

SOFTWARE DESIGN AND ARCHITECTURE PROJECT



SRS REPORT

E-LEARNING PLATFORM Based on Coursera



TEAM MEMBERS:

BSE-4B

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ABSTRACT IDEA

The e-learning platform (online learning) is a single solution to all the learning needs of a student. The idea is to provide a platform where everyone can learn irrespective of their age. They can learn anywhere they want with their smartphones, laptops, and PC.

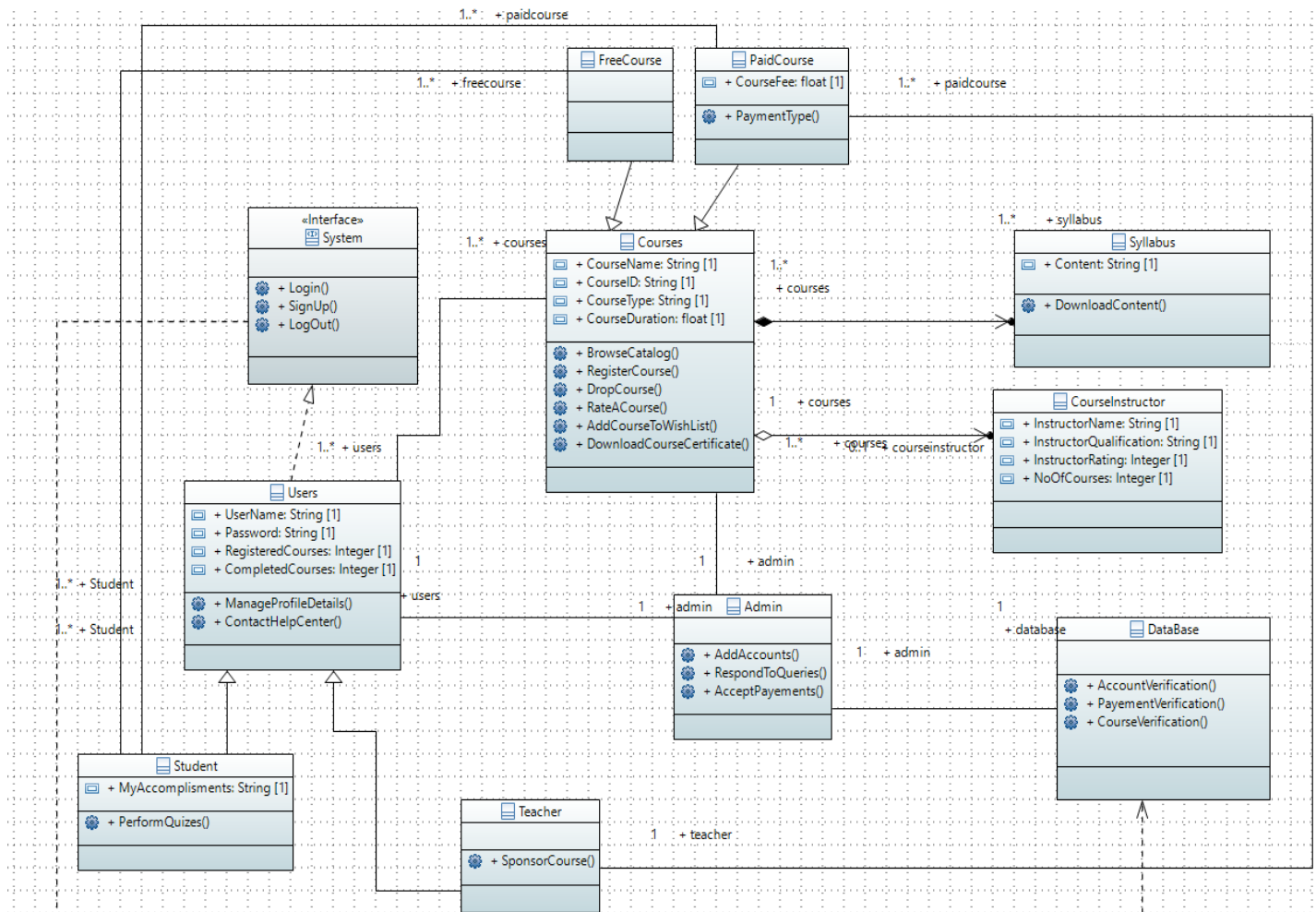
The courses in universities are very expensive and most of the students are unable to afford them so to resolve this problem the online platform will provide students with all the resources like lectures, books, educative videos, online tests, and much more for their learning in a less costly manner.

We will offer a range of learning opportunities, from hands-on projects and courses to job-ready certificates and degree programs.

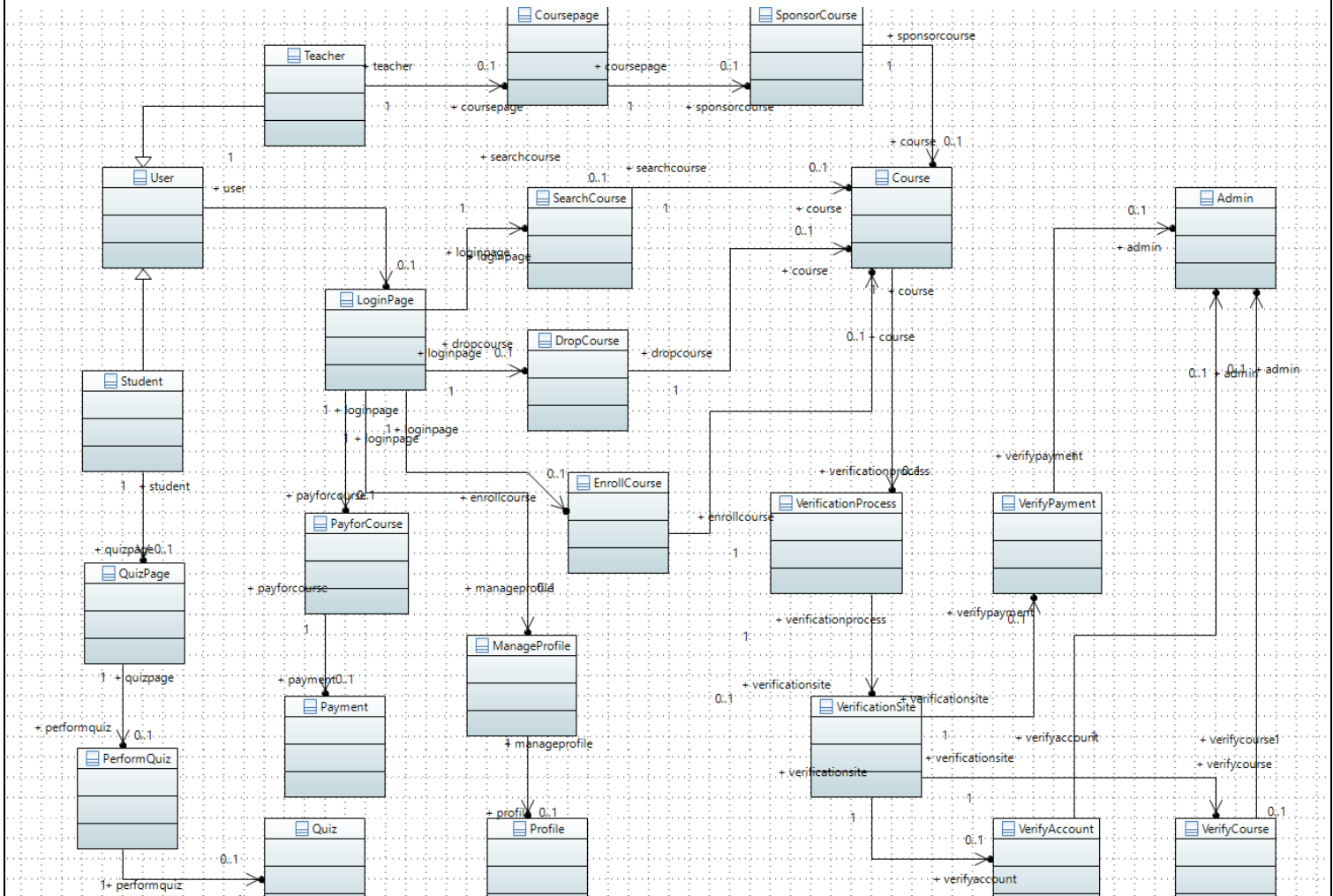
Objective

We believe no matter who we are or where we are, learning empowers us to change and grow and redefine what sometimes seems impossible. That is why access to the best learning is a right, not a privilege. That's why Coursera is here to provide the best learning to every corner of the world so that anyone can transform their lives through learning. As it is an online website, it is widely scalable which will be beneficial to those students who live in a remote area where there is a lack of physical resources for higher education. With this platform, anyone can study anywhere.

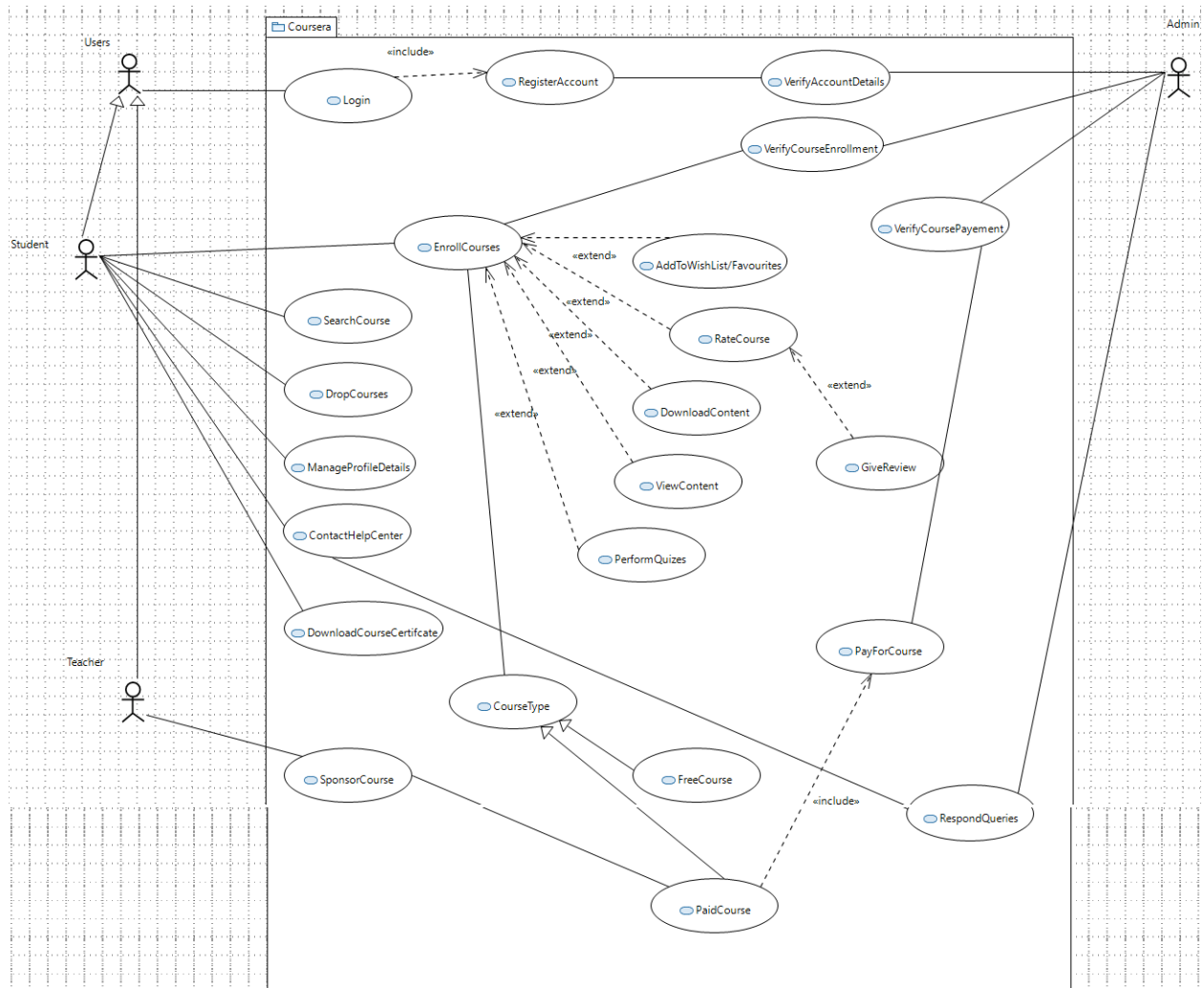
CLASS DIAGRAM



ECB DIAGRAM



USE-CASE DIAGRAM



DETAILED USE-CASES

1) Login/Signup:

- 1) Use-case ID: 01.
- 2) Use-case name: Login/Signup.
- 3) Primary Actor: Student.
- 4) Secondary Actor: Administrator.
- 5) Pre-condition: Open the Coursera website from any web browser.
- 6) Post-condition: View the homepage.
- 7) Trigger: Click on the login option.
- 8) Normal flow:
 - a) Enter your Email Id.
 - b) Enter your password.
 - c) Click on the login button.
- 9) Alternative flow:
 - a) If you do not have an account on Coursera then click on the signup button.
 - i) Enter your name full name, email id, and password.
 - ii) Now login to the website according to the normal flow.
 - b) If an invalid email or password is provided.
 - i) Enter your email and password again.
- 10) Exception: --
- 11) Include: --

2) Enroll in a course:

- 1) Use-case ID: 02.
- 2) Use-case name: Enroll in a course.
- 3) Primary Actor: Student.
- 4) Secondary Actor: Administrator.
- 5) Pre-condition: Particular course or Certification is selected.
- 6) Post-condition: Course Enrolled.
- 7) Trigger: Click on Enroll button.
- 8) Normal flow:
 - a. Click on the enroll button.

- b. User will be directed to the payment screen.
 - c. Select a payment option and click okay.
 - d. Course will be added to your “My Courses” list.
- 9) Alternative flow:
 - a. If the user applies for financial aid.
 - i. Enter your educational background and annual income.
 - ii. Enter your employment status.
 - iii. Enter the reason for applying for financial aid.
 - iv. Submit Application.
- 10) Exception: Course not enrolled
- 11) Include: Login to your account.

3) Search Courses:

- 1) Use-case ID: 03.
- 2) Use-case name: Search courses.
- 3) Primary Actor: Student, Teacher, Administrator.
- 4) Secondary Actor: -
- 5) Pre-condition: Successfully log in with your email and password.
- 6) Post-condition: Particular course is found.
- 7) Trigger: Click on the search bar.
- 8) Normal flow:
 - a. Click on the search bar.
 - b. Type the name of the course.
 - c. Click on the search button.
 - d. The website will look for the search item in database.
 - e. Search result will be displayed.
 - f. Select the course by clicking on it.
- 9) Alternative flow:
 - a. Click on the Explore menu.
 - i. Select a category.
 - ii. View all the courses in that category.
 - iii. Select your desired course.
 - b. If course not found.
 - i. Go back to search.
- 10) Exception: --
- 11) Include: --

4) Manage Profile:

- 1) Use-case ID: 04.
- 2) Use-case name: Manage profile.
- 3) Primary Actor: Student, Teacher.
- 4) Secondary Actor: Administrator.
- 5) Pre-condition: Successfully log in with your email and password.
- 6) Post-condition: profile is viewed and changes are made.
- 7) Trigger: Click on the profile picture icon on the top left of the screen.
- 8) Normal flow:
 - a. From the homepage click on the profile picture icon on the right of the screen.
 - b. Click on the profile option from the menu.
 - c. View the profile.
- 9) Alternative flow:
 - a. If changes are required in the profile.
 - i. Select Edit profile button.
 - ii. Make changes to your profile.
 - iii. Select save changes.
- 10) Exception: Changes not made
- 11) Include: read record of previous profile from database

5) Sponsor Courses:

- 1) Use-case ID: 05.
- 2) Use-case name: Sponsor Courses.
- 3) Primary Actor: Teacher.
- 4) Secondary Actor: Administrator.
- 5) Pre-condition: Teacher must be logged in and choose a course.
- 6) Post-condition: student availed a course for free.
- 7) Trigger: Click on sponsor course.
- 8) Normal flow:
 - a. Click on the sponsor course option on a particular course.
 - b. Select how many copies you want to sponsor.
 - c. Pay for the course.
 - d. Generate a link of the course coupon.
 - e. Send the link to students.

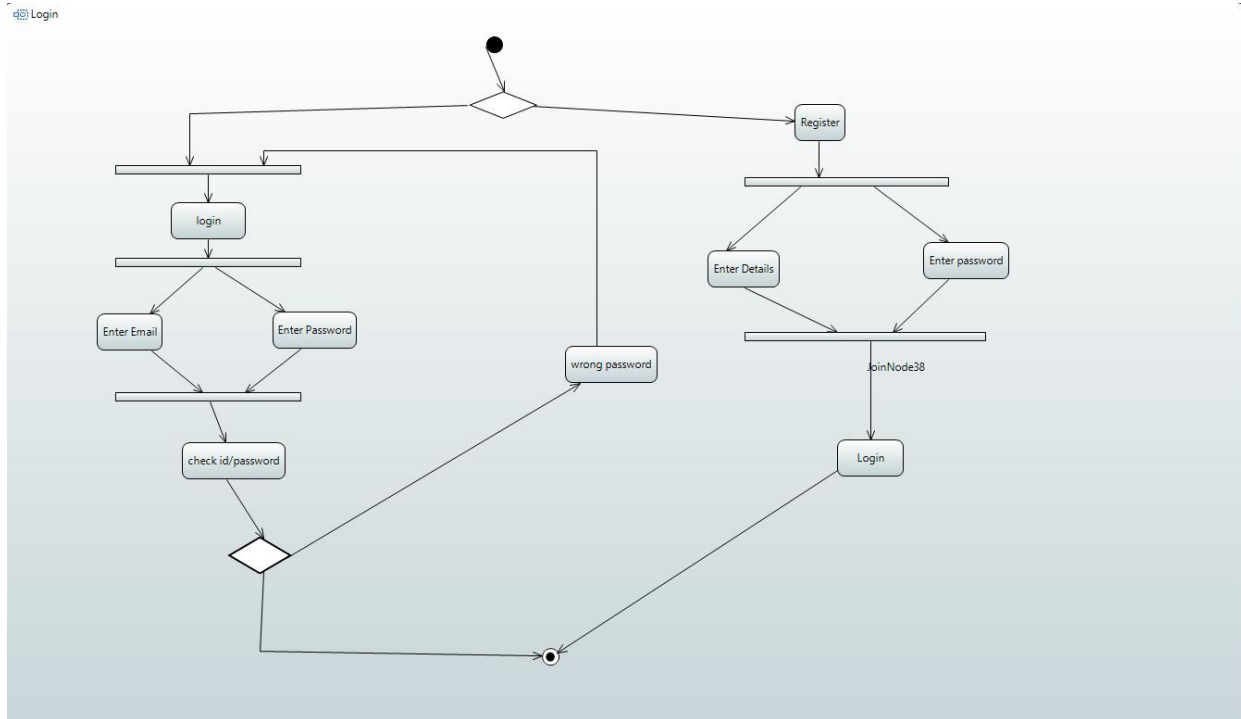
- 9) Alternative flow: -
- 10) Exception: link not generated.
- 11) Include: -

6) Verify Course Payment:

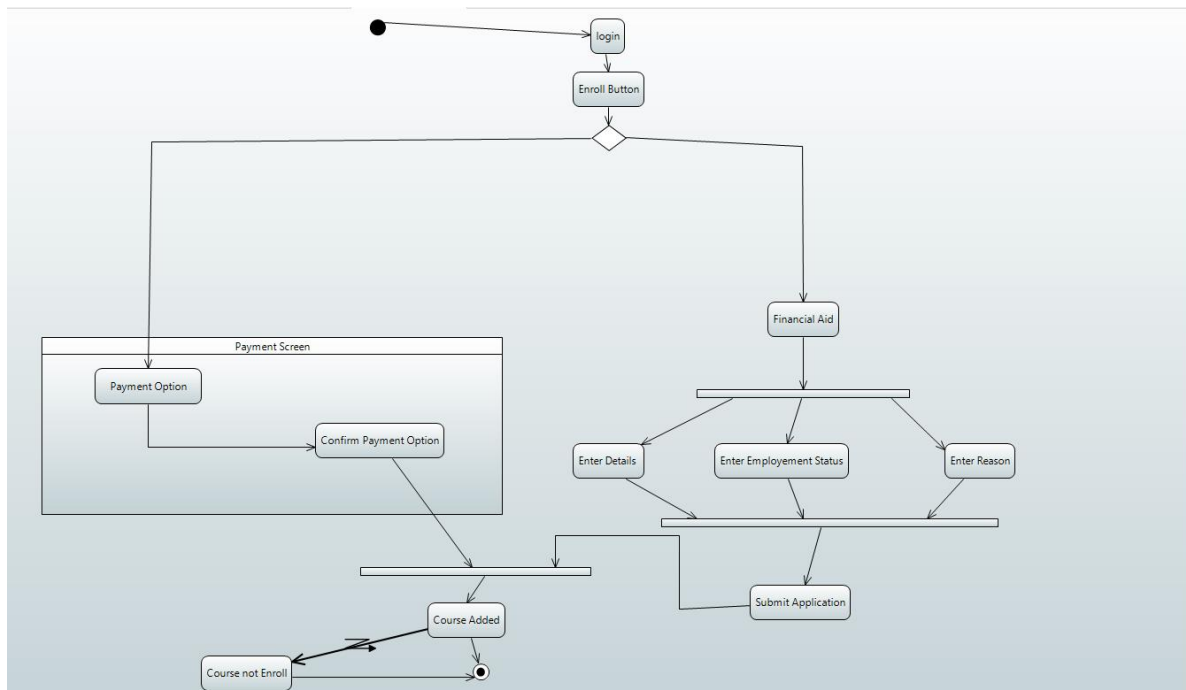
- 1) Use-case ID: 06.
- 2) Use-case name: Verify Course Payment.
- 3) Primary Actor: Administration.
- 4) Secondary Actor: -
- 5) Pre-condition: Student must have applied for enrollment in the course and payed the fees.
- 6) Post-condition: Course enrollment is confirmed, student can now use the content of the course.
- 7) Trigger: Student clicks on pay fees button after selecting the payment method.
- 8) Normal flow:
 - a. Once the user has clicked on the payment button.
 - b. Administrator get the notification of payment form the back that the payment is successful.
 - c. Confirm the payment of the student.
 - d. Give the student access to the course content.
 - e. Send an email to the student notifying that he can access the course.
- 9) Alternative flow:
 - a. If payment is cancelled due to card issue.
 - i. Notify the user take there is a mistake in the details of the card provided by the user, change the details and apply again.
 - b. If not sufficient amount is present in the card.
 - i. Notify the user about the problem.
 - ii. Ask to use another card or exit.
- 10) Exception: payment not working.
- 11) Include: -

ACTIVITY DIAGRAMS

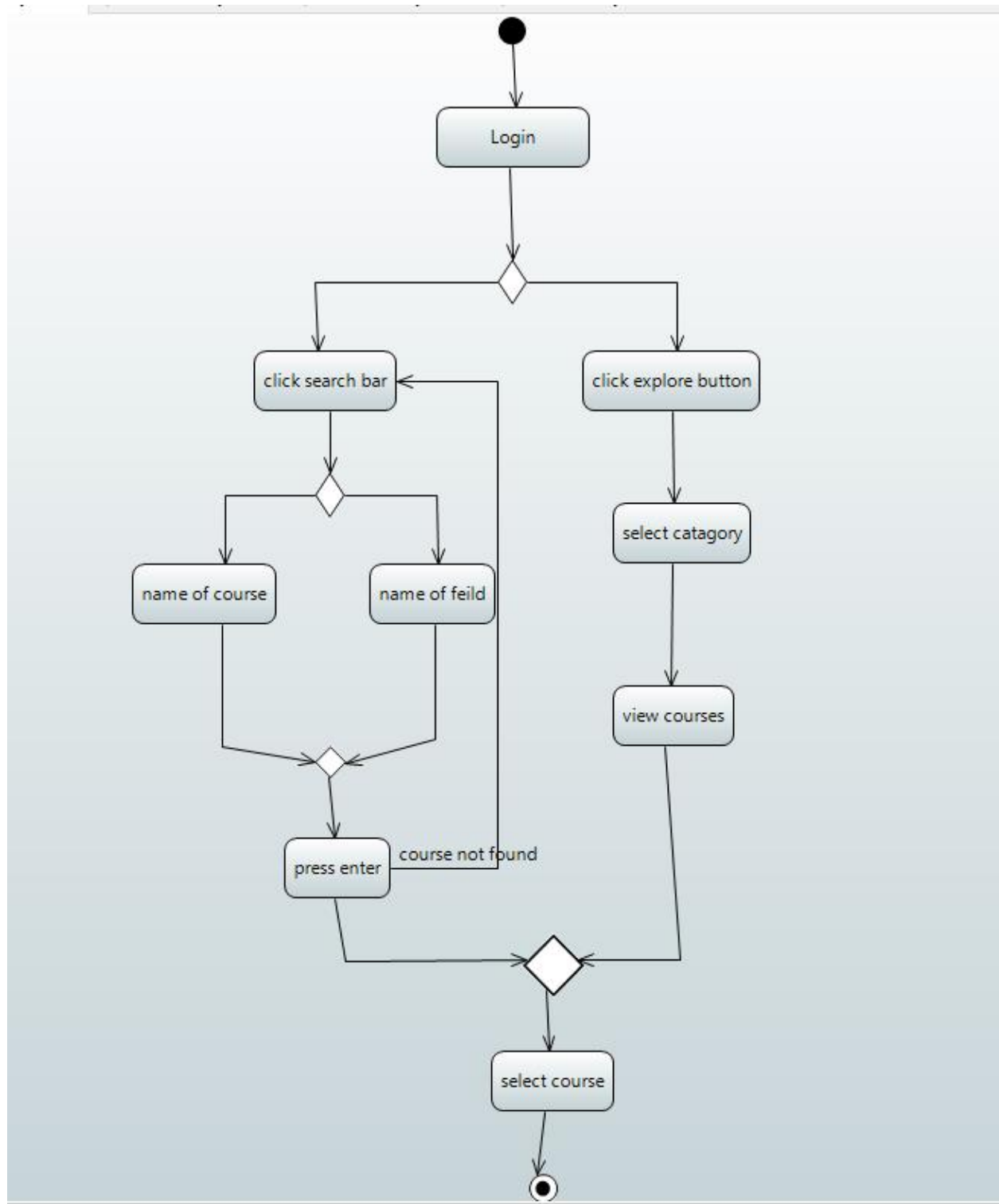
USE-CASE 1:



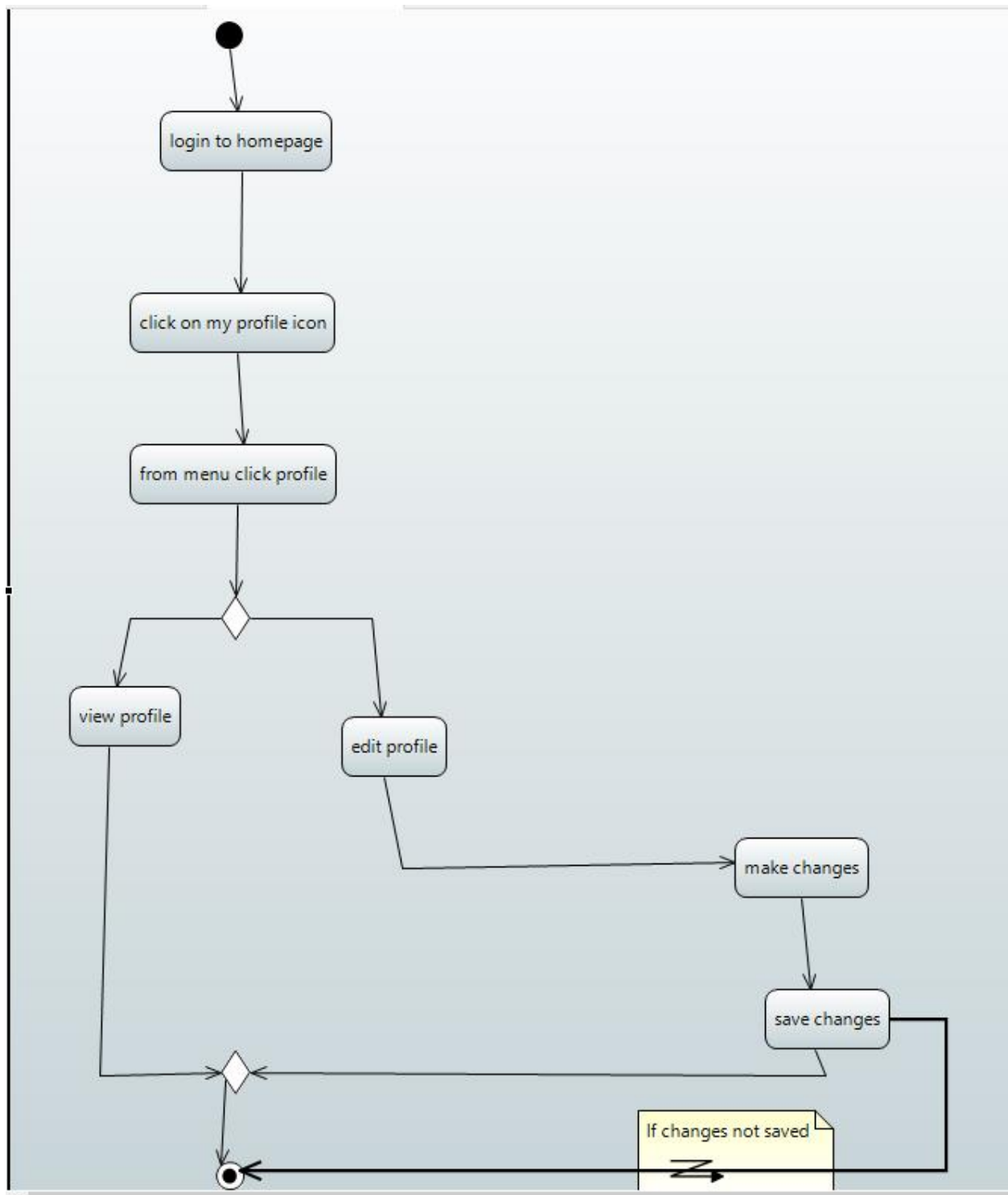
USE-CASE 2:



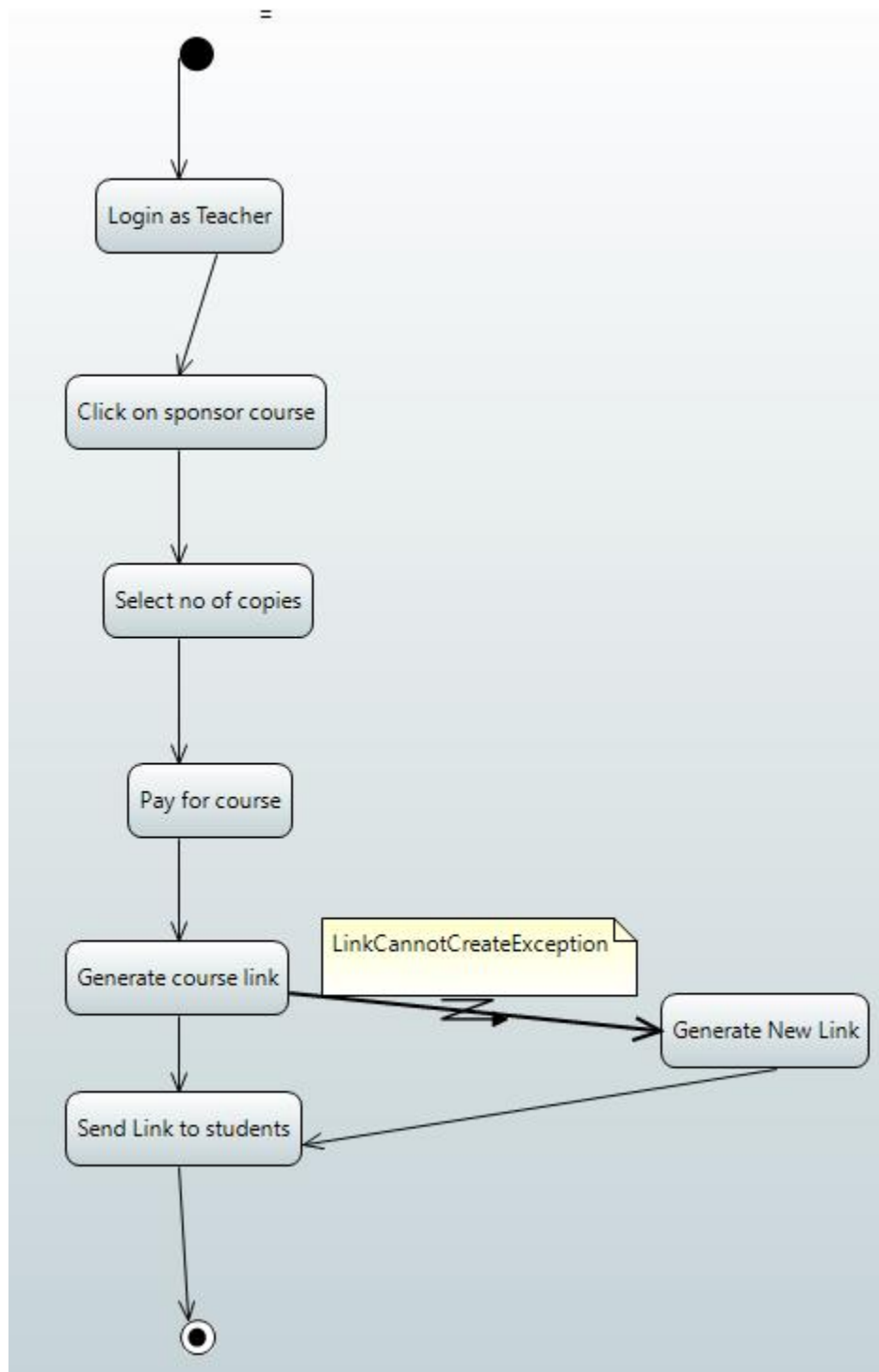
USE-CASE 3:



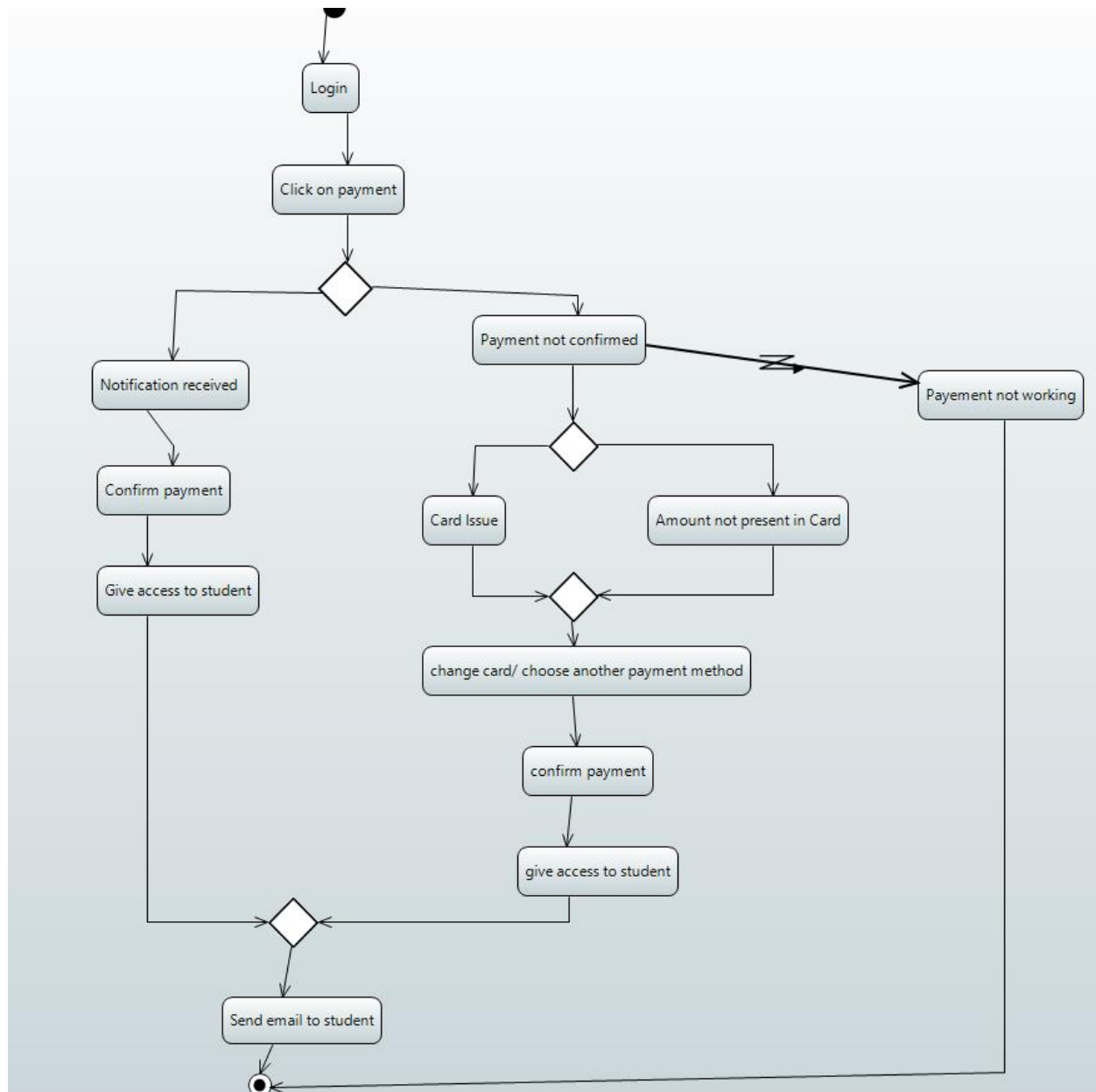
USE-CASE 4:



USE-CASE 5:

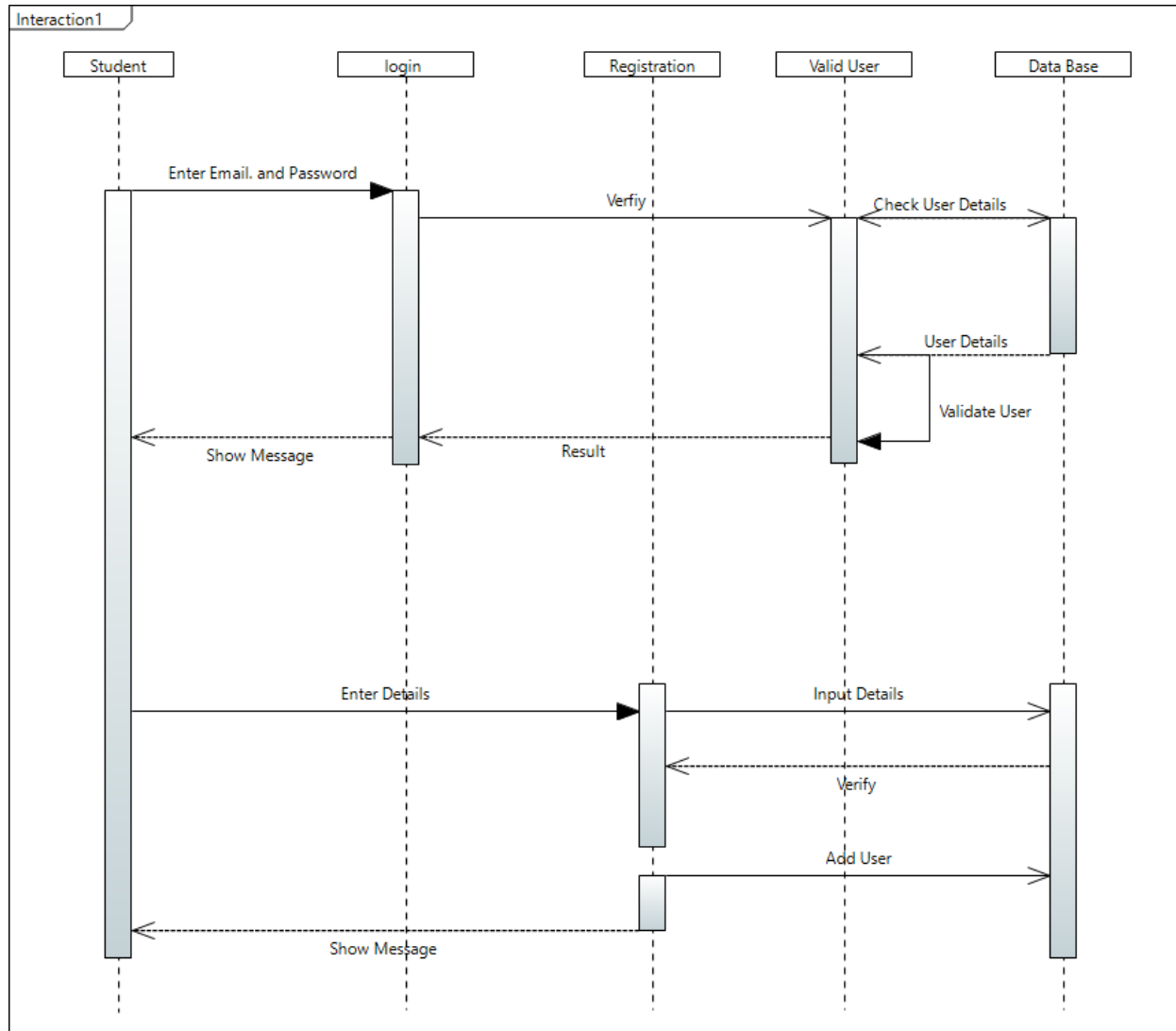


USE-CASE 6:

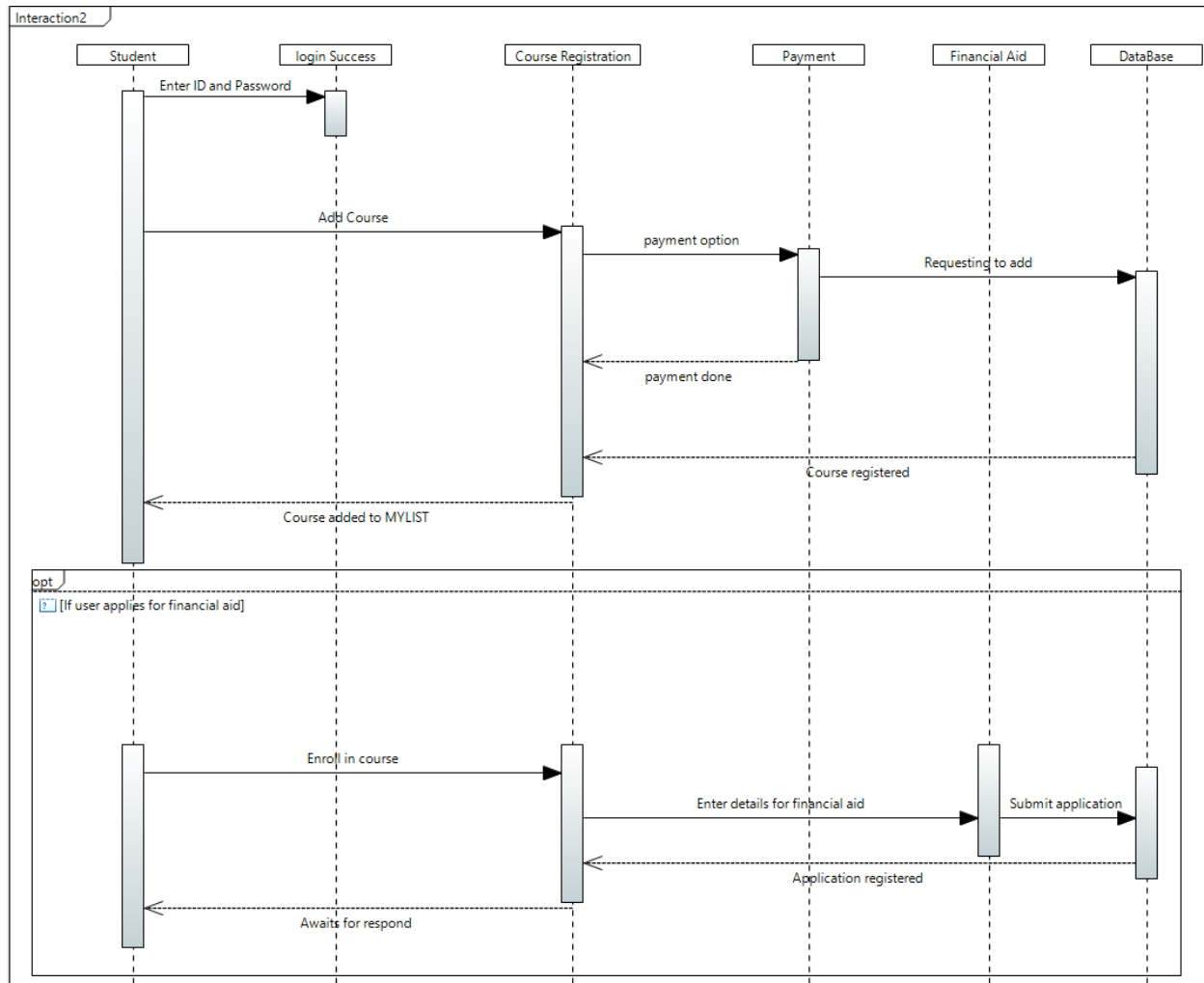


SEQUENCE DIAGRAMS

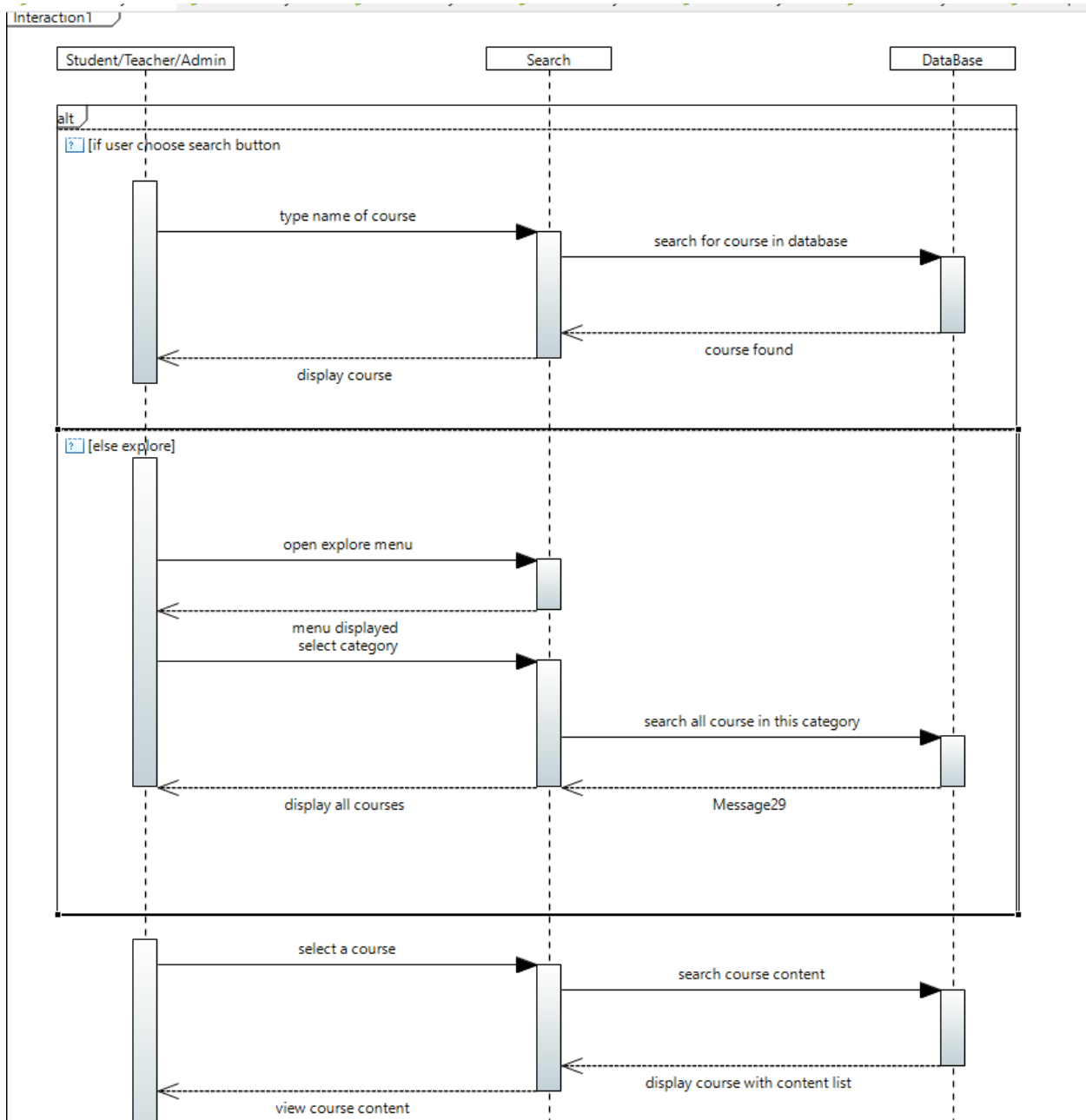
USE-CASE 1:



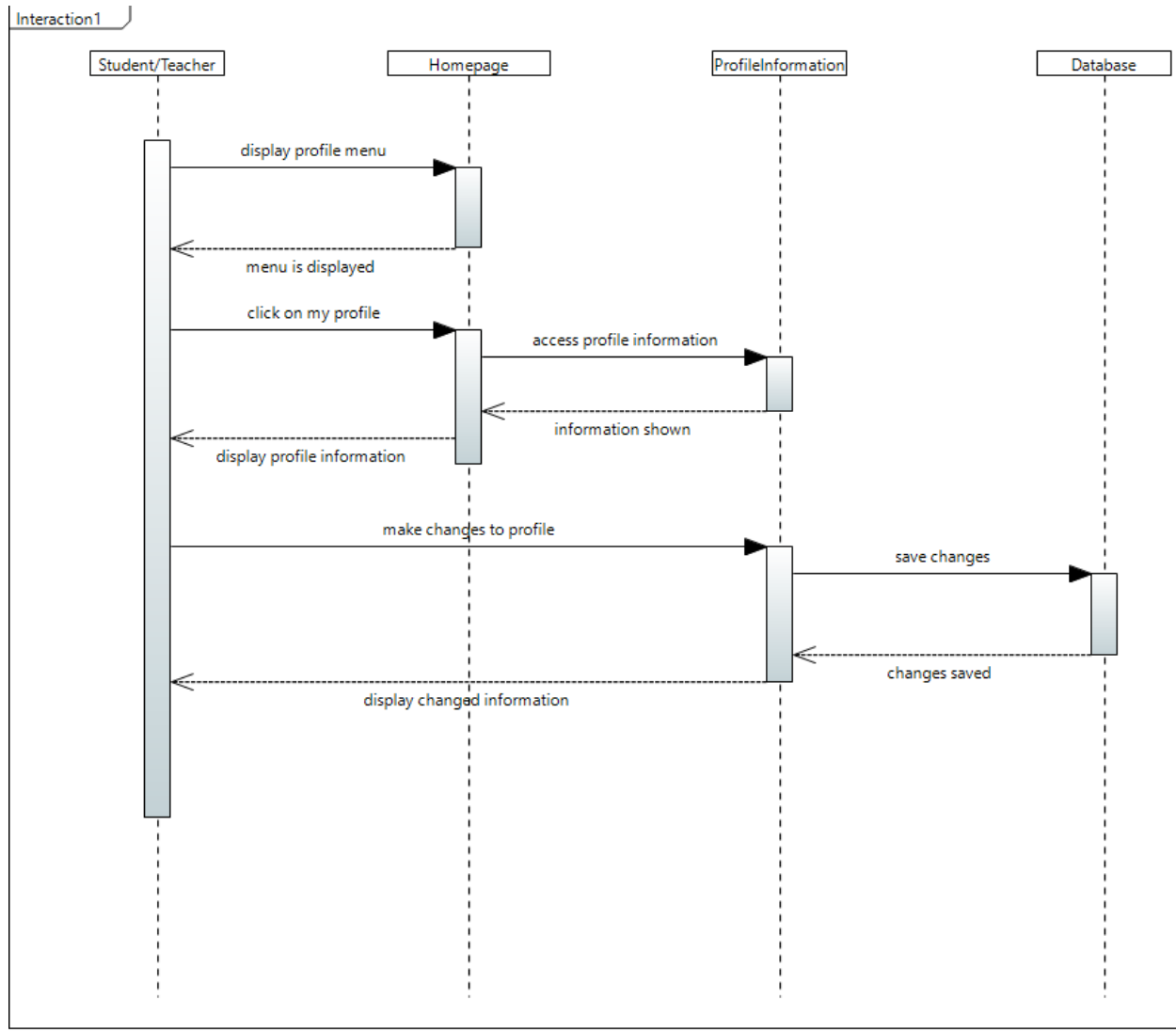
USE-CASE 2:



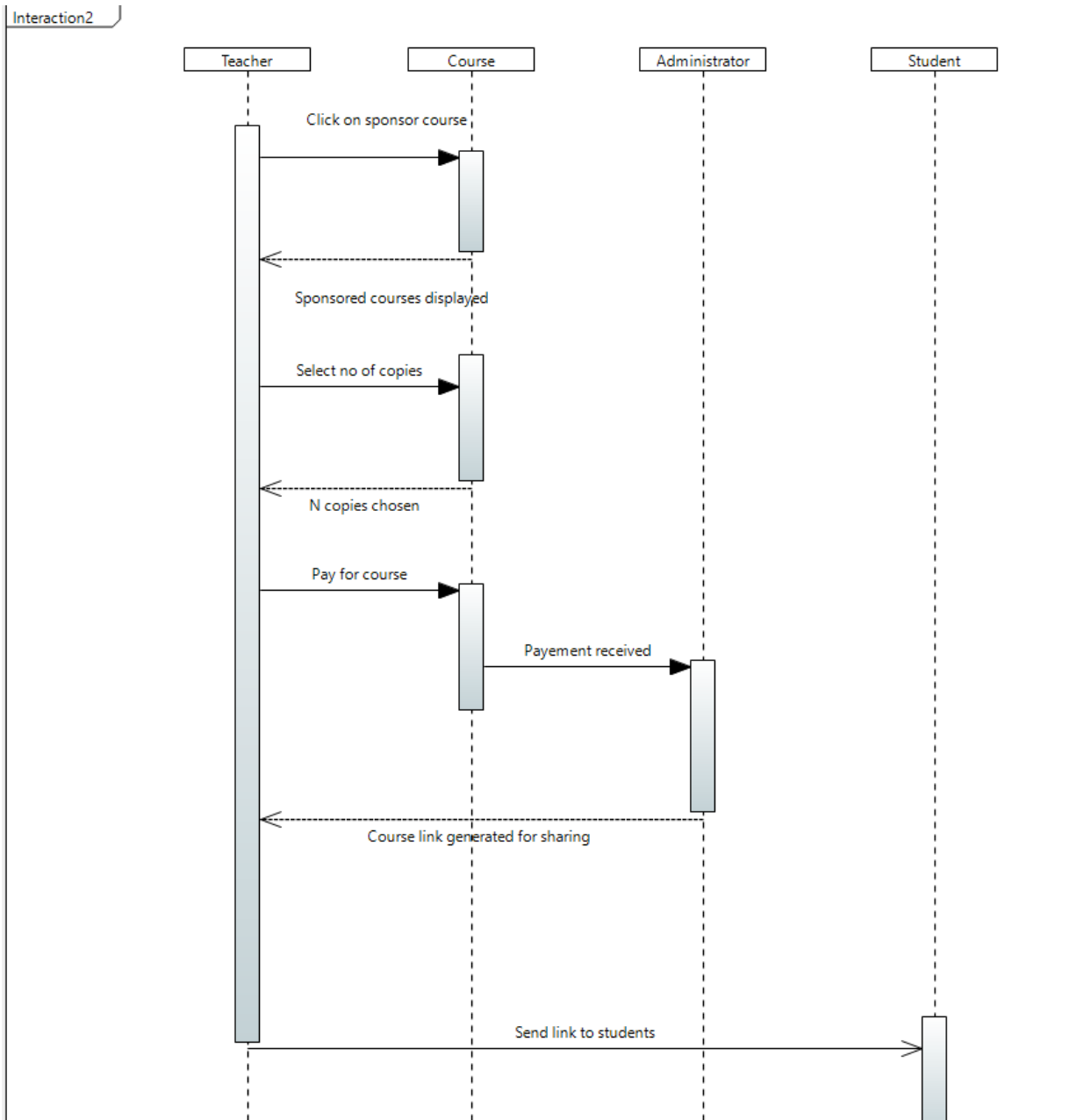
USE-CASE 3:



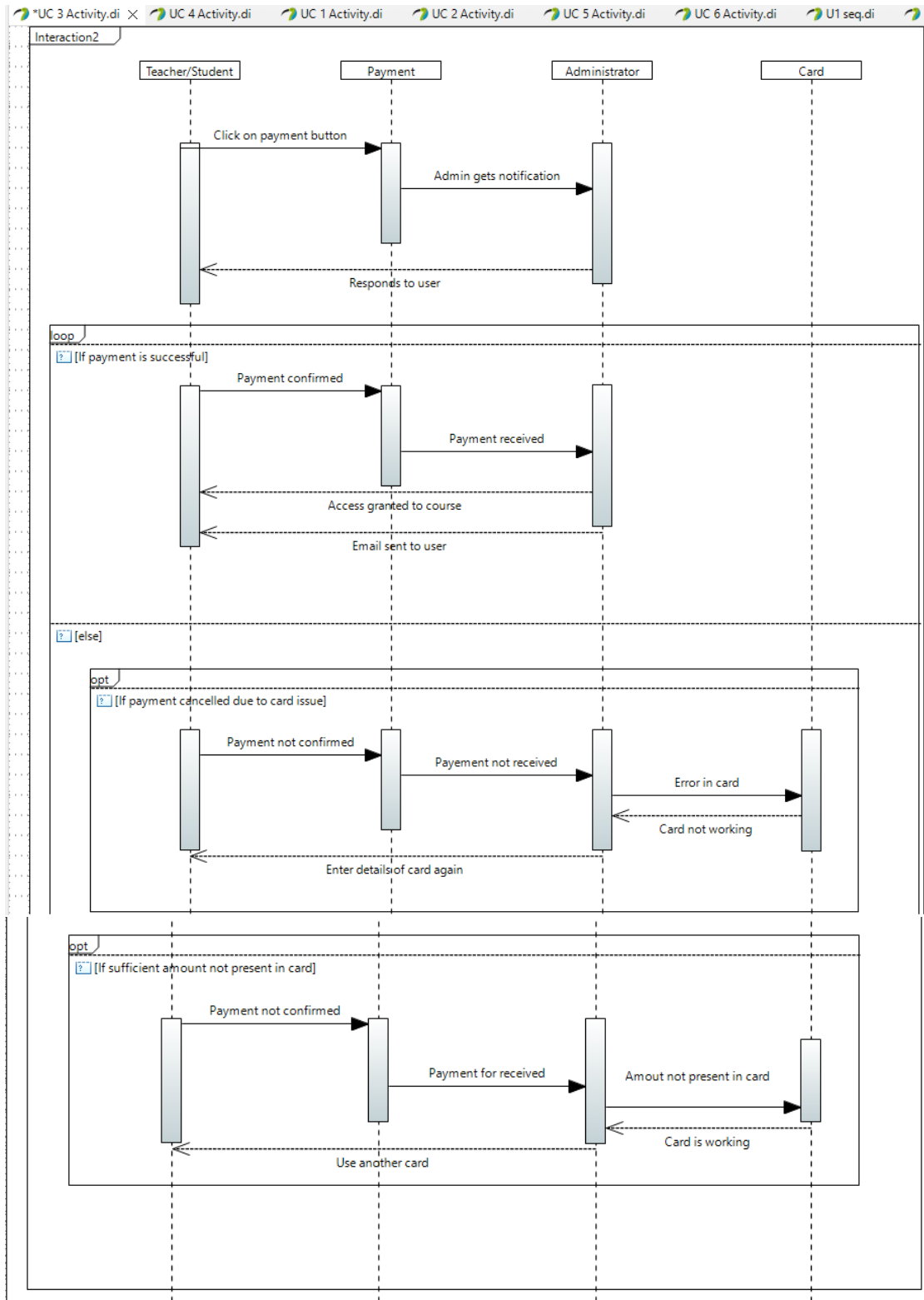
USE-CASE 4:



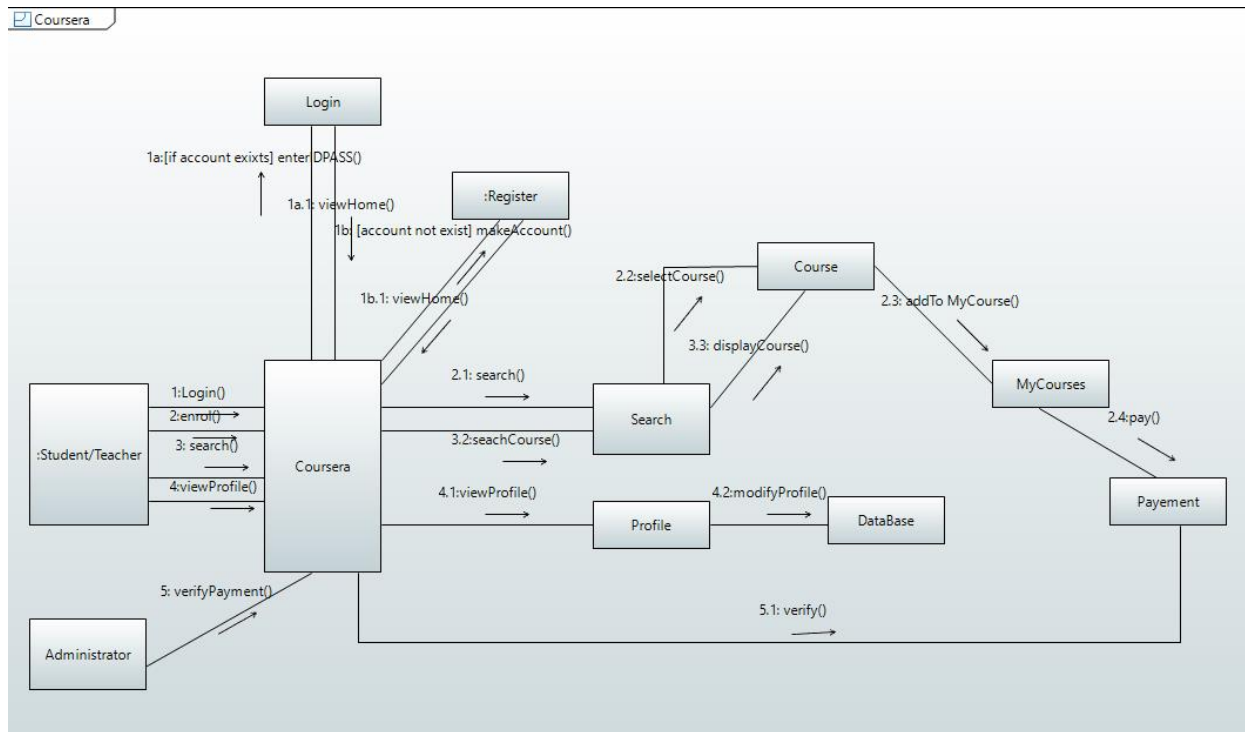
USE-CASE 5:



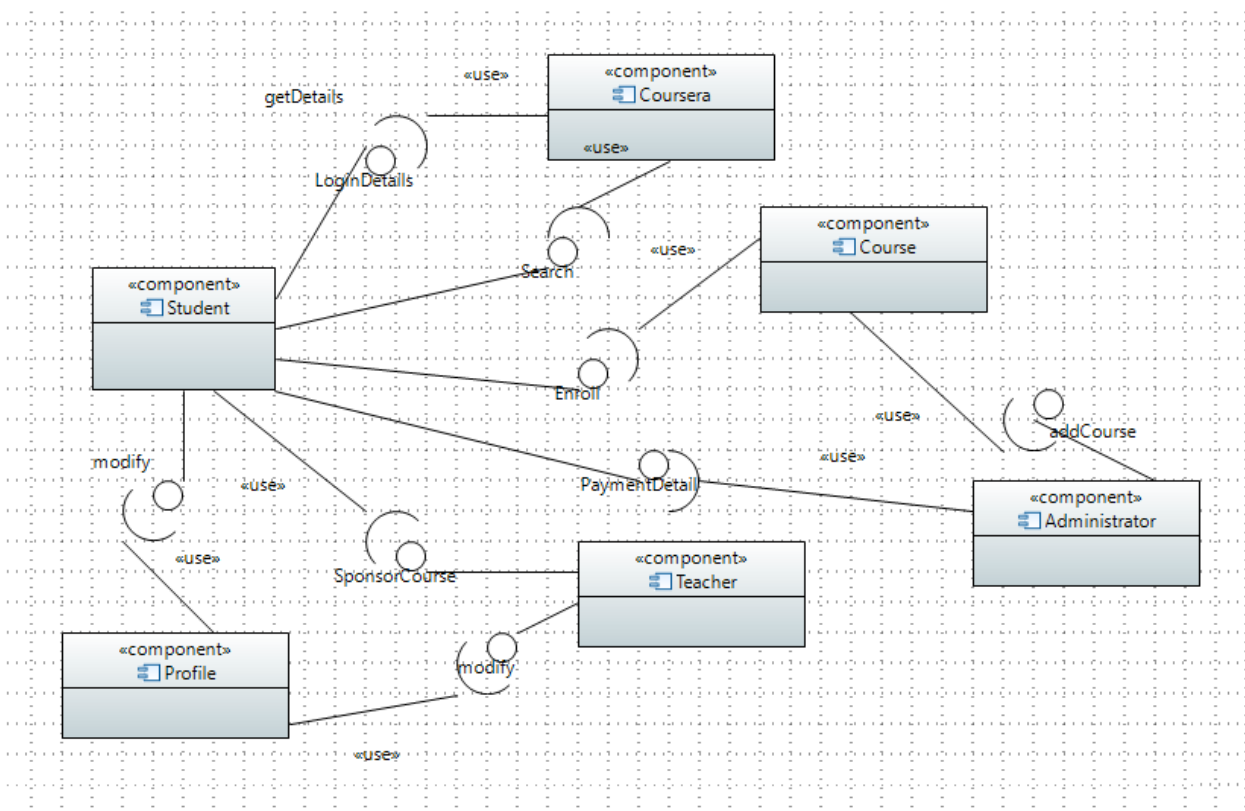
USE-CASE 6:



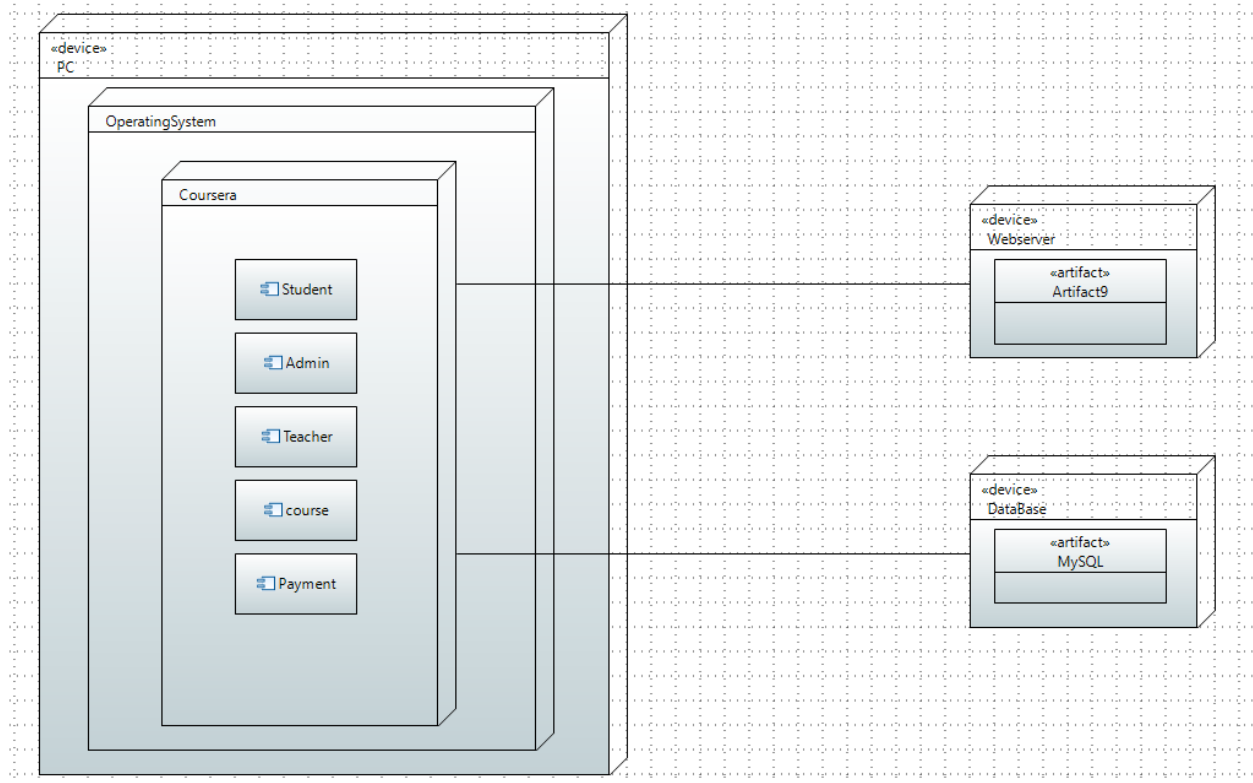
COMMUNICATION DIAGRAM



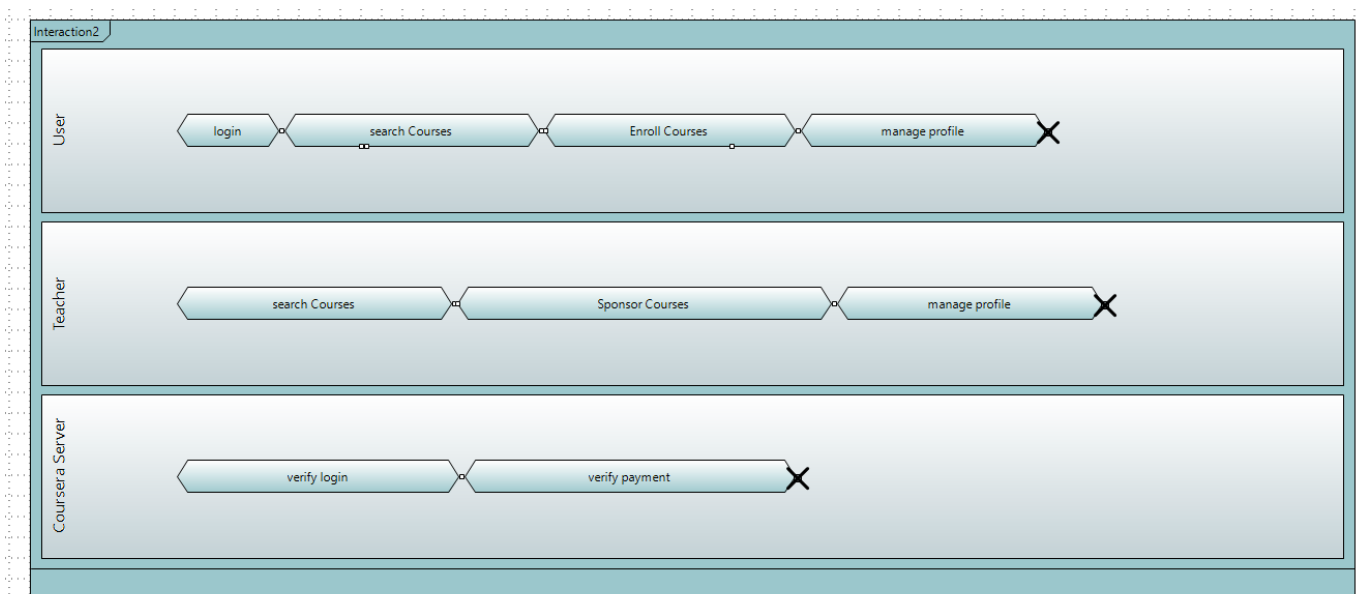
COMPONENT DIAGRAM



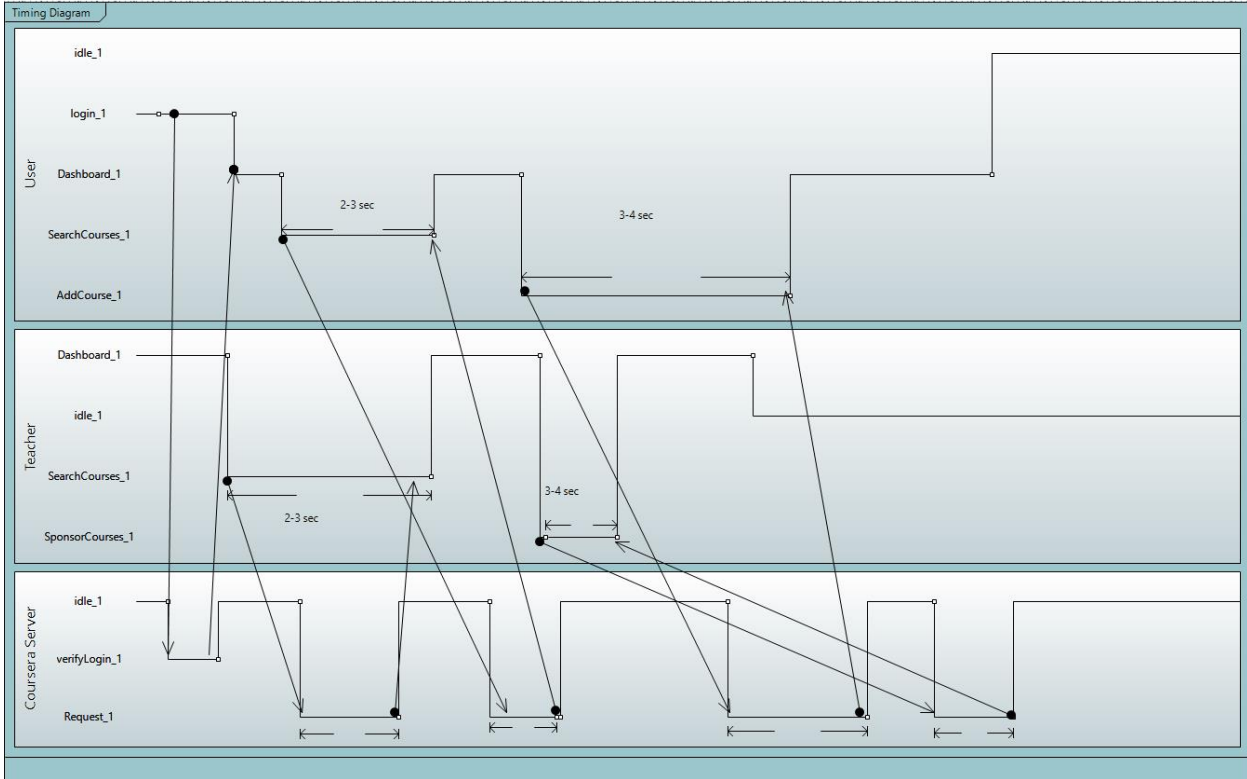
DEPLOYMENT DIAGRAM



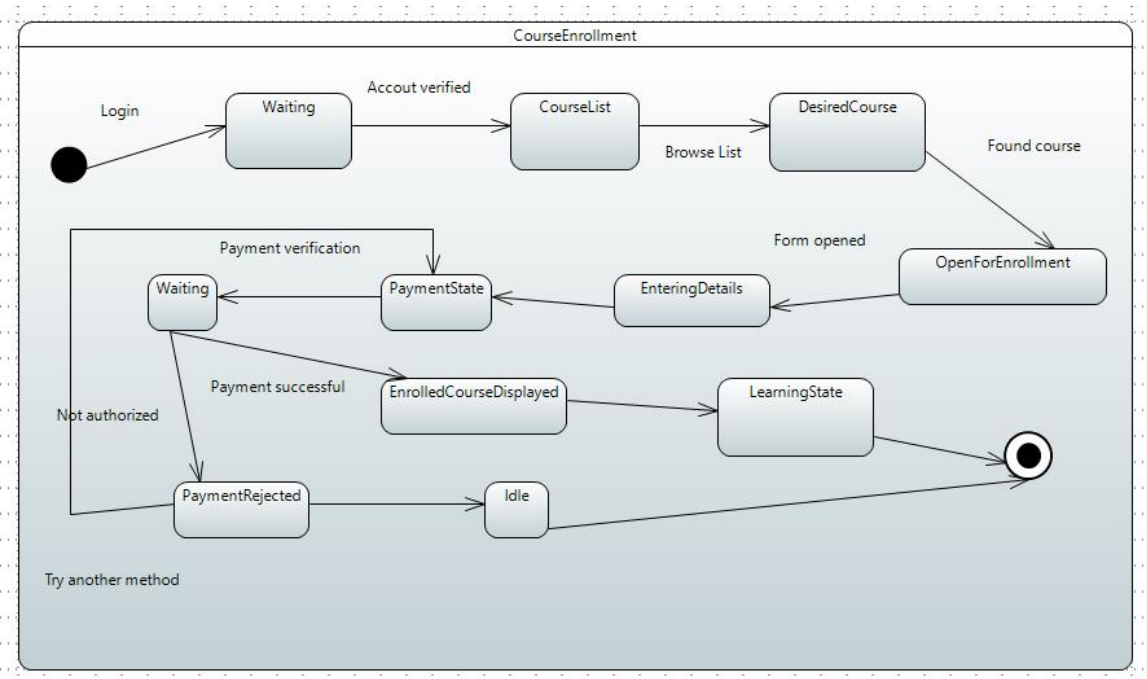
TIMING DIAGRAM (COMPACT)



TIMING DIAGRAM (FULL)



STATE MACHINE DIAGRAM



NON-FUNCTIONAL REQUIREMENTS

RELIABILITY AND AVAILABILITY:

Our website is available 24 hours a day to be operated by any type user. It does not fail under normal circumstances however there can be of server error at some times but mostly it runs perfectly.

MAINTANABILITY AND MANAGEABILITY:

Our website go through updates during which the server gets down but it takes only few minutes to run back normally from down time and our team constantly monitor the website to locate errors and bugs. It is easily managed by the admins.

SCALABILITY:

Coursera website can handle up to 1 million different users normally and if this amount exceeds we send some users to different server so that scalability does not make much of an issue.

CAPACITY:

Our database have a lot a capacity. All the courses are added in the database. More than 4000 courses are currently stored in our database and it store 6000 more courses according to the capacity of current database.

Moreover. The profile information of the users are also stored in the database.

SECURITY:

Our website is built on https protocol, which indicates that the site is using a Secure Sockets Layer (SSL) Certificate. So that that it protects the integrity and confidentiality of data between the user's computer and the website. Also, we keep our software up to date and uses anti-malware software to secure the payment of the user.

DATA INTEGRITY:

Course data is made secure so that our course material (lecture videos, contents) cannot be share with anyone without approval. An instant copy right violation method is available to sue anyone who has shared content without approval. Only the user which have paid for the course can use the course material.

USABILITY:

Our website has a simple yet attractive GUI. Users do not face much issue while navigating through our website and they become used to with our interface is less time. Also while learning through the contents slides and videos are made very understandable for the users.

PERFORMANCE:

Our website has minimum buffering. Searching can be done in seconds since AVL searching algorithm is used and all the buttons are responsive. Network issue can sometime result in buffering otherwise we try deliver a lag free experience to our user.