Software Requirements Specification (SRS) Project

University system

Team members:

Ilma Čengić
Merjem Kapo

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Contents

Project specification

Project description

Our team consists of two members, Ilma Čengić and Merjem Kapo. We are creating this application because we want to help students and University employees to communicate easier with each other. Students to have better insight into their grades, attendance, finances, courses, exams and notifications. And for professors to have better control over students' responsibilities and insight into students' grades, attendance, courses, exams and notifications.

Main goal of this project is to make easier communication. Better insight into grades, attendance, finances, courses, exams and notifications.

Our priorities are:

- improve communication,

-help students have better insight into grades and professors to have easier entry of student's grades,

- help students to have better insight into attendance and professors to have easier entry of student's attendance,

- help students and professors to have better insight into students' finances,

- help students to have better insight into courses and professors to have easier entry of student's courses,

- help students to have better insight into exams and quizzes and professors to easier schedule of student's exams and quizzes.

Feature details

1. Feature name: Refresh Page

Role(s): Every visitor
Feature description/steps:

1. This feature will be located in the upper left corner of the application.
2. When the user clicks on the logo, the page will refresh and the user will be directed to the homepage of the application, that is, the registration page.

Dependencies: This feature does not have any dependencies. Any visitor can click on the logo at any time.

2. Feature name: Student Registration

Role(s): Any student with student ID card

Feature description/steps:

1. When the Registration page opens, in the middle of the window, a registration form will appear, which must be filled out in order for the user to register.
2. The student will enter all the requested information, i.e., first name, last name, email, and ID number from student card.
3. When the Register button is clicked, all fields will be validated and the user will be prompted to confirm the entry.
4. If all the information is entered correctly, a pop-up will be displayed with the message that the link for that confirm email has been sent to the email.
5. When the user confirms the email, i.e., clicking on the link sent to him, he will return to the registration page, where he will enter his index number (ID number from student card) and create a password.
6. If the data is entered correctly, a pop-up will be displayed asking the user if they want to save their username and password.
7. Each form field must be entered correctly in order for the user to register. If some of the data is missing or wrong, the form field is red and a message is displayed that if the field is blank it must be filled in and if the data is not entered correctly, the user is asked to repeat the data entry for the given field. The password must be between 8 to 20 characters long and contain at least one lowercase letter, one uppercase letter and one numeric digit. If the password is not entered correctly, a message will be displayed with the given password entry rules. The password must match in both required fields, if not, the message "Password match" is displayed. First and last name can only contain letters.

Dependencies: User cannot register if he / she does not have a student card.

3. Feature name: Login

Role(s): Every visitor who is registered
Feature description/steps:

1. This feature will be located in the upper right corner of the application
2. When the user clicks on this button, which says login, a form will appear, which contains fields for entering username and password, as well as button for executing login.
3. When the user enters the data and clicks on the login button from the form, if the data is entered correctly, the User Homepage is shown.
4. If the user is not registered or incorrectly entered username, login will not be possible and a red message will appear: "The username you entered does not belong to any account. Please register first.". If the user enters an incorrect password, the message: "Your username and password don't match will be displayed. Try logging in again. ".

Dependencies: User cannot register if he / she does is not registered.

4. Feature name: Forgot your password?

Role(s): Every visitor that is registered

Feature description/steps:

1. This feature will be on the login form, below the login button. It will appear as a link.
2. When a user clicks on this link, a page will be created to create a new password.
3. The page will contain a message: To create a new password, you must enter your file number and email address. A form for entering them will also be displayed.
4. When the user enters the form information and clicks on the reset password button, a message will be displayed: "We sent a message to" user email "so you can pick your new password". A new password will be sent to his / her email.
5. When a user clicks on a submitted link in an email, a page will open where the user will enter a new password.

Dependencies: The password reset will only be possible if the user is registered. If not, the message will be shown: „The username you entered does not belong to any account. ".

5. Feature name: Menu Bar

Role(s): Registered visitors

Feature description/steps:

1. 1. When the user login to the page, a new application homepage will open, which will be the News page. A menu bar (navbar) will be displayed at the top of the page.
2. There will be icons on the menu bar: "News page", "Profile", "Documents", "My works", "Attendance", "Success" and "My certificates".
3. If the user clicks on one of these, he / she will be directed to the site to which the given icon.

Dependencies: Only registered users can use this option.

6. Feature name: News page

Role(s): Registered visitors

Feature description/steps:

1. When the user login to the page, the News page opens. Also, the menu bar will have a "News page" icon, which will return to the specified page.
2. The news page will contain all student announcements.

Dependencies: Only registered users can see the news page.

7. Feature name: Profile

Role(s): Registered visitors

Feature description/steps:

1. Profile icons will be on the menu bar.
2. When the user clicks on the "Profile" icon, they collapse, where the user can select from three buttons: Personal information, settings and tuition fees.
3. By clicking on the personal information button, the student's personal information will be displayed: Index number, First name and last name, Parent's name, JMBG, Date of Birth, Residence address and Residence.
4. Clicking on the settings button will display a form where the user can change their email address or phone.
5. Clicking the tuition button will show information about the paid tuition fees: date, amount and installment, and how much more tuition the student has to pay.

Dependencies: Only registered visitors can see the student profile.

8. Feature name: Documents

Role(s): Registered visitors

Feature description/steps:

1. The "Documents" option is located on the menu bar, next to the profile icon.
2. When the user clicks on this button, the page will show a search bar with a window to enter the name of the item.
3. After the user enters the name of the object, clicks on the enter or search button, all the given documents for the requested object will appear.
4. If the user does not fill the windows correctly, the message will appear "Please enter a valid name for the course". If the course exists in the database, the message will appear "Course exist".

Dependencies: Only registered users can use this option.

9. Feature name: Success

Role(s): Registered visitors

Feature description/steps:

1. The "Success" option is located on the menu bar, next to the document's icon.
2. Clicking on the success icon will bring up a spreadsheet page divided into different sections. The sections will represent years of study. The table will show the names of all the subjects the student has taken, in addition to which the student will be able to see their success in the given subject: credits from homework, exams and quizzes.

Dependencies: Only registered users can use this option.

10. Feature name: Attendance

Role(s): Registered visitors

Feature description/steps:

1. The "Attendance" option is located on the menu bar, next to the success icon.
2. Clicking on the attendance icon will display a page showing the names of all the subjects the student has taken or is currently taking, along with a percentage of the student attending the class.

Dependencies: Only registered users can use this option.

11. Name: My works

Role(s): Registered visitors

Feature description/steps:

1. The "My Works" option is located on the menu bar next to the icon.

2. An icon of my work will lead to a page divided into two sections.
3. The upper part of the page will contain the student's previous work, where the student can review all the work he has added so far.
4. At the bottom of the page there will be a submit button where the student adds their new work.

Dependencies: Only registered users can use this option.

12. Feature name: My

certificates **Role(s):** Registered

visitors **Feature**
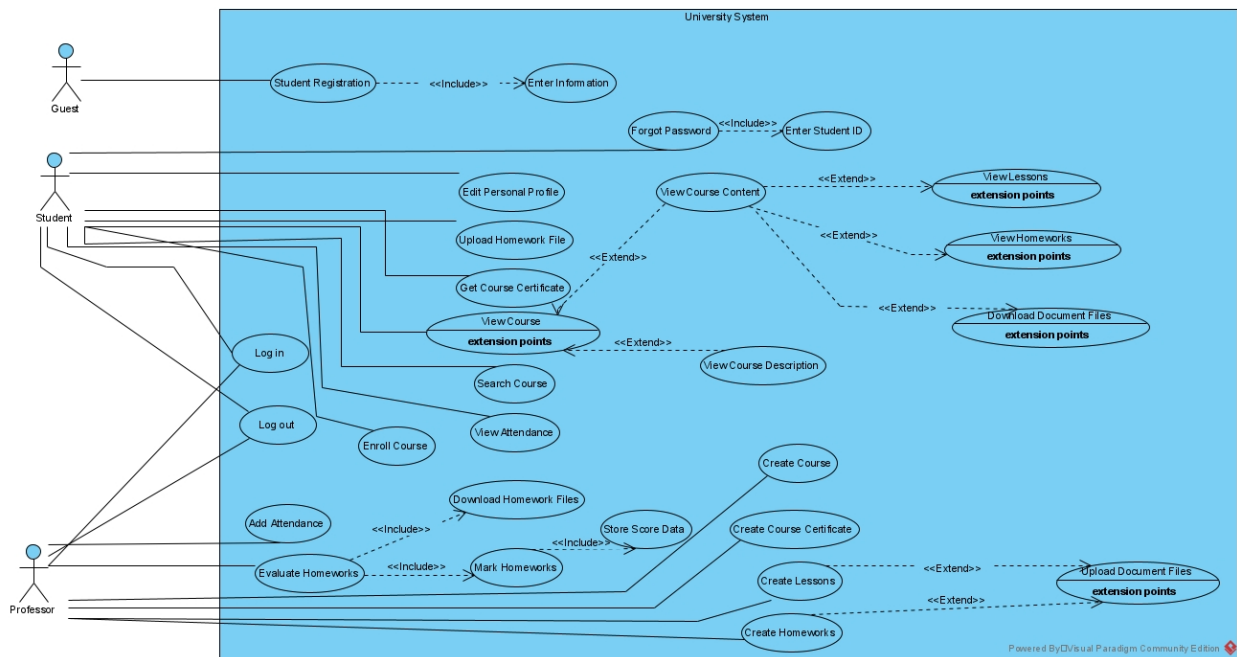
description/steps:

1. My confirmation icon is on the menu bar next to my icon work.
2. Clicking on this icon will open a collapsed page, where students can choose which certificate, they need: Certificate of status of student and / or certificate of passed exams.
3. When a student chooses, by clicking the submit request button, he / she sends a request to the student service for certification.
4. When the confirmation is complete, a notification is displayed in the news page.

Dependencies: Only registered users can use this option.

Nonfunctional Requirements

- The website's load time should not be more than one second for users.

- The website's interface has to be user-friendly and easy to use.

- A website should be capable enough to handle 10 000 users with affecting its performance.

- The system shall maintain data integrity by keeping backups of all updates to the database.

- When editing the code for applicants' profile pages, the rest of the site stays up and running.

Use case diagram

Name: University system

Description: This is a use case diagram which shows the available options for registered and unregistered users on this site.

Goal: The main goal is for registered and unregistered users to easier communicate and better insight into grades, attendance, finances, courses, exams and notifications.

Basic Course

1. Guest can register
2. Student can click on the forgot password
3. Student can edit personal profile
4. Student can click on the upload homework file
5. Student can get course certificate
6. Student can view course
7. Student can search coursed
8. Student can view attendance
9. Student can enroll course
10. Student can log in
11. Student can log out
12. Professor can log in
13. Professor can log out
14. Professor can add attendance
15. Professor can evaluate homework
16. Professor can create course
17. Professor can create course certificate

18. Professor can create lessons
19. Professor can create homework

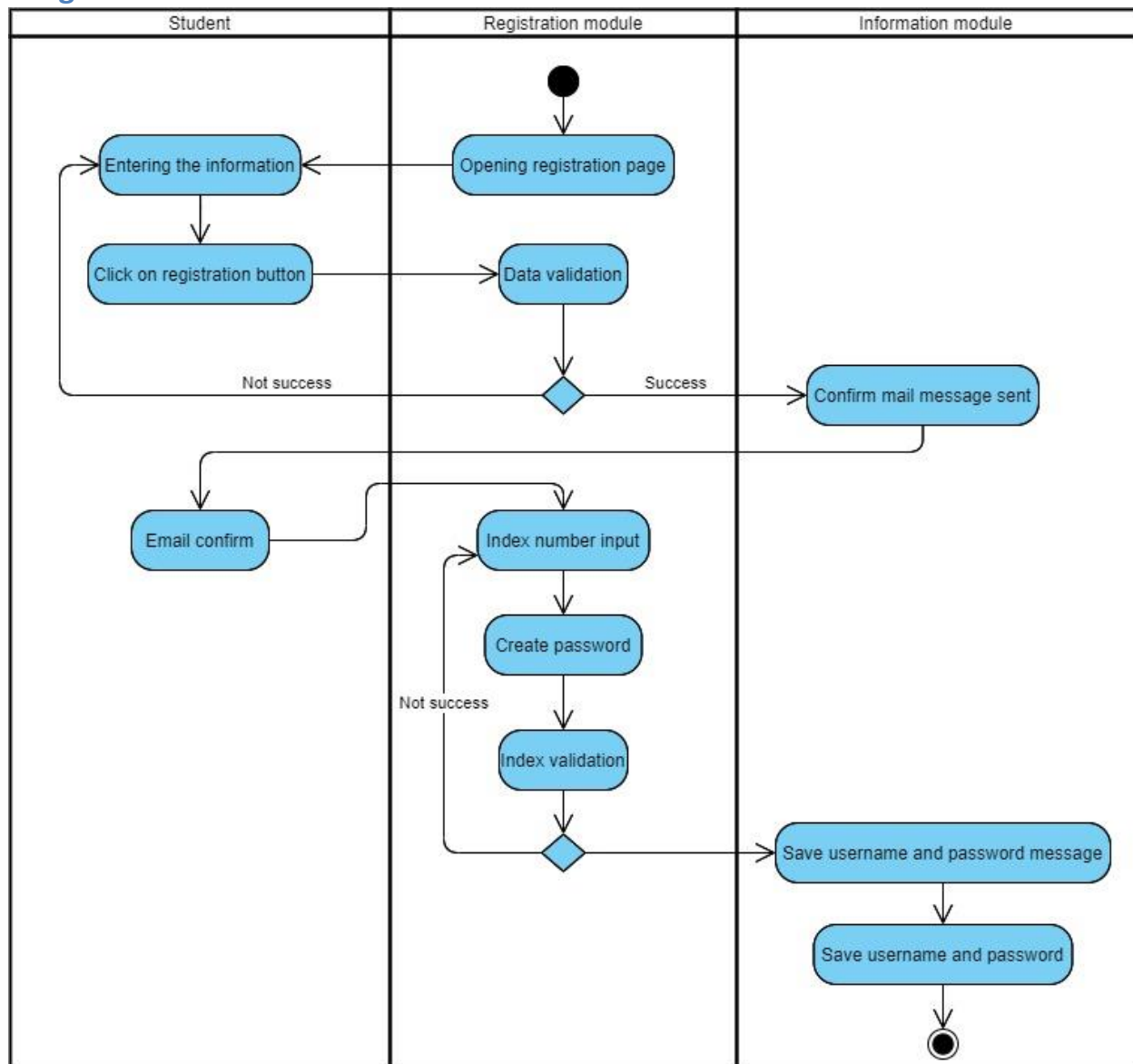**Actors:** Guest, Student, Professor

Included Use Cases

1. Enter information
2. Enter student ID
3. Download homework files
4. Mark homework
5. Store score data

Extended Use Case

1. View course content
2. View lessons
3. View Homework
4. Download document files
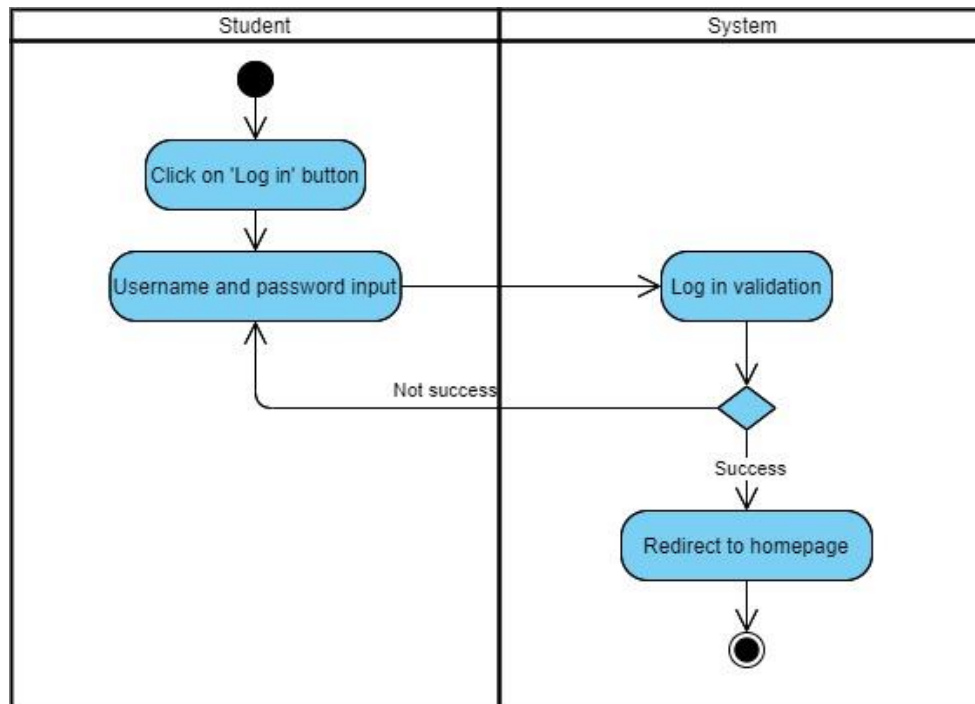5. View course description
6. Upload document files

Activity diagrams

Registration

If all the information is entered correctly, a pop-up will be displayed with the message that the link for that confirm email has been sent to the email. User will be asked if he wants to save his username and password.

Login

Each form field must be entered correctly in order for the user to register. If some of the data is missing or wrong, the form field must be filled in again. If all data is entered correctly, user will be redirected to homepage.
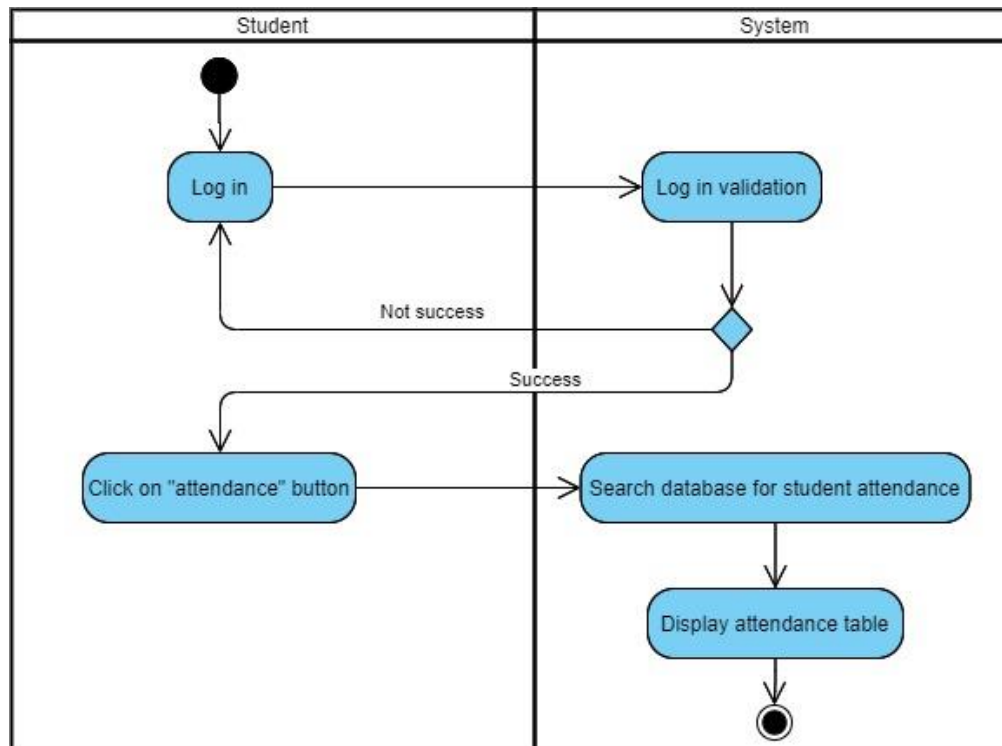
Forgot password
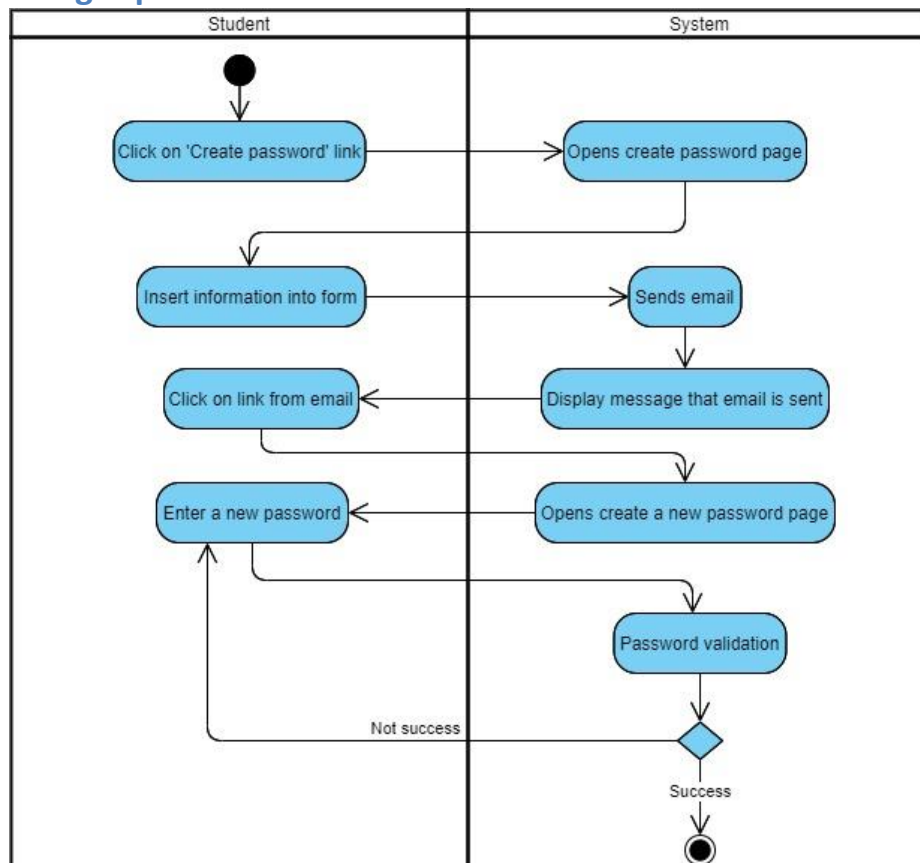
When a user clicks on this link, a page will be created to create a new password. The page will contain a message: To create a new password, you must enter your file number and email address. A form for entering them will also be displayed. When the user enters the form information and clicks on the reset password button, a message will be displayed: "We sent a message to" user email "so you can pick your new password". A new password 11 will be sent to his / her email. When a user clicks on a submitted link in an email, a page will open where the user will enter a new password.
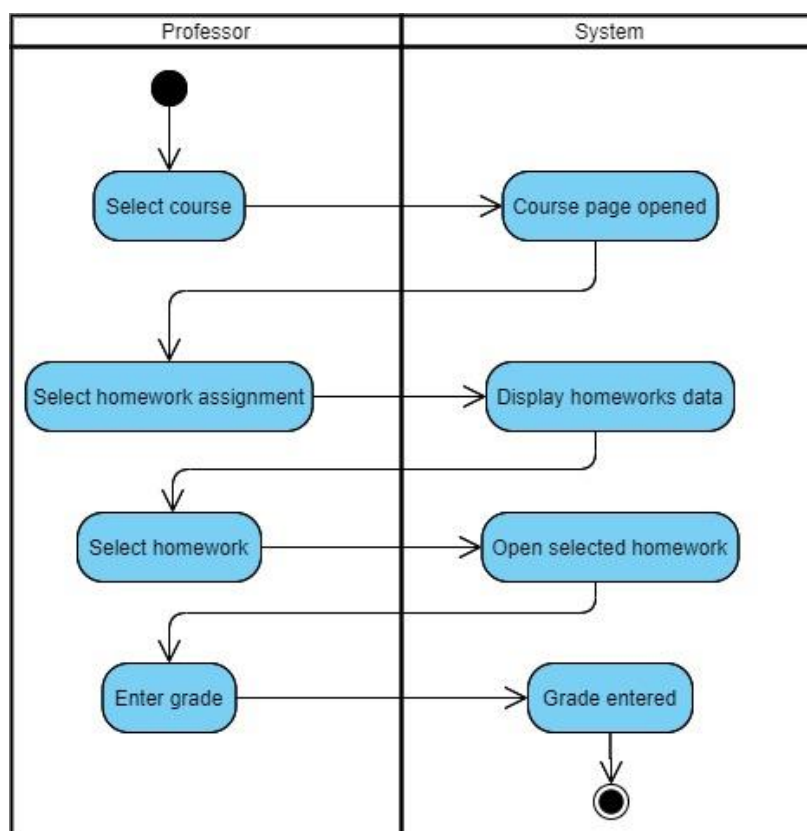
Document
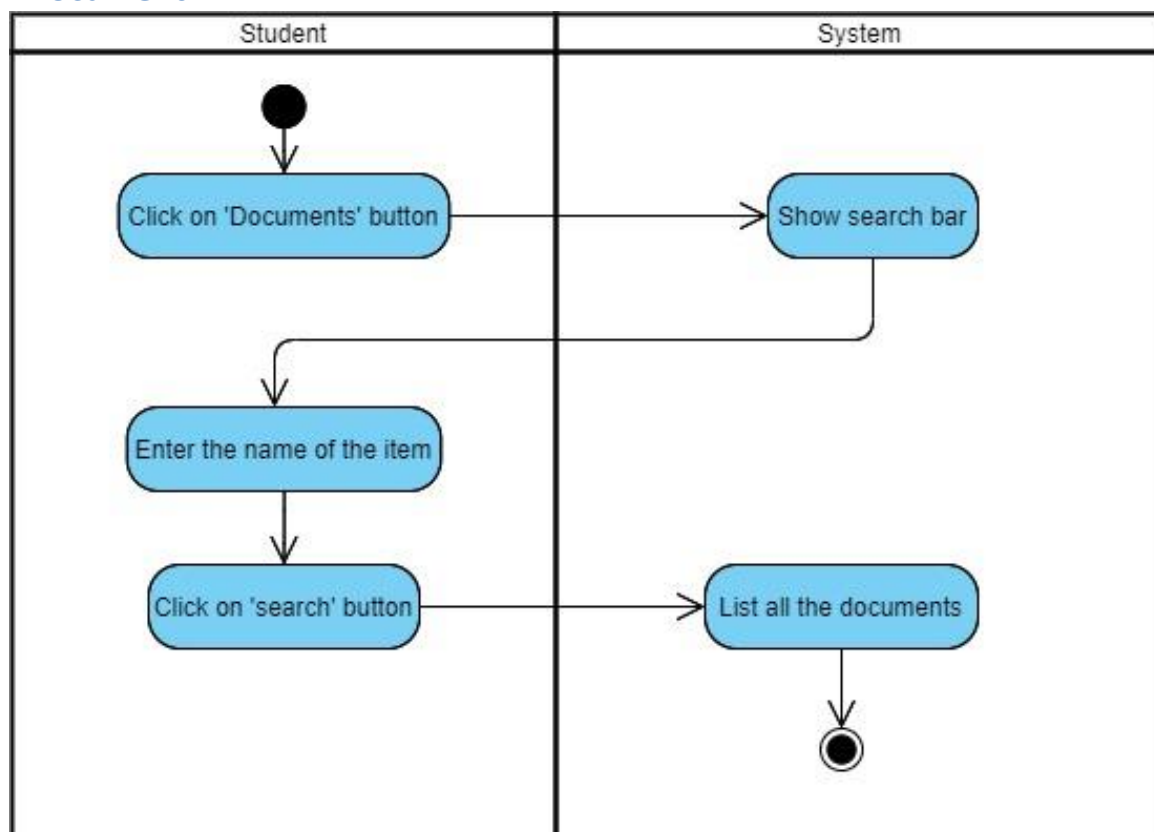
When a user clicks on "Document" button, on page will be shown search bar. Student must enter the name of item and click search button. Then on the page will be listed all documents.
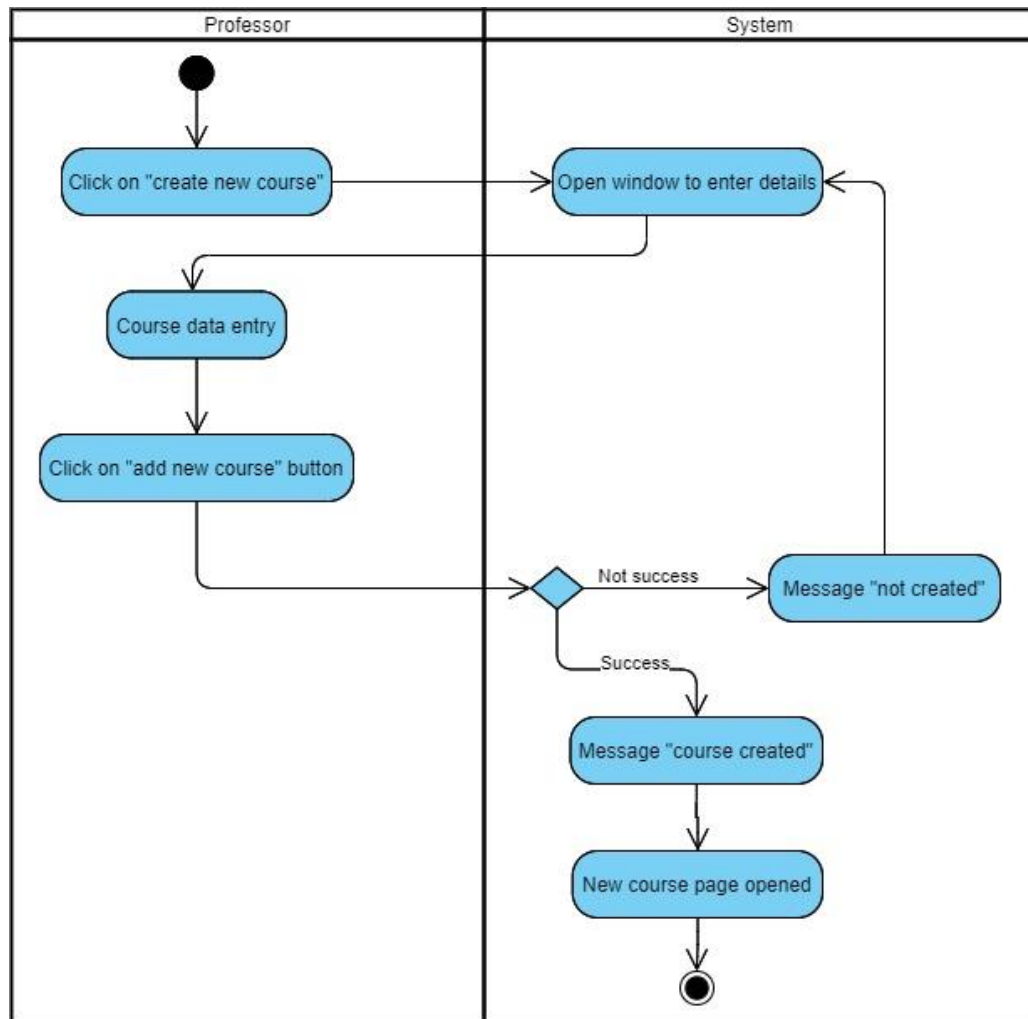
Attendance

Homework review

When professor wants to view homework and enter grade. Professor first select course, on page will be opened course page, then professor select homework assignment, then select homework, system will open selected homework, and then professor can enter grade, and in system grades will be entered.

Create new course

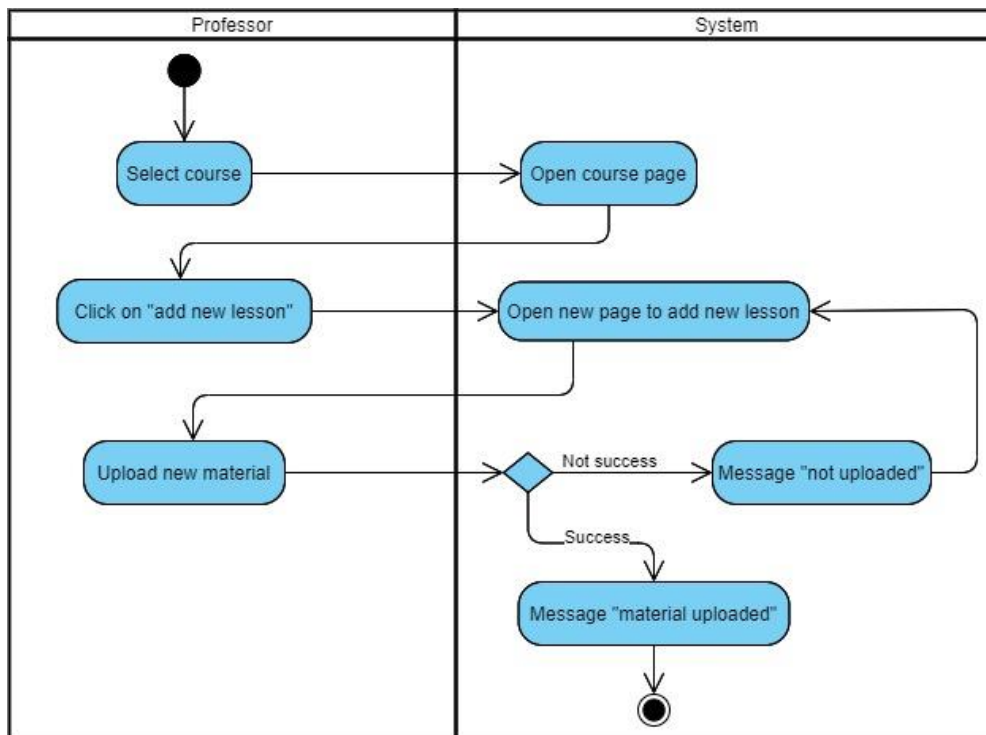When professor wants to create new course, then professor clicks on button "create new course", window will open, then professor will entry course data, and click on "add new course" button, if it is not success system will display message "not created" and will back user on open window to enter details. If it is success system will display message "course created" and new course page will be opened.

Create new homework
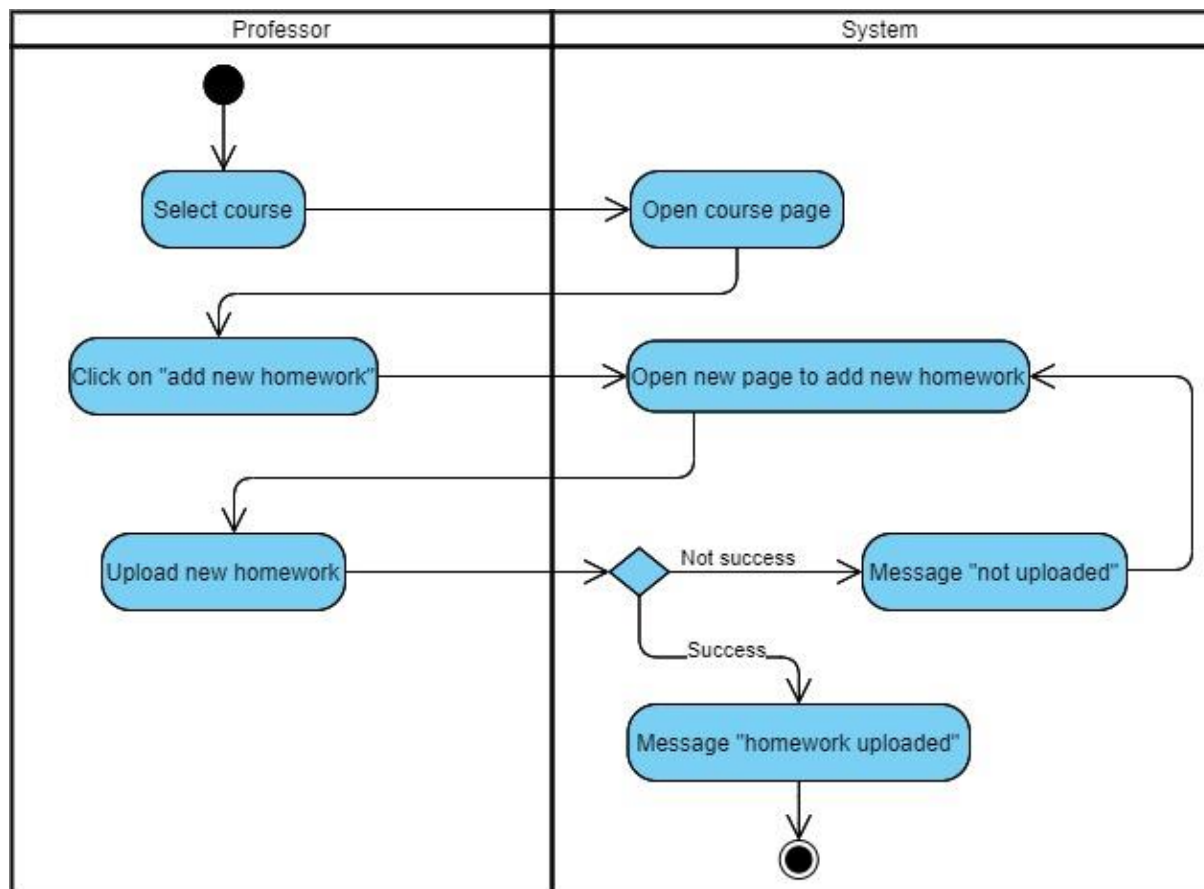
When professor wants to create new homework, first professor will select course and on page course will be opened. Then professor clicks on button "add new homework", window will open new page to add new homework, then professor will upload new homework. If it is not success system will display message "not uploaded" and will back user on new page window to add new homework. If it is success system will display message "homework uploaded".

Create new lesson

When professor wants to create new lesson, first professor will select course and on page course will be opened. Then professor clicks on button "add new lesson", window will open new page to add new lesson, then professor will upload new material. If it is not success system will display message "not uploaded" and will back user on new page window to add new lesson. If it is success system will display message "material uploaded".
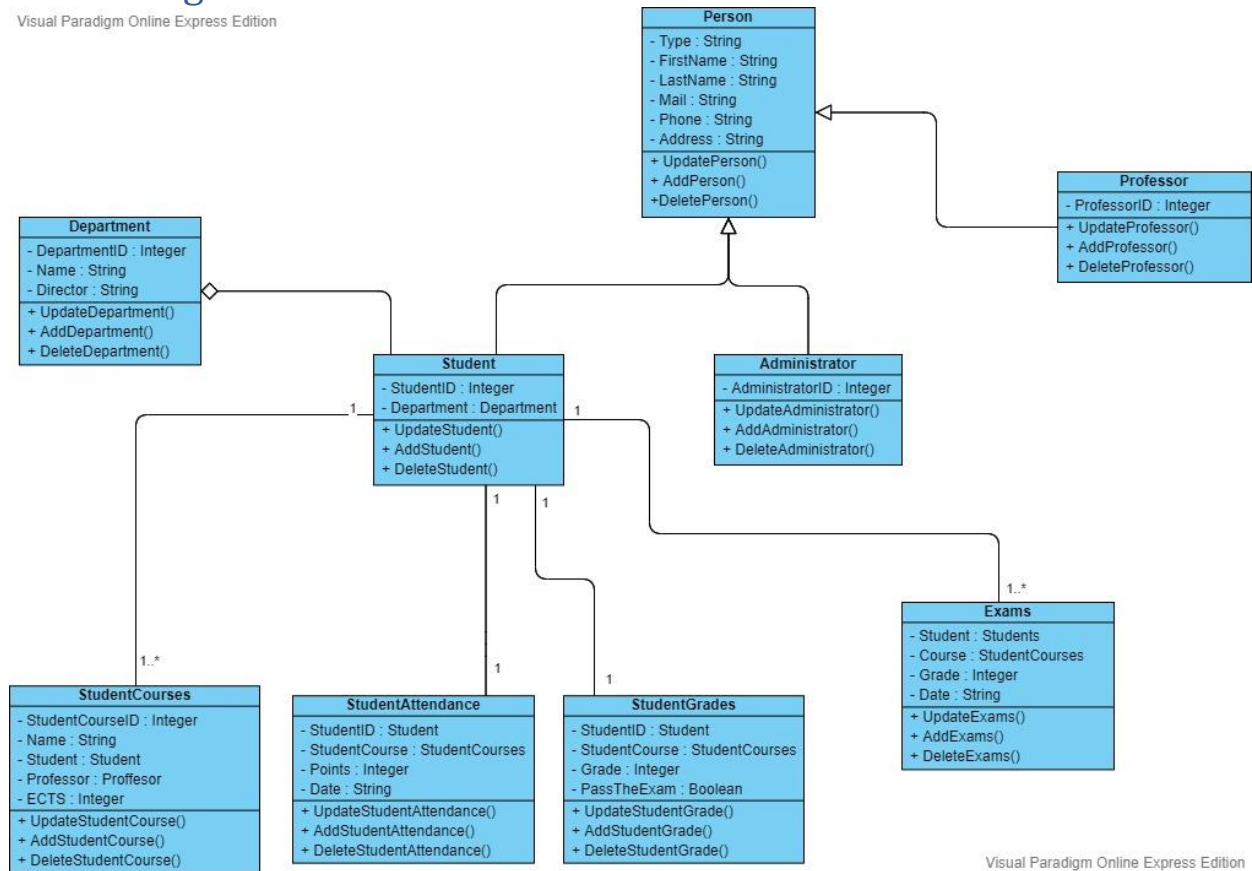
Class diagram

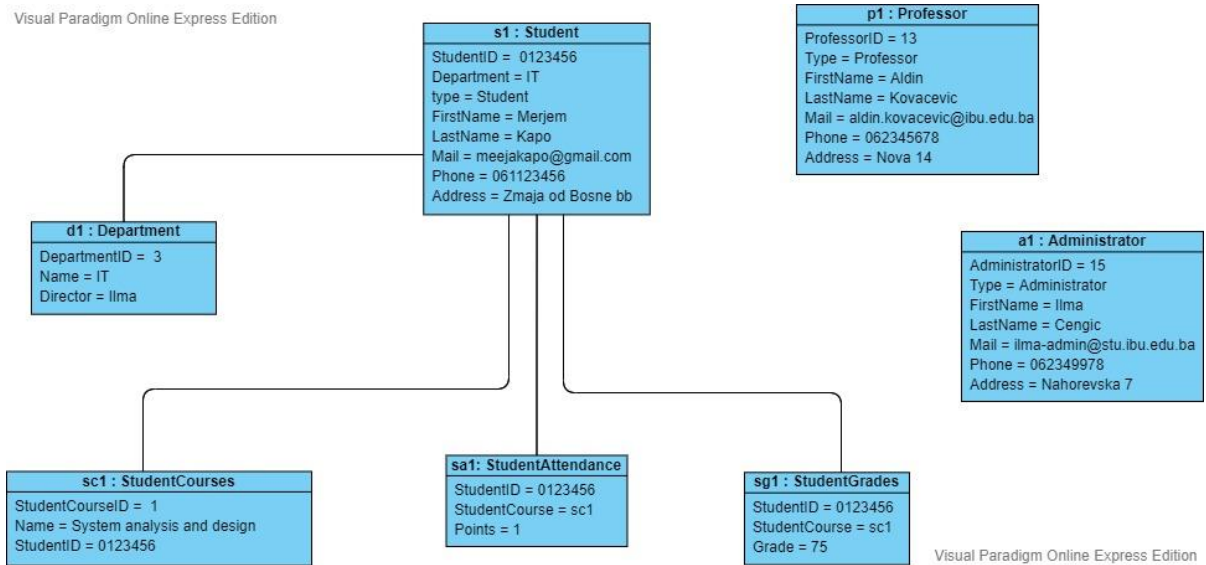**Person**
- Type : String
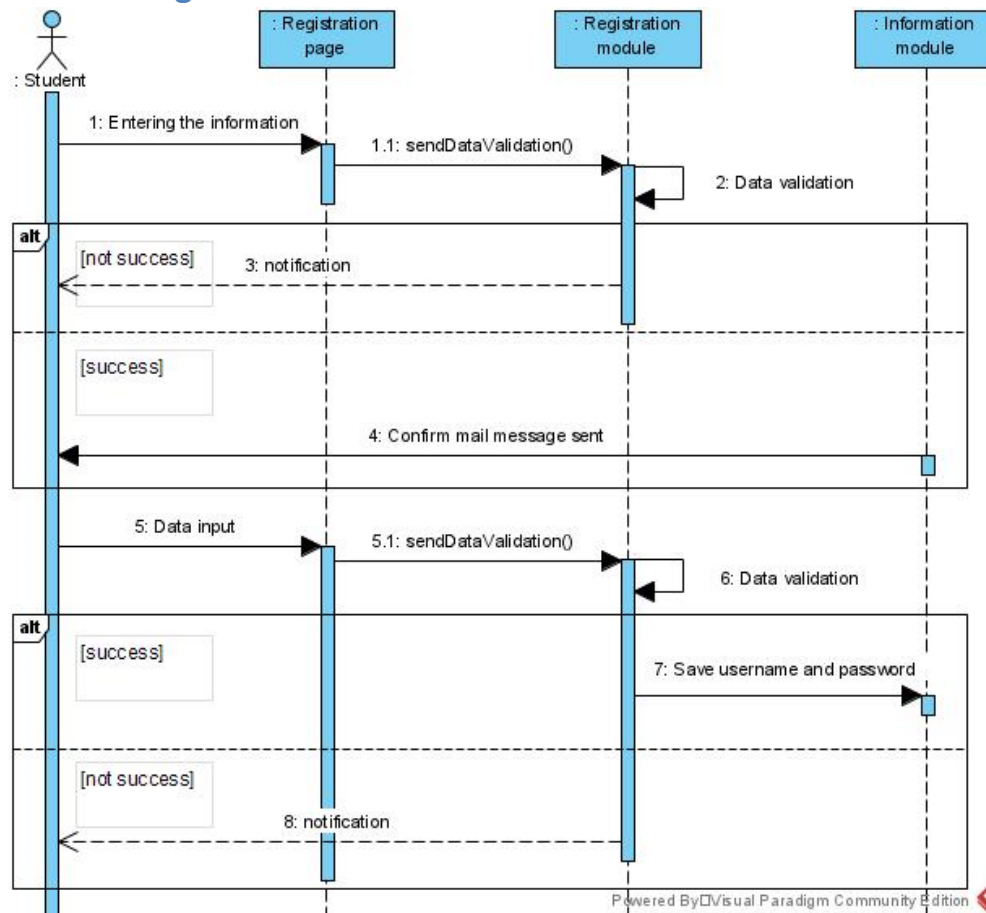- FirstName : String
- LastName : String
- Mail : String
- Phone : String
- Address : String
+ UpdatePerson()
+ AddPerson()
+DeletePerson()

Professor
- ProfessorID : Integer
+ UpdateProfessor()
+ AddProfessor()
+ DeleteProfessor()

Department
- DepartmentID : Integer
- Name : String
- Director : String
+ UpdateDepartment()
+ AddDepartment()
+ DeleteDepartment()

Student
- StudentID : Integer
- Department : Department
+ UpdateStudent()
+ AddStudent()
+ DeleteStudent()

Administrator
- AdministratorID : Integer
+ UpdateAdministrator()
+ AddAdministrator()
+ DeleteAdministrator()

Exams
- Student : Students
- Course : StudentCourses
- Grade : Integer
- Date : String
+ UpdateExams()
+ AddExams()
+ DeleteExams()

StudentCourses
- StudentCourseID : Integer
- Name : String
- Student : Student
- Professor : Proffesor
- ECTS : Integer
+ UpdateStudentCourse()
+ AddStudentCourse()
+ DeleteStudentCourse()

StudentAttendance
- StudentID : Student
- StudentCourse : StudentCourses
- Points : Integer
- Date : String
+ UpdateStudentAttendance()
+ AddStudentAttendance()
+ DeleteStudentAttendance()

StudentGrades
- StudentID : Student
- StudentCourse : StudentCourses
- Grade : Integer
- PassTheExam : Boolean
+ UpdateStudentGrade()
+ AddStudentGrade()
+ DeleteStudentGrade()

Object diagram

s1 : Student
StudentID = 0123456
Department = IT
type = Student
FirstName = Merjem
LastName = Kapo
Mail = meejakapo@gmail.com
Phone = 061123456
Address = Zmaja od Bosne bb

p1 : Professor
ProfessorID = 13
Type = Professor
FirstName = Aldin
LastName = Kovacevic
Mail = aldin.kovacevic@ibu.edu.ba
Phone = 062345678
Address = Nova 14

d1 : Department
DepartmentID = 3
Name = IT
Director = Ilma

a1 : Administrator
AdministratorID = 15
Type = Administrator
FirstName = Ilma
LastName = Cengic
Mail = ilma-admin@stu.ibu.edu.ba
Phone = 062349978
Address = Nahorevska 7

sc1 : StudentCourses
StudentCourseID = 1
Name = System analysis and design
StudentID = 0123456

sa1: StudentAttendance
StudentID = 0123456
StudentCourse = sc1
Points = 1

sg1 : StudentGrades
StudentID = 0123456
StudentCourse = sc1
Grade = 75

Sequence diagrams

Student registration

Here is shown the process of registration. User chooses username and password, if the username is already taken then system gives a message. After choosing available username, user then enters other details in the registration box and they are stored in the database. At the end user gets a message that the registration is complete.
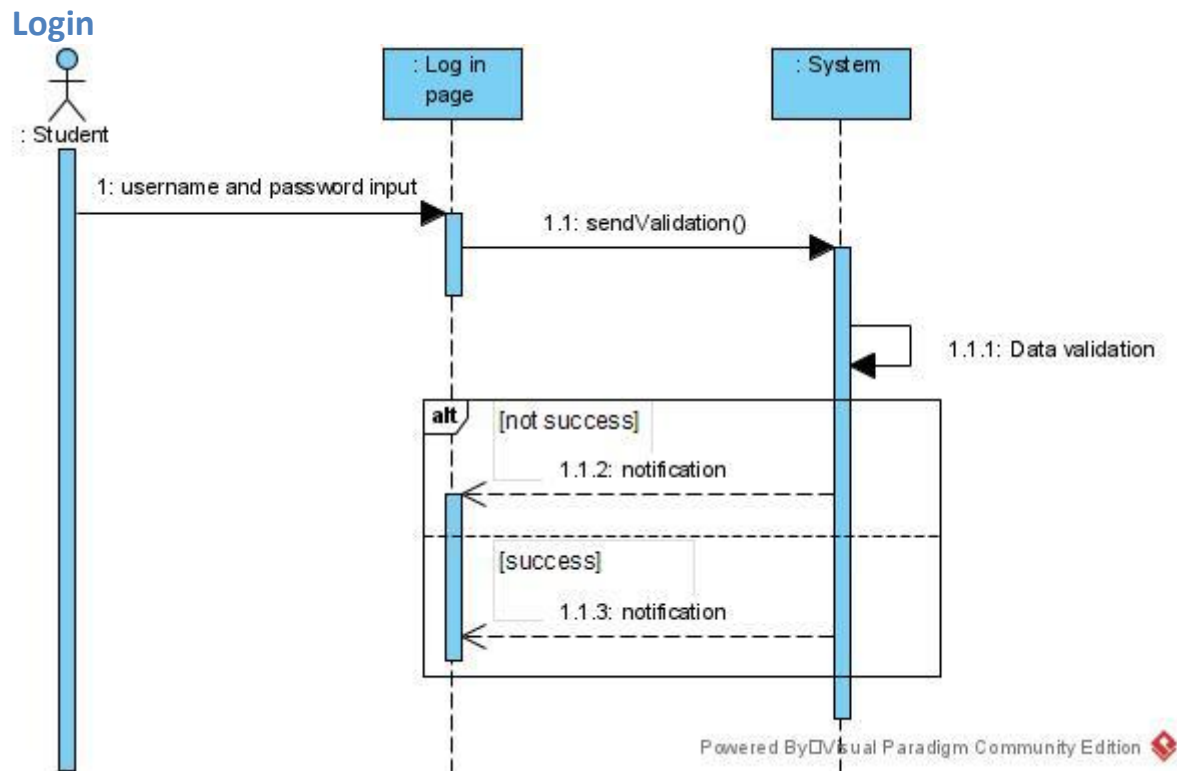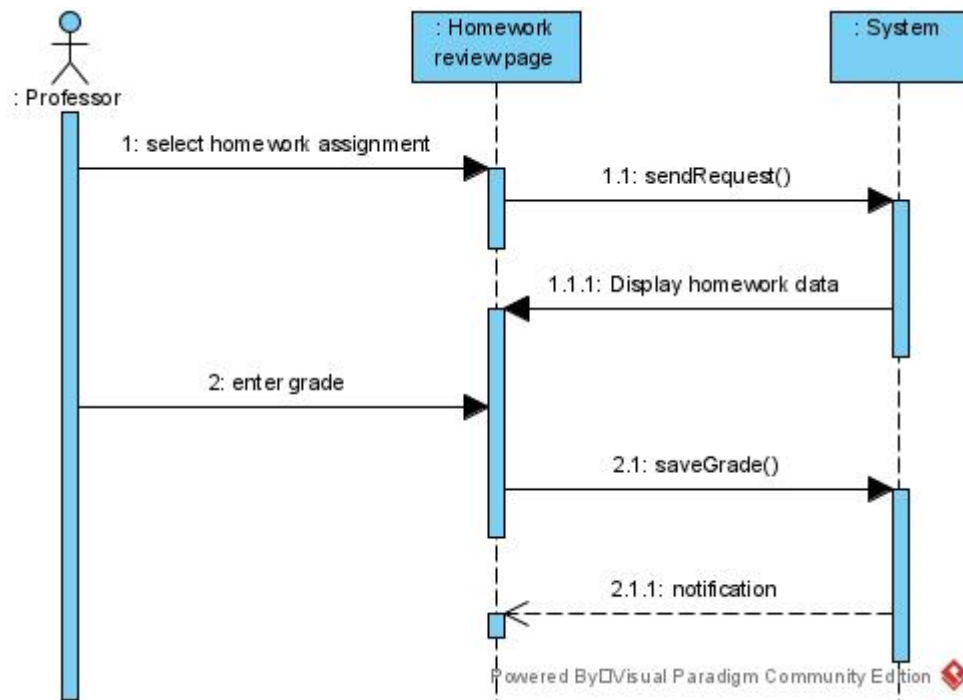
Login

When user enters username and password, they are checked in the database if they are correct. If not, login failure message is displayed. If they are correct, user is logged in.

Forgot password
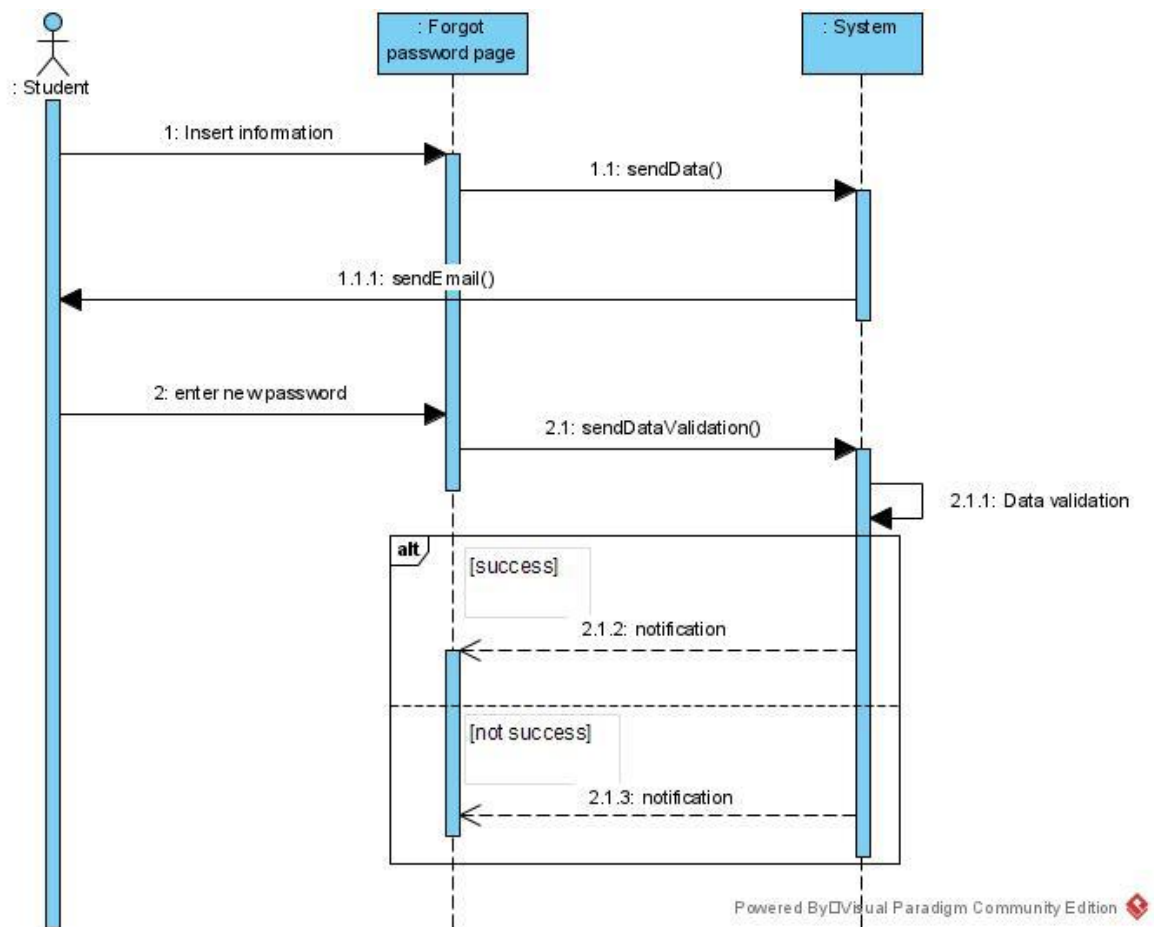
When student insert information and forgot password system will send student email, and student will enter new password if validation pass system will send notification success and if it not passes it will send message not success.

Homework review

When professor wants to view homework and enter grade. Professor first select course, on page will be opened course page, then professor select homework assignment, then select homework, system will open selected homework, and then professor can enter grade, and in system grades will be entered.
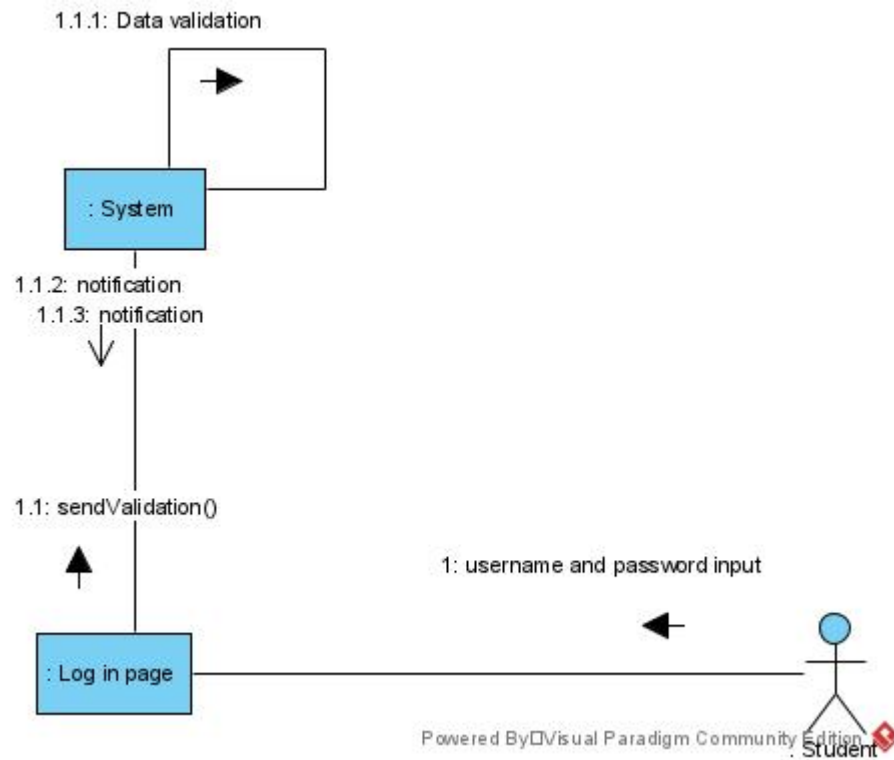
Create new course

When professor wants to create new course, then professor clicks on button "create new course", window will open, then professor will entry course data, and click on "add new course" button, if it is not success system will display message "not created" and will back user on open window to enter details. If it is success system will display message "course created" and new course page will be opened.
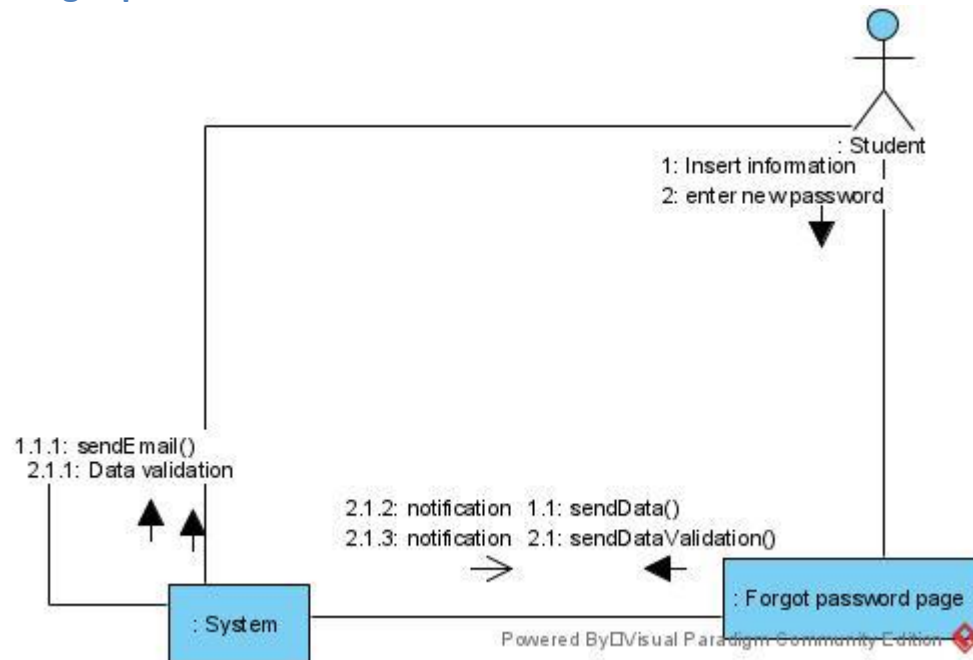
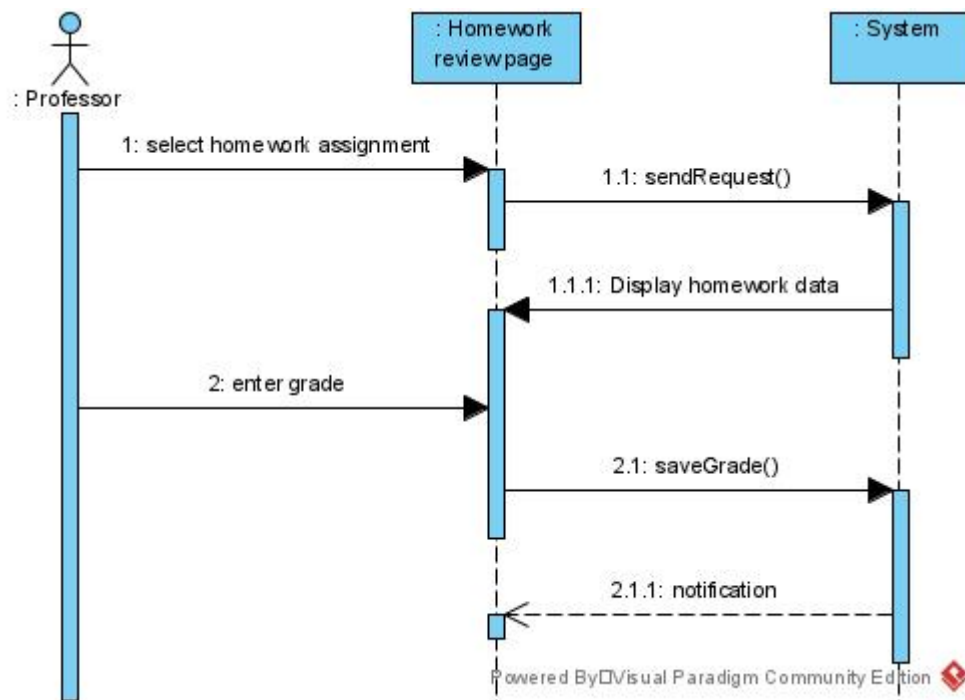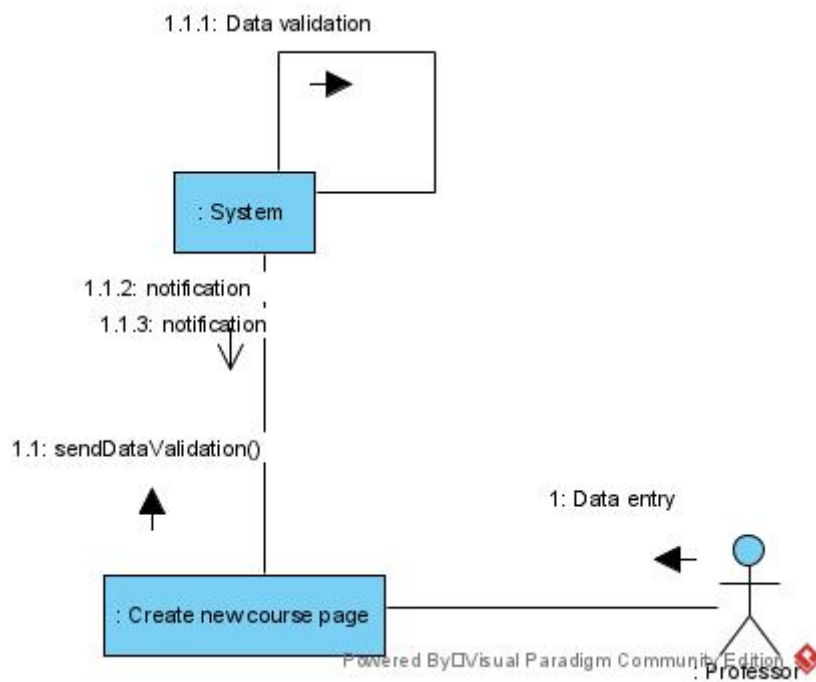# Communication diagrams

Registration

Login

1.1.1: Data validation

: System

1.1.2: notification
1.1.3: notification

1.1: sendValidation()

1: username and password input

: Log in page

: Student

Forgot password

: Student

1: Insert information
2: enter new password

1.1.1: sendEmail()
2.1.1: Data validation

2.1.2: notification   1.1: sendData()
2.1.3: notification   2.1: sendDataValidation()

: System
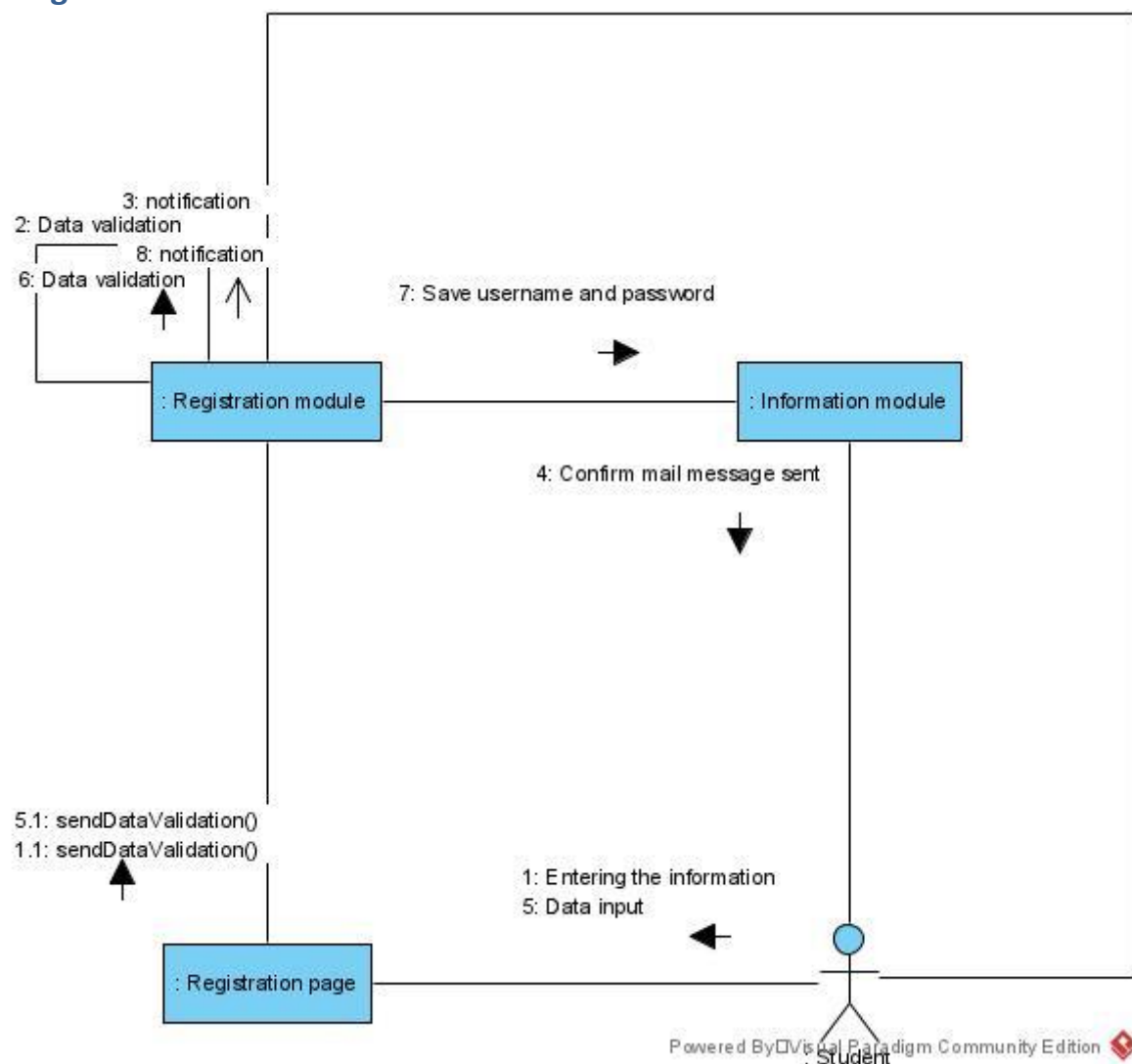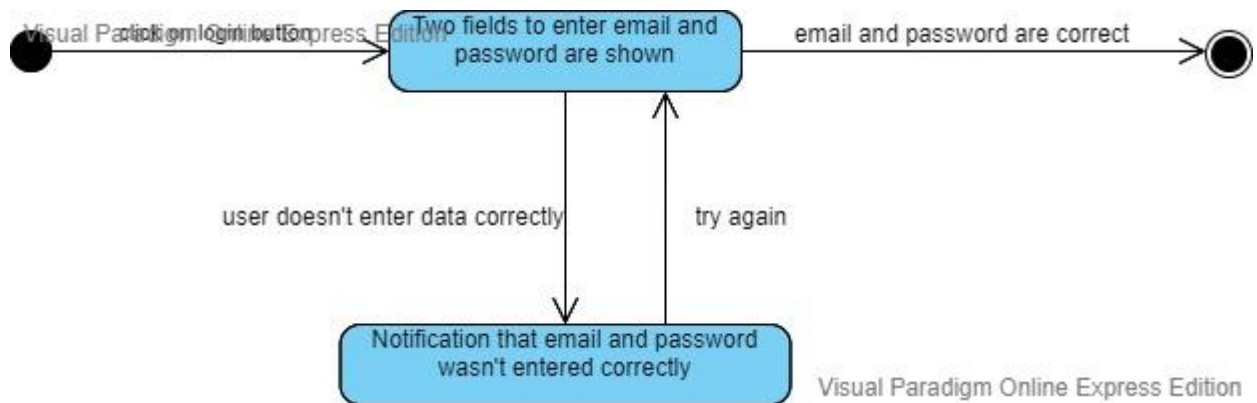
: Forgot password page

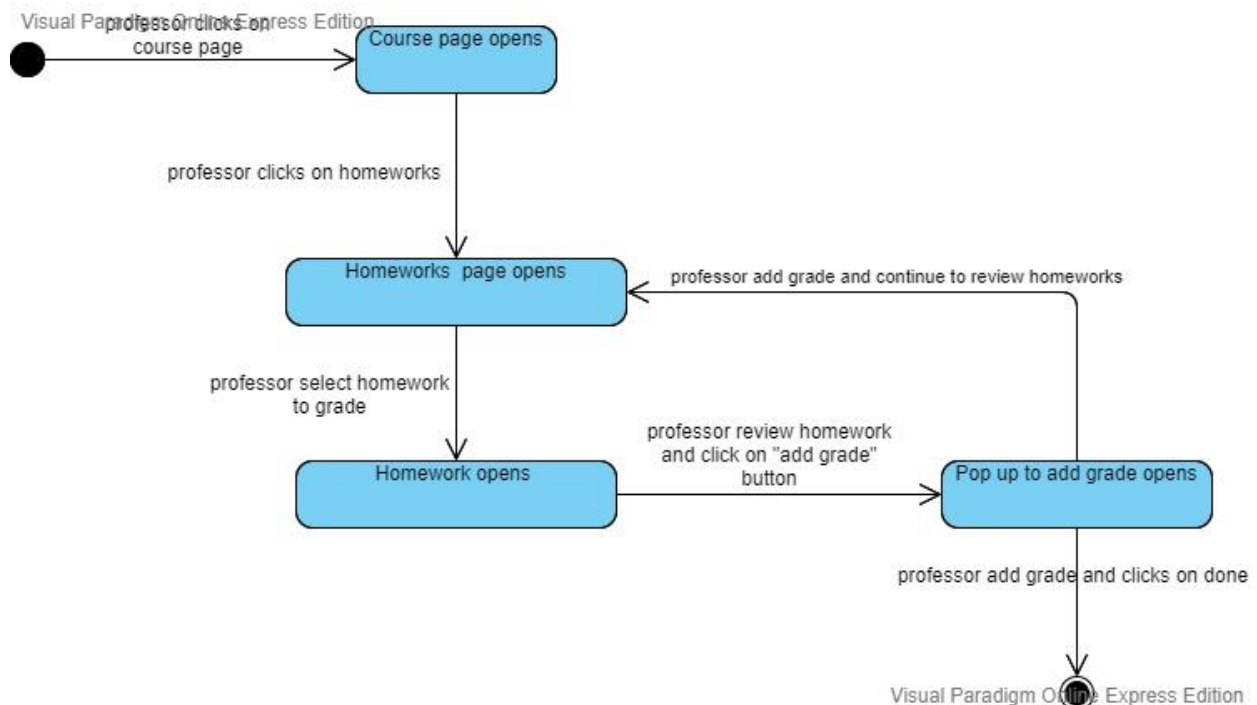## Homework review

Create new course

# Behavioral state machines diagrams

Login

At login user has to enter email and password. If those aren't correct user will be prompted to try again, if they are correct then the login is completed.

Enter grades

When professor wants to view homework and enter grade. Professor first select course page, on page will be opened course page, then professor select homework assignment, then select homework, system will open selected homework, and then professor can enter grade, and in system grades will be entered.

Submit homework
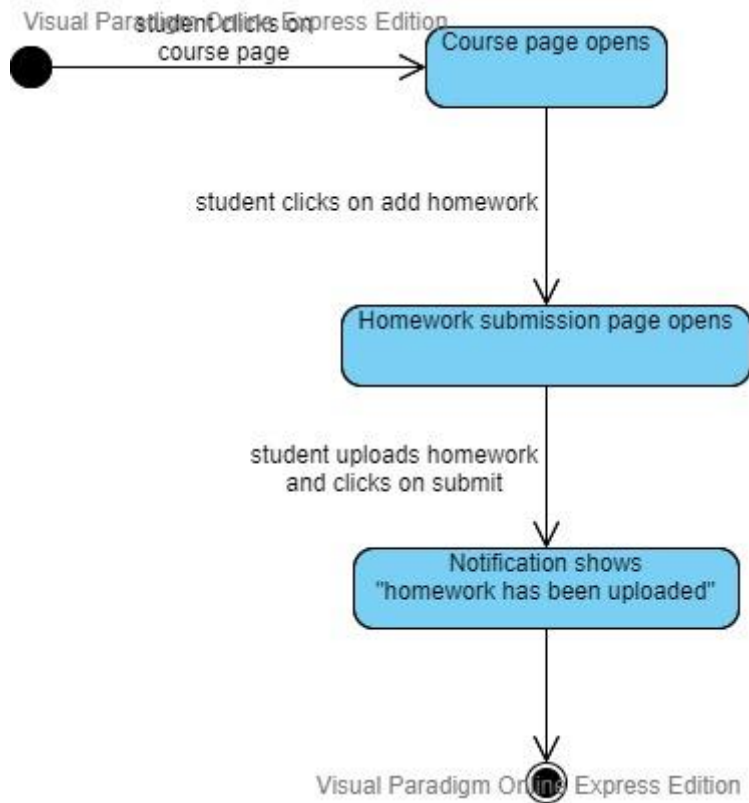
When student clicks on course page, course page opens, and student opens homework submission page, then student can upload homework and submit it. If it is submitted student will get notification that "homework has been uploaded".