

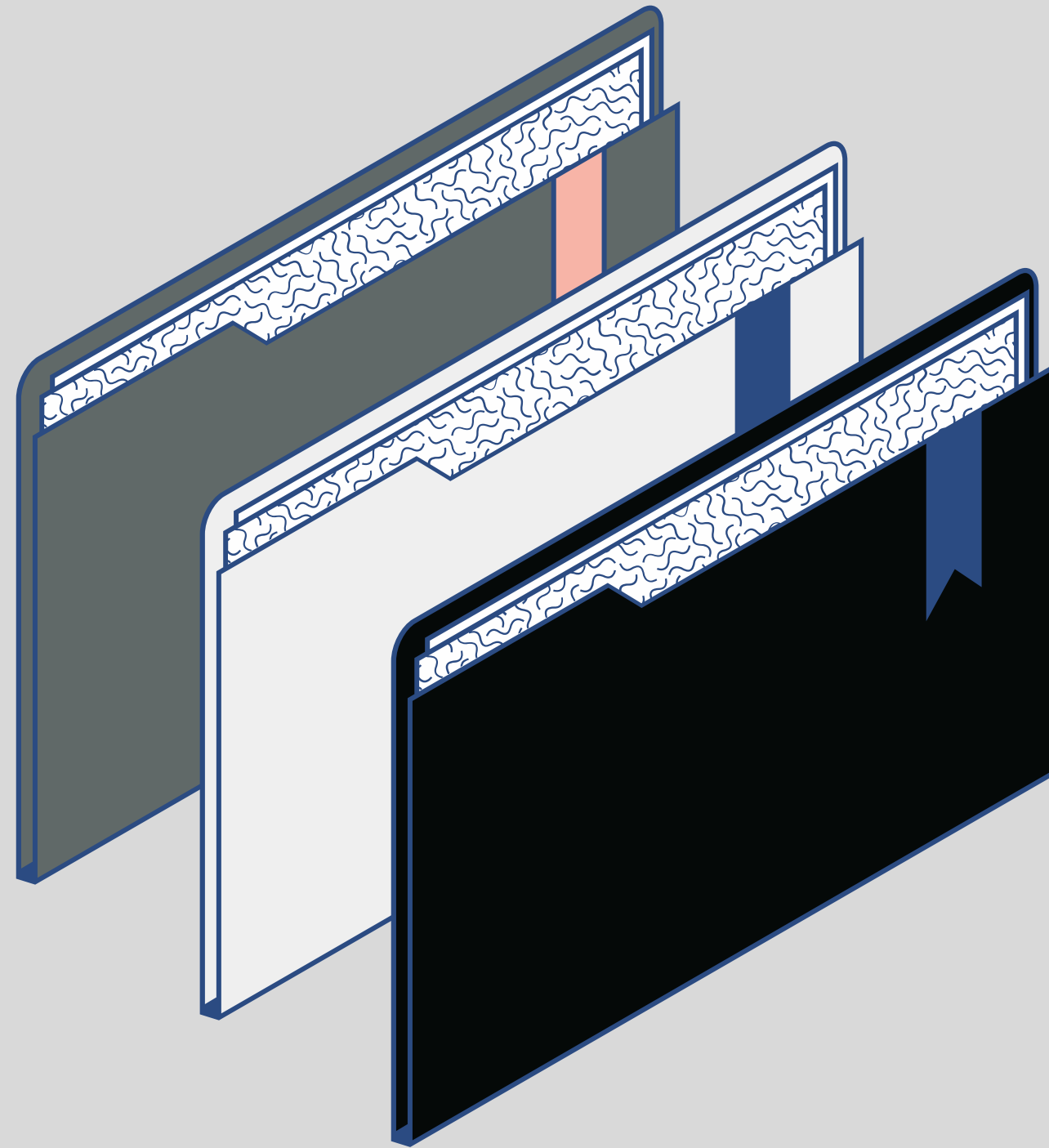


A QUICK DEMO

# Vehicle Tracker

M00826933





# Agenda

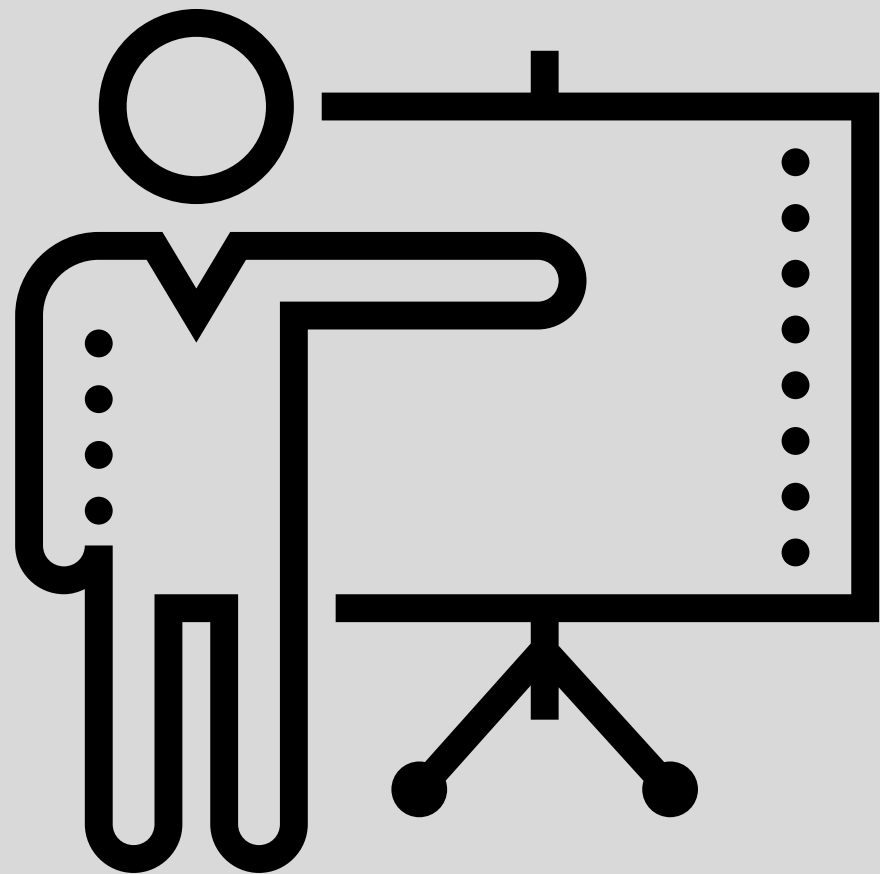
KEY TOPICS DISCUSSED  
IN THIS DEMO

- Introduction
- Design
- Implementation
- Testing
- Software Demonstration
- Conclusion

# Introduction

**Vehicle Tracker allows the users to manage the information of any available vehicles: car, motorcycle, and van.**

**All vehicles have some generic information and will have some specific details with respect to their types.**

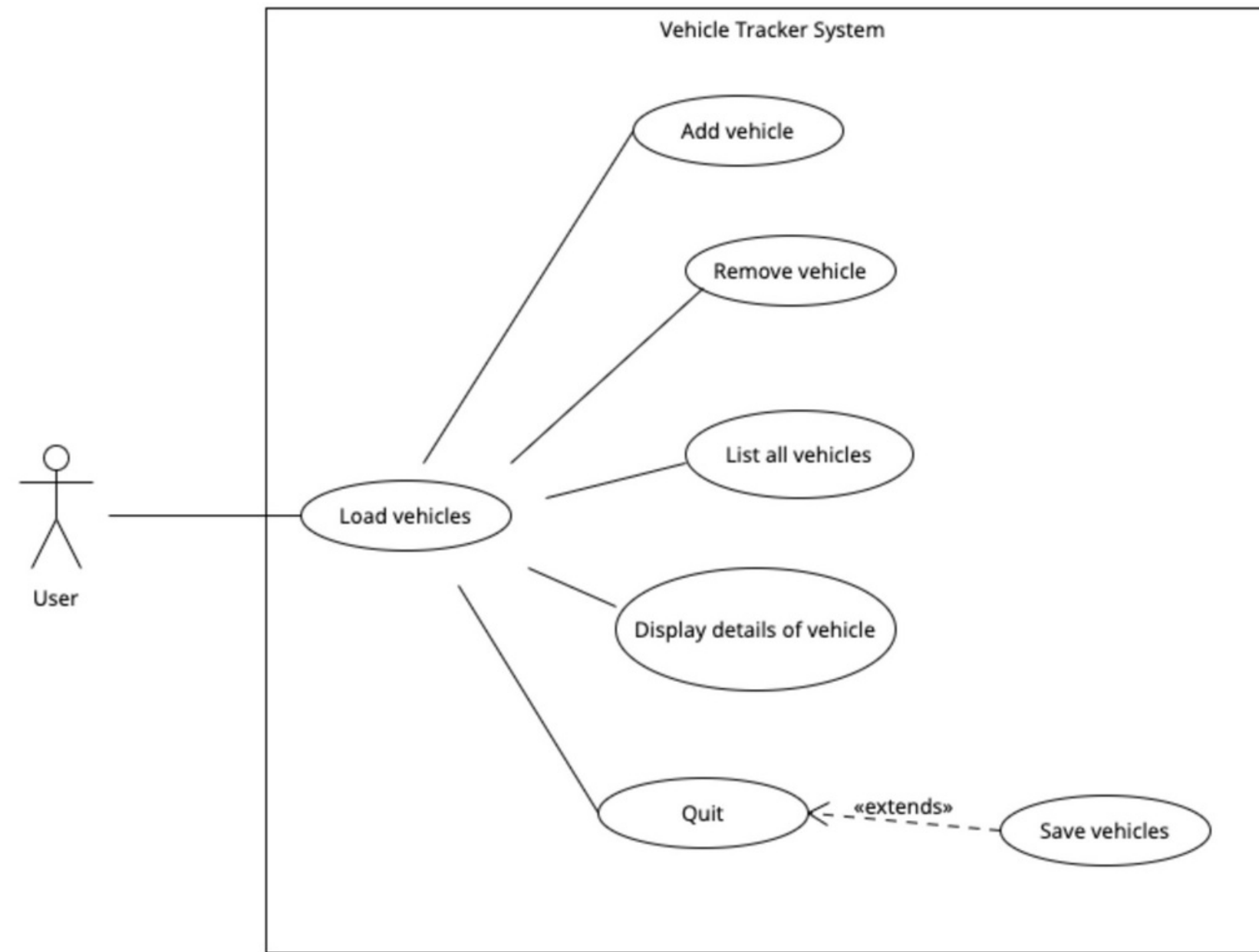


**The main functionality of the system includes:**

- 1. Load vehicles from file**
- 2. Save vehicle from file**
- 3. Add vehicle**
- 4. Remove vehicle**
- 5. List all vehicles with only some specific details**

# Design

## Use case Diagram



## Use case: Load vehicles

**ID:** 1

**Brief Description:** Loading the vehicles from the selected file

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User inputs the mandatory number of arguments.
2. User inputs a valid file present in the current directory .

**Main flow:**

1. System counts the number of vehicle in the file.
2. System iterates through the different vehicles and assigns to its respective object.

**Postconditions:**

1. System loads the main menu with the available options.

**Alternate flows:** None

## Use case: Add vehicle

**ID:** 2

**Brief Description:** Add a vehicles in the system

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User has loaded the vehicles from the selected valid file.
2. User selected the add vehicle option.

**Main flow:**

1. User inputs the type of the vehicle to add.
2. User inputs the general and specific type details in the system.
3. User confirms the add vehicle details.

**Postconditions:**

1. System updates the current database with the new vehicles.

**Alternate flows:** None

## Use case: Remove vehicle

**ID:** 3

**Brief Description:** Remove a vehicles in the system

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User has loaded the vehicles from the selected valid file.
2. User selected the remove vehicle option.

**Main flow:**

1. User inputs the registration number of the vehicle to be removed.
2. System checks with the current database if the vehicle exists.
3. User confirms the remove vehicle details.

**Postconditions:**

1. System updates the current database with the new vehicles.

**Alternate flows:** None

## Use case: List all vehicle

**ID:**4

**Brief Description:** List all vehicles in the system

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User has loaded the vehicles from the selected valid file.
2. User selected the list all vehicle option.

**Main flow:**

1. System checks for any add or removed vehicles.
2. System displays only make, model, reg number and availability of all vehicles in a tabular format.

**Postconditions:** None

**Alternate flows:** None



## Use case: Display details vehicle

**ID:** 5

**Brief Description:** Display all details of a selected vehicles in the system

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User has loaded the vehicles from the selected valid file.
2. User selected the display all details of vehicle option.

**Main flow:**

1. User inputs the registration number of the vehicle to be displayed.
2. System checks with the current database if the vehicle exists.
3. System displays all details of the selected vehicles .

**Postconditions:** None

**Alternate flows:** None

## Use case: Quit

**ID:**6

**Brief Description:** Quit the system

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User has loaded the vehicles from the selected valid file.
2. User selected the quit option.

**Main flow:**

1. System ask the confirmation to save the updated database to the file. Jump to use case id 7.

**Postconditions:**

1. The system exits.

**Alternate flows:** None

## Use case: Save vehicles

**ID:**7

**Brief Description:** Save the vehicles to the file.

**Primary Actor:** User

**Secondary Actor:** None

**Preconditions:**

1. User has loaded the vehicles from the selected valid file.
2. User selected the quit option.
3. System ask user confirmation to save the updated database to the file.

**Main flow:**

1. System overwrite the existing file with the new database.

**Postconditions:**

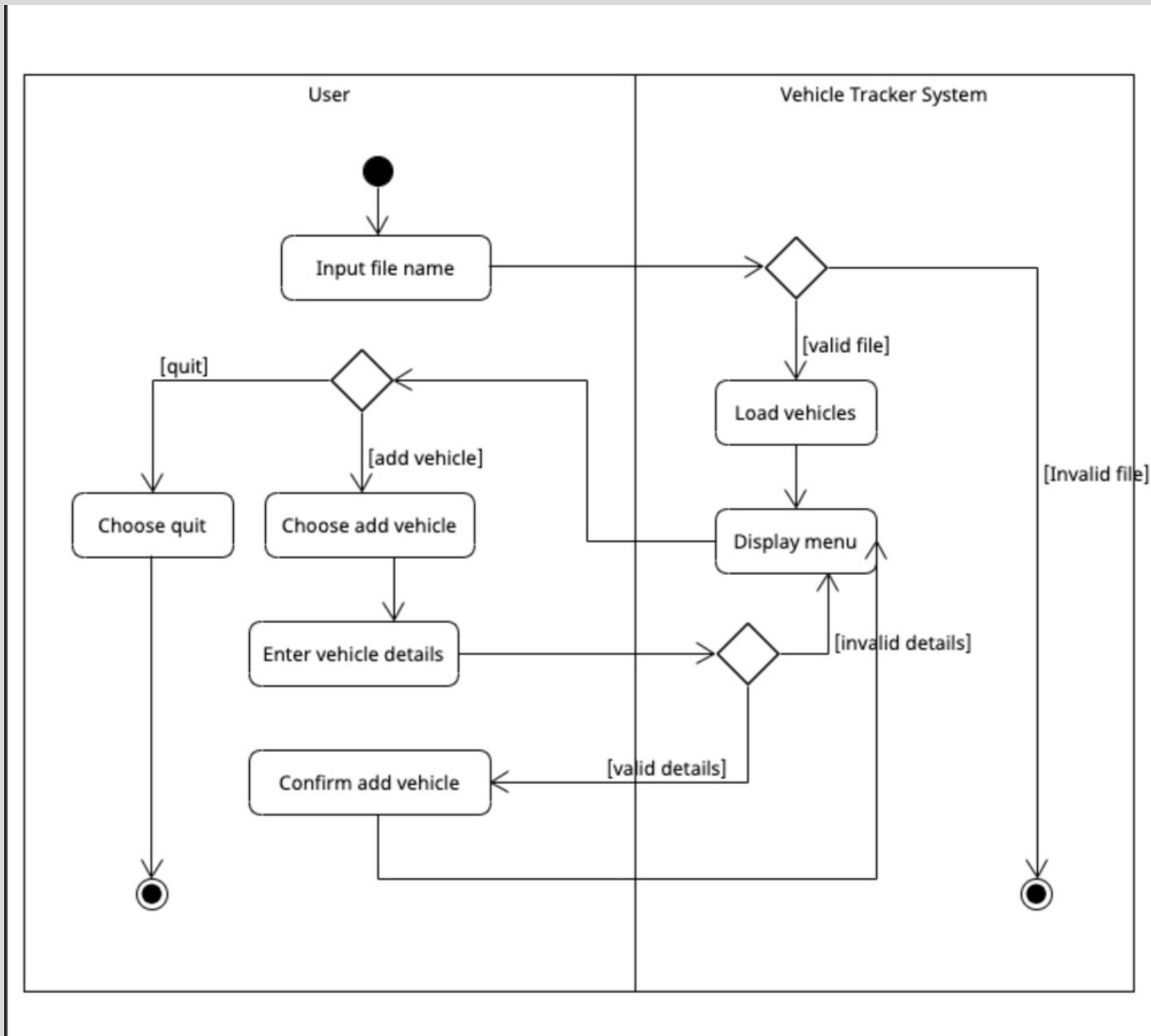
1. The system exits.

**Alternate flows:**

1. The system quits without saving the updated details.

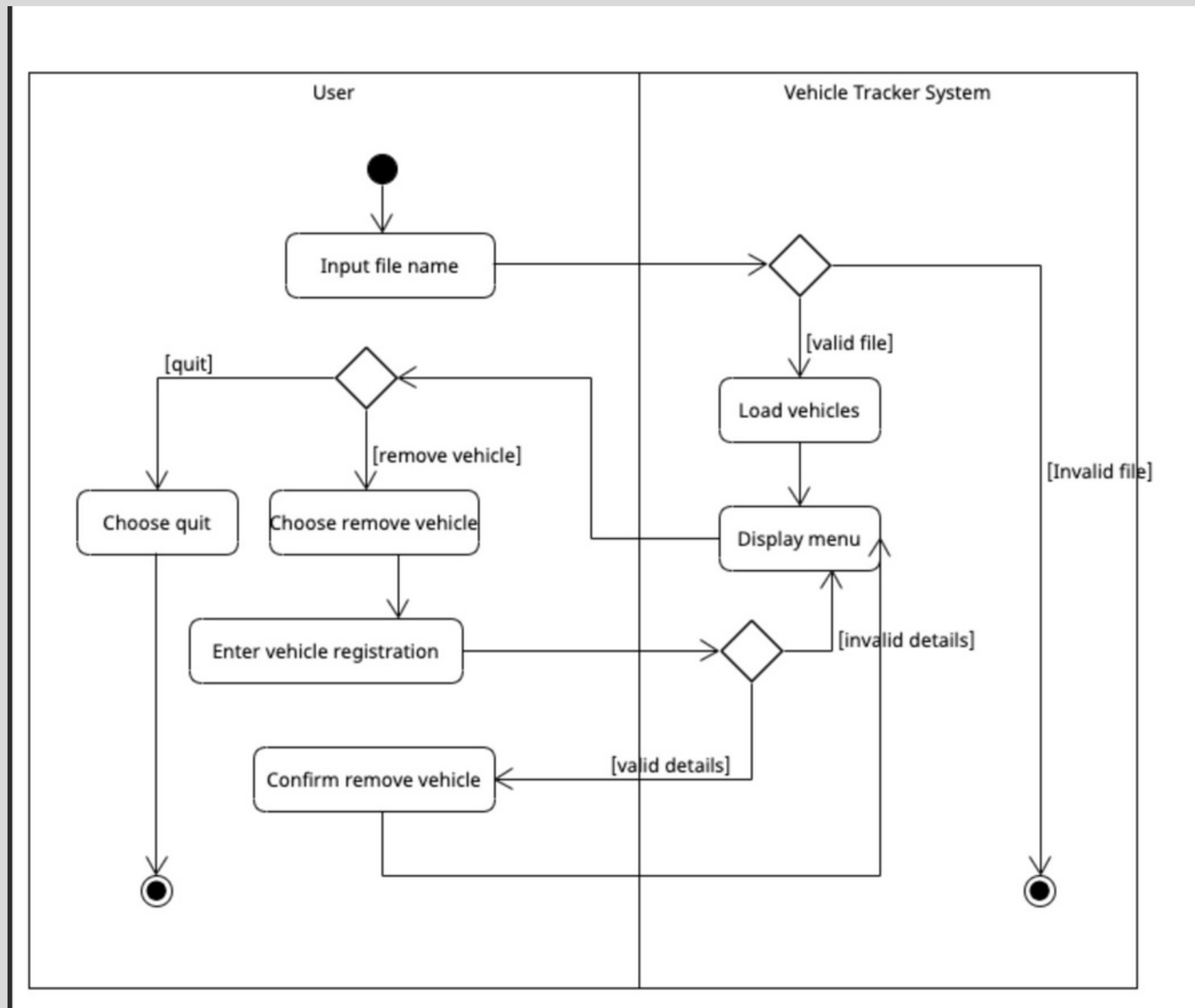
# Design

## Activity Diagram - Add vehicle



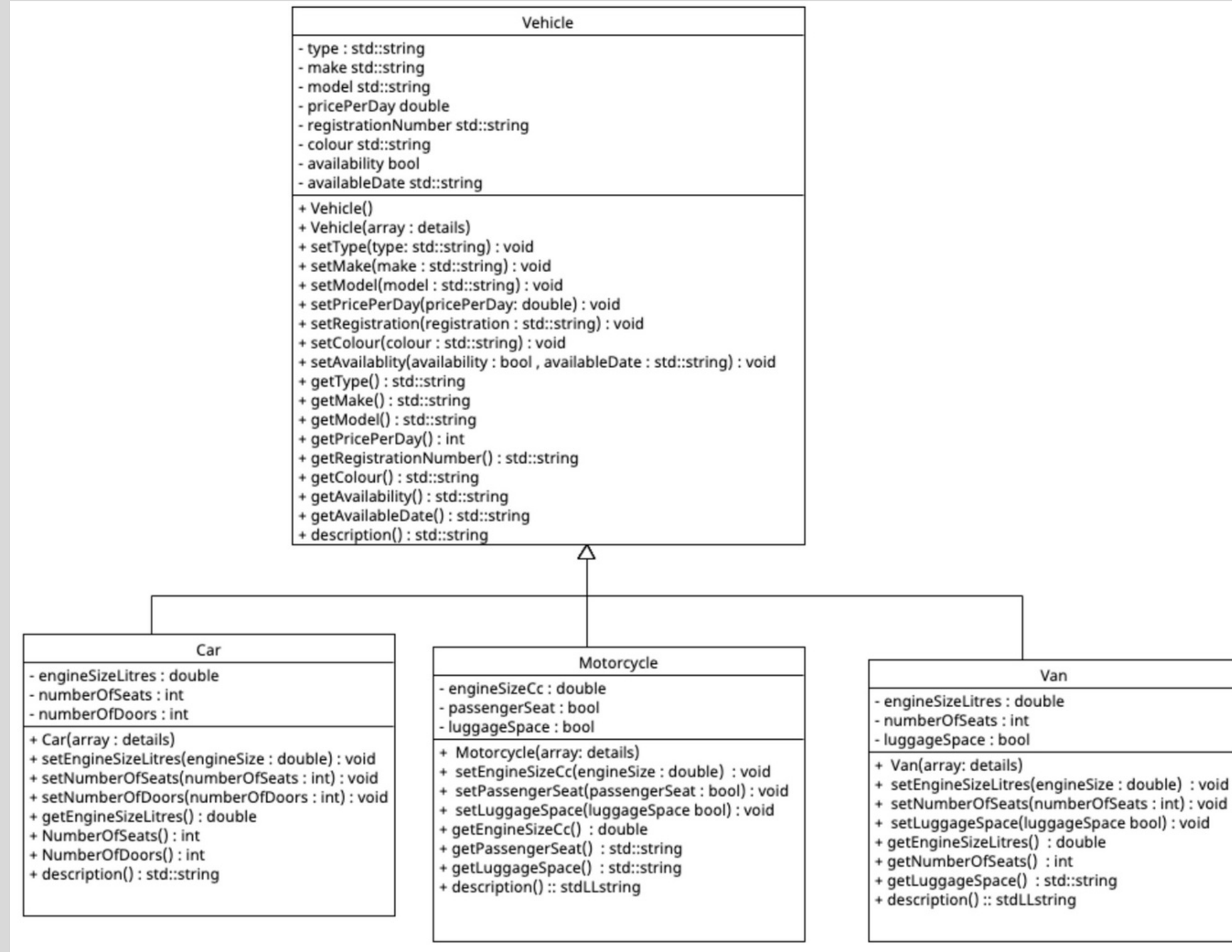
# Design

## Activity Diagram - Remove vehicle



# Design

## Class Diagram



# Implementation















## **Make file**

- Save time by reducing time spent when typing the long commands
- Compilation is perform in order.
- No file miss during compilation


























## **Version Control**

- Fix bugs without affecting the current working version.
- Test different ideas.
- No fear of losing the files, same is saved on a remote repository.



















































# Bitbucket Commits

Author		Commit	Message		Date
	Dereck Lam Hon...	<a href="#">f971532</a>	fix: constructor error	<a href="#">develop</a>	2023-01-02
	Dereck Lam Hon...	<a href="#">4d9f126</a>	fix: read file	<a href="#">develop</a>	2023-01-02
	Dereck Lam Hon...	<a href="#">2a7252f</a>	feat: add magic variable	<a href="#">develop</a>	2023-01-02
	Dereck Lam Hon...	<a href="#">e5ab8b5</a>	docs: edit gitignore file for more dynamic approach	<a href="#">develop</a>	2023-01-02
	Dereck Lam Hon...	<a href="#">1ed7236</a>	fea: initial make file	<a href="#">develop</a>	2022-12-22
	Dereck Lam Hon...	<a href="#">88630cc</a>	feat: add execute in gitignore	<a href="#">develop</a>	2022-12-22
	Dereck Lam Hon...	<a href="#">f8c0694</a>	feat: read content of dat file	<a href="#">develop</a>	2022-12-22
	Dereck Lam Hon...	<a href="#">e8c2c38</a>	docs: add gitignore file	<a href="#">develop</a>	2022-12-22
	Dereck Lam Hon...	<a href="#">7f8254f</a>	fix: constructor syntax	<a href="#">develop</a>	2022-12-11
	Dereck Lam Hon...	<a href="#">8adec7e</a>	feat: create constructor for motorcyle, car and van	<a href="#">develop</a>	2022-12-11
	Dereck Lam Hon...	<a href="#">ddb8ae6</a>	feat: added motorcycle, van and car properties	<a href="#">develop</a>	2022-12-11
	Dereck Lam Hon...	<a href="#">bbad3a9</a>	feat: created Vehicle constructor and description function	<a href="#">develop</a>	2022-12-11
	Dereck Lam Hon...	<a href="#">4da0992</a>	feat: initial commit and created vehicle class	<a href="#">develop</a>	2022-12-11
	Dereck Lam Hon...	<a href="#">95bce9d</a>	Initial commit		2022-11-29
<a href="#">Prev</a>		<a href="#">Next</a>			






Author	Commit	Message		Date
 Dereck Lam Hon...	<a href="#">9e5b707</a>	Revert "change datatype of available date" This reverts commit <a href="#">544040107fd0b0180fbf9...</a>	<a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">5440401</a>	change datatype of available date	<a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">646962e</a>	Revert "feat: change availabledate datatype" This reverts commit <a href="#">1be2a5d4cace0fdea961...</a>	<a href="#">develop</a>	2 days ago
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 Dereck Lam Hon...	<a href="#">e69bc17</a>	feat: created vehicle base constructor, setter and getter functions	<a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">4610069</a>	feat: modify vehicle constructor	<a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">200c857</a>	feat: function list all definition	<a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">fa384c6</a>	feat: initial file creation	<a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">e9215d3</a>	feat: finalize assigning all retrieved data to a struct	<a href="#">develop</a>	3 days ago
 Dereck Lam Hon...	<a href="#">5b5618d</a>	feat: assigning retrieved vehicles data to an array of struct	<a href="#">develop</a>	3 days ago
 Dereck Lam Hon...	<a href="#">1981975</a>	feat: using string stream to retrieve data from dat file	<a href="#">develop</a>	3 days ago
 Dereck Lam	<a href="#">4fdb5a</a>	feat: created a struc for vehicles details to store retrieve data	<a href="#">develop</a>	3 days ago
 Dereck Lam	<a href="#">dc5c469</a>	feat: determine number of vehicles	<a href="#">develop</a>	3 days ago
 Dereck Lam	<a href="#">a45dde1</a>	fix: error handling for option when user insert a string or char and refac: resources handli...	<a href="#">develop</a>	3 days ago
 Dereck Lam	<a href="#">8ffd36c</a>	docs: add comments block stating author id	<a href="#">develop</a>	3 days ago
 Dereck Lam Hon...	<a href="#">c229564</a>	feat: added error checking for choice and quit function to exit program	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">312aab0</a>	feat: added main menu	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">2790378</a>	refac: read file function with filename pass by reference	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">4160d61</a>	refac: variable names	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">976d499</a>	refac: file error handling and implement try catch	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">5d1a74e</a>	feat: initialize main.h and add function check number of command line argument	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">c8d3f42</a>	feat: error handling for file	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">a2a199d</a>	feat: add .vscode	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">33058ff</a>	feat: added catch2 testing framework	<a href="#">develop</a>	2023-01-03
 Dereck Lam Hon...	<a href="#">6765b73</a>	feat: declare variable for rm -f	<a href="#">develop</a>	2023-01-03



Author	Commit	Message		Date
 Dereck Lam Hon...	<a href="#">b1d6953</a>	feat: confirmation check to add or remove vehicle	 <a href="#">develop</a>	yesterday
 Dereck Lam Hon...	<a href="#">cee2a37</a>	feat: display summary of new added vehicle	 <a href="#">develop</a>	yesterday
 Dereck Lam Hon...	<a href="#">17beee4</a>	feat: implement input new vehicle details and check and finally display of summary	 <a href="#">develop</a>	yesterday
 Dereck Lam Hon...	<a href="#">b0d643e</a>	feat: created remove vehicle function and check registration number	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">a73ddcd</a>	feat: save data	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">bbedf39</a>	feat: created a virtual description function for vehicle and derived classes to display info o...	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">4d412ee</a>	feat: created function to display all general info	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">269791d</a>	feat: create feature to display details of a selected vehicle and crettaed a function to press...	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">ace9170</a>	feat: emulate p[ress any key to go back to main menu	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">53e0661</a>	feat: add functions and variale to optmise performace and readability for table generation	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">a13cd9d</a>	feat: listall return a table of the required data	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">b45558f</a>	feat: add vehicle objects in vehicle vector	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">24d95ef</a>	feat: create prerequisite file and link them together to main program	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">97758ab</a>	refac: remove redundant comments	 <a href="#">develop</a>	2 days ago
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 Dereck Lam Hon...	<a href="#">a80c067</a>	feat: created van constructor, setter and getter functions	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">4eef5af</a>	feat: test vehicle, car, van and motorcycle class	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">fa18b52</a>	feat: change return datatype of engine size cc	 <a href="#">develop</a>	2 days ago
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 Dereck Lam Hon...	<a href="#">377f7cf</a>	feat: created motorcycle constructor, setter and getter functions'	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">3c1f709</a>	feat: change return datatype of getAvailability	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">bfe69ba</a>	feat: van cpp and header file creation	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">4c5e641</a>	feat: car cpp and header file creation	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">f74941b</a>	feat: bike.h and bike.cpp initial creation	 <a href="#">develop</a>	2 days ago
 Dereck Lam Hon...	<a href="#">4e0447b</a>	fix: correct for change of availabledate datatype	 <a href="#">develop</a>	2 days ago



Author		Commit	Message		Date
	Dereck Lam Ho...	<a href="#">92d056c</a>	feat: implement dependencies chain in make file	 <a href="#">develop</a>	3 hours ago
	Dereck Lam Ho...	<a href="#">4cdb425</a>	docs: added comments to all files	 <a href="#">develop</a>	4 hours ago
	Dereck Lam Ho...	<a href="#">72afdf8</a>	feat: implementation of testing on classes	 <a href="#">develop</a>	5 hours ago
	Dereck Lam Ho...	<a href="#">b2af4aa</a>	refac: change checkUserConfirmation for testing	 <a href="#">develop</a>	6 hours ago
	Dereck Lam Ho...	<a href="#">d325215</a>	refac: add function to prepare file:	 <a href="#">develop</a>	7 hours ago
	Dereck Lam Ho...	<a href="#">efae93</a>	feat: test checkfile	 <a href="#">develop</a>	8 hours ago
	Dereck Lam Ho...	<a href="#">eaad909</a>	feat: change file structure for testing	 <a href="#">develop</a>	8 hours ago
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	Dereck Lam Ho...	<a href="#">04008cd</a>	refac: created resizeDynamicArray function for testing	 <a href="#">develop</a>	10 hours ago
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	Dereck Lam Ho...	<a href="#">774f61b</a>	refac: created checkAddVehicleRegistrationNumber function to optimize readibiity of c...	 <a href="#">develop</a>	11 hours ago
	Dereck Lam Ho...	<a href="#">4c4c832</a>	refac: added addVehicleDetailsStruct to implement more unit testing	 <a href="#">develop</a>	11 hours ago
	Dereck Lam Ho...	<a href="#">1087626</a>	refac: add return value to checkNumberOfArguments and checkFile	 <a href="#">develop</a>	12 hours ago
	Dereck Lam Ho...	<a href="#">c3e1da7</a>	docs: edit header guards	 <a href="#">develop</a>	20 hours ago
	Dereck Lam Ho...	<a href="#">1e22d1a</a>	docs: add header comments for authors to all files	 <a href="#">develop</a>	21 hours ago
	Dereck Lam Ho...	<a href="#">d09f67b</a>	feat: add check for registration number when adding new vehicle	 <a href="#">develop</a>	21 hours ago
	Dereck Lam Ho...	<a href="#">89926d3</a>	feat: remove vehicle implementation	 <a href="#">develop</a>	21 hours ago
	Dereck Lam Ho...	<a href="#">d190357</a>	fix: std::allocation error solved delete dynamic array at the end of program	 <a href="#">develop</a>	22 hours ago
	Dereck Lam Ho...	<a href="#">f37ca7a</a>	feat: ask user if he want to save the changes	 <a href="#">develop</a>	22 hours ago
	Dereck Lam Ho...	<a href="#">79dbfa3</a>	feat: finish implementation of add vehicle features:	 <a href="#">develop</a>	22 hours ago
	Dereck Lam Ho...	<a href="#">4d9f312</a>	feat: assign confirmed data to vehicle struc dynamic array	 <a href="#">develop</a>	23 hours ago
	Dereck Lam Ho...	<a href="#">4b6ffb2</a>	feat: memory allocation error trying to solve	 <a href="#">develop</a>	23 hours ago
	Dereck Lam Ho...	<a href="#">2f98358</a>	feat: implementation of resizing dynamic array failed	 <a href="#">develop</a>	yesterday

# Testing

## Unit Testing

- Testing parts of the program using assertions with the Catch2 framework.
- User validation and confirmations have been tested by assigning a value and test its expectation. Moreover test to check the implementation of the classes with its derived class have been performed by providing dummy values and cross check the expected output.

**DEMO**

# Conclusion

Implementation of such a low level language to build this small project was a challenge but a nice learning curve as i get the chance to work on dynamic arrays, classes and vectors in depth.

My project's limitation is the testing phase, the program can be refactored to provide the users with more test cases.

Apply the TDD approach to avoid refactoring the code afterwards.