_23	Edit course	Manager updates the properties of a course.
US_24	Delete course	Manager deletes a course.
US_25	Create new group from call	Manager creates a new group for the students that have applied to the open call
US_26	Create new group without call	Manager creates a new group and assigns a specific number of students that have applied in different ways other than the open call form.
US_27	Add a student to an existing group	Manager adds a student to an existing group under the regulations of the learning center.
US_28	Manage the students payments	Manager controls the students' payments and he can freeze their account if the payment is not done.

US_29	Add a new lecturer user	Manager creates an account for a new lecturer.
US_30	Update lecturer	Manager updates personal information of a specific lecturer.
US_31	Delete lecturer	Manager can delete the account of an existing lecturer.
US_32	List of ongoing/completed groups	Manager views a list of all ongoing and completed groups.
US_33	Update an existing group	Manager updates the data of an existing group.
US_34	Delete an existing group	Manager deletes an existing group.
US_35	Post timetable	Receptionist posts a timetable for all courses.
US_36	Apply in an open call	The student can view all open calls and apply to any of them.
US_37	View personal courses	Students can view all information regarding the courses they are enrolled, including lecturer, classroom and time; as well as completed courses. They can access the materials posted by the lecturer.
US_38	View course materials	The student can view course materials uploaded by the lecturer.
US_39	View Homepage	All users: students, lecturer, receptionist, manager as well as not-logged-in viewers can view a homepage.
US_40	View all courses	All users: students, lecturer, receptionist, manager as well as not-logged-in viewer can see a list of all the possible courses of the institution.
US_41	View all students of a group.	The lecturer can go into the group section to see his groups and for a selected group he can see the students that take that course.
US_42	Evaluation of student performance.	The lecturer can see the list of the student and based on the way the lecturer evaluates the

		student they can take a satisfying grade or an unsatisfying grade.
US_43	Posting materials for a course.	The lecturer can post materials on this platform so that the students can see them.
US_44	Editing materials.	A lecturer can edit a post with materials that he has posted before. He can add or change something in what he has posted.
US_45	Deleting materials.	A lecturer can delete a post if he sees it reasonable or he has sent the wrong materials.

4.1.1.2 User Scenarios Extended

1. US_01 – User logs in

- a. The user selects their user type: student, receptionist, lecturer or manager.
- b. The user is directed to the login page.
- c. The user inputs their email and password.
- d. The user clicks on the login button.
- e. If the information provided is accurate, the user will be forwarded to their respective profile page.
- f. If there are any inaccuracies in the data, an error message will appear, prompting the user to retry the process starting from the second step.

2. US_02 – Change password

- a. User logs in.
- b. User selects the “Change Password” option.
- c. User writes his old password and his new password twice to make sure that the new password is the same in both fields.
- d. Then the user saves the changes made by clicking the “Save” button.
- e. If the old password is correctly entered and if the new password is the same in both fields
the user is alerted: “Password changed successfully!”
- f. If either the old password is incorrect or the new passwords do not match in both fields, the user receives an alert stating: “Password was not changed. Please try again.”

3. US_03 – Add a new student user

- a. The receptionist logs into the system.
- b. The receptionist navigates to the “Add a New Student” option.
- c. The receptionist completes all the required fields.
- d. The receptionist verifies the accuracy of the entered data.

- e. The receptionist selects the "Add Student" button.
- h. System initiates validation of data based on specified requirements.
- i. If the validation is successful, the data is stored in the database, and an informative message "Student added successfully!" is displayed. The receptionist is then redirected to their home page.
- j. If validation fails, informative messages indicating the issue are shown, enabling the receptionist to rectify the problem and resume from the fourth step.

4. US_04 – Student's list

- Receptionist
- a. The receptionist logs into the system.
- b. The receptionist navigates to the "Students' list" section.
- c. An overview table displaying all students enrolled in the academy is presented.

5. US_05 –Lecturer's List

- a. Receptionist logs in following the steps in US_01
- b. Receptionist clicks on "lecturer's list".
- c. A table with all the lecturers will be shown.

6. US_06 – Search a student

- Manager
- a. Manager logs in following the steps in US_01
- b. Manager clicks on "Students' list".
- c. All the students will be shown .
- d. Manager fills the name and surname of the student.
- e. If results are found, they will be shown in the table.
- f. If no result was found, the table will be shown empty.
- Receptionist
- a. Receptionist logs in following the steps in US_01
- b. Receptionist clicks on "Students' list" .
- c. All the students will be shown.
- d. Receptionist fills the name and surname of the student
- e. If results are found, they will be shown in the table .
- f. If no result was found, the table will be shown empty .
- Lecturer
- a. Lecturer logs in following the steps in US_01
- b. Lecturer clicks on "Students' list".
- c. A table with all his/her students will be shown .
- d. Lecturer fills the name and surname of the student.
- e. If results are found, they will be shown in the table.
- f. If no result was found, the table will be shown empty.

7. US_07 – Search a lecturer

- Manager
- a. Manager logs in following the steps in US_01
- b. Manager clicks on "Lecture's list".

- c. All the lectures will be shown .
- d. Manager fills the name, the surname.
- e. If results were found, they will be shown in the table.
- f. If no result was found, the table will be shown empty.
- Receptionist
- a. Receptionist logs in following the steps in US_01
- b. Receptionist clicks on “lecturer’s list”
- c. A table with all the lecturers will be shown.
- d. Receptionist fills the name, the surname.
- e. If results were found, they will be shown in the table.
- f. If no result was found, the table will be shown empty.

8. US_8 – Update student

- a. Receptionist searches a student following the steps in US_06/a
- b. Receptionist clicks the button “Update” for that specific student.
- c. A form with fields filled with current information of the student is shown.
- d. Receptionist makes the necessary changes .
- e. Receptionist double checks if the data entered is correct.
- f. Receptionist clicks the button “Update” .
- g. Alert: Are you sure you want to continue? YES/ NO.
- h. If NO, do nothing, we stay at the same page .
- i. If YES, the system validates data according to the specified requirements . j. If validation is passed successfully, the data is saved. An informative message “Student updated successfully!” will be shown and the receptionist is redirected to his/her home page.
- k. If validation is not passed successfully, informative messages will show where the problem is, so the receptionist can fix it and continue again from step e.

9. US_9-Delete Student Account

- a.Receptionist views a table with student information
- b.Receptionist can search a student by name or email
- c.A table row with all student information will be shown
- d.A “Delete” button will be visible in the table
- e.If pressed, a confirmation message will be displayed
- f.a “confirm” and a “cancel” button will be displayed
- g.If you want to delete, press confirm
- h.if confirmed, the record will be deleted
- i.If NOT, press the cancel button

10. US_10 Uploading materials

- a.A professor can log in in his profile
- b.By selecting “My Courses” his course cards will be displayed
- c.After selecting a card, information about the course will be displayed
- d.Along with the information, an “Add material” button will appear
- e.If pressed, a form will appear
- f.The professor fills in the form and adds the links of the files
- g.If YES, press the “Post” button
- h.The added material will be displayed in the page

11. US_11-Lecturer download profile

- a.Professor logs in in his Account
- b.His profile page will be displayed automatically
- c.The profile page contains his credentials and personal information
- d.A “Download Page” button will also be displayed
- e.If pressed, a preview of the downloadable page will be displayed
- f.A “confirm download” and a cancel button will be displayed
- g.If YES, press confirm and the page downloads
- h.if NOT, press cancel button

12.US_12-View Information

- a.Receptionist logs in in his account
- b.All Students page will be displayed automatically
- c.This page contains the table with all students and their credentials.
- d.If Professors page is selected, it will redirect to another page
- e.This page contains a table with the credentials of All Professors

13.US_13- Edit Information

- a.A receptionist can follow the steps of US_12 to login and view student information
- b.An edit button will be displayed close to the delete button.
- c.If pressed, a form containing the credentials will be displayed
- d.Select the field you want to edit and make changes
- e.If YES, press the confirm button and the form will close, th

14.US_14-Contacting the Lecturer

- a.A student can login in his profile following the steps in US_01.
- b.The student can open his ongoing courses where his course cards will be displayed.
- c.The students can open the course cards and the relevant material about the courses will be displayed along with a “Send email!” button.
- d.IF you want to send an email, click the button and a form will be shown to submit the email.
- e.IF you are satisfied with the email, click Send
- f.IF NOT, click cancel email.

15.US_15-Download course’s certificate

- a.A student can login and open a course similarly as in US_14.
- b.After the status of the student is updated, the course certificate will be displayed in their course card.
- c.A “Download” button will be available
- d.IF clicked, the certificate will be downloaded

16.US_16-View Statistics

- a.Manager logs in as in US_01
- b.The the default page that is displayed contains general statistics

17.US_17-Leave Feedback

- a.The student logs in as un US_01
- b.The student select the course they want to send feedback
- c.They send the feedback

18.US_18-User logs out

- a.For every user role the logout process is identical
- b.On their navigation bar, a Logout button is always on display
- c.If pressed, a confirmation message will pop out
- d.If you want to log out click Confirm
- e.If NOT, click cancel

19. US_19– Open New Call

- a.Manager logs in following the steps US_01.
- b.Manager clicks “Open Calls” on nav bar
- c.Manager clicks “Open a new call”
- d.Manager fills all the empty fields
- e.Manager double checks if the data entered is correct
- f. Manager clicks the button “Done”
- g.System validates data according to the specified requirements
- h. If validation is passed successfully, the data is saved in the database and the call is created. i.An informative message “New Call created successfully!” will be shown and the page is reloaded.
- j. If validation is not passed successfully, informative messages will show where the problem is, so the manager can fix it and continue again from step d.

20. US_20 – Edit call

- a.Manager logs in following the steps US_01.
- b.Manager clicks “Open Calls” on the nav bar.
- c.Manager clicks “Open” in one of the calls that he wants to edit
- d.Manager updates all the necessary information
- e.Manager clicks the button “Done”.
- f.System validates data according to the specified requirements
- g. If validation is passed successfully, the data is saved in the database and the call is updated, An informative message “The call is updated successfully!” will be shown and the page is reloaded.
- h. If validation is not passed successfully, informative messages will show where the problem is, so the manager can fix it and continue again from step D.

21. US_21 – Delete call

- a.Manager logs in following the steps US_01.
- b.Manager clicks “Open Calls” on the nav bar.
- c.Manager clicks “Delete” on the course that he want to delete
- d.A confirmation form from the system is shown to the manager
- e.If he wants to delete the course he should click on the delete button.
- f.If he does not want to delete he should click on cancel button and the system sends him back to step C.

22. US_22– Create new course

- a.Manager logs in following the steps US_01.
- b.Manager clicks “COURSES” on the nav bar.
- c.Manager clicks “add course”.
- d.Manager fills all the empty spaces and submits the form

e.The new course is created

23.US_23– Edit course

- a.Manager logs in following the steps US_01.
- b.Manager clicks "COURSES" on the nav bar.
- c.A table containing all the courses will be displayed.
- d.Manager clicks "edit course" in the course record.
- e.The course form will be displayed.
- f.After editing the fields he wants.
- g.IF YES, manager saves and submits the form and the course is edited
- g.IF NOT, cancel changes.

24.US_24– Delete course

- a.Manager logs in following the steps US_01.
- b.Manager clicks "COURSES" on the nav bar.
- c.A table containing all the courses will be displayed.
- d.Manager clicks "delete course" in the course record.
- e.A confirmation message will pop out.
- f.IF yes, confirm deletion and the course will be deleted..
- g.IF NOT, cancel deletion

25. US_25 - Create new group from call

- a.Manager logs in following steps in US_01.
- b.Manager navigates to "Open Calls" in their navbar.
- c.They click on the card of the call they wish to end and create an official group.
- d.They might check the names of the students that have applied for enrollment and click on the "Create group" button.
- e.A confirmation popup appears where they are asked to confirm that they want to delete the call and create the new course group.
- f.If they click yes, the call card automatically gets removed and all its info are transferred to the courses groups page, with all the students confirmed.
- g.Otherwise they go back to the open call card.

26. US_26 - Create new group

- a.Manager logs in following steps in US_01.
- b.Manager navigates to "Courses" in their navbar.
- c.They click on the "Add Group" button.
- d.A popup loads where they need to fill up the required fields to create a new group like : Select course, Lecturer, Start Period, End Period, Time & Classroom, Monthly payment price as well as add all the students that will be part of this new group.
- e.Then they press the "Post" button.
- f.A confirmation popup appears where they are asked to confirm whether they want to create the new group.
- g.If they click yes, the new group gets created with the added students and all the info filled previously.
- h.Otherwise they go back to the popup in order to update any information or cancel all together.

27. US_27 - Add a student to an existing course

- a.Manager logs in following the steps in US_01.
- b.Manager navigates to “Courses” in their navbar.
- c.They click on the “Add Student” button.
- d.A popup loads where they need to write the name & surname of the student and then select the course they wish to add them to.
- e.Then they press the button “Add” and this way the student has been added to a course successfully.

28. US_28 - Manage the students payments

- a.Manager logs in following the steps in US_01.
- b.Manager navigates to “Courses” in their navbar.
- c.They click on “Ongoing Courses” which loads a big table with information about all the current courses in the academy.
- d.On the side, on each course there is a “Check payment” button.
- e.Another window opens which shows information about all the students enrolled in the course.
- f.All the monthly payments they have made or have yet to make appear as checkboxes.
- g.If a new payment is made by the student, manager ticks the appropriate box.
- h.Manager checks if a student has an insufficient amount of monthly payments made.
- i.If yes, they can click on the “Freeze Student” button to freeze their account.
- j.A confirmation window appears, if the manager clicks yes student account gets frozen until they pay the necessary months and their account can be activated again.
- k.Otherwise, go back to the full list of students and their payments.

29. US_29 - Add a new lecturer user

- a.Manager logs in following the steps in US_01.
- b.Manager navigates to “Professors” in their navbar.
- c.They click on the “Add Professor” button.
- d.A popup loads where they need to fill up the required fields to add a new professor like : Name & Surname, Can teach (where we will list all the subjects that this new lecturer is eligible to teach) and the Contract where we can upload a pdf document.
- e.Then the manager presses the “Add” button.
- f.A confirmation window pops up where they either hit confirm or cancel to go back to editing the lecturer information.

30. US_30 - Update lecturer

- a.Manager logs in following the steps in US_01
- b.Manager navigates to “Lecturers” in his navbar.
- c.Manager searches a lecturer following the steps in US_07
- d.Manager clicks the button “Show Profile” for that specific lecturer.
- e. Manager clicks the button “Update” in the profile of the lecturer.
- f. A form with fields filled with current information of the lecturer is shown.
- g. Manager makes the necessary changes.
- h. Manager double checks if the data entered is correct.
- i. Manager clicks the button “Update”.
- j. Alert: Are you sure you want to continue? YES/ NO.
- k.If NO, do nothing, we stay at the same page.

- I. If YES, system validates data according to the specified requirements
- m. If validation is passed successfully, the data is saved in the. An informative message “lecturer updated successfully!” will be shown.
- n. If validation is not passed successfully, informative messages will show where the problem is, so the Manager can fix it and continue again from step E.

31. US_31 - Delete lecturer

- a.Manager logs in following the steps in US_01
- b.Manager navigates to “Lecturers” in his navbar.
- c.Manager searches a lecturer following the steps in US_09
- d.Manager clicks the button “Show Profile” for that specific lecturer.
- e. Manager clicks the button “Delete” in the profile of the lecturer.
- f. Alert: Are you sure you want to delete this lecturer? YES/ NO.
- g.If NO, do nothing, we stay at the same page.
- h.If YES, the information for that lecturer is deleted from the database. The message “Lecturer deleted successfully!” will be shown .

32. US_32 - List of ongoing/completed group

- a.Manager logs in following the steps in US_01
- b.Manager navigated to “Groups” in his navbar
- c.Manager clicks the button “Ongoing” or “Completed”
- d.The respective list of groups will be displayed.

33. US_33 - Update an existing group

- a.Manager logs in following the steps in US_01
- b.Manager follows the steps of US_32 to get the list(table) of ongoing groups.
- c.Manager clicks the button “Edit” for that specific group.
- d.A form with fields filled with current information of the ongoing group is shown.
- e. Manager makes the necessary changes.
- f. Manager double checks if the data entered is correct.
- g. Manager clicks the button “Edit”.
- h. Alert: Are you sure you want to continue? YES/ NO.
- i.If NO, do nothing, we stay at the same page.
- j. If YES, system validates data according to the specified requirements
- k. If validation is passed successfully, the data is saved in the. An informative message “group updated successfully!” will be shown.
- l. If validation is not passed successfully, informative messages will show where the problem is, so the Manager can fix it and continue again from step D.

34. US_34 - Delete an existing group

- a.Manager logs in following the steps in US_01
- b.Manager follows the steps of US_32 to get the list(table) of ongoing groups.
- c.Manager clicks the button “Delete” for that specific group.
- d. Alert: Are you sure you want to delete this group? YES/ NO.
- e.If NO, do nothing, we stay at the same page.
- f.If YES, the information for that lecturer is deleted from the database. The message “Group deleted successfully!” will be shown .

35. US_35 - Post timetable

- a.Receptionist logs in following the steps in US_01

- b.Receptionist navigates to “Timetable” in the navbar
- c.Receptionist clicks the button “Add Timetable”
- d.A form to upload the timetable will be shown
- e.The receptionist clicks the button “Add” to finish the action.
- f.Alert: Are you sure you want to continue? YES/ NO.
- g.If NO, do nothing, we stay at the same page.
- h. If YES, system validates data according to the specified requirements
- i. If validation is passed successfully, the data is saved in the. An informative message “timetable uploaded successfully!” will be shown.
- j. If validation is not passed successfully, informative messages will show where the problem is, so the Receptionist can fix it and continue again from step E.

36. US_36 - Apply in an open call

- a.Student logs in following the steps in US_01.
- b.Student navigates to “Apply” in his navbar.
- c.Student views all the open calls.
- d.Student checks if the quota of the course he wants is not reached yet.
- e.Student clicks the button “Apply” on the specific call that he prefers.

37. US_37 - View personal courses

- a.Student logs in following the steps in US_01.
- b.Student navigated to “My Courses” in his navbar.
- c.Student views all his courses and general information about them listed in cards format.

38. US_38 - View course materials

- a.Student logs in following the steps in US_01.
- b.Student navigated to “My Courses” in his navbar.
- c.Student clicks the card of the specific course.
- d.The content of that course is opened in the format of a blog.
- e.Student views all the materials of that course.

US_39 View homepage.

- a.After logging in the first page that every user will see is the homepage.
- b.There will be a button on the menu called “Home Page”.
- c.If the user clicks this button they will be redirected to the homepage.

US_40 View all courses.

- a.Everyone that accesses this web page on the menu they will have a courses button.
- b.Even if you are a user that is not registered in the web application you will be able to see the courses the lecture center is offering.
- c.If you are registered in the web page application you will first need to log in on the page.
- d.Every registered user after registering the web home page will be shown and then through the menu they can see all the courses that they are following, teaching or that are available.

US_41 View all students of a course.

- a.After logging in on their account the professor profile will be displayed.
- b.If the “My Courses” button is selected then it will redirect to another page.
- c.This page will contain the courses this professor teaches.
- d.Then he can select the course that he wishes and, then select the view of all students to view all the students that attend that course.

US_42 Evaluation of a student performance.

- a.After logging in as a professor and the profile of the professor will appear he can select the “my courses” button.
- b. After that he will be redirected to a page where all the courses that he teaches will be displayed.
- c.He can select a course and then select the show student button with the list of the student will appear.
- d.In this table the default status of the student is ongoing since he is still taking this course.
- e.Then depending on the performance of the student the professor can click the edit button to change the status.
- f.If the student hasn’t performed well then he will take a “Unsatisfied” grade else he will take a “Satisfied” mark.

US_43 Posting materials.

- a.After logging in the lecturer has a section in my course page called course materials.
- b.He can select that and then he can post different materials related to the course.
- c.To post these materials there will be a form that the lecturer will need to fill and, then after he is sure that he has done everything that he needs to do then he can press post.
- d.Students can see the materials after the lecturer has posted them US_38.

US_44 Editing materials.

- a.After the lecturer is logged in then he can post materials (US_43) through the course materials button.
- b.He then can post different materials related to the course.
- c.After posting these materials he will have the right to edit them through the edit button.
- d.A form similar to the one that he filled to post the materials will pop up and then he would have to change the things that he will want to change and maybe add some different description.

US_45 Deleting materials.

- a.After logging in the lecturer has the right to post materials (US_43).
- b.After he has posted the materials, he will have the right to delete them.
- c.Maybe the lecturer has posted something that he didn’t mean to post or he might want to delete the materials after the course has ended.
- d.He will have this opportunity with the delete button.

4.1.2 User Cases

Name	User logs in
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Summary	User enters personal information to access his account.
Actor	Student / Receptionist / Lecturer/Manager
Description	User gains access on his account after typing his correct username and password.
Precondition	User must have an active account and should choose one of the alternatives (student/lecturer/manager/receptionist) before logging in.
Alternatives	The user can access only one account at time and can have only one role (student/lecturer/manager/receptionist), but a doctor or the receptionist can have two accounts because they can also be patients.
Post Condition	User is logged on to his account.

UC_01 – US_01 -User Logs In

Name	Change password
Summary	User goes to the corresponding page to change his password.
Actor	Student / Receptionist / Lecturer/Manager
Description	User types the old password and the new one in order to make the change.
Precondition	The user should be logged in. The old password should be typed correctly and both fields with the new password should match. Also the new password should be different from the old one and it should follow the validation rules.
Alternatives	If the fields are not filled correctly (validation rules not passed successfully), then the information cannot be saved. The user is allowed to try again.
Post Condition	After pressing the “Save” button, the old password is replaced with the new one.

UC_02 – US_02 - Change password

Name	Add a new student user
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Summary	The receptionist can add a new student user.
Actor	Receptionist
Description	Receptionist clicks on “Add Student” menu, fills the information for the new patient and then clicks “Add Student” button.
Precondition	Receptionist should be logged in and the student must possess the necessary documents to be registered in the academy. The new student’s unique information should not match with any other student in the database, so one student cannot have two accounts.
Alternatives	If the receptionist is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the receptionist is allowed to make the necessary changes.
Post Condition	A new student is added on the database

UC_03 – US_03 - Add a new student user

Name	Student's list
Summary	Access the list of students.
Actor	Receptionist
Description	The receptionist’s version he/she logs in then clicks on “Students’ list”, to access the list of all students of the academy.
Precondition	To access this list you should be logged in as a receptionist. Students have no access on the list.
Alternatives	Receptionist can view the whole list of the students of the academy. If there is no student registered yet, an informative message will be shown.
Post Condition	A table with the list of the students is shown.

UC_04 – US_04 - Student's list

Name	Lecturer's List
Summary	Access the list of the lecturers of the academy.
Actor	Receptionist

Description	The receptionist logs in then clicks on “Lecturer’s List”, to access the list of all doctors of the polyclinic.
Precondition	To access this list you should be logged in as the receptionist. Students and lecturers have no access to the list.
Alternatives	Receptionist can view the whole list of the lecturers of the academy. If there is no lecturer registered yet, an informative message will be shown.
Post Condition	A table with the list of the lecturers is shown.

UC_05 – US_05 - Lecturer’s List

Name	Search a student
Summary	Search for a specific student in the list.
Actor	Receptionist / Lecturer/Manager
Description	In the receptionist’s version he/she logs in then clicks on “Students List”, to access the list of the students. At the search box, he/she enters the name, surname (or both) of the student he/she is looking for. In the lecturer version, he/she logs in and clicks on “My Students”, to access the list of his/her students. At the search box, he/she enters the name, surname (or both) of the student he/she is looking for. In the manager version he/she logs in then clicks on “Students List”, to access the list of the students. At the search box, he/she enters the name, surname (or both) of the student he/she is looking for.
Precondition	You should be logged in as a receptionist or a lecturer. Students will not have this right.
Alternatives	Receptionist ,lecturer,manager can either type the name, the surname, or both. If there is no student found, an informative message will be shown.
Post Condition	If results were found, a table with all the results will be shown.

UC_06 – US_06 - Search a student

Name	Search lecture
Summary	Receptionist/manager searches for a specific lecture
Actor	Receptionist/Manager
Description	Receptionist logs in clicks on “lecture’s list” a table with all lectures will be shown. Receptionist fills in the name and surname to find a lecturer. Manager logs in clicks on “Lecture’s list” a table with all lecture will be shown. Manager fill the name and surname to find lecture.

Precondition	You should be logged in as a receptionist or a manager. Students/lecturers will not have this right.
Alternatives	Receptionist ,manager can either type the name, the surname, or both. If there is no lecture found, an informative message will be shown.
Post condition	If results were found, a table with all the results will be shown.

UC_07 – US_07 - Search a lecture

Name	Update a student
Summary	Receptionist updates the personal information of a specific student.
Actor	Receptionist
Description	Receptionist logs in clicks on “student’s list” a table with all student will be shown.Receptionist fill the name and surname to find the student.Receptionist clicks the button “Update” for that specific student.A form with current information will be shown.Receptionist make the necessary changes.
Precondition	A student has to exist in the database.
Alternatives	A receptionist can either type the name, the surname, or both. If there is no student found, an informative message will be shown.
Post condition	If results were found, a table with all the results will be shown.

UC_8 – US_8 - Update Student

Name	Delete Student Account
Summary	The receptionist can delete a student account.
Actor	Receptionist
Description	Receptionist opens the “All Students” page where a table with all students and their information is displayed, along with a delete button. The receptionists press “Delete” and a confirmation message pops up. Soft-Delete is performed and the student is now “hidden” in the database.
Precondition	Users must have the receptionist role and be logged in before performing this action.
Alternatives	A manager can Soft-Delete delete the student.

Post Condition	The selected student account is deleted.
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UC_9 – US_9 - Delete Student Account

Name	Uploading material
Summary	Professors can upload weekly materials.
Actor	Professor
Description	A professor can open his ongoing courses and select a course card. Posted materials will open along with an “Add material” button. After pressing, a form will be shown. After finishing uploading, the professor confirms his action with the “Post” button.
Precondition	Users must have the professor role and be logged in before performing this action. The professor must be assigned to an ongoing course to access this operation.
Alternatives	Materials are submitted physically, but we want to avoid this practice.
Post Condition	The selected material will be posted and accessible by students.

UC_10 – US_10 - Uploading material

Name	Download profile
Summary	Professors can download their profile credentials.
Actor	Professor
Description	A professor can open his personal profile, where his credentials will be shown along with a “Download page” button, which allows him to export his personal information.
Precondition	Users must have the professor role and be logged in before performing this action.
Alternatives	The lecturer is not required to download his profile.
Post Condition	The personal profile information will be exported and used accordingly.

UC_11 – US_11 - Download profile

Name	View information
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Summary	The receptionist can view information regarding students and professors.
Actor	Receptionist
Description	A receptionist logs in his profile and selects the All Students page which displays a table with relevant information about students. Similarly if the All Professors page is selected.
Precondition	Users must have the receptionist role and be logged in before performing this action.
Alternatives	View profile information is also conducted by the manager.
Post Condition	Name, Surname, Email and Status is accessible information by the receptionist.

UC_12 – US_12 - View information

Name	Edit Information
Summary	The Receptionist can edit personal information of a student.
Actor	Receptionist
Description	A receptionist logs in his profile and selects the All Students page which displays a table with relevant information about students. An "Edit" button is shown in the record, which displays a fillable form to make changes and confirm them.
Precondition	Users must have the receptionist role and be logged in before performing this action.
Alternatives	Edit student profile information is also conducted by the manager.
Post Condition	Name, Surname, Email or Status will be edited by the receptionist.

UC_13 – US_13 - Edit Information

NAME	Contacting lecturer
SUMMARY	Student writes an email and send it to the lecturer
ACTOR	Student
DESCRIPTION	Student logs in, clicks on the course whose lecturer they want to contact and there they find a button send email
PRECONDITION	The student should be logged in. He/She must have been assigned to a specific course and he/she can send the email only to that doctor

ALTERNATIVES	After pressing “Send” a pop up window will be shown. If the student is sure he/she should press YES to continue sending that email, if not then he/she should press NO and go back to the previous page. If when pressing YES, some error happens while trying to send that message, an informative message will be shown and the student can try again later.
POST CONDITIONS	An email is sent to the lecturer

UC_14-UC_14 Contacting the lecturer

Name	Download student's certificate
Summary	The manager sees if the student completed the course successfully and provides the certificate for each.
Actor	Manager
Description	The manager wants to give the certificate to the student will first log in and then check if the course is ongoing or completed for him to decide to whom he will give the certificate
Precondition	He should be logged in and the course should be completed
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page.
Post Condition	The student's certificate is confirmed and the student can take it physically.

UC_15-US_15 Download student's certificate

Name	View statistics
Summary	The manager can view the statistics of the whole process
Actor	Manager
Description	The manager logs in and in his default page he can immediately see all the statistics of the center
Precondition	The manager should be logged in
Alternatives	The manager can view different statistics
Post Condition	The manager views statistics and decides any improvement should be taken or not

UC_16-US_16 View statistics

Name	Leave feedback.
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Summary	The student can leave feedback for any course they are signed in.
Actor	Student
Description	After the student logs in he/she enters the course and leaves feedback at the specified section.
Precondition	The student should be logged in and should be enrolled in the course that he wants to leave the feedback.
Alternatives	The student can assign a grade or leave a comment.
Post Condition	The feedback helps the manager to improve the course.

UC_17 – US_17 - Leave Feedback

Name	User logs out
Summary	After finishing his/her activity the user can log out.
Actor	Receptionist, lecturer, student
Description	First the user is logged in than he finishes his/her activity there and then find the log out button and just clicks there
Preconditions	The user must be logged in
Alternatives	The user can log out at any moment
Post Condition	The user has logged out and is no longer using his account.

UC_18-US_18 User logs out

NAME	Open new call
SUMMARY	The manager can open a new call for a new course in which students can enroll.
ACTOR	Manager
DESCRIPTION	The manager clicks on Open Calls in his profile and adds a new call by filling a form with the call specifications. After submitting the form, the call will be displayed in his Open Calls sections, where he can “activate” them.
PRECONDITION	Must have a manager role Must be logged in in his profile.
ALTERNATIVES	Only the manager can open a new call. Only after a call is open, students can start applying.

POST CONDITIONS	A new call is opened
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UC_19-UC_19 Open new call

Name	Edit call
Summary	After opening a call the manager has the option to edit specifications in the call.
Actor	Manager
Description	In the open calls section, all open calls are displayed. The manager has the option to edit and make changes in a call, by clicking the “Edit call” button. A form with call specs will be displayed where the manager can perform changes and resubmit the form.
Precondition	Must have a manager role Must be logged in in his profile.
Alternatives	The manager can delete his call and create a new one.
Post Condition	A call is edited

UC_20-US_20 Edit call

Name	Delete call
Summary	After opening a call the manager has the option to delete the call if it is not needed anymore.
Actor	Manager
Description	In the open calls section, all open calls are displayed. The manager has the option to delete a call, by clicking the “Delete call” button. A confirmation message will pop up to confirm deletion.
Precondition	Must have a manager role Must be logged in in his profile.
Alternatives	A manager can use this call as a template for a second reopening of the call.
Post Condition	A call is deleted

UC_21-US_21Delete call

Name	Create new course
Summary	The manager can create a new course in which students can register.
Actor	Manager
Description	The manager logs in in his profile and adds a new course by filling a form with the course specifications, including the lecturer and the assigned students. After submitting the form, the course will be created and displayed on the Ongoing courses section in his profile.
Precondition	Must have a manager role Must be logged in in his profile.
Alternatives	No alternative
Post Condition	A new course with lecturer and students is created

UC_22-US_22 Create new course

Name	Edit course
Summary	The manager can edit an ongoing course if some information needs to be changed.
Actor	Manager
Description	The manager logs in in his profile and goes to the Ongoing courses section, where a table with all ongoing courses is displayed. He clicks the edit button on the course record he wants to edit. A form where he can make changes pops up and after the necessary changes are made he submits the form.
Preconditions	Must have a manager role Must be logged in in his profile.
Alternatives	If a lot of info is incorrect, the manager can delete it and create another one.
Post Condition	A course will be edited.

UC_23-US_23 Edit course

Name	Delete course
Summary	The manager can edit an ongoing or completed course if it is not needed anymore.
Actor	Manager

Description	The manager logs in in his profile and goes to the Ongoing or Completed courses section, where a table with all courses is displayed. He clicks the delete button on the course record he wants to remove. A confirmation message will pop up to confirm deletion.
Preconditions	Must have a manager role Must be logged in in his profile.
Alternatives	The curse has a status activity which allows the course to be hidden, not literally deleted. This status can be reversed.
Post Condition	A course will be deleted.

UC_24-US_24Delete course

Name	Create new group from call
Summary	The manager can create a new group for a course directly from the open call.
Actor	Manager
Description	Manager logs in, navigates to “Open Calls” and clicks on the call from which they want to create a group. Then they might check the students and other info about the call and click on the “Create group” button.
Precondition	You should be logged in as a manager. Other users will not have this right. Also, we should have at least one open call to be able to do this.
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the manager is allowed to make the necessary changes again.
Post Condition	The new group has been created while the open call has been deleted.

UC_25 – US_25 - Create new group from call

Name	Create new group
Summary	The manager can create a new group for a course from scratch.
Actor	Manager
Description	Manager logs in, navigates to “Courses” and clicks on the “Add Course” button. Then they fill in all the information needed to create a new course group and click on the “Post” button.

Precondition	You should be logged in as a manager. Other users will not have this right. Also, we should have our needed professor registered.
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the manager is allowed to make the necessary changes again.
Post Condition	A new course group has been created.

UC_26 – US_26 - Create new group

Name	Add a student to an existing course
Summary	Manager can add a new student to an already ongoing course group.
Actor	Manager
Description	Manager logs in and navigates to “Courses” and clicks the “Add Student”. Then they fill in the students information as well as selecting the course name in which to add the student. Finally press “Add”.
Precondition	You should be logged in as a manager. Other users will not have this right. Also, we should have at least one ongoing course to be able to do this.
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the manager is allowed to make the necessary changes again.
Post Condition	The new student has been added to the course group.

UC_27 – US_27 - Add a student to an existing course

Name	Manage the students payments
Summary	Manager has access to students payments for all ongoing courses.
Actor	Manager
Description	Manager logs in, navigates to “Courses” and clicks on “Ongoing Courses”. After that, he clicks the “Check Payment” button for the specific course that they want to check. Then all the information about the students' payments

	for that course will be displayed in the form of checkboxes representing each monthly payment. By ticking a checkbox you confirm that the specific payment has been made, working like a tracker. On the side there is a "Freeze Student" button that is pressed whenever the manager sees fit, specifically when a number of required payments is missing from that student. A confirmation window appears.
Precondition	You should be logged in as a manager. Other users will not have this right. Also, at least one course should be active.
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page.
Post Condition	The payment is accessible information by the manager.

UC_28 – US_28 - Manage the students payments

Name	Add a new lecturer user
Summary	Manager can create a new user in the role of a lecturer.
Actor	Manager
Description	Manager logs in, navigates to "Lecturers" in navbar. After that, they click on the "Add Professor" button. Then they fill in all the required information, including a pdf format copy of the contract they have signed.
Precondition	You should be logged in as a manager.
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the manager is allowed to make the necessary changes again.
Post Condition	New lecturer has been added to the system.

UC_29 – US_29 - Add a new lecturer user

Name	Update lecturer
Summary	Manager can update the personal information of a lecturer.
Actor	Manager
Description	Manager logs in, navigates to "lecturers" and searches for a lecturer. After that, he clicks the "Show Profile" button for that specific lecturer that was the result of the search. Then he clicks the "Update" button and can change any of the personal information and at the end confirms by clicking the "Done" button.

Precondition	You should be logged in as a manager. Other users will not have this right. Also, the lecturer should exist in the database in order to make the changes
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the manager is allowed to make the necessary changes again.
Post Condition	Lecturer's personal information has been updated.

UC_30 – US_30 - Update lecturer

Name	Delete lecturer
Summary	Manager can delete an existing lecturer of the learning center.
Actor	Manager
Description	Manager logs in, navigates to “lecturers” and searches for a lecturer. After that, he clicks the “Show Profile” button for that specific lecturer that was the result of the search. Then he clicks the “Delete” button. A pop up window will be used to confirm that this is what the manager wants to do.
Precondition	You should be logged in as a manager. Other users will not have this right. Also, the lecturer should exist in the database in order to delete his/her account.
Alternatives	If the manager is sure he/she should press YES to delete that user, if not then he/she should press NO and go back to the previous page.
Post Condition	The lecturer is deleted from the database.

UC_31 – US_31 - Delete lecturer

Name	List of ongoing/completed group
Summary	Access the list of ongoing/completed groups of the learning center.
Actor	Manager
Description	Manager logs in and then navigates to “Groups” to access the list of ongoing and completed groups.
Precondition	To access these lists you should be logged in as Manager. Other users have no access to these lists.
Alternatives	Manager can view the whole list of the groups of the learning center. He/She can edit, delete and extract data from these lists.

Post Condition	Two tables with the list of ongoing and completed groups are shown.
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UC_32 – US_32 - List of ongoing/completed groups

Name	Update an existing group
Summary	Manager can update the data of an ongoing group.
Actor	Manager
Description	Manager logs in, navigates to “Groups” and searches for a group in the ongoing category. After that, he clicks the “Edit” button for that specific group that was the result of the search. Then he can change any of the data and at the end confirms by clicking the “Done” button.
Precondition	You should be logged in as a manager. Other users will not have this right. Also, the group should exist in the database in order to make the changes
Alternatives	If the manager is sure he/she should press YES to continue saving, if not then he/she should press NO and go back to the previous page. If when pressing YES, the validation of the fields is not successful, the manager is allowed to make the necessary changes again.
Post Condition	Ongoing group’s data has been updated.

UC_33 – US_33 - Update an existing group

Name	Delete an existing group
Summary	Manager can delete an existing group from the learning center.
Actor	Manager
Description	Manager logs in, navigates to “Groups” and searches for a group in an ongoing category. After that, he clicks the “Delete” button for that specific group that was the result of the search. A pop up window will be used to confirm that this is what the manager wants to do.
Precondition	You should be logged in as a manager. Other users will not have this right. Also, the lecturer should exist in the database in order to delete the group.
Alternatives	If the manager is sure he/she should press YES to delete that user, if not then he/she should press NO and go back to the previous page.

Post Condition	The group is deleted from the database.
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UC_34 – US_34 - Delete an existing group

Name	Post Timetable
Summary	Receptionist adds the timetable to the system
Actor	Receptionist
Description	Receptionist logs in and navigates to “Timetable”. Then he/she clicks the “Add timetable” button, uploads it and then clicks “Done” to confirm it.
Precondition	Receptionist should be logged in. Other users will not have this right.
Alternatives	After pressing “Done” a pop up window will be shown. If the receptionist is sure he/she should press YES to finish the process, if not then he/she should press NO and go back to the previous page.
Post Condition	The timetable is posted on the system of the learning center.

UC_35 – US_35 - Post timetable

Name	Apply in an open call
Summary	The student applies to enroll in a specific course.
Actor	Student
Description	Student logs in and navigates to “Apply”. Then he clicks “apply” to the specific course he wants to be enrolled in. If the quota is not reached , students can apply.
Precondition	Students should be registered in the database and logged in into his/hers account.
Alternatives	After pressing “Apply” a pop up window will be shown. If the student is sure he/she should press YES to finish the application, if not then he/she should press NO and go back to the previous page.
Post Condition	Course application is completed.

UC_36 – US_36 - Apply in an open call

Name	View all courses
Summary	Access the list of courses

Actor	Student
Description	Student logs in and navigates to “My courses” to access the list of all his courses (ongoing and completed).
Precondition	The student should be logged in.
Alternatives	The student can view the whole list of his courses. If there is no course registered yet, an informative message will be shown.
Post Condition	A list with the student’s courses will be shown.

UC_37 – US_37 - View all courses

Name	View course materials
Summary	Access the materials of a course.
Actor	Student
Description	Student logs in and navigates to “My courses” to access the list of all his courses (ongoing and completed). Then he/she clicks on the card of the specific course to access the content/materials of that course.
Precondition	The student should be logged in into his/hers account and enrolled on the specific course he wants to access.
Alternatives	The student can view all the materials of the course. If there is no material uploaded yet, an informative message will be shown.
Post Condition	The course materials will be shown.

UC_38 – US_38 - View course material

Name	View homepage
Summary	Every user will be able to see the homepage of this web application
Actor	Guest/Student/Receptionist/Lecturer/ Manager
Description	Everyone that visits this web page will be able to see the homepage. This page will be the default page for every user and they can also access it on the menu by clicking the homepage button.
Precondition	To see this web page they should search this page first.
Alternatives	Everyone can see the information displayed on the homepage.

Post Condition	The information will be shown in the structured form.
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UC_39-US-39 - View homepage.

Name	View all courses.
Summary	Every user will be able to see the courses of the learning center.
Actor	Guest/Student/Receptionist/Lecturer/ Menager
Description	Everyone that visits this web page will be able to see the courses. This page will be accessed by clicking the courses button.
Precondition	To see all courses they should search the web page and click on the courses button on the menu.
Alternatives	Everyone can see the courses and the information provided by the learning center.
Post Condition	If there are no courses there will be a message showing that there might be courses that will be open soon.

UC-40, US-40 View all courses.

Name	View all students.
Summary	The lecturer will be able to see a list of the students part of his group course.
Actor	Lecturer.
Description	The lecturer will be able to see the list of students that take this course with his group.
Precondition	To see the list of students the lecturer must be logged in the web application.
Alternatives	The lecturer will see the list of the students for the group of the course that he is teaching. If not students take his course then he won't be able to see the card of the course.
Post Condition	The information will be shown in the structured form.

UC-41, US-41 View all students.

Name	Post materials
Summary	The lecturer will be able to post materials for the course that he is teaching.

Actor	Lecturer.
Description	The teacher can send extra information or maybe the same material that he has explained through this section. He can add a description and he can also post a link to a google doc to where he will have all the info.
Precondition	To do this the lecturer should have logged in first.
Alternatives	He will have to fill in a form that is necessary for the material to be posted.
Post Condition	The information that he has posted and the week on which the materials belong to will be shown into the course material page.

UC-43, US-43 Posting materials.

Name	Student evaluation.
Summary	The lecturer can grade the student of the group course that he is teaching.
Actor	Lecturer
Description	The default status for a student is not satisfactory. The lecturer, depending on the performance of the student, he can change this status to a satisfactory one and evaluate them this way.
Precondition	To do this the teacher needs to be logged in on this web application.
Alternatives	If the lecturer is not teaching a course he won't be able to do this.
Post Condition	The status of the student will be changed.

UC-42, US-42 Student evaluation.

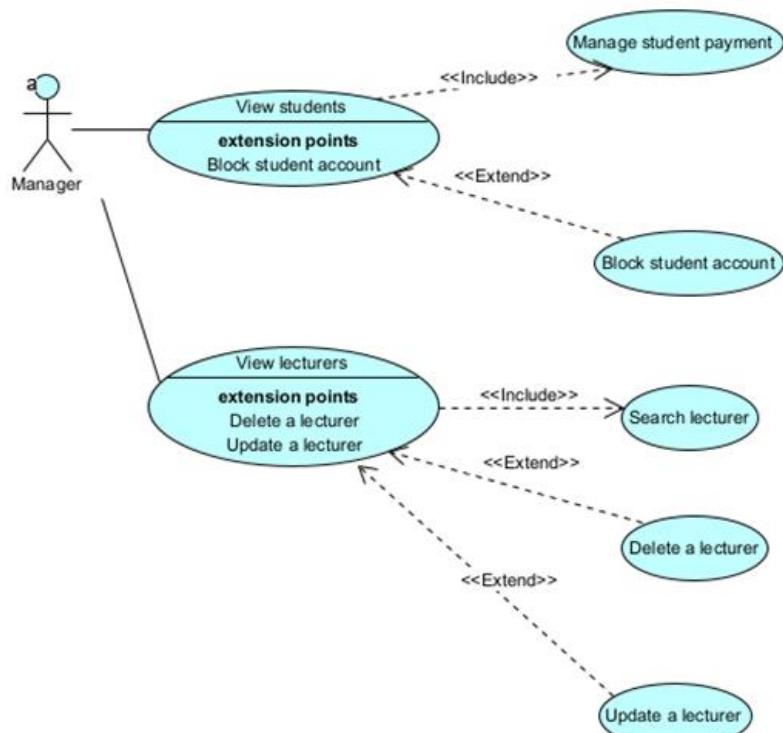
Name	Editing materials.
Summary	The lecturer will be able to edit the materials posted.
Actor	Lecturer.
Description	The lecturer for the posted material will be able to change something about them with the edit button.
Precondition	To do this the lecturer should be logged in and the materials should be posted.
Alternative	If the materials are not posted there will be nothing to be edited.
Post condition	The change will be visible to anyone.

UC-44,US-44 Editing materials.

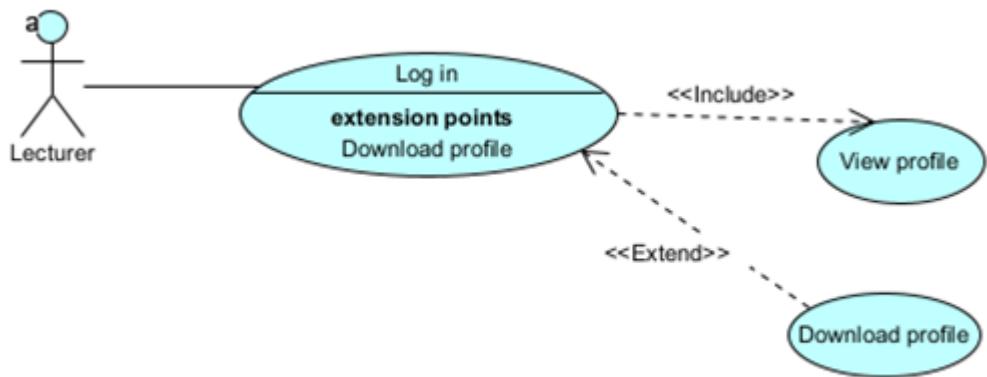
Name	Deleting materials.
Summary	The lecturer will be able to delete materials.
Actor	Lecturer.
Description	The lecturer will be able to delete an existing material with the button delete and this material will be deleted for everyone.
Precondition	The lecturer must be logged in on the web page and the material should be existing.
Alternative	If the material is not existing the delete button won't be there to be clicked.
Post condition	The deletion of the material will be visible to everyone that has access to that material.

UC-45,US-45 Deleting materials.

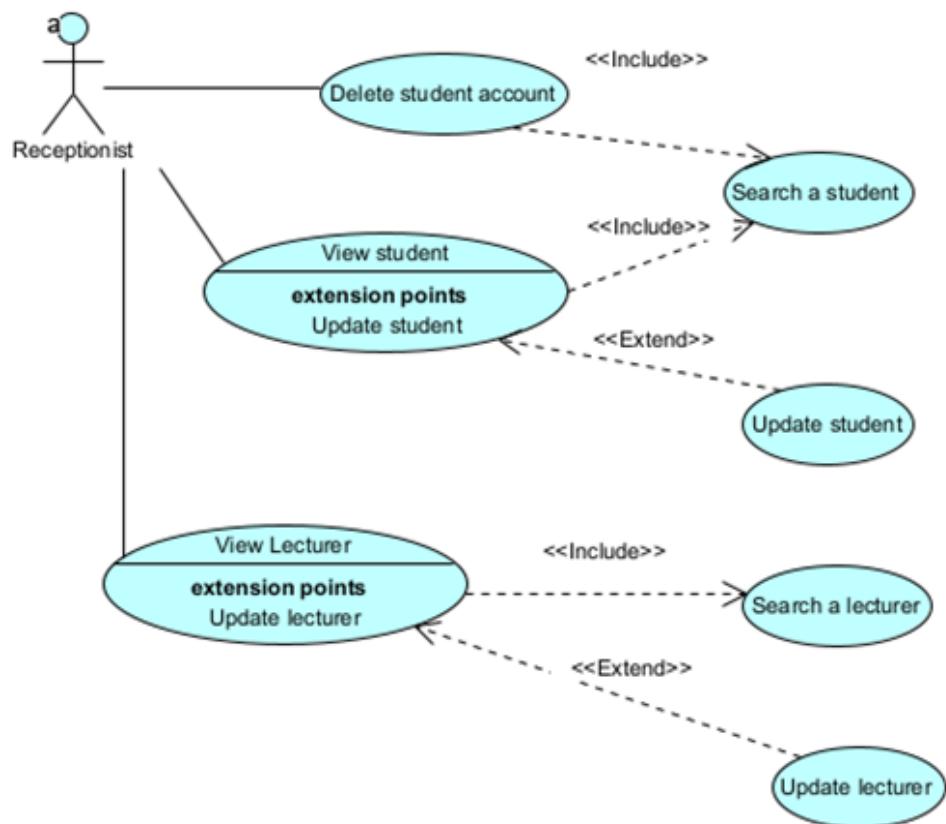
4.1.3 Case Diagram



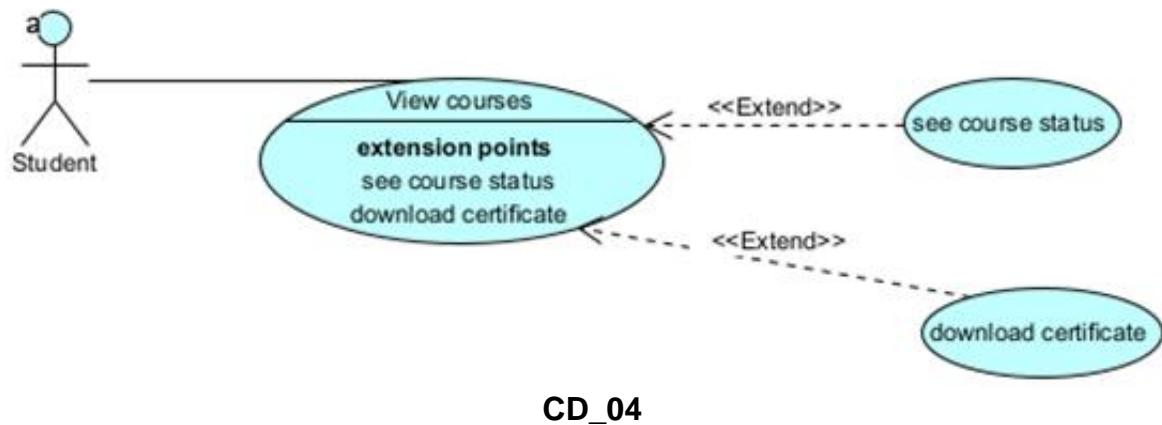
CD_01



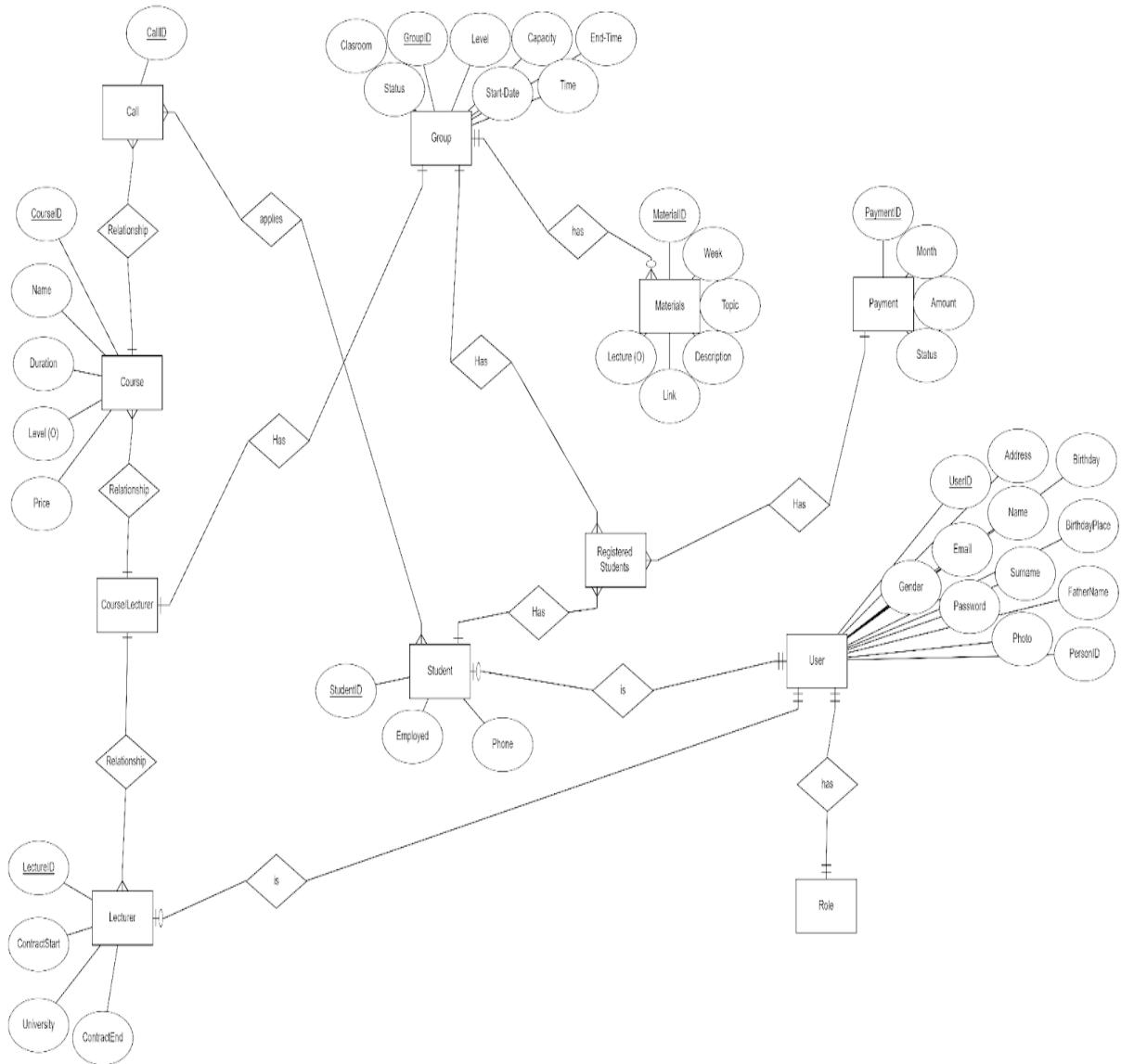
CD_02



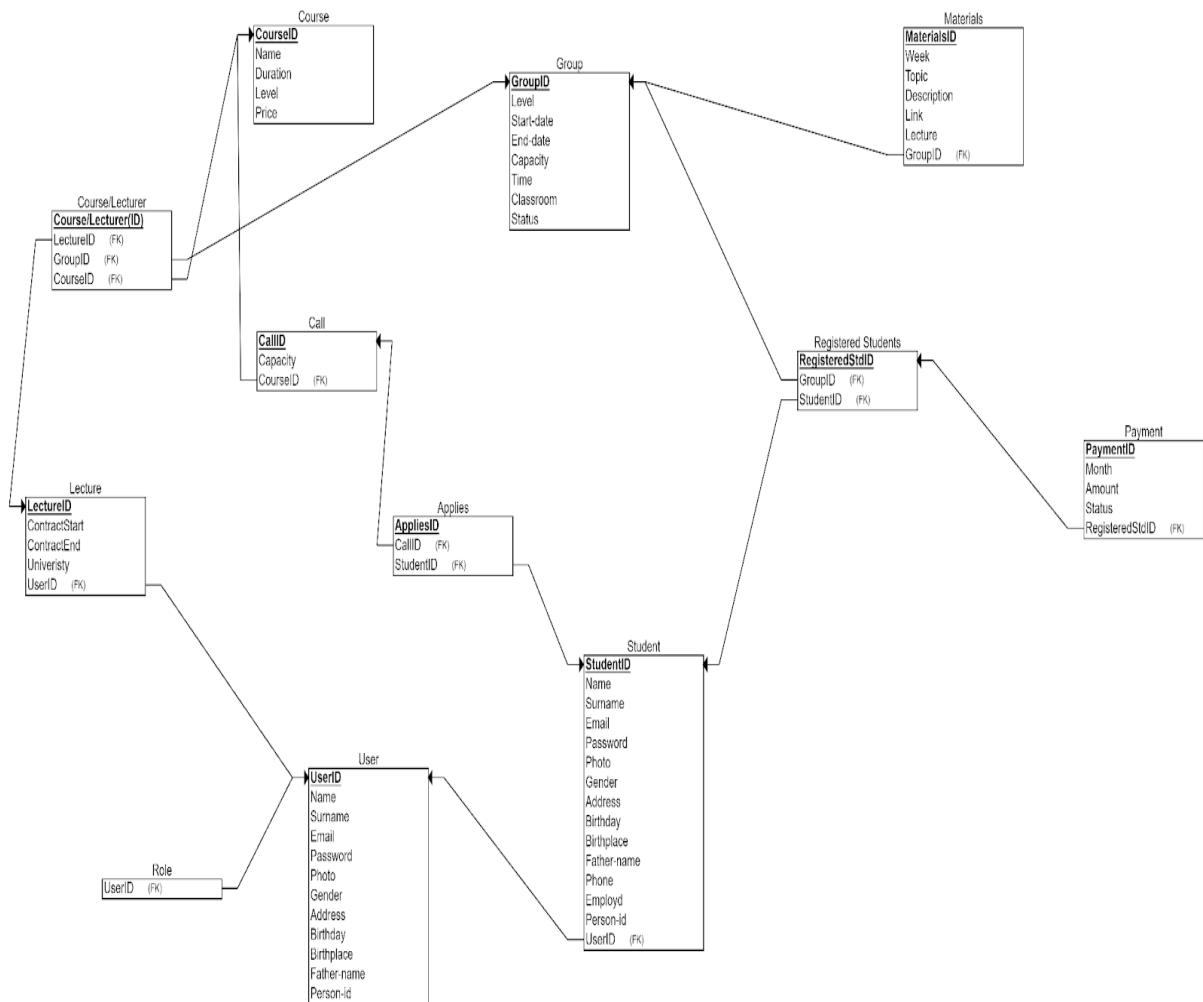
CD_03



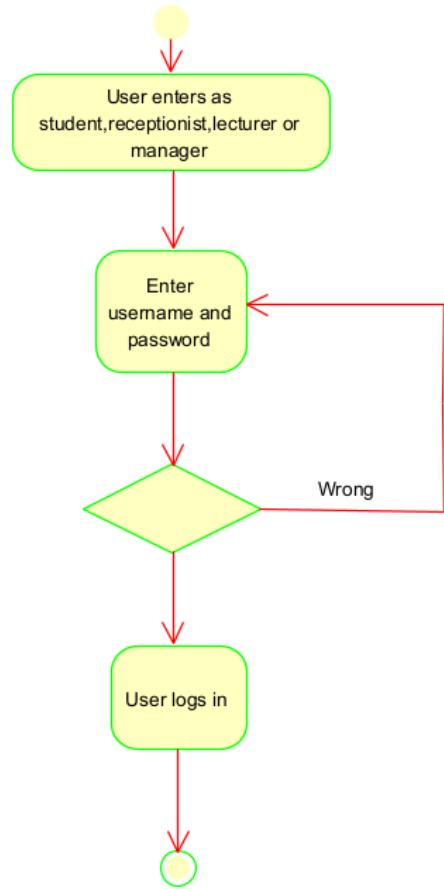
4.2.1 ERD



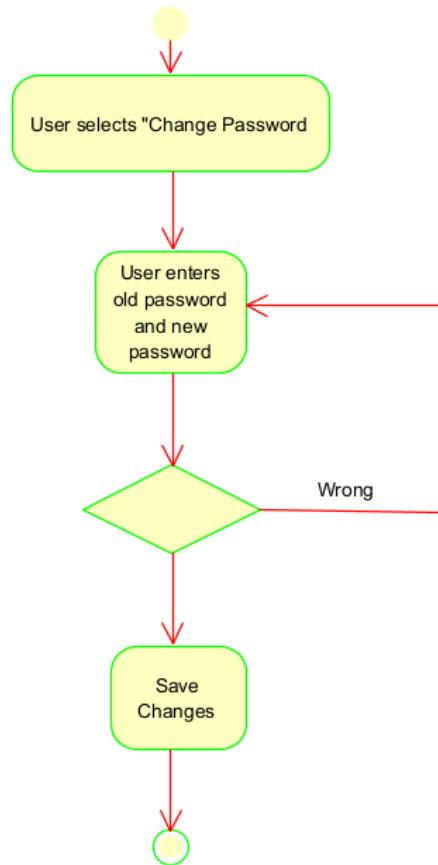
4.2.3 RS



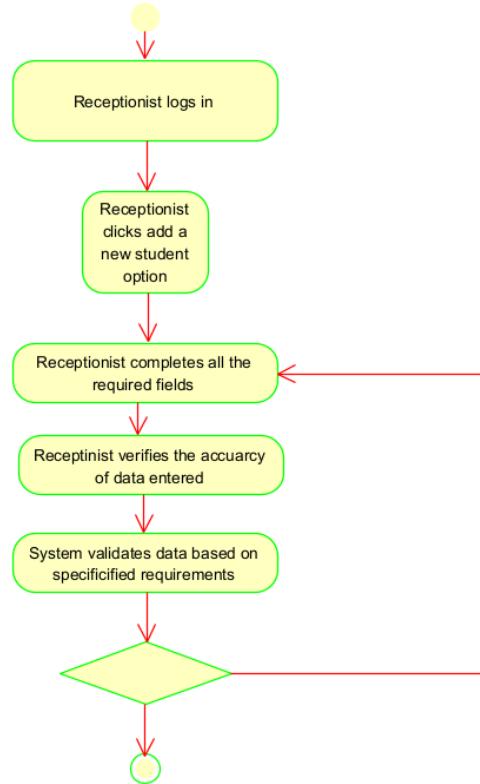
4.2.2 Activity Diagrams



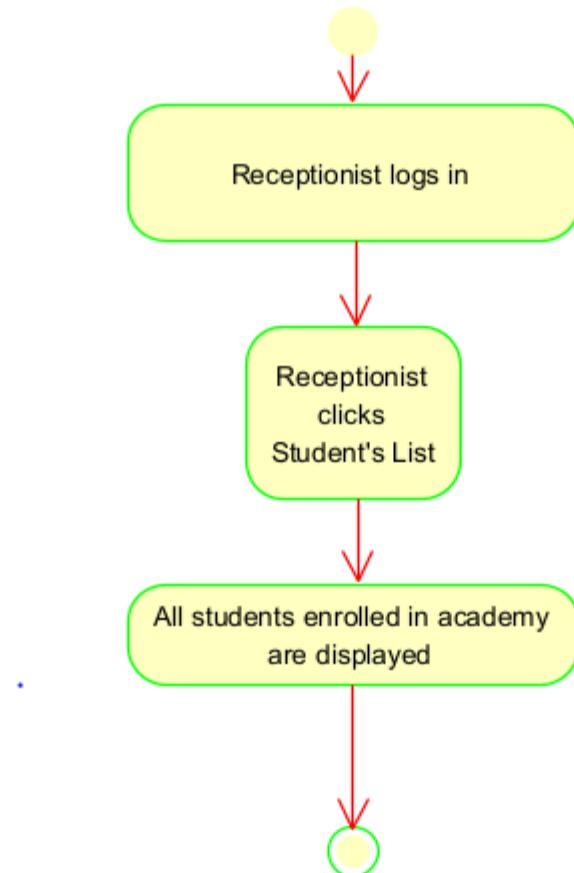
AD_01 – US_01 - User Logs In



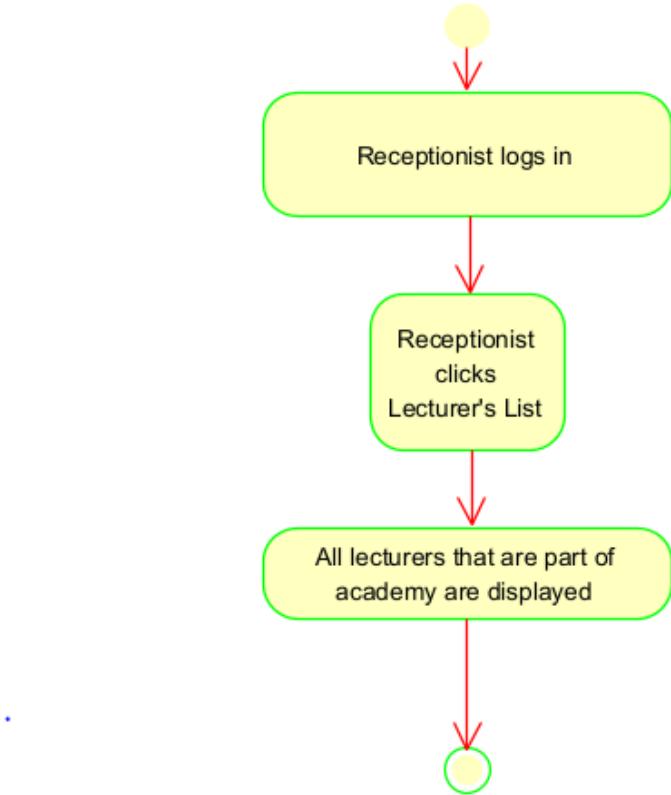
AD_02 – US_02 -Change Password



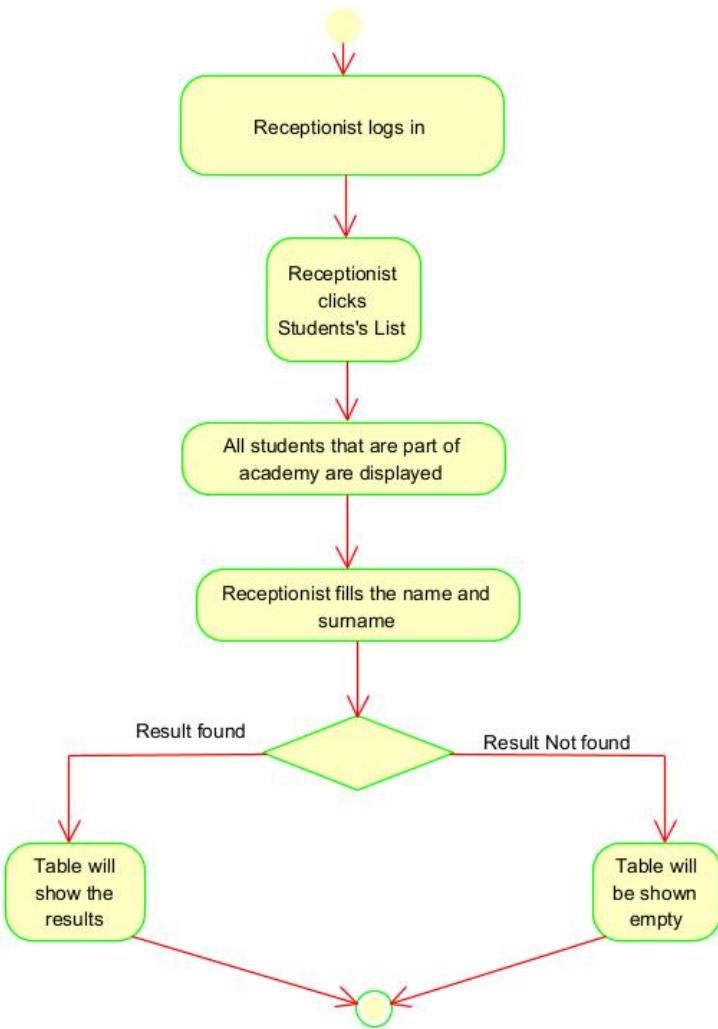
AD_03 – US_03 - Add a new student



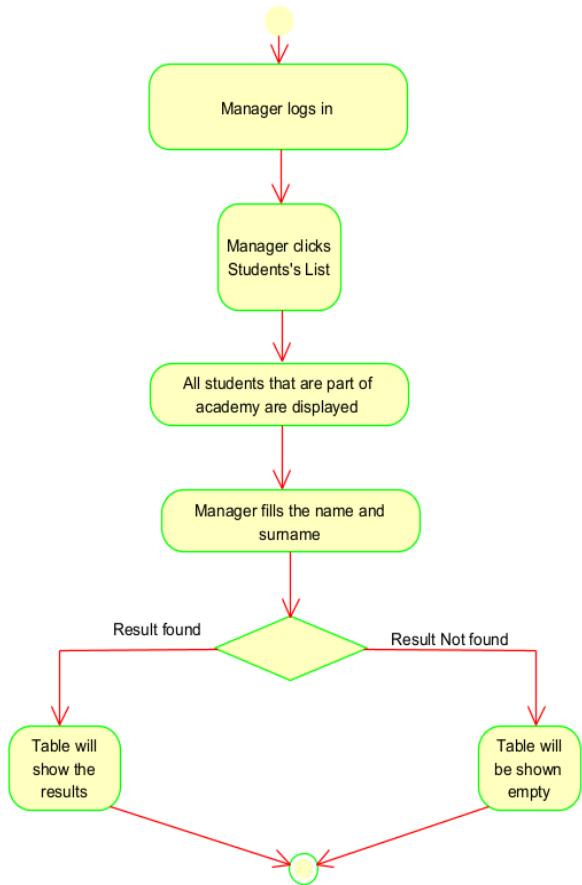
AD_04 – US_04 - Students List



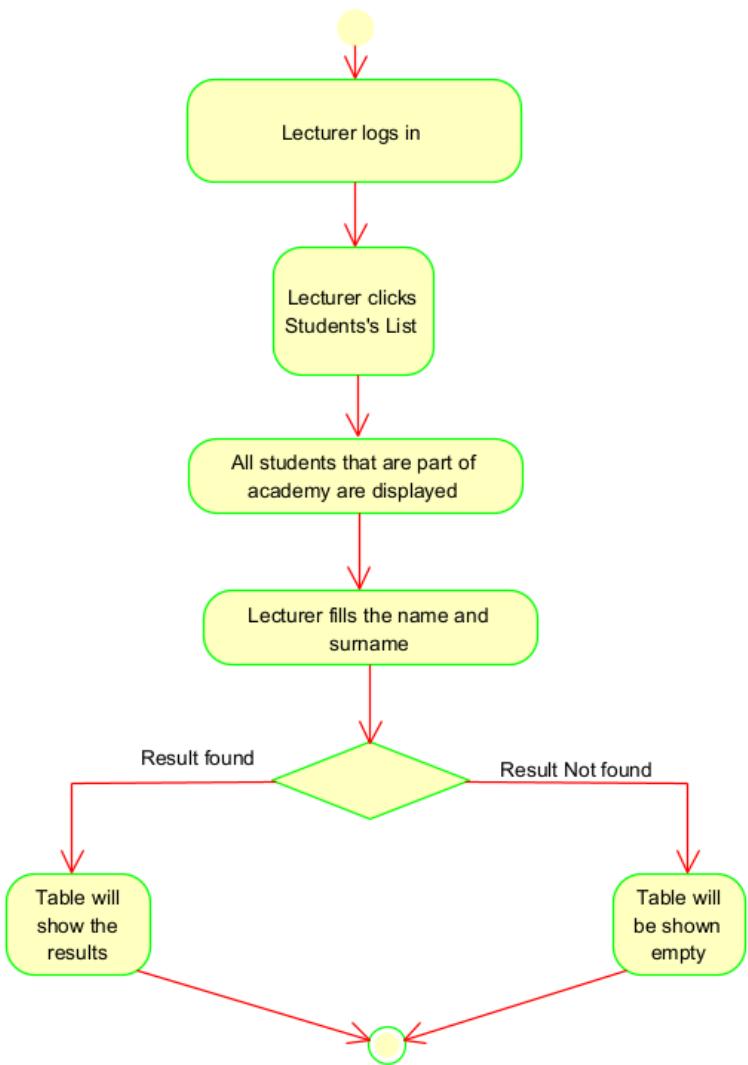
AD_05 – US_05 -Lecturers List



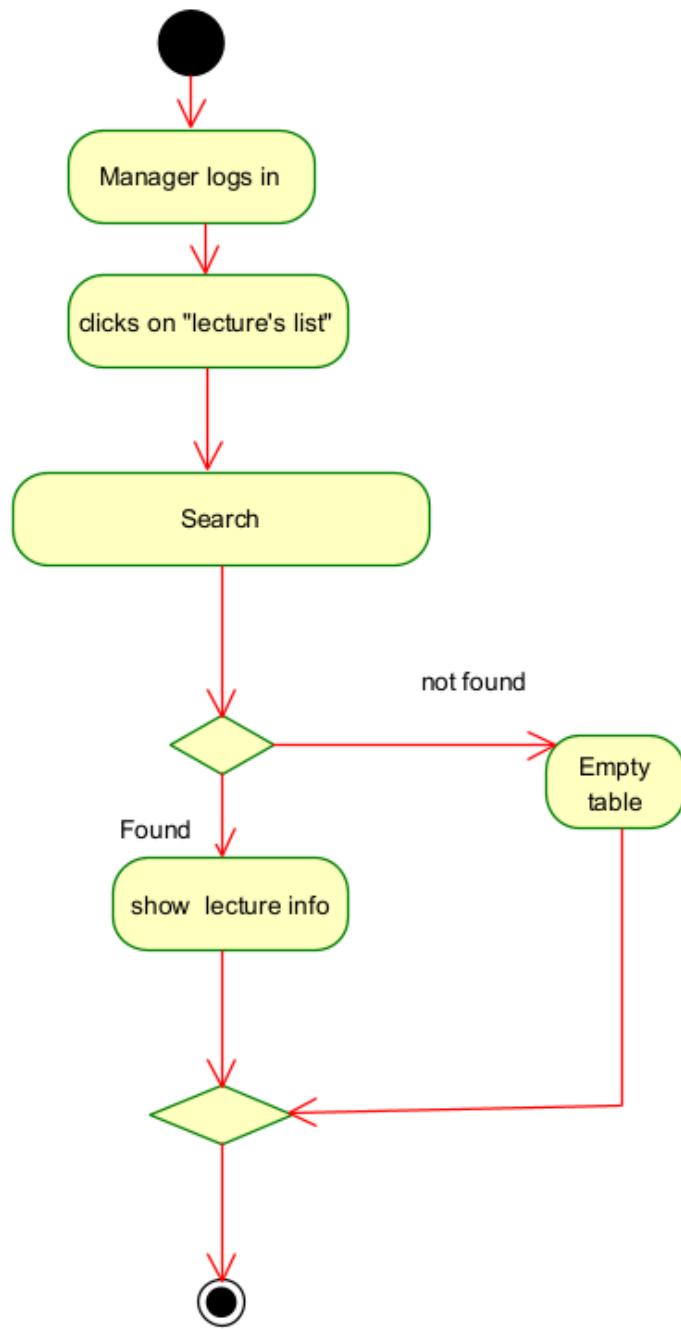
AD_06 – US_06 -Receptionist search student



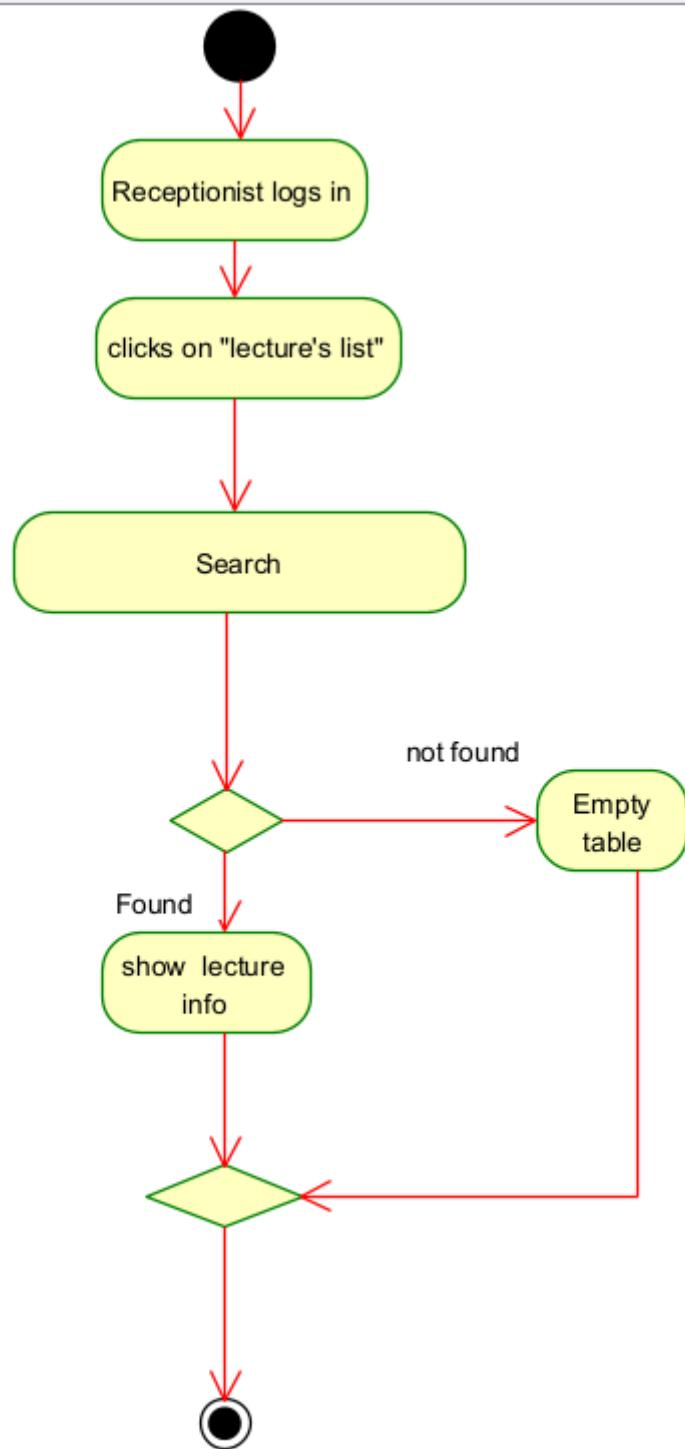
AD_06 – US_06 -Manager search student



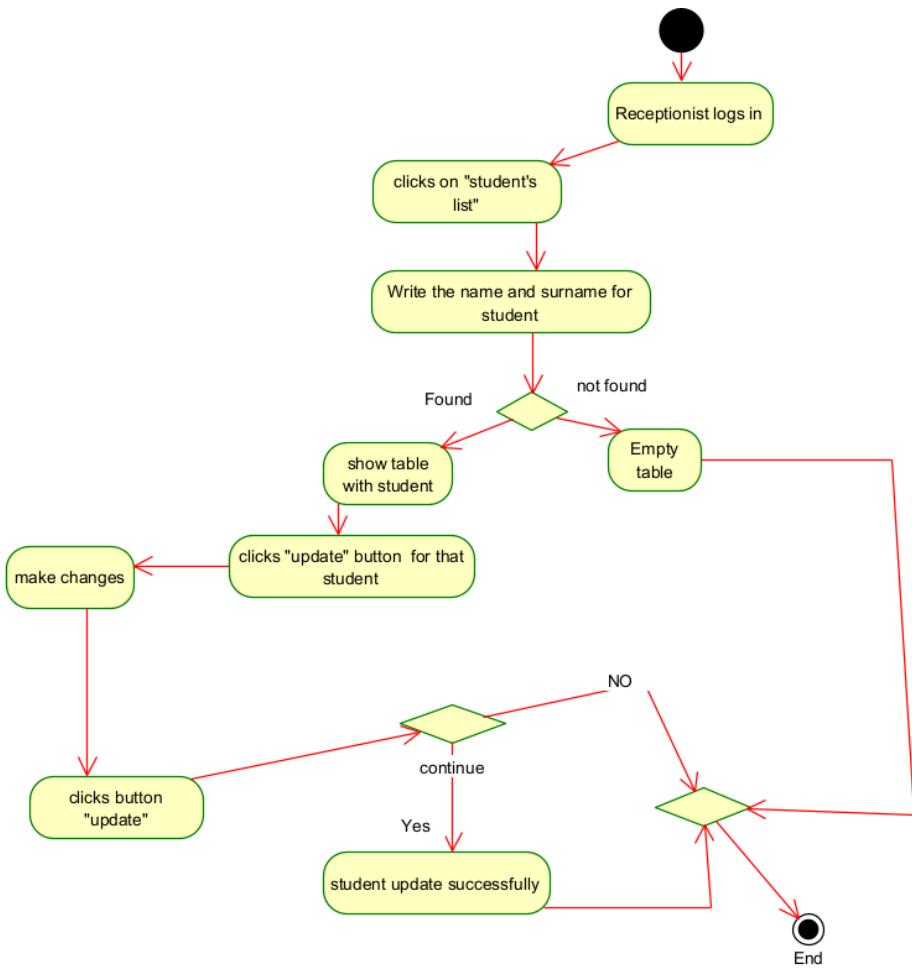
AD_06 – US_06 -Lecturer search student



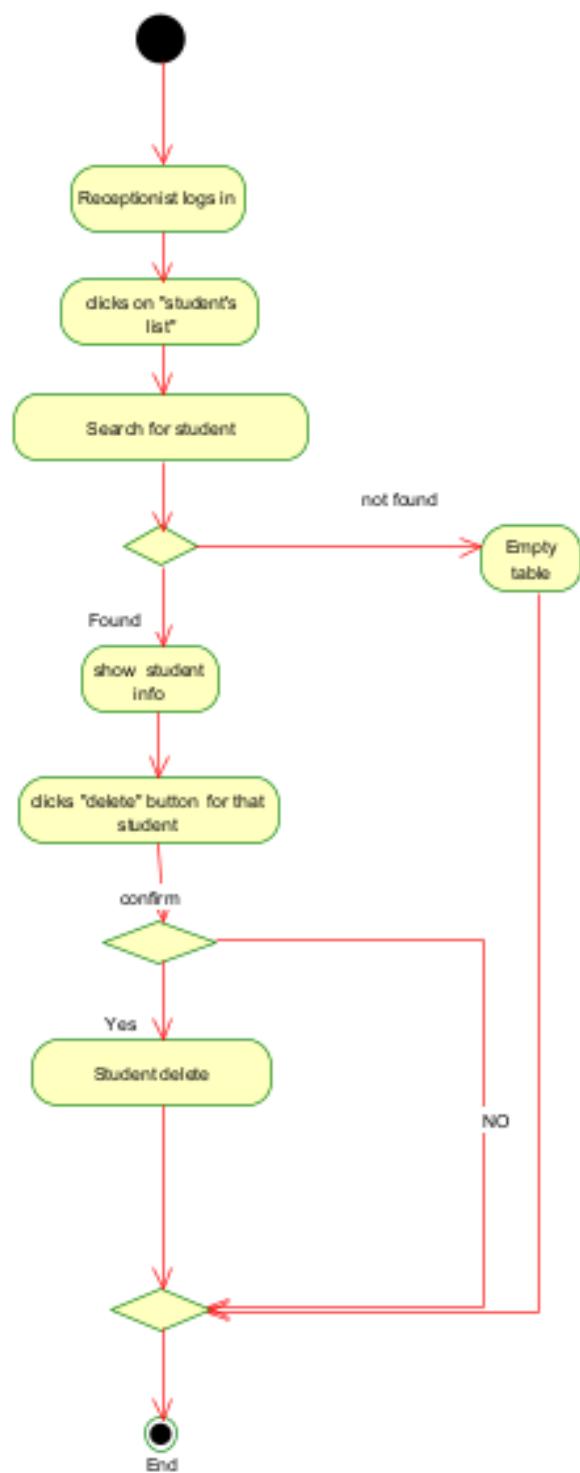
AD_07 – US_07 - Manager search Lecturers



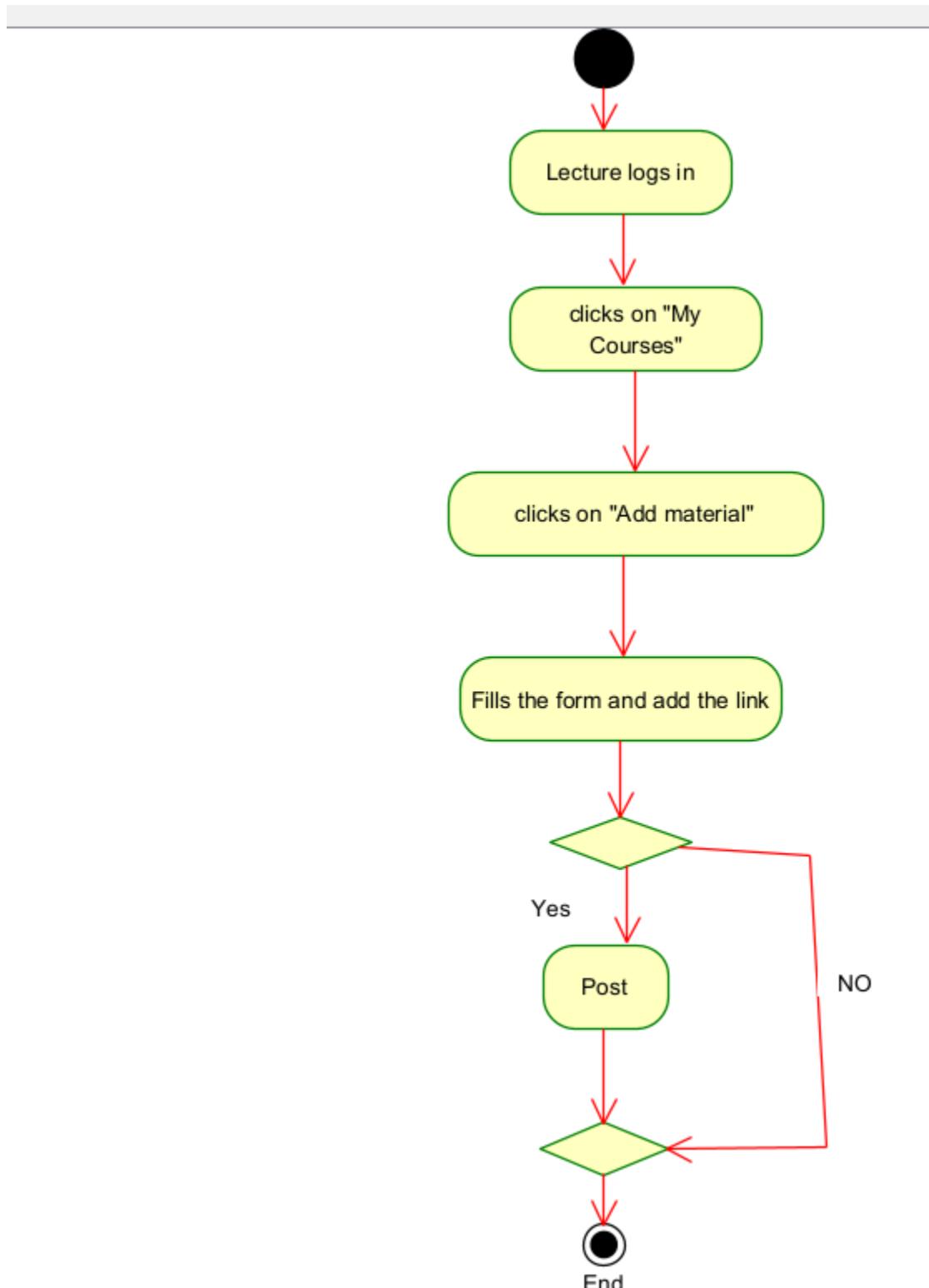
AD_07 – US_07 - Receptionist search Lecturers



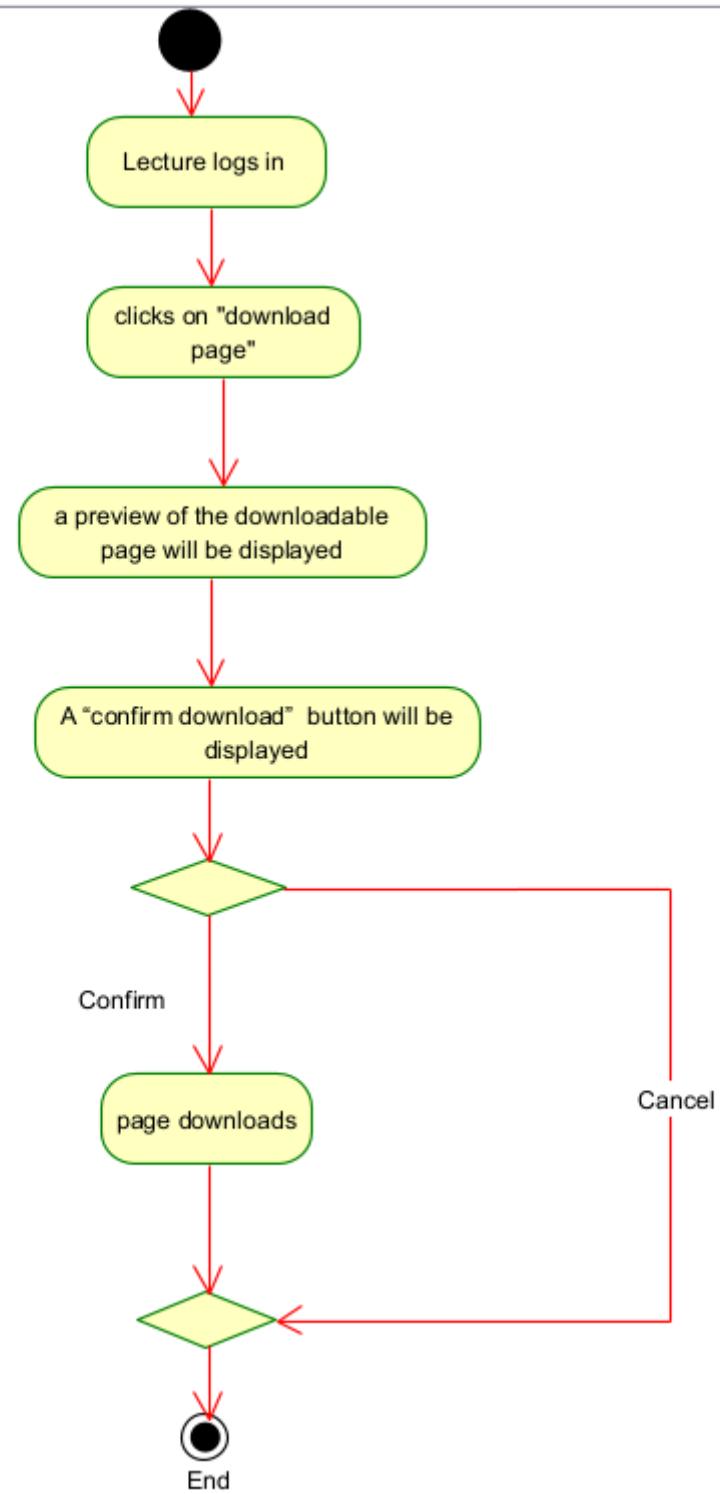
AD_08 – US_08 -Update student



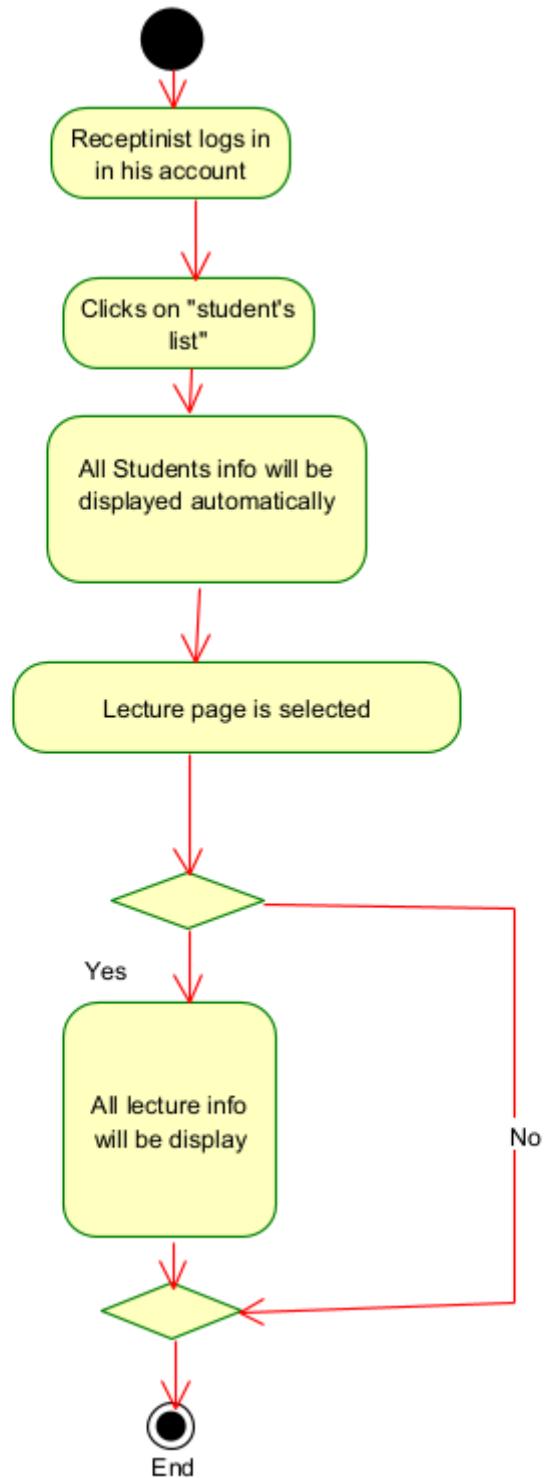
AD_09 – US_09 - Delete Student



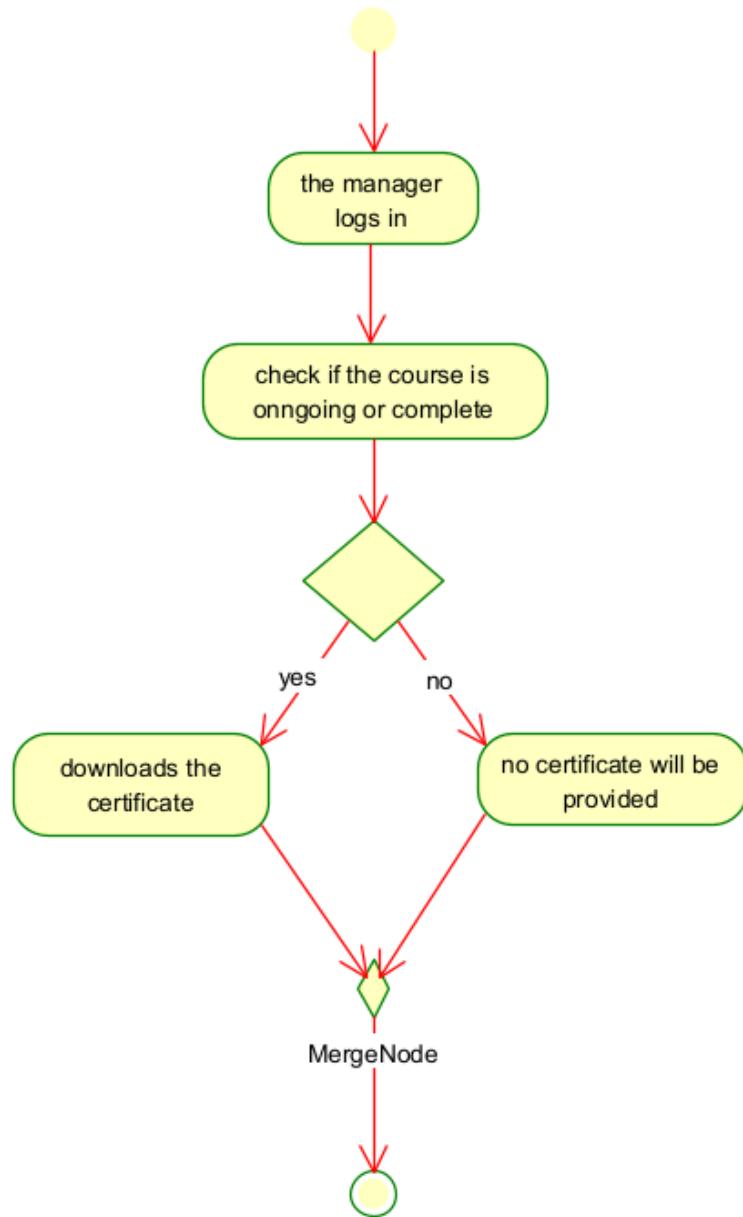
AD_10 – US_10-Uploading material



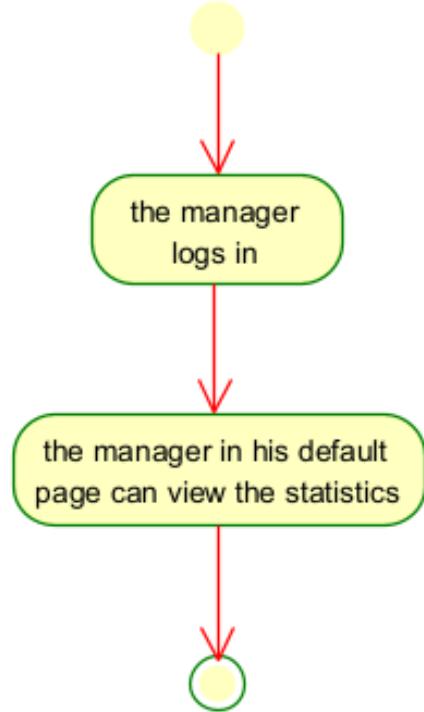
AD_11 – US_11 -Download profile



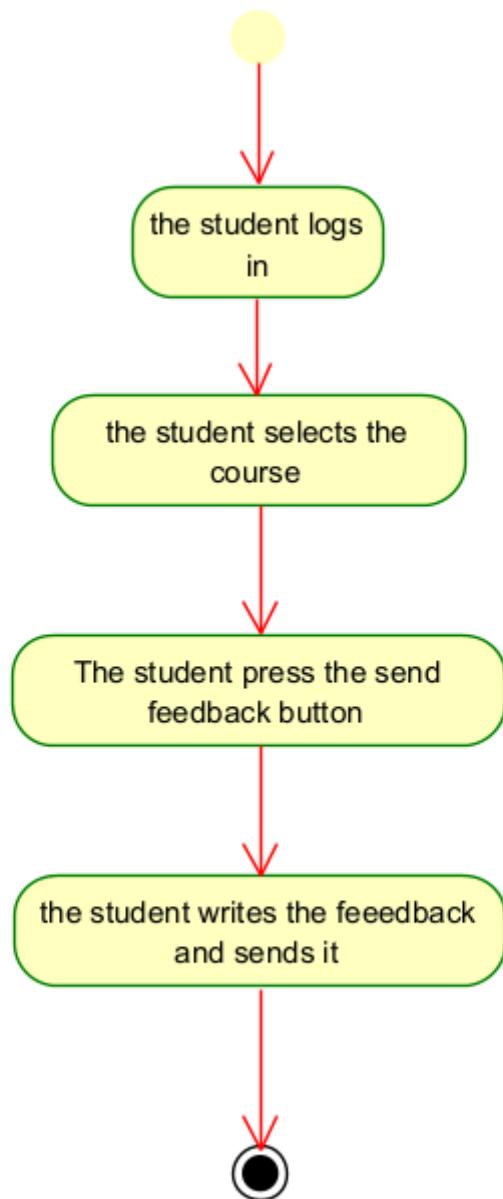
AD_12 – US_12 -View information



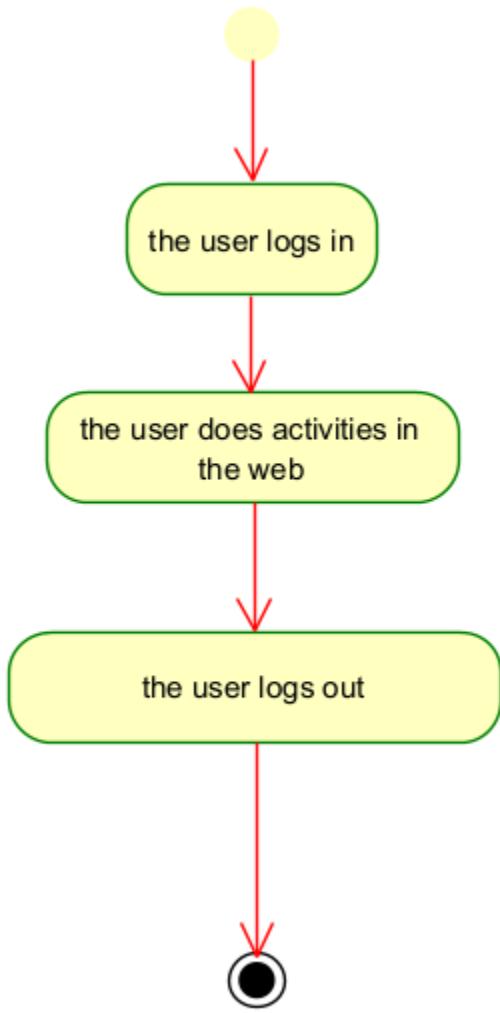
AD_15-UC_15 Download student's certificate



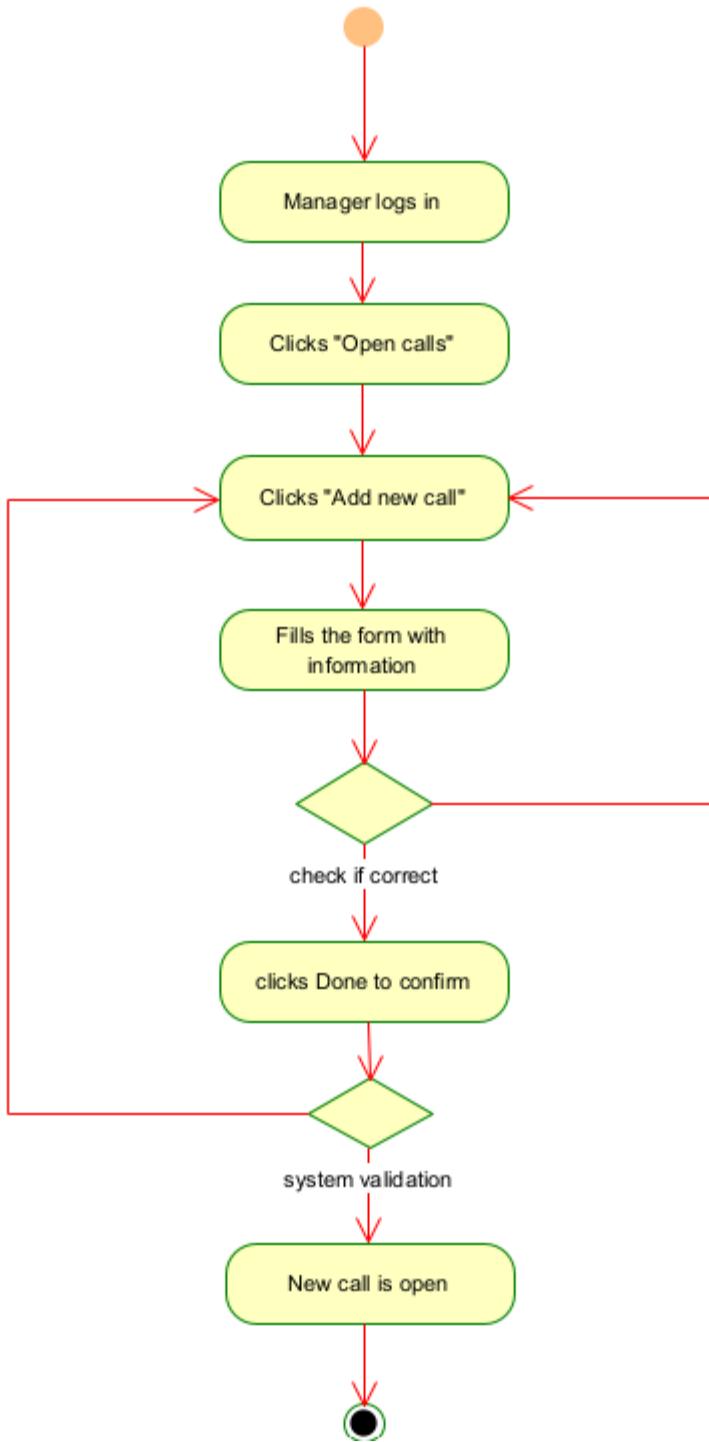
AD_16-US_16 View statistics

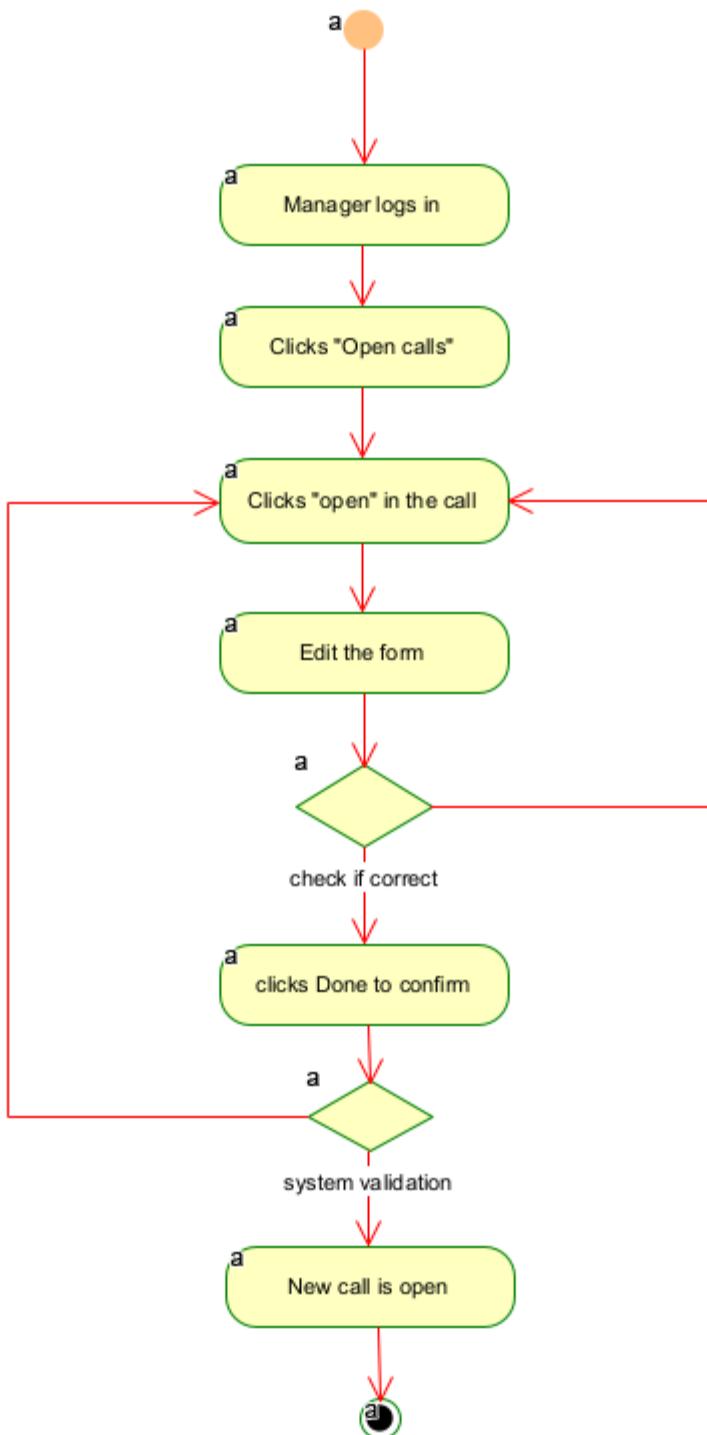


AD_17-UC_17 leave feedback

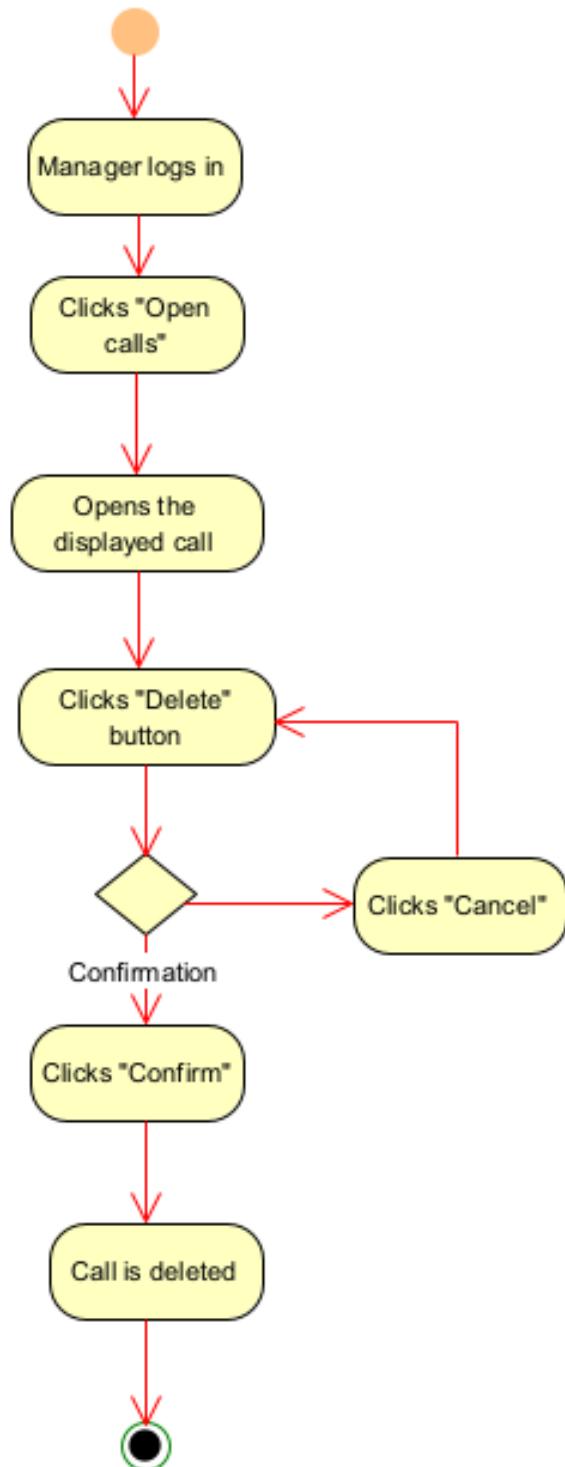


AD_18-UC_18 User logout

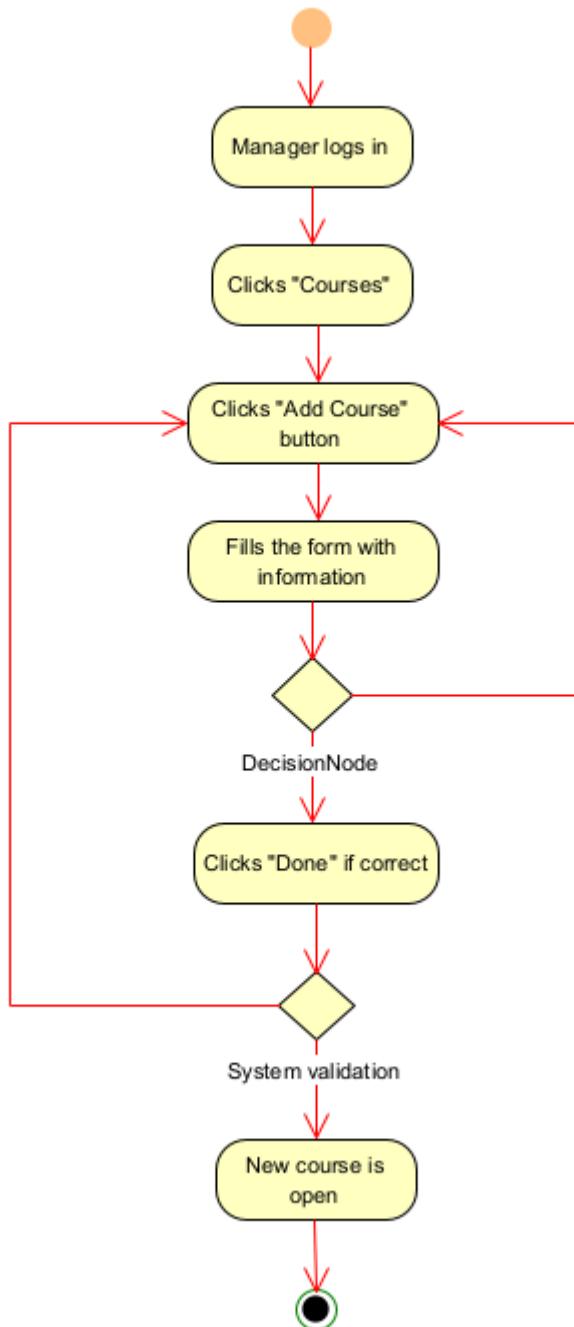




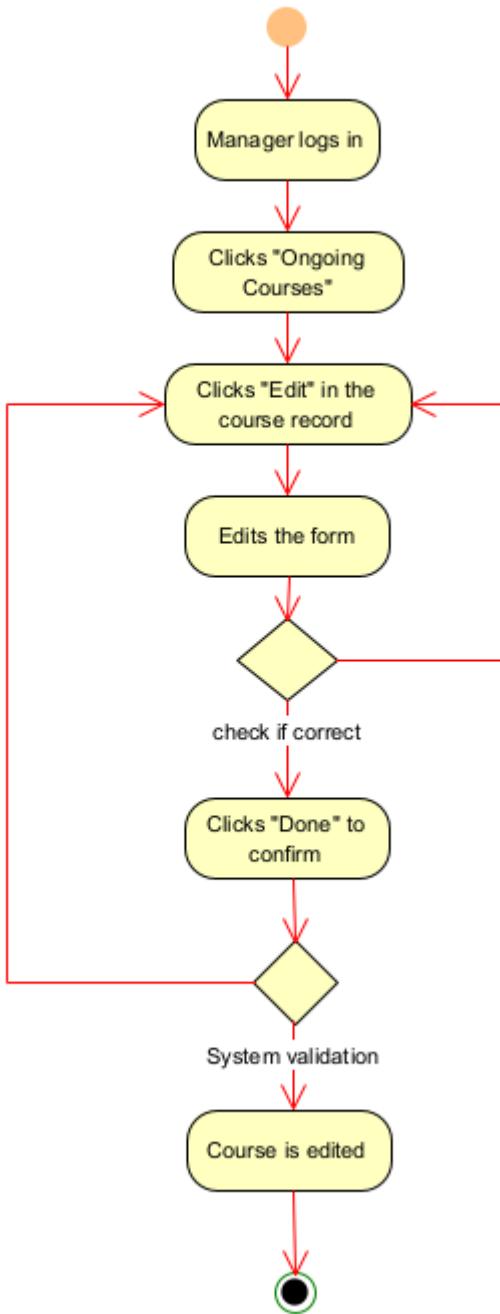
AD_20-UC_20 Edit call



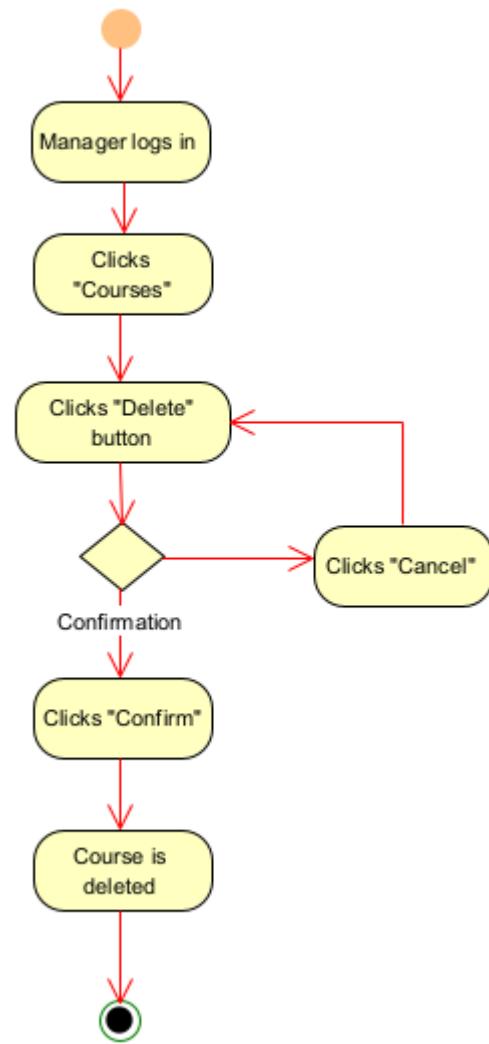
AD_21-UC_21 Delete call



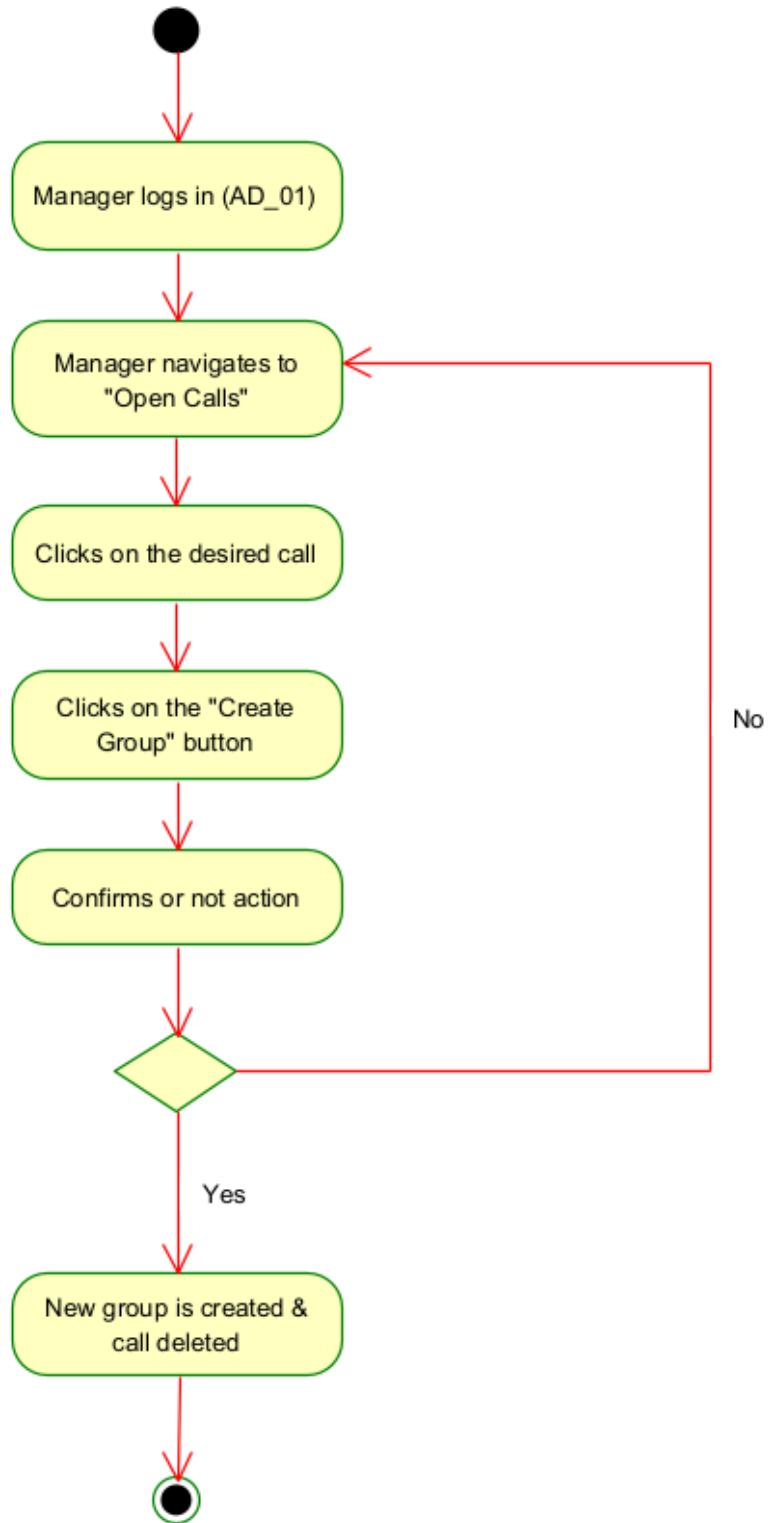
AD_22-UC_22 Create new course



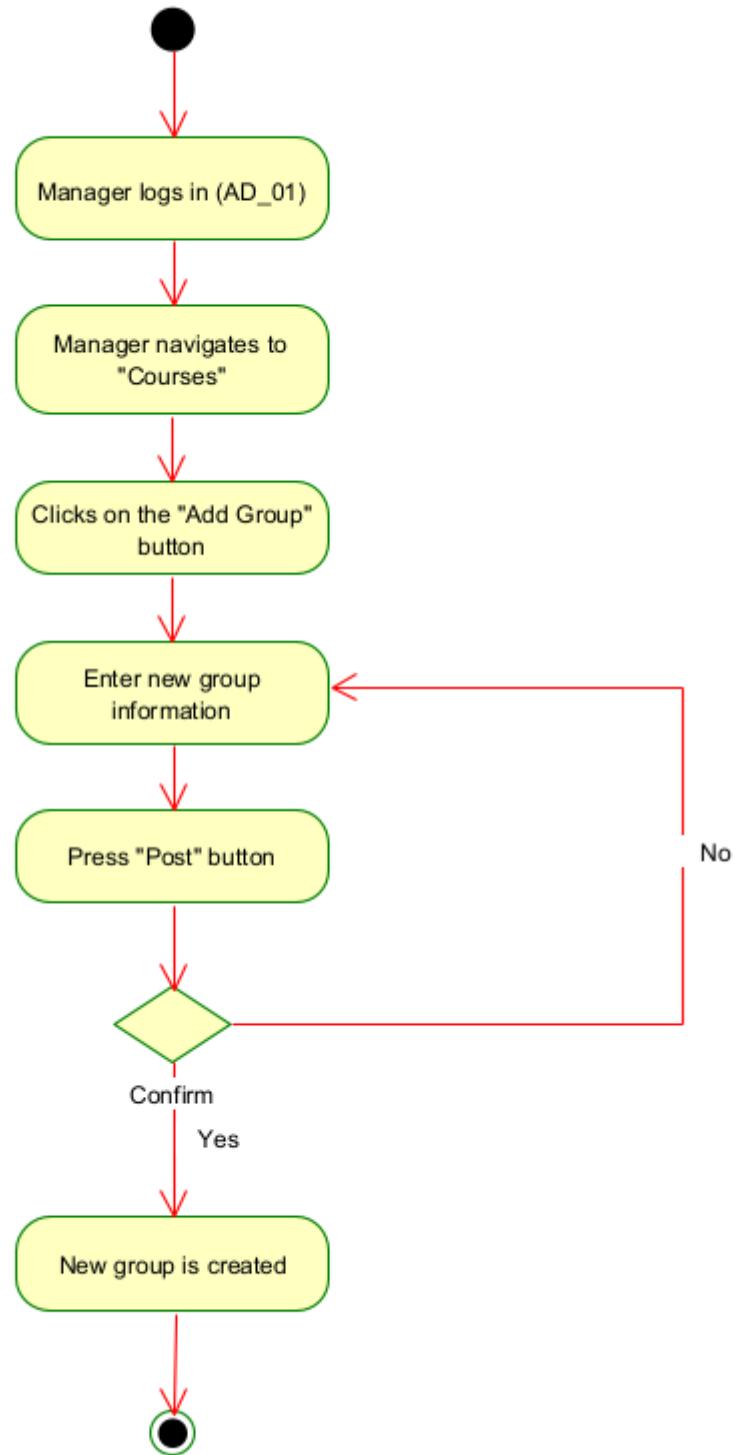
AD_23-UC_23 Edit Course



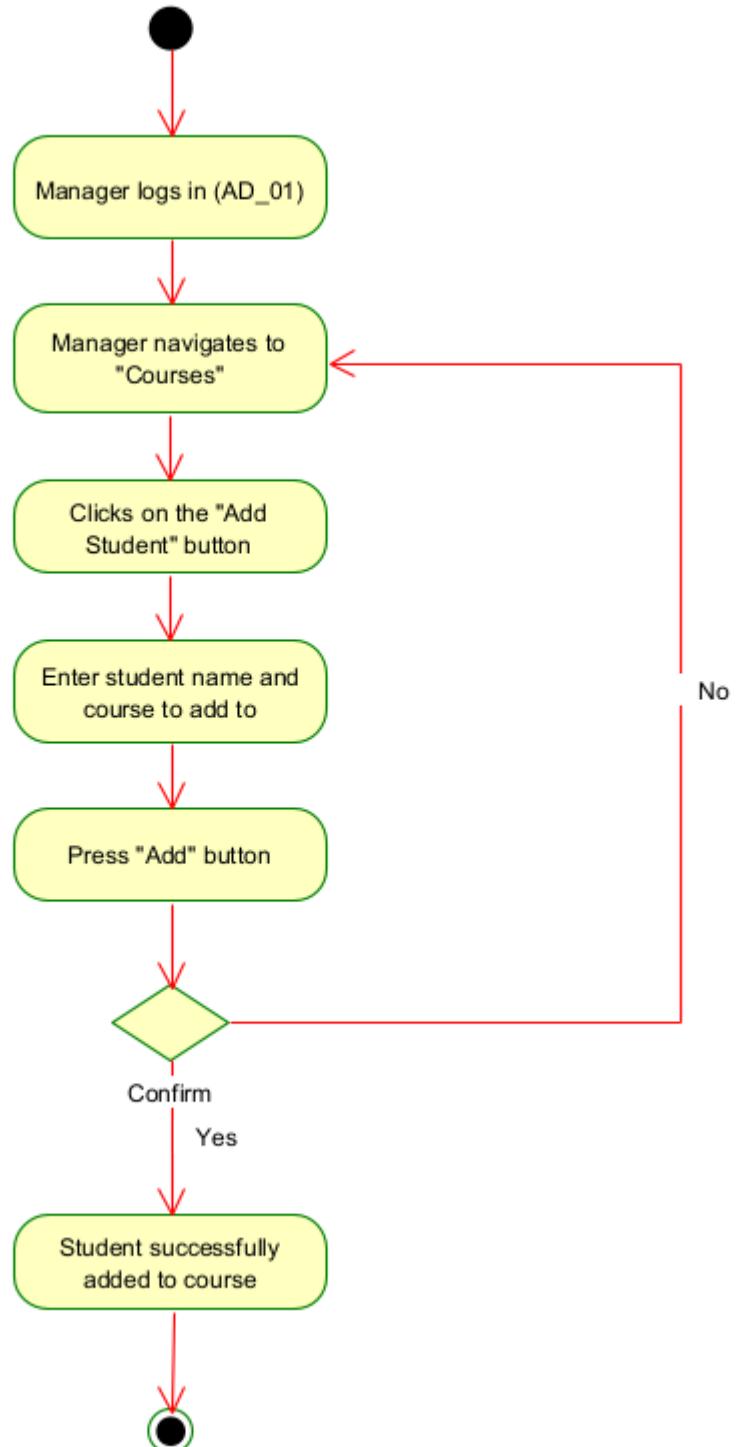
AD_24-UC_24 Delete Course



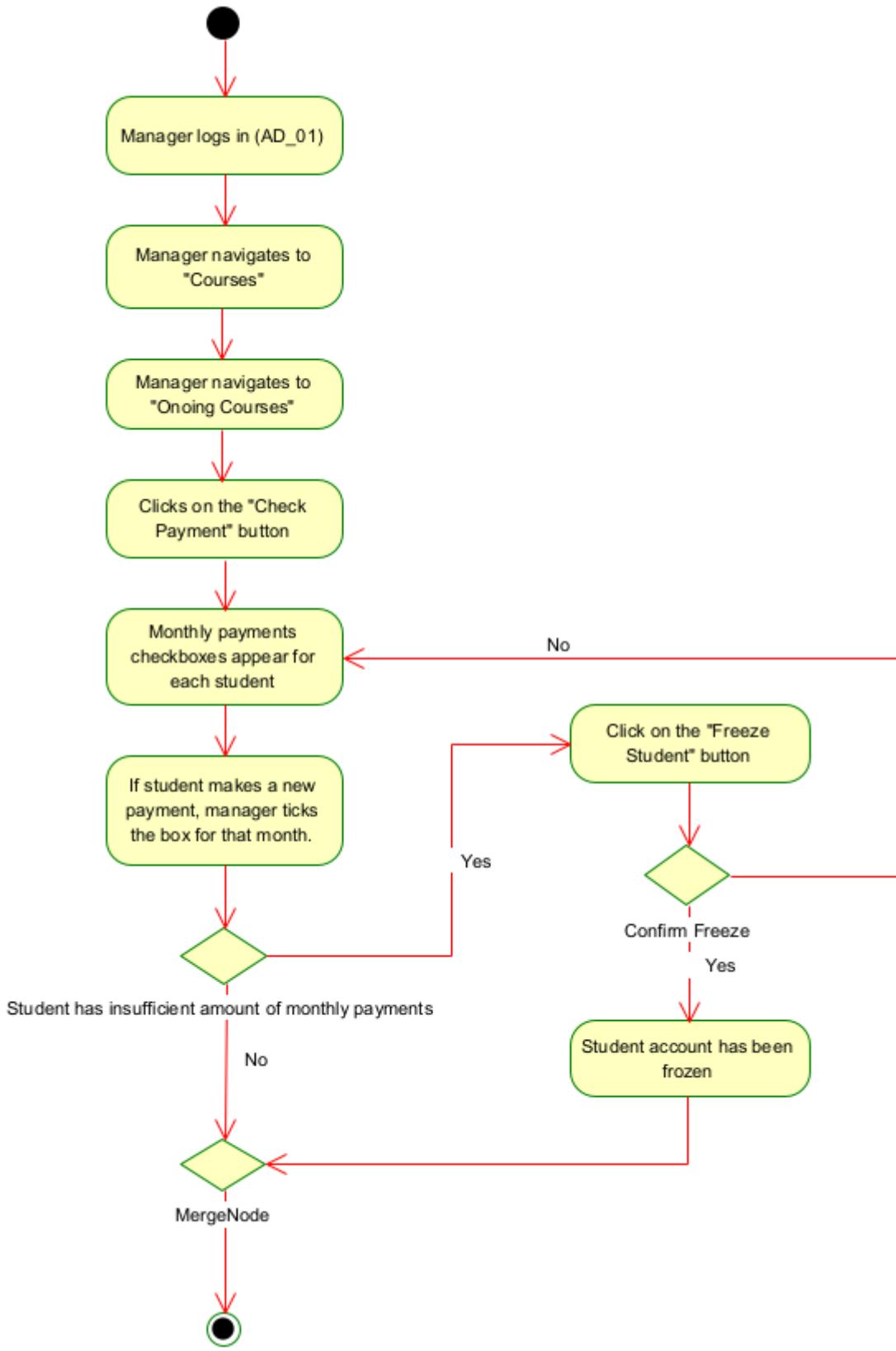
AD_25 – US_25 - Create new group from call



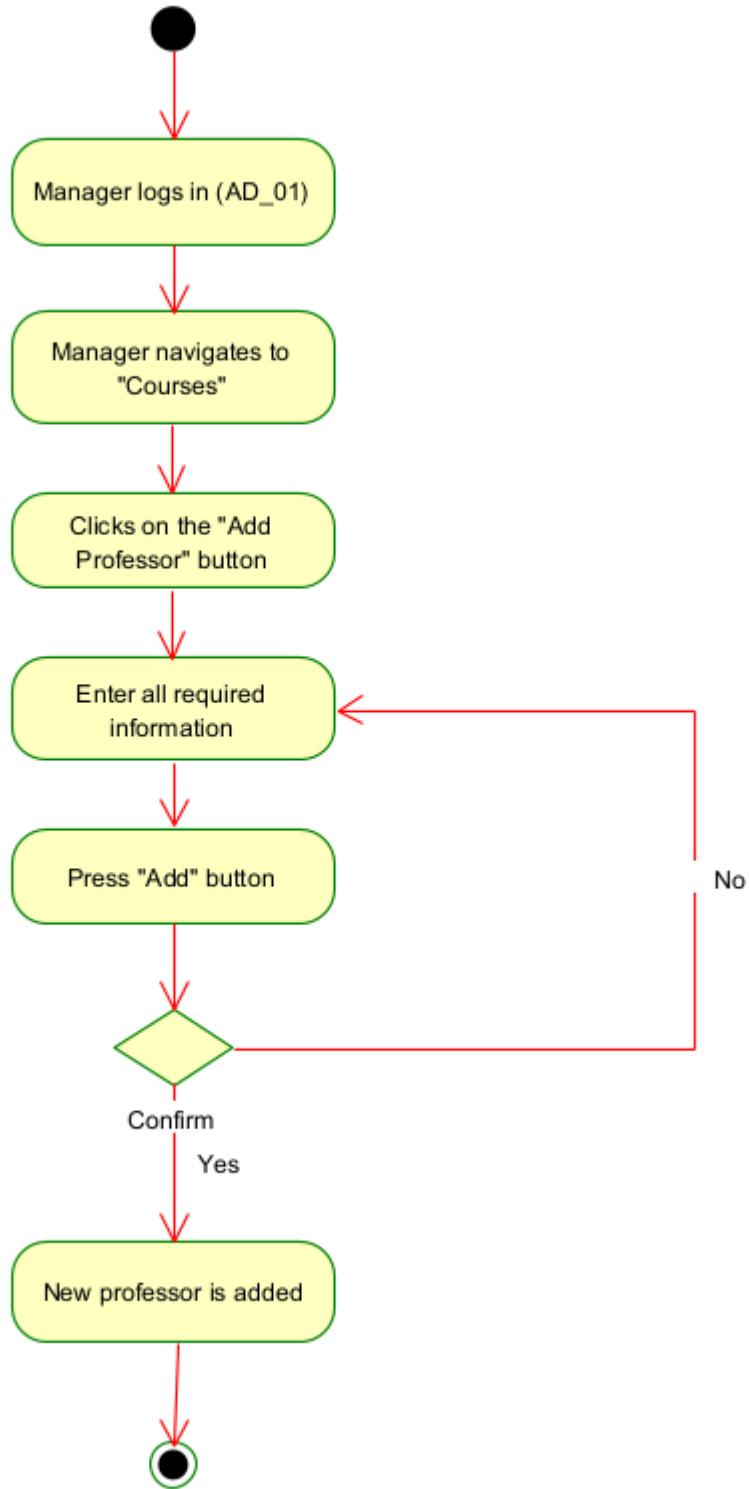
AD_26 – US_26 - Create new group directly



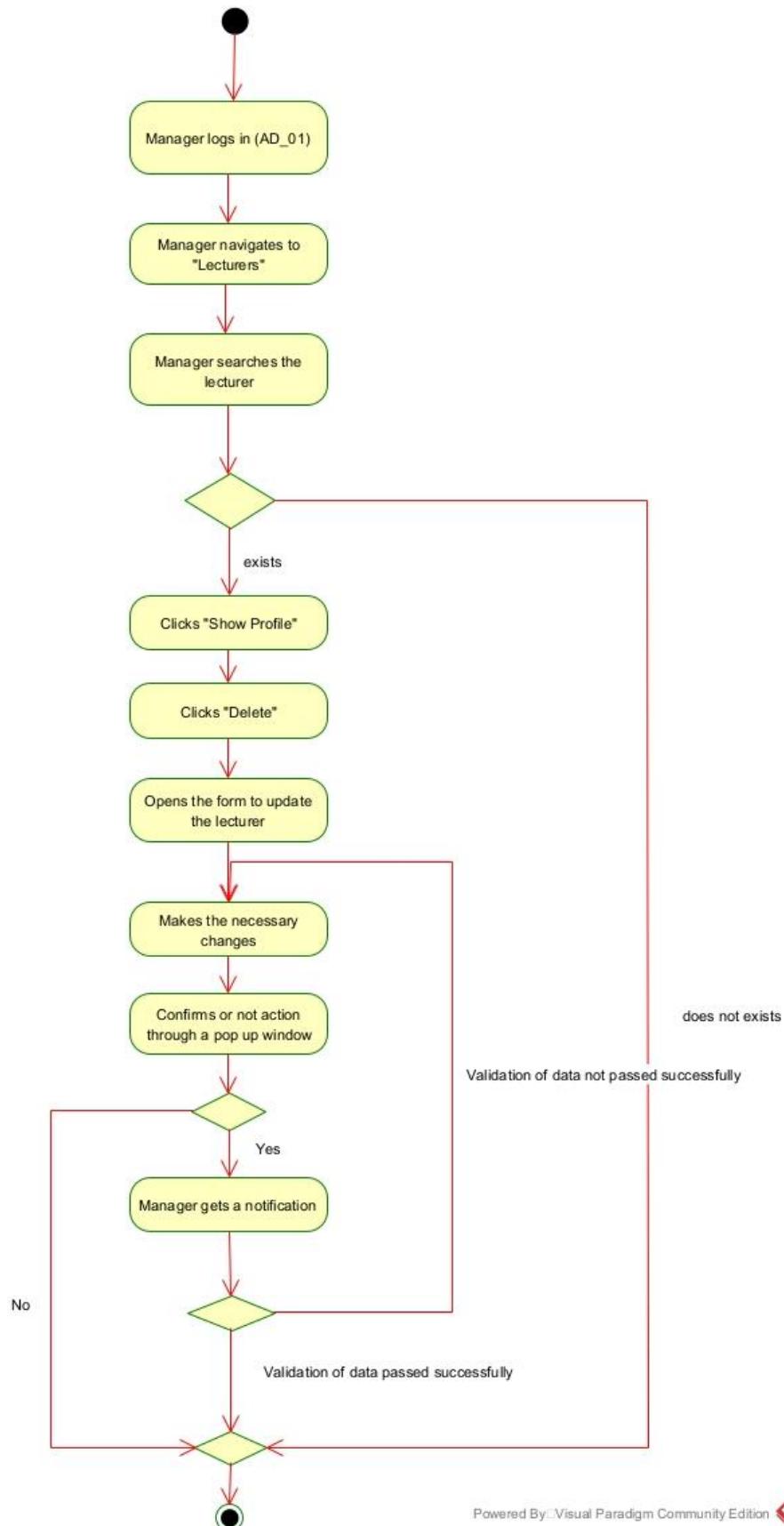
AD_27 – US_27 - Add student to an existing course



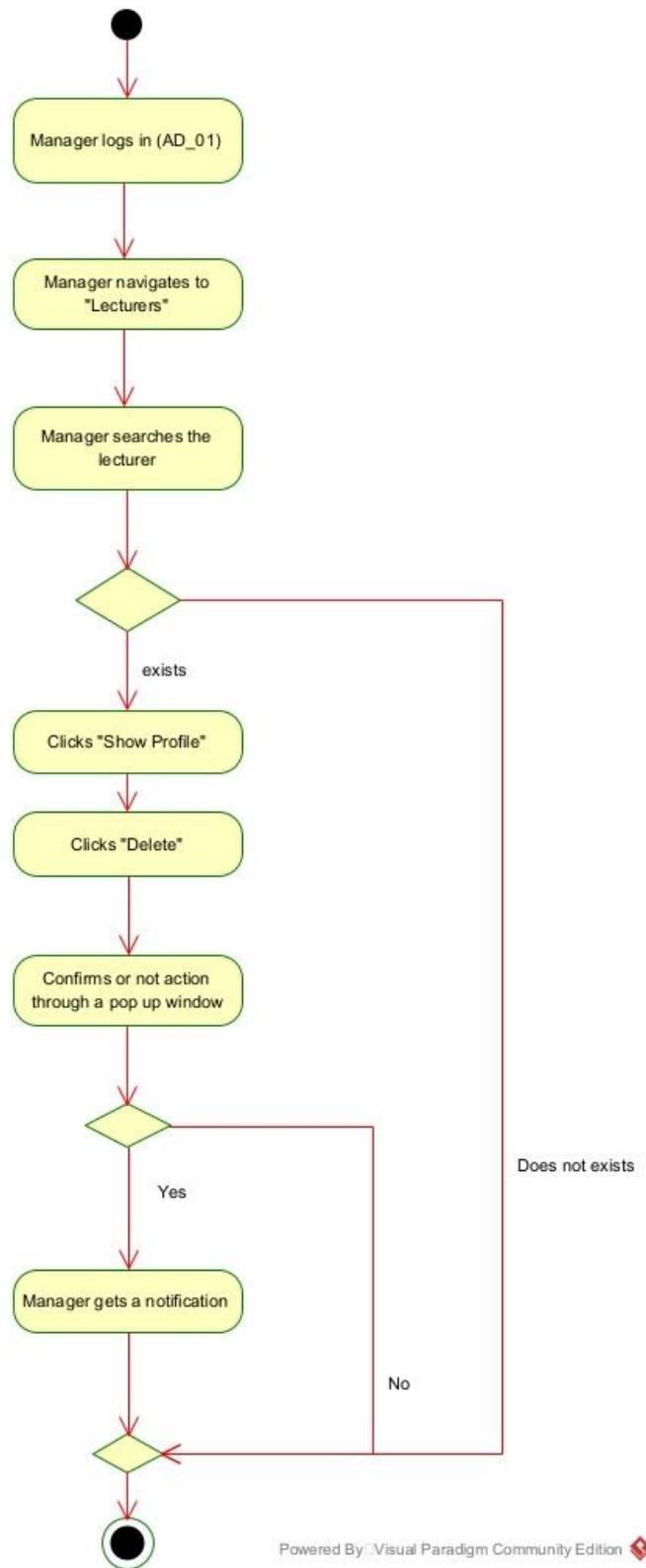
AD_28 – US_28 - Manage the students payments



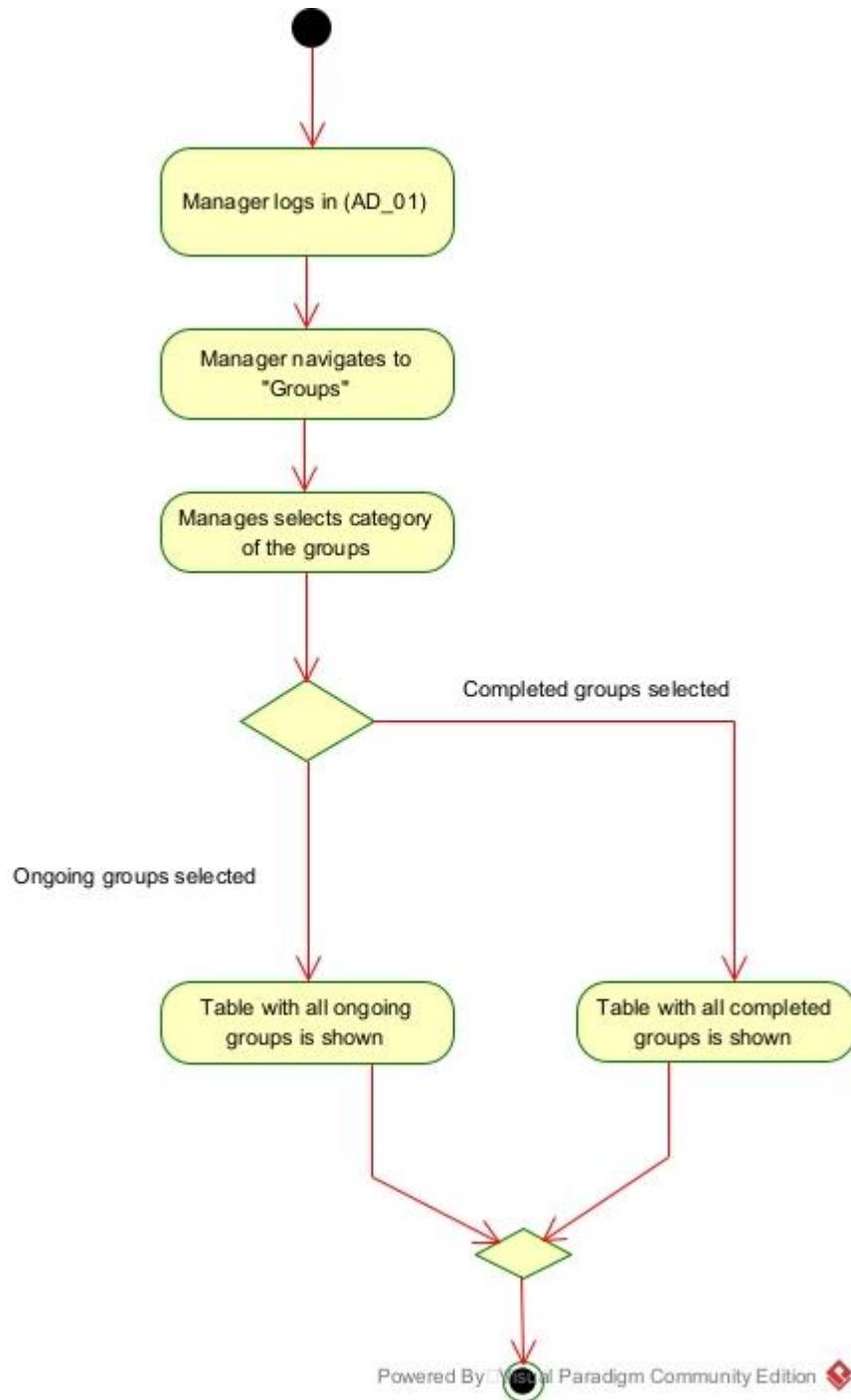
AD_29 – US_29 - Add a new lecturer user



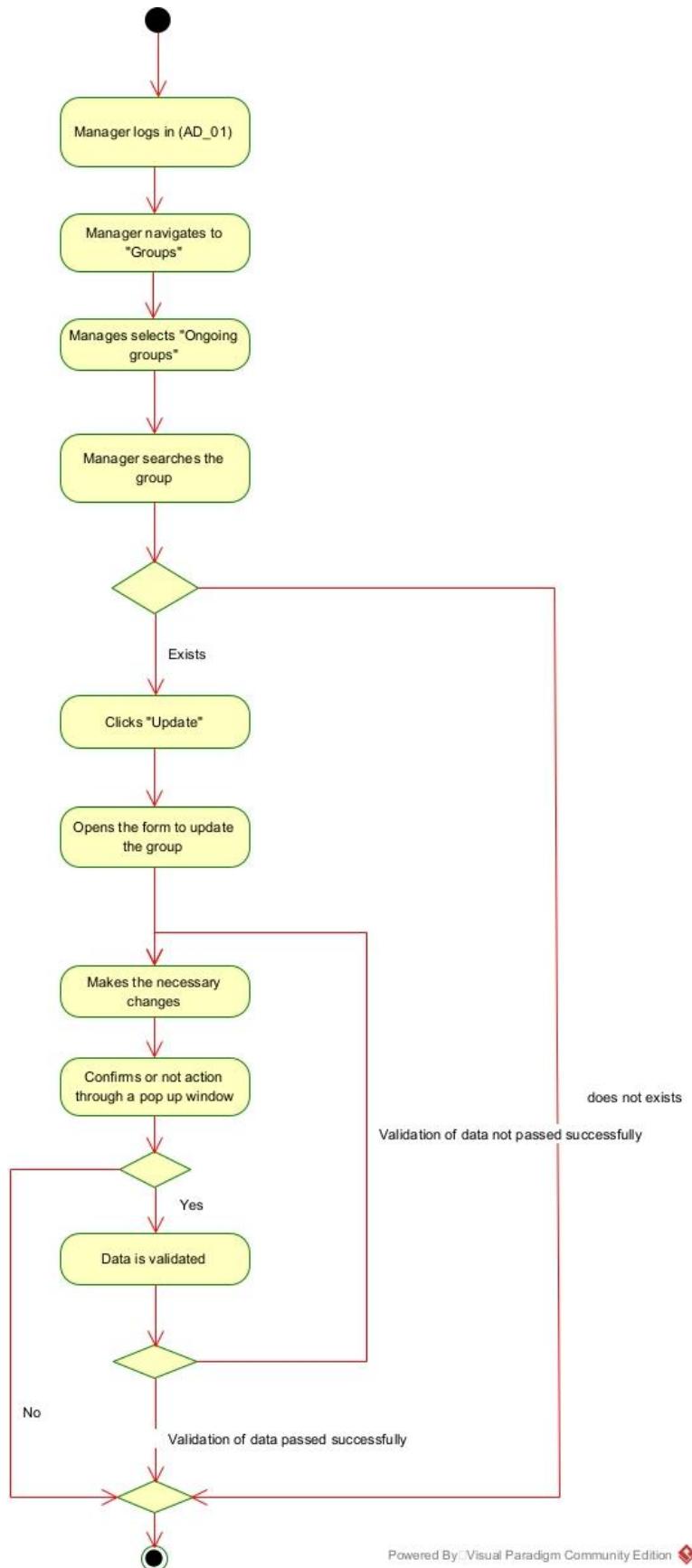
AD_30 – US_30 - Update lecturer



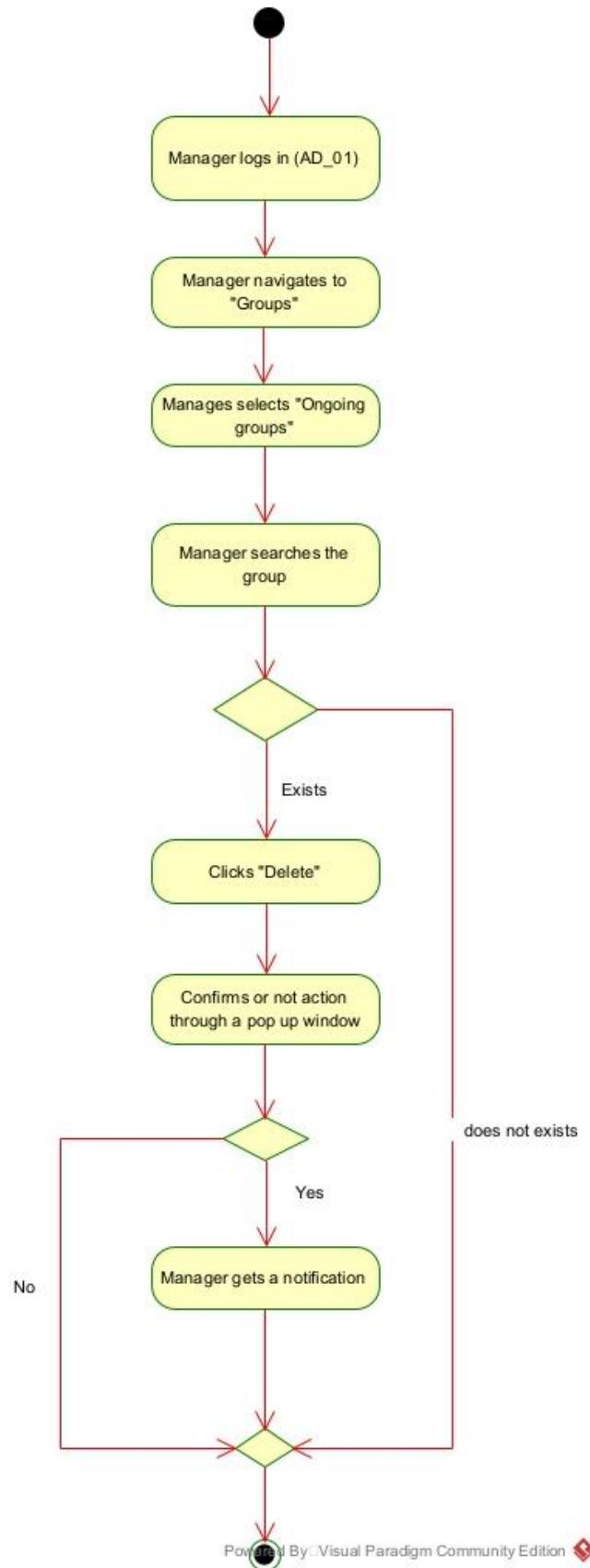
AD_31 – US_31 - Delete lecturer



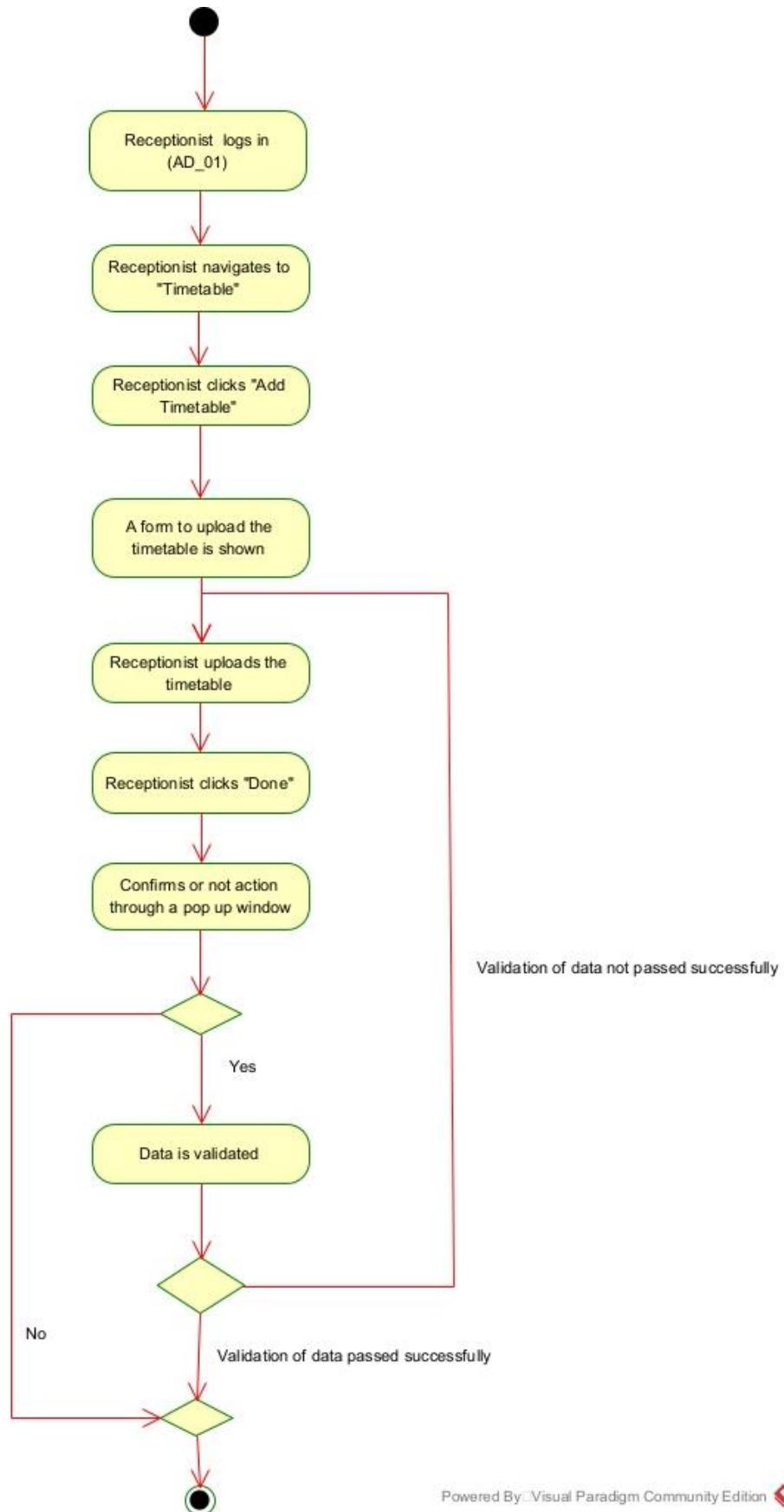
AD_32 – US_32 - List of ongoing/completed groups



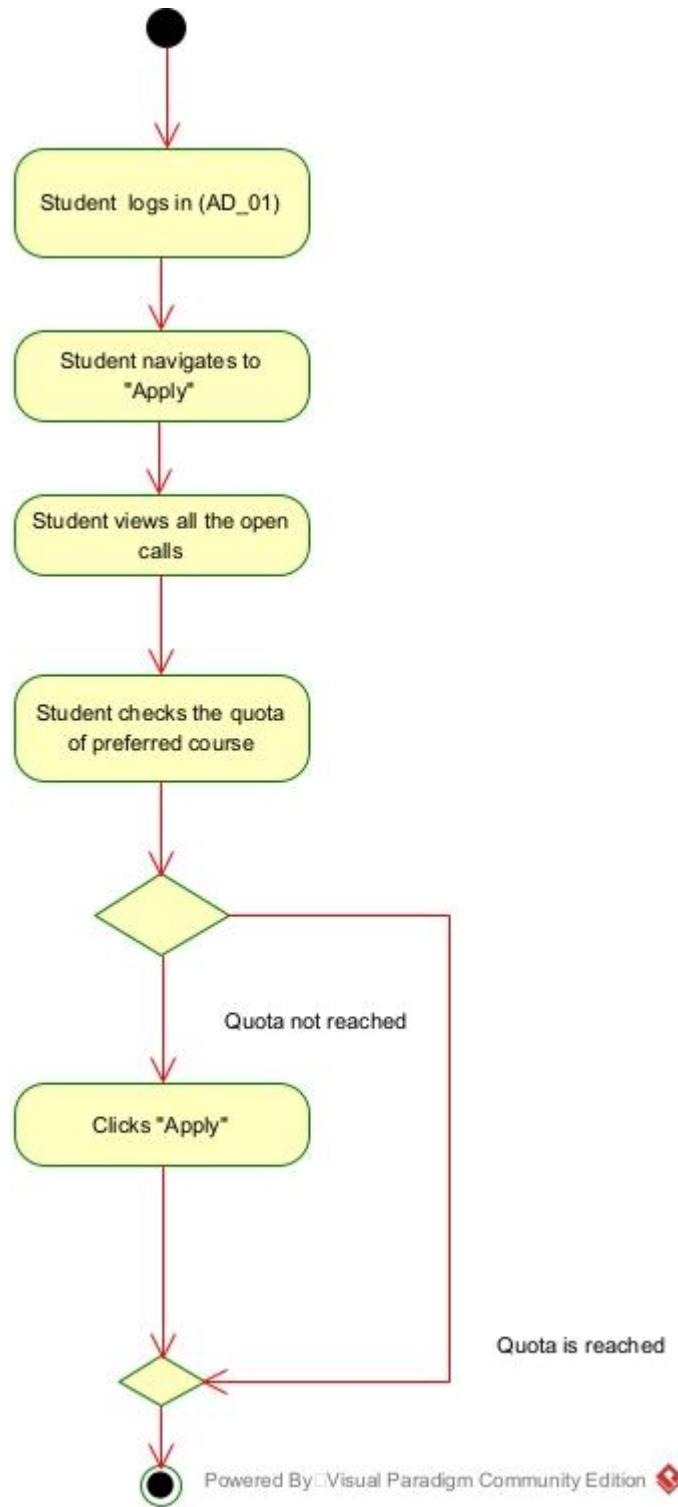
AD_33 – US_33 - Update an existing group



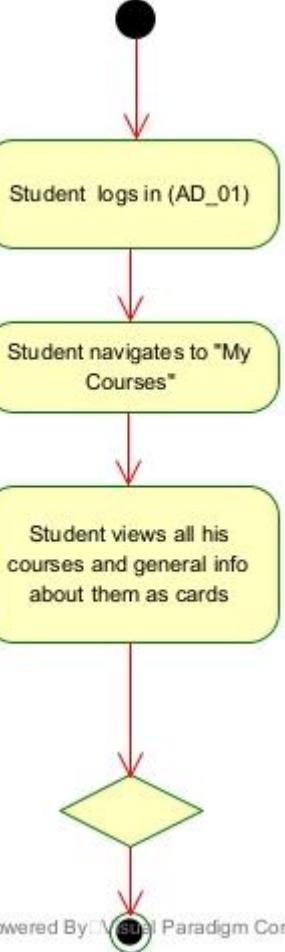
AD_34 – US_34 - Delete an existing group



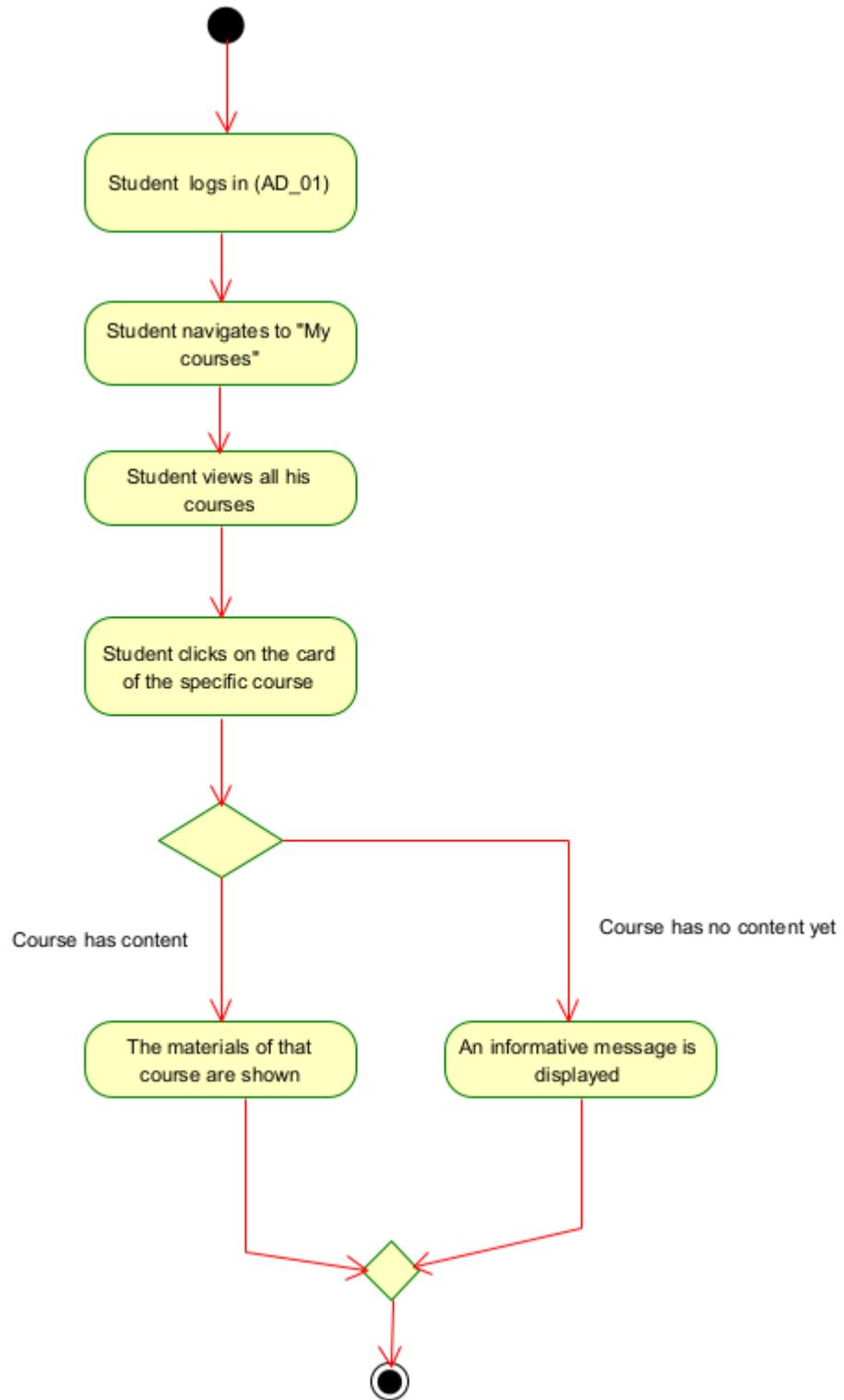
AD_35 – US_35 - Post Timetable



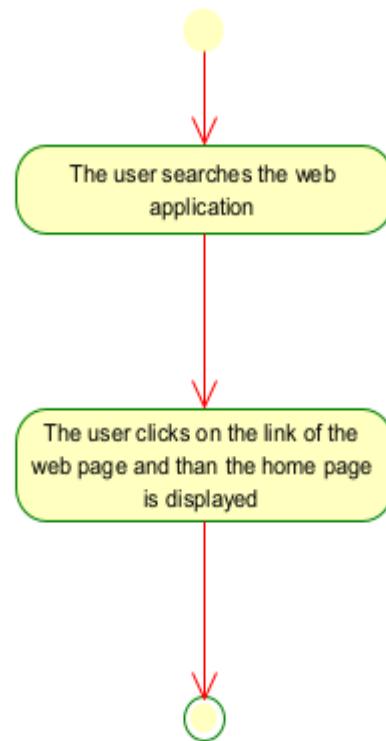
AD_36 – US_36 - Apply in an open call



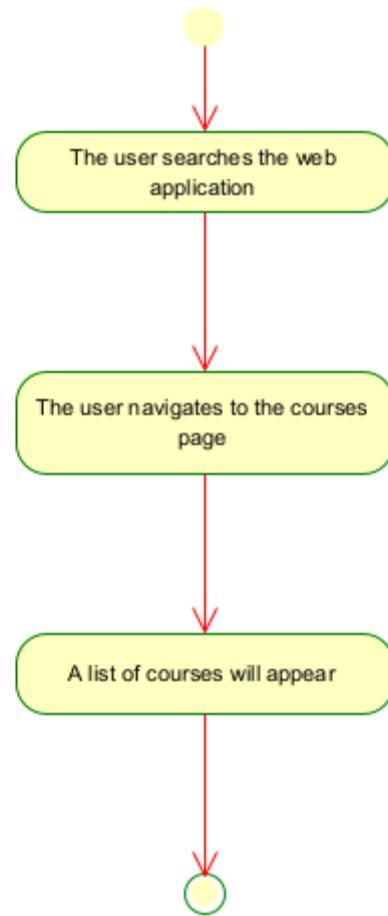
AD_37 – US_37 - View all courses



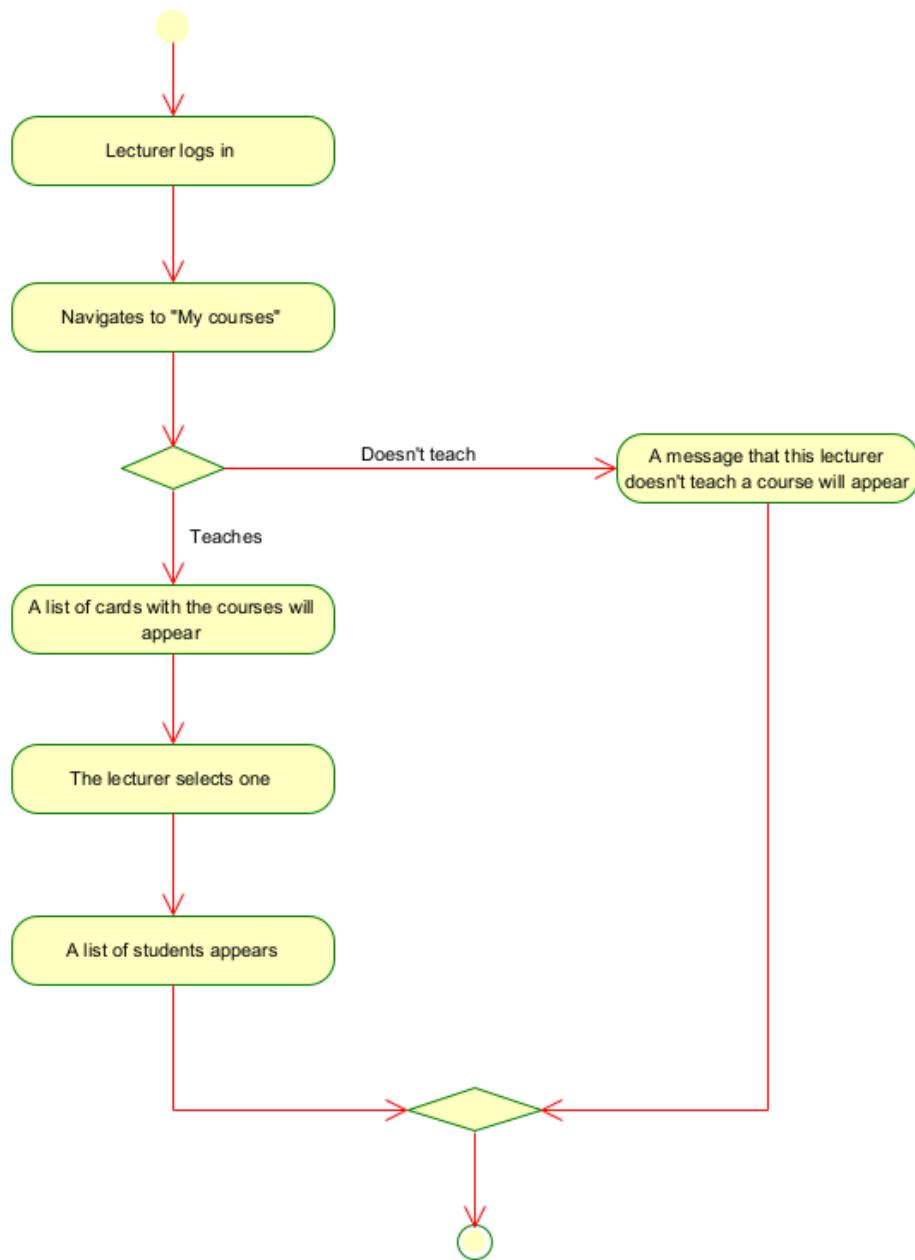
AD_38 – US_38 - View course materials



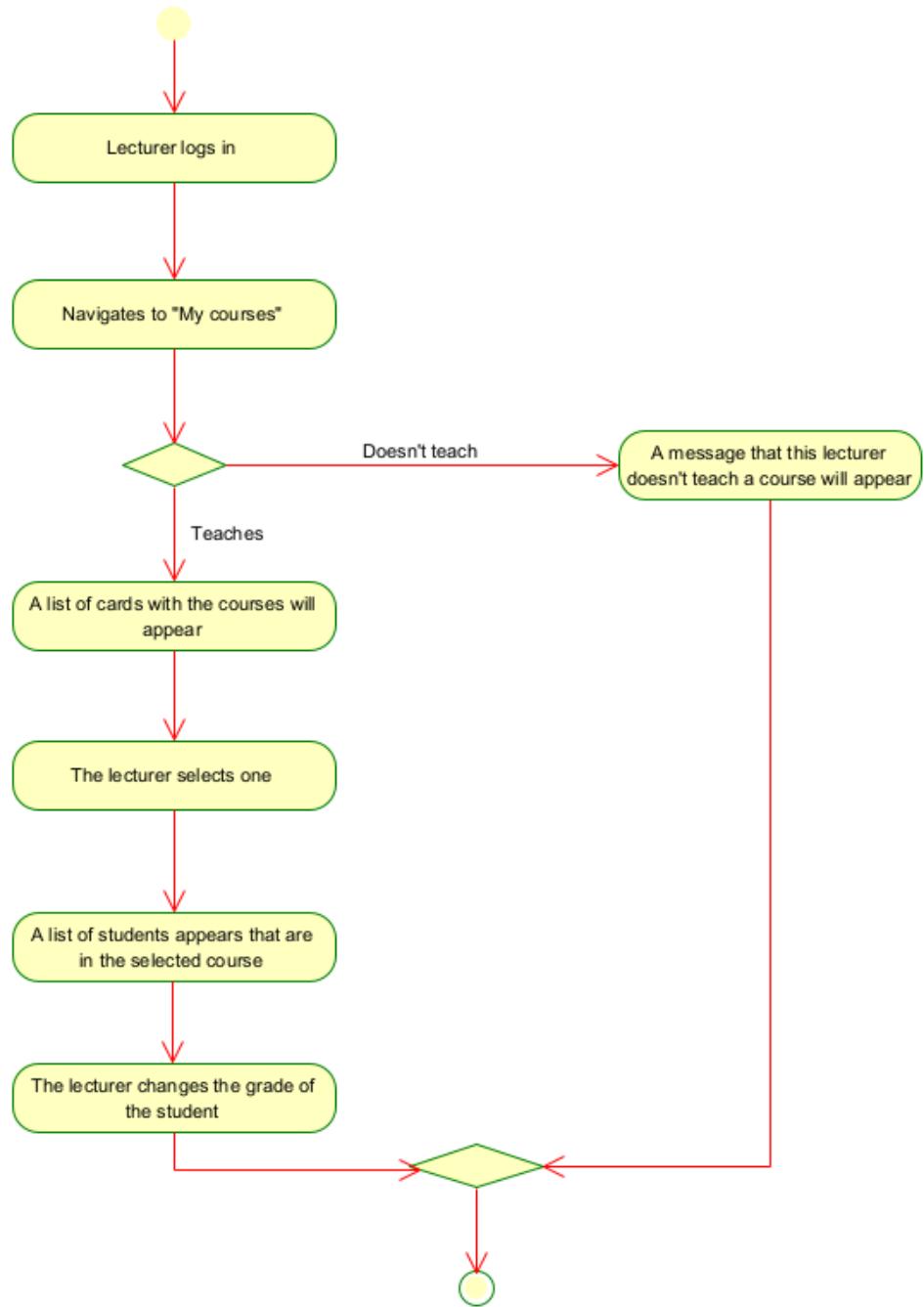
AD_39-US_39 -View homepage.



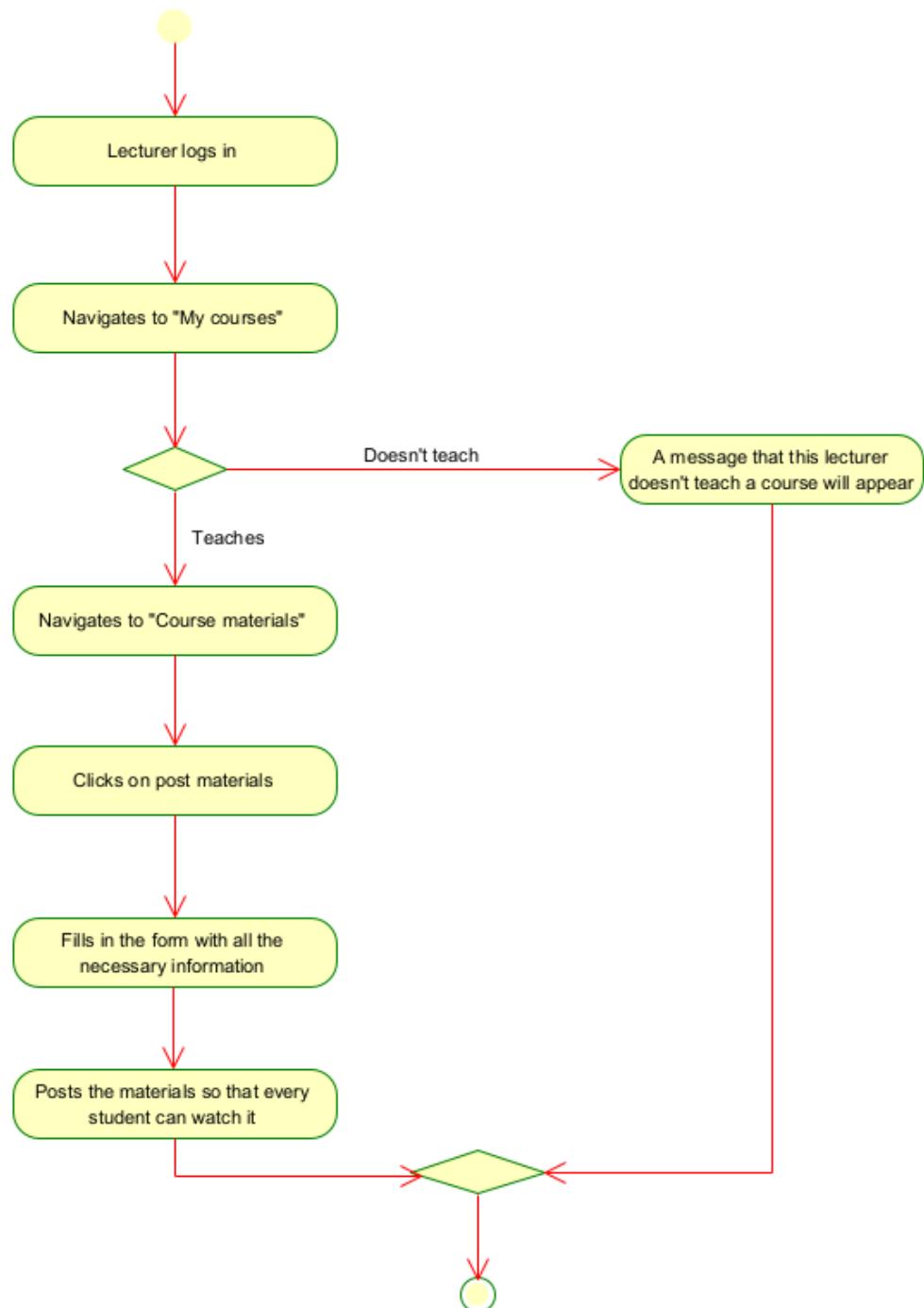
AD_40-US_40, View all courses.



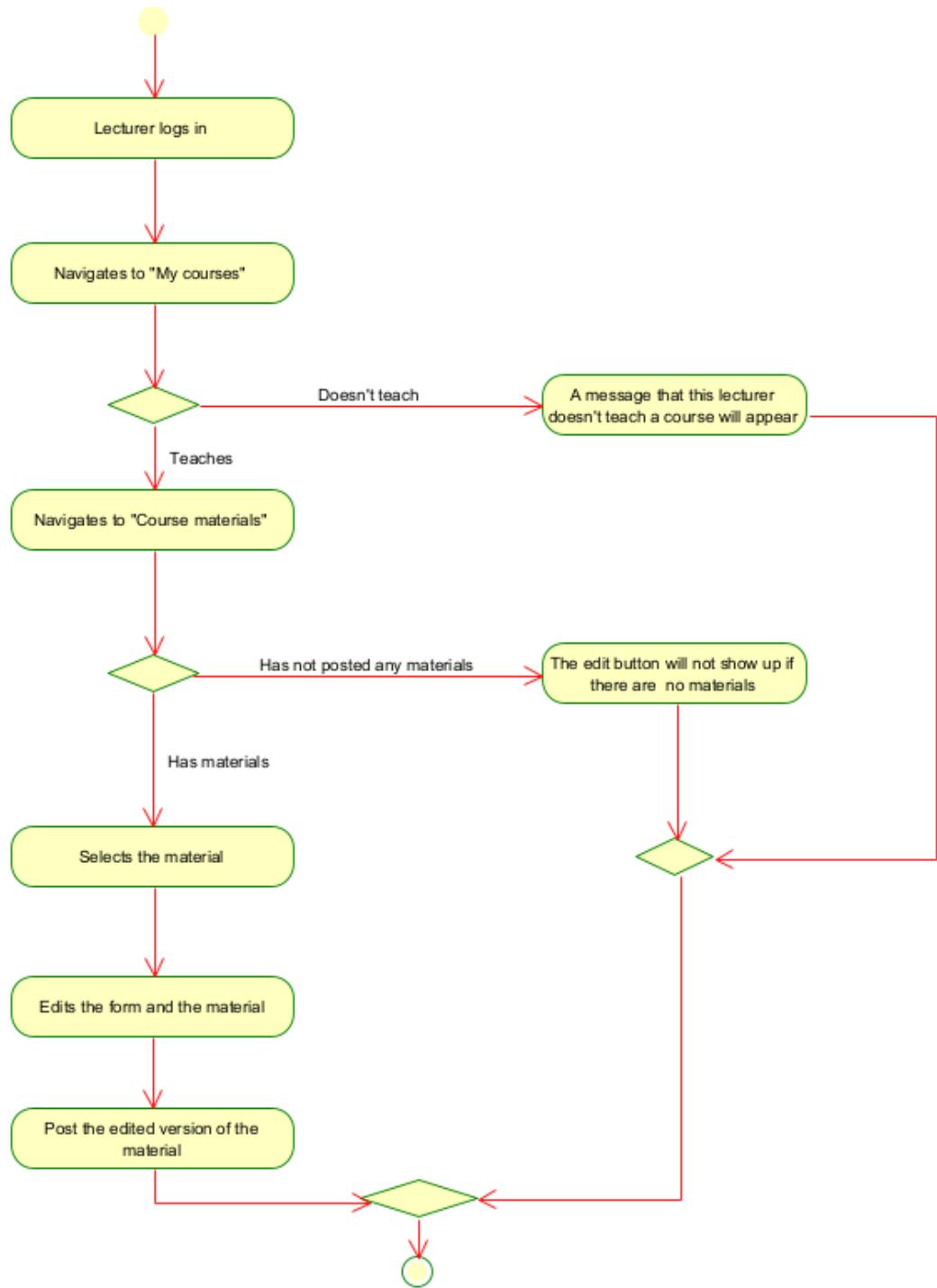
AD_41-US_41 View all students.



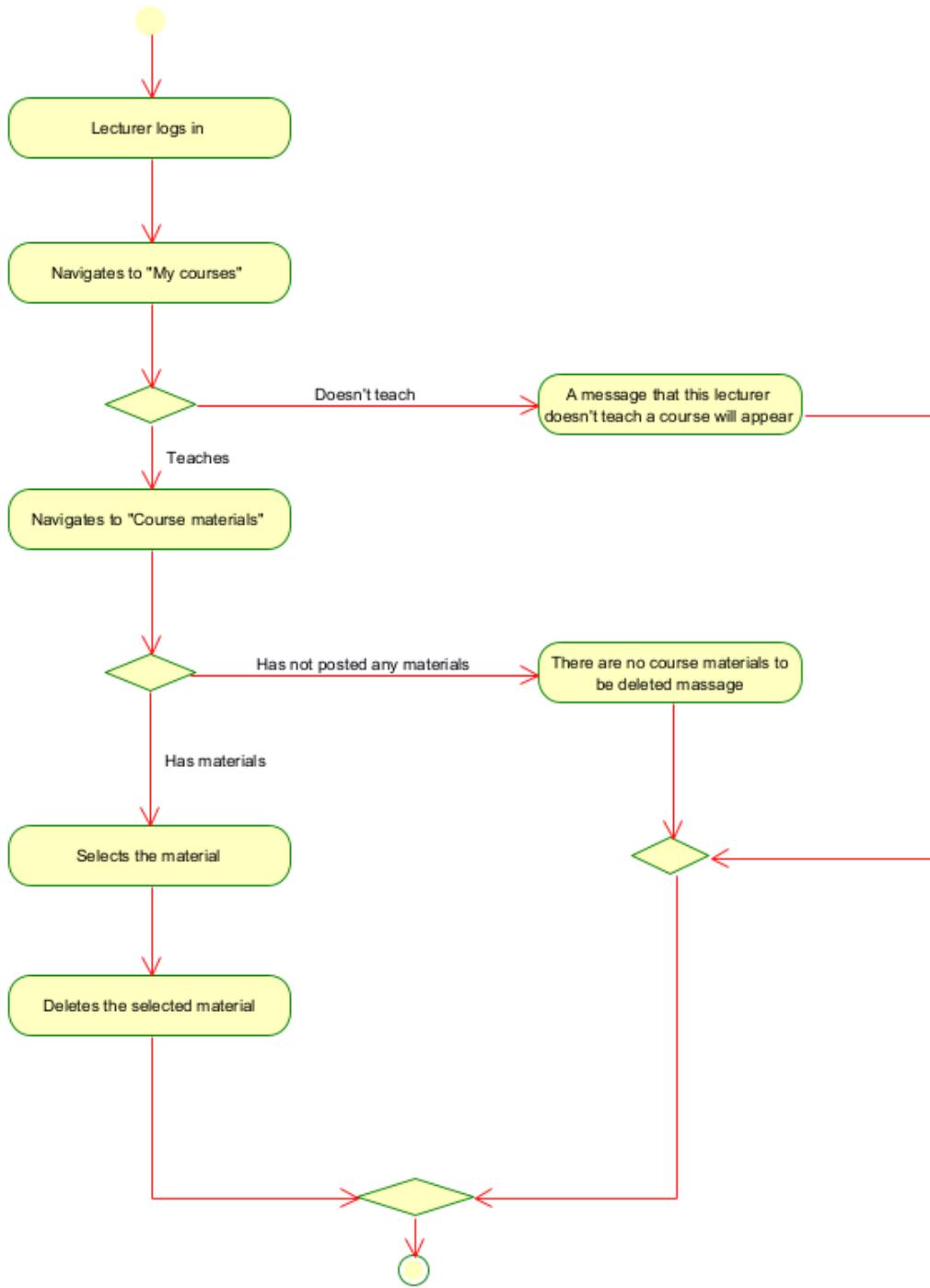
AD_42-US_42 Student evaluation.



AD_43-US_43, Posting materials.

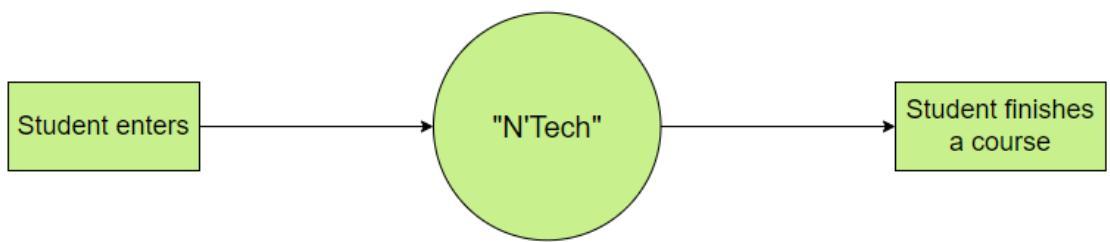


AD_44-US_44, Editing material.

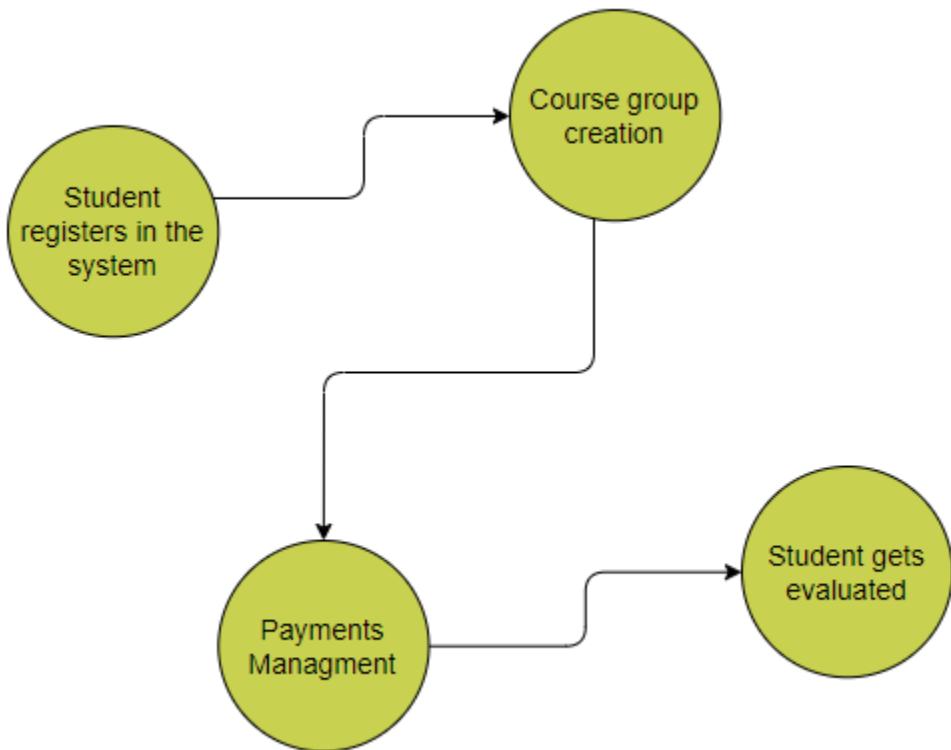


AD_45-US_45, Deleting materials.

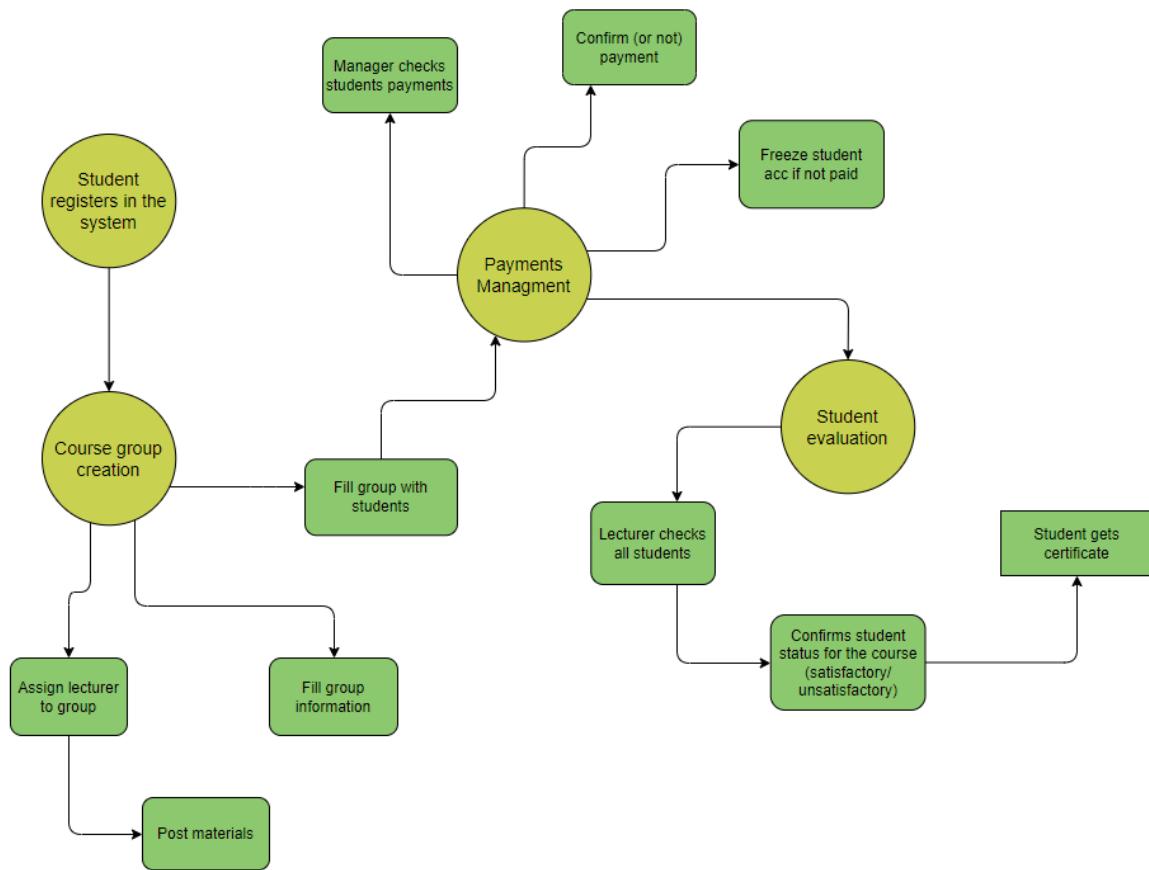
4.3 Data Flow Diagrams DFD LEVEL 0



DFD LEVEL 1



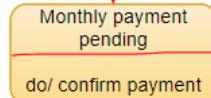
DFD LEVEL 2



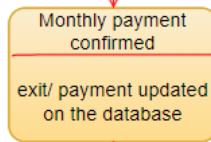
4.4 State Diagram 1-Payments State Diagram



Manager goes to payments



Manager clicks confirm

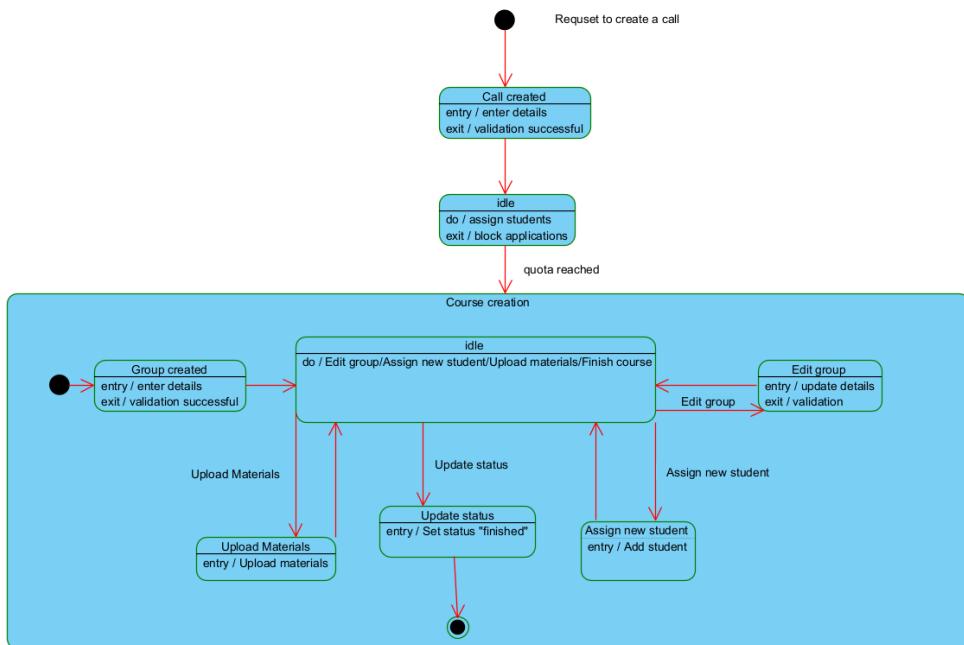


Finish

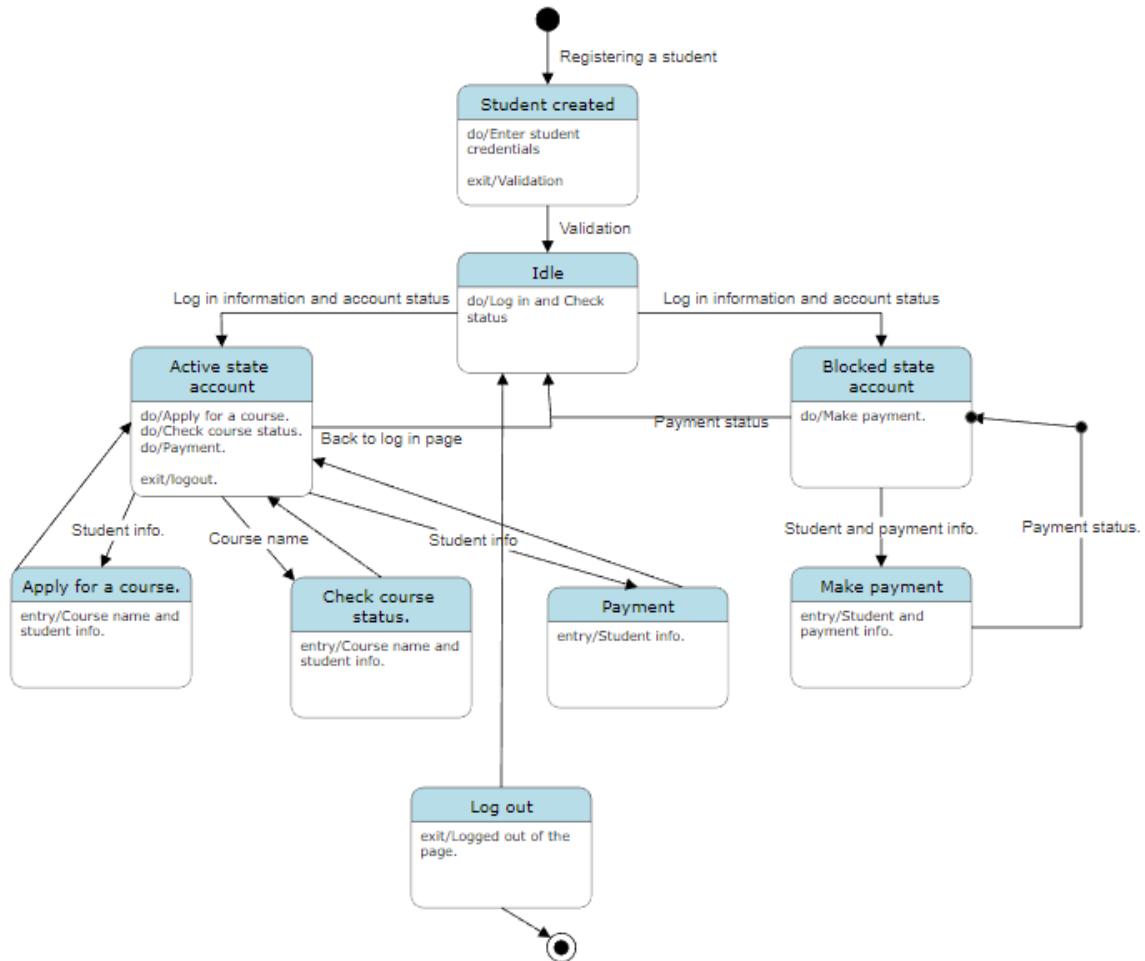


2-Call and Group creation State Diagram

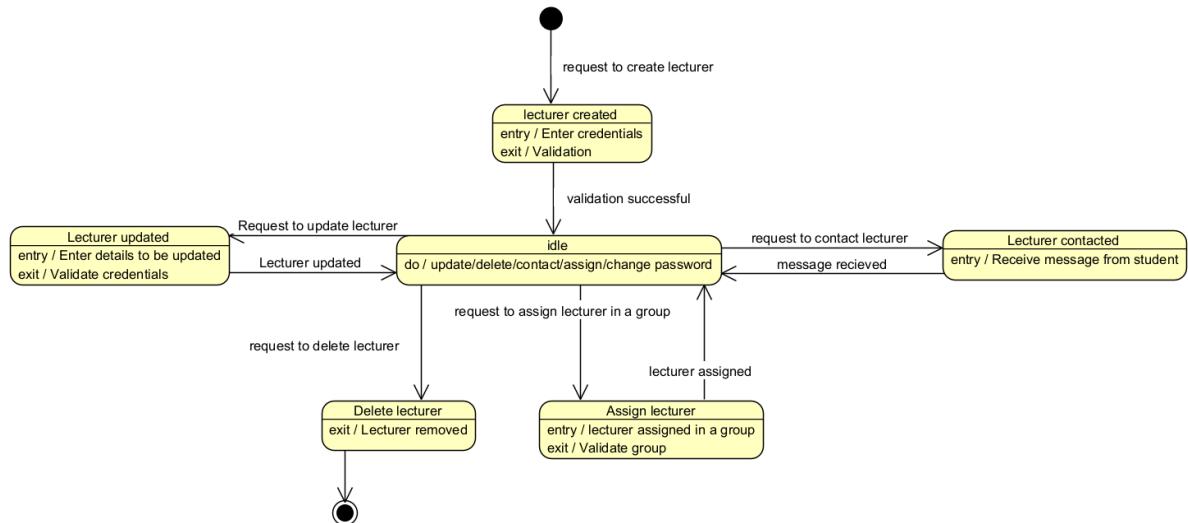
:m [State Machine Diagram1]



3-Student state diagram.

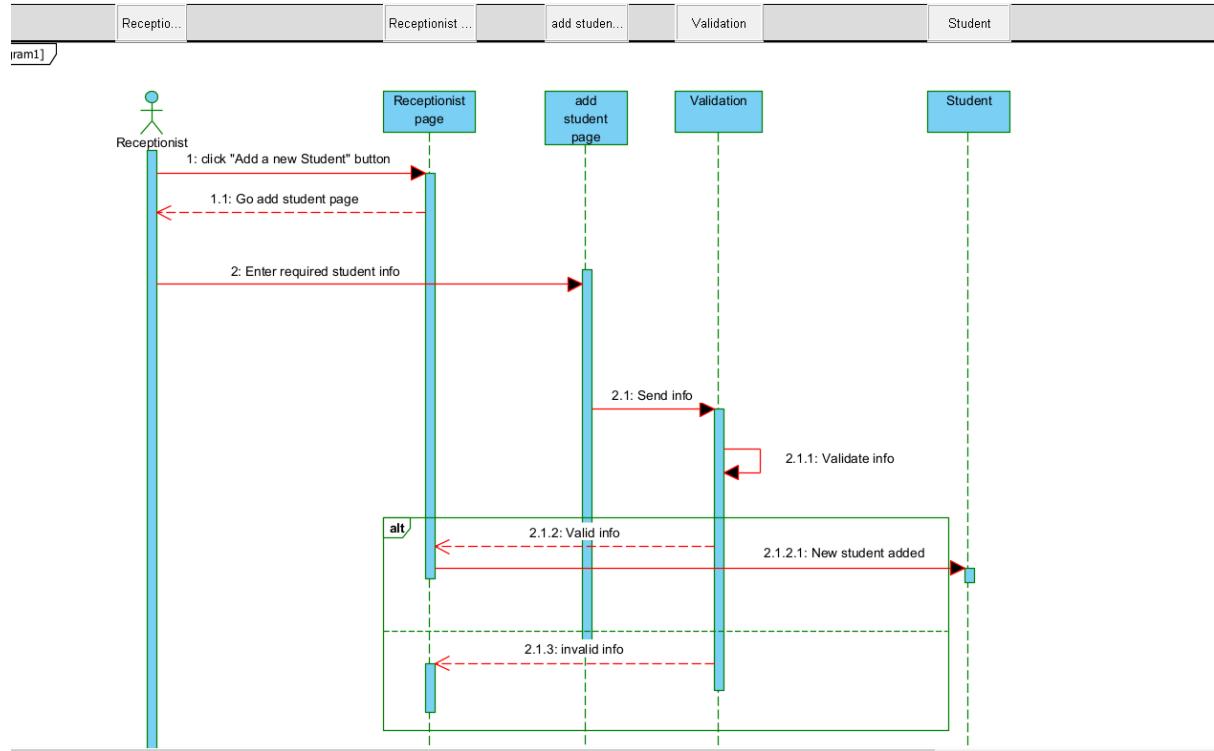


4-Lecturer state diagram

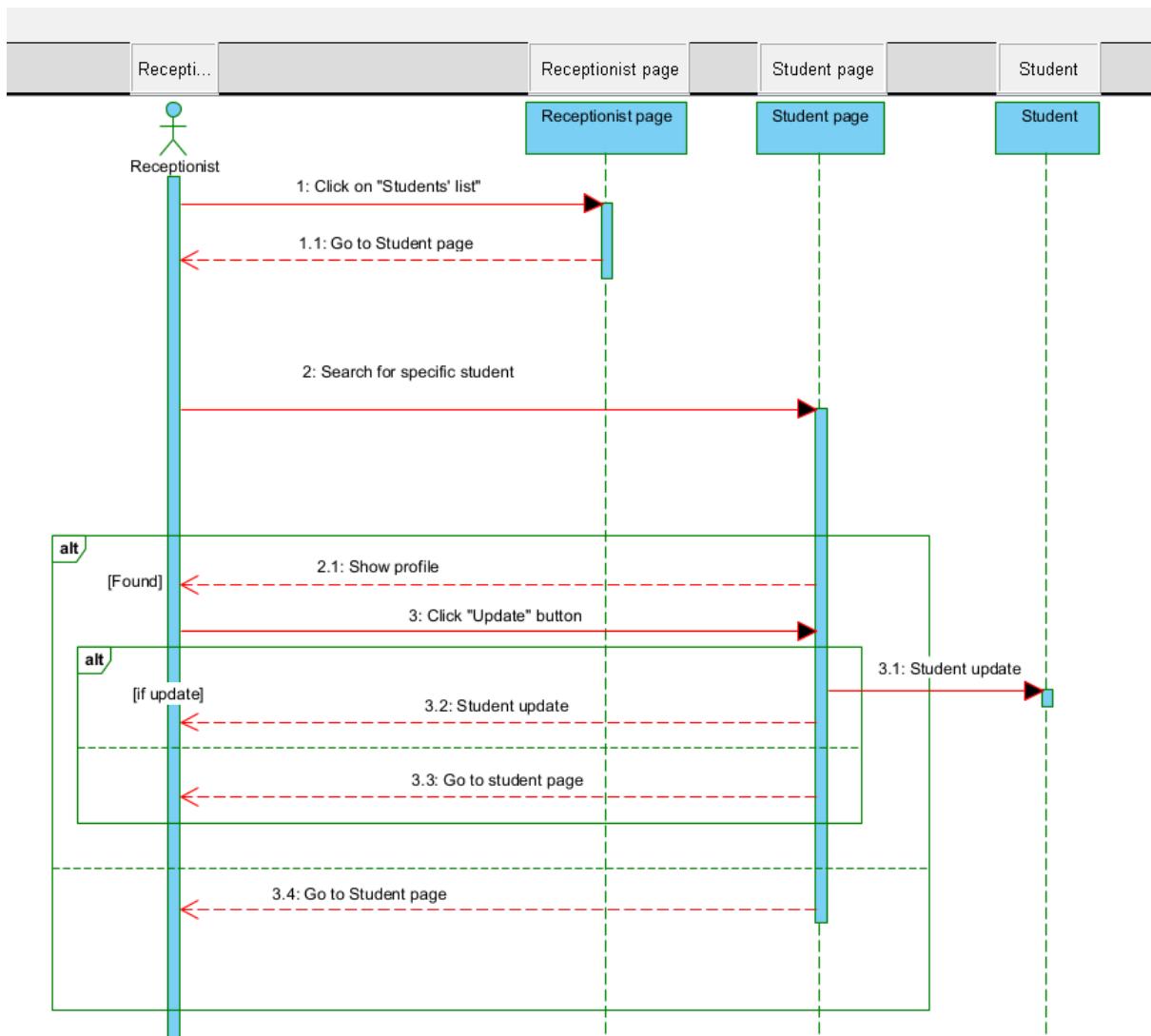


4.5 Sequence Diagram

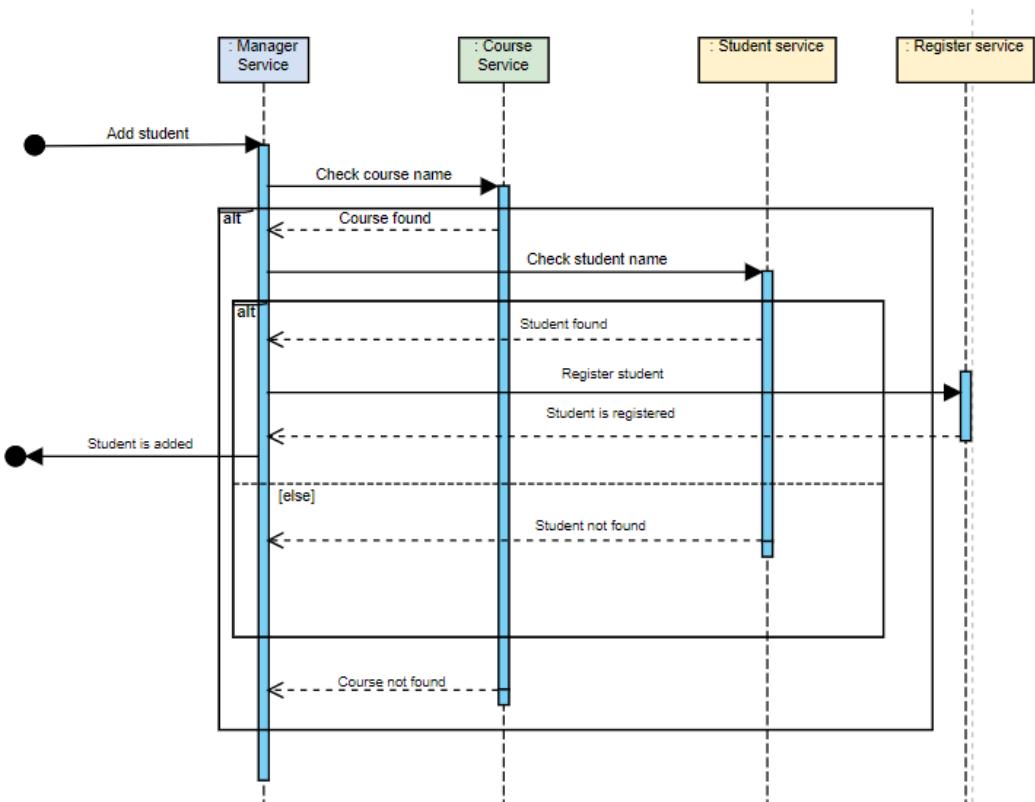
1-Create a student



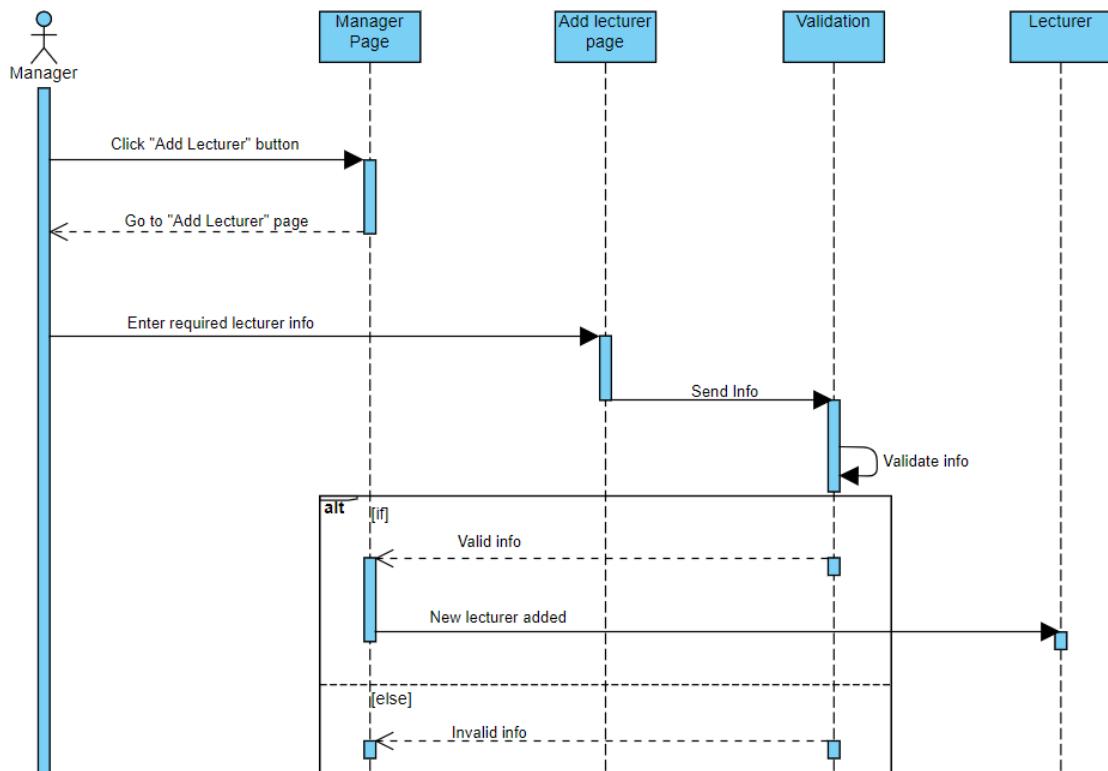
2-Update a student



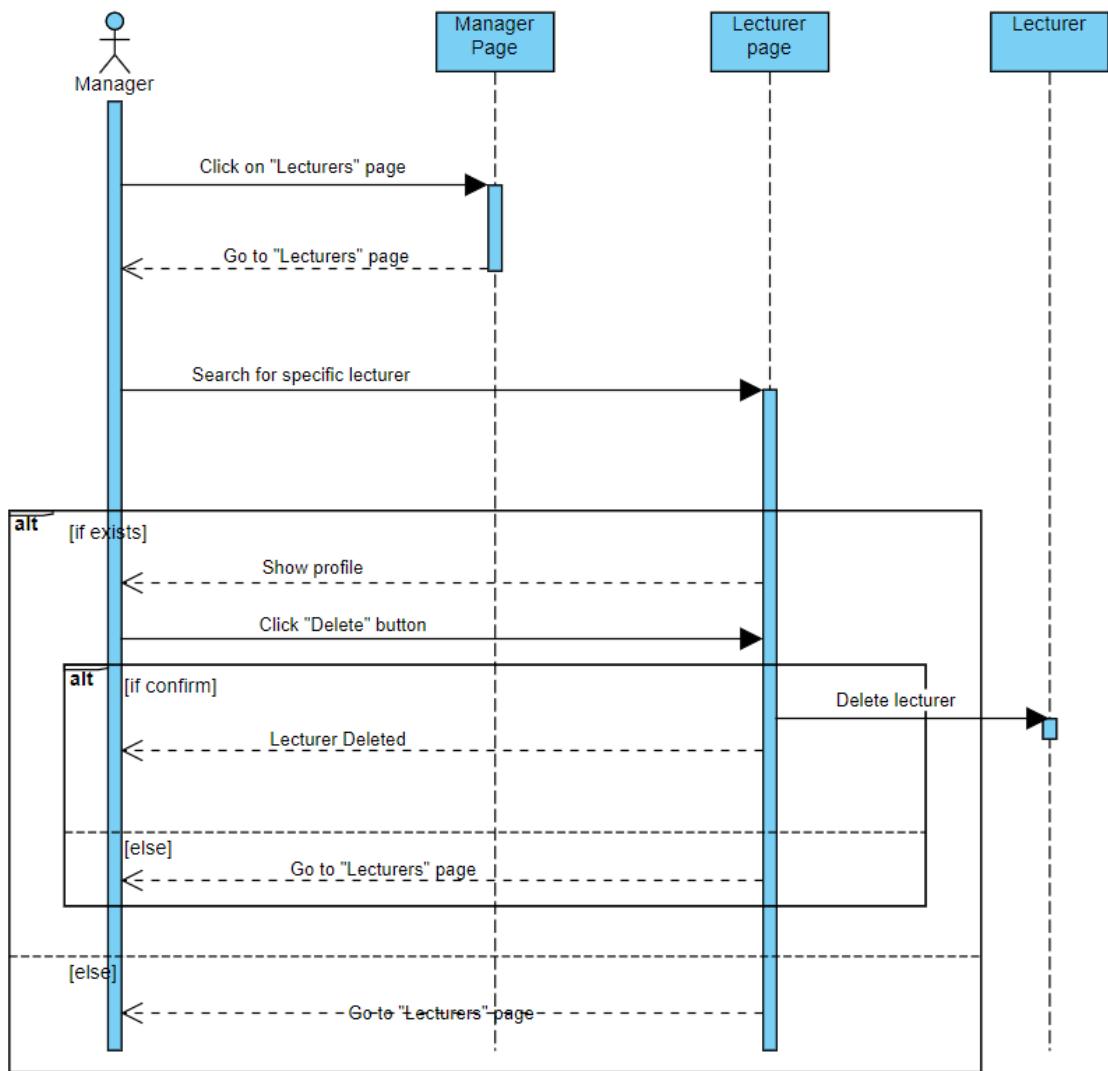
3-Add student to an existing group



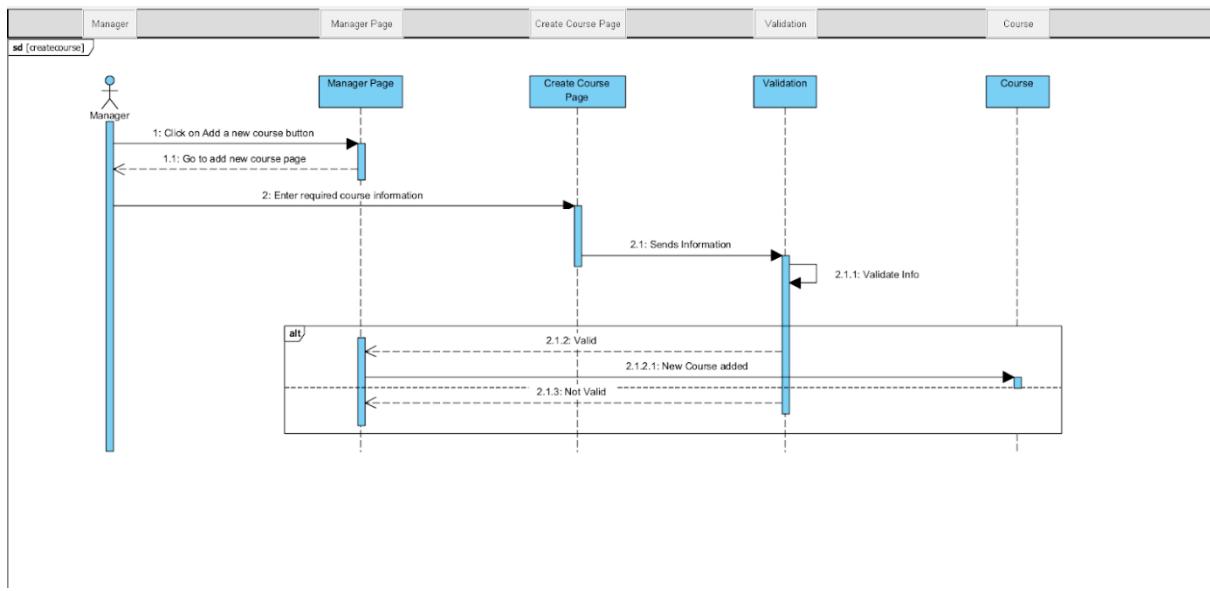
4-Create lecturer sequence diagram



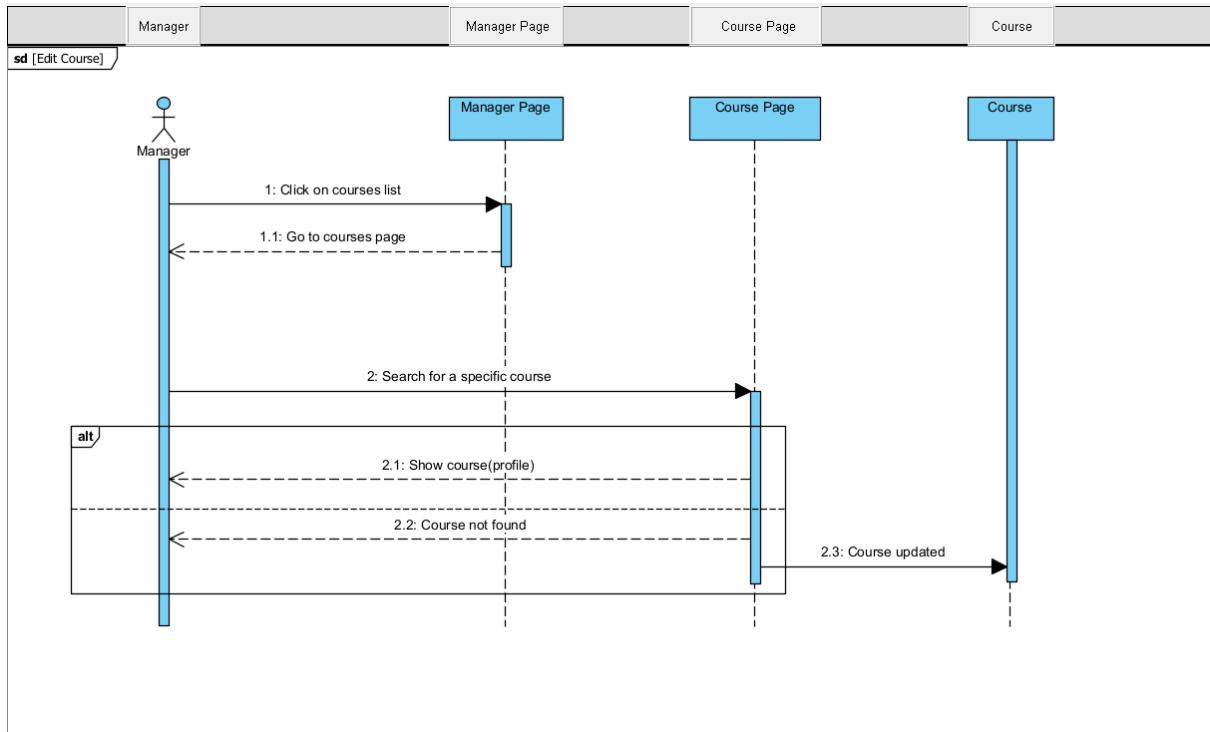
5-Delete lecturer sequence diagram



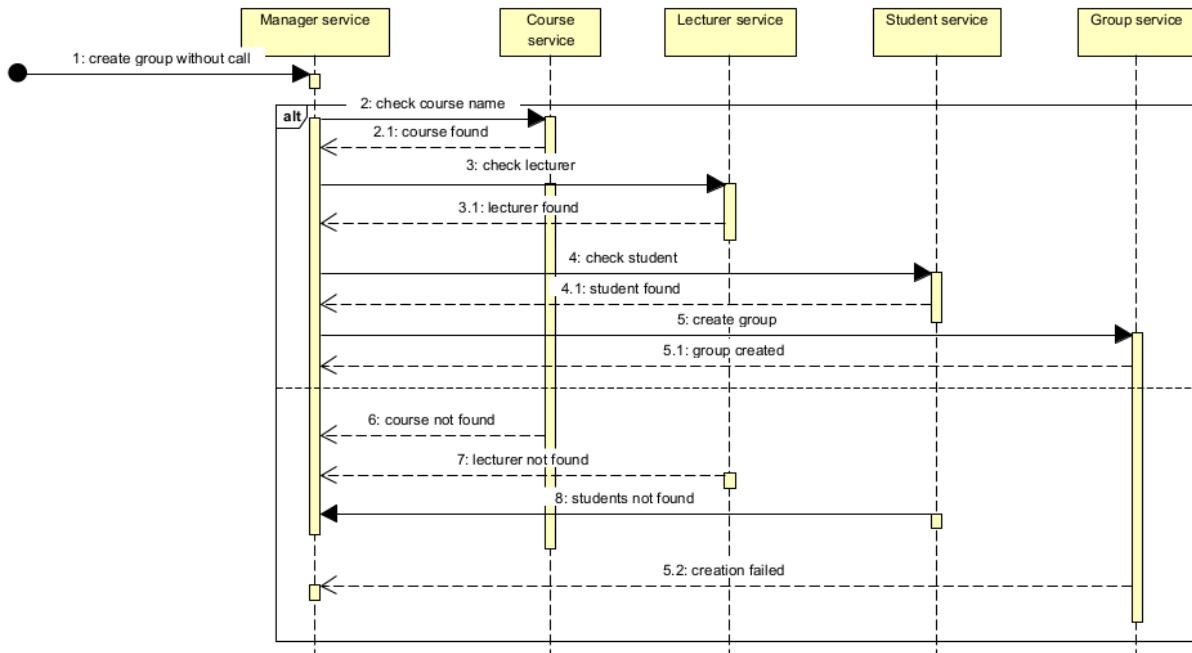
6-Create Course



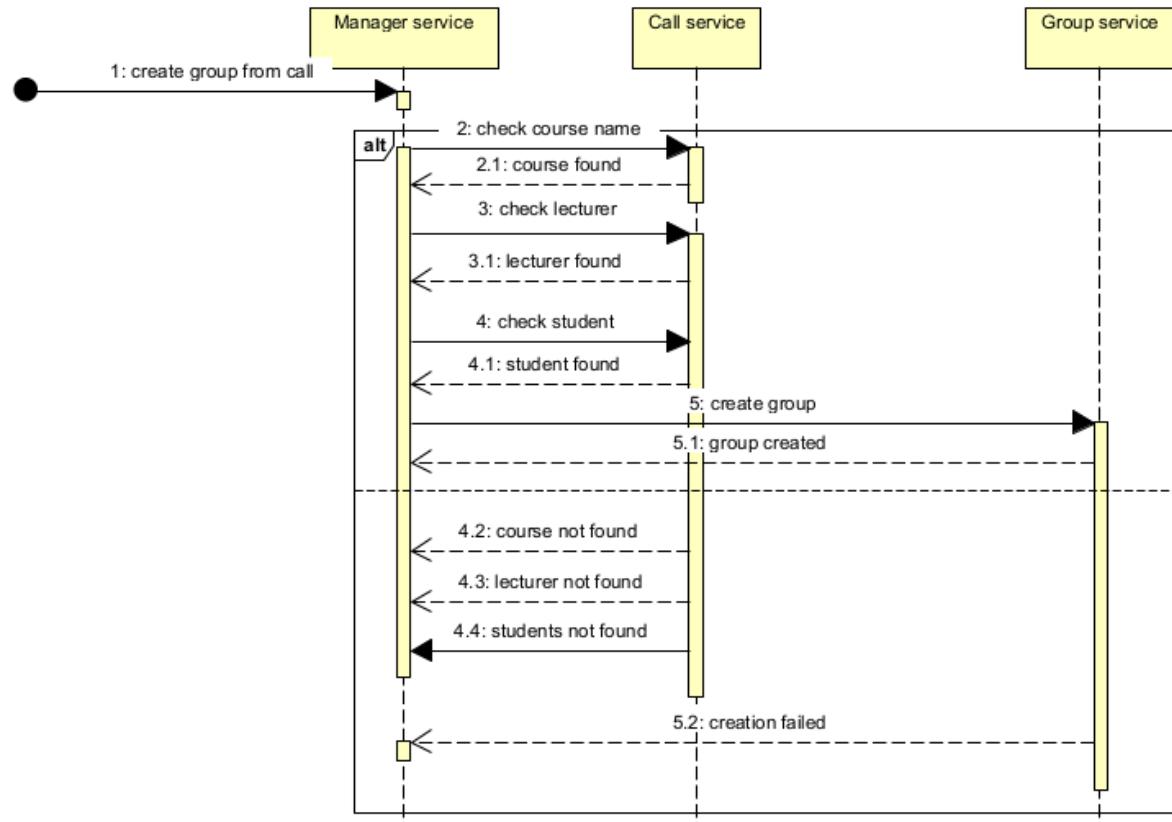
7-Edit Course



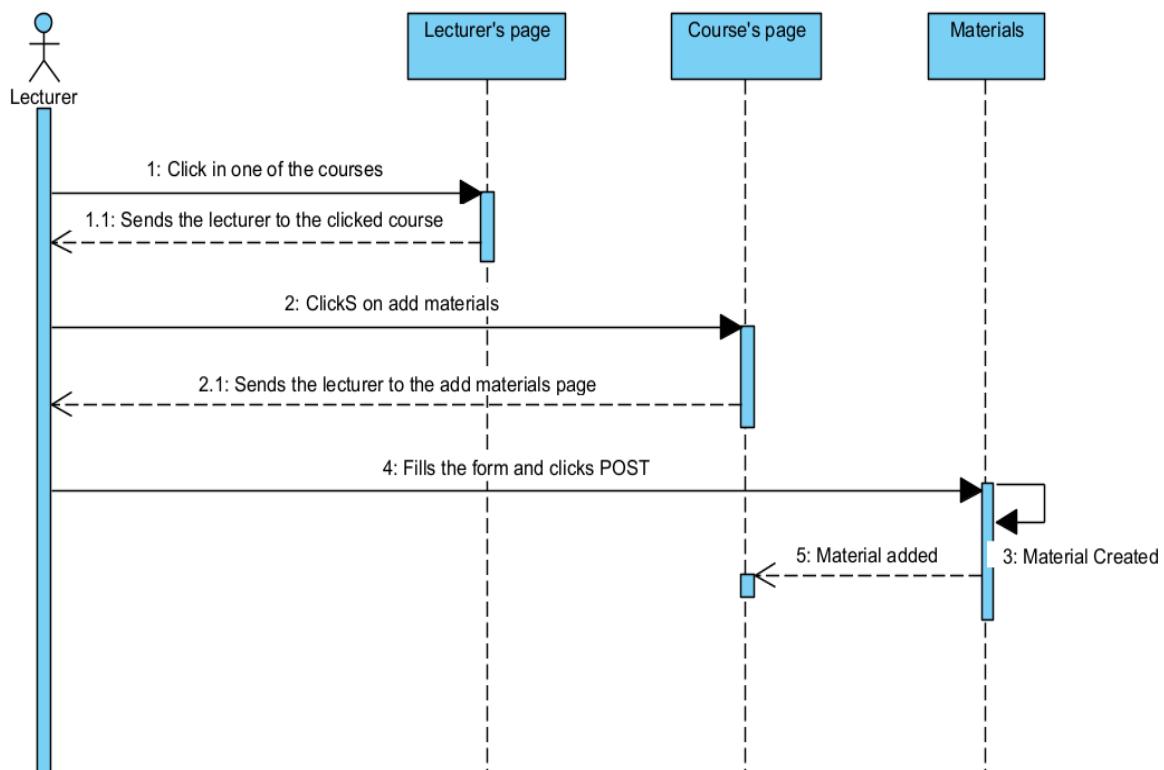
8-Create group without call



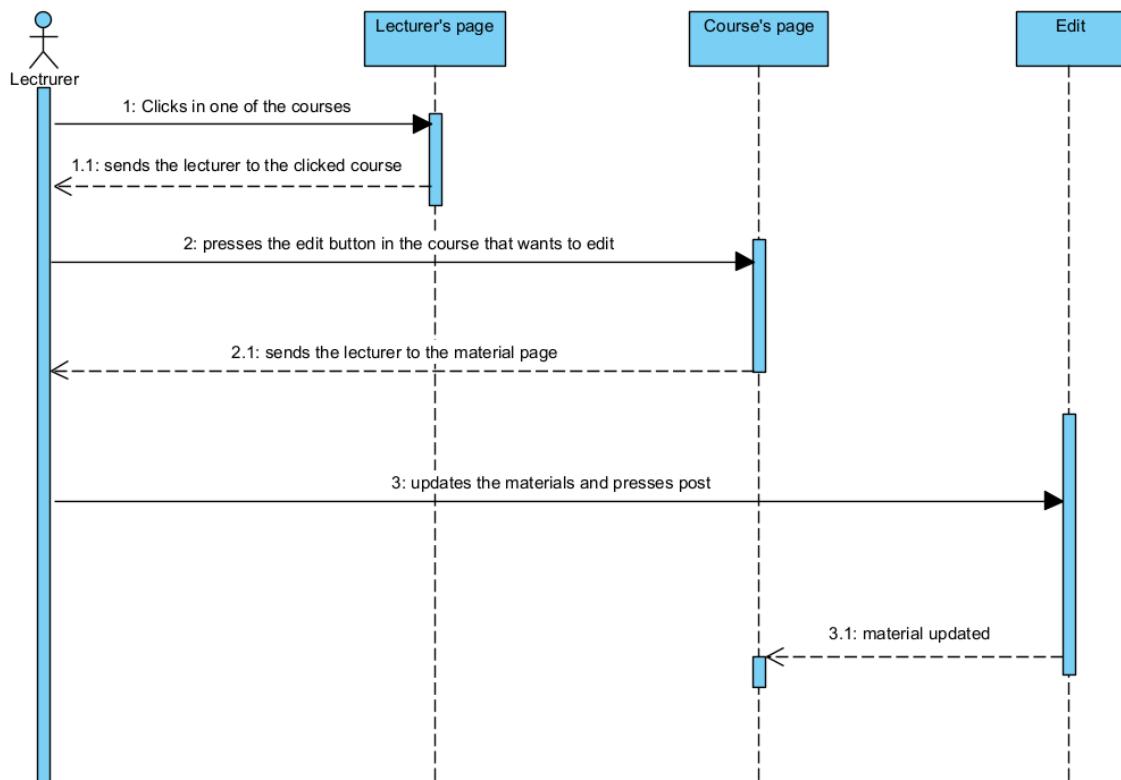
9-Create group from call



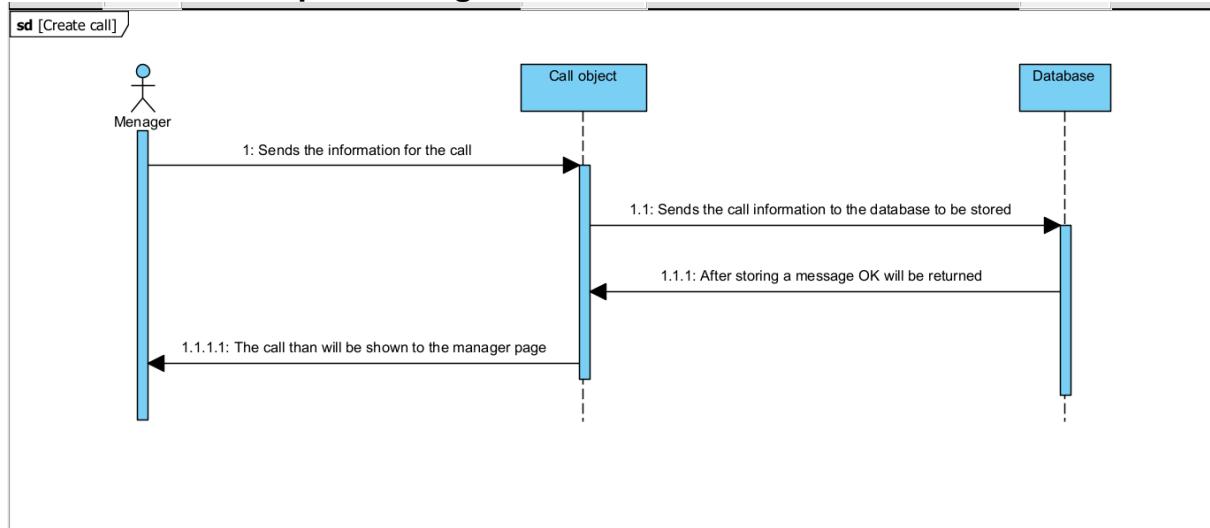
10-Create materials.



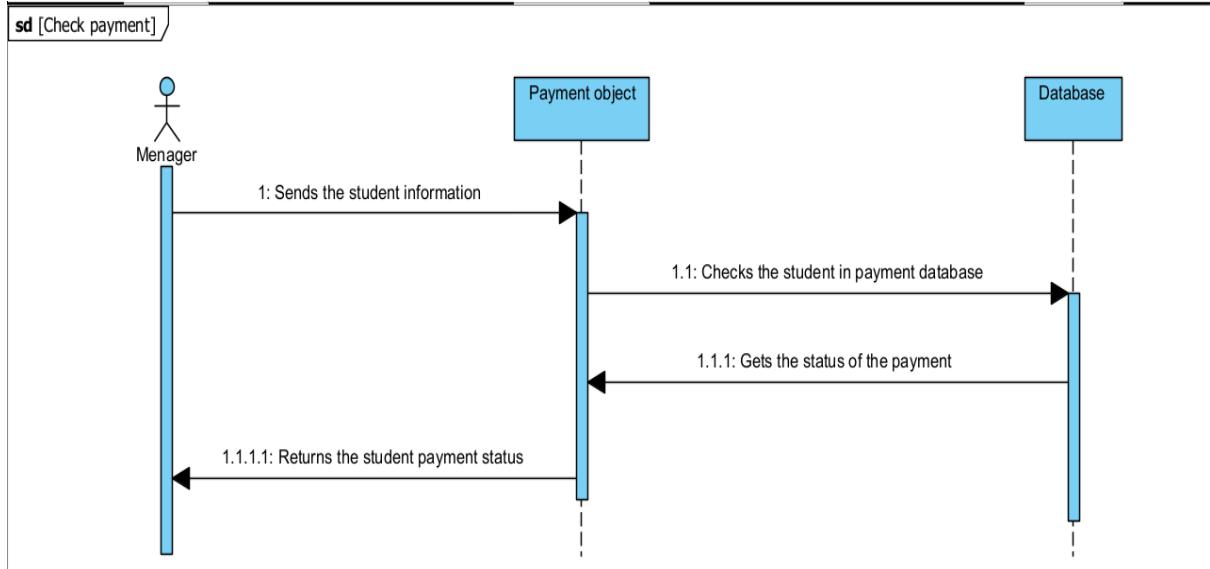
11-Update materials.



12-Create a call sequence diagram.

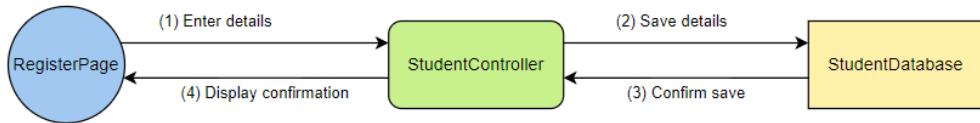


13-Check payment sequence diagram.

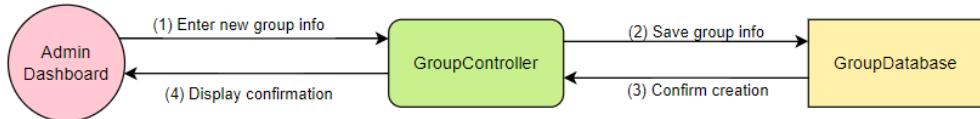


4.6 Collaboration Diagrams

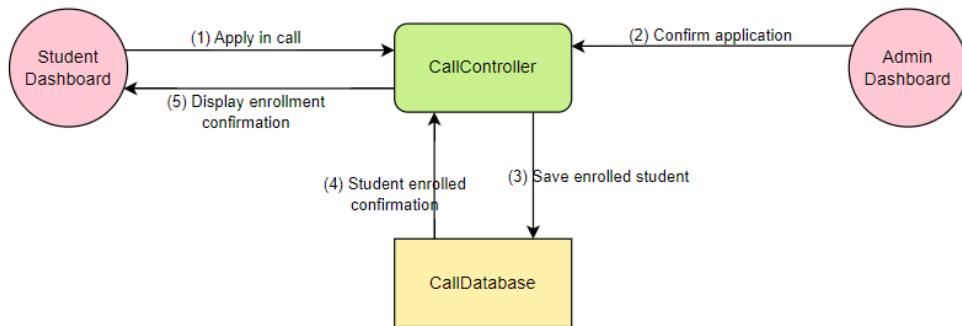
1. Register student



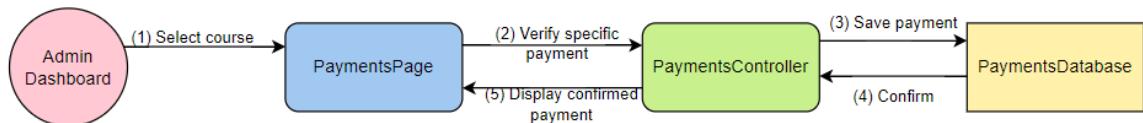
2. Create new group



3. Student enrollment

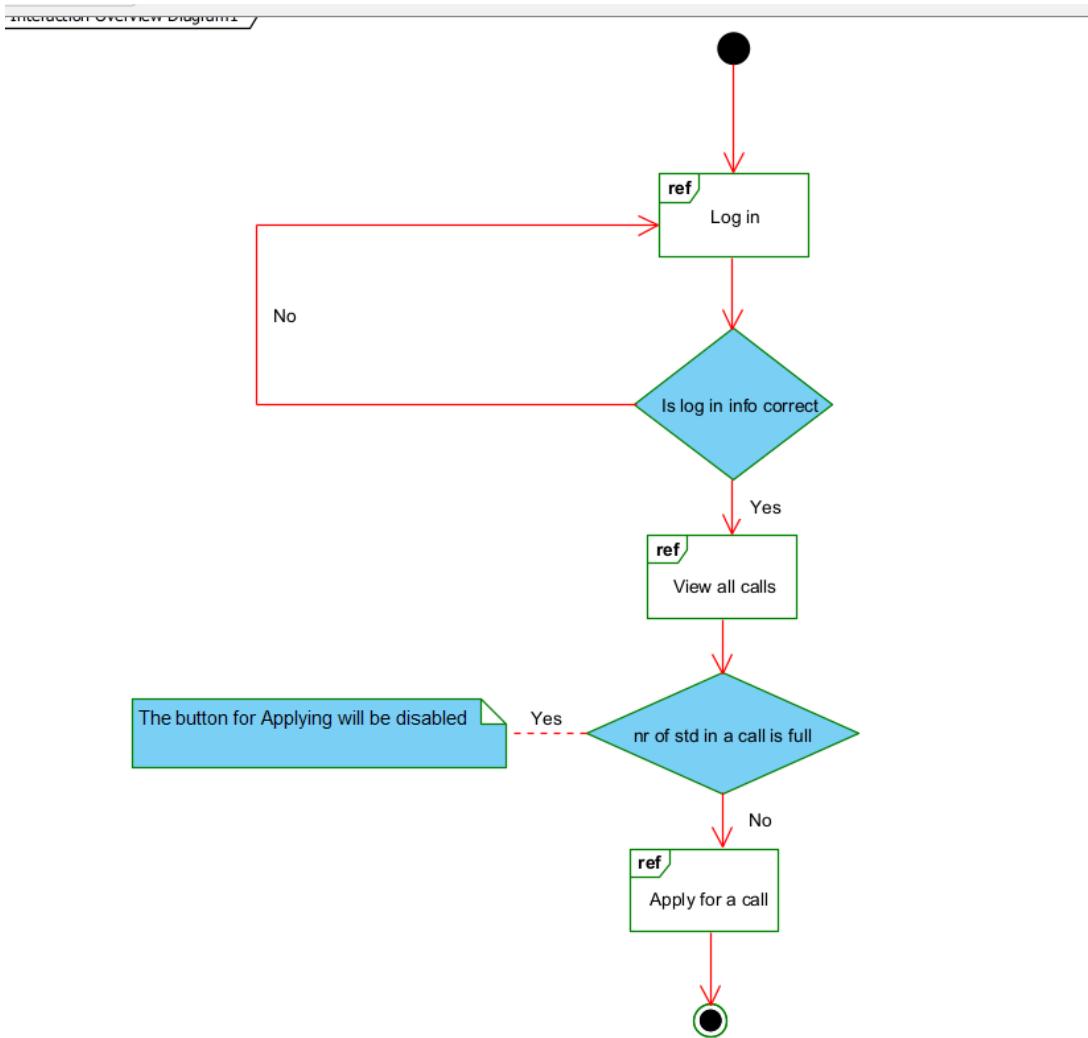


4. Payment verification

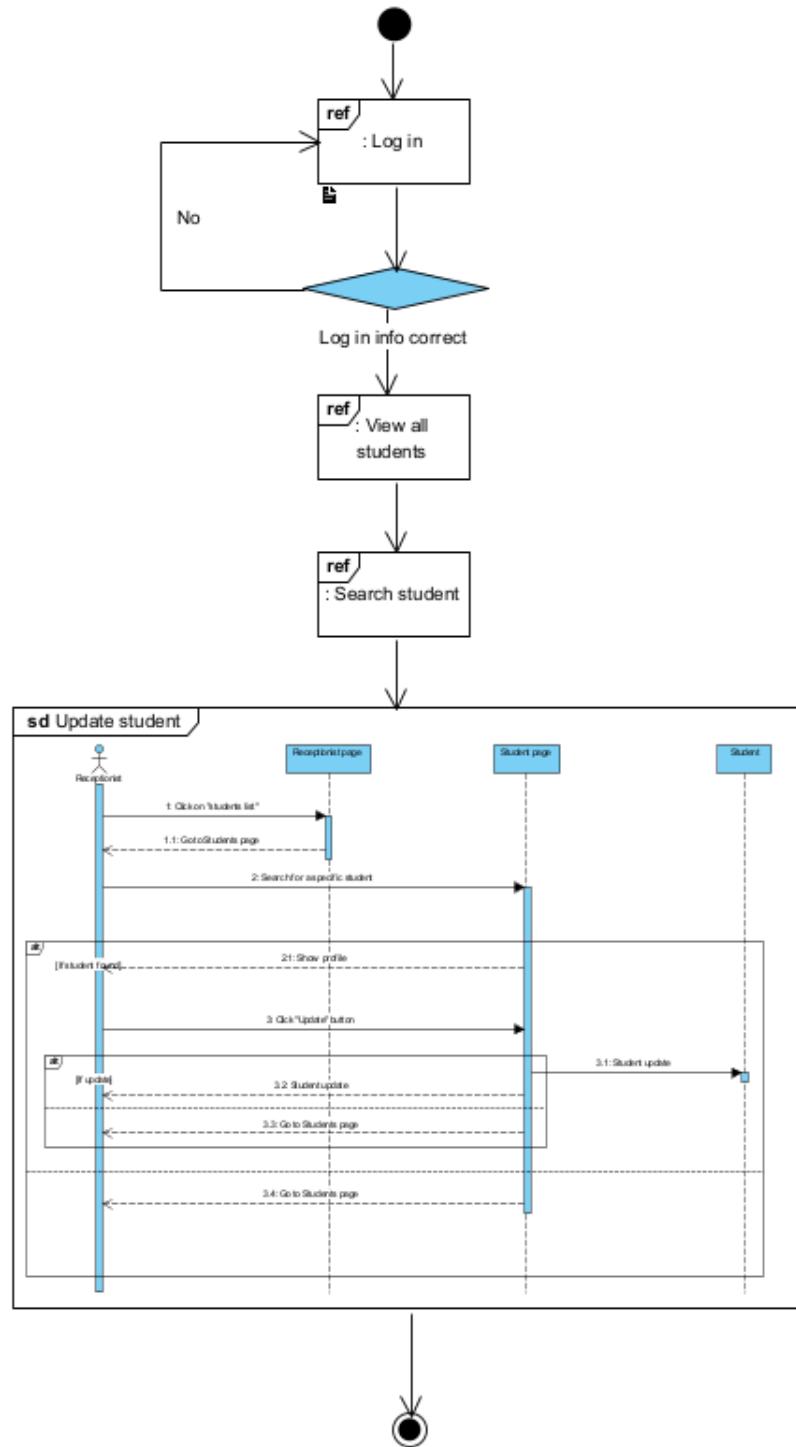


4.7 Interaction Diagrams

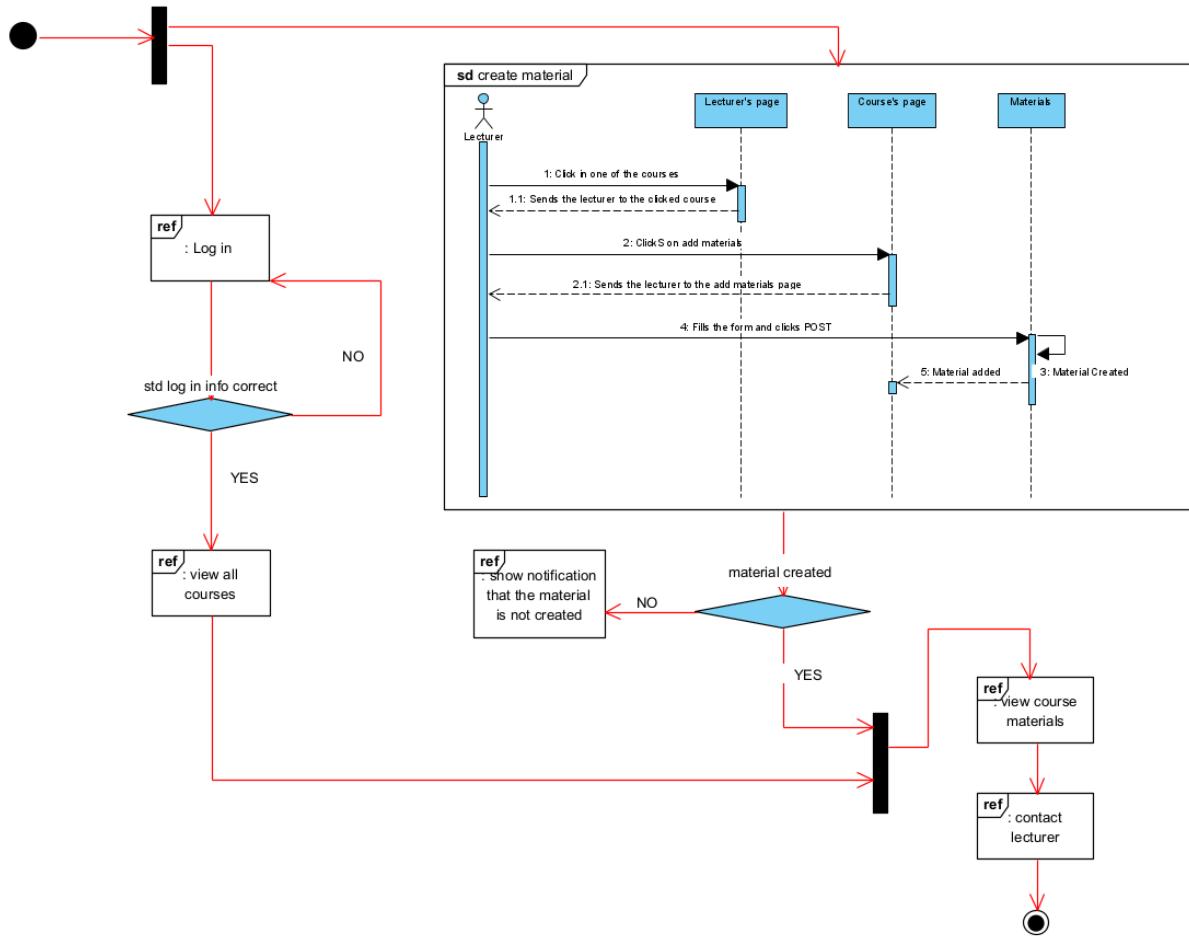
1-Apply for a call



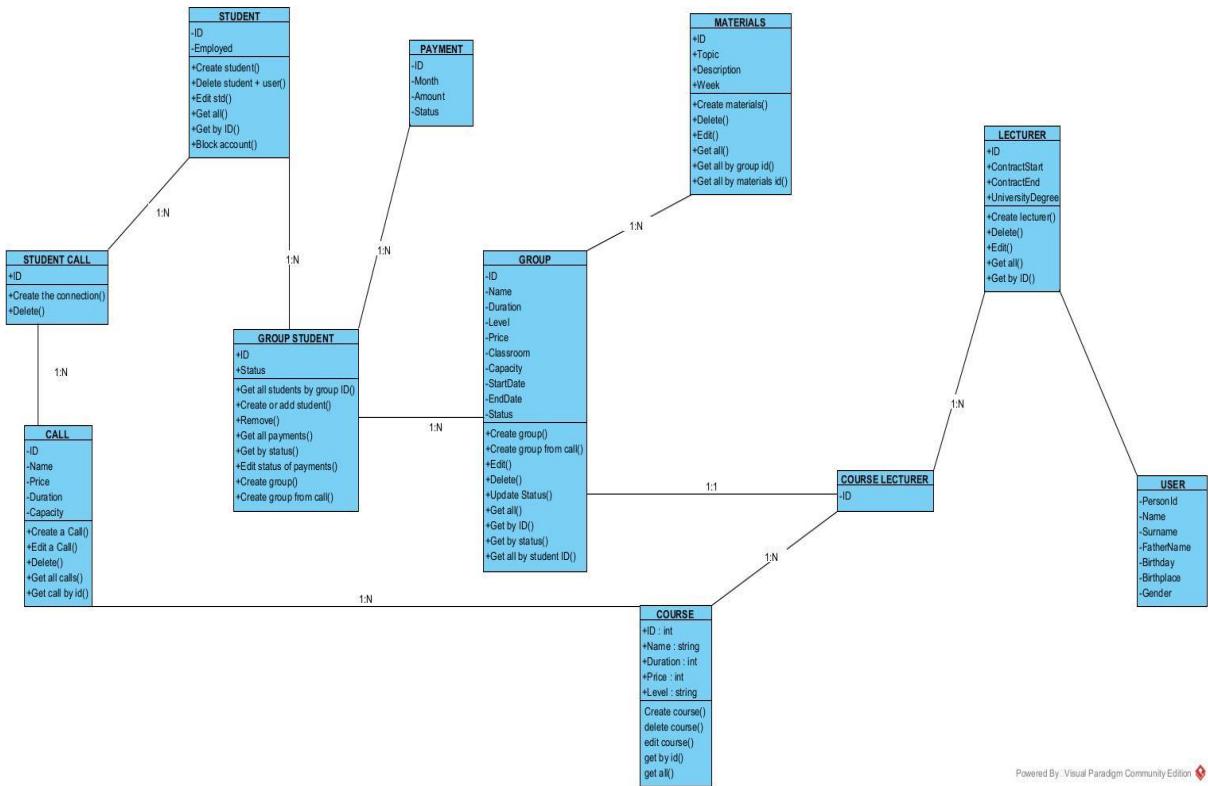
2-Update student



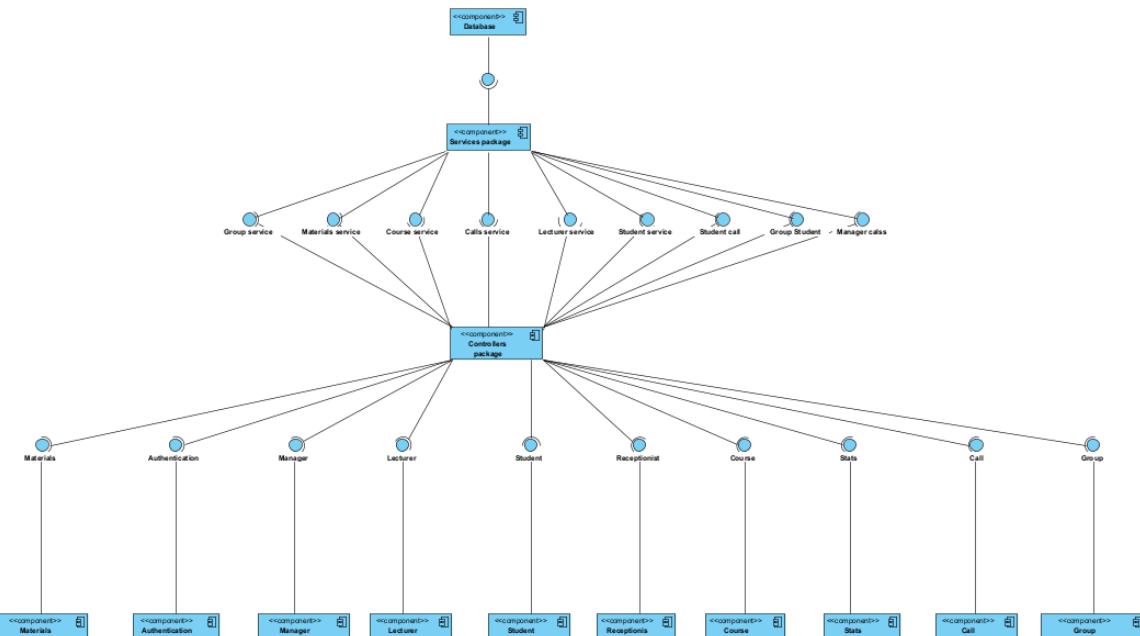
3 - View Group Materials



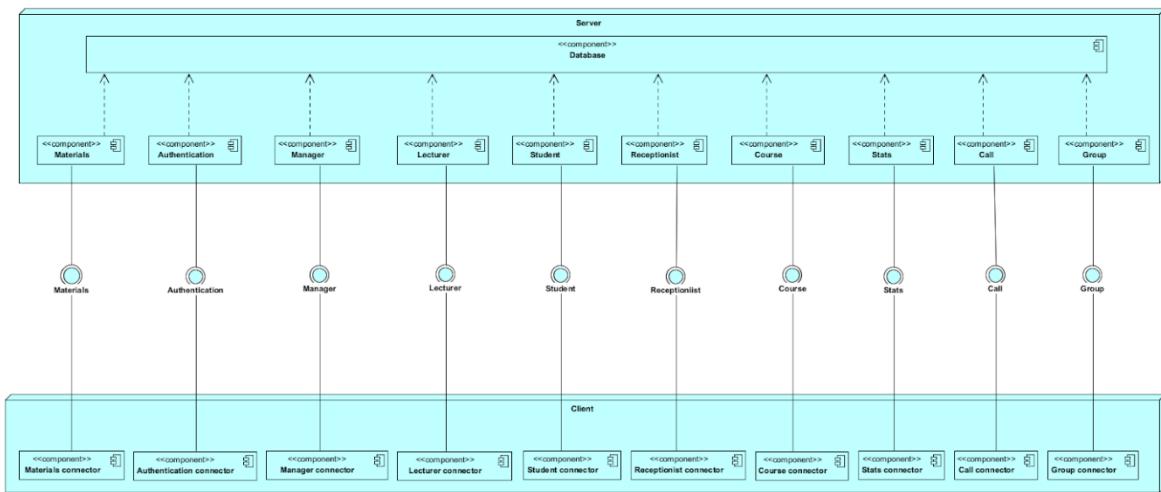
4.8 Class Diagram



4.8 Component diagram.



4.9 Deployment diagram



5. Prototype Design

User Interface design with Figma:

General Interfaces

Home Page

Home | Log In | Courses

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Frame 1

Home | Log In | Courses

STUDENT

PROFESSOR

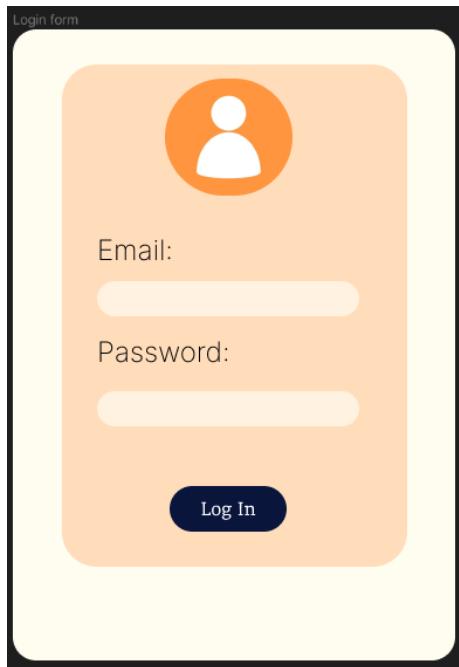
RECEPTIONIST

Log in as a manager

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Login form

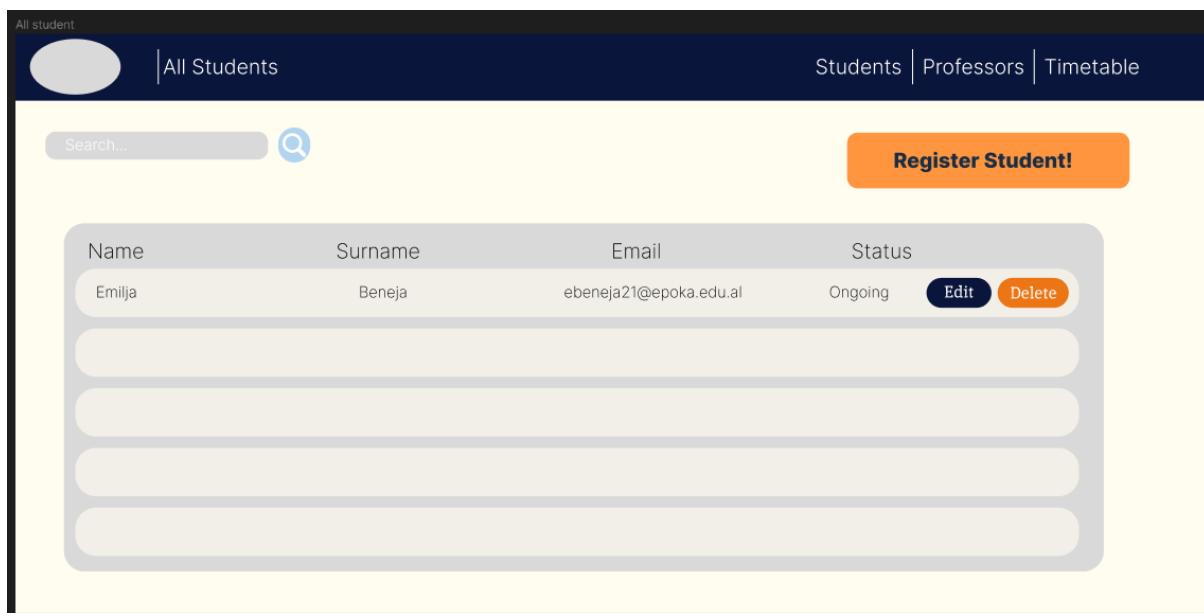


The login form features a large orange rounded rectangle at the top containing a user icon. Below it are two input fields labeled "Email:" and "Password:", each with a placeholder bar. At the bottom is a dark blue "Log In" button.

Login form.

Receptionist Interface

All student



The dashboard has a dark blue header with "All Students" and navigation links for "Students | Professors | Timetable". Below is a search bar and a "Register Student!" button. A table lists student data: Name (Emilja), Surname (Beneja), Email (ebeneja21@epoka.edu.al), and Status (Ongoing). It includes "Edit" and "Delete" buttons for Emilja.

Name	Surname	Email	Status
Emilja	Beneja	ebeneja21@epoka.edu.al	Ongoing

All professors

All Professors

Students | Professors | Timetable

Search... 

Name	Surname	Email	Status
Igli	Draci	idraci@epoka.edu.al	Active

Frame 2

Timetable

Students | Professors | Timetable

Search... 

Student Interface

Profile

Welcome Ms.Emilja Beneja !

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Email: ntech@gmail.com
Address: Rruga Ismail Qemal, Nr. 31, Tirana

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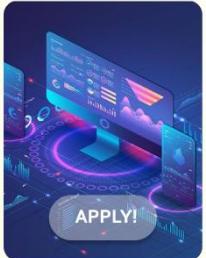
Apply page

Open Calls

Apply | My Courses | Profile | Log out

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Ongoing course

My ongoing courses

Apply | My Courses | Profile | Log out

JAVA Programming

Start date: 10 March 2024
End date: 15 June 2024
Professor: Igli Draci
Classroom: Lab II
Time: 10:30-12:30

Data Analysis

Start date: 10 March 2024
End date: 15 June 2024
Professor: Igli Draci
Classroom: Lab I
Time: 13:30-15:30

Contact: +355 68 831 1505
Email: ntech@gmail.com
Address: Rruga Ismail Qemal, Nr. 31, Tirana

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Course

Data Analysis

Apply | My Courses | Profile | Log out

 Send email!

Course Materials

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Lecturer Interface

Prof Profile



Welcome Professor!

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Ongoing course



My ongoing courses

Profile | My Courses | Log out

JAVA Programming

Start date: 10 March 2024
End date: 15 June 2024
No. Students: 12
Classroom: Lab II
Time: 10:30-12:30

Data Analysis

Start date: 10 March 2024
End date: 15 June 2024
No. Students: 12
Classroom: Lab I
Time: 13:30-15:30

Contact: +355 68 831 1505
Email: ntech@gmail.com
Address: Rruga Ismail Qemal, Nr. 31, Tirana

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course

Data Analysis

Add material

View students

Week I

Topic:

Delete

Edit

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Address: Rruga Ismail Qemal, Nr. 31, Tirana

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Add material form

View students

List of students

Name	Surname	Email	Status
Emilia	Beneja	ebeneja21@epoka.edu.al	Ongoing

Week:

Topic:

Description:

Links:

Add file

Post

Manager Interface

Stats

General Statistics

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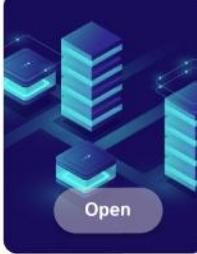
Apply page

Add Call

Open Calls

Timetable | Statistics | Courses | Open Calls | Professors | Log out

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Ongoing courses

| Ongoing Courses | Timetable | Statistics | Courses | Open Calls | Professors | Log out

Course	Start	End	Lecturer	No.Students	Price	Time	Classroom

[Check payment](#) [Status](#) [Edit](#) [Delete](#)

Completed courses

| Completed Courses | Timetable | Statistics | Courses | Open Calls | Professors | Log out

Course	Start	End	Lecturer	No.Students	No.Satisfactory	Price

[Get all students](#) [Get all students](#) [Get all students](#) [Get all students](#) [Get all students](#)

Professors

| List of Professors | Statistics | Courses | Open Calls | Professors | Log out

Add Professor

Name	Surname	Email
Igli	Draci	idraci@epoka.edu.al



Some valuable forms in the Manager Interface.

Four examples of forms from the Manager Interface, each with an orange header and rounded corners. 1. "Add call": Fields for Topic, Professor, Start Period, Time, End Period, Classroom, Price, and Max Capacity. Buttons include "Post", "View", "Delete", and "Edit". 2. "Call": A single field for "Call Name" with a "View" button. 3. "COURSES": Buttons for "Ongoing Courses" and "Completed Courses", and links for "Add Course" and "Add Student". 4. "Call": Fields for Name, Surname, and "Select Course" dropdown, with an "Add" button.

show profile

Name:

Surname:

Can teach:

Ongoing Courses:

Contract:

Edit **Delete**

Add

A. Definitions, Acronyms, and Abbreviations

Soft-Delete: Referred to a process which doesn't permanently delete a specific entity, rather it is assigned a status activity, which if is true, the entity is visible in the database, if false, it remains hidden and will not be displayed in the system. This action is reversible.

UC: User Case

AD: Activity Diagram

CD: Case Diagram

B. Requirements Information

This section is for information only as an aid in preparing the requirements document.

Detailed requirements tend to be extensive. Give careful consideration to your organization scheme. Some examples of organization schemes are described below:

By System Mode

Some systems behave quite differently depending on the mode of operation. For example, a control system may have different sets of functions depending on its mode: training, normal, or emergency.

By User Class

Some systems provide different sets of functions to different classes of users. For example, an elevator control system presents different capabilities to passengers, maintenance workers, and fire fighters.

By Objects

Objects are real-world entities that have a counterpart within the system. For example, in a patient monitoring system, objects include patients, sensors, nurses, rooms, physicians, medicines, etc. Associated with each object is a set of attributes (of that object) and functions (performed by that object). These functions are also called services, methods, or processes. Note that sets of objects may share attributes and services. These are grouped together as classes.

By Feature

A feature is an externally desired service by the system that may require a sequence of inputs to affect the desired result. For example, in a telephone system, features include local call, call forwarding, and conference call. Each feature is generally described in a sequence of stimulus-response pairs, and may include validity checks on inputs, exact sequencing of operations, responses to abnormal situations, including error handling and recovery, effects of parameters, relationships of inputs to outputs, including input/output sequences and formulas for input to output.

By Stimulus

Some systems can be best organized by describing their functions in terms of stimuli. For example, the functions of an automatic aircraft landing system may be organized into sections for loss of power, wind shear, sudden change in roll, vertical velocity excessive, etc.

By Response

Some systems can be best organized by describing all the functions in support of the generation of a response. For example, the functions of a personnel system may be organized into sections corresponding to all functions associated with generating paychecks, all functions associated with generating a current list of employees, etc.

By Functional Hierarchy

When none of the above organizational schemes prove helpful, the overall functionality can be organized into a hierarchy of functions organized by common inputs, common outputs, or common internal data access. Data flow diagrams and data dictionaries can be used to show the relationships between and among the functions and data.

Additional Comments

Whenever a new Requirements Specification is contemplated, more than one of the organizational techniques given above may be appropriate. In such cases, organize the specific requirements for multiple hierarchies tailored to the specific needs of the system under specification.

There are many notations, methods, and automated support tools available to aid in the documentation of requirements. For the most part, their usefulness is a function of organization. For example, when organizing by mode, finite state machines or state charts may prove helpful; when organizing by object, object-oriented analysis may prove helpful; when organizing by feature, stimulus-response sequences may prove helpful; and when organizing by functional hierarchy, data flow diagrams and data dictionaries may prove helpful.