Software Requirements Specification

SGAcad

Version 1.0

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Prepared by

Team Remote Workers

Xavier Yeo

Wang Yu Teng

Tay Chee Yong

Zheng Rong Tao

Table of Contents

1. Introduction

1.1 Purpose

While students study for or after they complete their ‘O’ or ‘N’ Level Examinations, many face a dilemma in selecting the next step in their education journey - Junior College (JC), Polytechnic or ITE. The three different institutions have different choices to make and their own benefits. Currently, information would need to be gathered by individuals by searching for and visiting multiple different pages on respective school websites or through handbooks. However, with SgAcad, a one-stop hub that provides information of the various JC, Polytechnics and ITE such as the location, courses available and respective cut-off points, students would have more convenience in doing their research and decision-making.

SgAcad also displays places such as study spots such as libraries, Community Centres or cafes. This would allow students to discover spots to study for upcoming exams or to just take a break.

Overall, SgAcad aims to improve the process of deciding on the next step by providing a convenient platform for students to access all the information they may need. This would allow them to set their goals while studying for exams and inform them of the possible routes available after they receive their ‘O’ or ‘N’ Level results.

1.2 Intended Audience

SgAcad is mainly targetted at Secondary School students, others taking ‘O’ or ‘N’ Level Examinations and parents.

1.3 Product Scope

Our product will be presented in the form of a web application. The application will include a friendly UI, providing users with a smooth way of extracting information for the various choices they may have in mind.

2. Overall Description

2.1 Product Functions

The main functions of SgAcad are as follows:

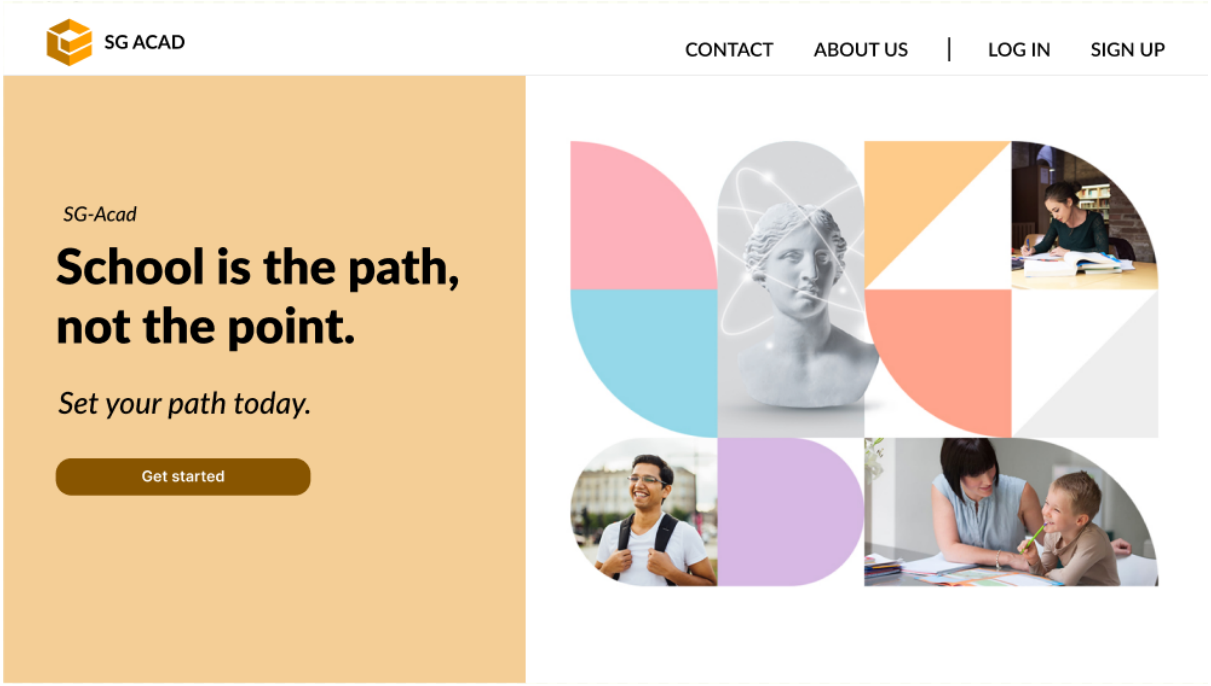
1. Users can create accounts and log in
2. Display different schools and respective information
3. Users can search for schools based on name, courses available and cut-off points
4. Users can have discussions with other users about a particular school or course
5. Display different study spots
6. Users can search for study spots based on name, popularity, etc.
7. Recommend study spots

3. External Interface Requirements

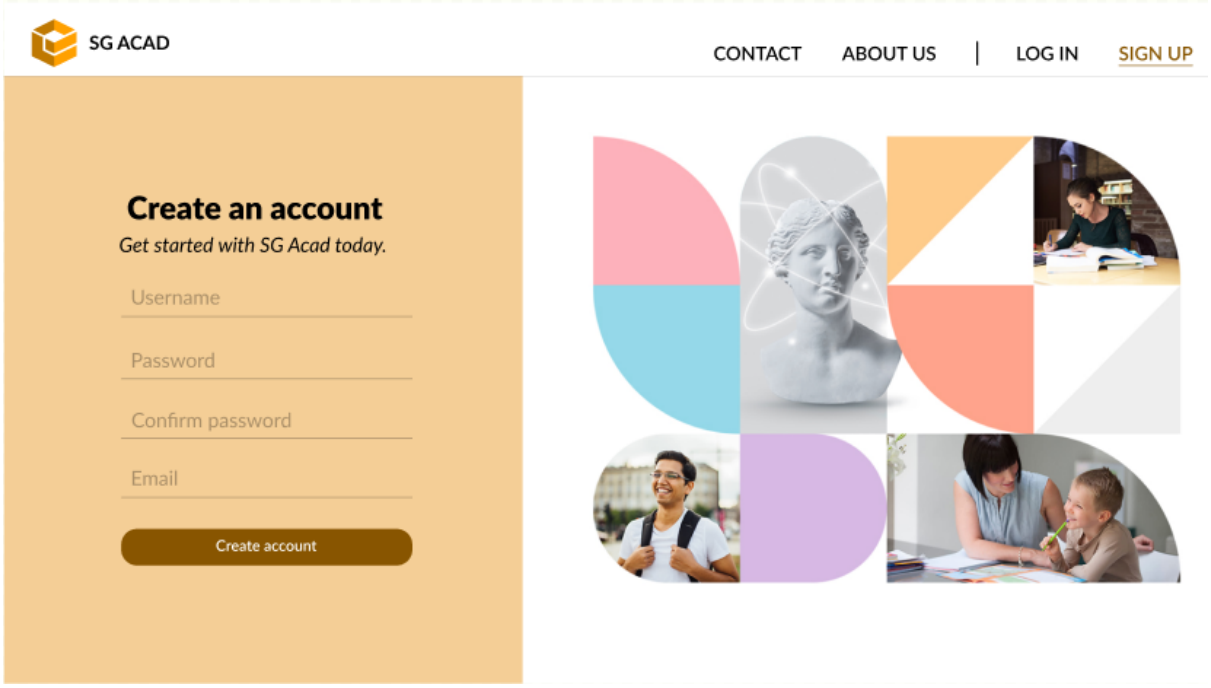
3.1 User Interfaces

The user interface of SgAcad is designed to be interactive and user friendly, allowing new users to easily make use of the resources and services.

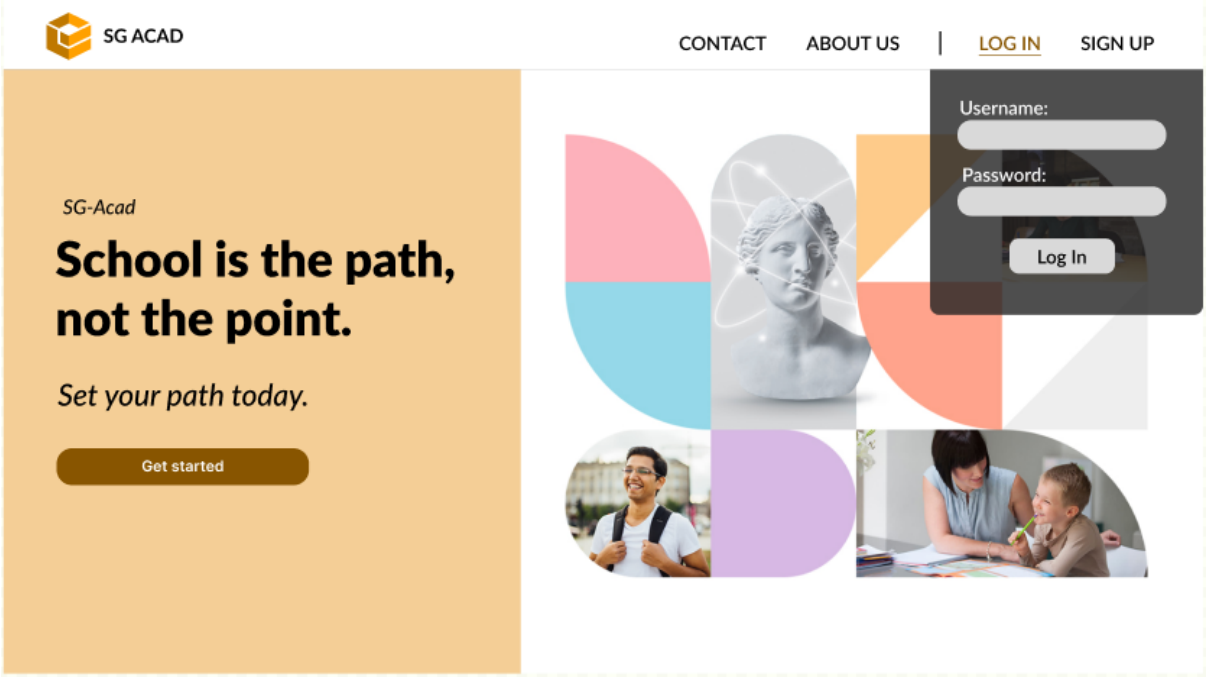
3.1.1 - *Landing Page*



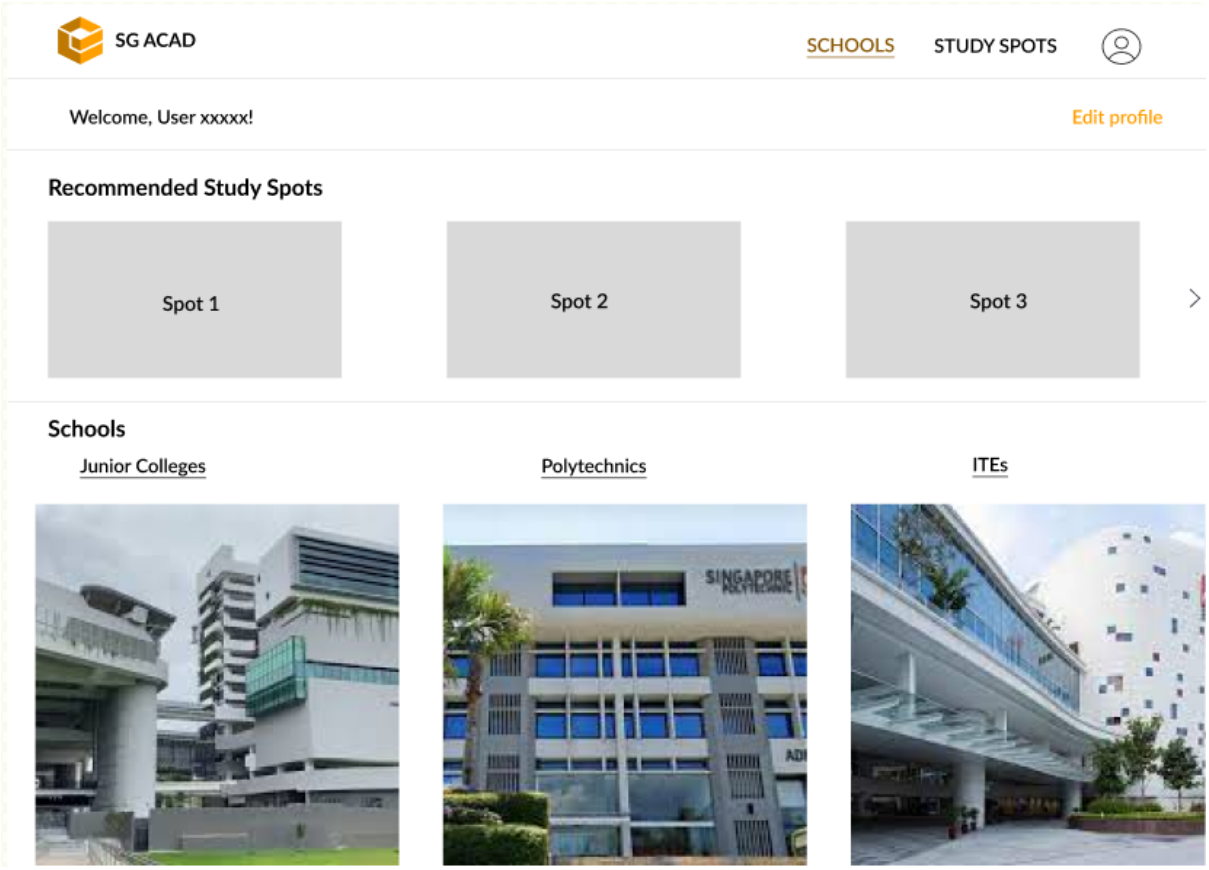
3.1.2 - *Sign Up Page*



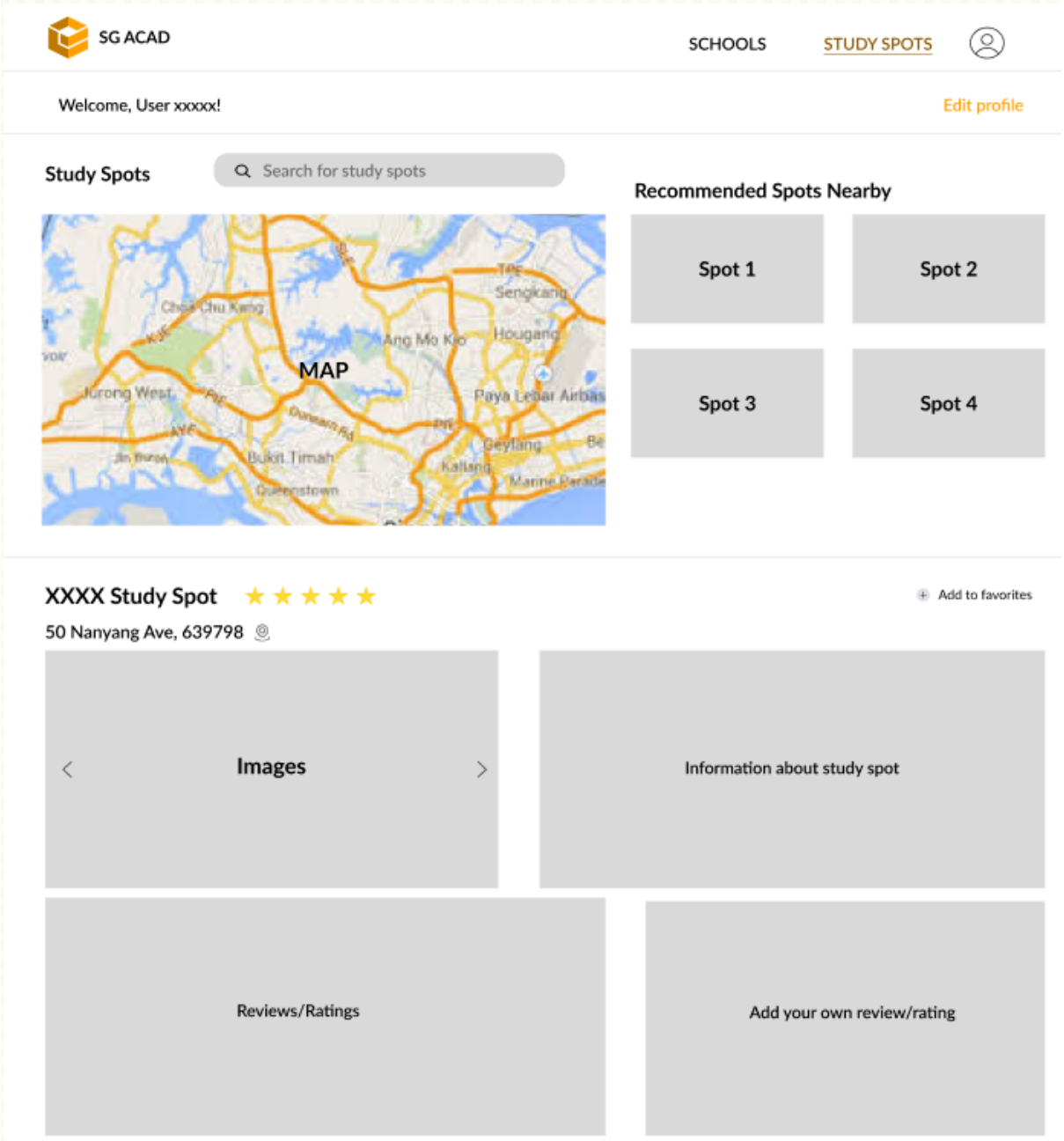
3.1.3 - *Login*



3.1.4 - *Home Page*

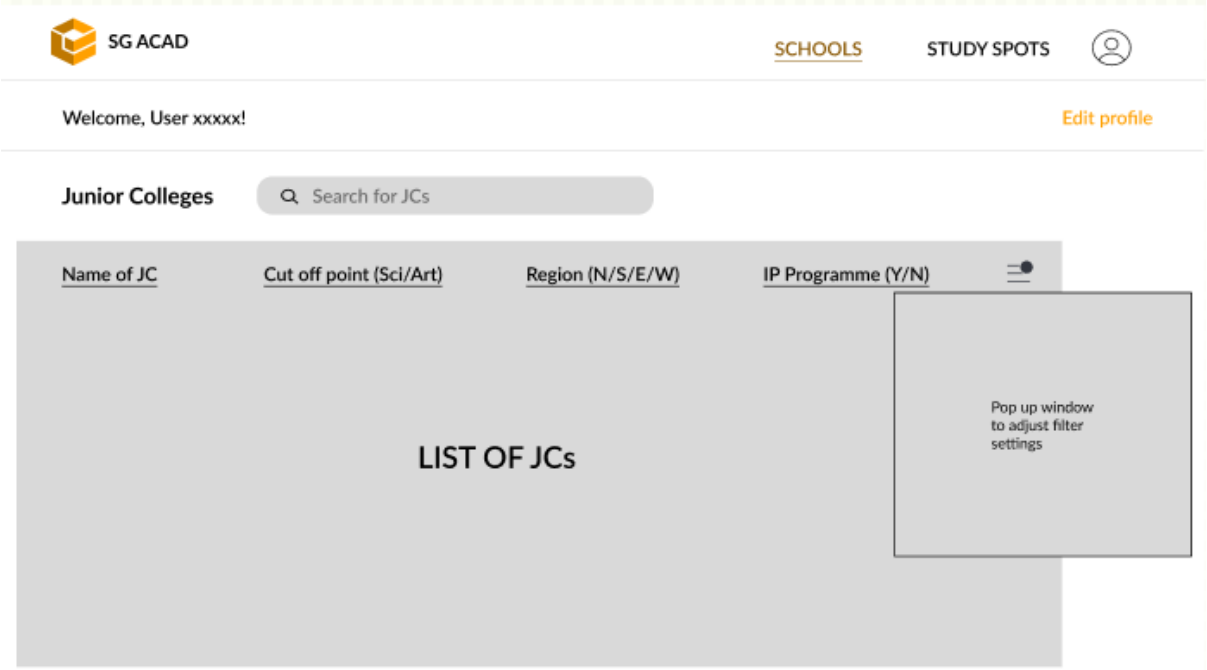


3.1.5 - *Study Spots Page*

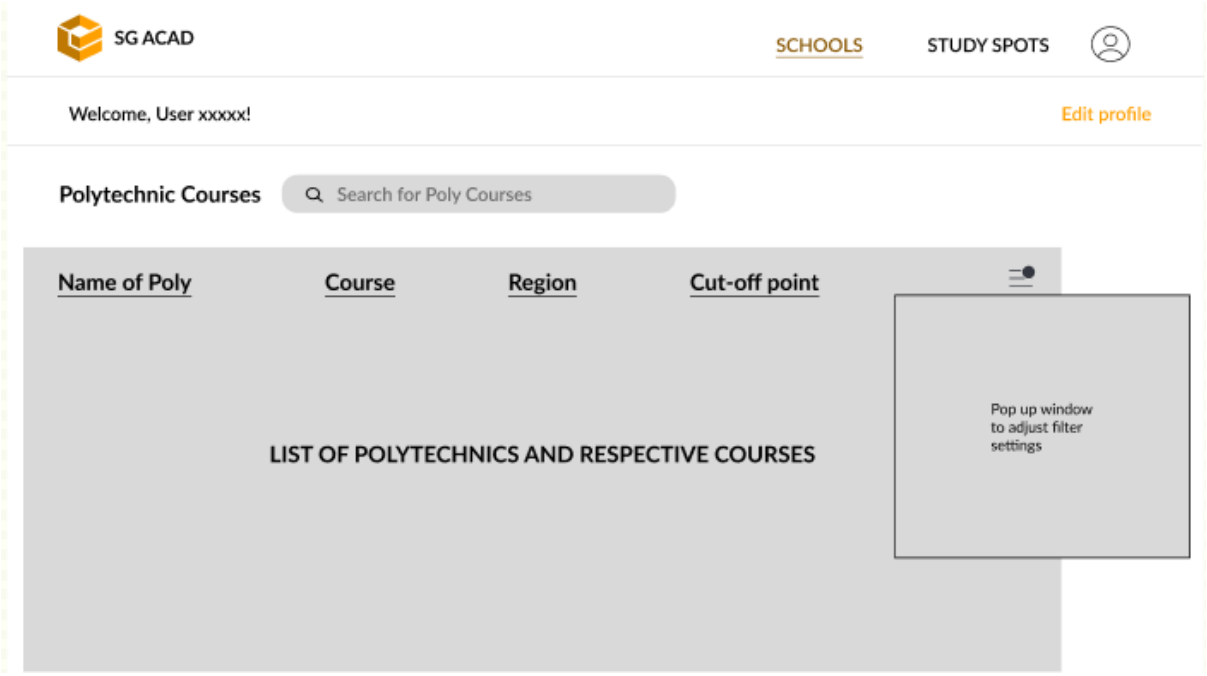


3.1.6 - Institutions Pages

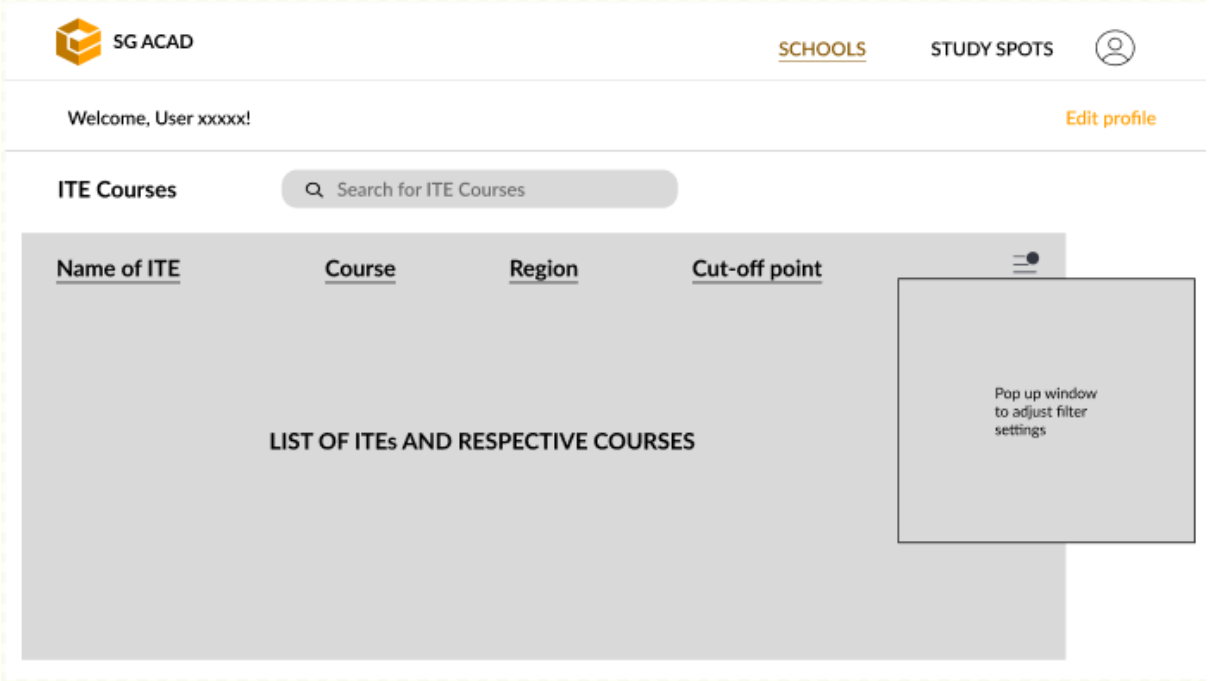
3.1.6.1 - *JC Page*



3.1.6.2 - *Polytechnic Page*

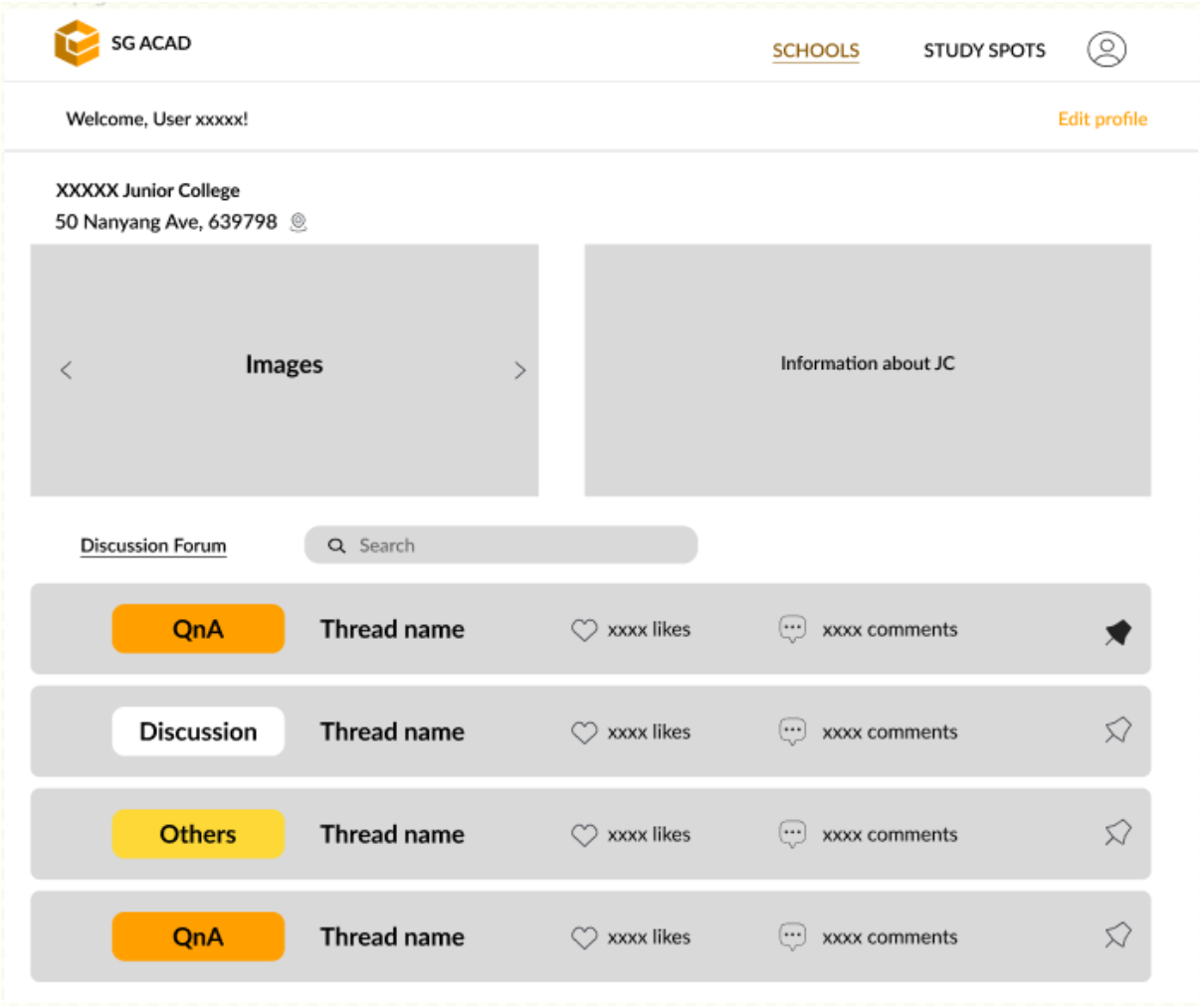


3.1.6.3 - *ITE Page*

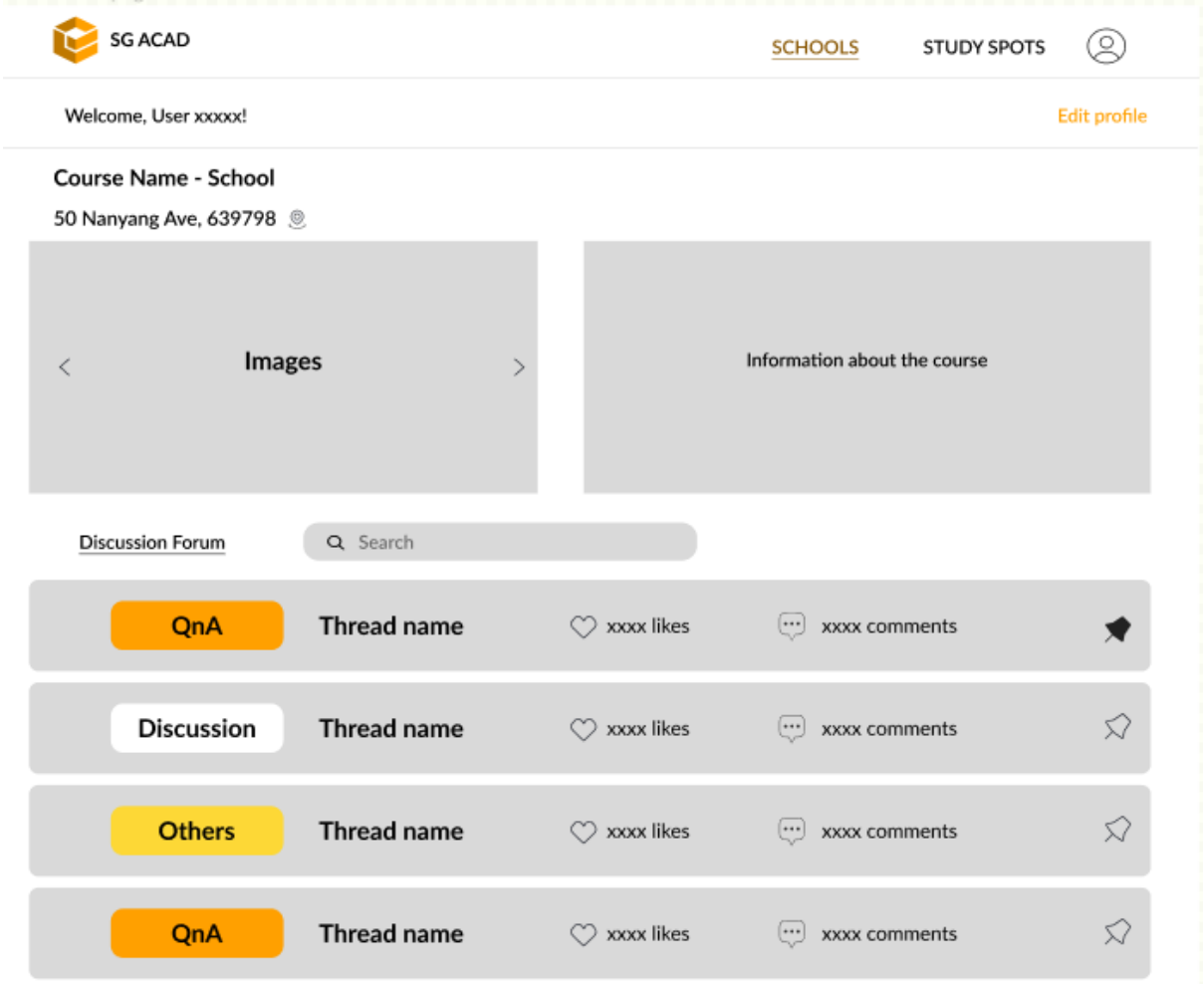


3.1.7 - Institutions Information Pages

3.1.7.1 - *JC Info Page*



3.1.7.2 - *Polytechnic / ITE Courses Page*



4. System Features

4.1 Create Account

4.1.1 Description

New users can create an account in ‘Sign Up’. With the account, it can help to store the records of the individual’s favourites and visit history in the system.

4.1.2 Response Sequence / Use Case

Use Case ID:	SIGNUP1		
Use Case Name:	SignUp		
Created By:	Tay Chee Yong	Last Updated By:	Tay Chee Yong
Date Created:	25 January 2023	Date Last Updated:	31 January 2023

Actor:	User
Description:	New users can create an account by clicking on the ‘Sign Up’ Button. Having an account helps the user to save all the past records and favourites for easier reference in the future.
Preconditions:	The user’s email has not been used before.
Postconditions:	The user successfully created and logged in.
Priority:	HIGH
Frequency of Use:	LOW
Flow of Events:	1. User clicks on ‘Sign Up’ at the top right of the page. 2. The system prompts user to insert username, password, and a valid email address. 3. User inserted the necessary details and clicks ‘Create Account’. 4. System checks if the details are filled accurately and valid. 5. System stores the details into the database and creates an account with the details entered. 6. User is logged in.

Alternative Flows:	AF 1- If the Username is taken by other user: 1. System displays “Username already exists. Please choose another username!” 2. System returns to Step 2 AF 2- If the Password do not meet the requirements: 1. System displays “Passwords do not match requirements!” 2. System returns to Step 2 AF 3- If the Email is invalid: 1. System displays “Please enter a valid email address!” 2. System returns to Step 2
Exceptions:	NIL
Includes:	NIL
Special Requirements:	NIL
Assumptions:	User is connected to the internet when creating the account
Notes and Issues:	NIL

4.1.3 Functional Requirements

1. Users must be able to sign up for an account.
    - 1.1. The system must display text fields for the user to enter their information.
        - 1.1.1. The system must display a text field for username.
        - 1.1.2. The system must display a text field for email.
        - 1.1.3. The system must display a text field for password.
    - 1.2. The user must fill in all text fields before clicking the ‘Create Account’ button.
    - 1.3. The system will verify information is valid.
        - 1.3.1. The username cannot be the same as an existing username.
        - 1.3.2. The email must have the correct email format.
        - 1.3.3. The email must not have been registered in the system before.
        - 1.3.4. The password must be at least 8 characters long.
        - 1.3.5. The system must provide an error message describing the reason the user’s information is rejected.
    - 1.4. The system must create an account for the user if information is valid.
    - 1.5. The system must log the user into the main page of the system after the account is successfully created.

4.2 Login

4.2.1 Description

After successfully creating an account, the user must log into the system in order to access member features.

4.2.2 Response Sequence / Use Case

Use Case ID:	LOGIN1		
Use Case Name:	Login		
Created By:	Tay Chee Yong	Last Updated By:	Tay Chee Yong
Date Created:	25 January 2023	Date Last Updated:	25 January 2023

Actor:	User
Description:	User must log in to access member features in the application
Preconditions:	User has registered for an account.
Postconditions:	User has logged in.
Priority:	HIGH
Frequency of Use:	MEDIUM
Flow of Events:	1. Users input their username and password into the respective text boxes. 2. User clicks on the 'Login' button. 3. System verifies the user's details from the database. 4. System displays the home page.
Alternative Flows:	AF 1- If the Username is not found: 1. System displays "Incorrect username or password!" 2. System returns to Step 1. AF 2- If the Password is incorrect: 1. System displays "Incorrect username or password!" 2. System returns to Step 1.
Exceptions:	NIL
Includes:	NIL
Special Requirements:	NIL

Assumptions:	User is connected to the internet when logging into the account
Notes and Issues:	NIL

4.2.3 Functional Requirements

1. Users must be able to log in to registered accounts
    - 1.1. The system must display text fields for the user to enter their information.
        - 1.1.1. The system must display a text field for username.
        - 1.1.2. The system must display a text field for password.
    - 1.2. The user must fill in all text fields in order to log in.
    - 1.3. The system will verify if information is valid.
        - 1.3.1. The username must match with a registered account in the database.
        - 1.3.2. The password must match with the matched registered account.
    - 1.4. The system must log the user in if information is valid.

4.3 Display Schools

4.3.1 Description

The user must be able to view all the schools and the information regarding the selected school.

4.3.2 Response Sequence / Use Case

Use Case ID:	SCH1		
Use Case Name:	Display Schools		
Created By:	Tay Chee Yong	Last Updated By:	Tay Chee Yong
Date Created:	25 January 2023	Date Last Updated:	31 January 2023

Actor:	User
Description:	User must select which school they are interested in
Preconditions:	User has logged in
Postconditions:	System displays all the schools of the category
Priority:	HIGH
Frequency of Use:	MEDIUM
Flow of Events:	1. User clicks on the 'Schools' button. 2. User selects which category of school they are interested. 3. System displays the selected category with all the courses the school has. 4. User can insert their results and the system will filter all those available courses that they can select from. 5. User can check the syllabus of the courses they selected. 6. User clicks into the course they want and system will display the details of it and the discussion forum.
Alternative Flows:	NIL
Exceptions:	NIL
Includes:	1. Filtering System 2. Check Syllabus / Courses 3. Discussion Forum

Special Requirements:	NIL
Assumptions:	User is connected to the internet
Notes and Issues:	NIL

4.3.3 Functional Requirements

1. The system must display all Polytechnics, Junior Colleges and ITE.
    - 1.1. The user must be able to click on a school of their choice and view the information regarding the school.
        - 1.1.1. The school information must consist of the school's name.
        - 1.1.2. The school information must consist of available courses.
        - 1.1.3. The school information must consist of the school's cut-off point.
2. The user must be able to search for a specific school or course.
    - 2.1. The user must be able to search for schools using the name or courses available in the school.
        - 2.1.1. The system must display a text field for the user to enter the name of the school or course.
    - 2.2. The user must be able to search for schools using the cut-off point of the school
        - 2.2.1. The system must display a text field for the user to enter the cut-off point to search.
    - 2.3. The user must be able to search for schools by category.
        - 2.3.1. The system must display option buttons for the user to choose the category.
            - 2.3.1.1. The option button must consist of "Junior College".
            - 2.3.1.2. The option button must consist of "Polytechnic".
            - 2.3.1.3. The option button must consist of "ITE".
3. The user must be able to leave and view comments or questions regarding a specific school.
    - 3.1. The system must display text fields for the user to enter their questions or comments.
        - 3.1.1. The system must display a text field for the subject.
        - 3.1.2. The system must display a text field for the text.
    - 3.2. The system must verify if the post is valid.
        - 3.2.1. The text field for the text must not be empty.
    - 3.3. The system will post the submitted post if valid.

4.4 Study Spots

4.4.1 Description

The user must be able to view study spots and the information regarding the selected study spots.

4.4.2 Response Sequence / Use Case

Use Case ID:	SS1		
Use Case Name:	Study Spots		
Created By:	Tay Chee Yong	Last Updated By:	Tay Chee Yong
Date Created:	25 January 2023	Date Last Updated:	25 January 2023

Actor:	User
Description:	User can check where the nearest study spots are in their area.
Preconditions:	User has logged in
Postconditions:	System displays all the study spots within 5KM radius.
Priority:	HIGH
Frequency of Use:	MEDIUM
Flow of Events:	1. User clicks on ‘Study Spots’ button. 2. System prompts user to “Insert location” or “Use current location” 3. System takes the input and displays all the study spots within 5KM radius of the location. 4. User clicks on one of the choices. 5. System shows them pictures of the location. 6. System displays the review and rating of the place.
Alternative Flows:	NIL
Exceptions:	NIL
Includes:	1. Maps 2. Recommendation 3. Rating/Review System

Special Requirements:	NIL
Assumptions:	User is connected to the internet
Notes and Issues:	NIL

4.4.3 Functional Requirements

1. The system must display suggested study spots.
    1.1. The system can recommend 4 study spots by displaying them based on popularity and distance.
    1.2. The user must be able to click on a spot of their choice and view the information regarding the spot
        1.2.1. The information must consist of the name.
        1.2.2. The information must consist of the opening hours.
        1.2.3. The information must consist of the reviews.
2. The user must be able to search for a specific spot.
    2.1. The user must be able to search for study spots using the name.
        2.1.1. The system must display a text field for the user to enter the name of the study spot.
3. The user must be able to leave and view reviews for a specific study spot.
    3.1. The system must display text fields for the user to enter their reviews.
        3.1.1. The system must display a text field for the subject.
        3.1.2. The system must display a text field for the text.
    3.2. The system must verify if the review is valid.
        3.2.1. The text field for the text must not be empty.
    3.3. The system will post the submitted review if valid.
    3.4. The user must be able to react to reviews.
        3.4.1. The react options must consist of a thumbs up button.
        3.4.2. The react options must consist of a thumbs down button.

5. Other Non-functional requirements

5.1 Security Requirements

5.1.1 The system must use hashing algorithms to securely store the users' passwords.

5.2 Reliability Requirements

5.2.1 The webpage must fully load within 10 seconds of opening the link.

5.3 Performance Requirements

5.3.1 The system must display search results within 5 seconds.

5.4 Usability Requirements

5.4.1 90% of users must be able to reach the information of the institution or study spots that they are interested in within two minutes.

Appendix A: Data Dictionary

Data Dictionary	
Front-end	This refers to the presentation layer of our software. In this context it is the U/I and U/X.
Back-end	The part of system that is not directly accessed by the user, responsible for storing and manipulating data
API	API serves as the intermediary between the front-end and back-end for transfer of data.
Login details	This consists of a unique ‘username’ created by the users consisting of a minimum 8 and maximum of 32 alphanumeric characters. A password is associated with each username to authenticate user identity.
User	The user pertains to anyone who registers and uses the system. Our main user consists of students in or stepping into tertiary institutes.
Institutions	An institution is an education facility that students may currently be studying in or planning to apply to. It focuses on 3 types of institutions: Junior College, Polytechnic and ITE.
Study Spot	A study spot is a real-world location that is either a library or a publicly known study spot.

Forum	The forum is for people to raise questions they have regarding an institution or a subject. The forum must include questions and answers provided by users.
Review	Each review is given by a user associated with an institution, providing information or opinion about that institution. A review contains a compulsory rating and an optional text-review.
GPS	Global Positioning System. It is used to show the location of institutions and study spots on the map.
Grade	A grade is a form of scoring system that reflects how well a student did for an exam. It can either be a letter-grade or an integer-grade.
Cut-Off Point	A cut-off point is the minimum grade a student needs to be able to register for a certain Institution or Course.
School Program	A school program is a program offered by an institution. A program must include courses that are either compulsory or elective.
Courses	A course is a class that students have to attend in order to complete their education. It must include syllabus and may contain study materials.
Syllabus	Syllabus are learning objectives of a course that are either examinable or non-examinable. It should ideally be precise and in point form.

Appendix B: Analysis Models

- Use Case Model