

**CSCI3100 Software Engineering**  
**UML Specification and UI Design Document**  
**Group B7**  
**CU advanced Course Selection System**

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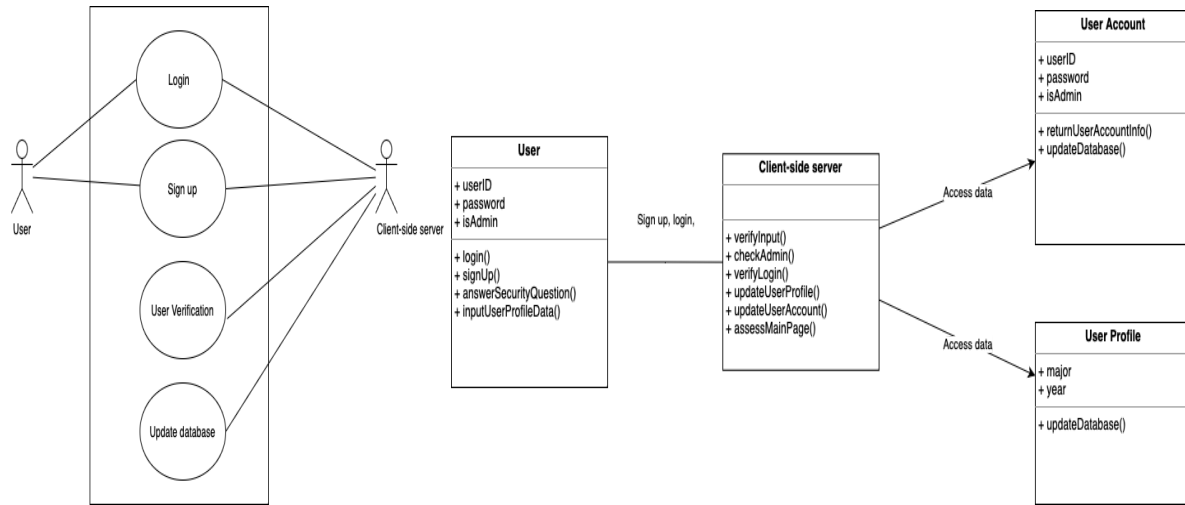
Version 1.0

Department of Computer Science and Engineering, The Chinese University of Hong Kong

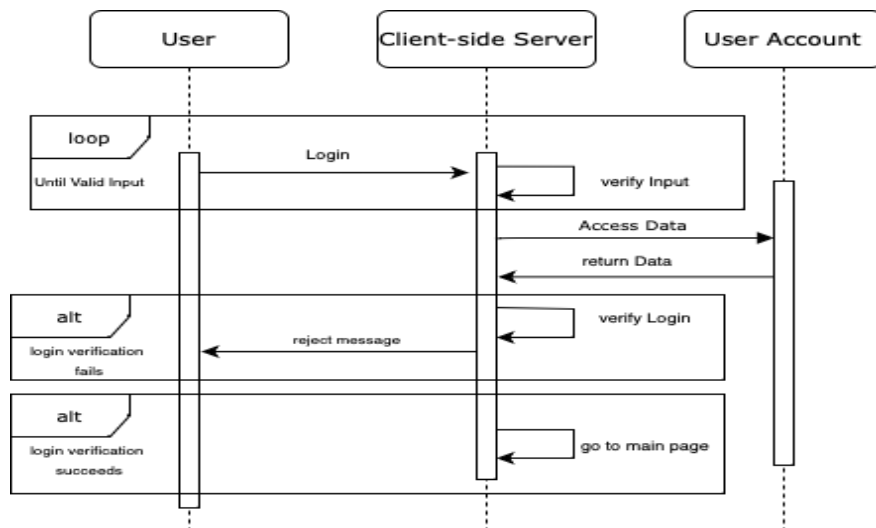
# 1. UML DESIGN

## 1.1 User Authentication

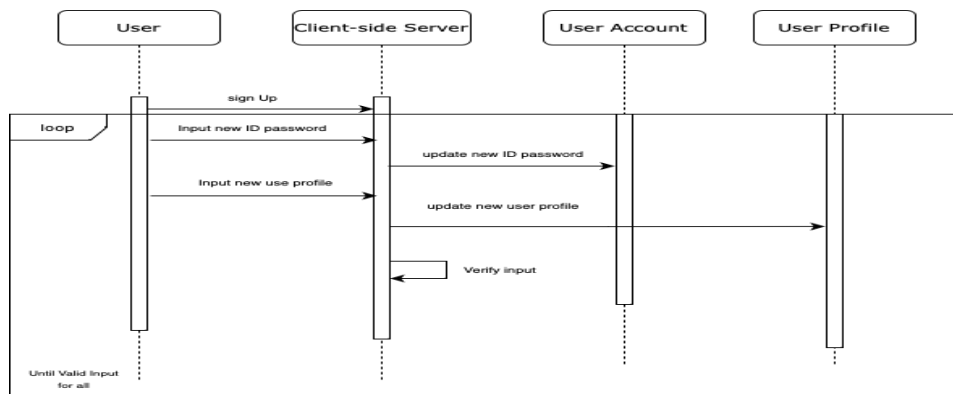
### i. UMLs



1.1.a Use-case Diagram & UML class Diagram



1.1.b UML sequence Diagram for Login



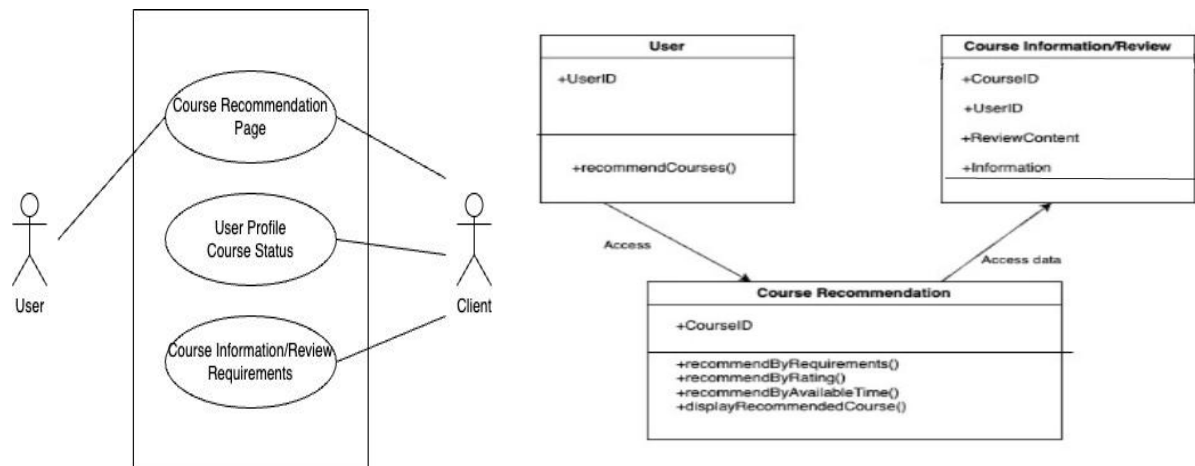
1.1.c UML sequence Diagram for Sign Up

## ii. Functionality and its procedures and functions

In User Authentication, users can login with their IDs and passwords to access the mainpage. Client-side server will verify the user login procedure by verifying input and login information. If verification fails, Client-side server will return the failure message to the user. Users can also sign up with their user account information and user profile. User will send the user account and profile information to the Client-side server. Client-side server will verify the validity of input. After verification, Client-side server will record the input to appropriate databases (User Account, User Profile).

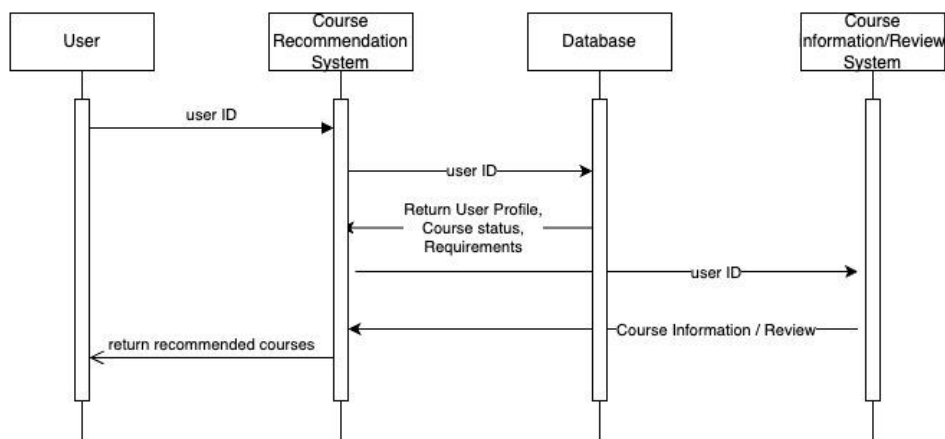
## 1.2 Course Recommendation System

### i. UMLs



### 1.2.a Use-case Diagram & UML class Diagram for Recommendation System

Course Recommendation System



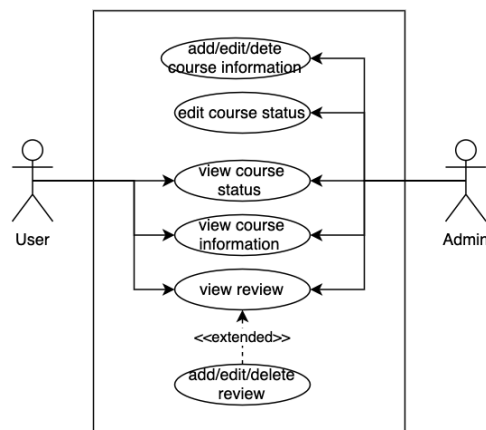
### 1.2.b UML Sequence Diagram for Course Recommendation System

## ii. Functionality and its procedures and functions

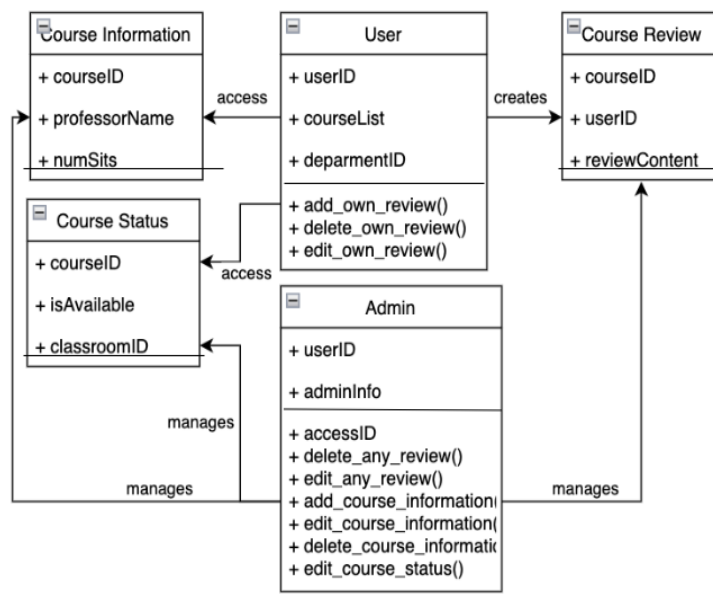
The main feature of this component is to recommend the course that is necessary for the certain user. The course recommendation system will automatically read the user who logs in. Then, the course recommendation system will access databases such as user profile, course rating, and course information to suggest the appropriate courses depending on the information gathered to the user. The course recommendation system will use its own algorithm for the recommendations. Also, courses are recommended by course rating, required courses for the user, and available courses (enough seats).

### 1.3 Course information and review system

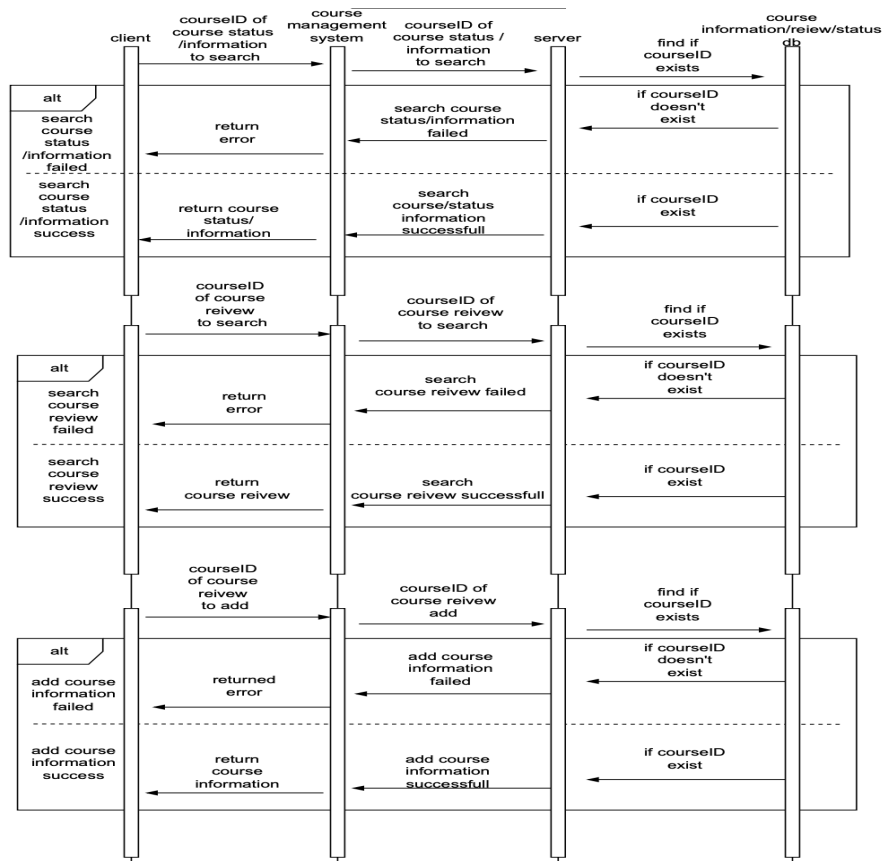
#### i. UMLs



1.3.a Use-case Diagram



1.3.b UML class Diagram



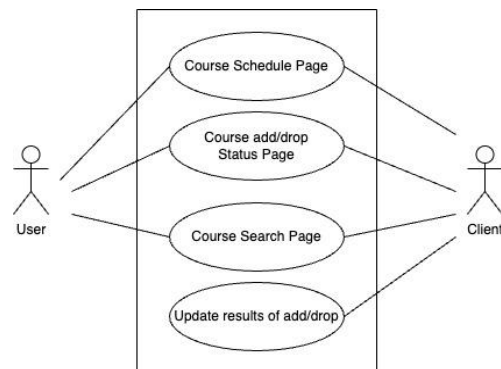
1.3.c UML sequence Diagram for course status/information/review system

#### ii. Functionality and its procedures and functions

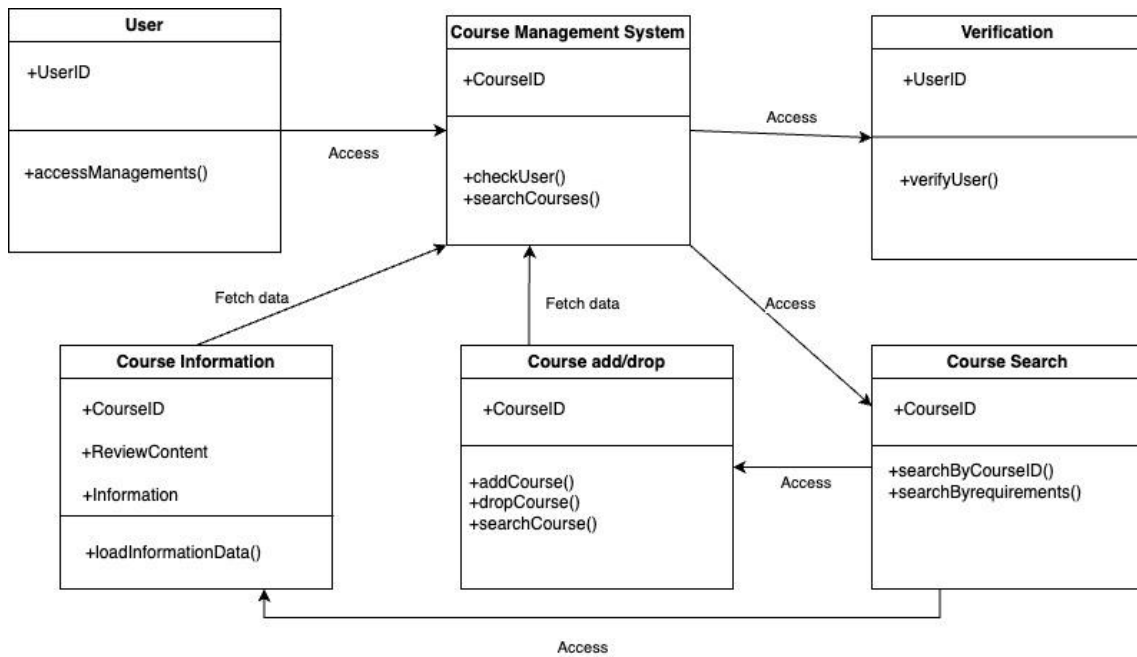
The Course Review/Information System allows users to access and contribute reviews for specific courses. Users can view reviews left by other students who have previously taken a course with access to Class Course Review. They could also add, edit, or delete their own reviews for courses they have taken. Users could also view the course information stored in Class Course Information. Admins have higher permission and functionally such as edit and delete all the reviews, information and status.

### 1.4 Course management system

#### i. UMLs

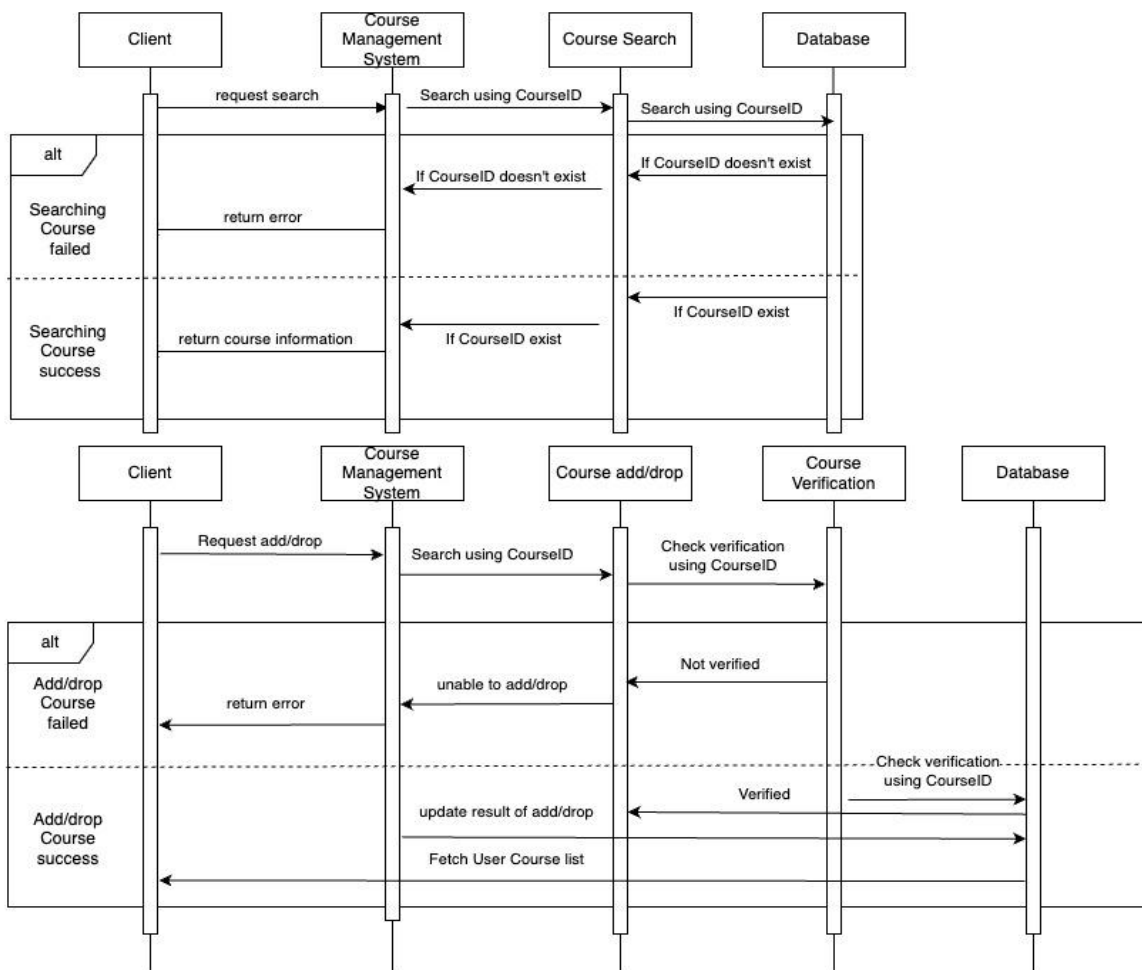


1.4.a Use case Diagram for Course management System



14.b UML class diagram for Course management System

Course management system



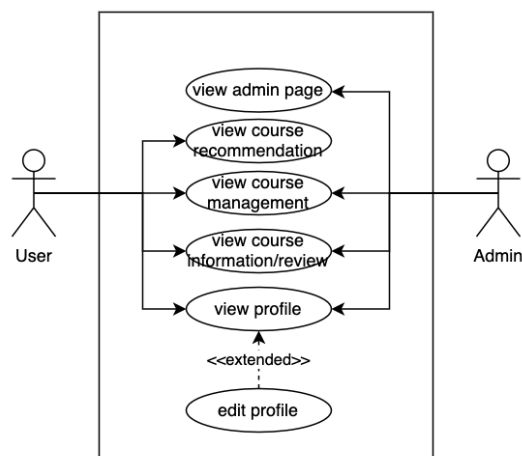
1.4.c UML Sequence Diagrams for Course management System

## ii. Functionality and its procedures and functions

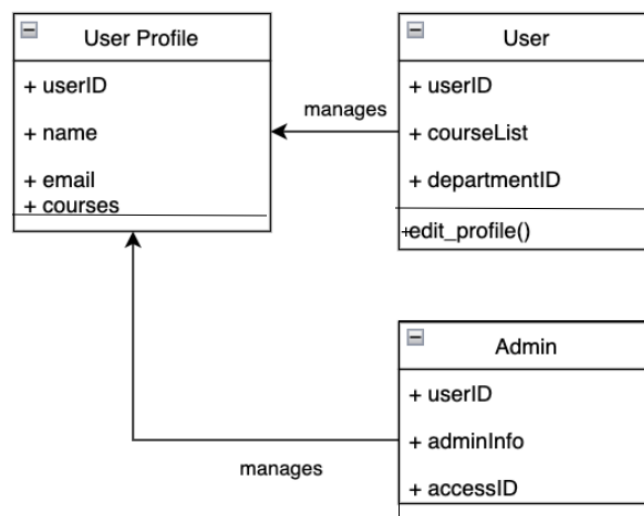
The course management system allows users for course search, selection, add and drop of the courses. This system consists of search, add/drop, verification functions for course management. The system additionally interacts with the course information system to fetch the course information and review. It additionally interacts with the department requirement base for requirement data fetching, course status database for course fetch and update availability, user profile for course validation, user status for updating add/drop result and fetch user status for user schedule page. As a result, users could see the result of course search, course add/drop status, and course schedule with client request.

### 1.5 Main page

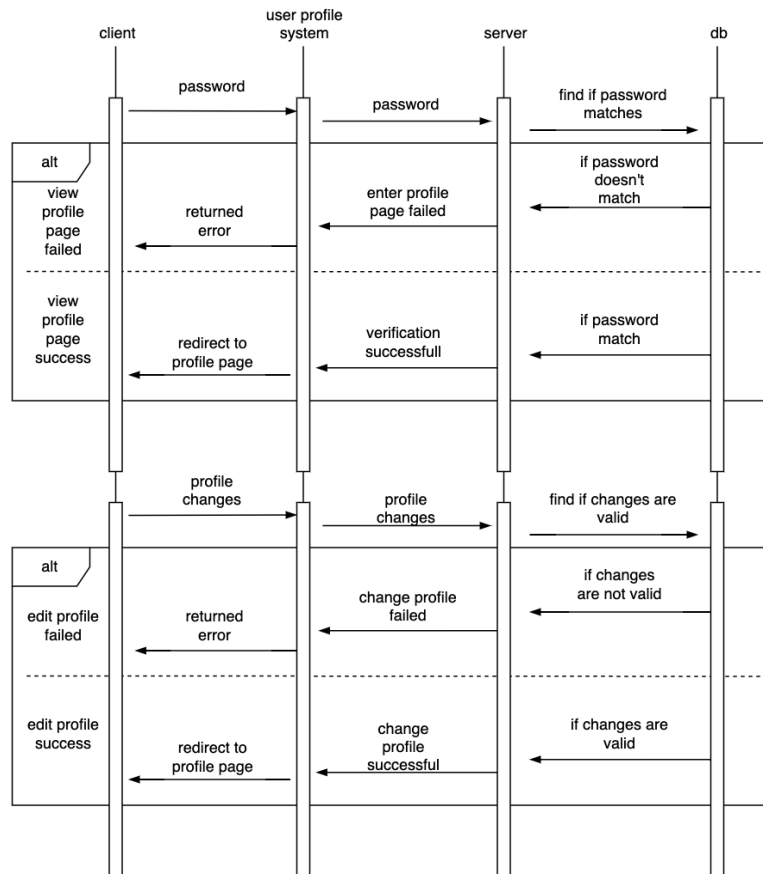
#### i. UMLs



1.5.a. Use-case Diagram



1.5.b & UML class Diagram



1.5.c. UML sequence Diagram for profile on Mainpage

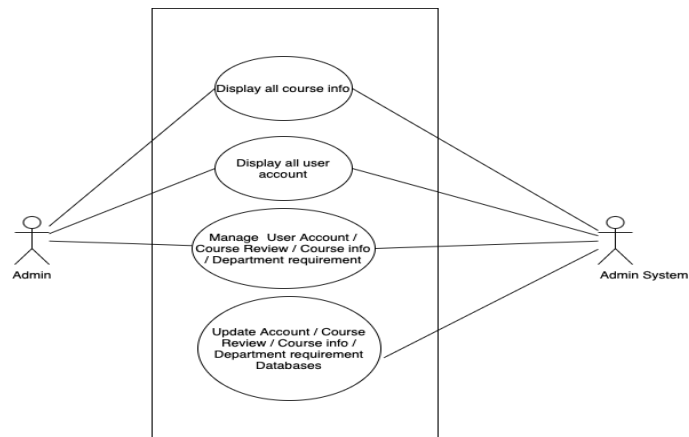
## ii. Functionality and its procedures and functions

The Main Page is a feature of the Course Selection System that allows users and admins to mainly access the other systems. Additionally, users could view and edit their own profiles such as their name, email address, and course history, as well as make changes to their profile, such as updating their password or contact stored in Class User Profile. The Main Page is designed to be user-friendly and secure, ensuring that user and admin could access to all the system and each user's personal information remains confidential and up-to-date

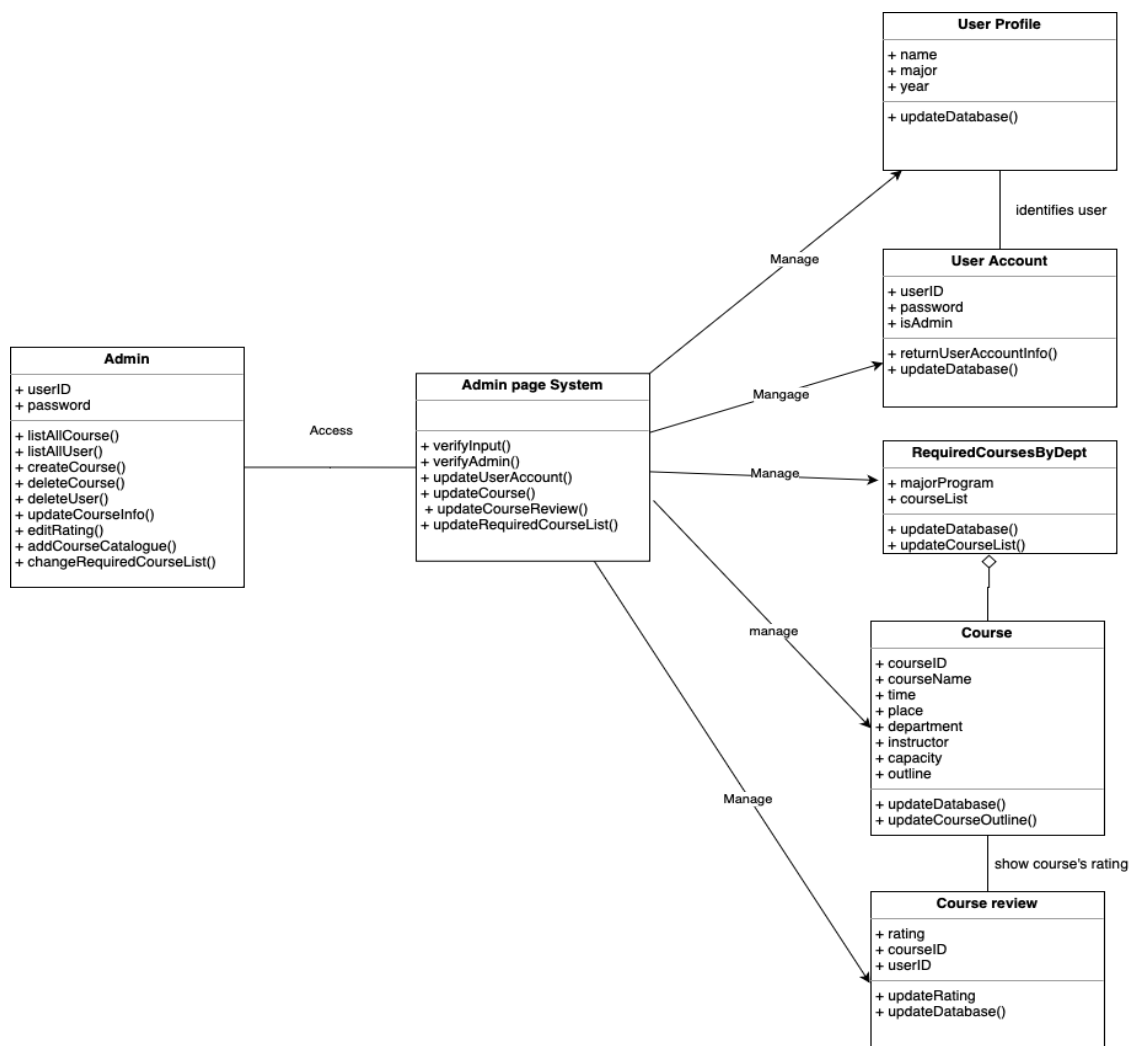


## 1.6 Admin page

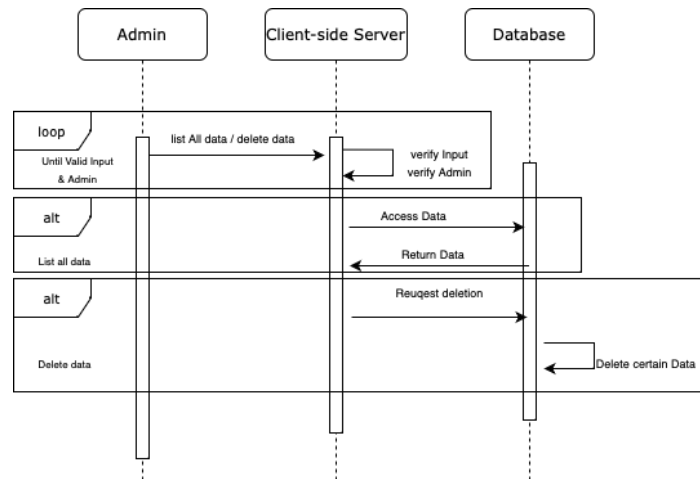
### i. UMLS



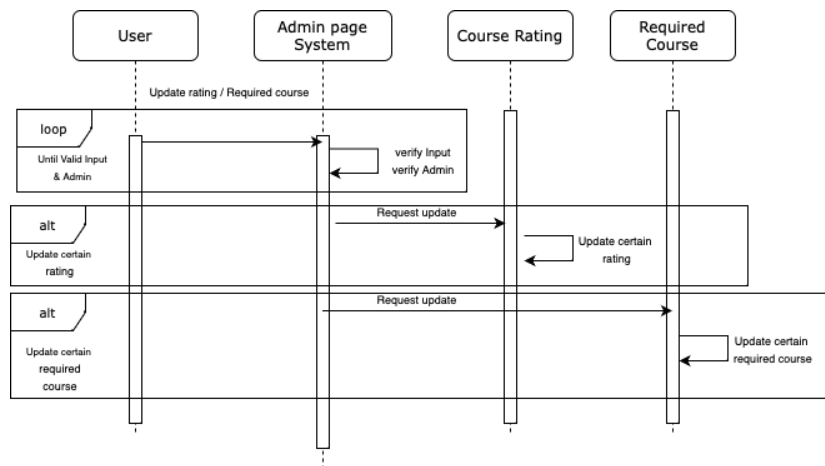
1.6.a Use-case Diagram



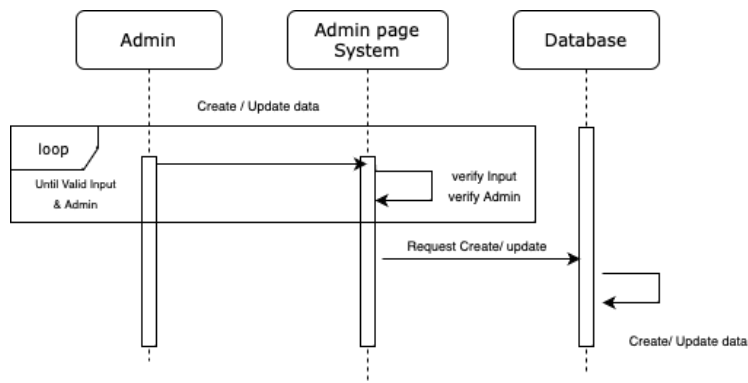
1.6.b UML class Diagram



1.6.c UML sequence diagram for List / Delete data



1.6.d UML sequence diagram for Edit course rating and required course component



1.6.e UML sequence diagram for create or update data

## ii. Functionality and its procedures and functions

In the Admin page component, the admin user can create, update, delete, or list all user and course information. The Admin will send requests to the Admin page system, the Admin page system will modify the requested data from the database (user info or course info). In addition to that, the Admin

page system can also return the requested data to the admin, too. The Admin can also modify course requirements and course rating, too. The Admin will send requests to the Admin page system, the Admin page system will modify the requested data from the database (graduation requirement or course rating).

## 2. UI DESIGN

### 2.1.1 Login page



The login page features the CUHK logo and the title "CUHK Course Selection System". Below the title is the "Login Page" heading and a subtext "Please fill your detail to access your account." The form includes an "Email" field with the placeholder "SID@link.cuhk.edu.hk", a "Password" field with masked characters, a "Remember me" checkbox, and a "Sign in" button. A link "Don't have an account? Sign up" is located at the bottom left. On the right, there is a photograph of the CUHK entrance gate.

Figure1. Login page

In the Login page, you have 2 choices. First, if you enter your CUHK email and password, then you can login into this system. Second, if you don't have an account, you will click sign up link to go to the sign up page.



The sign up page features the CUHK logo and the title "CUHK Course Selection System". Below the title is the "Sign Up" heading and a subtext "Please fill your detail to create your account." The form includes fields for "Name", "Email" (with placeholder "SID@link.cuhk.edu.hk"), "Your Major" and "Your Year" (each with a dropdown menu), "Password", and "Confirm Password". A "Sign up" button is at the bottom left. On the right, there is a photograph of the CUHK entrance gate.

Figure2. Sign up page

If you go to the sign up page, you can input your personal information(Name, email, major, year, password) to create your account. Then, you can return to the login page if you click the sign up button.

### 2.1.2. Main page

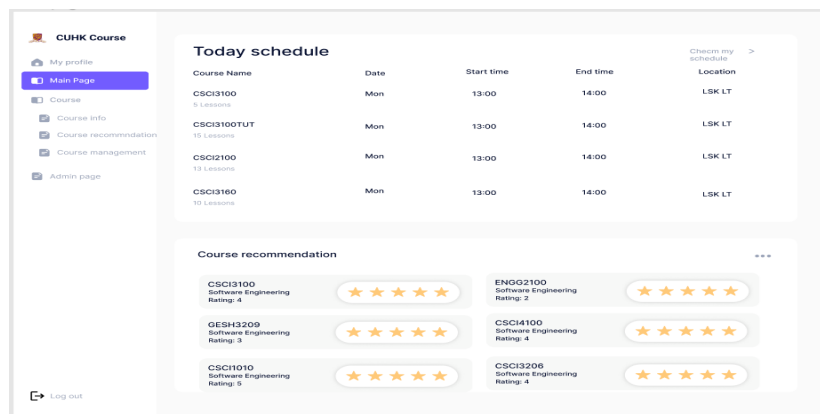


Figure3. Main page

Once logged in, our system directs the user to the main page, which contains a drawer with a list of pages (mainly Profile page, Main page, Course pages and admin page) to direct on the left side, and general information of the user's course information and recommendation, based on the user database.

### 2.1.3. Profile page

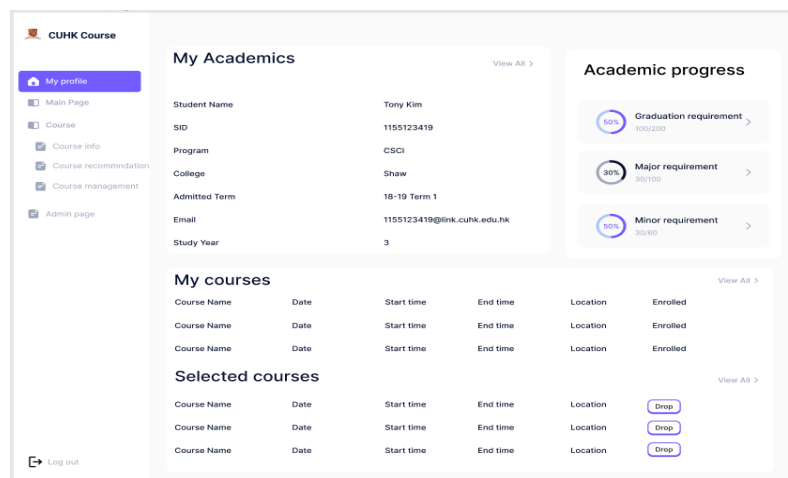


Figure4. Profile page

The profile page contains user's basic information and their courses from what they have enrolled/selected from the course management system, fetched from the user's database. Users also can drop their selected courses. Furthermore, users academic requirement is displayed on the top right side, based on the user profile database.

## 2.1.4. Course information Page and Course Information Pop Up Page

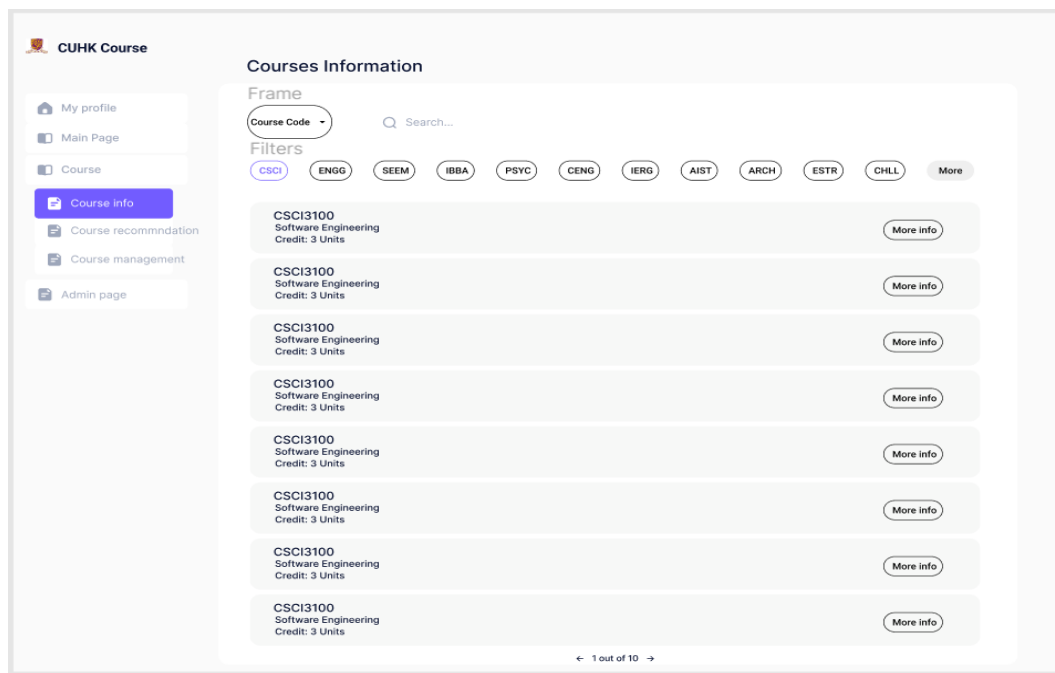


Figure5. Course information Page

The course section is divided into 3 pages - course information page, course recommendation page and course management page. In the course information page, courses can be searched by course ID and name, with various conditions of the user. If you need some specific course, then you can use various code filters(CSCI, ENGG, SEEM...) to get a simple course list.

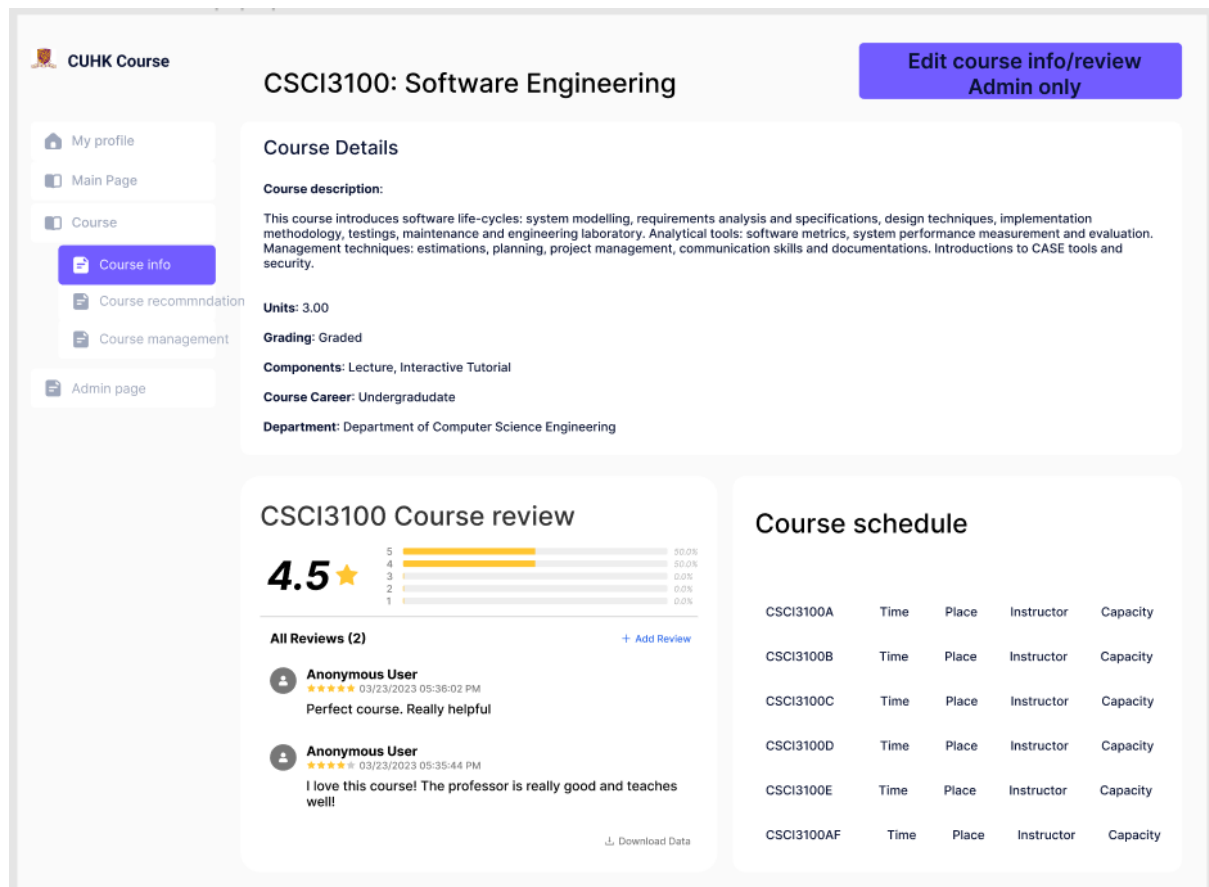


Figure6. Course Information Pop Up Page

When “More info” is clicked, it directs to the Course Information Pop Up Page with detailed course information. The Information Pop Up Page displays detailed description of the course (course ID, course name, time, place, department, instructor, and capacity) as well as the review of the specific course, where the data is fetched from the course status and department requirement database. If the user is admin, they can edit course information and review.

## 2.1.5 Course Management page

**CUHK Course**

- My profile
- Main Page
- Course
- Course info
- Course recommendation
- Course management**
- Admin page

**Course Management**

### Weekly schedule

Course Name	Date	Start time	End time	Location	Status/Drop
Course Name	Date	Start time	End time	Location	
Course Name	Date	Start time	End time	Location	
Course Name	Date	Start time	End time	Location	
Course Name	Date	Start time	End time	Location	
Course Name	Date	Start time	End time	Location	
Course Name	Date	Start time	End time	Location	

### Courses

Course Code ▾

Course Code	Course Name	Units	Grade	Status	Seats	Add
Course Code	Course Name	Units	Grade	✓	Open seats 5 of 100	
Course Code	Course Name	Units	Grade	✓	Open seats 5 of 100	
Course Code	Course Name	Units	—		Open seats 5 of 100	
Course Code	Course Name	Units	—		Open seats 5 of 100	
Course Code	Course Name	Units	—		Open seats 5 of 100	
Course Code	Course Name	Units	—		Open seats 5 of 100	

Log out

Figure7. Course Management page

When you enter the course management page, you can see your weekly schedule list and course list to add your course schedule. In your weekly schedule list, you can see the information of course(Name, date, time, location, status/drop btn). In the status column, if there is a time collision between some courses, then we will notify by using some warning icon. Furthermore, you can drop the course by using the drop button.

In the Courses list, you can search for the course by various criteria (Course code, name, units) When you search some courses, you can see several information about the course(Code, name, units, grade, status, seats, add btn). If you had taken some course, then it will show its grade. If the course has full seats then, it will show the warning icon in status.



### 2.1.6 Course Recommendation page

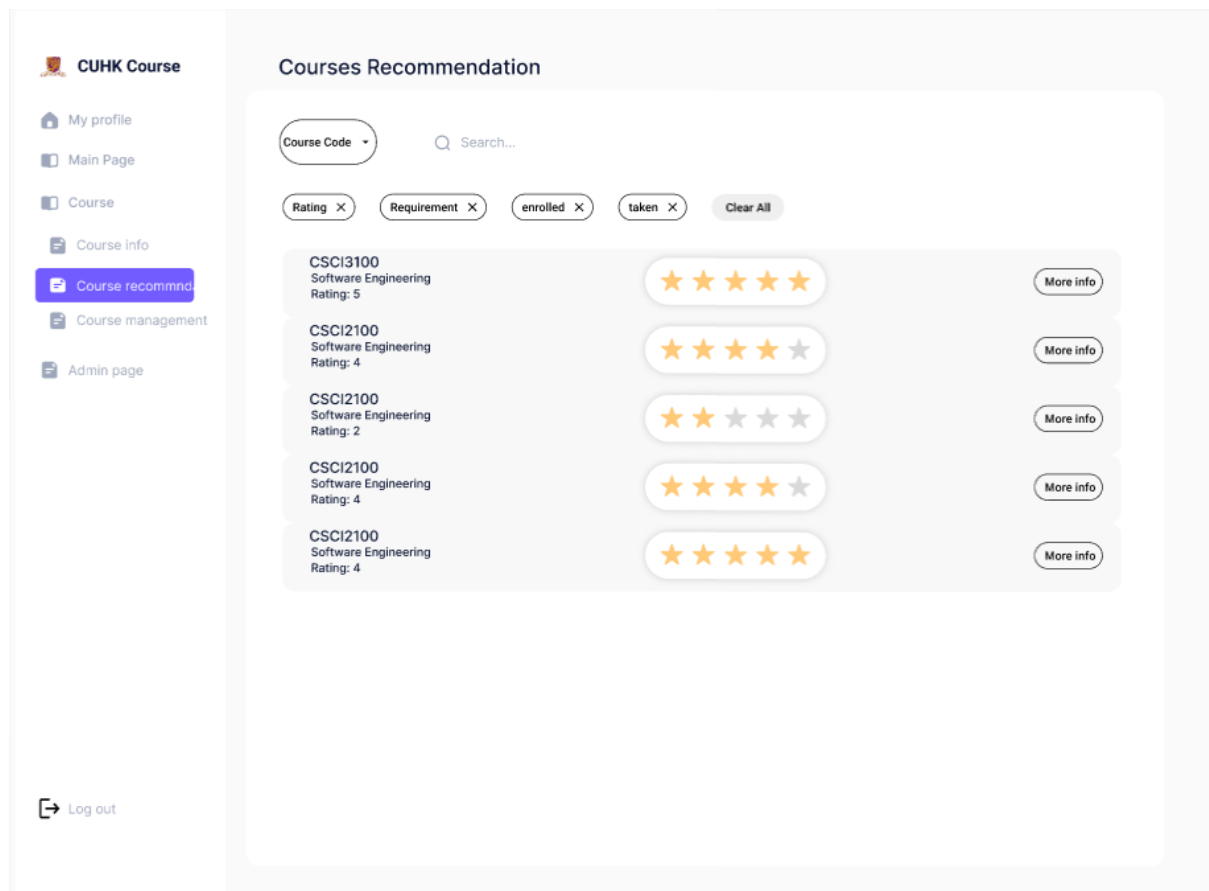


Figure 8. course recommendation page

In the recommendation page, you can search for the course by using some criteria(Course code, name). When you search it, you can see the course list with some information(Course code, name, its rating, more info btn). If you want to summarize the course list or get some simple course list, you can click some filter button(Rating, requirement, enrolled, taken). When you click the “More info” button, then you can see the further information of course as you can see in the course information pop up.

### 2.1.7. Admin Page

The screenshot displays the 'Admin System' interface for 'CUHK Course'. On the left is a sidebar with navigation links: 'My profile', 'Main Page', 'Course', 'Course info', 'Course recommendation', 'Course management', and 'Admin page' (highlighted in blue). The main content area is divided into two sections: 'User Information' and 'Courses Information'.

**User Information**

At the top of this section are a dropdown menu for 'SID', a search bar, and a button 'Add/ Change / Delete student information'. Below is a table with the following data:

SID	Name	Program	College	Study Year
1155123456	James	CSCI	Shaw	3
1155123452	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3
1155123456	James	CSCI	Shaw	3

Below the table is a pagination link: '← 1 out of 310 →'.

**Courses Information**

At the top of this section are a dropdown menu for 'Course Code', a search bar, and a button 'Add/ Change / Delete course information'. Below is a list of course entries, each with a 'More info' button:

- CSCI3100  
Software Engineering  
Credit: 3 Units
- CSCI3100  
Software Engineering  
Credit: 3 Units
- CSCI3100  
Software Engineering  
Credit: 3 Units

Below the list is a pagination link: '← 1 out of 10 →'.

Figure 9. Admin Page

Admin page is only accessible for Admins. in the Admin page, admin can view all user information and course information. Furthermore, Admins can further add courses/students, delete and change their information if needed, such as user name, course details etc. Furthermore, Admin users will have a different interface from the user, such as page color and buttons that are only visible for the admins.