Use Case

for

Vehicle Parking System

Version 1.0

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Document History

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1. Shakir Rasheed Khan Khattak	Date	PA1	Initial Draft

The various user classes identified the following primary actors and use cases for the Parking System:

Primary Actor	**Use Cases**
1) Vehicle Owner 2) Vehicle Driver	1) Provide Vehicle Details. 2) Provide Driver Details. 3) Reserve Slot. 4) Pay Charges. 5) Print Receipt.

Secondary Actor	**Use Cases**
Manager	1) Reserve Slot. 2) Print Receipt.

ID and Name:	**UC-1 Provide Vehicle Details**		
Created By:	Shakir Rasheed Khan Khattak	**Date Created :**	Date
Primary Actor:	Vehicle Owner/Vehicle Driver	**Secondary Actor:**	Manager
Description: **Trigger:**	End user needs to provide the details related to the vehicle to the system. Vehicle Detail Provided.		
Precondition:	End User must have details related to the vehicle.		
Post condition:	Vehicle Details Added To The System.		
Priority:	High		
Normal Flow:	**Provide Vehicle Details** 1. User enter vehicle details to the system. 2. System check the provided details. 3. System verified the details. 4. User acknowledged to the system. 5. Details Added to the system.		
Alternate Flow:	*a System failed to validate the vehicle. 1) End user provide the details of the vehicle. 2) System not respond to the operation. 3) System shows a message validate vehicle. 4) End user provide the details again. 5) System respond with server not responding error.		

ID and Name:	**UC-2 Provide Driver Details**		
Created By:	Shakir Rasheed Khan Khattak	**Date Created :**	Date
Primary Actor:	Owner / Driver	**Secondary Actor:**	Manager
Description: **Trigger:**	End User needs to provide the details related to the owner / driver of the vehicle to the system. Driver Detail Provided.		
Precondition:	Driver must have details related to his/her status.		

Post condition:	Driver Details Added To The System.
Priority:	High
Normal Flow:	**Provide Driver Details** 1. Driver enter his/her details to the system. 2. System check the provided details. 3. System verified the details. 4. Driver acknowledged to the system. 5. Driver Detail Added to the system.
Alternate Flow:	*a System failed to validate the owner / driver. 1) End user provide the details. 2) System shows a message re-validate. 3) End user provide the details again. 4) System respond the provide details already exist. 5) End user try to submit details. 6) System crashed.

ID and Name:	**UC-3 Reserve Parking Slot**		
Created By:	Shakir Rasheed Khan Khattak	**Date Created :**	Date
Primary Actor:	Owner / Driver	**Secondary Actor:**	Manager
Description: **Trigger:**	Owner / Driver will have to reserve the slot in the parking area of any mall or area. Request for reserve slot will be generated.		
Precondition:	Owner / Driver must exists in the system.		
Post condition:	Parking Slot reserved for the required time.		
Priority:	High		
Normal Flow:	**Reserve Parking Slot** 1. End user select the parking area from the list. 2. System ask for the type of vehicle. 3. End user then select the type of vehicle. 4. System provide the details of slot available. 5. End user select the slot from the list. 6. System asks for the entry time. 7. End use provide the entry time. 8. System asks for the exit time. 9. End user provide the exit time. 10. System verify the selections. 11. System confirm the slot. 12. End user acknowledged the slot. 13. Parking Slot reserved awaited for the end user.		
Alternate Flow:	*a System failed to reserve the parking area slot. 1) End user select the available slot in the parking area. 2) System respond with the message parking slot reserved. 3) End user select the other parking area slot. 4) System respond with the message only one slot can be reserved for the same vehicle.		

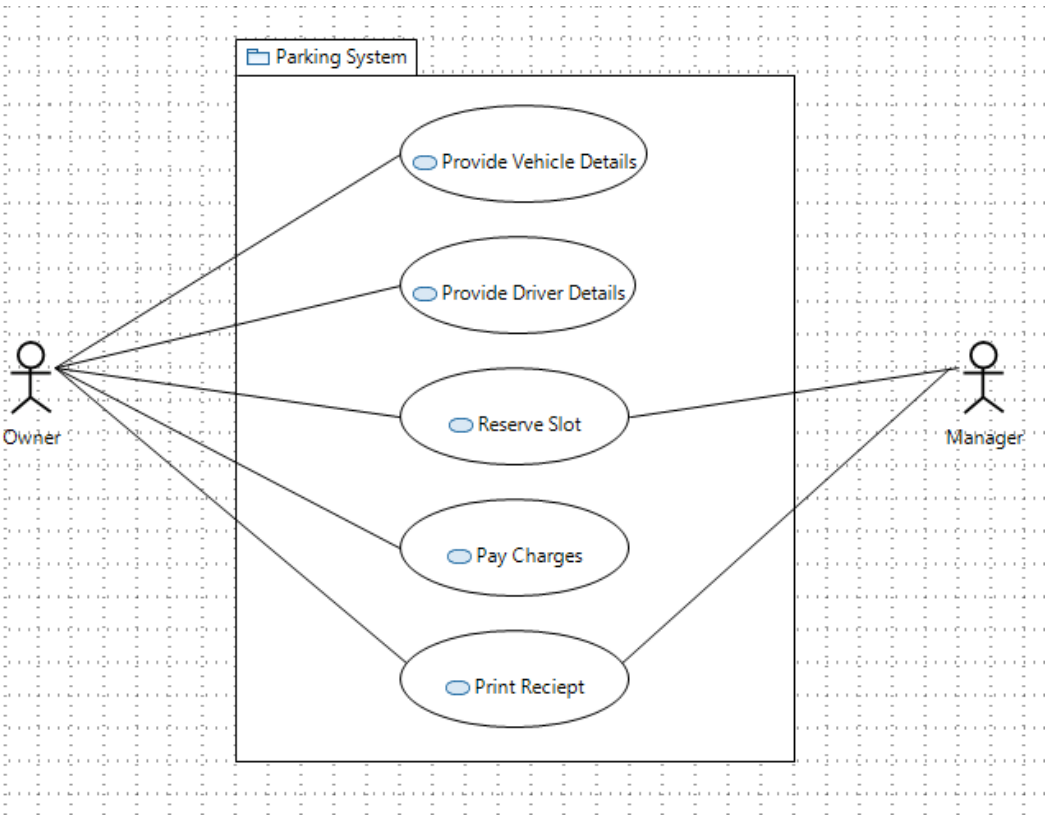
	5) System asks for entry and exit time then. 6) End user provide the details. 7) System respond with parking is full.

ID and Name:	**UC-4 Pay Charges**		
Created By:	Shakir Rasheed Khan Khattak	**Date Created :**	Date
Primary Actor:	Owner / Driver	**Secondary Actor:**	Manager
Description: **Trigger:**	Owner / Drive will have to pay for the reserved slot. Payment request will be generated for the slot.		
Precondition:	Parking Area slot must be reserved before paying charges.		
Post condition:	Parking Area Slot reserved Confirmed.		
Priority:	High		
Normal Flow:	**Pay Charges** 1. System request user to pay for the slot to change awaiting status of parking area slot. 2. End user select the paying method. 3. System asks for the card number and secret code. 4. End user provide the details. 5. System validate the details. 6. System sends the confirmation to the end user. 7. End use confirm the transaction. 8. System perform deduction. 9. Parking Area Slot Reservation confirmed. 10. End user pay the charges of the parking slot.		
Alternate Flow:	*a Pay charges failed. 1) End user enter details to pay charges. 2) System validate the details. 3) System respond with the message system is down.		

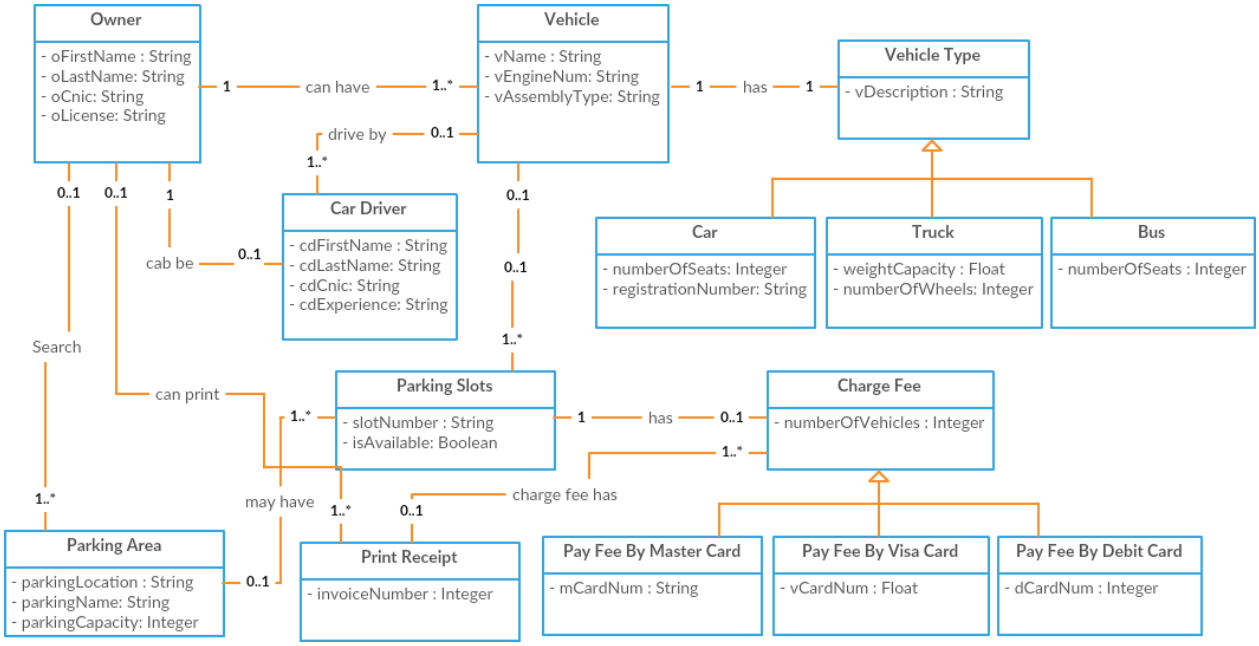
ID and Name:	**UC-5 Print Receipt**		
Created By:	Shakir Rasheed Khan Khattak	**Date Created :**	Date
Primary Actor:	Owner / Driver	**Secondary Actor:**	Manager
Description: **Trigger:**	Owner / Drive can print the receipt after paying the parking area slot charges. Request to print the invoice / receipt generated.		
Precondition:	Parking Area slot must be confirmed and it should be in awaiting status.		
Post condition:	Invoice / Receipt will be printed.		
Priority:	High		
Normal Flow:	**Print Receipt** 1. End user request to print invoice / receipt. 2. System asks for the parking slot number / car registration number.		

	3. End user provided the details. 4. System generated the invoice / receipt to print. 5. End use print the invoice / receipt.
Alternate Flow:	*a Print Receipt failed. 1) End user request for print invoice. 2) System generate the wrong invoice. 3) End user again request for the print of invoice. 4) System generated the invoice with 0 total.

Use Case Diagram:



Domain Model:



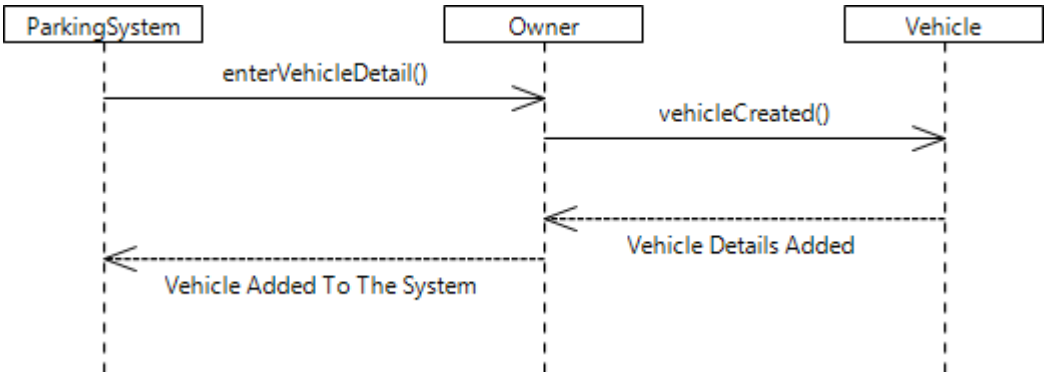
Operation and its corresponding State Changes:

Use Case	Operation	State Changes
UC 1	enterVehicleDetail()	1. Instance of vehicle created. 2. Vehicle added. 3. System vehicle list increased.
UC 2	enterDriverDetail()	1. Instance of driver created. 2. Driver added. 3. System vehicle owner list increased.
UC 3	enterOwnerDetail()	1. Instance of owner created. 2. Owner added. 3. System vehicle driver list increased.
UC 4	reserveSlot()	1. Parking Slot instance created. 2. Parking Area slot list added. 3. Parking Slot entry time added. 4. Parking Slot exit time added. 5. Parking availability list updated. 6. Charge fee instance created. 7. Invoice list updated. 8. System pay list updated.
UC 5	printInvoice()	1. Print Receipt instance created. 2. Print Receipt request added to the system logs. 3. Print Receipt generated system logs increased. 4. Print Receipt requested user list increased.

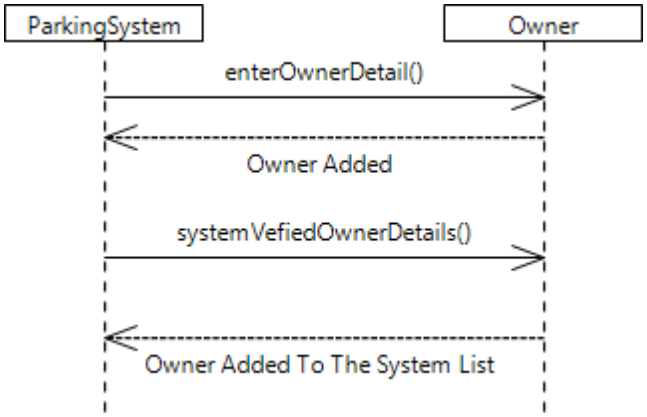
System Sequence Diagram:

Parking System is the controller, and each class is responsible to its own functionality.

1. **Provide Vehicle Details**
   Parking System Controller, it contains details of all.

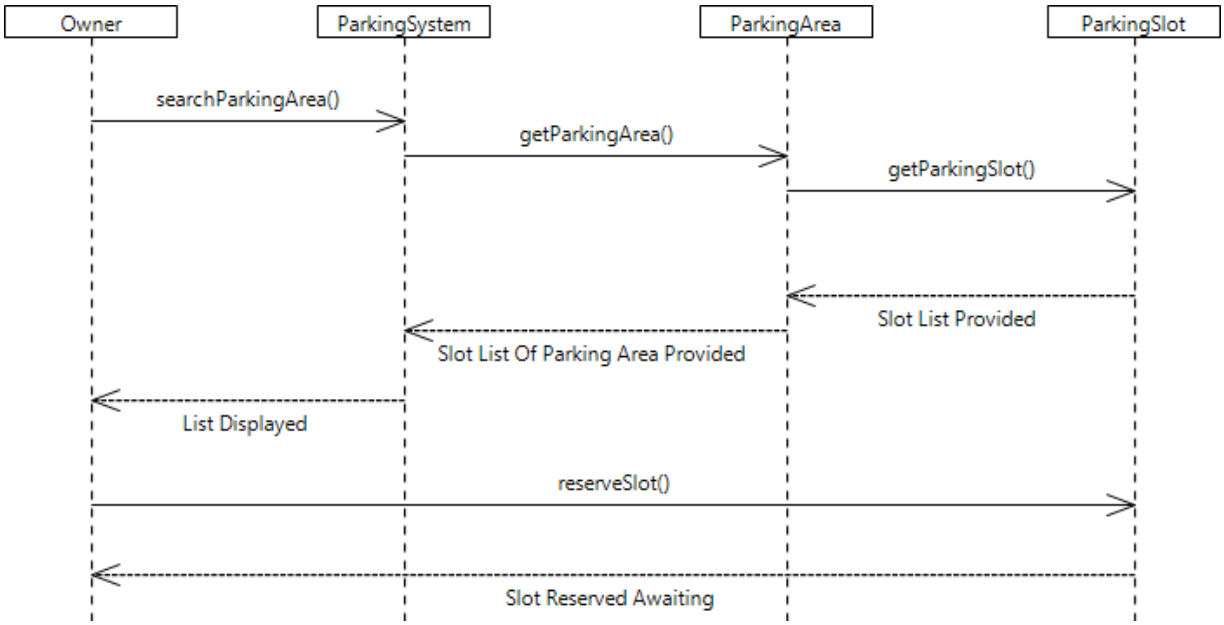


2. **Provide Owner/Driver Details**
   Parking System Controller, it contains details of all.



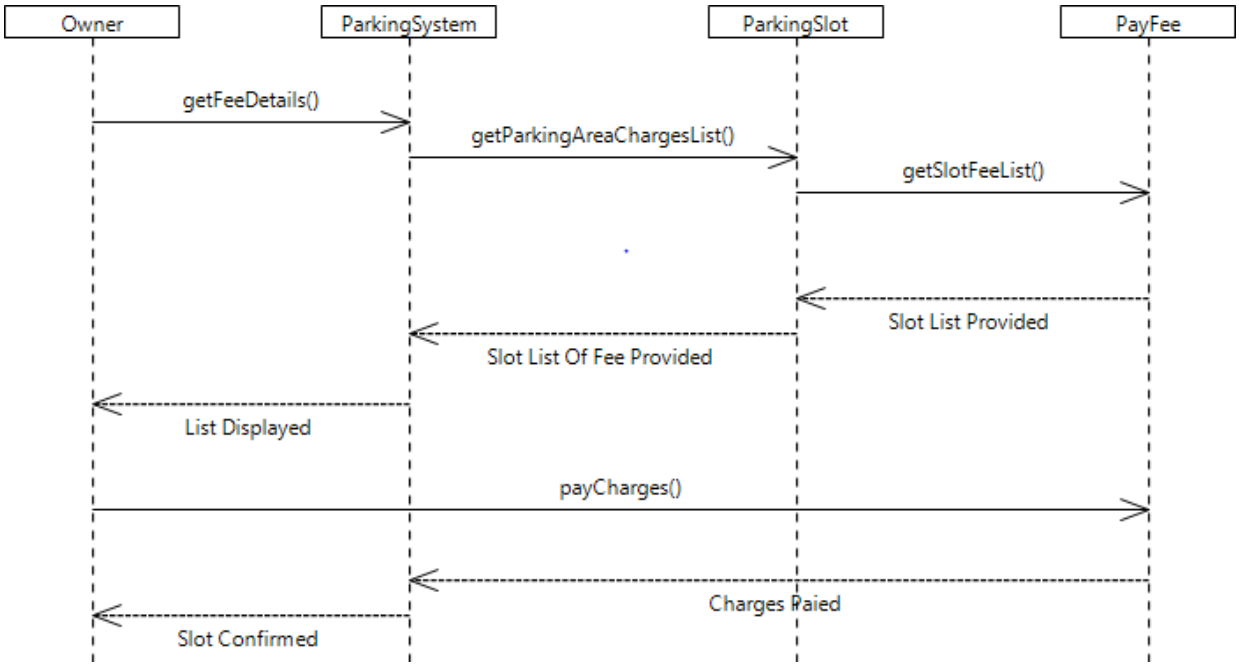
3. Reserve Slot

Parking System Controller, it contains details of all. Parking Area is the information expert contains information regarding parking slots.



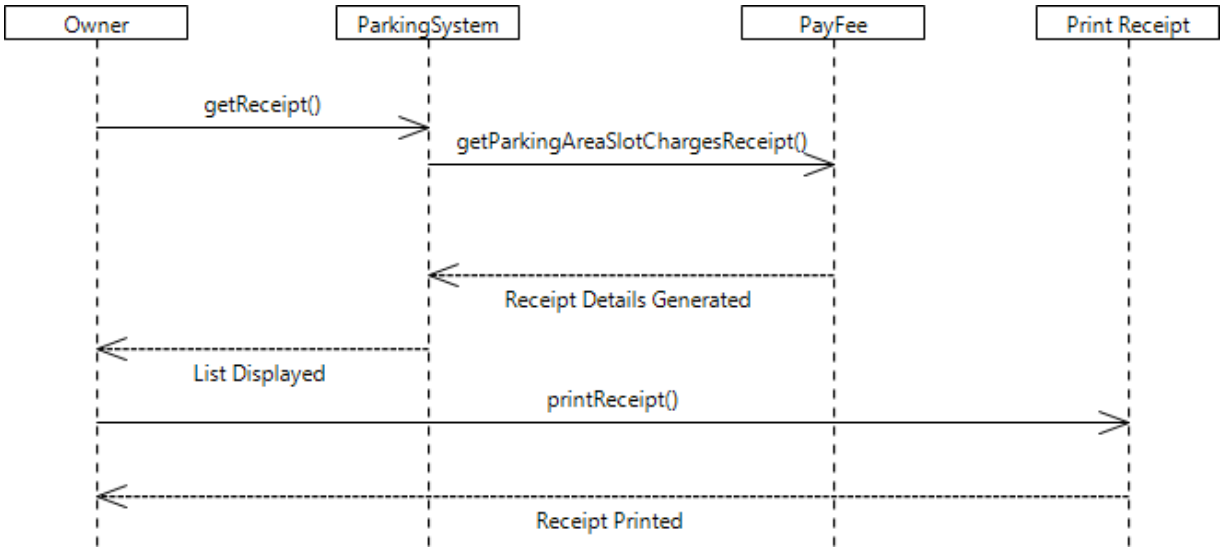
4. Pay Charges

Parking System Controller, it contains details of all. Parking Area is the information expert contains information regarding parking slots, Parking Slots contains details related to Charges it is the creator of the PayFee.



5. Print Receipt

Parking System Controller, it contains details of all. Pay Fee is the information expert contains information regarding charges and total sum of the slots to generate the invoice.



Class Diagram: