

# **Lab1 Deliverables: Requirements Elicitation**

**for**

## **Skyscape**

**Version 1.0 approved**

**Prepared by**

LI YAOHAO,  
LIM ZHI YONG,  
JIN YING,  
KIERAN LIOW,  
KIERSTEN YEO SHU XIAN,  
YOON SANG WON

**NANYANG TECHNOLOGICAL UNIVERSITY TEAMWON**

**30 JANUARY 2024**

# Table of Contents

<b>Table of Contents</b>	ii
<b>Revision History</b>	ii
<b>1. Introduction</b>	<b>1</b>
1.1 Purpose	1
1.2 Target Users	1
1.3 Document Conventions	1
<b>2. Documentation of Functional Requirements</b>	<b>2</b>
2.1 Product functions	2
2.2 Use cases and functional requirements	2
<b>3. Documentation of Non-Functional Requirements</b>	<b>15</b>
3.1 Non Functional Requirements	15
<b>4. Data Dictionary</b>	<b>16</b>
4.1 Data Dictionary	16
<b>5. UI Mockups</b>	<b>23</b>
<b>6. Use Case Diagram</b>	<b>35</b>

# Revision History

Name	Date	Reason For Changes	Version
LI YAOHAO	30/01/2024	First Draft	1.0.0

# 1. Introduction

## 1.1 Purpose

In today's fast-paced world and especially in the hectic society that we are living in, finding moments of tranquility and peace is more important than ever for our mental health and well-being. Thus, our group TeamWon decided to come up with an application designed to predict the quality of sunsets on any given day at any location. By leveraging meteorological data and algorithms, we wish to bring everyone closer to nature's spectacle. The simple act of taking in the sight of a beautiful sunset has been scientifically proven to trigger positive emotions which can improve one's mood, making it ideal after a tiring day of work or studies. The anticipation of a beautiful sunset will encourage many to take a break from their busy schedules and go out into nature either by themselves or with their loved ones, boosting physical activity while at the same time serving as a valuable opportunity to unwind and distress by immersing in the present.

SkyScape is not only for the casual users who occasionally enjoy sunsets, but it also caters to photography enthusiasts and nature lovers by providing them an intuitive interface to upload and share photos of sunsets taken at any given day.

Overall, SkyScape is here to enrich people's lives with a much needed moment of awe and relaxation that can be easily achieved in this fast-paced world.

## 1.2 Target Users

This application, SkyScape, will be developed for those that enjoy sunsets. It is for casual users of all ages who may occasionally take a break to look at sunsets, and also for sunset enthusiasts and photographers who will want to plan their schedule to witness and capture the best sunsets.

## 1.3 Document Conventions

This document uses the following conventions.

Software Requirement Specification Format: IEEE standard. Priorities of higher level requirements are inherited by detailed level requirements.

Font: Times New Roman

Font size: Size 12

## 2. Documentation of functional requirements

### 2.1 Product functions

SkyScape aims to provide accurate information about current and upcoming status of sunsets and sunrises and has the following features:

1. Provides current and predictive information about the quality of the sunset and sunrise.
2. Allows the user to bookmark certain locations for ease of viewing.
3. Allows the user to search for sunset and sunrise information based on location.
4. Allows the user to sort and filter the sunset and sunrise information based on distance from current location, and quality of sunset & sunrise.
5. Allows the user to view information in a calendar format.
6. Allows the user to use location service to detect current location.
7. Allows the user to add other users that are on the app as friends.
8. Allows the user to upload pictures onto their profile such that their “friends” can view.
9. Allows the user to report a bug.
10. Allows the user to rate the mobile application.

With the development of this application, SkyScape aims to promote both physical and mental well-being by encouraging people to go out and chase the sunset and sunrise, relieving their stress in a fast-paced society.

## 2.2 Use cases and functional requirements

### 2.2.1.1 Use case of Registration

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

Actor:	User (initiating)
Description:	First time users are given the choice to register for a new account. Having an account allows them to store pictures taken and share them online to various social media platforms.
Preconditions:	User should already have an existing email account that can be used to sign up for a new account.
Postconditions:	The user has successfully created an account and logged in.
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> <li>1. User clicks on ‘Register for new account’</li> <li>2. User is prompted to enter a valid email address, username, and password.</li> <li>3. User submits required information.</li> <li>4. System validates Information, and store login credentials into database</li> <li>5. User prompted to log in.</li> </ol>
Alternative Flows:	<p>REG1-AF-S1 If email address is invalid:</p> <ol style="list-style-type: none"> <li>1. The system shows the error message “Please enter a valid email address”</li> <li>2. The system will return to step 2.</li> </ol> <p>REG1-AF-S2 If username is already taken:</p> <ol style="list-style-type: none"> <li>1. The system shows the error message “This username is taken. Please enter another username.”</li> <li>2. The system will return to step 2.</li> </ol> <p>REG1-AF-S3 If password does not meet requirements:</p> <ol style="list-style-type: none"> <li>1. The system shows the error message “Password does not meet requirements. Please enter a different password”</li> <li>2. The system will return to step 2.</li> </ol>
Exceptions:	EX1 The system is currently offline.
Includes:	Nil
Special Requirements:	Nil
Assumptions:	The user is connected to the internet.
Notes and Issues:	Nil

### 2.2.1.2 Functional Requirements

1. The system must have a register function on the login page for first time users.
  - 1.1. The registration form must include text fields for essential user information.
    - 1.1.1. The form must consist of username.
    - 1.1.2. The form must consist of email.
    - 1.1.3. The form must consist of password.
    - 1.1.4. The form must consist of an additional password for verification.
  - 1.2. The system must verify that all fields are filled when user press “Submit”.
  - 1.3. The system must verify all fields after the user press “Submit”.
    - 1.3.1. The username must be unique from existing users.
    - 1.3.2. The email must not be from an existing user.
    - 1.3.3. The password must contain at least 1 uppercase, 1 special character and have at least 8 characters.
    - 1.3.4. Both passwords must be exact same.
    - 1.3.5. The system must prompt the user on any errors in the above fields.
  - 1.4. The system must authenticate the given email address by the user.
    - 1.4.1. The system must send a verification code to the email address submitted.
    - 1.4.2. The system must ask for the verification code from the user.
    - 1.4.3. The system must check the verification code given by the user is correct.
    - 1.4.4. The system must prompt the user if the code given is incorrect.
  - 1.5. The system must create an account for the user upon verification.
  - 1.6. The system must log the user into the home page of the application.

### 2.2.2.1 Use case of Login

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

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 favourite list will be shown.
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. Users will input their username and password into the system.</li> <li>2. Users will either click enter or the login button.</li> <li>3. The system will verify the username and the password to ensure that it is a valid account.</li> <li>4. The user will be logged into the system and the home screen will be displayed.</li> </ol>
Alternative Flows:	<p>LOG1-AF-S1 If the username does not exist in the database.</p> <ol style="list-style-type: none"> <li>1. Show error message “Incorrect username or password. Please try again.”</li> <li>2. The system will return to step 1.</li> </ol> <p>LOG1-AF-S2 If the password does not match the correct password saved in the database.</p> <ol style="list-style-type: none"> <li>1. Show error message “Incorrect username or password. Please try again.”</li> <li>2. The system will return to step 1.</li> </ol>
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.2.2 Functional Requirements

1. The user must log into the system whenever the system restarts.
  - 1.1. The login page must display text fields for essential user information.
    - 1.1.1. The text field must consist of username/email address.
    - 1.1.2. The test field must consist of password.
  - 1.2. The system must verify that all fields are filled when user press “Login”.
  - 1.3. The system must verify all fields after the user presses “Login”.
    - 1.3.1. The username/email must match an existing account in the database.
    - 1.3.2. The password must match the password of the existing user.
    - 1.3.3. The must prompt the user on any errors in the above fields.
- 1.4. The system must log the user into the home page of the application.

### 2.2.3.1 Use Case of Homepage

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

Actor:	User
Description:	The home page shows the quality of golden hour sorted from ascending to descending.
Preconditions:	User already has a registered account.
Postconditions:	Nil
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. Default: Users can view the quality of sunsets that is sorted from ascending to descending</li> <li>2. Users can click the top right button to sort the location list based on proximity</li> <li>3. Users are can access other features from the home page           <ol style="list-style-type: none"> <li>3.1 This includes searching and adding other locations, removing locations going into profile and settings.</li> </ol> </li> <li>4. Users can click in into each location to view detailed information about that location</li> </ol>
Alternative Flows:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.3.2 Functional Requirements

1. The user must be able to view the information about the sunrise/sunset for the locations he/she has saved and remove a location from the home page (favourites list).
  - 1.1. The location tab must display relevant information regarding sunset/sunrise for the location selected.
    - 1.1.1. The system must display sunrise timing.
    - 1.1.2. The system must display sunset timing.
    - 1.1.3. The system must display cloud coverage.
    - 1.1.4. The system must display the probability of rain.
  - 1.2. The user must be able to remove a location from the home page (favourites list).
    - 1.2.1 The home page should contain options for individual entries to be deleted.
  - 1.3. The user must be able to sort the entries on the homepage based on either the quality of sunset (default) or the distance from a location.

### 2.2.4.1 Use Case of Favorite List

Use Case ID:	FAV1		
Use Case Name:	Favorite List		
Created By:	Yoon Sang Won	Last Updated By:	
Date Created:	31/01/24	Date Last Updated:	

Actor:	User (initiating)
Description:	User can edit the favourite list by adding or removing locations which user searches
Preconditions:	User has pressed the “search” button at the bottom of the screen to add or user has pressed the trashcan icon at the top left corner to remove locations.
Postconditions:	Favorite list will be updated with the locations the user has added or removed.
Priority:	High
Frequency of Use:	High
Flow of Events:	<ul style="list-style-type: none"> <li>1. User can add locations by pressing “search” button on the bottom of the screen           <ul style="list-style-type: none"> <li>1.1 User can search locations in the search bar.</li> <li>1.2 If the input location is in the list, it will show up on the screen.</li> <li>1.3 User can add this location to his favorite list by pressing the + icon next to the location.</li> </ul> </li> <li>2. User can remove locations by pressing the trashcan icon at the top left corner of the screen.           <ul style="list-style-type: none"> <li>2.1 User can select multiple locations</li> <li>2.2 Once user presses the delete button at the top left corner of the screen, the selected locations will be deleted from the favorite list.</li> </ul> </li> </ul>
Alternative Flows:	<p>FAV1-AF-S1 If the location entered by the user is not in the list</p> <ul style="list-style-type: none"> <li>1. The system will show a text saying “No results found” and user is not allowed to proceed until user enters a valid name.</li> </ul> <p>LOC1-AF-S2 If the location is already added to the favorite list</p> <ul style="list-style-type: none"> <li>1. If user tries to add a location that has already been added, the system will show a text saying “Location already added!”</li> </ul>
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.4.2 Functional Requirements

1. The user must be able to search for a desired location.
  - 1.1. The location tab must display a text field for manual location input from user.
    - 1.1.1. The system must verify that the location is valid.
    - 1.1.2. The system must recognize the address input by the user.

- 1.2. The location tab must display relevant information regarding sunset/sunrise for the location selected.
  - 1.2.1. The system must display sunrise timing.
  - 1.2.2. The system must display sunset timing.
  - 1.2.3. The system must display cloud coverage.
  - 1.2.4. The system must display the probability of rain.
- 1.3. The system must allow the user to add selected location to his/her favorite list.
  - 1.3.1. The system must allow multiple locations to be added into the list.
  - 1.3.2. The system must not add a location in the list if its already there.
- 1.4. The system must allow the user to delete selected location to his/her favorite list.
  - 1.4.1. The system must allow multiple locations to be selected for removal.
  - 1.4.2. The system must not display deleted locations in the favourite list.

### 2.2.5.1 Use Case of Calendar Function

Use Case ID:	CAL1		
Use Case Name:	Calendar function		
Created By:	Jin Ying	Last Updated By:	Yoon Sang Won
Date Created:	04/02/2024	Date Last Updated:	05/02/2024

Actor:	User (initiating)
Description:	A calendar like function to show which days are most likely to have good sunsets.
Preconditions:	Location has been entered.
Postconditions:	User can navigate through different days to view their respective weather predictions.
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. User accesses the calendar functionality from main menu</li> <li>2. System displays a calendar with sunrise/sunset quality scores displayed for each date.           <ul style="list-style-type: none"> <li>2.1 Quality scores will be displayed for the past 30 days and the next 7 days.</li> <li>3. User can click on each date to check the weather details for that day.</li> </ul> </li> </ol>
Alternative Flows:	<p>CAL1-AF-S1 If the user clicks on a date that is more than 7 days away</p> <ol style="list-style-type: none"> <li>1. System displays “No predictions for the selected date yet!”</li> <li>2. System returns to step 2.</li> </ol> <p>CAL1-AF-S2 If the user clicks on a date that is more than 30 days ago</p> <ol style="list-style-type: none"> <li>1. System displays “Information expired.”</li> <li>2. System returns to step 2.</li> </ol>
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil

Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.5.2 Functional Requirements

1. The system must have a calendar tab. (weather forecasts are useful up to 7 days )
  - 1.1. The calendar tab must display in weekly views.
  - 1.2. The calendar is specific to the location input by the user.
    - 1.2.1. Each location in the user's favorite tab should have its own calendar.
  - 1.3. The calendar must display useful information on each day.
    - 1.3.1. The system must display sunrise timing for each day.
    - 1.3.2. The system must display sunset timing each day.
    - 1.3.3. The system must display cloud coverage each day.
    - 1.3.4. The system must display the probability of rain for each day.
  - 1.4. User must be able to enable reminders for sunset/sunrise for a specific day.
    - 1.4.1. User must be able to select a day on the calendar for reminder.
    - 1.4.2. The system must notify the user 30min before the expected sunrise/sunset timings through notification.
    - 1.4.3. The system must prompt the user if a selected day has a low chance of visible sunrise/sunset.
    - 1.4.4. The user must be able to remove selected days for reminders.

### 2.2.6.1 Use Case of Location Details

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

Actor:	User (initiating)
Description:	User is able to view the details of the sunrise/sunset as well as other weather conditions that affects the sunrise/sunset.
Preconditions:	User taps on one of the locations in the favorite list on the home page.
Postconditions:	Nil
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. User taps on one of the locations added to his favorite list.</li> <li>2. System will display the location name, quality of the sunrise/sunset, the time of sunrise/sunset, wind speed and humidity.</li> </ol>
Alternative Flows:	Nil
Exceptions:	EX1 No location has been added to the favorite list

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

### 2.2.6.2 Functional Requirements

1. The user must be able to click on the locations list to view more details about that particular location
  - 1.1. The detailed location page must display all the relevant information
    - 1.1.1. This includes Golden Hour quality
    - 1.1.2. This includes Sunset timing
    - 1.1.3. This includes percentage of high cloud covers
    - 1.1.4. This includes percentage of mid cloud covers
    - 1.1.5. This includes percentage of low cloud covers
    - 1.1.6. This includes humidity level
    - 1.1.7. This includes air quality
- 1.2. The displayed information must be fetched successfully from the API
  - 1.2.1. The information should be fetched every five minute to ensure accuracy and responsiveness of the application

### 2.2.7.1 Use Case of Sorting Locations

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

Actor:	User (initiating)
Description:	User can sort the locations in his favorite list on the home page according to distance or the quality of sunrise/sunset.
Preconditions:	User has entered the home page.
Postconditions:	Order of the locations in the home list will be sorted according to the distance or quality that user chooses.
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. User taps the sort button at the top right hand corner of the screen on the home page.</li> <li>2. User can choose to sort the list by either distance or the quality of sunset/sunrise</li> </ol>

	2.1 If user sorts by distance, the list will be sorted starting from the location that is nearest to the user's current location. 2.2 If user sorts by quality, the list will be sorted starting from the location with the highest quality score of the sunrise/sunset.
Alternative Flows:	SORT1-AF-S1 If there is no location in the favorite list 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

### 2.2.7.2 Functional Requirements

1. The user can sort the list of locations saved either by quality of sunset or by location.
  - 1.1. The system must use GPS to determine the current location of the user
  - 1.2. The system must provide users a button to choose whether they want the locations to be sorted by quality of sunset or by proximity
    - 1.2.1. The System must calculate the distance of the saved locations from the current location of the user
    - 1.2.2. The system must arrange the save locations starting from the closest one at the top to the furthest one at the bottom
    - 1.2.3. The System must sort the quality of the golden hour from ascending to descending order.
  - 1.3. The system must recognise if there is no saved locations and inform the user to save at least 2 locations first before sorting them

### 2.2.8.1 Use Case of Upload Pictures

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

Actor:	User (initiating)
Description:	Users can upload photos onto their profile that are visible to followers.
Preconditions:	User has entered the profile page.
Postconditions:	Nil
Priority:	Low

Frequency of Use:	Medium
Flow of Events:	<p>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 “Upload Picture” button.</p> <p>2. User will get to select either the “Camera” option or the “Choose From Gallery” option.</p> <p>2.1 If the user selects the “Camera” option, the phone’s camera will be turned on and the user will be able to take a photo which will be uploaded.</p> <p>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.</p> <p>3. User will see a preview of the photo before deciding if he/she would like to confirm the upload.</p> <p>4. User can click on the “Upload Picture” option to confirm the upload.</p> <p>5. The system will return to the profile page.</p>
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.”. 2. System returns to the Upload Picture page.
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.8.2 Functional Requirements

1. The system must allow the user to upload pictures of sunsets onto their profile
  - 1.1. The system must have a secure and reliable database to store photos uploaded by the user
  - 1.2. The system must provide the users with a method to upload pictures
    - 1.2.1. The system must provide the option of choosing previously taken pictures of sunsets from the phone’s gallery
      - 1.2.1.1. The system must request permission from the user to access the user’s photo gallery
    - 1.2.2. The system must also provide the option of taking the picture of the sunset directly with the camera
      - 1.2.2.1. The system must request permission from the user to access the user’s phone camera
    - 1.2.3. After a photo is chosen, the system must ask the user to confirm the picture before uploading it

### 2.2.9.1 Use Case of Follow User

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

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:	Nil
Priority:	Low
Frequency of Use:	Medium
Flow of Events:	<ol style="list-style-type: none"> <li>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 “Find Other Users” button.</li> <li>User will get to input the username of the other user.</li> <li>User has to click “Follow” button.</li> </ol>
Alternative Flows:	<p>FOL1-AF-S1 If the user inputs an invalid username</p> <ol style="list-style-type: none"> <li>The system will show an error message “No such user found, please try again.”.</li> <li>System will return to the Find Other Users page.</li> </ol> <p>POST1-AF-S2 If the user clicks on back</p> <ol style="list-style-type: none"> <li>The system will return to the profile page.</li> </ol>
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.9.2 Functional Requirements

- The user must be able to search for and follow other users to view their posted content.
  - The system must have a reliable database to store all the different users' data
    - The system must provide a search bar for the user to search for other usernames
    - The system must be able to lookup the database for different users based on the usernames inputted into the search bar
    - The system must recognise and store the new connection when the user follow another user

- 1.2. Once user A successfully followed user B, the system must save the user B's profile for user A to access it easily in the future to view their content.

### 2.2.10.1 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:	<ol style="list-style-type: none"> <li>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.</li> <li>The user will be provided a field for the title and a field for the description of the bug.</li> <li>The user can click on “Report Bug” to submit the report.</li> <li>The system will return to the profile page.</li> </ol>
Alternative Flows:	POST1-AF-S1 If the user clicks on back 2. The system will return to the profile page.
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.10.2 Functional Requirements

- The user must be able to report a bug, if any, that he encountered while using the application
  - The system must provide users a way to report bugs found
    - This is to be located in the profile page, “Report a bug” function.
    - The user must be given a text box to describe the type of bugs he encountered
    - The system must ensure that the user submit a valid bug encounter report
      - This can be done by ensuring that the text field filled by the user is not blank
    - The user should also be given the option to upload photos and videos of the bugs they encountered

### 2.2.11.1 Use Case of Rate Application

Use Case ID:	RATE1	
Use Case Name:	Rate Application	
Created By:	Lim Zhi Yong	Last Updated By:
Date Created:	06/02/2024	Date Last Updated:

Actor:	User (initiating)
Description:	Users can rate the application on a scale of 0 to 5 stars.
Preconditions:	Nil
Postconditions:	Nil
Priority:	Nil
Frequency of Use:	Nil
Flow of Events:	<ol style="list-style-type: none"> <li>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 “Rate Our App” button.</li> <li>The user will click onto the stars to indicate how many stars he/she would like to rate our application.</li> <li>The user can leave optional description on the goods and the bads of the application.</li> <li>The user can click on the “Submit Rating” button to submit the ratings.</li> <li>The system will return to the profile page.</li> </ol>
Alternative Flows:	RATE1-AF-S1 If the user does not input any rating <ol style="list-style-type: none"> <li>The system will show an error message “The rating field is empty. Please select a rating”.</li> </ol>
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.11.2 Functional Requirements

- The user is given the choice to rate the application from a scale of 1 to 5.
  - The system must provide the user with a method to rate the application easily
    - This is done by having a “Rate Our App” Button at the button of the profile tab
    - Upon clicking the rate our app button, the system must redirect the user to the application store

- 1.1.2.1. For IOS users, the system must redirect the user to the app store  
 1.1.2.2. For Android users, the system must redirect the user to the google play store.
- 1.2. The system must request permission from the OS to open another app (application store) from the application itself.

### 2.2.12.1 Use Case of Account Application

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

Actor:	User (initiating)
Description:	User can edit username, email, profile picture and password.
Preconditions:	Nil
Postconditions:	Nil
Priority:	Low
Frequency of Use:	Low
Flow of Events:	<p>2. 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 System” button.</p> <p>3. The user will click onto the “Edit Profile” button that is located below the profile picture.</p> <p>4. Upon entering the “Edit Profile” page, users can make changes to the following fields</p> <ul style="list-style-type: none"> <li>1. User can edit the profile picture and will get to select either the “Camera” option or the “Choose From Gallery” option.           <ul style="list-style-type: none"> <li>3.1.1. If the user selects the “Camera” option, the phone’s camera will be turned on and the user will be able to take a photo which will be uploaded.</li> <li>3.1.2. 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.</li> <li>3.1.3. User will see a preview of the photo before deciding if he/she would like to confirm the upload.</li> <li>3.1.4. User can click on the “Upload Picture” option to confirm the upload.</li> <li>3.1.5. The system will return to the profile page.</li> </ul> </li> <li>2. User can edit the email.           <ul style="list-style-type: none"> <li>3.2.1. The user can input a new email into the email field text.</li> </ul> </li> <li>3. User can edit the password.           <ul style="list-style-type: none"> <li>3.2.1. The user can input a new password into the password field text.</li> </ul> </li> </ul>

	<p>3.2.2. The user needs to verify email by keying in the same password again.</p> <p>5. User can click “Save Changes” button once everything has been confirmed.</p>
	<p>ACC1-AF-S1 If the user clicks on back:</p> <ol style="list-style-type: none"> <li>1. The system will return to the Profile page.</li> </ol> <p>ACC1-AF-S2 If the user clicks on back when he is in the Edit Picture page:</p> <ol style="list-style-type: none"> <li>1. The system will return to the Edit Profile page.</li> </ol> <p>ACC1-AF-S3 If email address is invalid:</p> <ol style="list-style-type: none"> <li>1. The system shows the error message “Please enter a valid email address”.</li> </ol> <p>ACC1-AF-S4 If username is already taken:</p> <ol style="list-style-type: none"> <li>1. The system shows the error message “This username is taken. Please enter another username.”.</li> </ol> <p>ACC1-AF-S5 If password does not meet requirements:</p> <ol style="list-style-type: none"> <li>2. The system shows the error message “Password does not meet requirements. Please enter a different password”.</li> </ol>
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.12.2 Functional Requirements

1. The user must be able to access the account page.
  - 1.1. The account page must display relevant user information.
    - 1.1.1. The account page must display username.
    - 1.1.2. The account page must display an email address.
    - 1.1.3. The account page must display the favorite locations tab.
    - 1.1.4. The account page must display the calendar tab.
    - 1.1.5. The account page must display existing reminders.
  - 1.2. The user must be able to change account details.
    - 1.2.1. The user must be able to change username.
      - 1.2.1.1. The system must show a text field for a new username.
    - 1.2.2. The user must be able to change email address.
      - 1.2.2.1. The system must show a text field for a new email.
    - 1.2.3. The user must be able to change password.
      - 1.2.3.1. The system must show 2 text fields for new password (one for verification).
    - 1.2.4. The system must verify all fields after the user press “Save Changes”.
      - 1.2.4.1. The username must be unique from existing users.
      - 1.2.4.2. The email must not be from an existing user.
      - 1.2.4.3. The password must contain at least 1 uppercase, 1 special character and have at least 8 characters.
      - 1.2.4.4. Both passwords must be exact same.

- 1.2.4.5. The system must prompt the user on any errors in the above fields.
- 1.2.5. The system must authenticate the given new email address by the user.
  - 1.2.5.1. The system must send a verification code to the email address submitted.
  - 1.2.5.2. The system must ask for the verification code from the user.
  - 1.2.5.3. The system must check the verification code given by the user is correct.
  - 1.2.5.4. The system must prompt the user if the code given is incorrect.

### 2.2.13.1 Use Case of Reminder Application

Use Case ID:	REM1	
Use Case Name:	View and Edit Reminders	
Created By:	Lim Zhi Yong	Last Updated By:
Date Created:	08/02/2024	Date Last Updated:

Actor:	User (initiating)
Description:	User can view and edit reminders.
Preconditions:	Nil
Postconditions:	Nil
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	<ol style="list-style-type: none"> <li>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 System” button.</li> <li>2. The user will click onto the “Reminders” button that is located below the profile picture.</li> <li>3. Upon entering the “Reminders” page, users can view and remove the reminders.           <ol style="list-style-type: none"> <li>3.1. User can click on the “Remove” button to remove it from the list of reminders.</li> </ol> </li> </ol>
	REM1-AF-S1 If the user clicks on back: <ol style="list-style-type: none"> <li>1. The system will return to the Profile page.</li> </ol>
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

### 2.2.13.2 Functional Requirements

1. The user must be able to access the reminder page.
  - 1.1. The reminder page must display the list of reminders.

- 1.2. The reminder page must allow the user to remove reminders from the list.

#### 2.2.14.1 Use Case of Following Application

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

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:	<ol style="list-style-type: none"> <li>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 System” button.</li> <li>2. The user will click onto the “Following” button that is located below the profile picture.</li> <li>3. Upon entering the “Following” page, users can view and remove the accounts that he/she is following.           <ol style="list-style-type: none"> <li>3.1. User can click on the “Unfollow” button to unfollow the account.</li> </ol> </li> </ol>
	ACC1-AF-S1 If the user clicks on back: 2. The system will return to the Profile page.
Exceptions:	Nil
Includes:	Nil
Special Requirements:	Nil
Assumptions:	Nil
Notes and Issues:	Nil

#### 2.2.14.2 Functional Requirements

1. The user must be able to access the following page.
  - 1.1. The reminder page must display the list of accounts the user is following.
  - 1.2. The reminder page must allow the user to unfollow an account from the list.

### 3. Documentation of Non-Functional Requirements

Usability	<ul style="list-style-type: none"> <li>The user must be able to choose between the 4 main languages. (English, Chinese, Malay, Tamil)</li> <li>The user interface must be intuitive and user-friendly in order to cater to users from different levels of technical expertise.</li> <li>The system should be able to support both light mode and dark mode to accommodate user preference.</li> </ul>
Reliability	<ul style="list-style-type: none"> <li>After a system reboot, the full system functionalities must be restored within 2 minutes.</li> </ul>
Performance	<ul style="list-style-type: none"> <li>When a location is inputted into the system, the system must be able to provide accurate data within 5 seconds.</li> <li>The time of sunrise and sunset must be accurate to within +/- 5 minutes.</li> <li>When a user input is detected, the app must respond within 3 seconds.</li> </ul>
Supportability	<ul style="list-style-type: none"> <li>The system must be able to function beyond Singapore when a different API is provided to it.</li> </ul>
Security	<ul style="list-style-type: none"> <li>The system should require authentication to be logged into their accounts.</li> <li>The sensitive information should be encrypted before being stored in a database.</li> </ul>

### 4. Data Dictionary

Term	Description
Login details	<p>This includes a unique username created with a minimum of 8 and maximum of 32 alphanumeric characters.</p> <p>This also includes a password with a minimum of 8 and maximum of 32 characters. A combination of at least 1 upper-case letter, 1 lower-case letter, and 1 number is required.</p>

User	The user refers to anyone using the app, regardless if the user possesses an account.
System	In the context of our application, the system refers to both the front-end and back-end portion of our software that is responsible for providing interactive use and manipulating data efficiently.
Registered user	Registered user refers to a user with an account. Registered users can save locations and upload pictures into the application.
Good sunset	A good sunset is characterized by a rich palette of colors, including various shades of orange, red, yellow and purple.
Golden hour quality	A percentage which predicts the quality of sunset happening at a particular day and location. A high percentage means the sunset is likely to be beautiful and a low percentage means that the sunset is likely to be dull.
Location manual	A page in our application where users can search for different locations to check for the predicted quality of sunset and the timing. Registered users have the option to save locations for future use.
Sunset Calendar	A calendar that shows the predicted quality of sunset for each day. User can click in on a date to view more details of the sunset on that particular date.
Follow	A function that lets user A connect to user B, and allow user A to view user B's current and future content easily.
Bugs	An unexpected problem that the user might face, which can include UI issues or other problems interacting with the application that affect the user's experience.

## 5. UI Mockups

Register / Form - Fill

Welcome to SkyScape!

Never miss the golden hour again.

Email Address

Password

Re-enter Password

Forgot password?

Already have an account? Click here to log in!

Register

Q W E R T Y U I O P  
A S D F G H J K L  
← Z X C V B N M ➝  
123 space Go  
Microphone

Login / Form - Fill

SkyScape!

Never miss the golden hour again.

samantha123@email.com

.....

Forgot password?

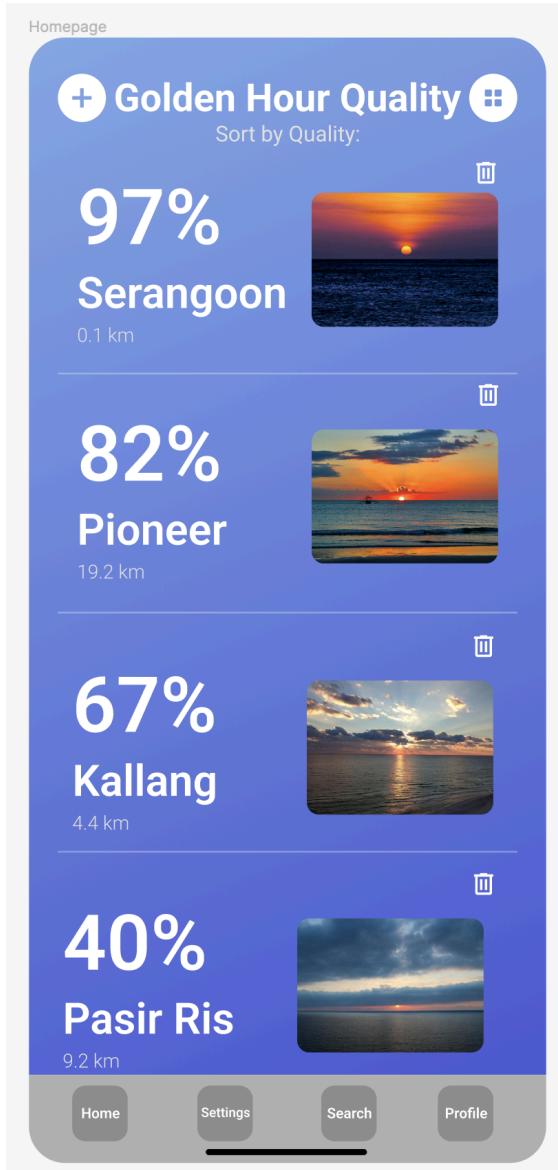
Don't have an account yet? Click here to register!

Login

Q W E R T Y U I O P  
A S D F G H J K L  
← Z X C V B N M ➝  
123 space Go  
Microphone

- Login Page

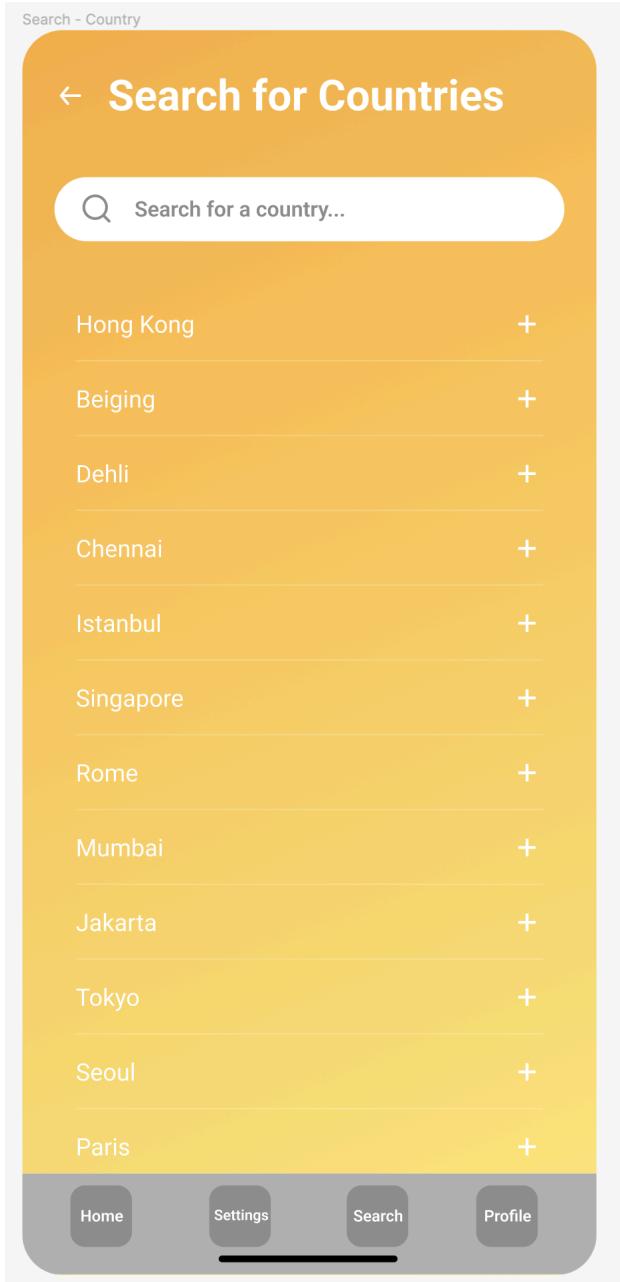
- Register Page



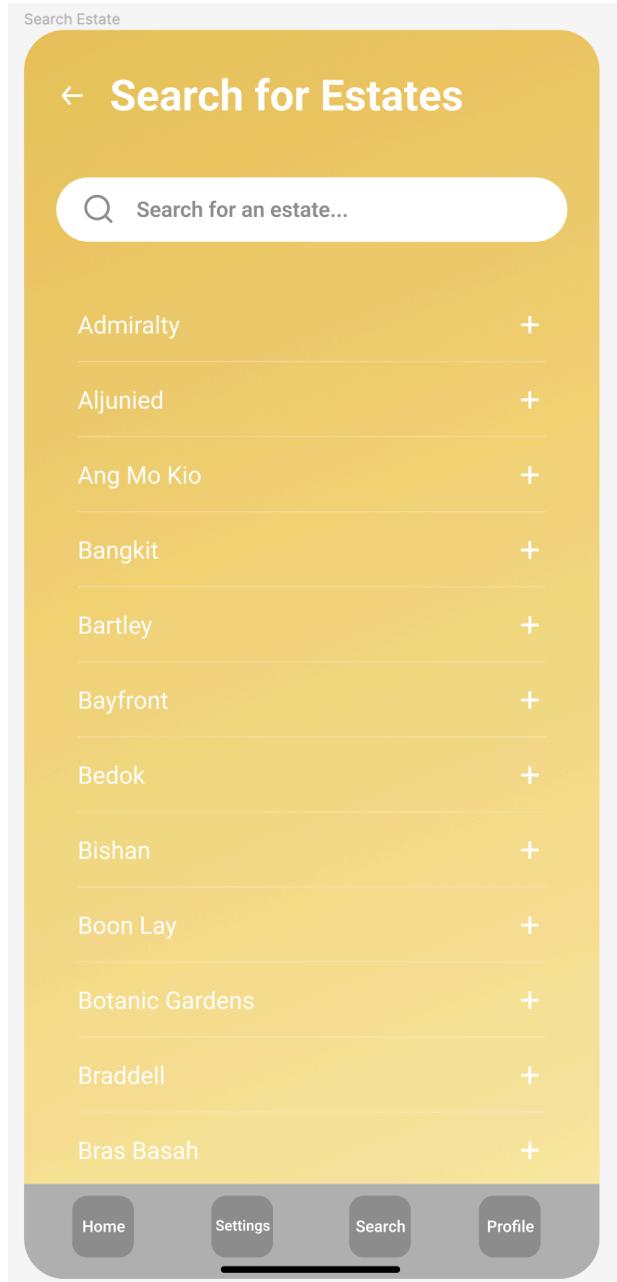
- Home Page, sorted by quality



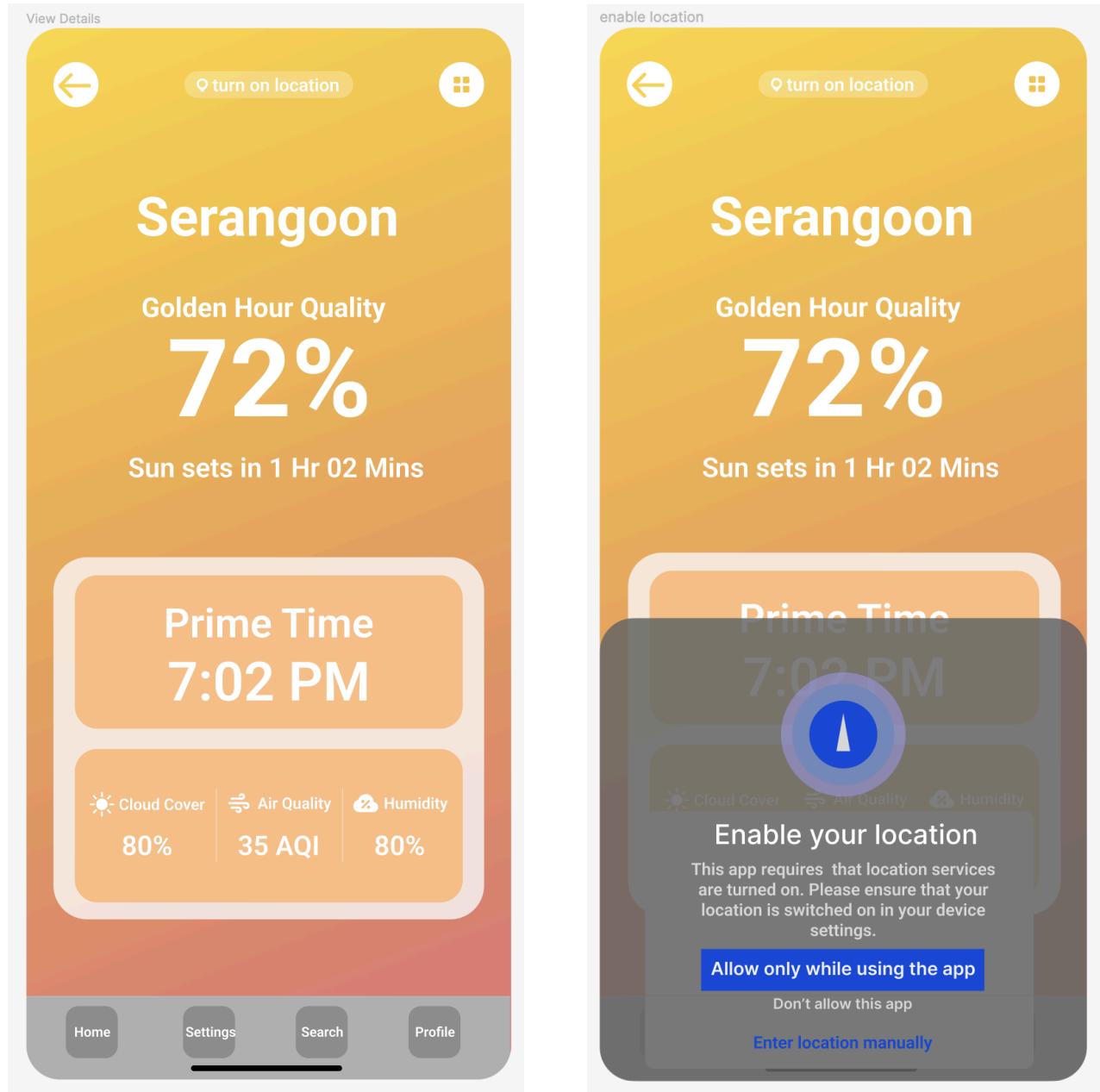
- Sort by user's proximity



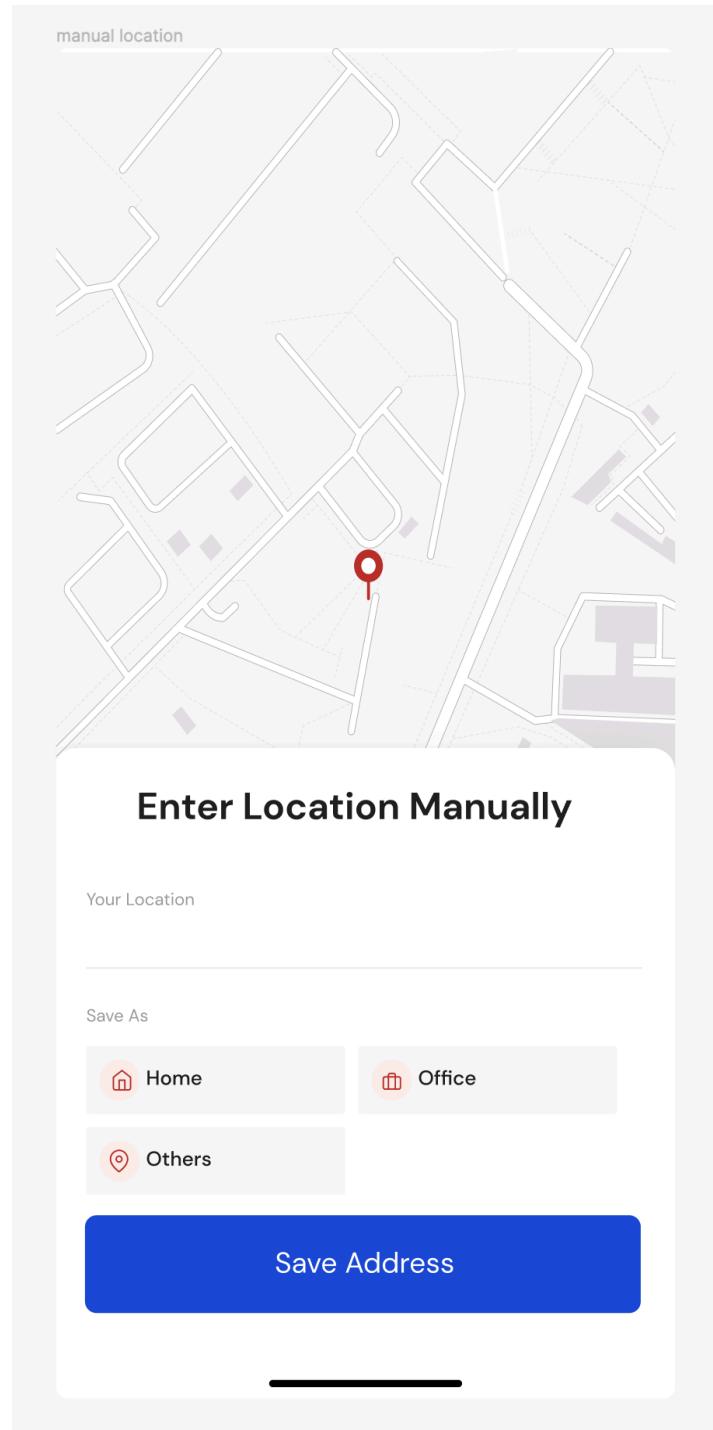
- Search for countries



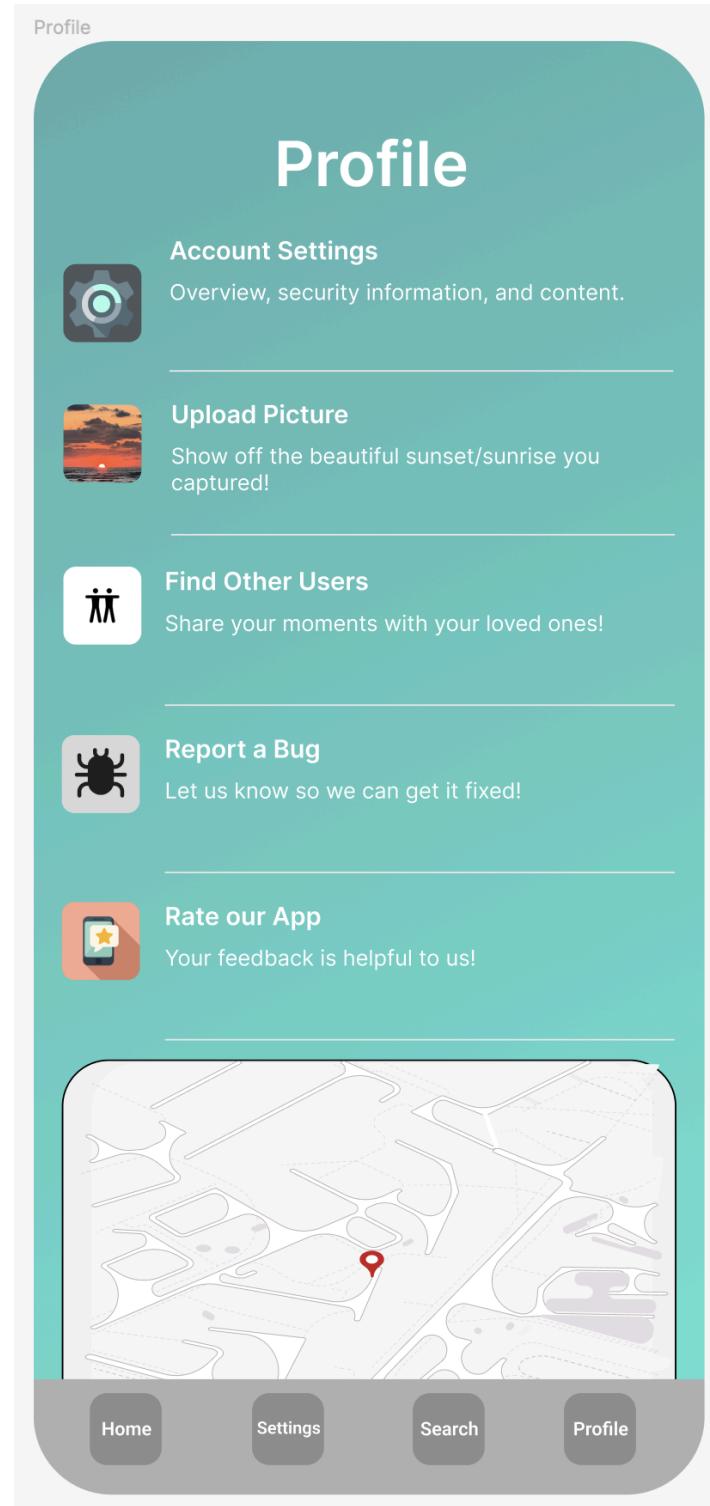
- Search for cities/estates within the country



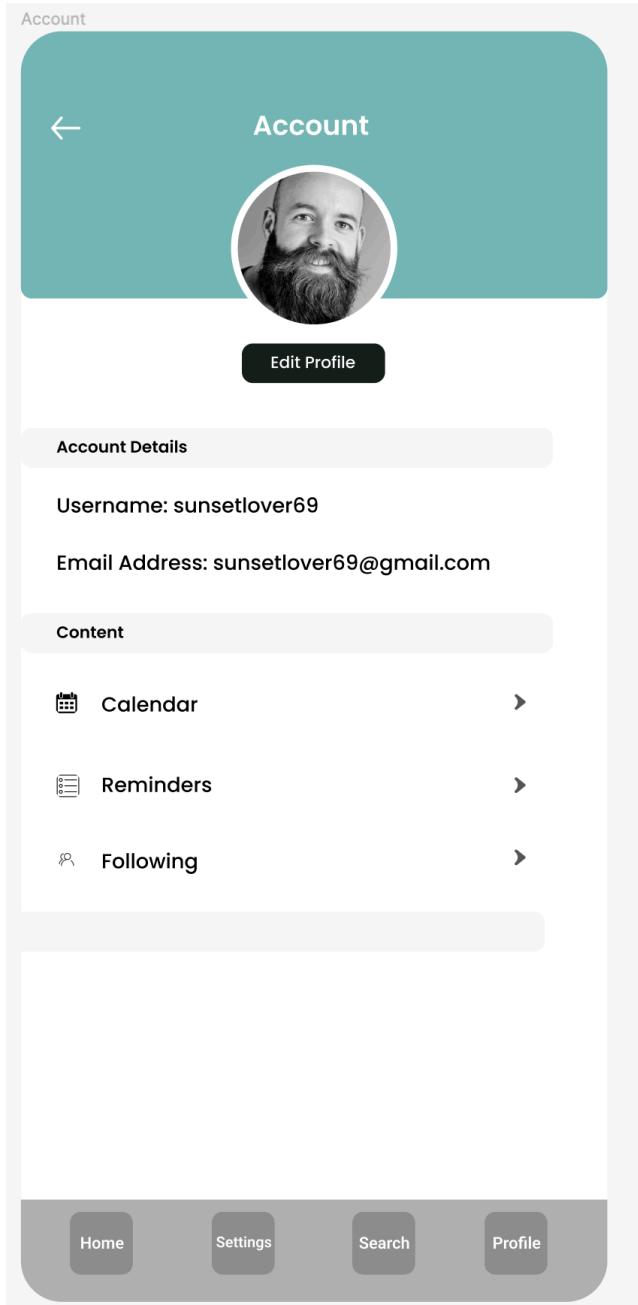
- Detailed information about location
- Prompting user to enable GPS



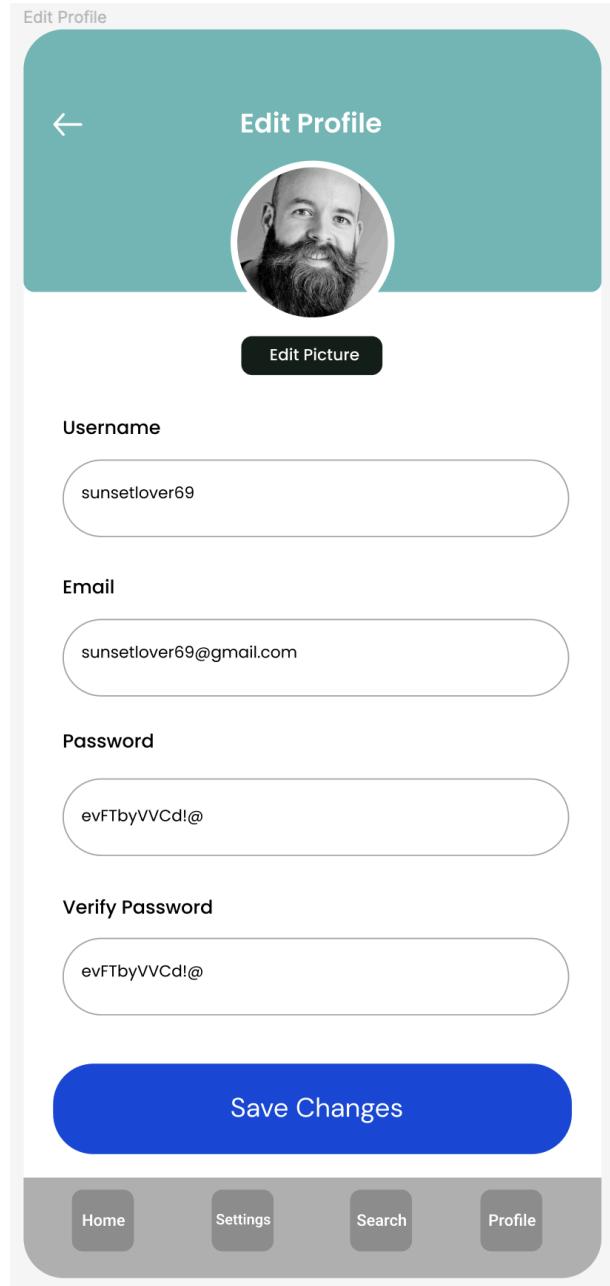
- User can choose to enter location manually instead of using GPS



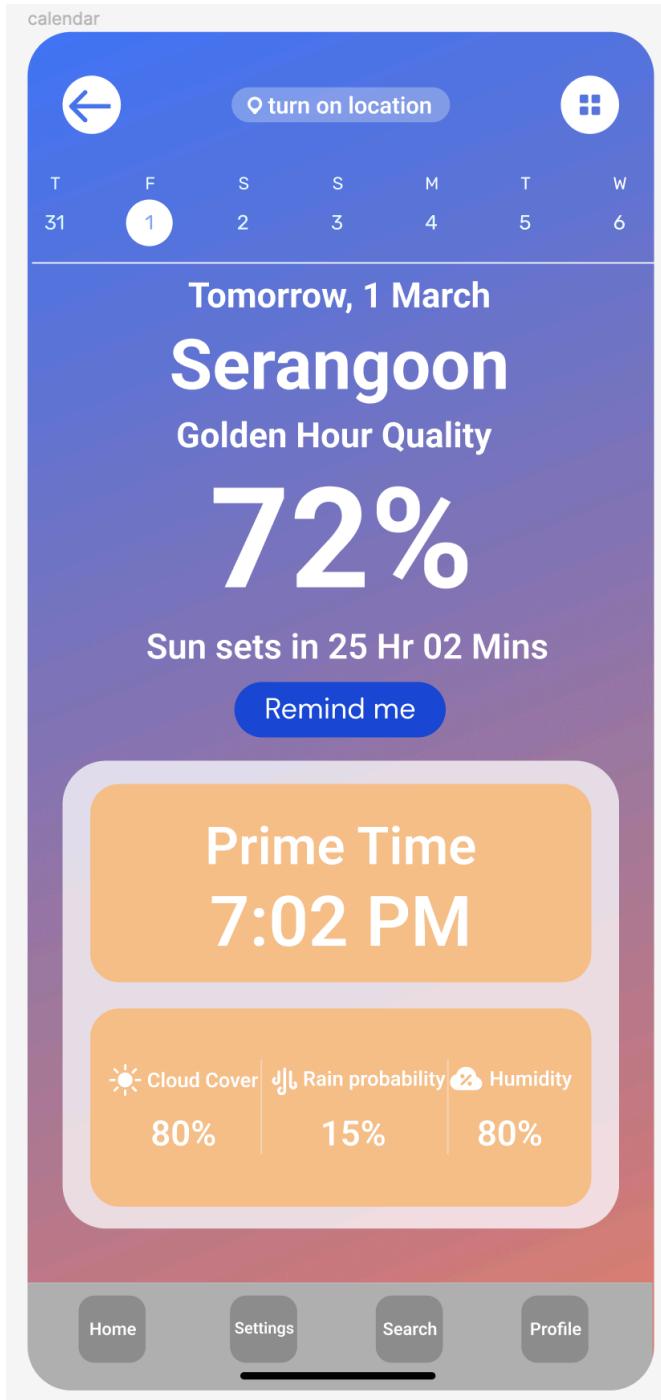
- Users can access the profile page to perform a variety of actions such as changing the login credentials, uploading pictures, finding other users, reporting a bug and rating the application.



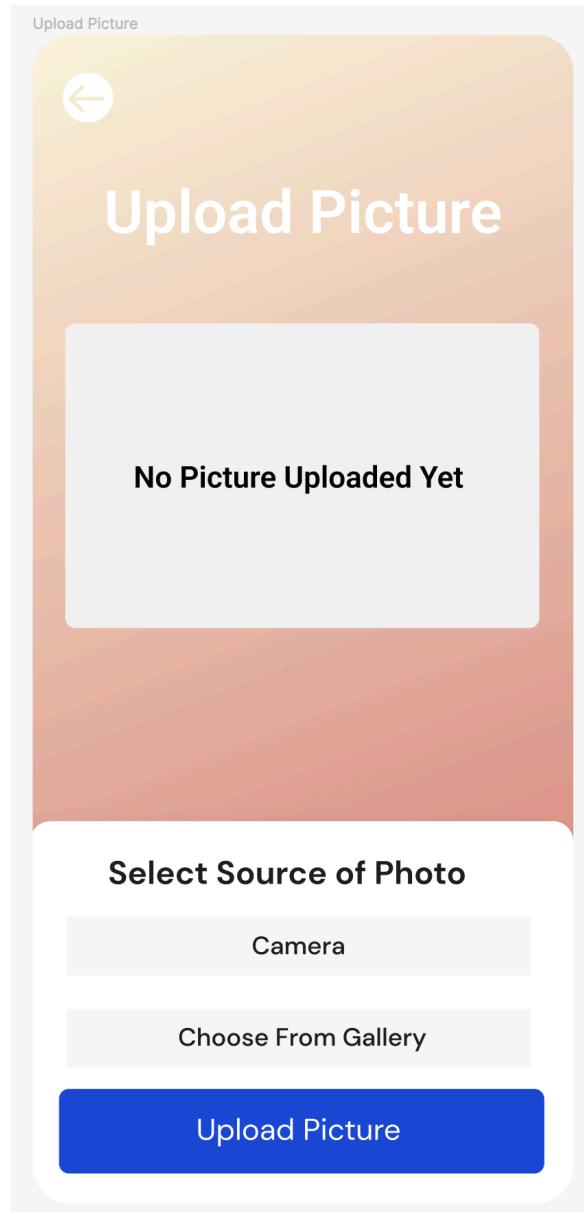
- Account details



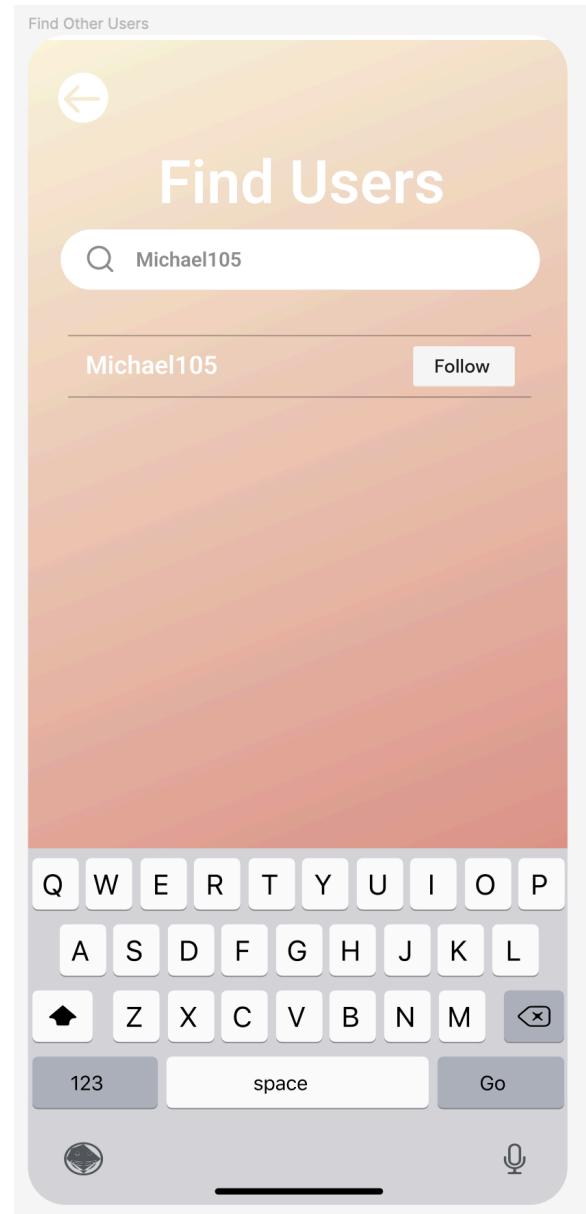
- Option to change account details



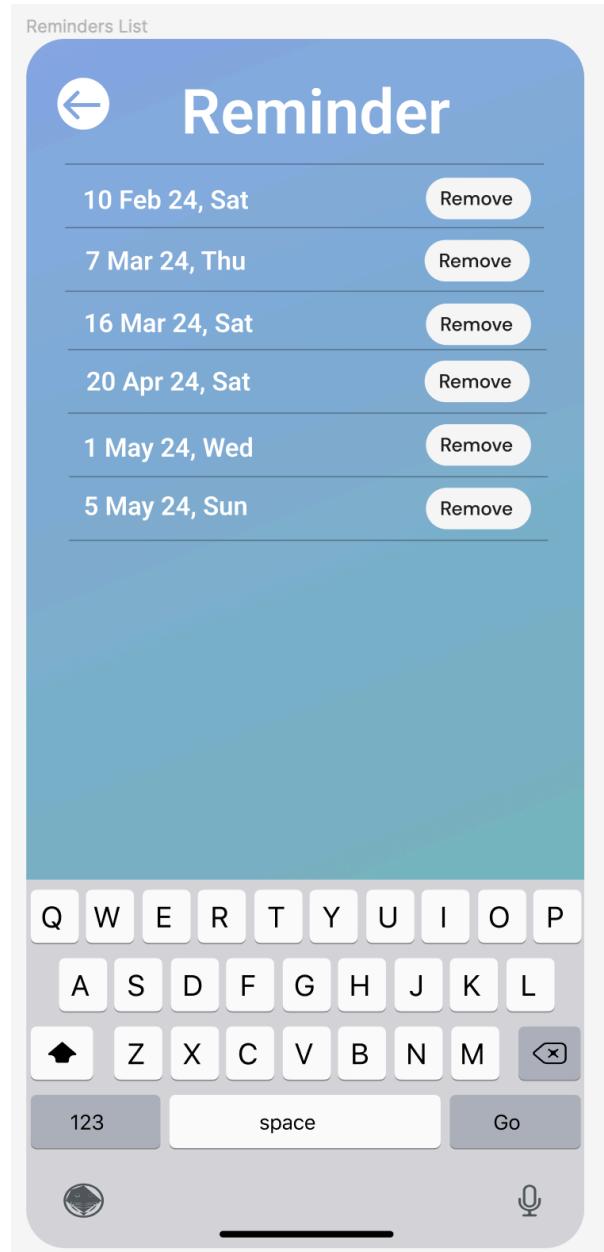
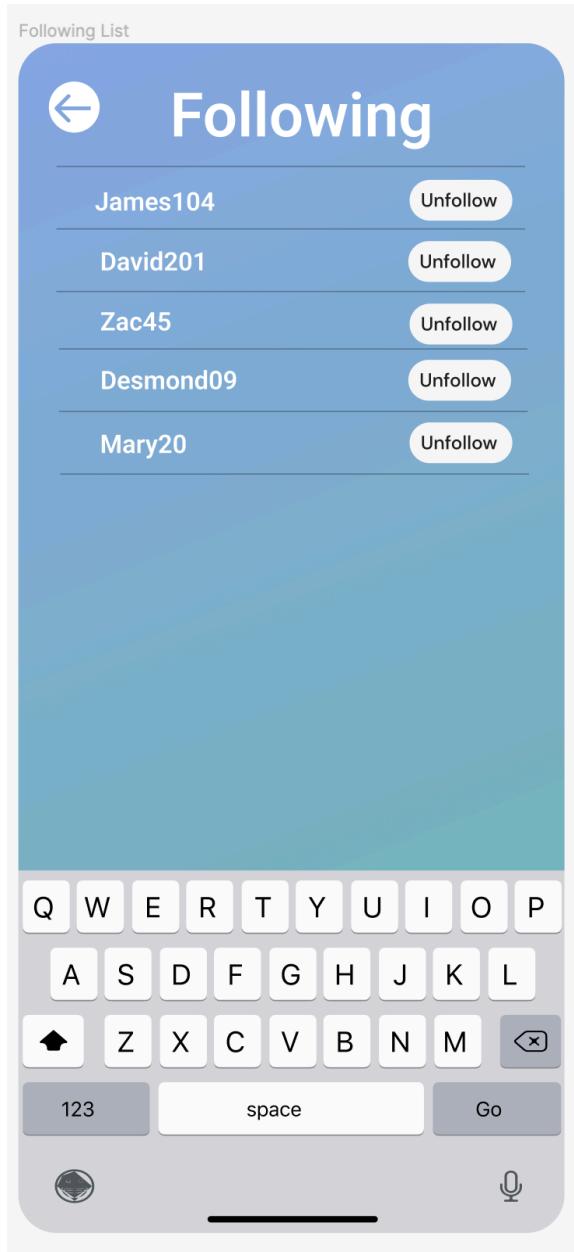
- Calendar page, User can search and set reminders for predicted quality of sunsets for the upcoming days.



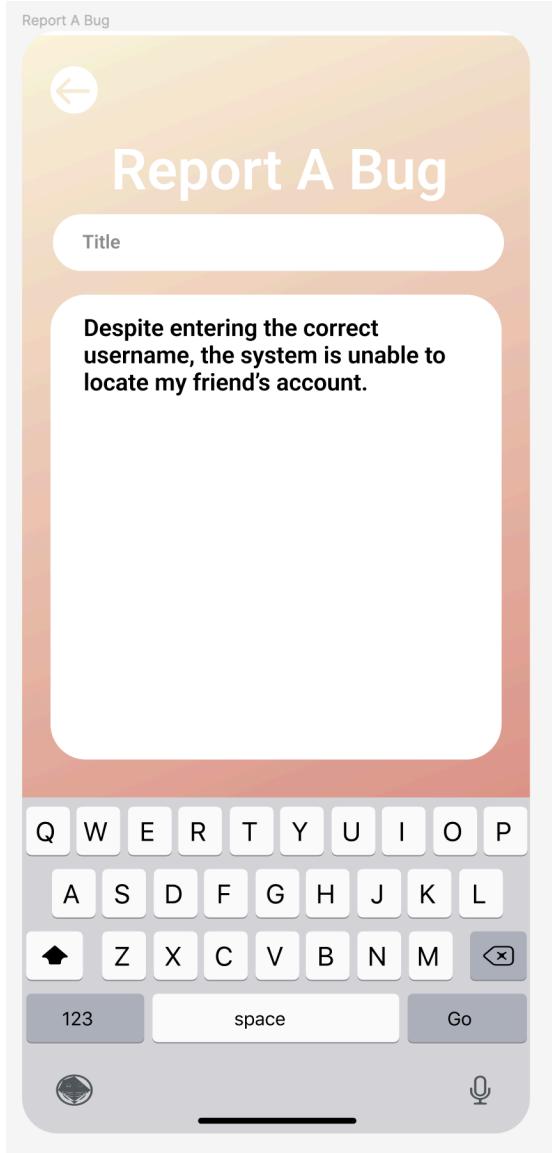
- Uploading pictures



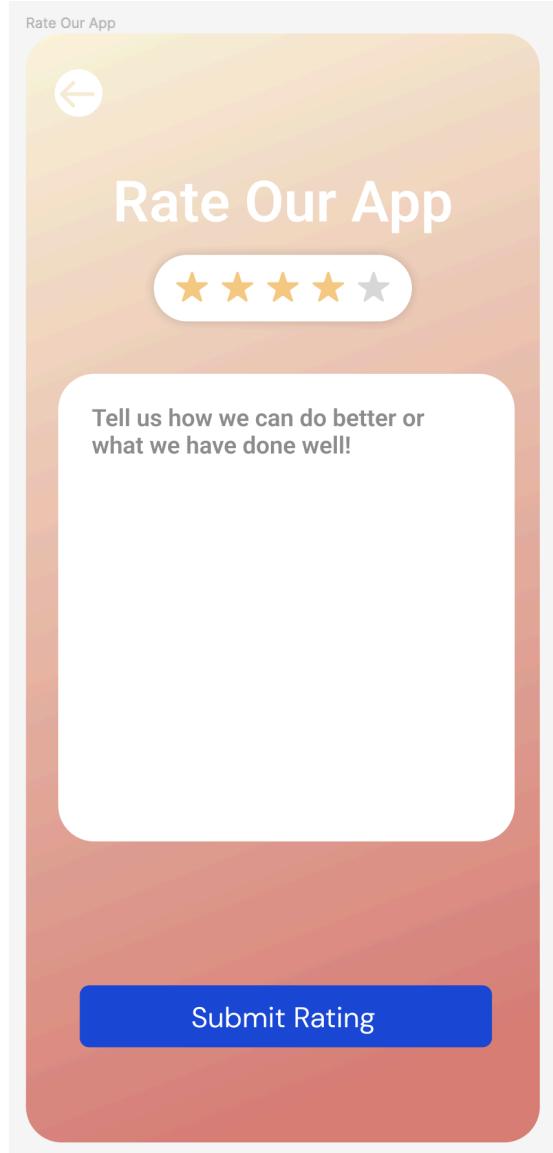
- Finding users to follow



- List of other users following
- Reminders for days with good sunsets



- Reporting bugs



- Rating SkyScape

## 6. Use Case Diagrams

