

**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**  

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**SINGAPORE**

**SC2006: Software Engineering**

**Lab 3 Deliverables**

**AY24/25 | SEM 2 | SCSC | Group 3**

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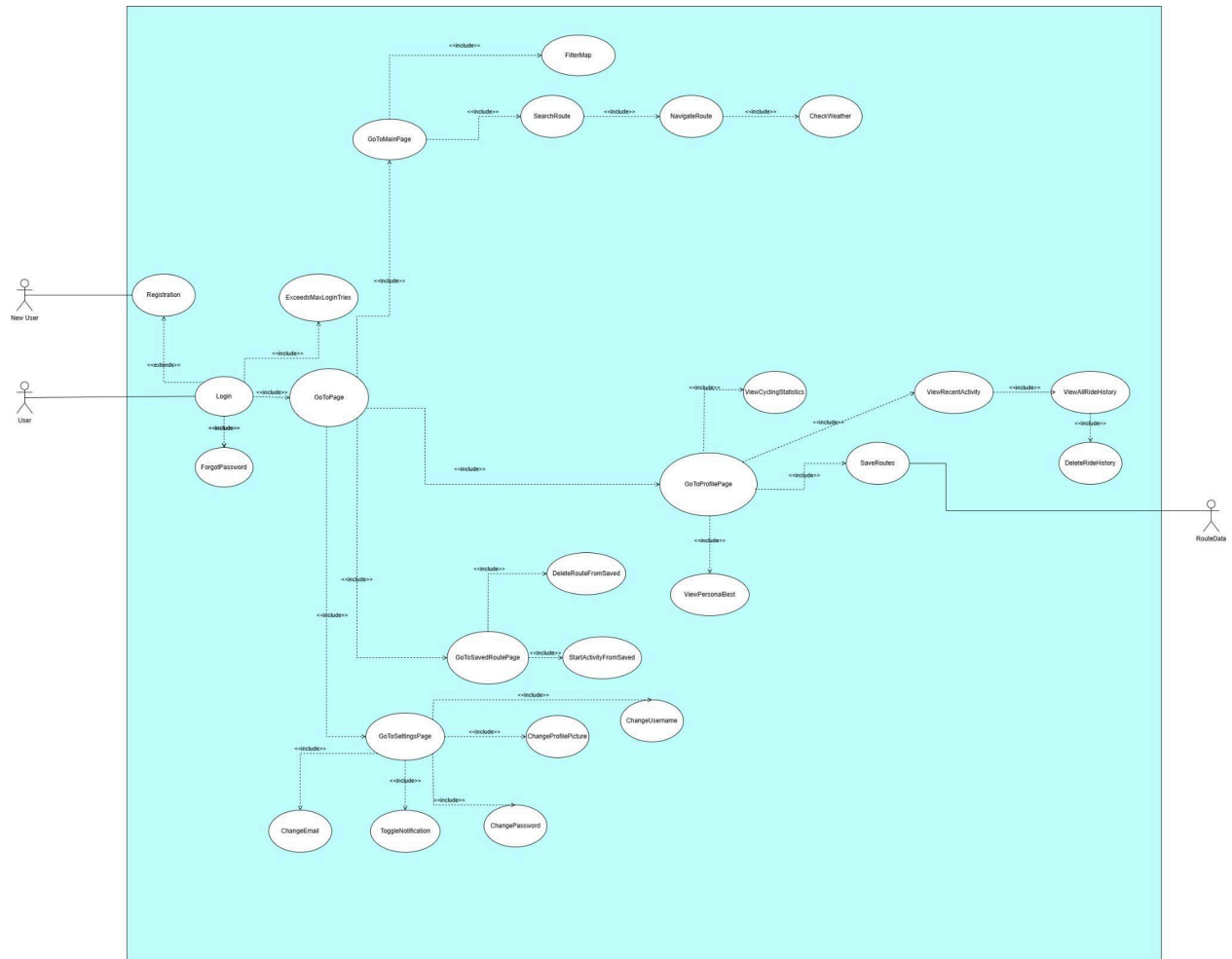
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## **Link to Draw.io**

[https://app.diagrams.net/#G1NaLrn4uFyc5cfBiJbHn1h1tBbID6\\_ctY#%7B%22pageId%22%3A%22LMIYpk3xj9hH7\\_5gVO\\_S%22%7D](https://app.diagrams.net/#G1NaLrn4uFyc5cfBiJbHn1h1tBbID6_ctY#%7B%22pageId%22%3A%22LMIYpk3xj9hH7_5gVO_S%22%7D)

# Use Case Model

## Use Case Diagram



## Use Case Descriptions

Use Case ID:	1.1		
Use Case Name:	Login		
Created By:	Harikrishnan Vinod	Last Updated By:	Harikrishnan Vinod
Date Created:	27/01/2025	Date Last Updated:	27/01/2025

Actor:	Returning User
Description:	This use case will allow the user to log in to their account using Email ID/Username and password
Preconditions:	1. The user must have the system installed

	2. The user must have a valid account
Postconditions:	The User will be logged into their account and is navigated to the main page of the system.
Priority:	High
Frequency of Use:	1 time upon download and after 3 months of inactivity
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User will be prompted at the Welcome Page if they have an existing account or if they are a first time user</li> <li>2. The User upon selection of “Already have an Account” will log in by entering the “Email ID or Username” and “Password” fields</li> <li>3. If the login is successful, the User will be directed to the Main Page of the system</li> </ol>
Alternative Flows:	AF-S3: User does not remember his password <ol style="list-style-type: none"> <li>1. User selects the “Forget Password” button and is directed to the <b>Forget Password</b> use case</li> </ol>
Exceptions:	<ol style="list-style-type: none"> <li>1. If the login credentials are invalid, an error message is flashed and the user will not be logged in.</li> </ol>
Includes:	ForgetPassword
Special Requirements:	The system needs to validate the user login credentials
Assumptions:	<ol style="list-style-type: none"> <li>1. The User has an existing account</li> <li>2. The User is connected to the Internet</li> </ol>
Notes and Issues:	None

Use Case ID:	1.1.2.3		
Use Case Name:	ExceedsMaxLoginTries		
Created By:	Harikrishnan Vinod	Last Updated By:	Harikrishnan Vinod
Date Created:	27/01/2025	Date Last Updated:	27/01/2025

Actor:	Returning User
Description:	This use case will allow the user to regain access to their account
Preconditions:	<ol style="list-style-type: none"> <li>1. The use must have a valid account</li> </ol>
Postconditions:	The User will be sent a link to their email account that can help them reset their password and regain access to their account
Priority:	High
Frequency of Use:	Almost Never
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User will be prompted at the Welcome Page if they have an existing account or if they are a first time user</li> </ol>

	<ol style="list-style-type: none"> <li>The User upon selection of “Already have an Account” will log in by entering the “Email ID or Username” and “Password” fields</li> <li>If the login is unsuccessful after 3 tries, the User will be directed to the Forget Password page</li> <li>The user will be asked to fill in their email address</li> <li>If it is a valid email address for which there is an account, a link will be sent to the User’s email address</li> <li>The user will be able to set a new password and can resume to the <b>User Login</b> use case</li> </ol>
Alternative Flows:	None
Exceptions:	<ol style="list-style-type: none"> <li>No valid account associated with the email address is found</li> <li>User is then prompted to go to the <b>Register User</b> use case</li> </ol>
Includes:	ForgotPassword
Special Requirements:	The system needs to be able send emails with a reset password link after finding the User’s account
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.2		
Use Case Name:	ForgotPassword		
Created By:	Bryan Goh	Last Updated By:	Bryan Goh
Date Created:	28/01/2025	Date Last Updated:	16/02/2025

Actor:	Users
Description:	Users can to reset their passwords by entering their email address
Preconditions:	Users must have an account on the system
Postconditions:	User’s password reset and temporary password sent to their email address
Priority:	High
Frequency of Use:	Medium
Flow of Events:	<ol style="list-style-type: none"> <li>User cannot remember their log in password</li> <li>User click onto the “Forgot Password” button in the login page</li> <li>The system brings the user to the “Forgot Password” page and prompts user to enter his/her email address in the email field</li> <li>User enters his/her email address that was registered in the system</li> <li>The system verifies if the email address entered is an registered email</li> </ol>

	6. If the email address is a valid registered email address, the system generates a temporary password and set the user's password as the generated password in the user database 7. The system sends the generated temporary password to the user's email address
Alternative Flows:	AFS6: If the user enters an email address that is not registered <ol style="list-style-type: none"> <li>The system returns to step 3</li> <li>The system highlights the Username entry box in red</li> <li>The system displays the message "User not found. Please enter a registered email!"</li> </ol>
Exceptions:	None
Includes:	None
Special Requirements:	None
Assumptions:	The system is able to connect to the database server 100% of the time
Notes and Issues:	None

Use Case ID:	1.3		
Use Case Name:	Registration		
Created By:	Harikrishnan Vinod	Last Updated By:	Bryan Goh
Date Created:	27/01/2025	Date Last Updated:	16/02/2025

Actor:	First time User
Description:	This use case will allow the user to register for an account
Preconditions:	<ol style="list-style-type: none"> <li>The user must have the system installed</li> <li>The user must have an email account they have access to</li> </ol>
Postconditions:	The User will be logged into their account and is navigated to the main page of the system.
Priority:	High
Frequency of Use:	1 time
Flow of Events:	<ol style="list-style-type: none"> <li>The User will be prompted at the Welcome Page if they have an existing account or if they are a first time user</li> <li>The User upon selection of "Sign Up" will register by entering a valid email address, username, and a complex password</li> <li>If all the user information entered are valid, The system will verify if either the username or email address entered is already taken by another user by querying the user database.</li> <li>If the username and email entered is not found in the user database, it means that both the username and email address have not been taken. The system will then create an</li> </ol>

	accountfor the User, he can now login using the <b>User Login</b> use case
Alternative Flows:	<p>AF-S3: User enters a username or email address with an invalid format, or the user enters a weak password:</p> <ol style="list-style-type: none"> <li>1. The system returns to step 3</li> <li>2. The system clears and highlights the Username/Email/Password entry box in red</li> <li>3. The system displays the message “Invalid Email Format!”, “Invalid username. Do not use any symbols other than ‘.’ or ‘_’!”, or “Password not strong enough! Please enter another password that is at least 8 characters long, and containing at least one uppercase letter, one lowercase letter, and a symbol!” for invalid email, username, and password respectively.</li> </ol> <p>AF-S4: User enters a username or email address that has already been used</p> <ol style="list-style-type: none"> <li>1. The system returns to step 3</li> <li>2. The system clears and highlights the Username/Email entry boxes in red</li> <li>3. The system displays the message “Username is taken, please enter another username” or “Email address is already registered!” for username and email found in the user database respectively</li> </ol>
Exceptions:	<ol style="list-style-type: none"> <li>1. If any required information is invalid or missing, the field will be highlighted in red and an error message is displayed</li> </ol>
Includes:	
Special Requirements:	The system needs to validate the user input data
Assumptions:	<ol style="list-style-type: none"> <li>1. The User has working email account</li> </ol>
Notes and Issues:	None

Use Case ID:	1.4.1		
Use Case Name:	SearchRoute		
Created By:	Bryan Goh	Last Updated By:	Bryan Goh
Date Created:	30 January 2025	Date Last Updated:	30 January 2025

Actor:	User
Description:	In the Main Page, the User should be able to search for their “FROM” and “TO” addresses, then the system will find a cycling path for them when they click on the “GO” button.
Preconditions:	User is authenticated and logged in and in the Main Page
Postconditions:	User successfully search for their cycling route
Priority:	High

Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account and is navigated to the Main Page.</li> <li>2. The system will display “FROM” and “TO” search bars followed by a map that shows their current location.</li> <li>3. The system will automatically populate the “FROM” search bar with their detected current location.</li> <li>4. User clicks onto the “FROM” search bar.</li> <li>5. The system displays their top 3 most recently searched routes in the drop-down list that users can choose to click for quicker search.</li> <li>6. If the User searches their desired location without clicking onto any recent past routes, the system will prompt the user to enter the “TO” location by shifting the focus onto the “TO” search bar.</li> <li>7. The User enters their destination in the “TO” search bar and clicks onto the “GO” button.</li> <li>8. The system then searches for a cycling route based on the “TO” and “FROM” locations and displays it on the map.</li> </ol>
Alternative Flows:	AF-S6: User clicks onto any of their recent search in the drop-down list <ol style="list-style-type: none"> <li>1. The system automatically populates the “FROM” and “TO” fields and searches for a route.</li> <li>2. The system then displays the route on the map.</li> </ol>
Exceptions:	EX1: User’s location cannot be found <ol style="list-style-type: none"> <li>1. Error message is displayed “Could not find location!”</li> </ol>
Includes:	Map API, NavigateRoute
Special Requirements:	Phone permission for location access is enabled
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.4.2		
Use Case Name:	FilterMap		
Created By:	Bryan Goh	Last Updated By:	Cheryl Chin
Date Created:	30 January 2025	Date Last Updated:	2 February 2025

Actor:	User
Description:	Users can select cycling related facilities such as water coolers, bike parking stops and bike repair shops to only display facilities based on their preferences on the map at any point in time.
Preconditions:	User is authenticated and logged in and navigated to the Main Page
Postconditions:	User successfully filtered for preferred facilities on the map



Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account and is navigated to the Main Page.</li> <li>2. The system will display the map with no filters on the Main Page by default.</li> <li>3. User clicks onto the “Filter” button on the bottom left corner of the map.</li> <li>4. The system will display “Water Coolers”, “Bike Repair”, and “Bike Park” checkboxes.</li> <li>5. If the user checks the “Water Coolers” checkbox and no other checkboxes, then clicks “Confirm”, the map will display ALL water coolers on the map.</li> </ol>
Alternative Flows:	AF-S5: User checks ALL filters available <ol style="list-style-type: none"> <li>1. User checks on the “Water Coolers”, “Bike Repair”, and “Bike Park” checkboxes.</li> <li>2. The map will display ALL water coolers, bike repair shops, and bicycle parks on the map.</li> </ol>
Exceptions:	EX1: If no cycling-related facilities match the selected filters, the system displays a message: “No results found.”
Includes:	Map API
Special Requirements:	Phone permission for location access is enabled
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.4.3		
Use Case Name:	NavigateRoute		
Created By:	Cheryl Chin	Last Updated By:	Cheryl Chin
Date Created:	2/2/25	Date Last Updated:	2/2/25

Actor:	User
Description:	Users are able to press the start button to begin navigating a route, receive real-time turn-by-turn directions, and track key stops such as water coolers, bicycle repair shops and parking spots along their route
Preconditions:	Users must be authenticated and logged in. Location services must be enabled. The device must have GPS functionality with internet connection active.

	Users are navigated to the main page.
Postconditions:	Upon completing the route, the user can see a summary of their activity, which denotes a map of the route they travelled, along with statistics such as their distance travelled, time elapsed, calories burnt, cadence and elevation gain, below the map.
Priority:	High
Frequency of Use:	Multiple times a day (depend on user's activity level and frequency of use)
Flow of Events:	<ol style="list-style-type: none"> <li>1. User presses the "Start" button.</li> <li>2. The system initialises GPS and it starts to track the user's location.</li> <li>3. The map displays the user's current location and navigation route.</li> <li>4. A weather feature that estimates weather conditions along the user's planned route is shown.</li> <li>5. Turn-by-turn navigation instructions will be provided through a bar at the top section of the screen.</li> <li>6. Key stops (water coolers, bicycle repair shops and parking spots) will be indicated on the map with their respective icons). No other icons that are not along the way of the route will be displayed.</li> <li>7. User presses the "End" button upon reaching their destination. The system will notify users of successful route completion via a pop-up and the pop-up should include an "OK" and "Saved Route" buttons.</li> <li>8. The system will bring users to another pop-up page with all their activity statistics.</li> </ol>
Alternative Flows:	AF-S1: If GPS functionality is not available where they are, the system will show an offline error, and prompt the user to enable location services.
Exceptions:	None
Includes:	Key stops (water coolers, bicycle repair shops and parking spots) will be indicated on the map with their respective icons), Map API, CheckWeathers
Special Requirements:	The interface must be user friendly and accessible GPS tracking needs to be accurate and the map needs to be timely updated with new/closed spots.
Assumptions:	Users will only navigate in areas with Internet connectivity and GPS connectivity.
Notes and Issues:	None

Use Case ID:	1.4.4
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Use Case Name:	CheckWeathercs		
Created By:	Ethan	Last Updated By:	Ethan
Date Created:	28/1/25	Date Last Updated:	28/1/25

Actor:	User
Description:	system will display alerts for users when there is inclement weather such as rain or high uv index detected within 3 hours for the desired route to be taken.
Preconditions:	Users have already used NavigateRoute to obtain a path to their destination.
Postconditions:	None
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	<ol style="list-style-type: none"> <li>1. User sets a route by the RoutingFunction.</li> <li>2. If there is a chance of rain or high uv index along the routed path, the system will notify the user of the bad weather and ask if they are willing to proceed with the current path.</li> </ol>
Alternative Flows:	None
Exceptions:	None
Includes:	SearchRoute, NavigateRoute
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.4.3.7.2 / 1.5.6 - 1.5.7 / 1.6.3		
Use Case Name:	SaveUnsaveRoutes		
Created By:	Lim En Jia	Last Updated By:	Lim En Jia
Date Created:	31 January 2025	Date Last Updated:	31 January 2025

Actor:	User
Description:	To save or unsave routes by clicking the “Heart” icon in Profile Page and in Saved Routes Page. Change in “Heart” icon color shows whether the route is saved or not. (i.e. Red color means Saved while Grey color means Not Saved). Saved routes will be reflected in the Saved Routes Page.
Preconditions:	<ol style="list-style-type: none"> <li>1. User is authenticated and logged in.</li> <li>2. User navigates to the Profile Page using the navigation toolbar at the bottom of the pages.</li> </ol>
Postconditions:	Users saved activities.
Priority:	Low
Frequency of Use:	Low

Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. Users navigate to the Profile Page using the navigation toolbar at the bottom of the page.</li> <li>3. Scroll down to view top 3 recent activities, with newest activity displayed at the top.</li> <li>4. Click the “See More” button to view all ride activities.</li> <li>5. Users click the “Heart” buttons to save routes. Users can click the “Heart” button again to unsave activities. <ol style="list-style-type: none"> <li>a. “Heart” will be red in color when saved.</li> <li>b. “Heart” will be grey in color when not saved.</li> </ol> </li> <li>6. Database updated to add or remove selected route to Saved Routes Page.</li> <li>7. System adds or removes the saved route to the Saved Routes Page.</li> </ol>
Alternative Flows:	<p>AF-S2: Unsave Routes from Saved Routes Page</p> <ol style="list-style-type: none"> <li>1. Users navigate to the Saved Routes Page using the navigation toolbar at the bottom of the page.</li> <li>2. Users can click the “Heart” button to unsave the ride. “Heart” button should turn red.</li> <li>3. Route will be removed from the Saved Routes Page.</li> </ol> <p>AF-S2: Save Routes Immediately After Completing an Activity</p> <ol style="list-style-type: none"> <li>1. Upon successful completion of a ride activity, a pop-up: “Save Route?” and the “Heart” button will be displayed to allow the user to save the activity.</li> <li>2. Users can click the “Heart” button to save the ride. “Heart” button should turn red.</li> <li>3. Route will be added to the Saved Routes Page.</li> </ol>
Exceptions:	None
Includes:	None
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.5		
Use Case Name:	ViewCyclingStatistics		
Created By:	Lim En Jia	Last Updated By:	Lim En Jia
Date Created:	28 January 2025	Date Last Updated:	28 January 2025

Actor:	User
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Description:	Users can view the total ride distance, total ride time and total number of rides within every week, month and year.
Preconditions:	<ol style="list-style-type: none"> <li>1. User is authenticated and logged in.</li> <li>2. User navigates to the Profile Page using the navigation toolbar at the bottom of the pages.</li> </ol>
Postconditions:	Users view his/her cycling statistics and ride activities for the specified period of time.
Priority:	Medium
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. Users navigate to the Profile Page using the navigation toolbar at the bottom of the page.</li> <li>3. Cycling statistics and all ride activities for the week (default) are displayed.</li> </ol>
Alternative Flows:	None
Exceptions:	EX1: No statistics available <ol style="list-style-type: none"> <li>1. Empty page with message displayed “Start your first ride today!”</li> </ol>
Includes:	None
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.5.2		
Use Case Name:	ViewPersonalBest		
Created By:	Lim En Jia	Last Updated By:	Lim En Jia
Date Created:	28 January 2025	Date Last Updated:	28 January 2025

Actor:	User
Description:	Users can view their ride achievements for specific distance or speed.
Preconditions:	<ol style="list-style-type: none"> <li>1. User is authenticated and logged in.</li> <li>2. User navigates to the Profile Page using the navigation toolbar at the bottom of the pages.</li> </ol>
Postconditions:	Users view his/her personal best rides.
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. Users navigate to the Profile Page using the navigation toolbar at the bottom of the page.</li> <li>3. User scrolls down to the Personal Best section of the Profile Page.</li> </ol>

	4. Personal best ride activities are displayed according to distance and speed.
Alternative Flows:	None
Exceptions:	EX1: No statistics available 1. Empty page with message displayed “Start your first ride today!”
Includes:	Users’ own cycling statistics.
Special Requirements:	System compares all activities of users to determine personal bests.
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.5.3		
Use Case Name:	ViewRecentActivity		
Created By:	Bryan Goh	Last Updated By:	Lim En Jia
Date Created:	28 January 2025	Date Last Updated:	28 January 2025

Actor:	Registered User
Description:	Users can view their top 3 most recent activities.
Preconditions:	1. User is authenticated and logged in. 2. User navigates to the Profile Page using the navigation toolbar at the bottom of the pages.
Postconditions:	1. Users are able to view the top 3 most recent past ride activities.
Priority:	Low
Frequency of Use:	High
Flow of Events:	1. The User successfully logs into his/her account. 2. Users navigate to the Profile Page using the navigation toolbar at the bottom of the page. 3. Past activities are displayed, with newest activities arranged at the top.
Alternative Flows:	None
Exceptions:	EX1: No statistics available 1. Empty page with message displayed “Start your first ride today!”
Includes:	ViewCyclingStatistics
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.5.4
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Use Case Name:	ViewAllRideHistory		
Created By:	Lim En Jia	Last Updated By:	Lim En Jia
Date Created:	28 January 2025	Date Last Updated:	28 January 2025

Actor:	User
Description:	Users can view all past rides.
Preconditions:	<ol style="list-style-type: none"> <li>1. User is authenticated and logged in.</li> <li>2. User navigates to the Profile Page using the navigation toolbar at the bottom of the pages.</li> </ol>
Postconditions:	<ol style="list-style-type: none"> <li>1. Users view all past ride activities.</li> </ol>
Priority:	Medium
Frequency of Use:	Medium
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. Users navigate to the Profile Page using the navigation toolbar at the bottom of the page.</li> <li>3. Past activities are displayed, with most recent 3 activities arranged at the top of the Profile Page.</li> <li>4. Click the “See More” button below the recent 3 activities to view ALL past ride history.</li> </ol>
Alternative Flows:	AF-S4: No more activities (only 3 activities that are already displayed). <ol style="list-style-type: none"> <li>1. The 3 most recent activities are displayed.</li> </ol>
Exceptions:	EX1: No statistics available <ol style="list-style-type: none"> <li>1. Empty page with message displayed “Start your first ride today!”</li> </ol>
Includes:	None
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.5.5		
Use Case Name:	DeleteRideHistory		
Created By:	Lim En Jia	Last Updated By:	Lim En Jia
Date Created:	28 January 2025	Date Last Updated:	28 January 2025

Actor:	User
Description:	Users can delete past rides.
Preconditions:	<ol style="list-style-type: none"> <li>1. User is authenticated and logged in.</li> <li>2. User navigates to the Profile Page using the navigation toolbar at the bottom of the pages.</li> </ol>
Postconditions:	Users delete certain ride activities.

Priority:	Medium
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. Users navigate to the Profile Page using the navigation toolbar at the bottom of the page.</li> <li>3. Past activities are displayed, with newest activities arranged at the top.</li> <li>4. Users click the “See More” button to view all ride history.</li> <li>5. Users click the ‘Trash Bin’ icon beside activities to delete them.</li> <li>6. Database updated to remove activities from user’s profile.</li> <li>7. The ride history list is updated to remove the deleted activity.</li> </ol>
Alternative Flows:	None
Exceptions:	EX1: No statistics available <ol style="list-style-type: none"> <li>1. Empty page with message displayed “Start your first ride today!”</li> </ol>
Includes:	ViewCyclingStatistics, ViewRecentActivity, ViewAllRideHistory
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

Use Case ID:	1.6.2		
Use Case Name:	StartActivityFromSaved		
Created By:	Bryan Goh	Last Updated By:	Bryan Goh
Date Created:	27/01/2025	Date Last Updated:	27/01/2025

Actor:	User
Description:	Allows an User to start a cycling activity directly from their saved routes by clicking onto the saved route displayed on the Favorites page.
Preconditions:	User is authenticated and logged in.
Postconditions:	User is able to start a saved route.
Priority:	High
Frequency of Use:	High
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. Users navigate to the Save Route Page using the navigation toolbar at the bottom of the page.</li> <li>3. The system lists all saved routes by the User.</li> <li>4. The User clicks onto any of the saved routes.</li> <li>5. The system routes and starts the cycling activity based on the saved “FROM” and “TO” destinations.</li> </ol>



Alternative Flows:	None
Exceptions:	None
Includes:	None
Special Requirements:	None
Assumptions:	The system is able to connect to the database server 100% of the time.
Notes and Issues:	None

Use Case ID:	1.7.2.1		
Use Case Name:	ManageUserAccountSettings		
Created By:	Cheryl	Last Updated By:	Cheryl
Date Created:	11/02/2025	Date Last Updated:	11/02/2025

Actor:	User
Description:	Allows a user to manage their user settings, which includes changing their username, password, email address and profile picture.
Preconditions:	User is authenticated and logged in. User is navigated to the Settings Page.
Postconditions:	The user's profile settings are updated as per their selected modifications.
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User successfully logs into his/her account.</li> <li>2. The system displays the Main page of the system along with a Navigation Bar on the bottom of the screen.</li> <li>3. The User selects "Account Settings" on the Settings Page.</li> <li>4. The system prompts the User to select their desired account settings to change: Change Username, Change Email Address, Change Password, Change Profile Picture.</li> <li>5. The User selects the desired option.</li> <li>6. The system then prompts the user accordingly. <ol style="list-style-type: none"> <li>a. Change Username: The User enters a new username, the system verifies that the username entered is of valid format. If the user enters a username of valid format, the system queries the database to verify that the username is unique, before updating the database.</li> <li>b. Change Email Address:</li> <li>c. Change Password:</li> <li>d. Change Profile Picture:</li> </ol> </li> </ol>

	<ol style="list-style-type: none"> <li>If the input is valid, the system modifies the respective user profile setting.</li> <li>The system displays a success message and returns to the Account Settings page.</li> </ol>
Alternative Flows:	<p>AF-S7: If user enters a username that is not of valid format</p> <ol style="list-style-type: none"> <li>The system returns to step 6 (Change Username)</li> <li>The system highlights the Username entry box in red.</li> <li>The system displays the message “Invalid username format! Please enter a username not containing any symbols except ‘.’ and ‘_!’” under the entry box.</li> </ol> <p>AF-S7: If user enters a non-unique username</p> <ol style="list-style-type: none"> <li>The system returns to step 6 (Change Username)</li> <li>The system highlights the Username entry box in red.</li> <li>The system displays the message “Username in use. Please enter another unique username!” under the entry box.</li> </ol> <p>AF-S7: If user enters a username that is not of valid format</p> <ol style="list-style-type: none"> <li>The system returns to step 6.</li> <li>The system highlights the Email entry box in red.</li> <li>The system displays the message “Invalid username format! Please enter a valid email. For example: user01@gmail.com”.</li> </ol> <p>AF-S7: If user enters a password that is non-compliant with the password policy</p> <ol style="list-style-type: none"> <li>The system returns to step 6.</li> <li>The system highlights the Password entry box in red.</li> <li>The system displays the message “Password entered is not strong enough! Please enter a password that contains at least 1 uppercase letter, 1 lowercase, 1 symbol (!@#%&amp;^*), and at least 8 characters long!” under the entry box.</li> </ol> <p>AF-S7: If user uploads a file of invalid file format</p> <ol style="list-style-type: none"> <li>The system returns to step 6.</li> <li>The system highlights the File Upload entry box in red.</li> <li>The system displays the message “Incorrect file type! Please only upload .jpg, .jpeg, or .png files!” under the entry box.</li> </ol> <p>AF-S7: If user uploads a file of invalid file format</p> <ol style="list-style-type: none"> <li>The system returns to step 6.</li> <li>The system highlights the File Upload entry box in red.</li> <li>The system displays the message “File too large! Please upload a file under 2MB!” under the entry box.</li> </ol>
Exceptions:	<p>EX1: If the system is not able to locate the file in the file path that the User specified</p> <ol style="list-style-type: none"> <li>The system returns to step 6.</li> <li>The system highlights the File Upload entry box in red.</li> </ol>

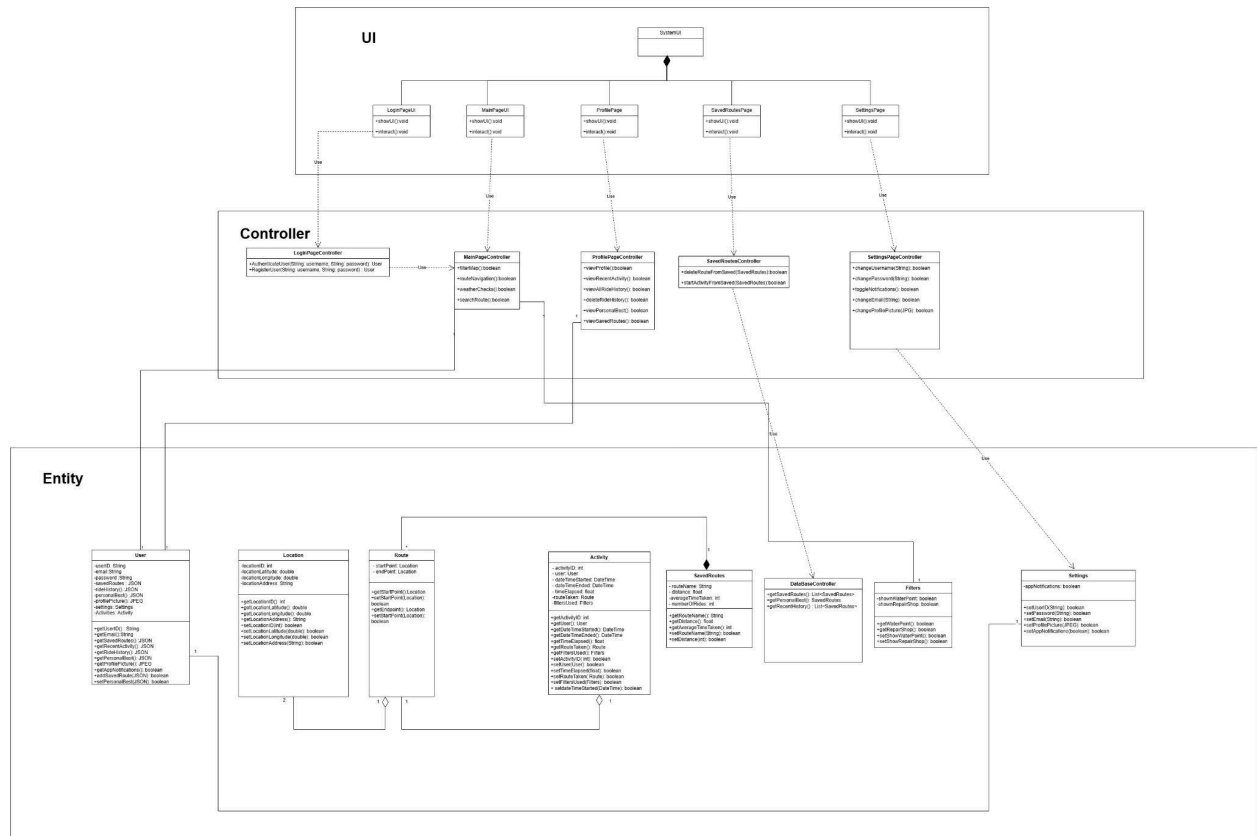
	3. The system displays the message “Could not find <file_path>!”
Includes:	None
Special Requirements:	None
Assumptions:	The system is able to connect to the database server 100% of the time.
Notes and Issues:	None

Use Case ID:	1.9.4.1		
Use Case Name:	ToggleNotification		
Created By:	Bryan Goh	Last Updated By:	Bryan Goh
Date Created:	27/01/2025	Date Last Updated:	27/01/2025

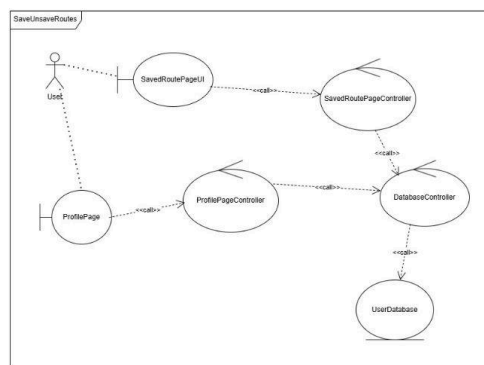
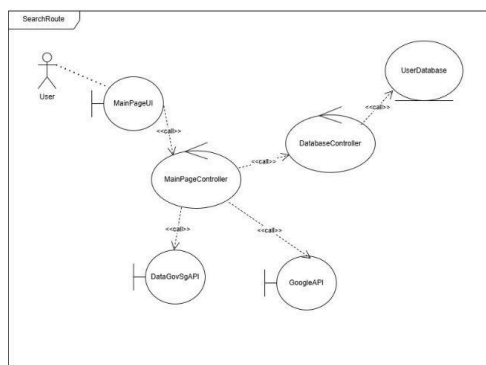
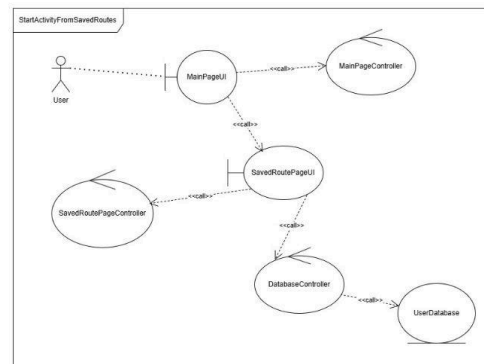
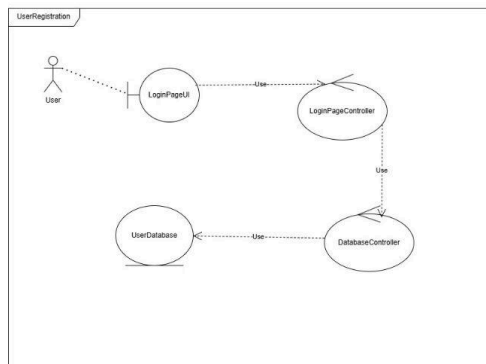
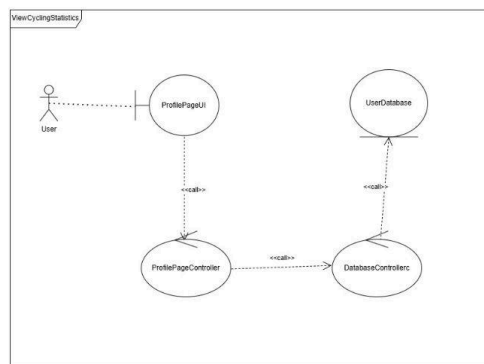
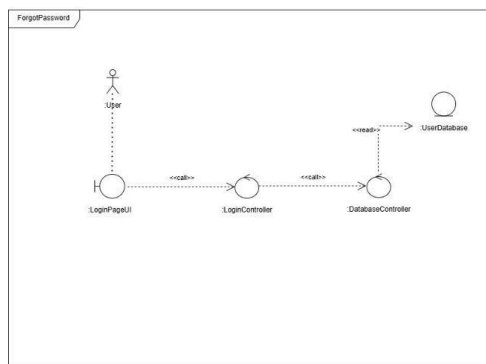
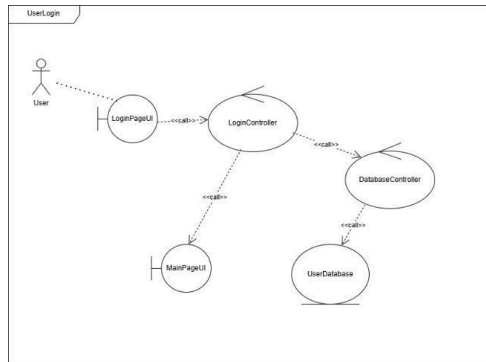
Actor:	User
Description:	Allows an User to change his/her preference to allow the system to push notifications
Preconditions:	User is authenticated and logged in and navigated to the Settings Page
Postconditions:	Notification preference is toggled
Priority:	High
Frequency of Use:	Low
Flow of Events:	<ol style="list-style-type: none"> <li>1. The User clicks on “system Settings” in the Settings Page.</li> <li>2. The system displays a Push Notification toggle switch.</li> <li>3. The User clicks onto the toggle switch</li> <li>4. If the Push Notification toggle switch is switched ON initially, the system will turn OFF notification pushing for the user.</li> </ol>
Alternative Flows:	AF-S3: If the Push Notification toggle switch is switched OFF initially <ol style="list-style-type: none"> <li>1. The system will turn ON notification pushing for the user.</li> </ol>
Exceptions:	None
Includes:	None
Special Requirements:	None
Assumptions:	None
Notes and Issues:	None

# Design Model

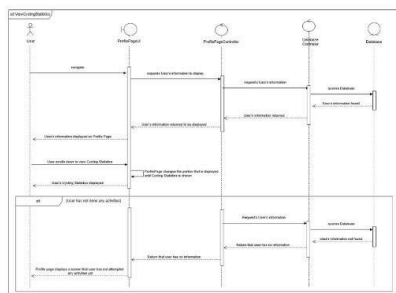
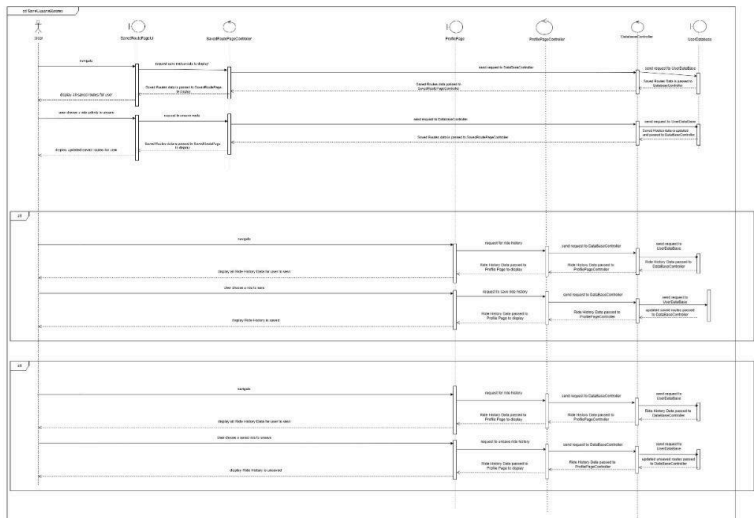
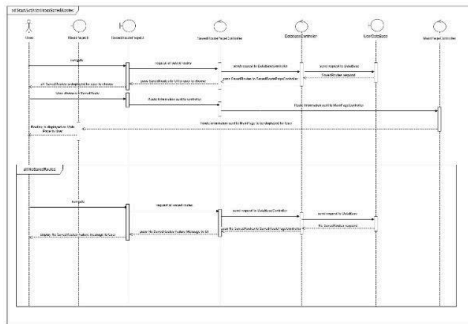
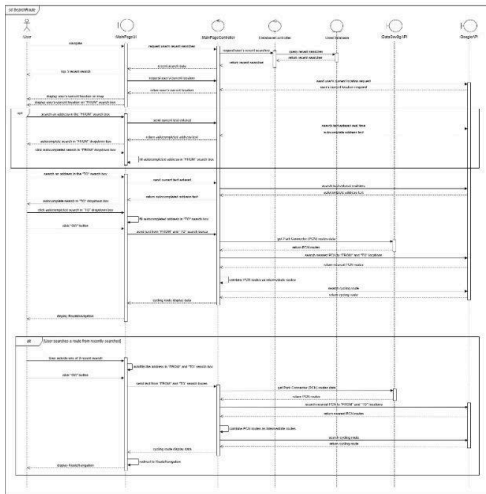
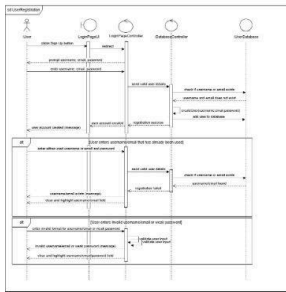
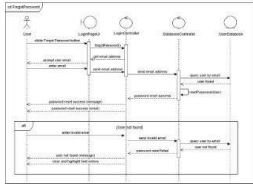
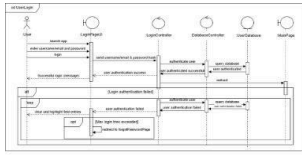
## Class Diagrams



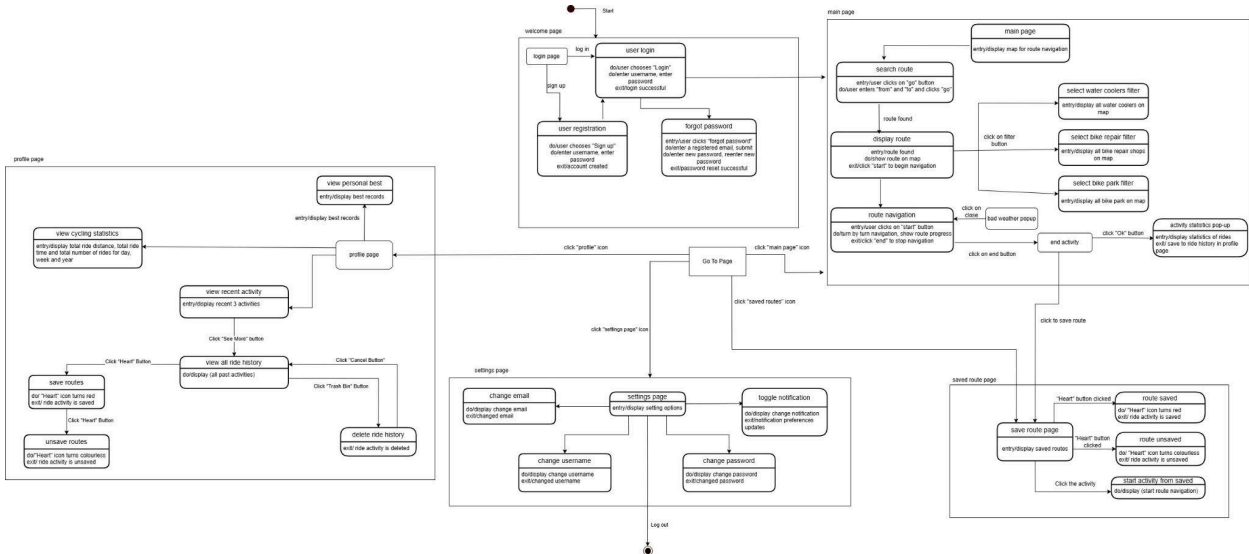
# Key Boundary and Control Classes



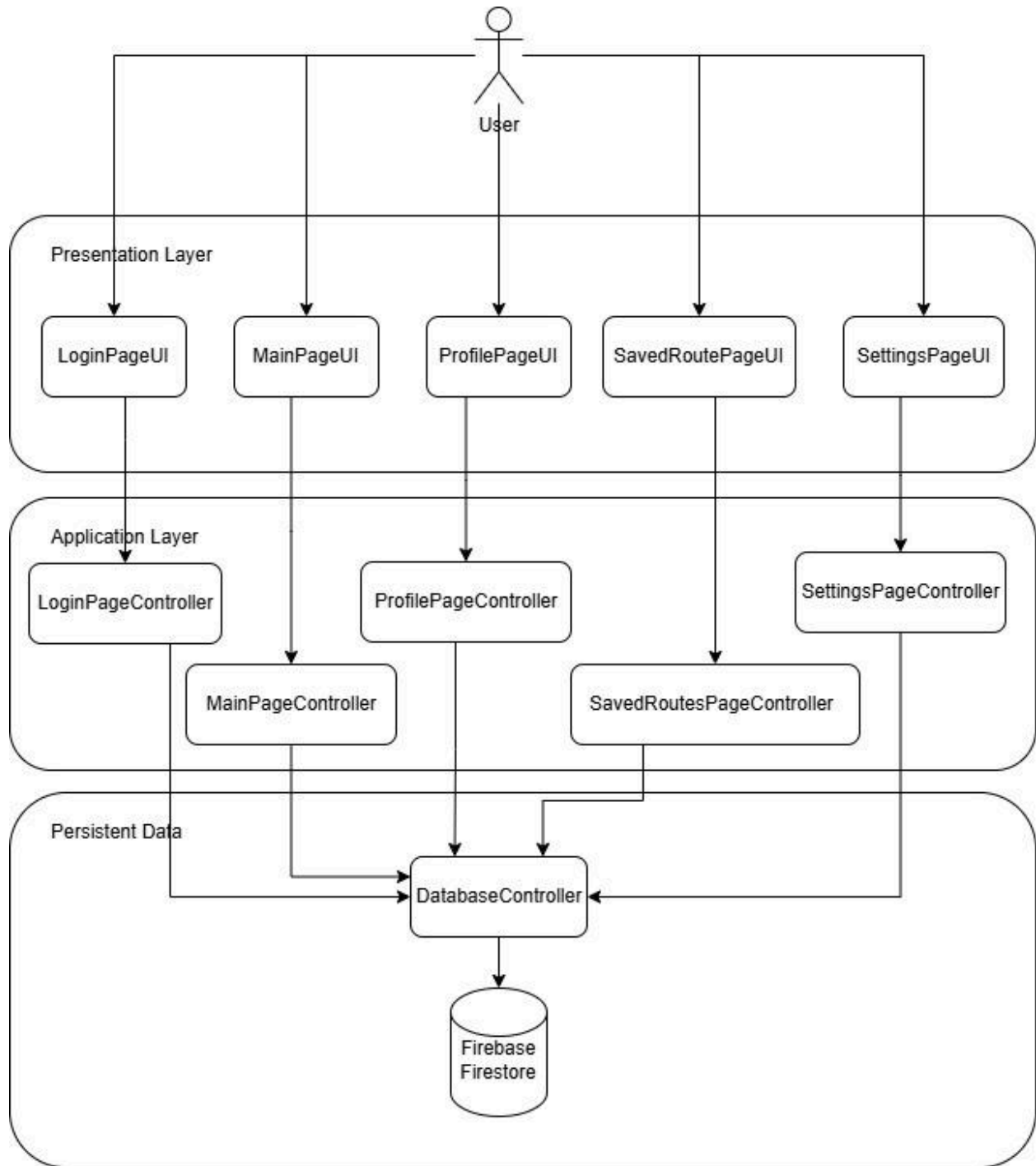
# Sequence Diagrams



# Dialog Map



# System Architecture





# Application Skeleton

**Frontend:** We use React framework to serve the User Interfaces.

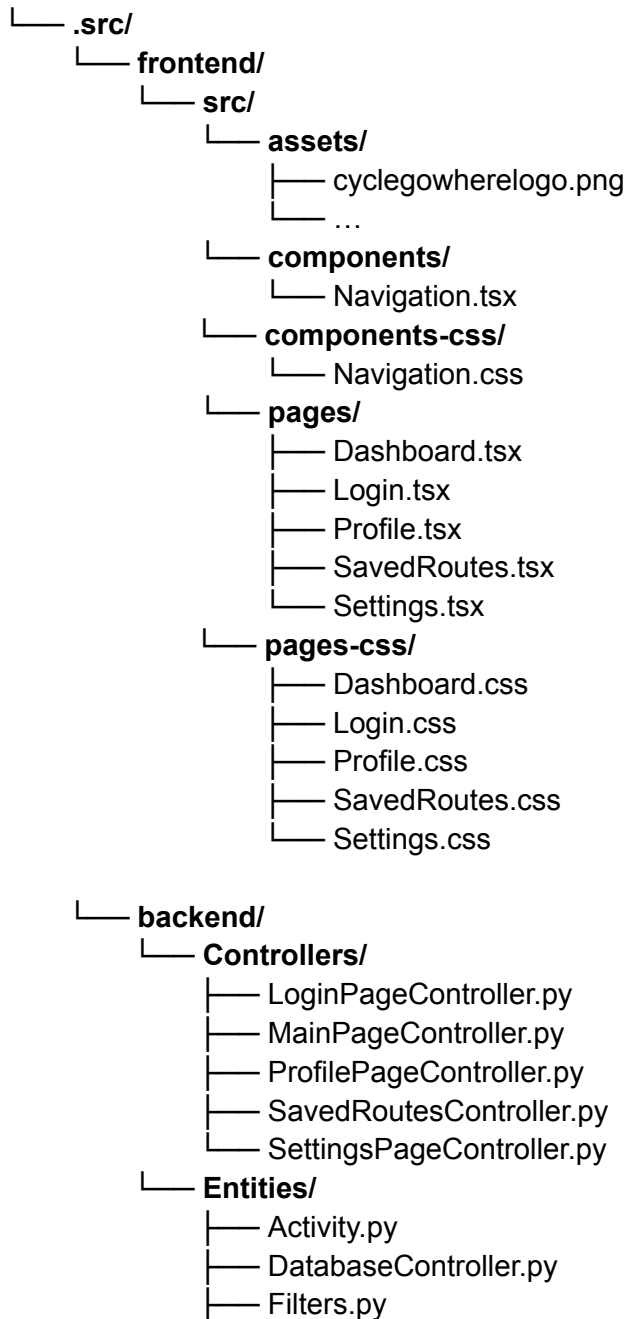
**Backend:** We use Python for application logic and the Flask library for routing.

**Database:** We use Firebase Firestore to store persistent data.

**Authentication:** We use Firebase authentication service to authenticate users.

## Program Structure

2006-SCS-A3/



- Location.py
- Route.py
- SavedRoutes.py
- Settings.py
- User.py

**Link to source codes:** [2006-SCSC-A3/.src at main · softwarelab3/2006-SCSC-A3](#)