Software Requirements Specification

for

Graduation Placement Service

Version 1.3 approved

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Table of Contents

Revision History

Name	Date	Reason For Changes	Version
GPS-birth	2023/3/8	Creation of GPS	1.0
State-Diagrams-add	2023/3/15	Add state transition diagrams and UI of section 3.1, 3.2, 3.3	1.1
States-diagrams-add	2023/3/21	1. Add the states transition diagrams and UIs of section 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10 2. Do the revision of the previous version	1.2
Sequence&Class Diagram-add	2023/3/29	1. Edit the states transition diagrams in Version 1.2 2. Add the Sequence Diagram 3. Add the Class Diagram	1.3
Sequence&Class Diagram-update	2023/4/6	1. We change the wrong place about Sequence Diagram 2. Add the Class Diagram on the ispace	1.4

1. Introduction

1.1 Purpose

The purpose of this document is to introduce the Graduation Placement Service(GPS) project, including the GPS layout, functions, operating environment, software and hardware interfaces, and some non-functional requirements, etc.
This document facilitates users and project managers to understand the GPS.

1.2 Document Conventions

The content in parentheses is an abbreviation for the words and phrases preceding the parentheses. And the abbreviation will be used later in the article. N/A means not Applicable and TBD means to be determined.

1.3 Intended Audience and Reading Suggestions

This document is intended for project managers, users, testers and documentation writers. The first section is an introduction of this document. Section 2 is an overall description about the project GPS. Section 2.1 is the introduction of the layout of the software, and the section 2.2 is the introduction of the functions of the software. Section 3 is some features of the systems. Section 4 is some interfaces requirements. Section 5 is some non-functional requirements. Section 6 is others requirements.
For the users, recommended to read Introduction part and the overall description part.
For the project managers and marketing staff, recommended to read Introduction and Section 5 to 6.
For the testers, recommended to read Introduction, overall description, System features and Interfaces requirement.

1.4 Project Scope

We will make a Graduation Placement Service (GPS). Such a service would help students to decide which postgraduate(PG) universities and places of employment to apply upon graduation. Compared to hire agents for help, it will save a lot of time and money.
We hope GPS can show a list of universities and programs that have previously accepted UIC graduated with GPA and major similar to the user's successfully when a student enters his or her GPA.
Similar if a person is interested in employment after graduation. The GPS can show what type of jobs our alumni similar to him or her had obtained.

1.5 References

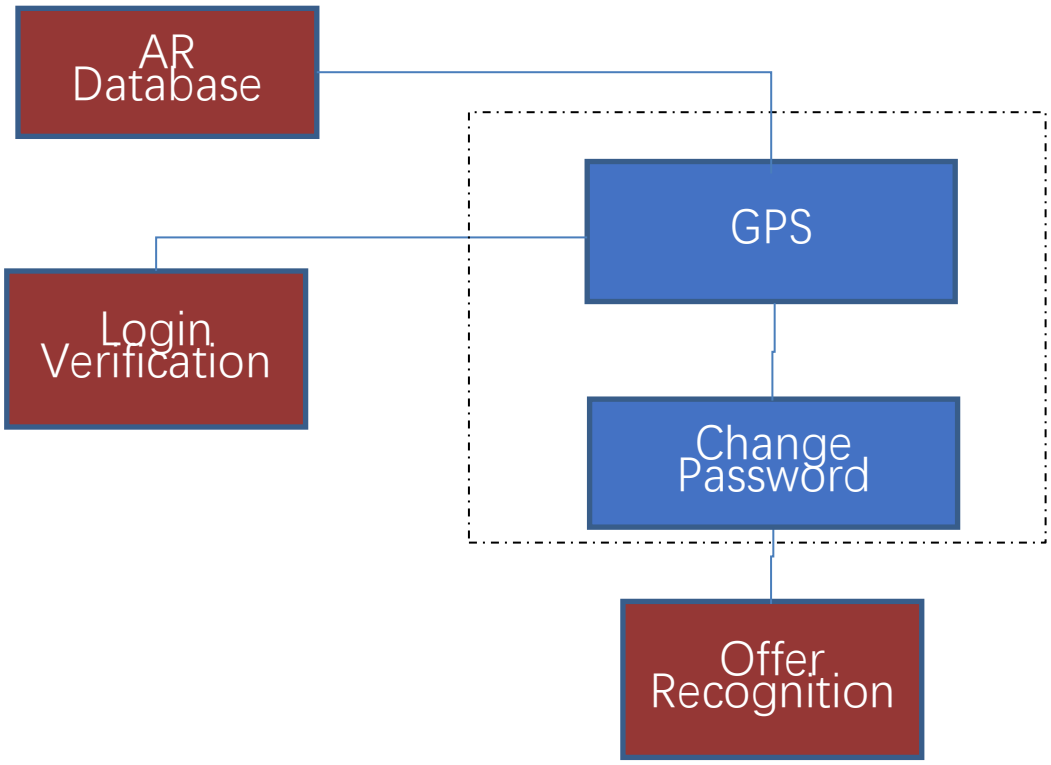
None

2. Overall Description

2.1 Product Perspective

Graduation Placement Service has three databases which are AR database, UIC database, Graduation Placement Service. Three of them need to get into the GPS' API to construct the communications.

The System have 2 kinds AR checking system and account system. AR checking system can check whether the student is a real UIC student. Account system is for creating or logging accounts and updating the information of users.



2.2 Product Features

a. Students who received offers

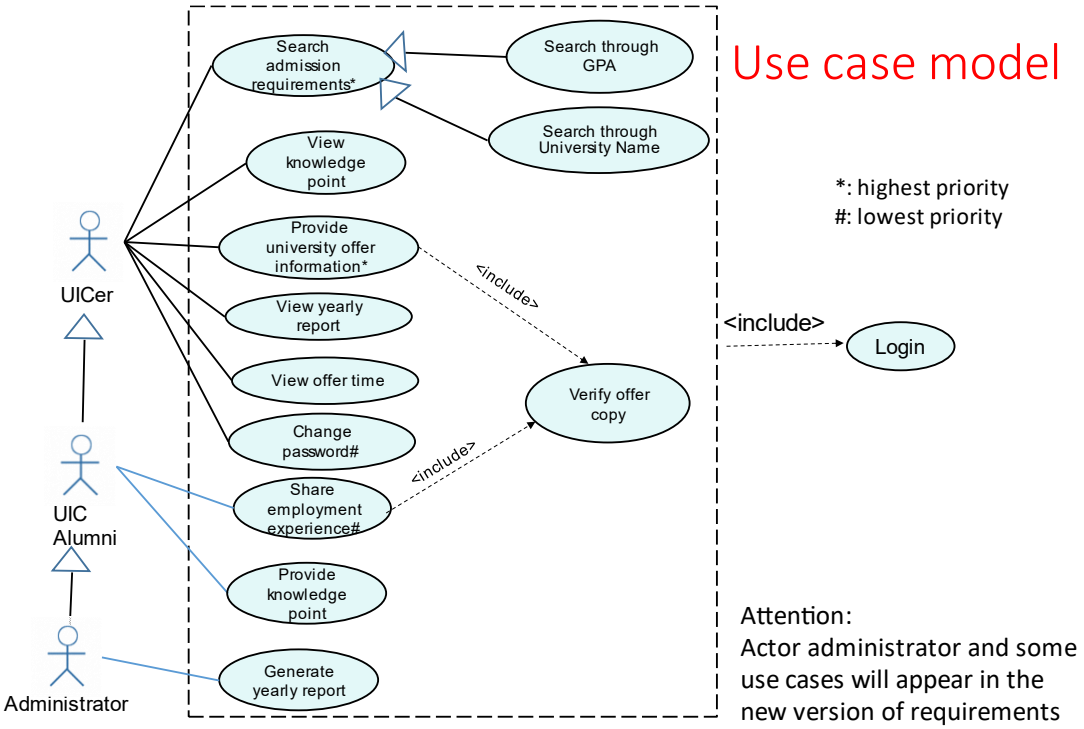
1. Fill in the information on the admission letter.
2. Add new university to list.
3. The information to is different for a taught master's degree and a research-based master's degree
4. Judging whether the entered information is true through the admission notice.

b. Students who want to apply to postgraduate programs

1. Enter GPA to learn about the program
2. Enter program for GPA requirements.
3. Know when to give an offer.
4. The results can be categorized

c. Alumni

1. Share knowledge points of graduate programs



2.3 User Classes and Characteristics

None

2.4 Operating Environment

None

2.5 Design and Implementation Constraints

Requesting information from the school database may violate school rules. The mobile phones are so old that they have high requirements on the time and memory of the software. The school has students from different countries so developers need to consider multiple language support.

2.6 User Documentation

None

2.7 Assumptions and Dependencies

None

3. System Features

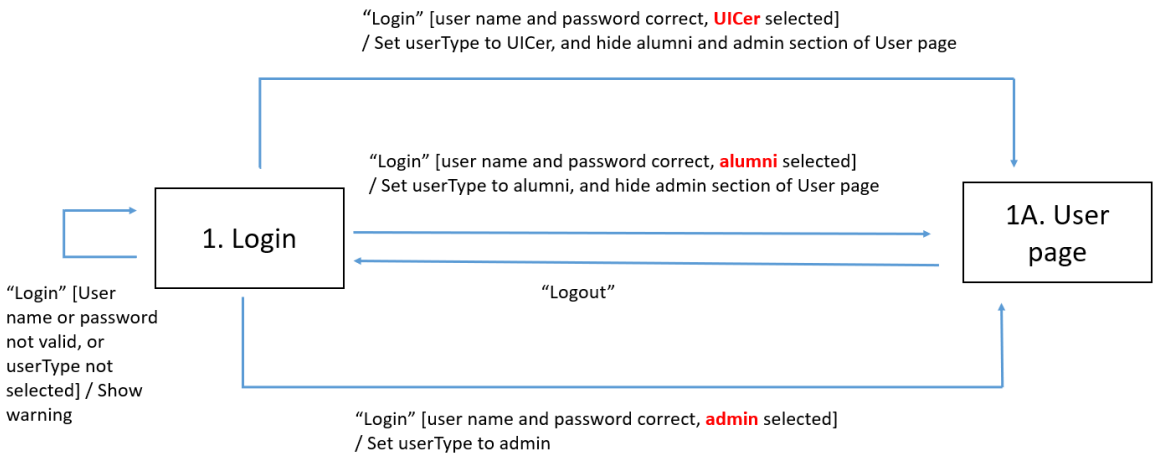
3.1 Login Feature

3.1.1 Description and Priority

The different User can login with password and register a new user. Each type of logged in UICer, Alumni and Administrator can have different privileges.

This feature's priority is high.

3.1.2 Stimulus/Response Sequences



The basic scenario of this feature:

-UICer: Input the user name, password correctly and select the UICer option. Press the "Login button".

-System: Set userType to UICer, and hide alumni and admin section of user page, then go to the User page.

-Alumni: Input the user name, password correctly and select the Alumni option. Press the "Login button".

-System: Set userType to Alumni, and hide UICer and admin section of user page, then go to the User page.

-Admin: Input the user name, password correctly and select the admin option. Press the "Login button".

-System: Set userType to admin, and hide UICer and alumni section of user page, then go to the User page.

-User: Press "logout" button in the User page.

-System: Logout the account and go back to the login page.

The alternative scenario of this feature:

-User: Press the "login" button but input valid name or password, or not select the userType.

-System: Give a warning.

3.1.3 Functional Requirements

None

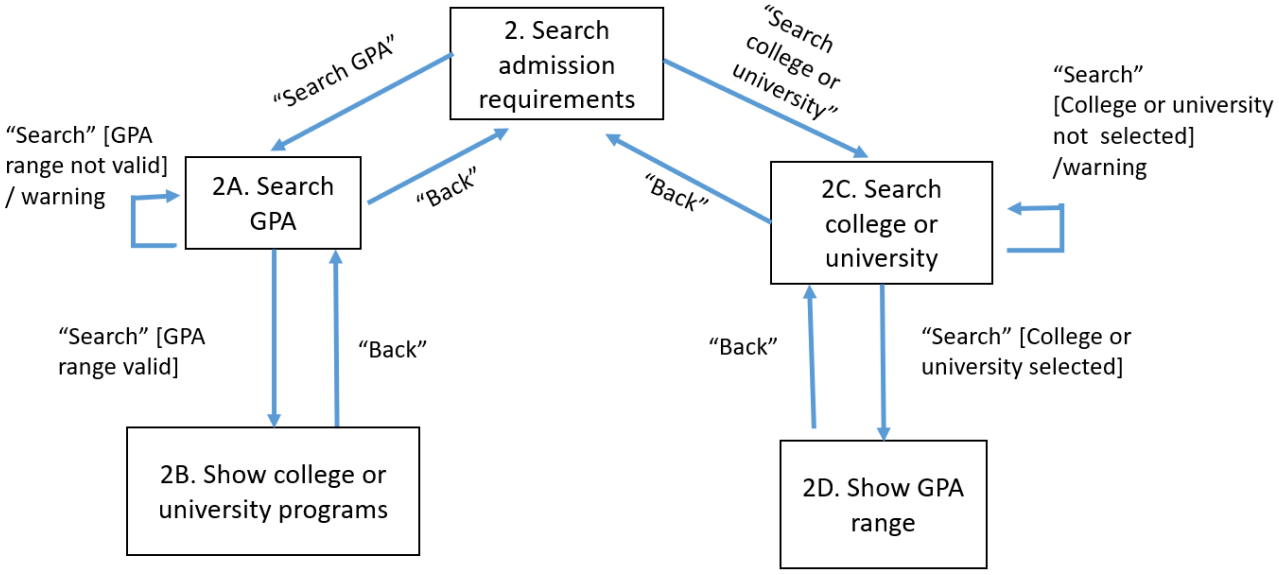
3.2 Search Admission Requirements Feature

3.2.1 Description and Priority

For this feature, only UICers can enter. If they searched by GPA page, the system returns a list of universities and programs that had accepted UIC students with GPA similar to the user. If they searched by school page, the system returns the range of GPA of UIC students that been accepted to that program.

This feature's priority is high.

3.2.2 Stimulus/Response Sequences



The basic scenario of this feature:

-UICer: Press "Search GPA" button in "Search admission requirements" page.

-System: Go to "Search GPA" page.

-UICer: Input a valid GPA range and press "Search" button in "Search GPA" page.

-System: Go to "Show college or university programs" page and display relevant information.

-UICer: Press "Back" button in "Show college or university programs" page.

-System: Go back to "Search GPA" page.

-UICer: Press "Back" button in "Search GPA" page.

-System: Go back to "Search admission requirements" page.

-UICer: Press "Search college or university" button in "Search admission requirements" page.

-System: Go to "Search college or university" page.

-UICer: Select a college or university and press "Search" button.

- System: Go to “Show GPA range” page and display relevant information.

-UICer: Press “Back” button in “Show GPA range” page.

-System: Go back to “Search college or university” page.

-UICer: Press “Back” button in “Search college or university” page.

-System: Go back to “Search admission requirements” page.

The alternative scenario of this feature:

-UICer: Input an invalid GPA range and press “Search” button in “Search GPA” page.

-System: Give a warning.

-UICer: Do not select college or university and press “Search” button in “Search college or university” page.

-System: Give a warning.

3.2.3 Functional Requirements

None

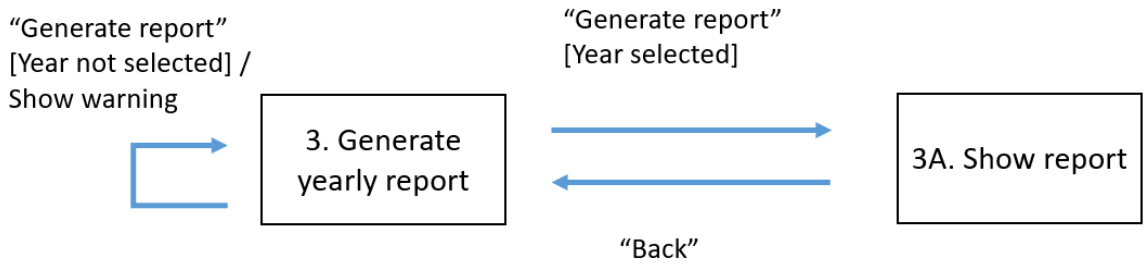
3.3 Generate Yearly Report Feature

3.3.1 Description and Priority

For this feature, only administrators can enter. The report contains info on that year's UIC graduates, such as from which colleges or universities programs they received offers for postgrad study. Administrators can decide what conditions the report consists of such as GPA, area and the rank of school by himself.

This feature's priority is medium.

3.3.2 Stimulus/Response Sequences



The basic scenario of this feature:

-Administrator: Select year and press “Generate report” button.

-System: Go to “Show report” page and display relevant information.

-Administrator: Press “Back” button.

-System: Go back to “Generate yearly report” page.

The alternative scenario of this feature:

-Administrator: Press “Generate report” button without selecting year.

-System: Give a warning.

3.3.3 Functional Requirements

None

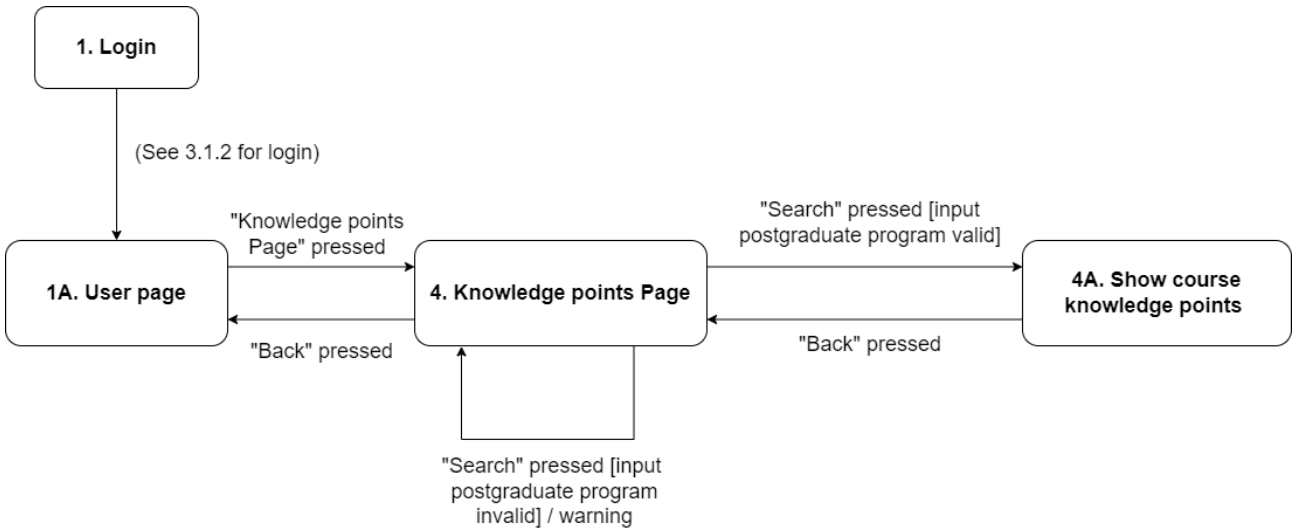
3.4 View knowledge Point Feature

3.4.1 Description and Priority

For this feature, only UICer can enter. After they search by the postgraduate program, the system will show the course knowledge points that relate with that postgraduate program.

This feature’s priority is medium.

3.4.2 Stimulus/Response Sequences



The basic scenario of this feature:

- UICer: Login the system and goto the "User page" (See 3.1.2 for login). Press the "Knowledge points Page" button

- System: Goto the "Knowledge points Page"

- UICer: Press "Back" button

- System: Go back to the "User page"

- UICer: Input the postgraduate program name in the block and press the "Search" button.

- System: Goto the Show course knowledge points page

- UICer: Press "Back" button after reading the knowledge points

- System: Go back to the Knowledge points Page

The alternative scenario of this feature:

- UICer: Input unavailable postgraduate name after checking the database and press the "Search" button

- System: Give a warning

3.4.3 Functional Requirements

None

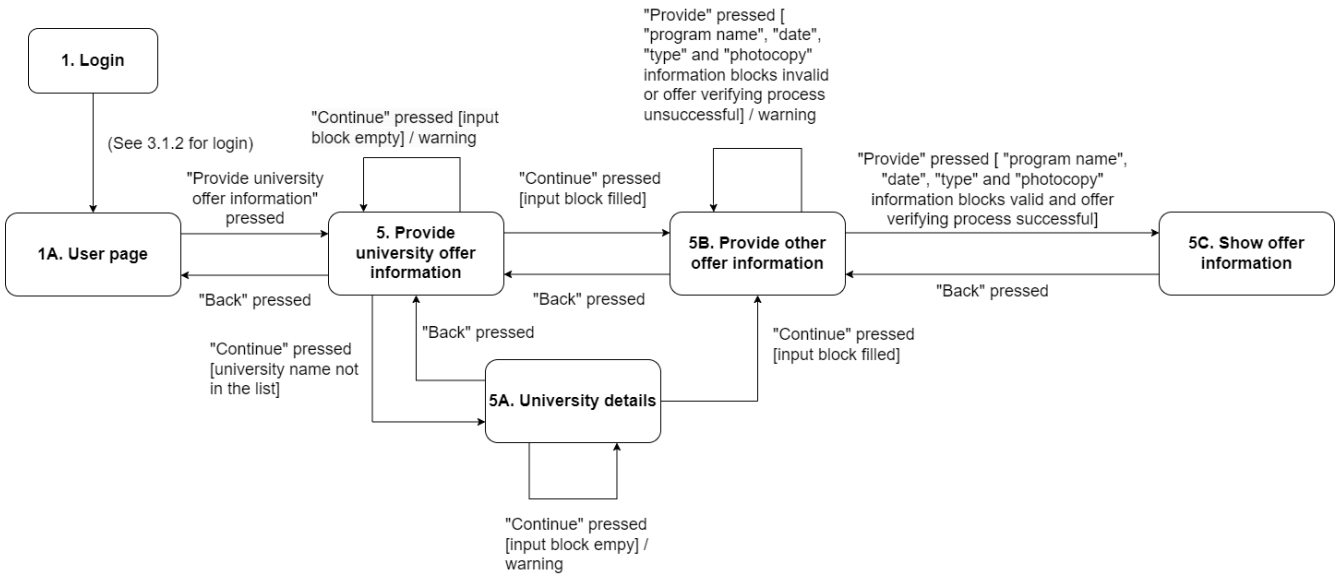
3.5 Provide University Offer Information Feature

3.5.1 Description and Priority

For this feature, only UICer can enter. They could provid the university offer informantion here. They will be ask to provide the university name,program name, data, type, photocopy. If the university name is not in the list, university details will also be asked to provide. All the information will be show at the end.

The feature's priority is high.

3.5.2 Stimulus/Response Sequences



The basic scenario of this feature:

- UICer: Login the system and goto the "User page" (See 3.1.2 for login). Press the "Provide university offer information" button.

- System: Goto the "Provide university offer information" page

- UICer: Press "Back" button

- System: Go back to the "User page".

- UICer: Input university name and press "Continue" button

- System: Goto "Provide other offer information" page

- UICer: Input university name that is not in current university list. Press "Countinue" button.

- System: Goto "University details" page

- UICer: Press "back" button in "University details" page

- System: Go back to the "Provide university offer information" page

- UICer: Input university description in university detail block. Press "Countinue" button

- System: Goto "Provide other offer information" page

- UICer: Press "Back" button in Provide other offer information page

- System: Go back to the "Provide university offer" information page

- UICer: Input valid information in "program name", "date" and "photocopy" blocks. Choose the option in "type" selection block. Press the "Provide" button.

- System: Send the information to verifying process and go to the "Show offer information" page

- UICer: Press "Back" button in "Show offer information" page

- System: Go back to the "Provide other offer information" page

The alternative scenario of this feature:

- UICer: In "Provide university offer information" page, leave the block empty and press "Continue" button.

- System: Give a warning

- UICer: In "University details" page, leave the block empty and press "Continue" button.

- System: Give a warning

- UICer:

In "Provide other offer information" page, if any of the following two conditions appear:

1. input invalid information in "program name", "date" and "photocopy" blocks or doesn't choose "type" option. And press "Countinue" button

2. Offer veryfication not successful after press "Continue" button

- System: Give a warning

3.5.3 Functional Requirements

None

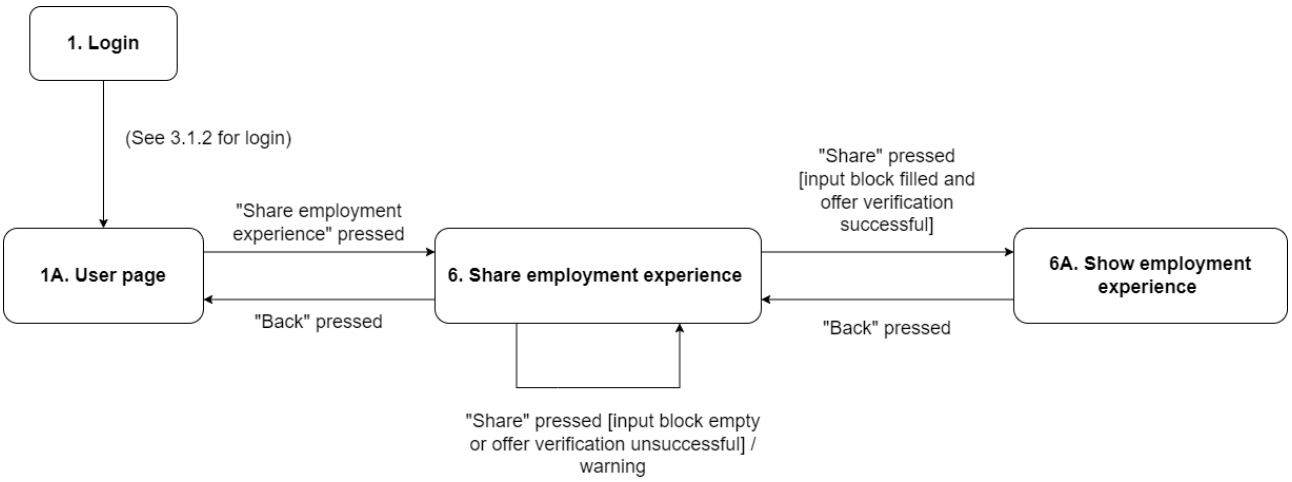
3.6 Share Employment Experience Feature

3.6.1 Description and Priority

For this feature, only Alumni can enter. They can share their employment experience here. The system will show input the employment experience in the end.

This feature's priority is low.

3.6.2 Stimulus/Response Sequences



The basic scenario of this feature:

- Alumni: Login the system and goto the "User page" (See 3.1.2 for login). Press the "Share employment experience" button.

- System: Goto the "Share employment experience" page.

- Alumni: Press "Back" button

- System: Go back to the "User page".

- Alumni: Input employment experience in the block and press "Share" button

- System: Go back to the "User Page"

The alternative scenario of this feature:

- Alumni: Leave the block in "Share employment experience" page empty and then press "Share" button or the offer verification is unsuccessful after pressing "Share" button.

- System: Give a warning.

3.6.3 Functional Requirements

None

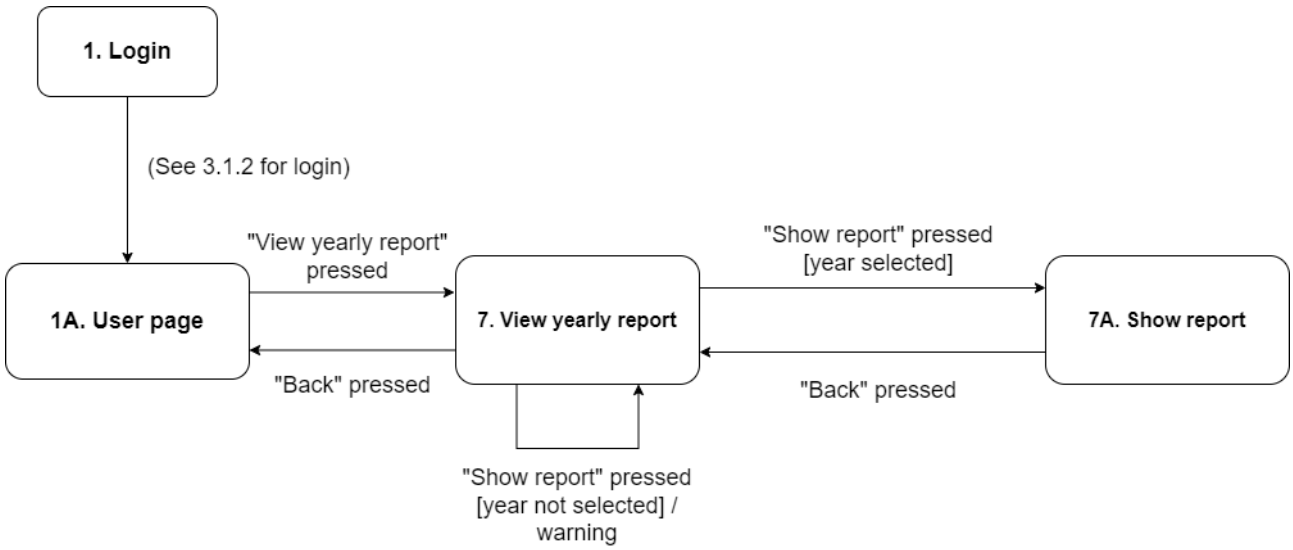
3.7 View Yearly Report Feature

3.7.1 Description and Priority

For this feature, only UICer can enter. They can view the selected year report here.

This feature's priority is medium.

3.7.2 Stimulus/Response Sequences



The basic scenario of this feature:

- UICer: Login the system and goto the "User page" (See 3.1.2 for login). Press the "View yearly report" button.

- System: Goto the "View yearly report" page.

- UICer: Press "Back" button

- System: Go back to the "User page".

- UICer: Select the year and press "Show report" button

- System: Goto "Show report" page

- UICer: Press "Back" button

- System: Go back to "View yearly report" page

The alternative scenario of this feature:

- UICer: Does not select the year and press "Show report" button

- System: Give a warning

3.7.3 Functional Requirements

None

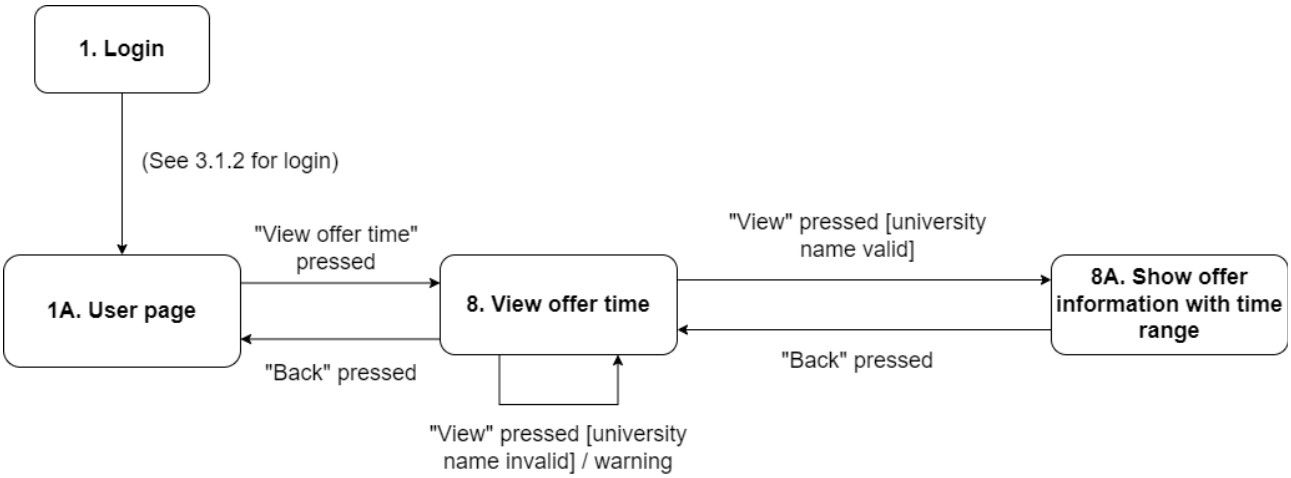
3.8 View Offer Time Feature

3.8.1 Description and Priority

For this feature, only UICer can enter. They can view the offer time here. After they enter the university name, the relative offer informantion with time range will show.

This feature's priority is medium.

3.8.2 Stimulus/Response Sequences



The basic scenario of this feature:

- UICer: Login the system and goto the "User page" (See 3.1.2 for login). Press the "View offer time" button.

- System: Goto the "View offer time" page.

- UICer: Press "Back" button

- System: Go back to the "User page".

- UICer: Input university name and press "View" button

- System: Goto "Show offer information with time range" page

- UICer: Input university name and press "View" button

- System: Goto "Show offer information with time range" page

- UICer: press "Back" button

- System: Go back to "View offer time" page

The alternative scenario of this feature:

- UICer: Input university name which is unavailable in database and press "View" button

- System: Give a warning

3.8.3 Functional Requirements

None

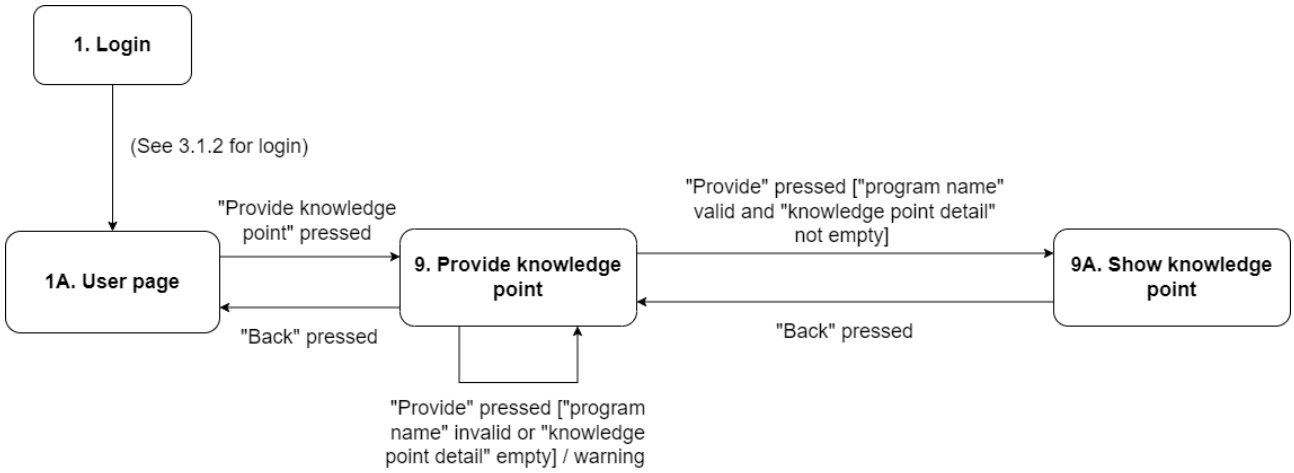
3.9 Provide Knowledge Point Feature

3.9.1 Description and Priority

For this feature, only Alumni can enter. They can provide the relate knowledge points for their program here.

This feature's priority is medium.

3.9.2 Stimulus/Response Sequences



The basic scenario of this feature:

- Alumni: Login the system and goto the "User page" (See 3.1.2 for login). Press the "Provide knowledge point" button.

- System: Goto the "Provide knowledge point" page.

- Alumni: Press "Back" button

- System: Go back to the "User page".

- Alumni: Input valid "program name", fill in the "knowledge point detail" block and press "Provide" button

- System: Goto "Show knowledge point" page

- Alumni: Press "Back" button

- System: Go back to "Provide knowledge point" page

The alternative scenario of this feature:

- Alumni: Input invalid "program name", or leave the "knowledge point detail" block empty and press "Provide" button

- System: Give a warning

3.9.3 Functional Requirements

None

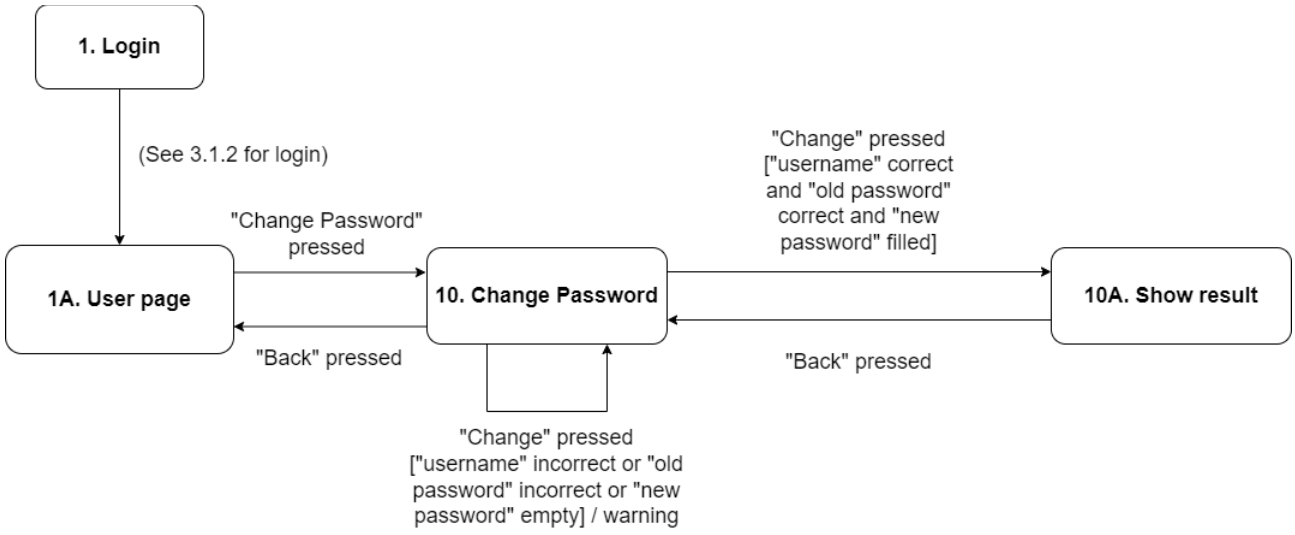
3.10 Change Password Feature

3.10.1 Description and Priority

For this feature, only UICer can enter. They can change their account's password here.

This feature's priority is low.

3.10.2 Stimulus/Response Sequences



The basic scenario of this feature:

- UICer: Login the system and goto the "User page" (See 3.1.2 for login). Press the "Change Password" button.

- System: Goto the "Change Password" page.

- UICer: Press "Back" button

- System: Go back to the "User page".

- UICer: Input correct "username" and "old password", enter a "new password" and press "Change" button

- System: Goto "Show result" page

- UICer: Press "Back" button

- System: Go back to "Change Password" page

The alternative scenario of this feature:

- UICer: Input incorrect "username", incorrect "old password", or leave the "new password" empty and press "Change" button.

- System: Give a warning

3.10.3 Functional Requirements

None

4. External Interface Requirements

4.1 User Interfaces

See FIle: user_interface_v1.3.pdf

4.2 Hardware Interfaces

The Graduation Placement Service (GPS) is a software application designed to assist with the job placement process for recent graduates. Unlike some software applications, GPS does not require any specific hardware interfaces to function properly. As long as the device used to run GPS has computing units, it should be able to run the software effectively.

4.3 Software Interfaces

The GPS system will connect with two software components, including the following:

UIC databases: The system will access the relevant UIC databases, such as login accounts and passwords.

AR databases: The system will access the relevant AR databases, such as the GPA of students (including alumni) who received offers.

Data items or messages that will be coming into the system and going out include:

User input such as GPA, university name, program name, data of offer and photocopy of offer.

Search results based on user inputs such as universities and programs that had accepted our alumni with GPA similar to the user’s, GPA range of our alumni and students that had received

offers from a specific university program, and knowledge points related to undergrad courses required by the program.

The services needed for the system include:

Database access: The system will need to access the UIC and AR databases to collect relevant data.

Search functionality: The system will need to implement search functionality to enable users to search for relevant information based on their input.

4.4 Communications Interfaces

The system does not need any specific communication functions, but it will use standard communication protocols HTTP to interact with external. No specific message formatting is required. No communication security or encryption issues have been identified. The data transfer rate and synchronization mechanisms will depend on the external resources being accessed.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The Graduation Placement Service (GPS) software application must meet certain performance requirements to ensure that it can provide quick and accurate recommendations to users. The performance requirements for the GPS application are as follows:

1. Response Time: The application must respond to user requests within 3 seconds. The response time is critical as users should not wait too long for the application to provide them with recommendations.

2. Capacity: The application must be able to handle at least 1000 concurrent users without any degradation in performance. This is to ensure that the application can handle high traffic during peak hours.

3. Accuracy: The application must provide accurate recommendations to users. The recommendations should be based on the user's GPA and major, and should be sorted according to the GPA range of our alumni and students who received offers from that university program.

4. Availability: The application must be available 24h/7d. Any downtime could result in users missing out on important opportunities.

5.2 Safety Requirements

1. Safety is an important consideration when designing and developing any software product. In the case of the GPS, safety requirements should be identified to ensure the protection of user data and prevent any potential harm to users.

2. Compliance with Regulations: The GPS system should comply with all relevant regulations and policies related to data privacy and protection.

3. Prevention of Harm: The GPS system should not provide any false or misleading information that could lead to harm or loss for users. It should be thoroughly tested to ensure accuracy and reliability of the information provided.

4. Safety Certifications: The GPS system may be required to meet certain safety certifications to ensure its safe operation and compliance with industry standards.

5. Disaster Recovery: In the event of a system failure or natural disaster, the GPS system must have a disaster recovery plan in place to ensure the safety and security of user data. It's necessary to regularly back up the system and create redundancies to prevent data loss.

5.3 Security Requirements

To ensure the security and privacy of the GPS software, the following security requirements should be met:

1. User authentication: The system must verify the user's identity before granting access to the software. Users can use their UIC email addresses or student IDs as their usernames and set up their own passwords.

2. Data encryption: All data stored in the system, including personal information and offers, must be encrypted and protected from unauthorized access.

3. Access control: The system should provide access control mechanisms to ensure that users only have access to the information they need to perform their tasks.

4. Compliance with external regulations: The software must comply with all relevant regulations, such as the General Data Protection Regulation (GDPR) and the Family Educational Rights and Privacy Act (FERPA), to ensure the protection of personal information.

5.4 Software Quality Attributes

1. Portability: The software should be adaptable to different environments, devices, and platforms. For example, IOS, Windows and Android.

2. Reliability: The software should be reliable and consistent, even under stressful or unexpected conditions such as internet lag.

3. Usability: The software should be user-friendly, with clear and intuitive interfaces and efficient workflows.

4. Testability: The software should be easily testable, with clear test plans and procedures.

5. Reusability: The software should be designed with reusable components, to reduce development time and costs.

6. Other Requirements

1. Database Requirements: The system shall have a database capable of storing and retrieving large volumes of data quickly and efficiently. The database must be secure, reliable, and scalable to meet the increasing demands of the system.

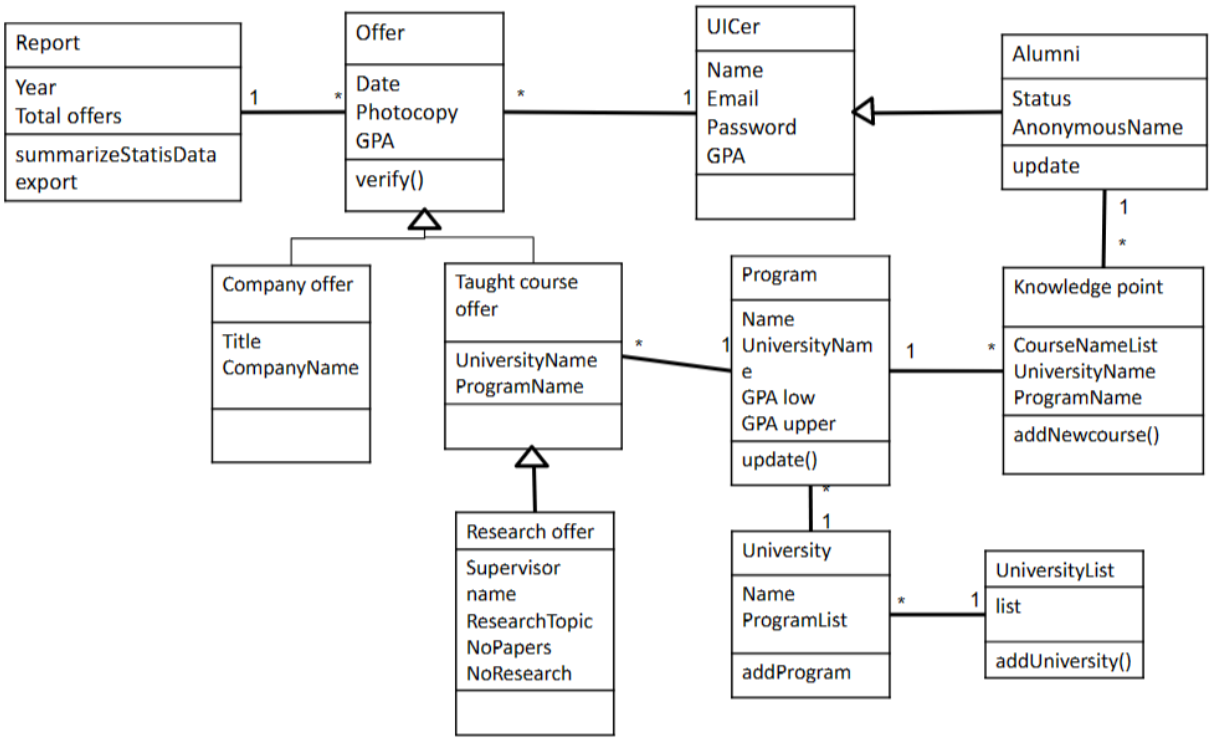
2. Internationalization Requirements: The system shall support multiple languages and must be able to display text in various character sets. The date, time, and currency formats should also be customizable based on the user's location.

Appendix A: Glossary

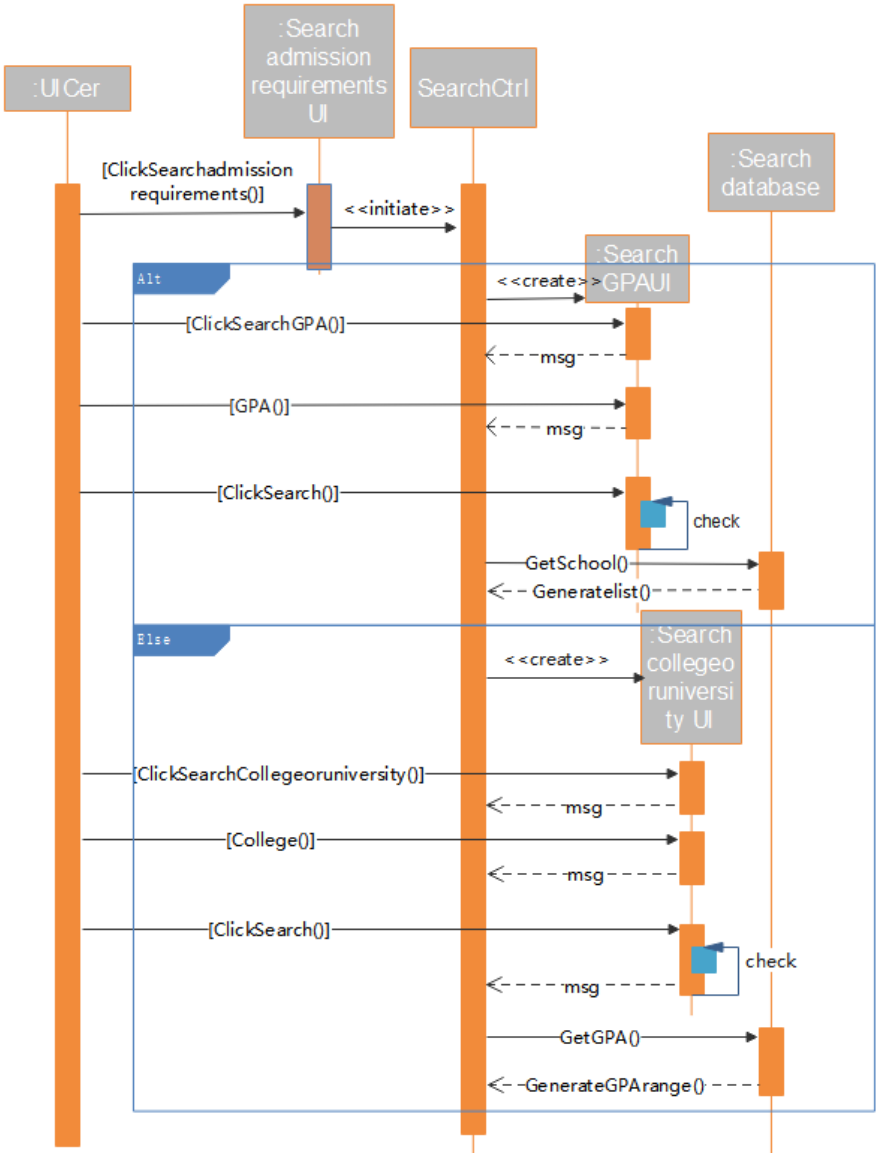
None

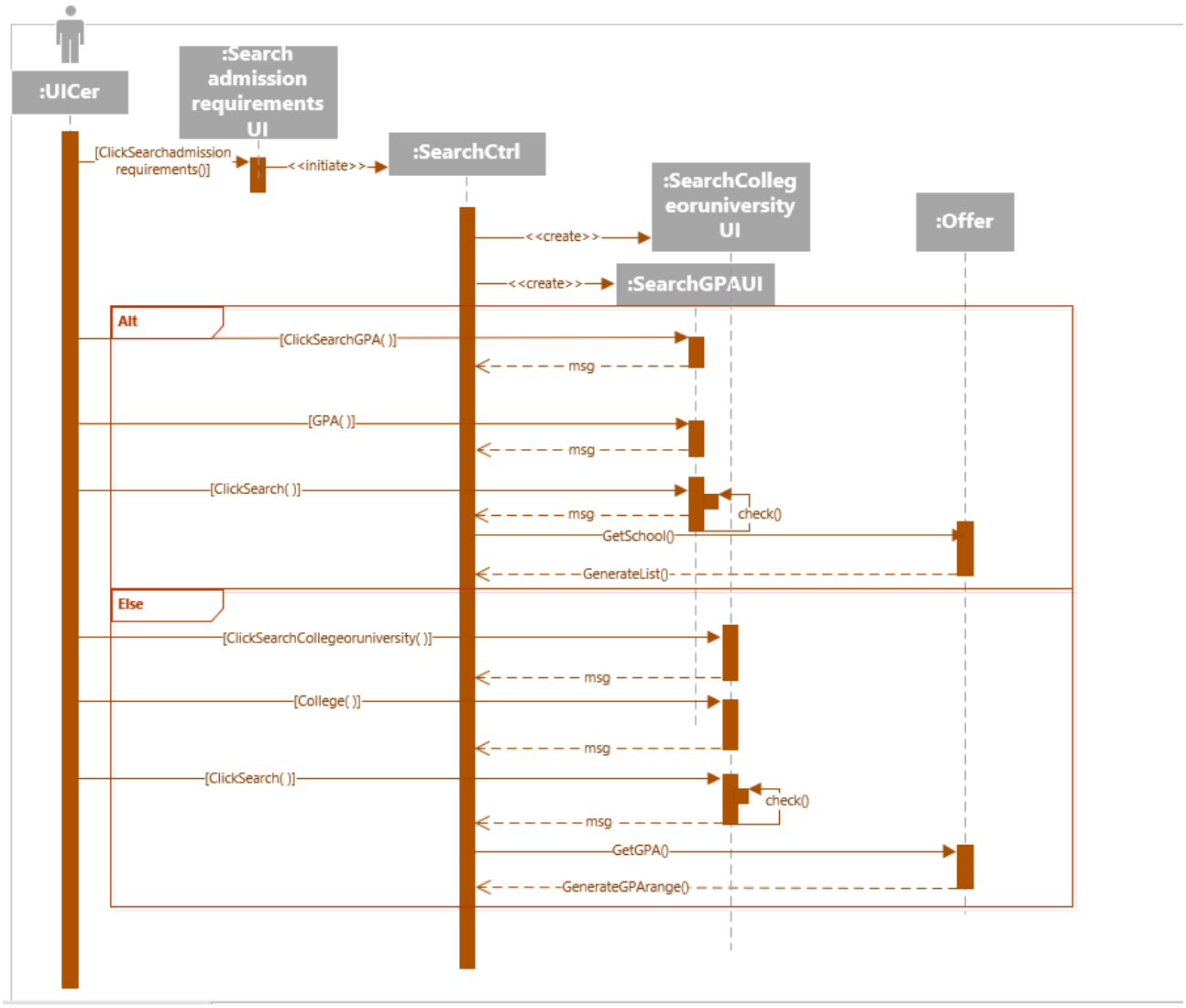
Appendix B: Analysis Models

1. Class Diagram



2. Sequence Diagram





Appendix C: Issues List

None