VIVU

Version 1.15

Revision History

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| 06/11/2023 | 1.0 | Fill in the use case for: View Coupon and View cars’ information, Log out. | Hoàng Lê Cát Thanh |
| 08/11/2023 | 1.1 | Upload the Use Case Model | Lê Ngọc Thảo |
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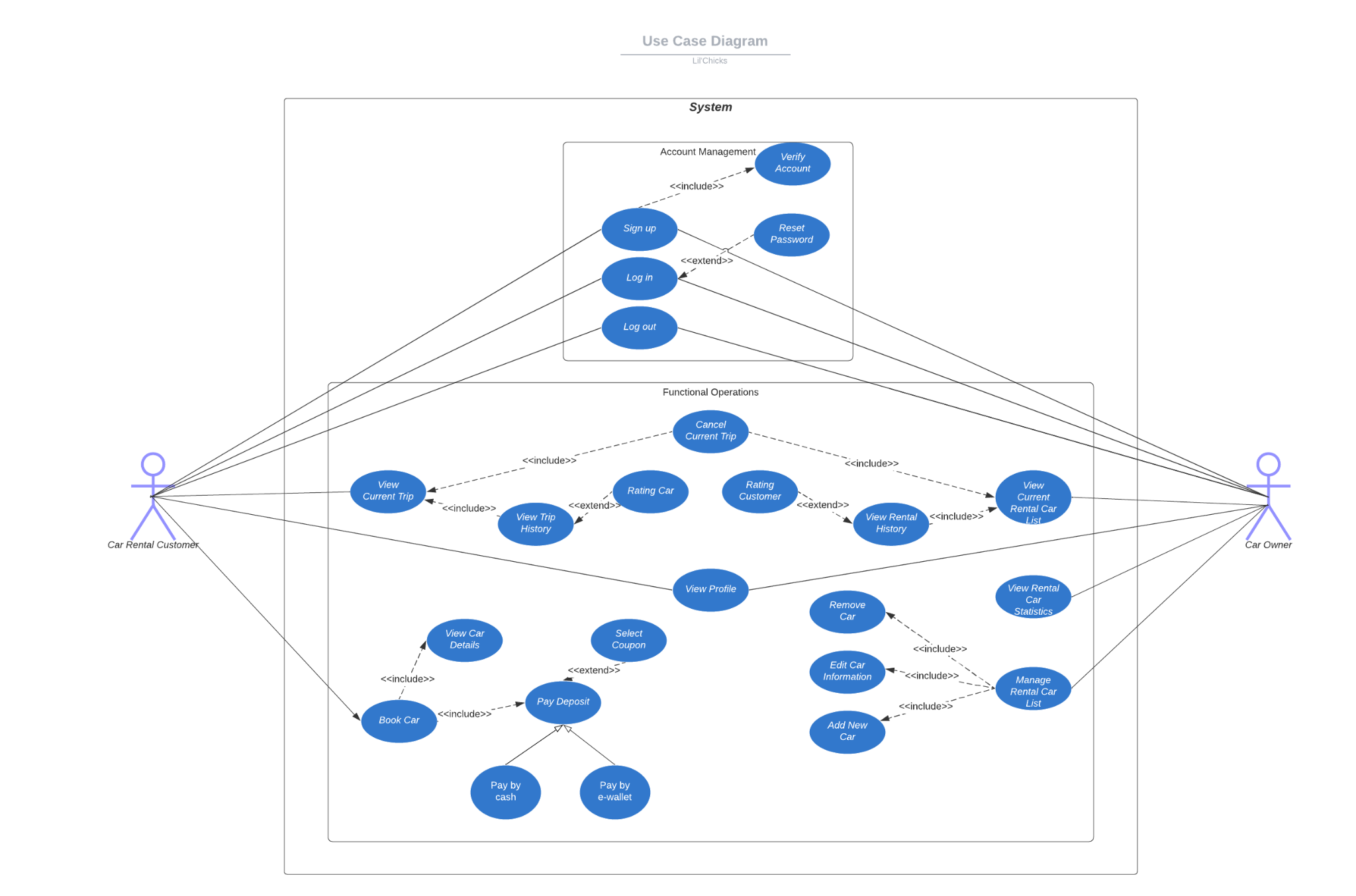
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# Use-Case Diagram



# Use-Case Specification

| **No.** | **Actor** |
| --- | --- |
| 1 | Car Rental Customer |
| 2 | Car Owner |

| **Use-case ID** | **Name** | **Actor** |
| --- | --- | --- |
| UC01 | Sign up | 1, 2 |
| UC02 | Log in | 1, 2 |
| UC03 | Log out | 1, 2 |
| UC04 | Reset Password | 1, 2 |
| UC05 | Verify Account | 1, 2 |
| UC06 | View Trip History/ View Rental History | 1, 2 |
| UC07 | View Car Details | 1, 2 |
| UC08 | View Current Trip/ View Current Rental Car List | 1,2 |
| UC09 | View Profile | 1, 2 |
| UC10 | Cancel Current Trip | 1, 2 |
| UC11 | Rating Car | 1 |
| UC12 | Select Coupon | 1 |
| UC13 | Book Car | 1 |
| UC14 | Pay Deposit | 1 |
| UC15 | Remove Car | 1 |
| UC16 | Rating Customer | 2 |
| UC17 | Add New Car | 2 |
| UC18 | Edit Car Information | 2 |
| UC19 | View Rental Car Statistics | 2 |

## 1. Use-Case Specification: Sign up

| **Use case ID** | **UC01** |
| --- | --- |
| **Use case Name** | Sign up |
| **Brief description** | Help users register accounts on the application. |
| **Pre-conditions** | 1. The app is already installed. 2. The account registration function is selected. 3. The user's device is connected to the internet during the account creation process. |
| **Basic Flow** | 1. The user accesses the VIVU app. 2. The user selects the "Sign up" function. 3. The system displays the required information to fill out: phone number, password, choice of car rental customer or car owner, full name, address, and date of birth. 4. The user fills out the requested information and selects the "Sign up" button to register an account. 5. The system confirms the information and records successful account creation for the user. |
| **Alternative Flows** | * At step 5, the system confirms invalid user information:   5a. The system notifies the user to re-enter invalid information.  5a1. The user confirms entry again.  Use case returns to step 3 to sign up again.   * At step 4, The user enters the phone number that was used to register the account:   4a. The system displays a warning that this phone number has been registered.  4a1. The user chooses to return to log in.  4a2. The system switches to the user login.  Use case resumes login operations. |
| **Post-conditions** | 1. The user successfully registered for an account in the application. 2. The system records successful registration activities as login activities. |
| **Special requirements** | 1. The user's phone number must be exactly 10 digits long and has not been used to register before. 2. The user's password must be more than 8 characters. 3. The user’s password and re-enter password must match. 4. The user must not leave blank content that must be entered. |
| **Extension Points** |  |

## 2. Use-Case Specification: Log in

| **Use case ID** | **UC02** |
| --- | --- |
| **Use case Name** | Log in |
| **Brief description** | Help users log into the application to use services from the application. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user account has been authorized. 3. The user's device is connected to the internet during the login process. |
| **Basic Flow** | 1. The user accesses the VIVU app. 2. The user chooses the login method. 3. The system displays the required information to log in (phone number and password). 4. The user enters the account and selects "Login". 5. The system successfully validates the login information and allows the user to access the application. |
| **Alternative Flows** | * In step 4, the user forgets the password:   4a. The user chooses “forget password”.  4b1. The system switches to reset the password.   * In step 4, the phone number does not exist:   4b. The user chooses to register an account.  4b1. The system switches to account registration. |
| **Post-conditions** | 1. The user successfully logged in to the application. 2. The system records successful login activity. |
| **Special requirements** | 1. The user cannot enter incorrect login information more than 5 times. 2. The user cannot leave blank content that must be entered. |
| **Extension Points** | 1. Forgot password 2. Reset password |

## Use-Case Specification: Log out

| **Use case ID** | **UC03** |
| --- | --- |
| **Use case Name** | Log out |
| **Brief description** | The user logs out the application when not using it. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet during the log-out process. 3. The user accessed the VIVU app. |
| **Basic Flow** | 1. The user chooses the log-out method. 2. The system displays a confirmation request from the user. 3. The user confirms log out. 4. The system logs out of the user account from the system. |
| **Alternative Flows** | * At step 4, the user does not confirm the log out   4a. The user selects “Cancel”.  4a1. The system maintains the status quo.  Use case returns to step 2 to log out again. |
| **Post-conditions** | 1. The user successfully logged out of the application. 2. The system records successful log-out activity. |
| **Special requirements** | 1. The log-out process does not exceed 1 second. |
| **Extension Points** |  |

## 4. Use-Case Specification: Reset Password

| **Use case ID** | **UC04** |
| --- | --- |
| **Use case Name** | Reset Password |
| **Brief description** | The user forgot the password of the registered account |
| **Pre-conditions** | 1. The user account has already been created. 2. The user account has been authorized. |
| **Basic Flow** | 1. The user selects "Forgot password" to reset the password. 2. The user changes a new password. 3. The system displays a message to re-enter the registered phone number to send the OTP code. 4. The user enters the OTP code sent by the system. 5. The system checks the OTP code successfully and allows the user to reset the password. 6. The system checks and notifies that the new password has been successfully changed. |
| **Alternative Flows** | * At step 3 if the user wants to confirm by email:   3b1. The system sends the OTP code via the email of the user.  3b2. The user enters the OTP code.  Use case continues at step 5. |
| **Post-conditions** | 1. The user resets the password successfully. |
| **Special requirements** | 1. The system sends an OTP code to the user within 10 seconds. 2. The system checks the OTP code within 2 seconds. |
| **Extension Points** |  |

## 5. Use-Case Specification: Verify Account

| **Use case ID** | **UC05** |
| --- | --- |
| **Use case Name** | Verify Account |
| **Brief description** | Confirming user information, ensuring correctness and security helps protect user data. |
| **Pre-conditions** | 1. The user account has been created. 2. The user account is not authorized. |
| **Basic Flow** | 1. The user signs up for a new account. 2. The system sends an authentication OTP code via the phone number the user registered for the account. 3. The user enters the authentication OTP code and confirms. 4. The system will record account data in the database. |
| **Alternative Flows** | * At step 3, the user enters the authentication OTP code more than 5 times:   3a1. The system will temporarily lock the user from entering for 5 minutes, then resend a new OTP authentication code.  3a2. The user re-enters the new authentication OTP code and confirms.  3a3. The system checks the authentication information, the system will record account data to the database.   * At step 3, the user doesn’t receive the authentication OTP code:   3b1. After 2 minutes, the user sends a request to re-send the authentication OTP code.  3b2. The system re-sends a new authentication OTP code.  3b3. The user enters the authentication OTP code and confirms.  3b4. The system checks the authentication information, the system will record account data to the database. |
| **Post-conditions** | 1. The user's phone number is verified for successful account registration. |
| **Special requirements** | 1. The system sends an OTP authentication code to the user within 10 seconds. 2. The system checks the authentication code within 2 seconds. |
| **Extension Points** | 1. The system sends a confirmation message that the user has successfully authenticated the account. |

## 6. Use-Case Specification: View Trip History/ View Rental History

| **Use case ID** | **UC06** |
| --- | --- |
| **Use case Name** | View Trip History/ View Rental History |
| **Brief description** | A customer or an owner can view their rental car history. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet. 3. The user accessed the VIVU app. 4. The user is on the “My Trip”/ “My Rental Diary” Screen. |
| **Basic Flow** | 1. The user clicks on the button “history reservation”. 2. The system displays a list of the customer's rental car reservations. 3. The user views their rental history. 4. The user selects a reservation to view more detailed information. 5. The user can also sort their rental history. |
| **Alternative Flows** | * At step 3. If the user does not have any rental history   3a.The system will display a message indicating that there are no rentals to view. |
| **Post-conditions** | 1. The user will be able to view a list of their rental car history. 2. The user will be able to view details of a specific trip. 3. The user will be able to rate their reservation. |
| **Special requirements** | 1. The system must display the user's rental history in a clear and concise format. 2. The user should be able to filter and sort their rental history by date, location, car type, and other criteria. 3. The user should be able to view detailed information about each rental. 4. The system displays rental history within 5 seconds. |
| **Extension Points** | 1. The system could allow the user to filter their rental history by date, location, or type of car. 2. The user will be able to view the details of their rental reservations. |

## 7. Use-Case Specification: View Car Details

| **Use case ID** | **UC07** |
| --- | --- |
| **Use case Name** | View Car Details |
| **Brief description** | Renters and owners can view cars’ information. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet. 3. The user accessed the VIVU app. 4. The user is on the app homepage. |
| **Basic Flow** | 1. The user chooses a car information card. 2. The system displays detailed information including:   + Car’s branch.  + Car’s license plate.  + Car’s color.  + Car’s image.  + Price for renting.  + Car’s current condition.  + Car’s brief description.  + Renting rule.  + Fuel type.  + Contract compensation policy.  + Car’s reviews. |
| **Alternative Flows** |  |
| **Post-conditions** | 1. The system successfully displays all car detail information. 2. The user has essential information to decide whether to book the car. |
| **Special requirements** | 1. Cars’ information has been legally confirmed before users can view it. 2. The total time needed to display all the car's information should be within 0.5 seconds. |
| **Extension Points** |  |

## 

## 8. Use-Case Specification: View Current Trip/ View Current Rental Car List

| **Use case ID** | **UC08** |
| --- | --- |
| **Use case Name** | View Current Trip/ View Current Rental Car List |
| **Brief description** | A customer or an owner can view their current rental car deals. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet. 3. The user accessed the VIVU app. 4. The user is on the “My Trip”/ “My Rental Diary” screen. |
| **Basic Flow** | 1. The system displays the user's current rental car deal. 2. The user views their current rental car deal. 3. The user selects a deal to view more detailed information. |
| **Alternative Flows** | * At step 3. If the user does not have any current trip.   3a.The system will display a message indicating that there is no reservation to view. |
| **Post-conditions** | 1. The information on the current rental car is successfully displayed. 2. The user will be able to view their current reservation. |
| **Special requirements** | 1. The system must display the user's current rental trip in a clear and concise format. 2. The user should be able to filter and sort their current trip by date, location, car type, and other criteria. 3. The user should be able to view detailed information about each rental. 4. The system displays the current trip within 5 seconds. |
| **Extension Points** | 1. The system should allow users to receive notifications about upcoming rental events. 2. The system should allow users to view a map of their current rental route. |

## 9. Use-Case Specification: View Profile

| **Use case ID** | **UC09** |
| --- | --- |
| **Use case Name** | View Profile |
| **Brief description** | This use case allows a customer to view their profile. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet. 3. The user accessed the VIVU app. 4. The user is on the “Profile” screen. |
| **Basic Flow** | 1. The system displays the customer’s information: phone number, password, choice of car rental customer or car owner, full name, address, and date of birth. 2. The user views their information. |
| **Alternative Flows** |  |
| **Post-conditions** | 1. The user will be able to view their profile. |
| **Special requirements** | 1. The system must display the user's profile in a clear and concise format. |
| **Extension Points** | 1. Allow customers to upload a profile picture. |

## 10. Use-Case Specification: Cancel Current Trip

| **Use case ID** | **UC10** |
| --- | --- |
| **Use case Name** | Cancel Current Trip |
| **Brief description** | This use case allows a user to cancel their rental car reservation |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet. 3. The user accessed the VIVU app. 4. The user is on the “My Trip” page. |
| **Basic Flow** | 1. The user selects the current booking that they want to cancel. 2. The user reviews the cancellation policy and compensation fees. 3. The user selects the “Cancel reservation” button. 4. The user confirms the cancellation. 5. The system cancels the reservation. 6. The user receives a confirmation of the cancellation. 7. The system deletes the reservation. |
| **Alternative Flows** | * At step 5: If the user doesn’t confirm the cancellation   5a. the system will return the user to the “My Trip” screen. |
| **Post-conditions** | 1. The user’s reservation will be canceled. 2. The user will be refunded or charged extra fees according to the cancellation policy. 3. The user will receive a confirmation of the cancellation. |
| **Special requirements** | 1. The system must notify the user of any cancellation fees before they confirm the cancellation. |
| **Extension Points** | 1. The system could allow the user to reschedule their reservation instead of canceling it, according to the rental policy and the car owner’s agreement. |

## 11. Use-Case Specification: Rating Car

| **Use case ID** | **UC11** |
| --- | --- |
| **Use case Name** | Rating Car |
| **Brief description** | After the trip, customers can rate the service. |
| **Pre-conditions** | 1. The customer has a history of renting that car. 2. The customer has successfully logged in to the application and viewed the car rental history. 3. The customer can only rate the cars they have rented. 4. The user rented at least a car. |
| **Basic Flow** | 1. The system displays the list that can be rated. 2. The customer selects the car they want to rate. . 3. The system displays the information needed for rating. 4. The customer reviews the quality of the car. 5. The customer selects the "Confirm" button to complete the review. 6. The system records the successful activity and displays it. |
| **Alternative Flows** | At step 5, the customer does not confirm:  5a. The customer selects “Cancel”  5a1. The system does not save the results and returns to the page displaying  the list of cars that can be rated.  Use case returns to step 2 to rate again. |
| **Post-conditions** | 1. The customer rated the service successful. 2. The system records and displays reviews. |
| **Special requirements** | 1. The customer can only rate the rented car within 1 month from the rental date. 2. The customer can only rate once per car. |
| **Extension Points** |  |

## 12. Use-Case Specification: Select Coupon

| **Use case ID** | **UC12** |
| --- | --- |
| **Use case Name** | Select Coupon |
| **Brief description** | Customers can apply coupons for the discount when conditions are satisfied. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user's device is connected to the internet. 3. The user accessed the VIVU app. 4. The user is in the booking car stage. |
| **Basic Flow** | 1. The user clicks the “Add coupon” button 2. The user chooses among available coupons. 3. The user applies the coupons for a discount. |
| **Alternative Flows** | * At step 4, the user wants to change coupon:   4a. The user changes the coupons for a better discount or chooses not to use the coupons. |
| **Post-conditions** | 1. The user select successfully coupon. 2. The total charge after applying the coupon is the one after the discount. |
| **Special requirements** | 1. The total charge should be updated after applying or removing the coupons within 0.5 seconds. |
| **Extension Points** |  |

## 13. Use-Case Specification: Book Car

| **Use case ID** | **UC013** |
| --- | --- |
| **Use case Name** | Book Car |
| **Brief description** | Allow customers to choose which car to rent right away or in advance. |
| **Pre-conditions** | 1. The user has to have a “car rental customer” account. 2. The user account has already been created. 3. The user's device is connected to the internet. 4. The user has successfully logged in to the application. 5. The user is currently in the View Car Details Card. |
| **Basic Flow** | 1. The user clicks the “Book Car” button. 2. The user fills out all booking information: rental date, return date,... 3. The system sends the OTP code via the user’s phone and requires entering the OTP code to confirm to rent the car. 4. The user enters the OTP and confirms to rent the car. 5. The system displays payment information and requires the user to pay the deposit in advance. 6. The user pays the deposit 7. The system displays an electronic car rental contract and prompts the contact between the customer and the car owner. |
| **Alternative Flows** | * At step 3 if the user does not want to rent cars anymore:   3a.The user chooses the “Cancel” button.  3a1. The system displays a cancellation confirmation.  3a2. The system navigates back to the homepage.   * At step 3, if the user wants to confirm by email:   3b1. The system sends the OTP code via the email of the user.  3b2. The user enters the OTP code and confirms to rent that car.  Use case continues at step 5. |
| **Post-conditions** | 1. The user selected successful the car that the user want to rent |
| **Special requirements** | 1. The system performs authentication in no more than 1 minute. 2. The system prevents two users from the same car at the same time. |
| **Extension Points** | 1. The system sends notifications about car information and rental start times to the rental user's email. |

## 14. Use-Case Specification: Pay Deposit

| **Use case ID** | **UC14** |
| --- | --- |
| **Use case Name** | Pay Deposit |
| **Brief description** | This use case allows users to pay deposits for rental car businesses. |
| **Pre-conditions** | 1. The user has successfully logged in to the application. 2. The user is at the end of the process book car. |
| **Basic Flow** | 1. After the user confirms the booking, the system moves to the payment steps. 2. The system navigates to the payment page. 3. The user enters their payment information. 4. The user chooses an available coupon. 5. The user reviews the deposit of the rental and chooses a payment method. 6. The user confirms the payment. 7. The system processes the payment and confirms the booking. |
| **Alternative Flows** | * At step 4. If the voucher expires:   4a. The system will issue the warning to the user and return the user to choose a voucher again.   * At step 5. If the user’s payment is declined:   5a. The system will issue a warning to the user to try a different payment method and return the user to step 5.   * At step 6, if the user does not want to rent cars anymore:   6a.The user chooses the “Cancel” button.  6a1. The system displays a cancellation confirmation.  6a2. The system navigates back to the book car page. |
| **Post-conditions** | 1. The user paid a successful deposit for their rental car reservation. 2. The rental car company will receive the user's payment and confirm the booking. 3. The system prompts the user success notification. |
| **Special requirements** | 1. The payment system must be able to process a variety of payment methods. 2. The payment system must be secure and protect the user's financial information. 3. The system confirms the payment in 5 seconds. |
| **Extension Points** | 1. The user should be able to save their payment information for future purchases. 2. The user should be able to pay the deposit at a rental car branch location. |

## 15. Use-Case Specification: Remove Car

| **Use case ID** | **UC15** |
| --- | --- |
| **Use case Name** | Remove Car |
| **Brief description** | Helps owners delete cars they no longer want to rent. |
| **Pre-conditions** | 1. The user account has already been created. 2. The user has successfully logged in to the application. 3. The owner has at least 1 car in the list of added vehicles. 4. The user's device is connected to the internet during the delete car’s information process. 5. The user is currently on the Edit Rental Car list page. |
| **Basic Flow** | 1. The owner accesses the posted car list. 2. The system displays a list of cars posted by that owner. 3. The owner chooses the car to delete. 4. The owner confirms the car removal. 5. The system records the successful deletion of car information. |
| **Alternative Flows** | * At step 4, the owner does not confirm.   3a. The owner selects “Cancel”.  3a1. The system confirms that the owner did not delete the car and returns to the list of cars.  Use case returns step 3 to delete the car's information again. |
| **Post-conditions** | 1. The owner deleted the car successfully. 2. The system removes the car from the system. |
| **Special requirements** | 1. The system removes information about the car in no more than 2 seconds. |
| **Extension Points** |  |

## 16. Use-Case Specification: Rating Customer

| **Use case ID** | **UC16** |
| --- | --- |
| **Use case Name** | Rating Customer |
| **Brief description** | The owners can rate customers. |
| **Pre-conditions** | 1. The owner has a history of customers who rented their car. 2. The user has successfully logged in to the application. 3. The user is currently in the View Rental History page. |
| **Basic Flow** | 1. The system displays the list that can be rated. 2. The owner selects the customer they want to rate. 3. The system displays the information needed for rating. 4. The owner fills in the information they want to review.. 5. The owner selects the "Confirm" button to complete the review. 6. The system records the successful activity and displays it. |
| **Alternative Flows** | At step 5, the owner does not confirm:  5a. The owner selects “Cancel”.  5a1. The system does not save the results and returns to the page displaying  the list of customers that can be rated.  Use case returns to step 2 to rate again. |
| **Post-conditions** | 1. The owner rated customers successfully. 2. The system records and displays reviews. |
| **Special requirements** | 1. The owner can only rate customers who have rented their car within 1 month of the rental date. 2. The owner is only allowed to rate the customer once per car rental. 3. The owner can only rate customers who have rented their cars. |
| **Extension Points** |  |

## 17. Use-Case Specification: Add New Car

| **Use case ID** | **UC17** |
| --- | --- |
| **Use case Name** | Add New Car |
| **Brief description** | The owner adds new cars that they want to rent. |
| **Pre-conditions** | 1. The user has successfully logged in to the application. 2. The user's device is connected to the internet during the adding car’s information process. 3. The user is currently on the homepage. |
| **Basic Flow** | 1. The owner selects the "Add new car" button 2. The system displays the required information (car image, car brand and model, year of manufacture, rental price,...). 3. The owner enters the requested information and selects additional information. 4. The owner confirms the car's information. 5. The system records successful new car registration activities. |
| **Alternative Flows** | * At step 3, the owner does not confirm.   3a. The owner selects “Cancel”.  3a1. The system does not record the information, just fills in and returns to the homepage.  Use case returns step 1 to add a new car again. |
| **Post-conditions** | 1. The owner added the car successfully. 2. The system displays the new car. |
| **Special requirements** | 1. The owner must not leave blank content that must be entered. |
| **Extension Points** |  |

## 18. Use-Case Specification: Edit Car Information

| **Use case ID** | **UC18** |
| --- | --- |
| **Use case Name** | Edit Car Information |
| **Brief description** | Allow owners to edit incorrect information about that car. |
| **Pre-conditions** | 1. The user has to have a car owner account. 2. The user has successfully logged in to the application. 3. The account has at least a rental car. 4. The user is currently on the homepage. |
| **Basic Flow** | 1. The user clicks the “Edit Car” button. 2. The user chooses the car that they want to edit. 3. The system displays detailed information about the car. 4. The user edits the car’s information. 5. The user confirms edited information. 6. The system checks and updates data. |
| **Alternative Flows** | * At step 6, the user does not want to continue editing car rental information:   6a1. The user chooses to exit.  6a2. The system displays a list of vehicles currently being rented by the user. |
| **Post-conditions** | 1. The user edited the car successfully. 2. The user can view their updated car's information. |
| **Special requirements** | 1. The system has to show detailed information about the car in no more than 3 seconds. |
| **Extension Points** | 1. The system displays a notification that the user changes the information of the car successfully. |

## 19. Use-Case Specification: View Rental Car Statistics

| **Use case ID** | **UC19** |
| --- | --- |
| **Use case Name** | View Rental Car Statistics |
| **Brief description** | Show chart analyzing the number of rented cars and the monthly revenue of car owners. |
| **Pre-conditions** | 1. The user has a car owner account. 2. The user has rented the car. 3. The user has successfully logged in to the application. 4. The user is currently on the profile page. |
| **Basic Flow** | 1. The user chooses the “Monthly Statistics” button. 2. The system will retrieve data from the database to analyze and group each month and display to the user a column chart of the car owner's monthly car rental income. 3. The system will display the number of car rental deals for that month. |
| **Alternative Flows** | * At step 2, the user doesn’t have any car rental deal in that month   2a. The system displays “You don’t have any car rental deal this month!” |
| **Post-conditions** | 1. The car owner successfully views the analysis to be able to make decisions to add, delete, or edit car information accordingly. |
| **Special requirements** | 1. The system retrieves and displays the analysis table in no more than 5 seconds. 2. The system displays detailed monthly rental information within 3 seconds. |
| **Extension Points** |  |