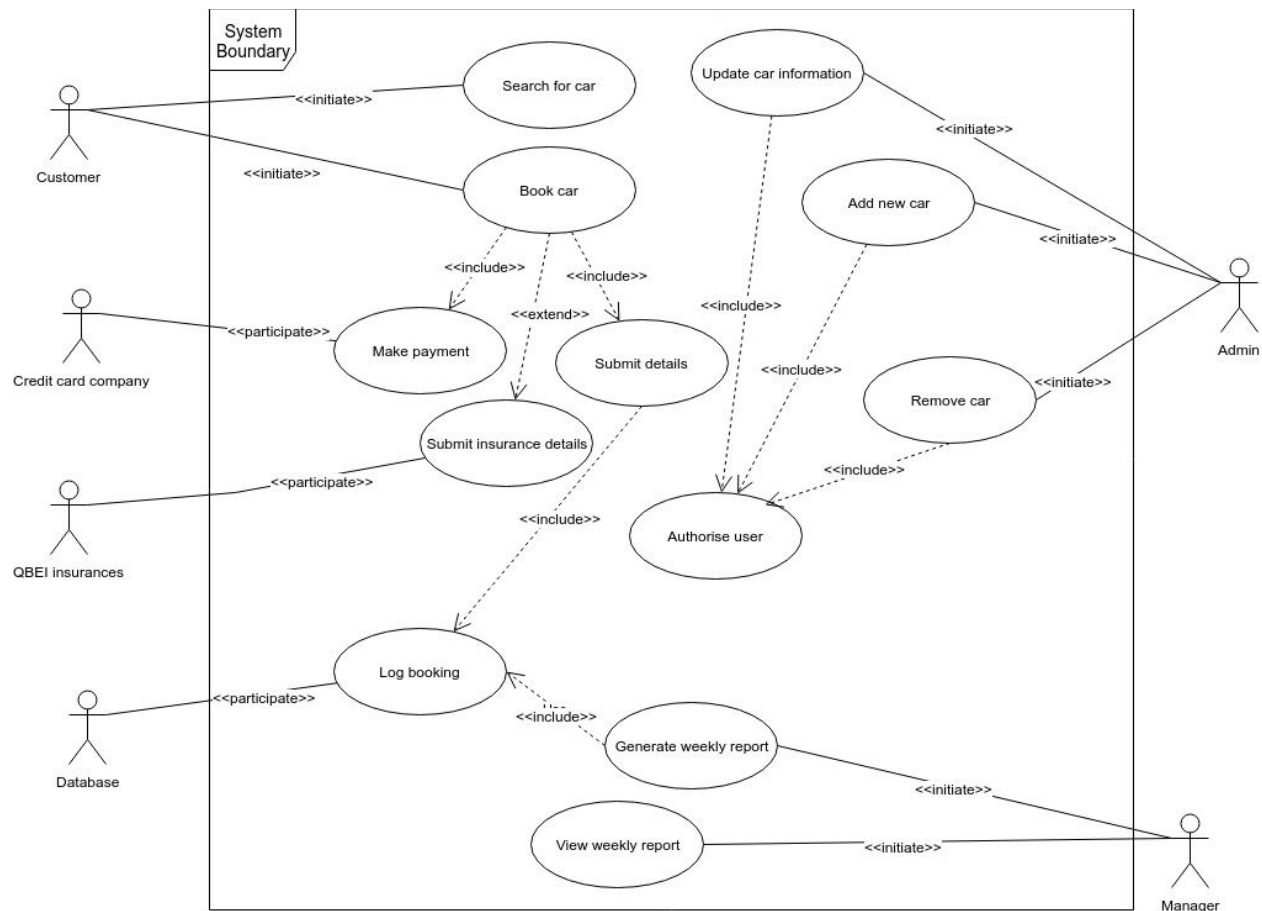


1. Identify the system actors and goals.

Actors	Actor's Goal
Customer	Search the website for available cars to rent
Customer	Rent a car
Online staff	Login with a username and password
Admins	Enter new car information
Managers	Generate weekly report
Managers	View weekly report

2. Draw a use-case diagram to model the behaviour of the online rental system. The model should include the actors, the use cases, the relations between the use cases and the actors and the relation between the use cases. (Refer to the lecture slide "Use Case Diagram: Device Control" to help you with this task.)



3. Define a detailed specification for the main usage scenario for the use-case of renting a car.

Use Case	Search for car
Brief Description	Allow any customer to search for available cars.
Initiating Actors	Customer
Actor's Goals	Search the website for available cars to rent
Participating Actors	Web server
Flow of Events for Main Success: <ol style="list-style-type: none">1. The customer searches for a car.2. The system presents all available cars which satisfy the search criteria.	

Use Case	Book Car
Brief Description	Allow any customer to enter book a car online.
Initiating Actors	Customer
Actor's Goals	Rent a car
Participating Actors	Credit card company, QBEI Insurance, Database
Flow of Events for Main Success: <ol style="list-style-type: none">1. The customer selects a car to book.2. The system requests booking details including name, age, licence number, rental period, option to purchase cover and email address.3. The system validates booking details.4. The system requests credit card details.5. The system validates the credit card details.6. The system sends a booking confirmation email.7. The system logs the booking to the database.	

Use Case	Authorise user
Brief Description	Allow any member of staff or manager to log into the system.
Initiating Actors	Admins & Managers
Actor's Goals	Login with a username and password
Participating Actors	Web server
Flow of Events for Main Success <ol style="list-style-type: none"> 1. The system requests a username and password. 2. The system validates the username and password. 3. The system presents service options. 	

Use Case	Update car information
Brief Description	Allow any member of staff to edit information about cars.
Initiating Actors	Admin
Actor's Goals	View weekly report
Participating Actors	Online staff, Login system
Flow of Events for Main Success <ol style="list-style-type: none"> 1. The system presents all the cars in the database. 2. The member of staff selects a car. 3. The system presents various service options including the "Edit" option. 4. The member of staff selects the "Edit" option. 5. The system presents the cars details for the member of staff to edit. 6. The member of staff edits the details. 7. The member of staff selects "Save". 8. The system verifies that the details are valid. 9. The system updates the database. 	

Use Case	Add new car
Brief Description	Allow any member of staff to add new cars to the system.
Initiating Actors	Admin
Actor's Goals	Enter new car information
Participating Actors	Online staff, Login system
<p>Flow of Events for Main Success</p> <ol style="list-style-type: none"> 1. The system presents various service options including the "Create New Car" option. 2. The member of staff selects the "Create New Car" option. 3. The system prompts the member of staff to enter the car details. 4. The member of staff enters the car details. 5. The member of staff selects "Save". 6. The system verifies that the details are valid. 7. The system presents the details of the new car and prompts the member of staff to "Confirm" the new car. 8. The member of staff checks that the details are correct. 9. The member of staff chooses "Confirm". 10. The system adds the new car to the database. 11. On the dashboard, there will be an option to 'create new car.' 	

Use Case	Remove car
Brief Description	Allow any member of staff to delete cars from the system.
Initiating Actors	Admin
Actor's Goals	Generate weekly report
Participating Actors	Online staff, Login system
<p>Flow of Events for Main Success</p> <ol style="list-style-type: none"> 1. The system presents all the cars in the database. 2. The member of staff selects a car. 3. The system presents various service options including the "Remove" option. 4. The member of staff selects the "Remove" option. 5. The system prompts the member of staff to confirm the removal of the car. 	

6. The member of staff selects the “Confirm” option.
7. The system prompts the member of staff to enter their password.
8. The member of staff enters their password.
9. The system removes the car from the database.

Use Case	Generate Weekly Report
Brief Description	Allow any manager to generate a weekly report.
Initiating Actors	Manager
Actor's Goals	View weekly report
Participating Actors	Login System
Flow of Events for Main Success <ol style="list-style-type: none"> 1. The system presents various service options including “View Weekly Report”. 2. The manager selects the “View Weekly Report” option. 3. The system generates the report in a table format including vehicle information and customer information. 4. The system presents the generated report as a PDF. 	

PART II: Domain Modelling

1. Using the use-cases developed in Part 1, identify key classes using CRC cards. (4 marks)

Car	
<i>Knows</i> vehicle type <i>Knows</i> make <i>Knows</i> model <i>Knows</i> year <i>Knows</i> registration number	

Customer	
<i>Knows</i> name <i>Knows</i> age <i>Knows</i> licence number <i>Knows</i> insurance <i>Knows</i> email address	Car

<i>Book car</i>	
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Bookings	
<i>Knows booking period</i> <i>Checkout</i>	Customer Car

Staff	
<i>Know username</i> <i>Know password</i> <i>Make car</i> <i>Edit car</i> <i>Remove car</i>	Car

Manager	
<i>Know username</i> <i>Know password</i> <i>Generate report</i>	Bookings

2. Using the CRC cards, develop a UML conceptual class diagram using draw.io (6 marks)

