Lab3 Deliverables:

Design & Implementation

for

Skyscape

Version 1.0 approved

Prepared by

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Revision History

Name	Date	Reason For Changes	Version
LI YAOHAO	27/03/2024	First Draft	1.0.0

1. Use Case Descriptions

1.1. Use case of Registration

Use Case ID:	REG1		
Use Case Name:	Registration		
Created By:	Li Yaohao	Last Updated By:	Li Yaohao
Date Created:	29/01/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	First time users must register for a new account. Having an account allows them to store pictures taken and share them online to various social media platforms.
Preconditions:	Nil
Postconditions:	The user has successfully created an account and logged in.
Priority:	High
Frequency of Use:	Low
Flow of Events:	1. User clicks on 'Register for new account' 2. Users are prompted to enter an username, email, password and confirm password. 3. User submits required information. 4. System validates Information, and store login credentials into database 5. Users will be logged into the account.
Alternative Flows:	REG1-AF-S1 If username is not unique: 1. The system shows the error message "Please enter a different username" 2. The system will return to step 2. REG1-AF-S2 If password does not meet requirements: 1. The system shows the error message "Password does not meet requirements. Please enter a different password" 2. The system will return to step 2. REG1-AF-S3 If re-entered password does not match the password: 1. The system shows the error message "Passwords do not match. Please enter them correctly!" 2. The system will return to step 2. REG1-AF-S4 If email is taken: 3. The system shows the error message "Email is already used. Please enter another email address!" 4. The system will return to step 2.
Exceptions:	EX1 The system is currently offline.

Includes:	Nil
Special Requirements:	Nil
Assumptions:	The user is connected to the internet.
Notes and Issues:	Nil

1.2. Use case of Login

Use Case ID:	LOG1		
Use Case Name:	Login		
Created By:	Lim Zhi Yong	Last Updated By:	Yaohao
Date Created:	29/01/24	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	Users can login with their login details to access their recently-viewed history and starred locations.
Preconditions:	User already has a registered account.
Postconditions:	Users will login and the homepage will be shown.
Priority:	High
Frequency of Use:	Low
Flow of Events:	1. Users will input their username and password into the system. 2. Users will either click enter or the login button. 3. The system will verify the username and the password to ensure that it is a valid account. 4. The user will be logged into the system and the home screen will be displayed.

Alternative Flows:	LOG1-AF-S1 If the username does not exist in the database.
	    1. Show error message "Incorrect username or password. Please try again."
	    2. The system will return to step 1.
	
	LOG1-AF-S2 If the password does not match the correct password saved in the database.
	    1. Show error message "Incorrect username or password. Please try again."
	    2. The system will return to step 1.
	
	LOG1-AF-S3 If the user has previously logged in recently.
	    1. This page will be skipped and upon starting the application, user will be brought straight to home screen without the need to login again

Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.3. Use case of Homepage

Use Case ID:	HOME1		
Use Case Name:	Home Page		
Created By:	Li Yaohao	Last Updated By:	Li Yaohao
Date Created:	30/01/24	Date Last Updated:	27/03/24

Actor:	User
Description:	The home page shows the quality of golden hour sorted in descending order for a day.
Preconditions:	User already has a registered account and has logged in.
Postconditions:	Nil
Priority:	High
Frequency of Use:	High
Flow of Events:	1. Default: Users can view the quality of sunsets that is sorted according to when the location is added to the homepage 2. Users can click the top left button at the app bar to sort the location list based on descending quality of sunsets 3. Users can click the top right button at the app bar to add more locations to the homepage 4. Users can click on the date tab at the top of the screen to change the date they want to view the sunset qualities. 5. Users can access other features from the home page 5.1 Swiping left on a location to remove it from homepage 5.2 Clicking on the three other tabs in the bottom navigation bar 'Users', 'Feed', 'Profile' to bring the user to those pages respectively. 5.3 Clicking on a location will show the users the detailed information about that location
Alternative Flows:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	The API calls are successful.
Notes and Issues:	Nil

1.4. Use case of Editing Homepage

Use Case ID:	FAV1		
Use Case Name:	Editing Homepage		
Created By:	Yoon Sang Won	Last Updated By:	Li Yaohao
Date Created:	31/01/24	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	User can edit the homepage by adding or removing locations which user searches
Preconditions:	1. User has pressed the "+" button at the top right corner of the screen at the appbar 2. User has swiped left on any of the locations in the home page.
Postconditions:	Homepage will be updated with the locations the user has added or removed.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User can add locations by pressing "+" button on the top right of the screen 1.1 User can search locations in the search bar. 1.2 If the input location is in the list, it will show up on the screen. 1.3 User can add this location to the homepage by pressing the + icon next to the location. 1.4 Once successfully added. There will be a text at the bottom of the screen, "Location successfully added" to inform user adding was successful. 1.4.1 Once location added, user will be redirected back to homescreen to view the new added location. 2. User can remove locations by pressing swiping left on the locations 2.1 User can choose to remove all locations. 2.2 Once swiped, the selected locations will be deleted from the homepage immediately and updated in the database.
Alternative Flows:	FAV1-AF-S1 If the location entered by the user is not in the list 1. The system will show a text saying "No results found" and user is not allowed to proceed until user enters a valid name. FAV1-AF-S2 If the location is already added to the homepage 1. If user tries to add a location that has already been added, the system will show a text saying "Location already added!"
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.5. Use case of Calendar Function

Use Case ID:	CAL1		
Use Case Name:	Calendar function		
Created By:	Jin Ying	Last Updated By:	Li Yaohao
Date Created:	04/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	A calendar like function at the top of homepage for users to change dates to view predicted quality of sunset.
Preconditions:	Another date has been pressed by the user on the date tab
Postconditions:	Data shown on the homepage is changed to the user's choice of date
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User clicks on one of the dates shown on the date tab at the top of the screen. 2. Date shown changes to the date chosen by the user. 3. Homepage will be refreshed, and the sunset quality of the locations will be changed to reflect that of the new date.
Alternative Flows:	CAL1-AF-S1 If the user clicks on a date that is more than 7 days away 1. System displays "No predictions for the selected date yet!" 2. System returns to step 2. CAL1-AF-S2 If the user clicks on past dates 1. System displays "Information expired." 2. System returns to step 2.
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	The API calls are successful.
Notes and Issues:	Nil

1.6. Use case of Location Details

Use Case ID:	DET1		
Use Case Name:	Location details		
Created By:	Yoon Sang Won	Last Updated By:	Li Yaohao
Date Created:	04/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	User is able to view the details of the sunset as well as other weather conditions that affects the sunset.
Preconditions:	User taps on one of the locations in the home page.
Postconditions:	User clicks the back button at the top left of the app bar to return back to the homepage
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User taps on one of the locations added to his homepage. 2. System will display the detailed informations regarding sunset. These details include: 2.1: Location name 2.2: Sunset quality percentage 2.3: Cloud cover percentage 2.4: Air quality in AQI 2.5: Exact time of sunset on the current day in the format HH:MM:PM 2.6: Time left till sunset in hours and minutes
Alternative Flows:	Nil
Exceptions:	EX1 No location has been added to the homepage
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.7. Use case of Sorting Locations

Use Case ID:	SORT1		
Use Case Name:	Sorting locations		
Created By:	Yoon Sang Won	Last Updated By:	Li Yaohao
Date Created:	04/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	User can sort the locations in his homepage on the home page according to alphabetical order of the location name or the quality of sunset.
Preconditions:	User has entered the home page.
Postconditions:	Order of the locations in the home list will be sorted according to the alphabetical order of the location name or quality that user chooses.
Priority:	High
Frequency of Use:	High
Flow of Events:	1. User taps the sort button at the top left hand corner of the app bar on the home page. 2. User can choose to sort the list by either quality of sunset in descending order or the alphabetical order of the location name. 2.1 If the user sorts by quality, the list will be sorted starting from the location with the highest quality score of the sunset. 2.2 If the user sorts by the alphabetical order of the location name, the locations that starts with "A" will be at the top of the page, and it continues until the location that starts with the letter "Z" at the bottom of the page.
Alternative Flows:	SORT1-AF-S1 If there is no location in the home page 1. System will show a text saying "No location to be sorted!".
Exceptions:	EX1 If there is a tie between the distance or the quality 1. The tie will be broken by alphabetical order.
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.8. Use case of Upload Pictures

Use Case ID:	POST1		
Use Case Name:	Upload Pictures		
Created By:	Lim Zhi Yong	Last Updated By:	Li Yaohao
Date Created:	06/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	Users can upload photos onto the feed which will be visible to everyone and to the those following the user
Preconditions:	User has navigated to the feedpage and entered the uploading picture page.
Postconditions:	Upon successful uploading, a message will be displayed at the bottom of the screen above the navigation bar, with the text "Picture uploaded successfully".
Priority:	Low
Frequency of Use:	Medium
Flow of Events:	1. Upon entering the feed page on the navigation bar located at the bottom of the screen, the user will click onto the camera button to upload pictures. 2. User will get to select either the "Take Picture" option or the "Choose From Gallery" option. 2.1 If the user selects the "Take Picture" option, the phone's camera will be turned on and the user will be able to take a photo which will be uploaded. 2.2 If the user selects the "Choose From Gallery" option, the gallery application will open and the user will be able to select a picture to upload. 3. User will see a preview of the photo before deciding if he/she would like to confirm the upload. 4. User can click on the "Upload Picture" option to confirm the upload. 4.1 Upon successful upload, a message will be displayed at the bottom of the screen with the text "Picture uploaded successfully".
Alternative Flows:	POST1-AF-S1 If the user clicks on back 1. The system will return to the profile page.
Exceptions:	EX1 If the user clicks on "Upload Picture" before uploading one 1. The system will show an error message "You have not yet selected a picture".
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.9. Use case of Follow User

Use Case ID:	FOL1		
Use Case Name:	Follow User		
Created By:	Lim Zhi Yong	Last Updated By:	Li Yaohao
Date Created:	06/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	User can search for another user and follow them such that they can view their content.
Preconditions:	The other user has created an account.
Postconditions:	The other user's username appears in current user's user tab
Priority:	Low
Frequency of Use:	Medium
Flow of Events:	1. Upon navigating to the Users bar located at the bottom of the screen, the user will be able to search for other users in the search bar to follow. 2. User will get to input the username of the other user in the search bar. 3. User has to click "Follow" button to follow another user. After clicking "Follow", the "Follow" button will change to "Unfollow" to indicate that the current user has successfully followed another user. 4. The list of followed users will be displayed below the search bar
Alternative Flows:	FOL1-AF-S1 If the user inputs an invalid username 1. The system will show an error message "No such user found". 2. User can re-enter a different username to find different users. POST1-AF-S2 If the user clicks on "X" to cancel searching 1. The system will return to the default users bar that displays the list of existing followed users.
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.10. Use case of View and Edit Following

Use Case ID:	FOL1		
Use Case Name:	View and Edit Following		
Created By:	Lim Zhi Yong	Last Updated By:	Li Yaohao
Date Created:	08/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	User can view and edit the accounts that he/she is following
Preconditions:	Nil
Postconditions:	Nil
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	1. Upon navigating to the Users tab at the bottom navigation bar, the user is able to view the profile of each followed users or unfollow them. 2. The user will click onto the "Following" button that is located below the profile picture. 3. Upon entering the "Following" page, users can view and remove the accounts that he/she is following. 3.1. User can click on the "Unfollow" button to unfollow the account.
	ACC1-AF-S1 If the user clicks on back: 1. The system will return to the Profile page.
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.11. Use case of Account Settings

Use Case ID:	ACC1		
Use Case Name:	Edit Account Details		
Created By:	Lim Zhi Yong	Last Updated By:	Li Yaohao
Date Created:	08/02/2024	Date Last Updated:	27/03/2024

Actor:	User (initiating)
Description:	User can edit username, profile picture and password.
Preconditions:	User must be logged in
Postconditions:	User personal details are changed.
Priority:	Medium
Frequency of Use:	Low

Flow of Events:	1. Upon entering the profile page by clicking onto the profile button on the navigation bar located at the bottom of the screen, the user will click onto the "Account Settings" tab.
	2. Once inside the "Account Settings" tab, the user is able to view the current account details, which are
	   1. Profile Picture
	   2. Email
	   3. Username
	3. The user will click onto the "Edit Profile" button that is located below the profile picture in order to make changes
	4. Upon entering the "Edit Profile" page, users can make changes to the following fields
	   1. User can edit the profile picture and will get to select either the "Take Picture" option or the "Choose From Gallery" option.
	      4.1.1. If the user selects the "Take Picture" option, the phone's camera will be turned on and the user will be able to take a photo which will be uploaded.
	      4.1.2. If the user selects the "Choose From Gallery" option, the gallery application will open and the user will be able to select a picture to upload.
	      4.1.3. User will see a preview of the photo before deciding if he/she would like to confirm the upload.
	      4.1.4. User can click on the "Upload Picture" option to confirm the upload.
	      4.1.5. The system will return to the profile page.
	   2. User can edit the username.
	      4.2.1. The user can input a new username into the username field text.
	   3. User can edit the password.
	      4.2.1. The user can input a new password into the password field text.
	      4.2.2. The user needs to verify password by keying in the same password again.
	5. User can click "Save Changes" button once everything has been confirmed.

	ACC1-AF-S1 If the user clicks on back: 　　1.　The system will return to the Profile page. ACC1-AF-S2 If the user clicks on back when he is in the Edit Picture page: 　　1.　The system will return to the Edit Profile page. ACC1-AF-S3 If the new username is not unique: 　　1.　The system shows the error message "Please enter another username". ACC1-AF-S4 If password does not meet requirements: 　　1.　The system shows the error message "Password does not meet requirements. Please enter a different password".
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Email cannot and should not be edited.

1.12. Use case of Report Bug

Use Case ID:	REP1		
Use Case Name:	Report Bug		
Created By:	Lim Zhi Yong	Last Updated By:	
Date Created:	06/02/2024	Date Last Updated:	

Actor:	User (initiating)
Description:	User can report a bug that he/she has found within the application.
Preconditions:	A bug has been found in the application.
Postconditions:	Nil
Priority:	High
Frequency of Use:	Low
Flow of Events:	1. Upon entering the profile page by clicking onto the profile button on the navigation bar located at the bottom of the screen, the user will click onto the "Report a Bug" button. 2. The user will be provided a field for the title and a field for the description of the bug. 3. The user can click on "Report Bug" to submit the report. 4. The system will return to the profile page.
Alternative Flows:	POST1-AF-S1 If the user clicks on back 1. The system will return to the profile page.
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.13. Use case of Feed page ("For You" tab)

Use Case ID:	FPG1		
Use Case Name:	For you feed		
Created By:	Li Yaohao	Last Updated By:	
Date Created:	28/03/2024	Date Last Updated:	

Actor:	User (initiating)

Description:	User can view picture of sunsets posted by all the other users using the application
Preconditions:	A user must have an account registered and logged in
Postconditions:	Nil
Priority:	Low
Frequency of Use:	High
Flow of Events:	1. Users navigate to the feed page from the bottom navigation bar. 2. The feed page contains two tabs, "For you" and "Following". The default tab is the "For you" tab. 3. Users can scroll up and down the page to view sunset photos posted by other users. 3.1 Above the photos posted, the username and profile picture of the user who posted it is included. 3.2 Below the photos posted, the time stamp of the time the photo is uploaded is included. 4. Users can perform additional functions in the feed page, which are 4.1. Clicking on the username of other uses to access that user's personal page 4.1.1 The personal page shows all photos posted by that specific user 4.2. Clicking on the camera button at the bottom right of the screen to access the uploading picture page 4.3. Clicking on the "Following" tab at the top right of the screen, below the app bar, to access the Following tab
Alternative Flows:	Nil
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.14. Use case of Feed page ("Following" tab)

Use Case ID:	FPG2		
Use Case Name:	Following feed		
Created By:	Li Yaohao	Last Updated By:	
Date Created:	28/03/2024	Date Last Updated:	

Actor:	User (initiating)
Description:	User can view picture of sunsets posted by the users he/she is currently following.
Preconditions:	1. A user must have an account registered and logged in.

	2. A user must have followed other users
Postconditions:	Nil
Priority:	Low
Frequency of Use:	High
Flow of Events:	1. Users navigate to the feed page from the bottom navigation bar. 2. The feed page contains two tabs, "For you" and "Following". The default tab is the "For you" tab. 3. Users click on the "Following" tab to access the following page to view photos posted only by other users that the current user is following. 3.1 Above the photos posted, the username and profile picture of the user who posted it is included. 3.2 Below the photos posted, the time stamp of the time the photo is uploaded is included. 4. Users can perform additional functions in the feed page, which are 4.1. Clicking on the username of other uses to access that user's personal page 4.1.1 The personal page shows all photos posted by that specific user 4.2. Clicking on the camera button at the bottom right of the screen to access the uploading picture page 4.3. Clicking on the "For you" tab at the top right of the screen, below the app bar, to be brought back to the default feed page.
Alternative Flows:	FPG2-AF-S1 If the user is not following anyone: 1. The page will display the text message "You are not following anyone. Please follow other users to view their photos"
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.15. Use case of Accessing other User's Profile

Use Case ID:	FOLW1		
Use Case Name:	Accessing other User's Profile		
Created By:	Li Yaohao	Last Updated By:	
Date Created:	28/03/2024	Date Last Updated:	

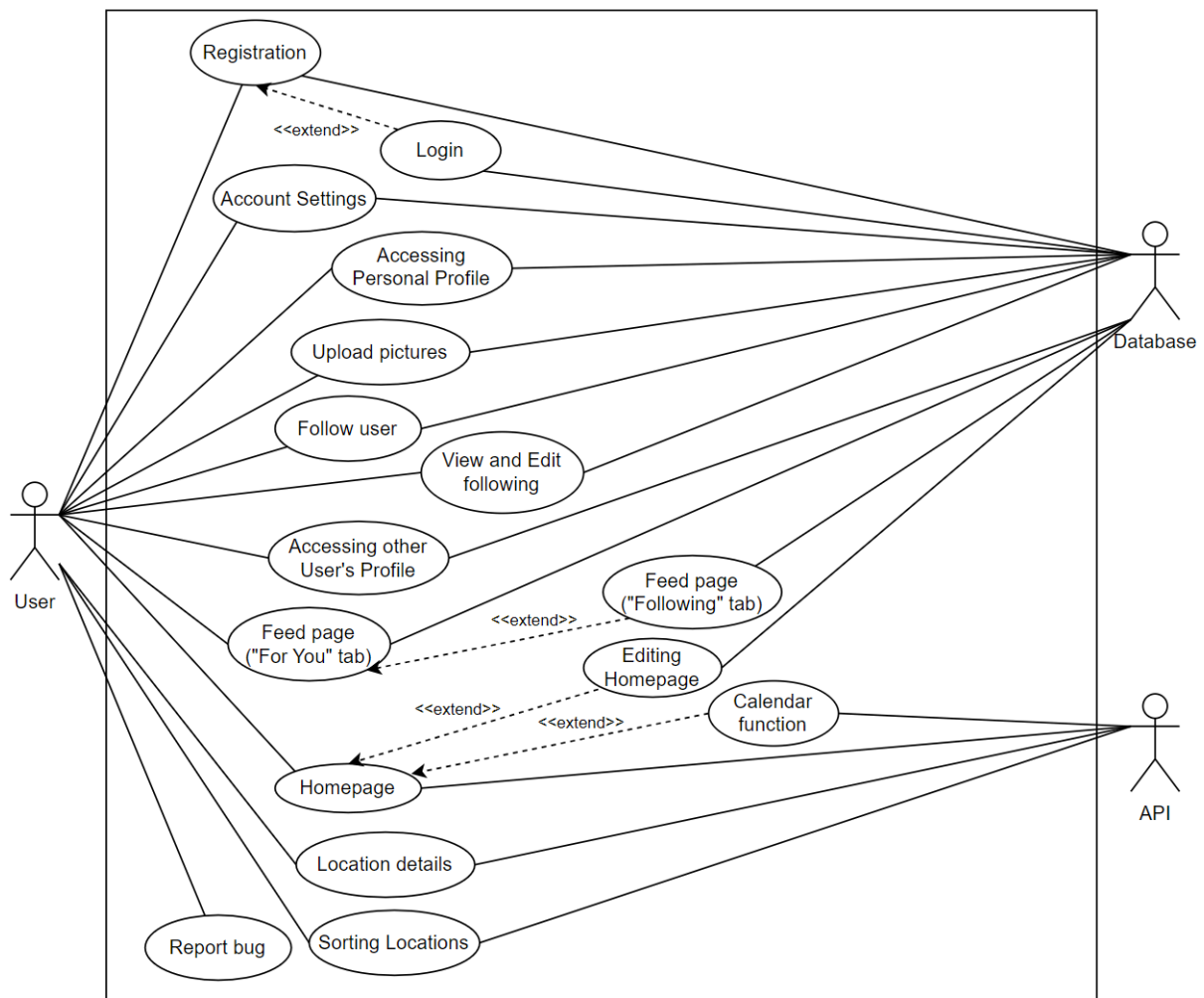|	
Actor:	User (initiating)
Description:	User can access the profile of other users
Preconditions:	Users must see the username of other users before being able to enter their profile

	1. Usernames of other users can be accessed from searching that user's username in the Users tab 2. Usernames of other users can be found in the feed page, both in the "For You" and "Following" Tab.
Postconditions:	Users entered the profile of other users
Priority:	Low
Frequency of Use:	Medium
Flow of Events:	1. User click on the username of other users. 2. User directed to the profile page of that specific user to view all photos posted by that user.
Alternative Flows:	FOLW1-AF-S1 If the user has not uploaded any picture: 1.The page will only show profile picture of the user, with a text message "No photos have been posted by the user"
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

1.16. Use case of Accessing Personal Profile

Use Case ID:	PPF1		
Use Case Name:	Accessing personal Profile		
Created By:	Li Yaohao	Last Updated By:	
Date Created:	28/03/2024	Date Last Updated:	

Actor:	User (initiating)
Description:	Users can view their own profiles and see what they had posted.
Preconditions:	Users must have registered for an account and be logged in
Postconditions:	
Priority:	Low
Frequency of Use:	Medium
Flow of Events:	1. User navigate to the profile page by clicking profile on the bottom navigation bar. 2. User can view all of the photos previously posted
Alternative Flows:	PPF1-AF-S1 If the user has not uploaded any picture: 1.The page will only show profile picture of the user, with a text message "No photos have been posted by you"
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

2.   Complete Use Case Diagram

3. Complete Class Diagram
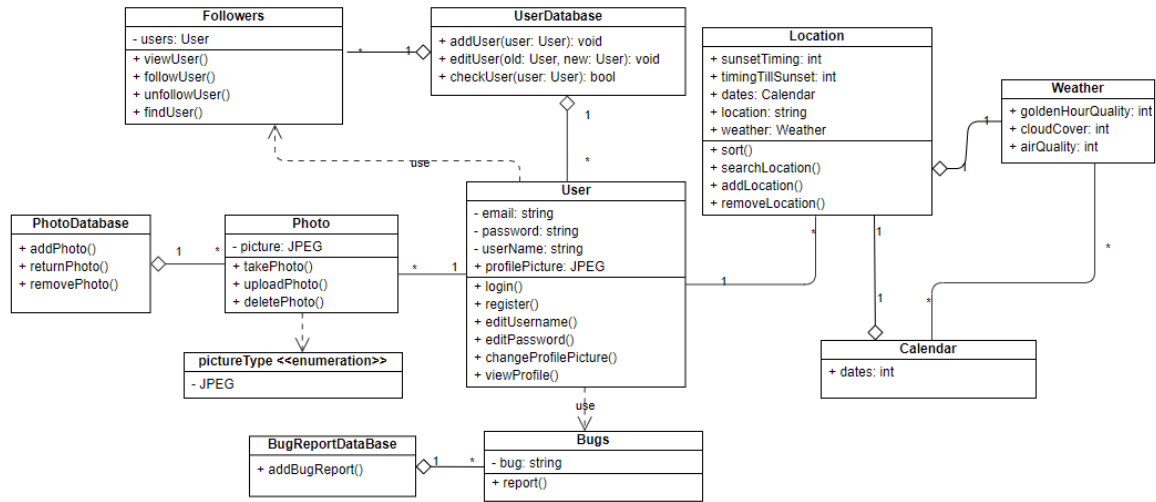
4. Complete Sequence Diagrams
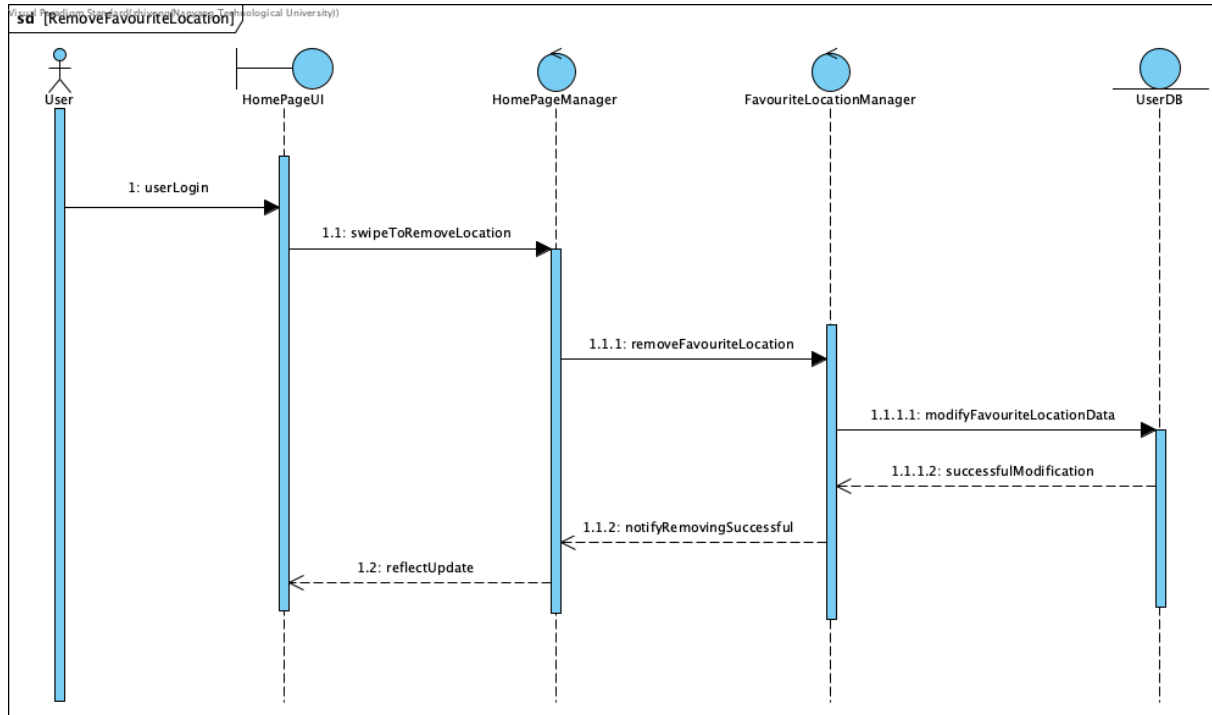
4.1. Register
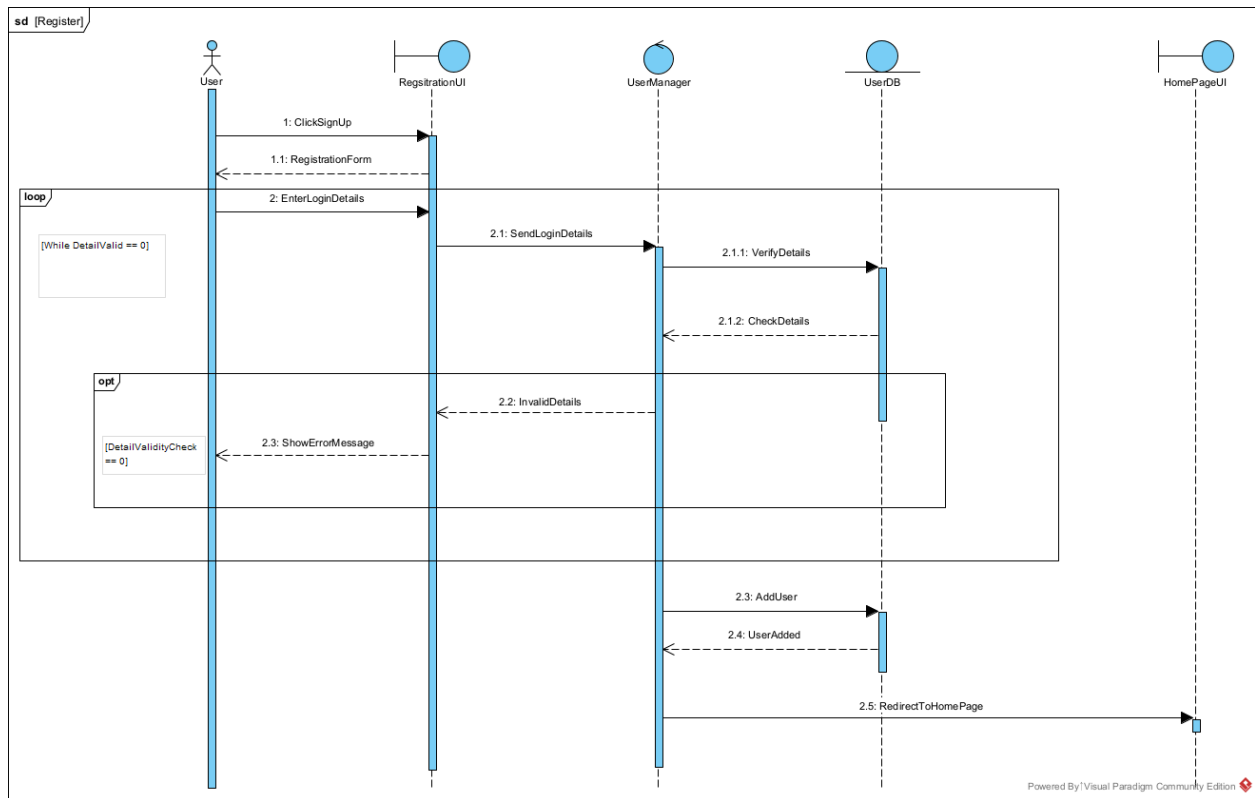
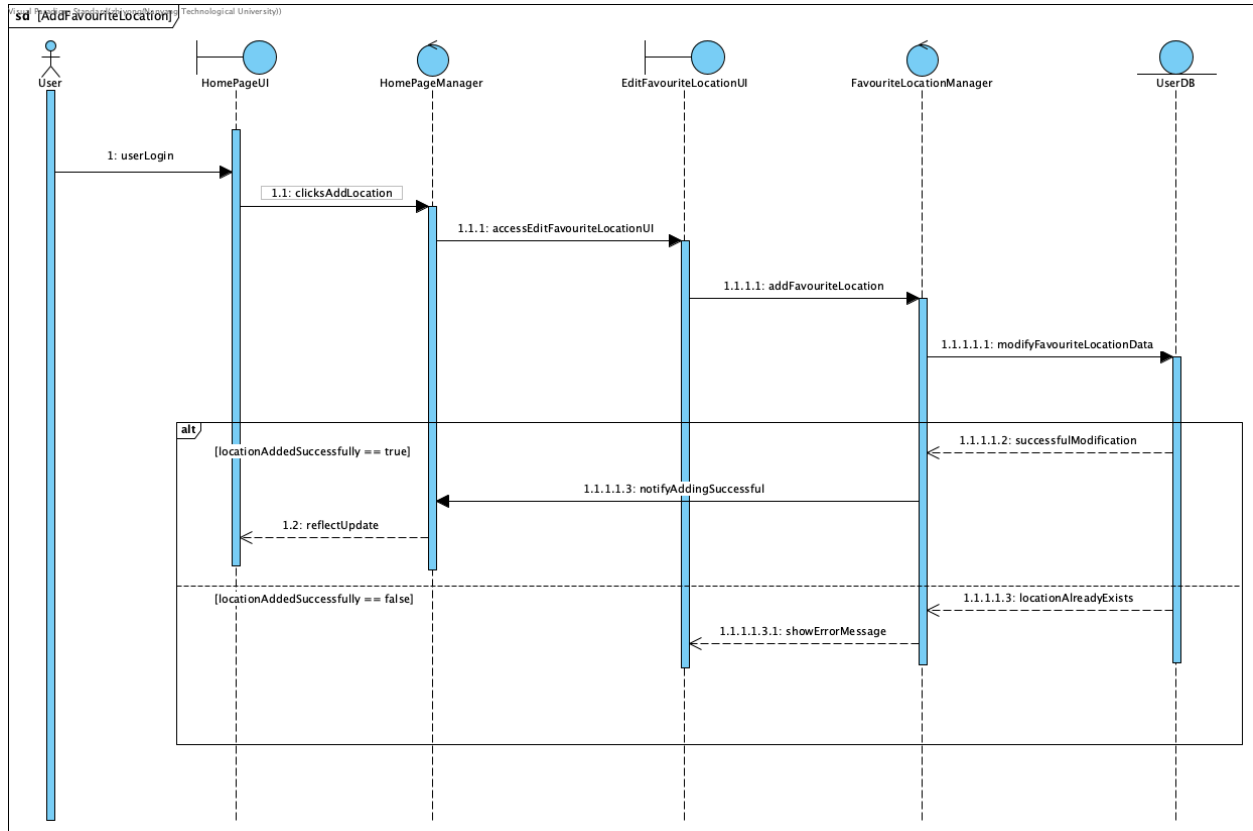# 4.2. Login
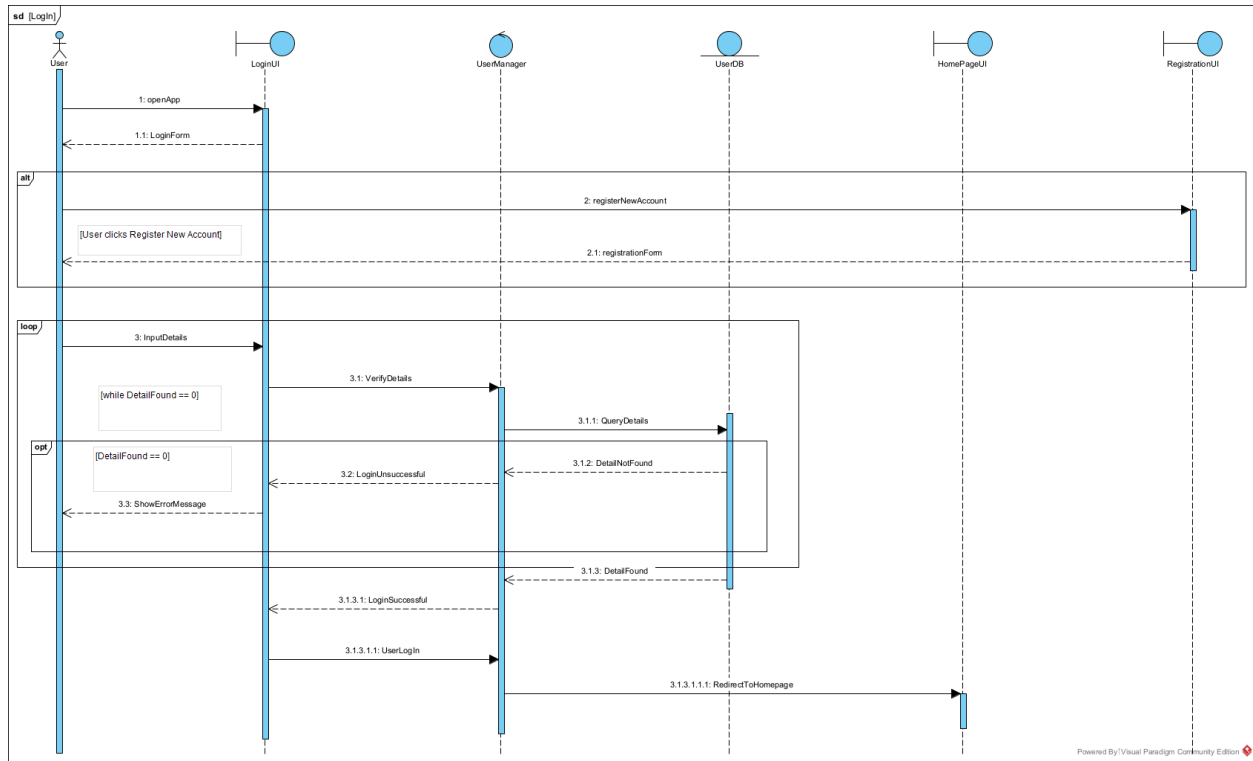
4.3. Access Home Page
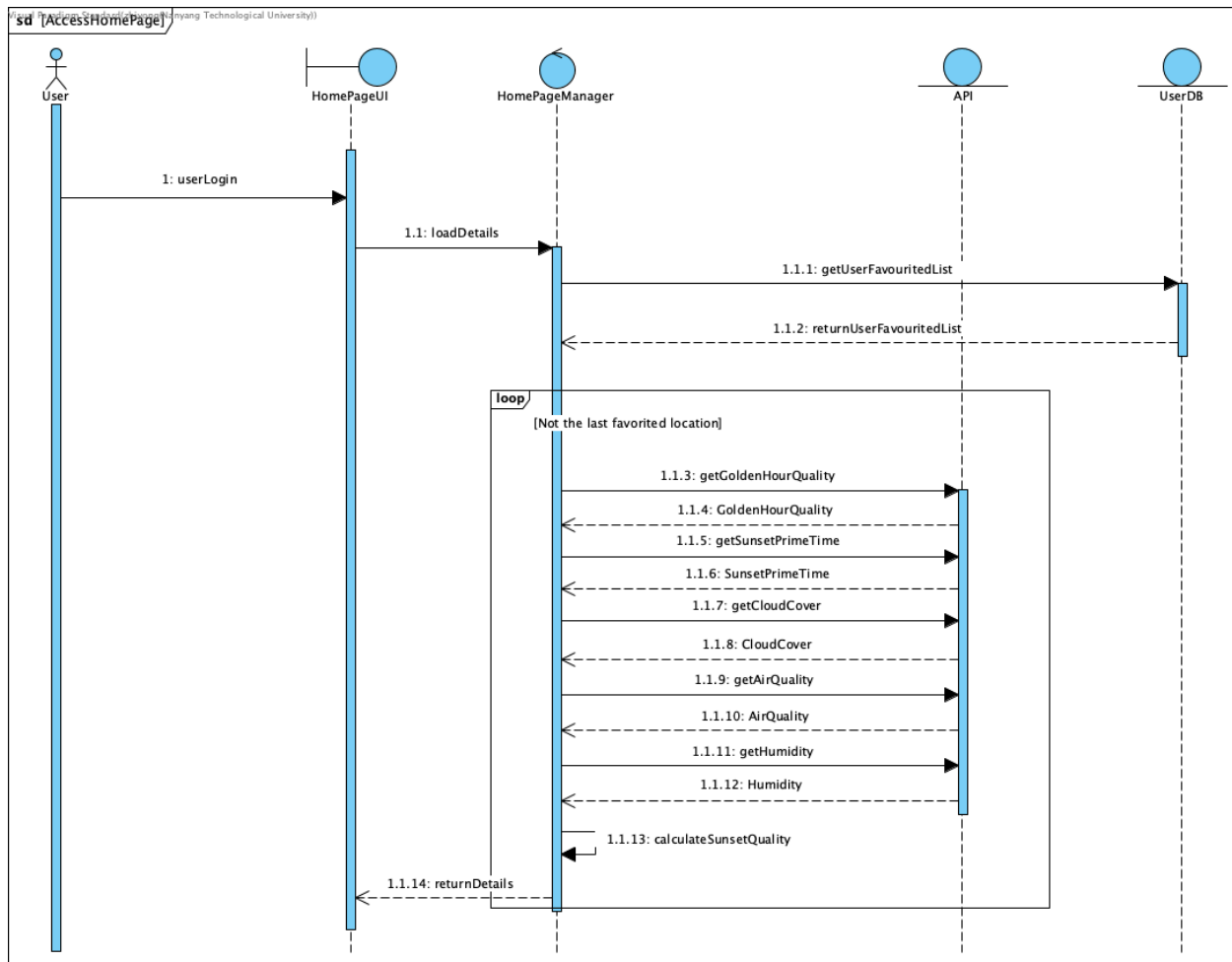
4.4. View Details
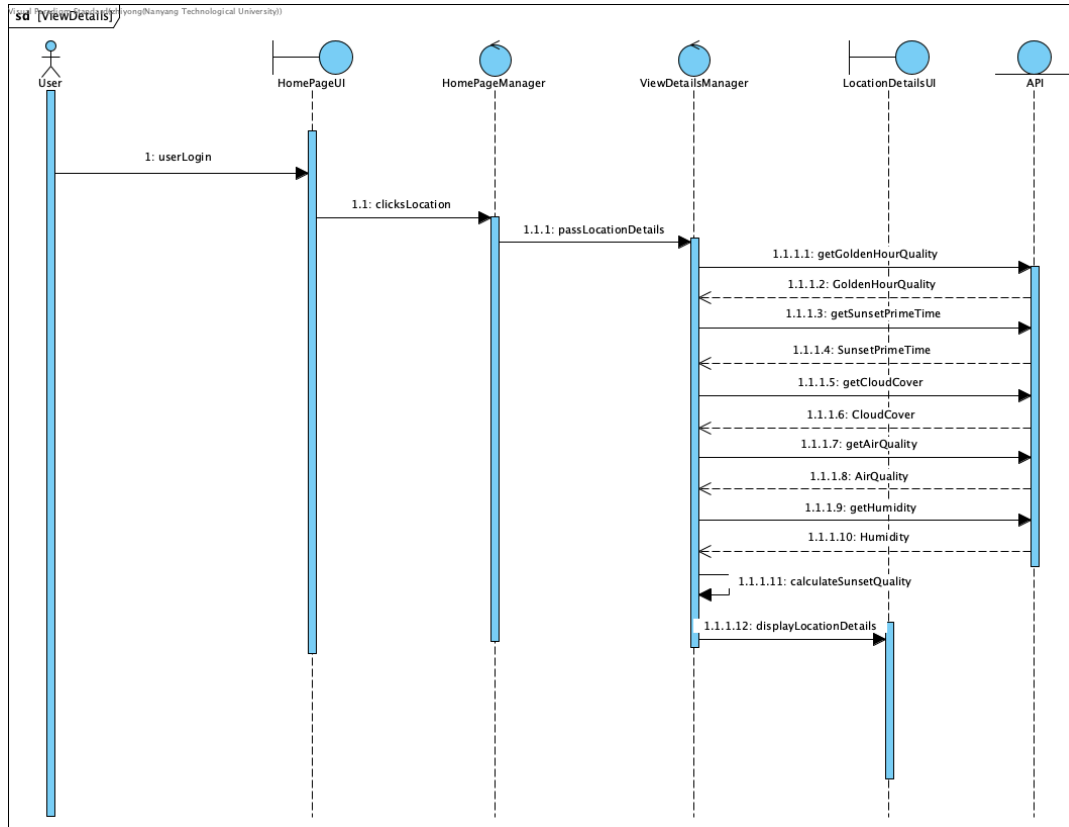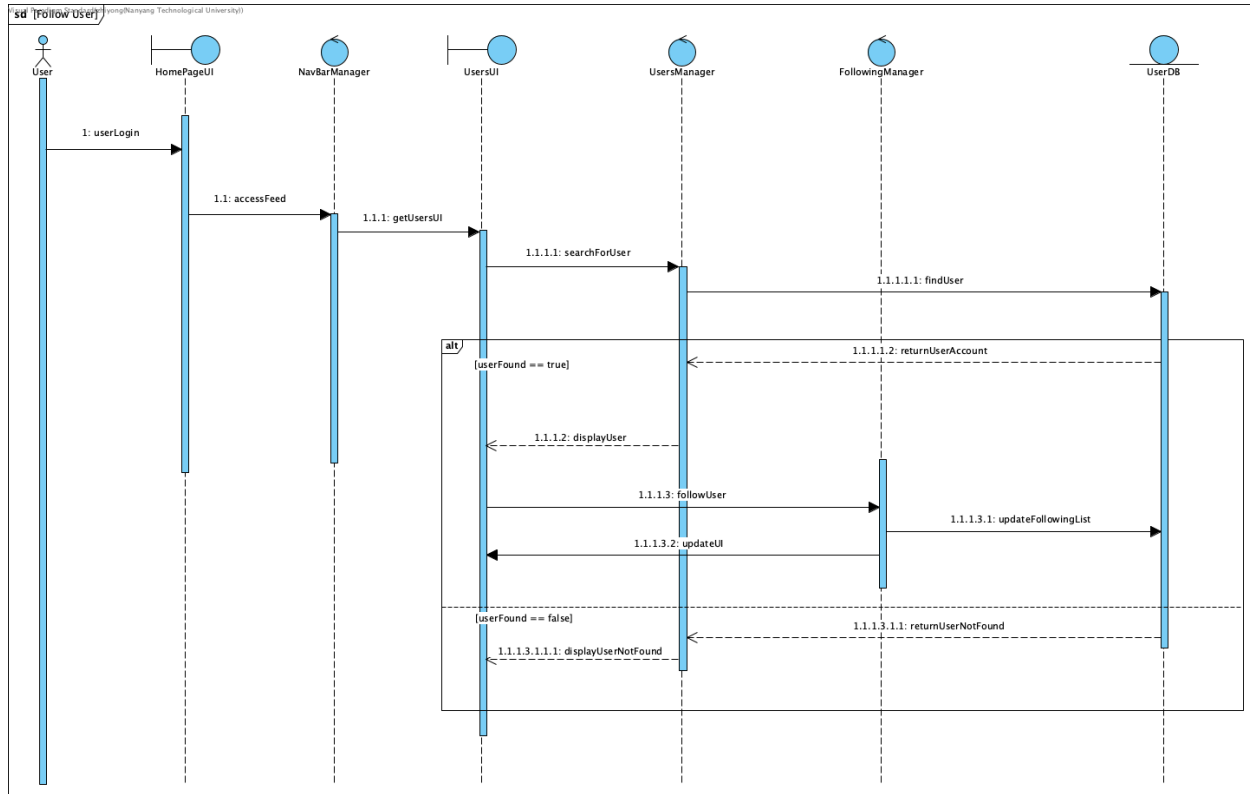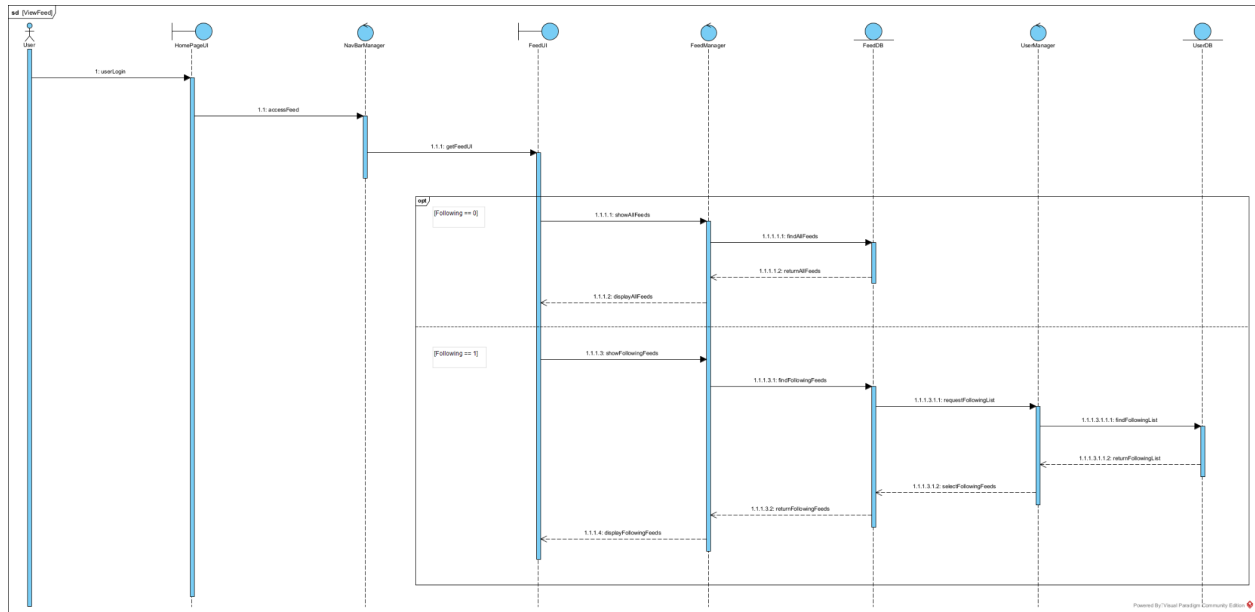
4.5. Upload Pictures
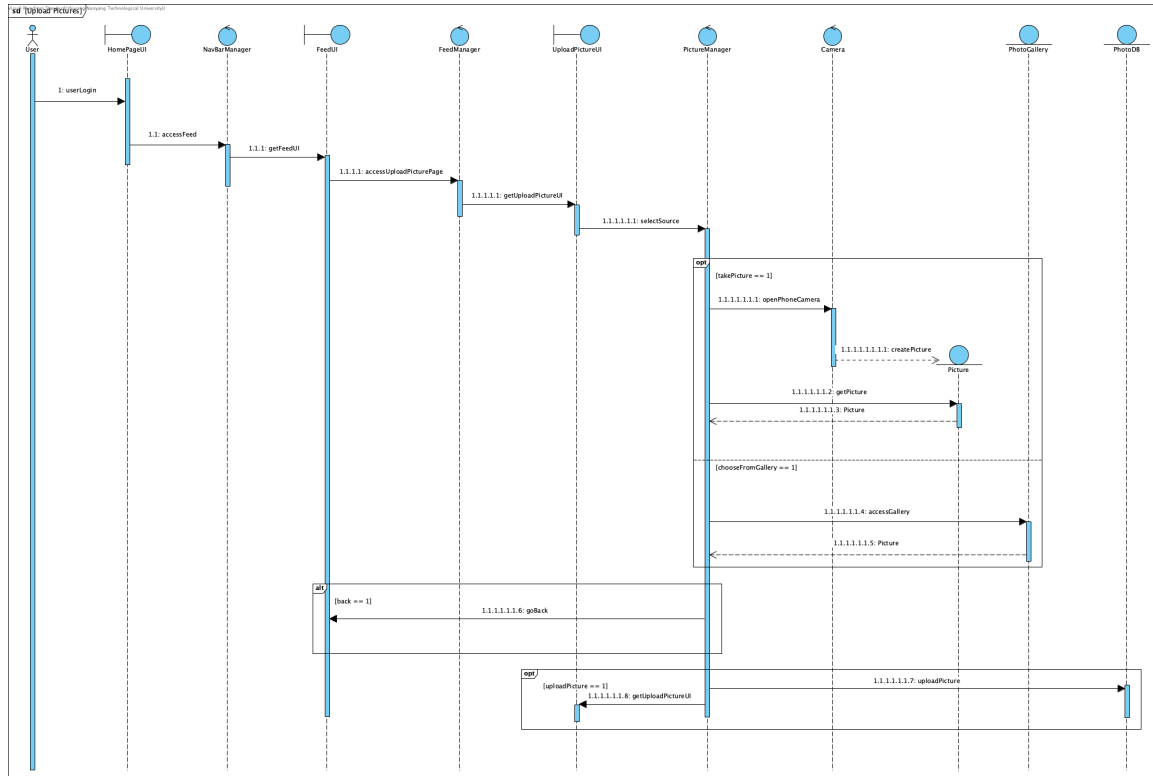
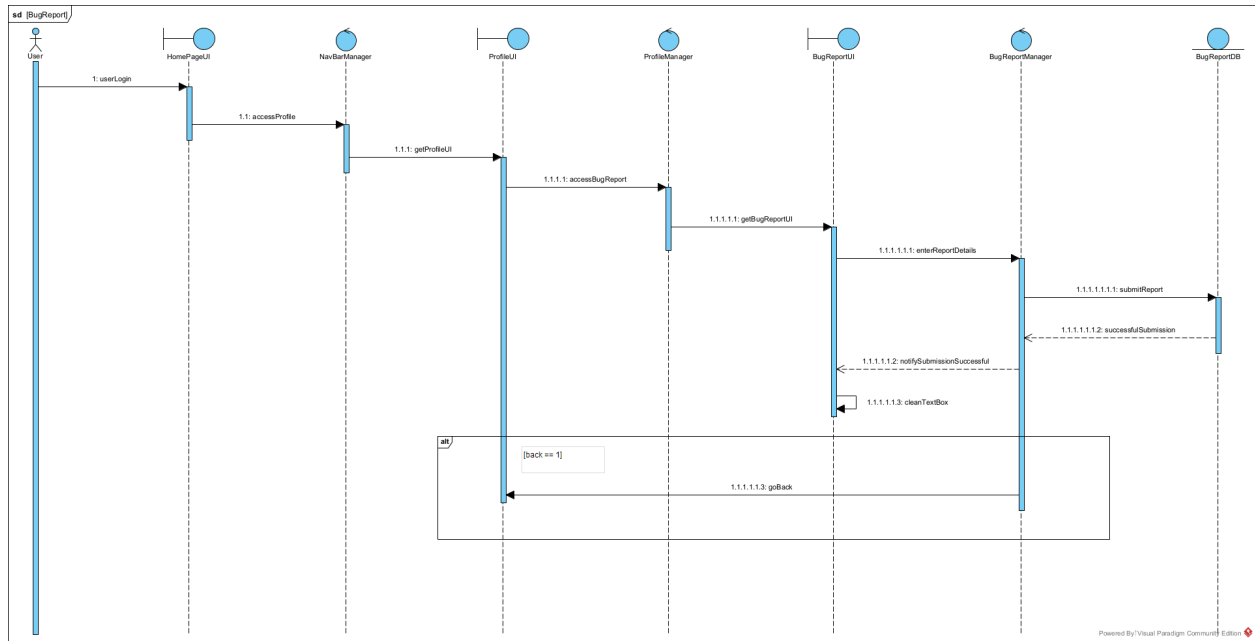## 4.6. Remove Favorite Location

4.7. Add Favorite Location

4.8. Follow User

4.9. View Feed

4.10. Bug Report

5.　Complete Dialog Map
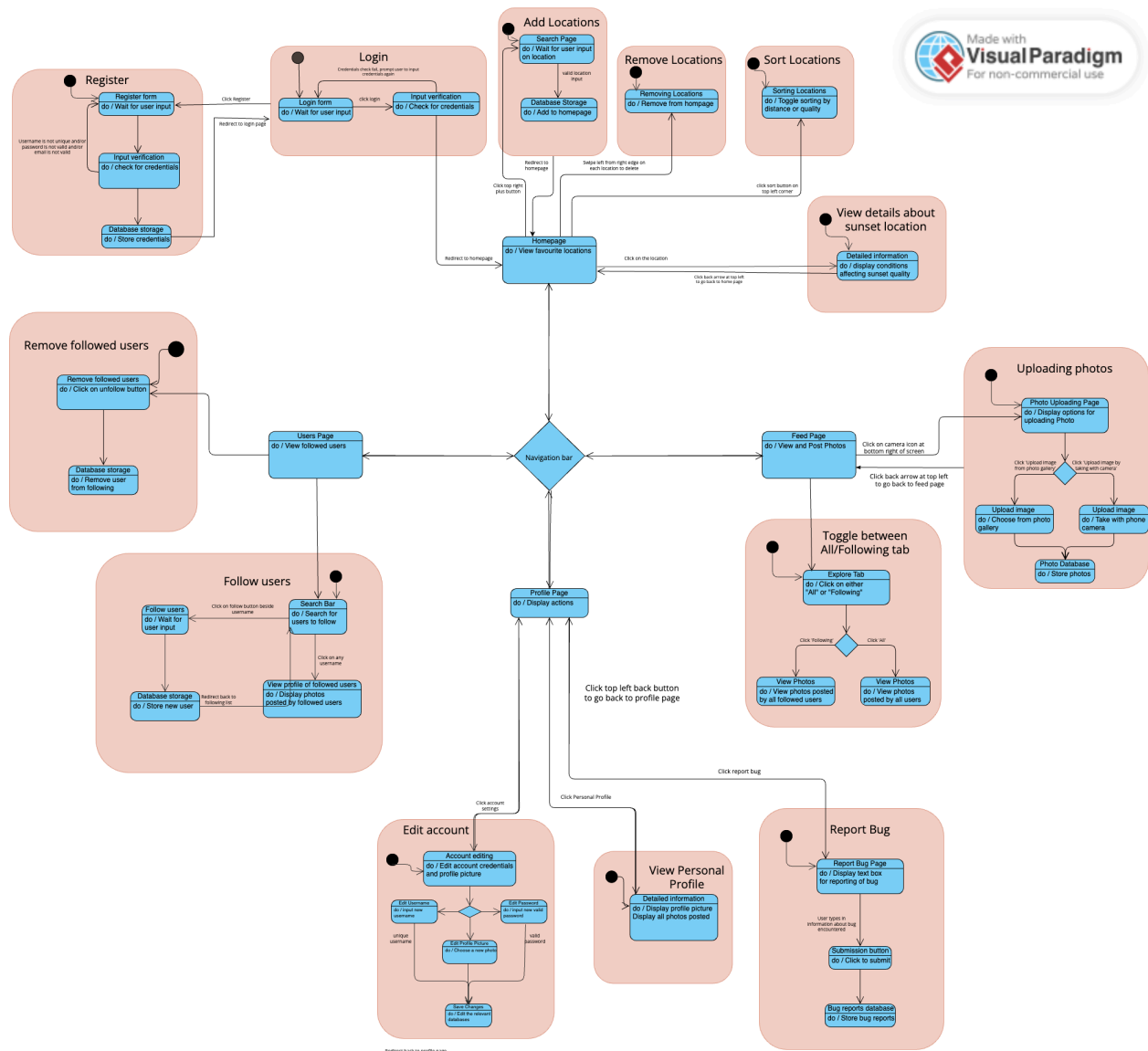
6. System Architecture

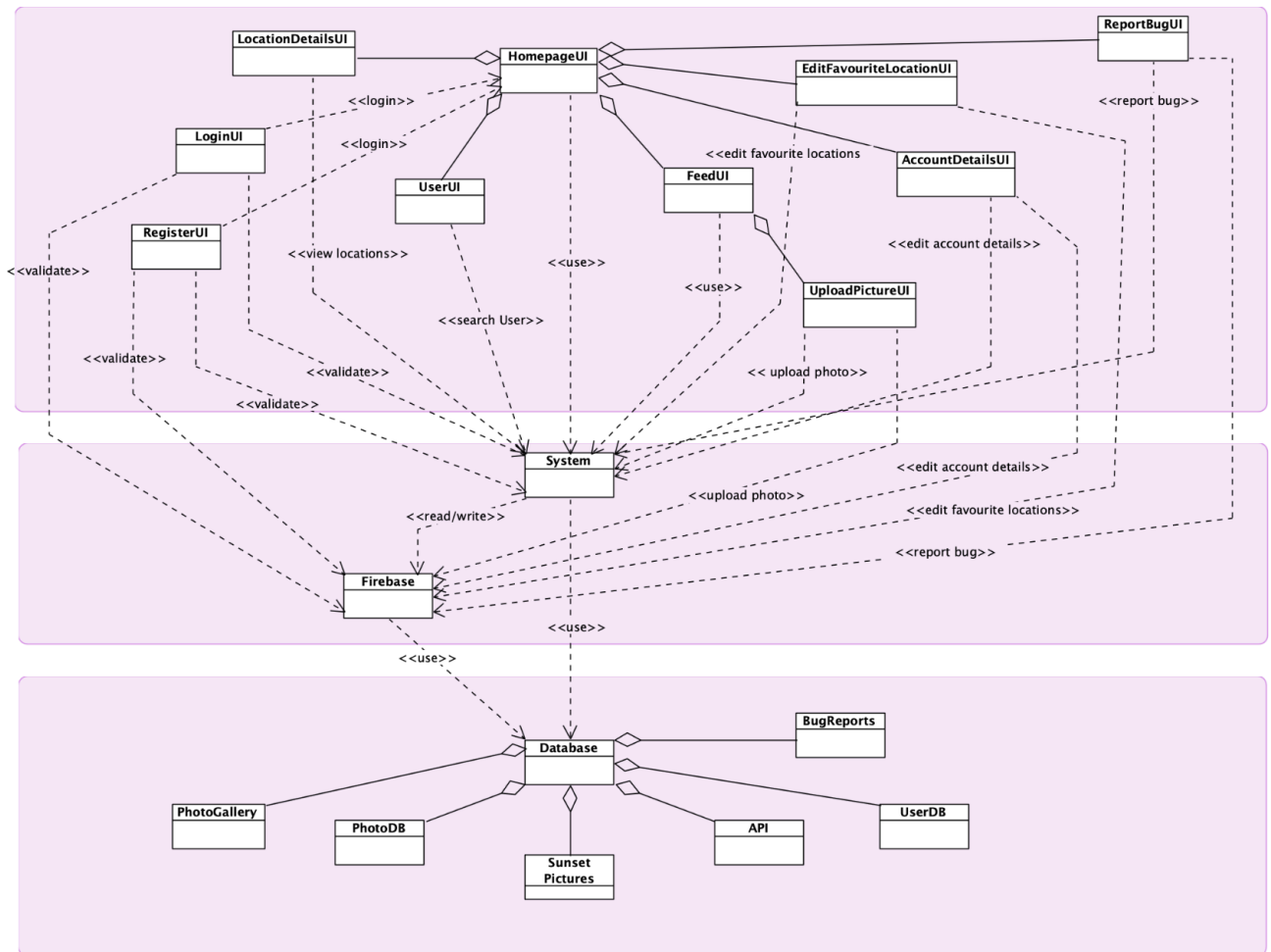# 7. Application Skeleton

Linked in Github