Software Engineering

Lab 3 (ParkingSlot)

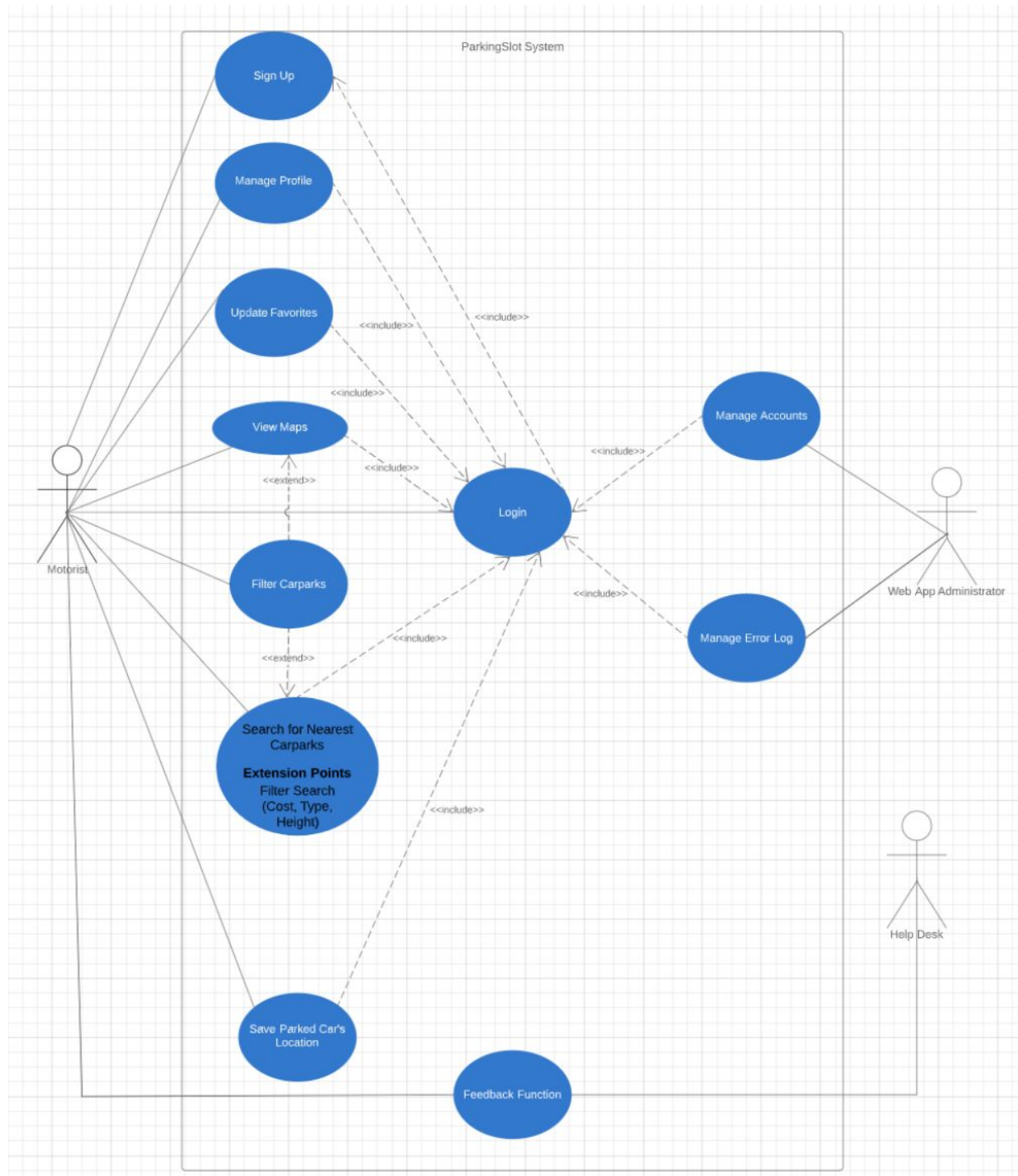Submitted by:

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Use Case Diagram

ParkingSlot System

Sign Up

Manage Profile

Update Favorites

View Maps

Filter Carparks

Search for Nearest Carparks

Extension Points
Filter Search (Cost, Type, Height)

Save Parked Car's Location

Feedback Function

Login

Manage Accounts

Manage Error Log

Motorist

Web App Administrator

Help Desk

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Use Case Description

Use Case ID:	001		
Use Case Name:	**Sign Up**		
Created By:	Chun Foong	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	22/10/2019

Actor:	Motorist
Description:	Motorist registers account
Preconditions:	Motorist does not have the account
Postconditions:	Motorist successfully creates account
Priority:	High
Frequency of Use:	Motorist will only do this once
Flow of Events:	1. Motorist key in Username, Email, Password, Phone Number 2. System verifies Motorist details 3. If valid, Motorist able to proceed to use the application
Alternative Flows:	Motorist application invalid if email address, username and phone number is taken: The application will be rejected
Exceptions:	N. A
Includes:	N. A
Special Requirements:	N. A
Assumptions:	N. A
Notes and Issues:	N. A

Use Case ID:	002		
Use Case Name:	**Manage Profile**		
Created By:	Jia Wei	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	12/9/2019

Actor:	Motorist
Description:	Motorist is able to update their information or delete their account
Preconditions:	Motorist have logged in the application
Postconditions:	Motorist have updated their information or deleted their account
Priority:	Medium
Frequency of Use:	Motorist will use this when they wish to change their profile settings

Flow of Events:	1. Motorist logged into the application
	2. Click on Manage profile
	3. Once Motorist is in the Manage profile:
	    3.1. Motorist able to update their information
	    3.2. Motorist able to delete their account

Alternative Flows:	N.A.
Exceptions:	N.A
Includes:	Logged into the application
Special Requirements:	N. A
Assumptions:	N. A
Notes and Issues:	N. A

Use Case ID:	003		
Use Case Name:	**Update Favorites**		
Created By:	Andrew	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	12/9/2019

Actor:	Motorist
Description:	User can add or delete a carpark on his favorites' list
Preconditions:	1. The motorist must be logged in to the application
Postconditions:	1. The motorist must be able to save or delete his desired carpark into his favorites
Priority:	Medium
Frequency of Use:	Often
Flow of Events:	1. The motorist logs into the application 2. The motorist clicks on 'Update Favorites' 3. The motorist chooses to add carpark or delete carpark by entering Carpark ID or Carpark Address
Alternative Flows:	If the carpark ID or carpark address is not found, display a message "Please find another carpark. ID or Address is unable to be saved into favorites."
Exceptions:	N.A.
Includes:	Login
Special Requirements:	N.A.
Assumptions:	N.A.
Notes and Issues:	N.A.

Use Case ID:	004		
Use Case Name:	**Login**		
Created By:	Sabrina	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	12/9/2019

Actor:	Motorist
Description:	Motorist logs into the application
Preconditions:	Motorist must have signed up for an account
Postconditions:	Motorist stays logged in the application
Priority:	High
Frequency of Use:	Whenever motorist wants to use the application, he has to login
Flow of Events:	1. Motorist signs up for an account 2. Motorist enters username 3. Motorist enters password 4. Motorist successfully logs in
Alternative Flows:	If the motorist enters wrong username or password, display message "Wrong username/password entered."
Exceptions:	If the motorist enters wrong username or password 5 or more times in a row, display message "Account is locked out for an hour. Please try again later."
Includes:	Sign Up
Special Requirements:	N. A
Assumptions:	N.A.
Notes and Issues:	N. A

Use Case ID:	005		
Use Case Name:	**Search For Nearest Carparks**		
Created By:	Jun Le	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	12/9/2019

Actor:	Motorist
Description:	The motorist searches for the nearest carparks, and a list of up to 10 nearest carparks is returned
Preconditions:	1. The motorist have logged into the application 2. The motorist have switched on GPS on his phone 3. The motorist must enter his vehicle type 4. The motorist must enter his intended parking duration
Postconditions:	1. The motorist receives a list of up to 10 nearest carparks on his phone or 2. The motorist receives a message that no carparks are found within the parameter
Priority:	High
Frequency of Use:	Often
Flow of Events:	1. The motorist login into the application 2. The motorist enters his vehicle type and parking duration 3. The motorist can choose his filter options by Carpark Rates, Carpark Type, Carpark Height 4. The motorist can choose to use current location or manually select location 5. The motorist presses "Search For Nearest Carparks" button 6. The motorist views a list of up to 10 nearest carparks within motorist's parameters
Alternative Flows:	If the motorist's filter options are invalid The system displays the message "No carparks found. Please refine your filter options."
Exceptions:	N. A
Includes:	Login
Special Requirements:	N. A

Assumptions:	N. A
Notes and Issues:	N. A

Use Case ID:	006		
Use Case Name:	**Filter Carparks**		
Created By:	Emmi	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	22/10/2019

Actor:	Motorist
Description:	The motorist filters his search by parameters like Carpark Cost, Destination Location, Available Carparks, Agency Type
Preconditions:	The motorist needs to be logged in
Postconditions:	The motorist must be able to make a search with the carpark height parameters specified
Priority:	High
Frequency of Use:	Often
Flow of Events:	1. The motorist logs into the application 2. The motorist enters his vehicle type and parking duration 3. The motorist can choose his filter options by Carpark Cost, Destination Location, Available Carparks, Agency Type 4. The motorist makes a search 5. The motorist must be able to view the results with the specified parking parameters applied
Alternative Flows:	If there are no results found: The system displays the message "No carparks found. Please refine your filter options."
Exceptions:	N. A
Includes:	N. A

Special Requirements:	N. A
Assumptions:	N. A
Notes and Issues:	N. A

Use Case ID:	007		
Use Case Name:	**Save Parked Car's Location**		
Created By:	Jun Le	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	12/9/2019

Actor:	Motorist
Description:	The motorist saves his parked car's location as a reminder for himself
Preconditions:	The motorist must be logged in to the application
Postconditions:	The motorist must be able to successfully save his parked car's location
Priority:	Medium
Frequency of Use:	The motorist could choose to use this after he parks his car
Flow of Events:	1. The motorist logs into the application 2. The motorist saves his parked car's location
Alternative Flows:	N. A
Exceptions:	N. A
Includes:	Login
Special Requirements:	N. A
Assumptions:	N. A
Notes and Issues:	

Use Case ID:	008		
Use Case Name:	**Feedback Function**		
Created By:	Chun Foong	Last Updated By:	Jun Le
Date Created:	21/8/2019	Date Last Updated:	22/10/2019

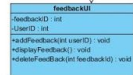| Actor:	Motorist, Help Desk
Description:	Motorist can provide feedback when they face any problems.
Preconditions:	NA
Postconditions:	Motorist must be able to reach the help desk for feedback
Priority:	Low
Frequency of Use:	NA
Flow of Events:	1. Motorist face problems 2. Motorist provides feedback to the helpdesk 3. Motorist check the feedback status added by the administrator
Alternative Flows:	NA
Exceptions:	NA
Includes:	NA
Special Requirements:	NA
Assumptions:	N.A.
Notes and Issues:	NA

Use Case ID:	009		
Use Case Name:	**Manage Accounts**		
Created By:	Jia Wei	Last Updated By:	Jun Le
Date Created:	1/9/2019	Date Last Updated:	12/9/2019

Actor:	Web App Administrator
Description:	The administrator can create, retrieve, update and delete user/admin accounts
Preconditions:	The web app administrator must be logged in
Postconditions:	Administrator must be able to successfully create, retrieve update and delete user/admin accounts
Priority:	High
Frequency of Use:	Low
Flow of Events:	1. The web app administrator logs into the application 2. The web app administrator chooses to create, retrieve, update and delete user/admin accounts
Alternative Flows:	NA
Exceptions:	NA
Includes:	Login
Special Requirements:	NA
Assumptions:	N.A.
Notes and Issues:	NA

Use Case ID:	010		
Use Case Name:	**Manage Error Log**		
Created By:	Andrew	Last Updated By:	Jun Le
Date Created:	1/9/2019	Date Last Updated:	12/9/2019

Actor:	Web App Administrator
Description:	The administrator can view or delete the errors in the log
Preconditions:	The web app administrator must be logged in
Postconditions:	Administrator must be able to successfully view or delete the errors in the log
Priority:	High
Frequency of Use:	High
Flow of Events:	1. The web app administrator logs into the application 2. The web app administrator views the error log 3. The web app administrator works on debugging the errors 4. The web app administrator deletes the errors after he has solved the errors
Alternative Flows:	NA
Exceptions:	NA
Includes:	Login
Special Requirements:	NA
Assumptions:	N.A.
Notes and Issues:	NA

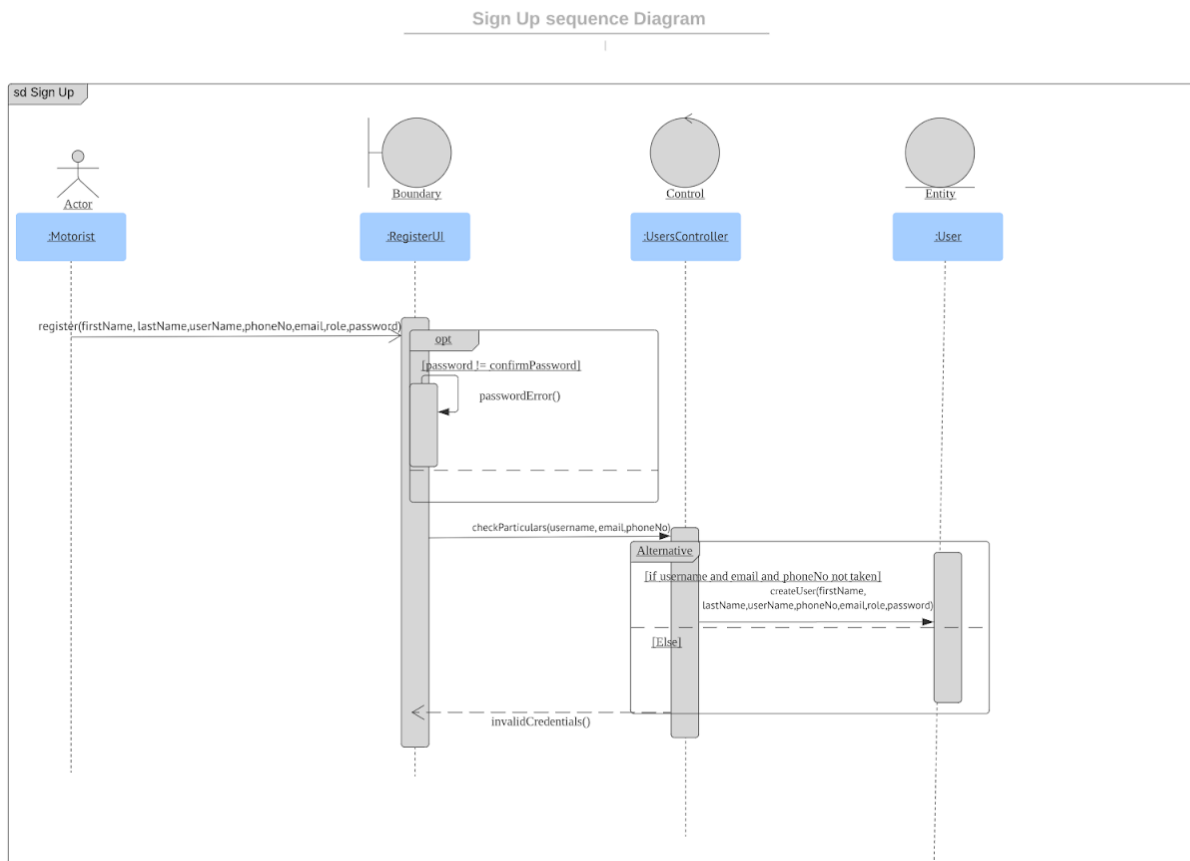| Use Case ID:	011		
Use Case Name:	**View Maps**		
Created By:	Jun Le	Last Updated By:	Jun Le
Date Created:	22/10/2019	Date Last Updated:	22/10/2019

Actor:	User
Description:	The user can view the nearest carparks on his maps
Preconditions:	The user must be logged in
Postconditions:	
Priority:	High
Frequency of Use:	High
Flow of Events:	1. The user clicks on the Map button on the navigation bar 2. The user can view the nearest carparks around him. 3. The user can choose to filter carparks to be displayed on the maps based on Carpark Cost, Destination Location, Available Carparks, Agency Type 4. The user can check the directions to his desired carpark or view the carpark cost.
Alternative Flows:	NA
Exceptions:	NA
Includes:	Login
Special Requirements:	NA
Assumptions:	N.A.
Notes and Issues:	NA

Complete Class Diagram
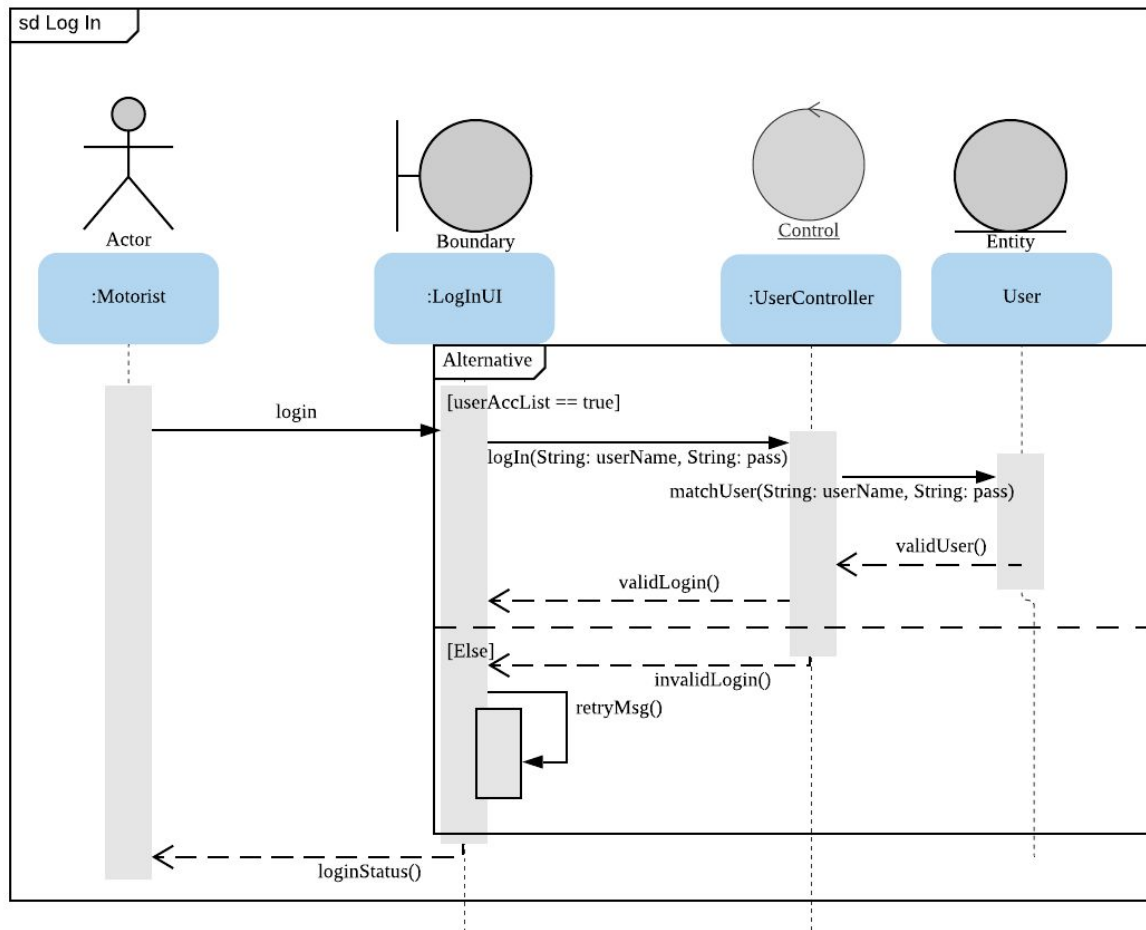
Sequence Diagram

1. Sign up
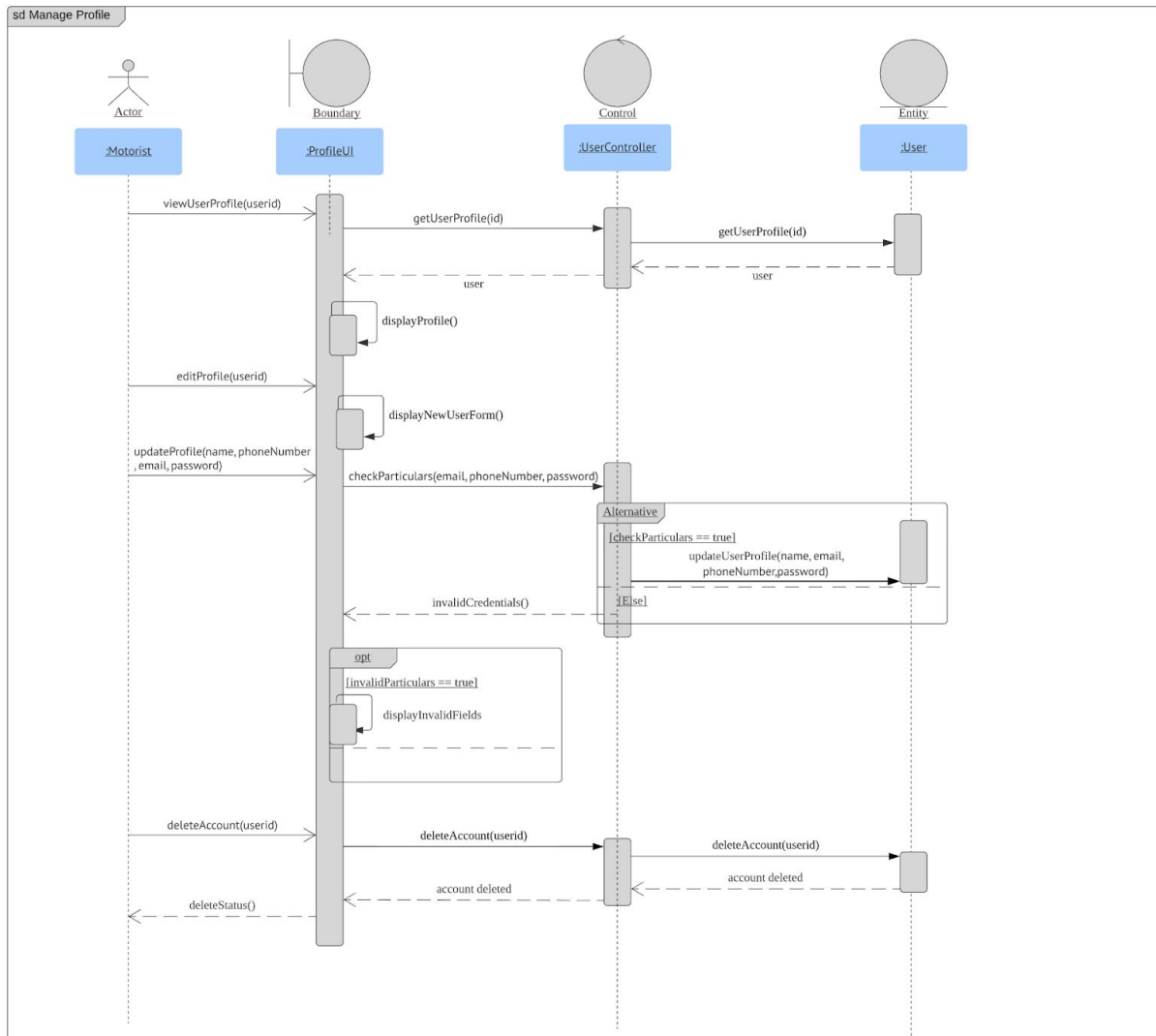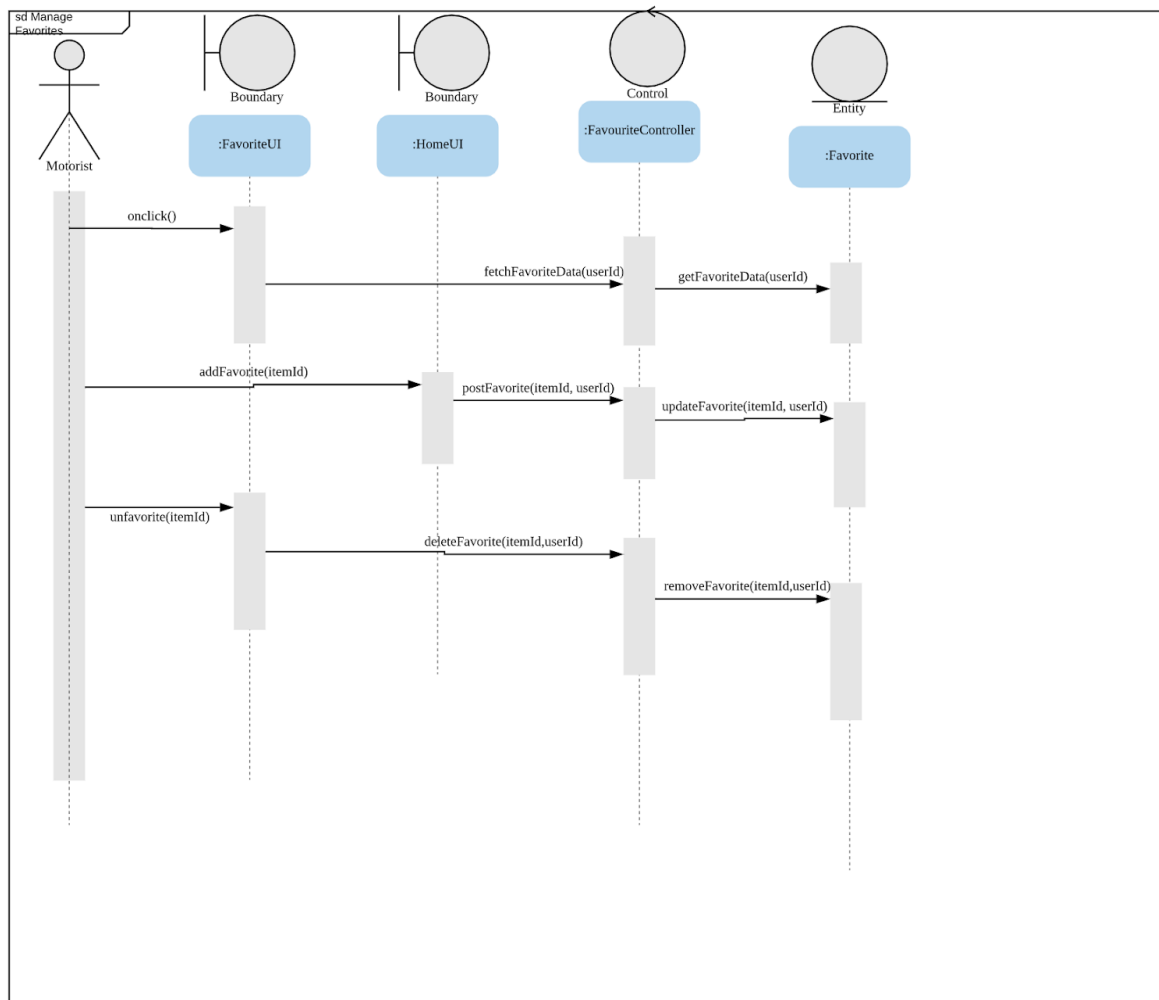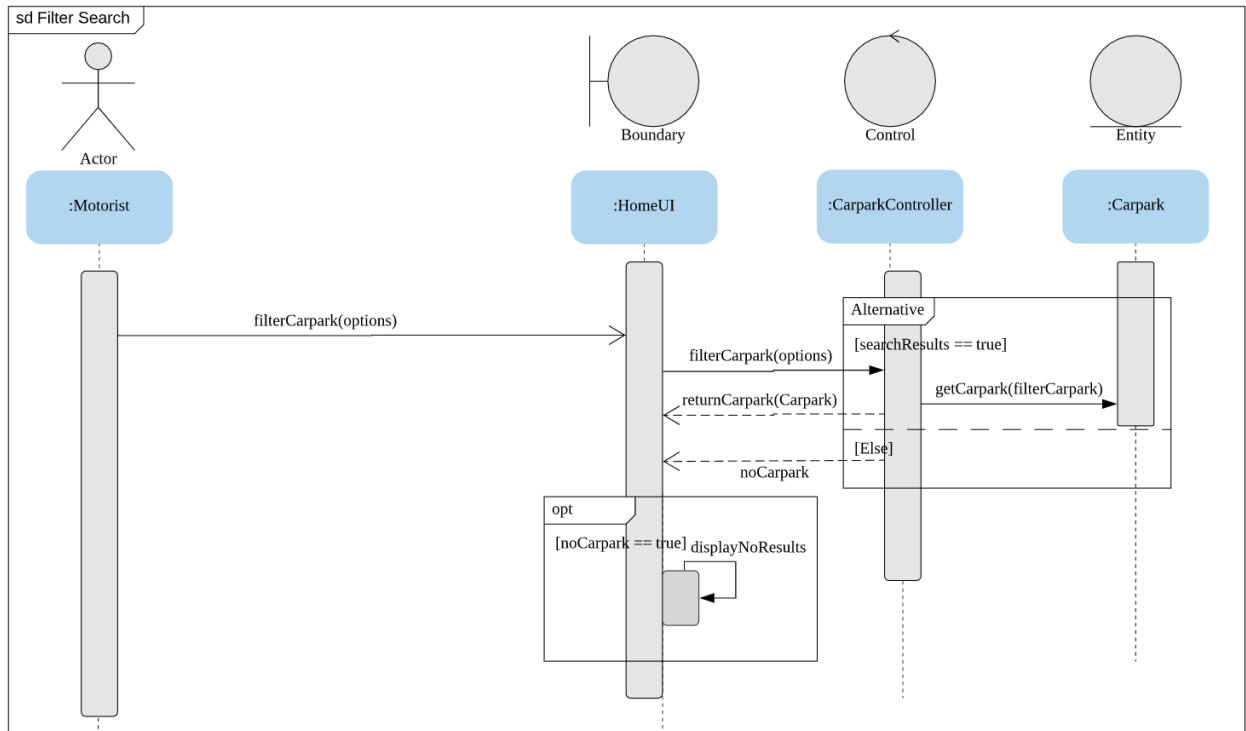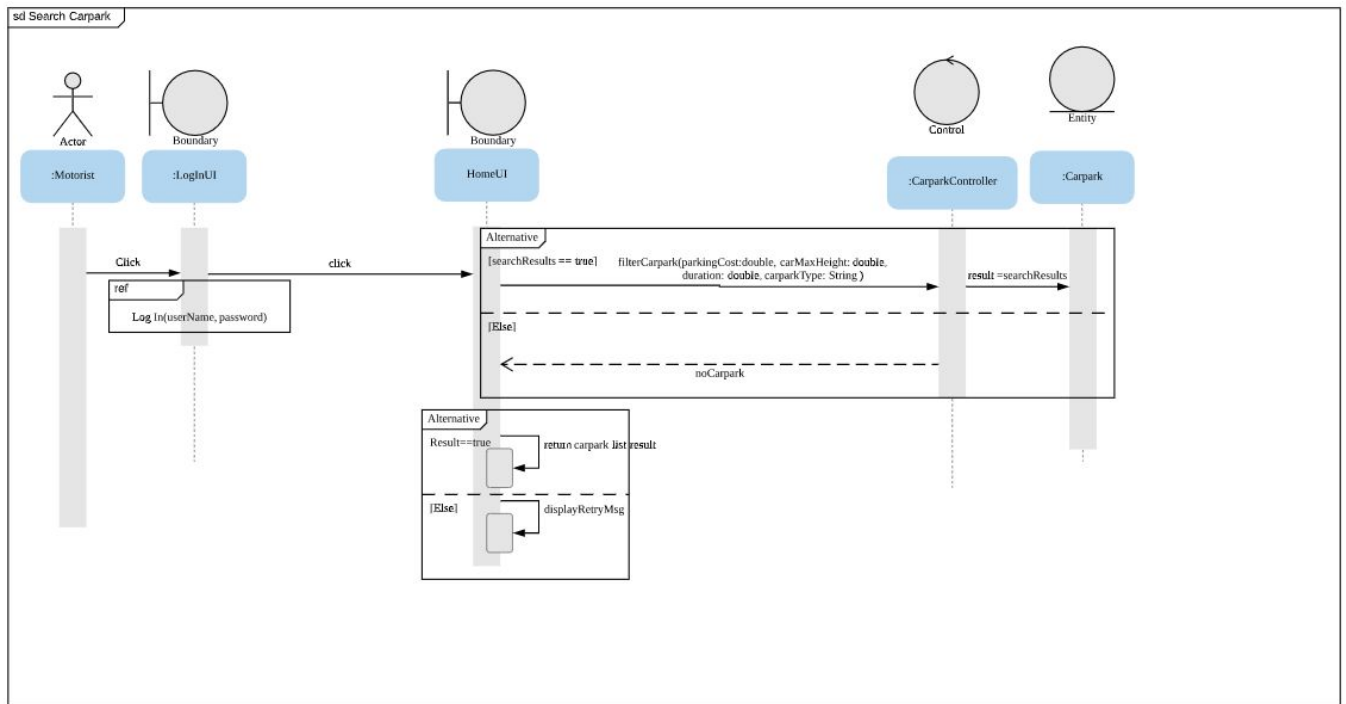
2. Login

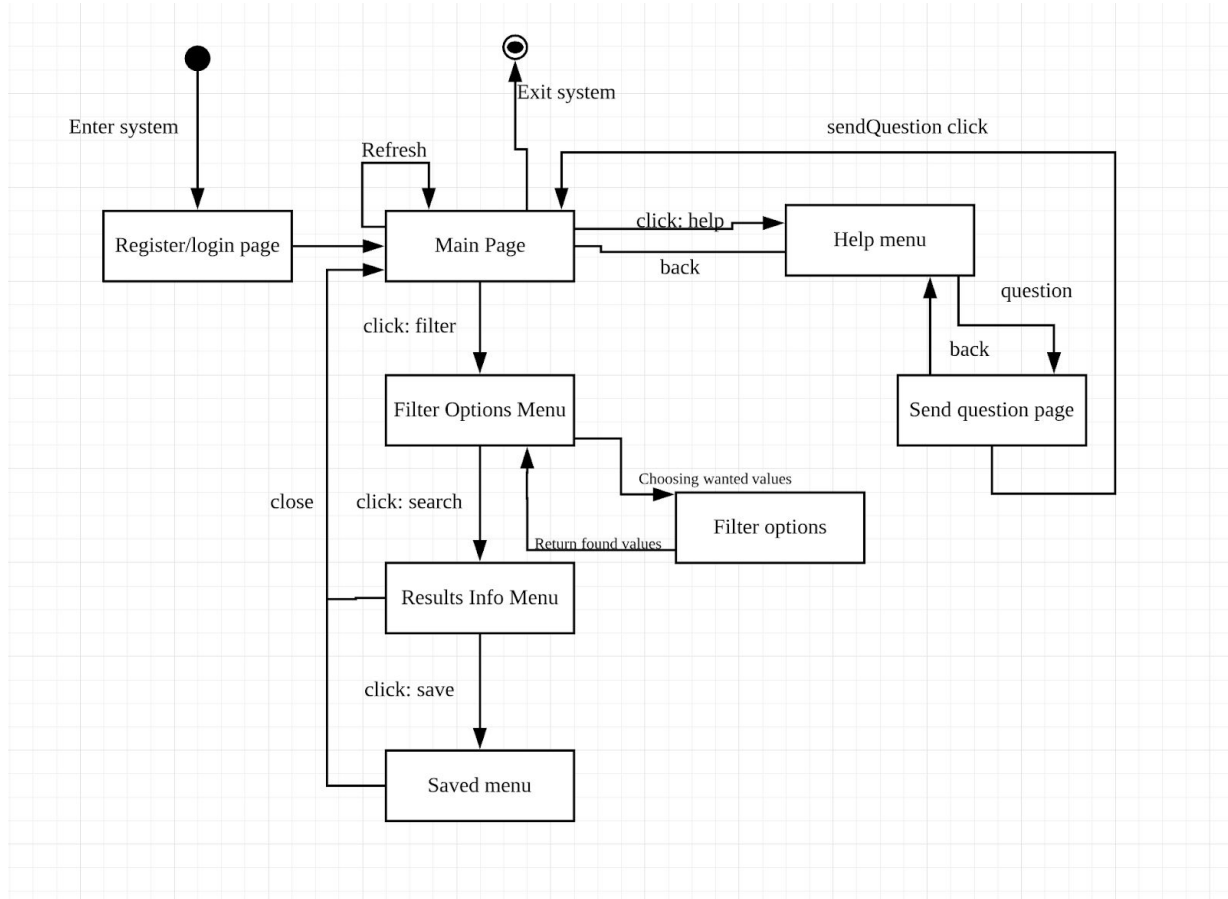## 3. Manage Profile

4. Update Favourites

5. Filter Search

6. Search Carpark

Initial Dialog map

Application Architecture