# Use Case Relationships & Written Use Cases for ABC Auto Rental System

## Textual Analysis:

➔ I analyzed the ABC Auto Rental case study to identify system interactions and business rules.
   The focus was on customers, corporate clients, rental agents, and managers, and their activities in the system.
   This textual analysis forms the foundation for identifying actors and defining their responsibilities.

### Case Study:

ABC Auto Rental Company rents cars to individual and corporate clients at different rental rates.
First time customers are prompted to create an online account and a login.
Customers can view available cars, select a car and reserve it online with a credit card, ABC company puts a hold on the card for 500$. In case of invalid credit card or insufficient balance, the system generates an error message and does not complete the reservation. Individual customers may cancel the reservation up to 2 hours before the pickup time without penalty, after which a penalty fee is charged. The corporate client may cancel a reservation any time before the pickup. Customer can also walk in to ABC's location and a rental agents can make the reservation for them by creating a new profile for a new customer or by looking up for an existing customer. The customer picks up the rental car after a visual inspection with a rental agent and then signs up (digitally) the rental agreement which results in creating a new "rental contract" in the system. The customer has the option to buy or waive car insurance at the time of pickup.
Upon returning the car, the customer is charged the rental amount, and an itemized bill is generated for print out and/or email transmission to the customer. If the customer returns the car with some physical damage (as a result of an accident), the rental agent changes the status of the car to "returned in damaged condition" immediately and the manager is notified who can decide to send it for a repair or retire it from the fleet. The car is also removed from the inventory of available cars.
In case of repair manager can then send the bill to the customer (at a later date) after receiving an estimate from the repair shop, if the customer does not have insurance, otherwise, the car is sent to the insurance company for repair with no further action for the customer.
The manager can view all cars on the fleet with details and their current status (in stock, damaged, or rented out). The manager also retires all cars that accumulate 100,000 k.m. or become more than 2 years' old. Corporate clients are not billed directly instead their companies are invoiced for all rentals which they usually pay at a later date.

## Creating Actors and Use Cases:

➔ Actors such as Customer, Client, Agent, and Manager were identified from the case study.
   Corresponding use cases were created, including creating login accounts, reserving cars, cancelling reservations, performing visual inspections, generating bills, and managing fleet status.
   This step ensures that all major system functionalities are associated with the correct actors.

| No. | Candidate Class | Extracted Text | Type | Description | Occurrence | Highlight |
|---|---|---|---|---|---|---|
| 1 | Customer | Customer | ♀ Generate... | Customer | 11 | |
| 2 | Client | corporate clien | ♀ Generate... | Corporate Cliets | 1 | |
| 3 | Agent | rental agent | ♀ Generate... | Rental Agents | 2 | |
| 4 | Manager | manager | ♀ Generate... | The Manager | 4 | |
| 5 | Creating Onlii | create an onlin | ● Generate... | Customers are required and promoted to create online account to see, reserve, book cars | 1 | |
| 6 | Login | login | ● Generate... | After CCreating they are required to login to the account to perform actions | 1 | |
| 7 | Canceling The | cancel the rese hours before t | ● Generate... | Customers can cancel the reservations 2 hrs before pickup without anny charges | 1 | |
| 8 | Visual Inspection | visual inspection | ● Generate... | When rental vechical is returned they will be visually inspected by the rental agents and then the agent is asked to submit the contitionreport of the car to r | 1 | |
| 9 | Rental Amour | rental amount | ● Generate... | Rental amount can be viewed and paid using the account and in–person also. | 1 | |
| 10 | Bill Generatio | an itemized bill is | ● Generate... | After the rental amopunt is charged, print–out and/or email is handed to the customer | 1 | |
| 11 | Physical Dama | physical dama | ● Generate... | The damage done by the customer | 1 | |
| 12 | In Stock | in stock | ● Generate... | How many cars are in stock can be viewed by the manager | 1 | |
| 13 | Damaged | damaged | ● Generate... | How many cars are damaged can be viewed by the manager | 2 | |
| 14 | Rented Out | rented out | ● Generate... | How many cars have been rented out can be viewed by the manager | 1 | |
| 15 | Clients are no directly | Corporate clier directly | ● Generate... | The corporate clients are not directly billed but instead their companies are invoiced for all rentals which they usually pay at a later date | 1 | |
| 16 | View Availabl | view available | ● Generate... | After login, the customers can view the available cars and then make their choice accordingly | 1 | |
| 17 | Select Car | select a car | ● Generate... | Customers can select any available car they want. | 1 | |
| 18 | Reserve it On | reserve it onlin card | ● Generate... | Customer can reserve the cars online with the help of credit card. | 1 | |
| 19 | Client Cancel | cancel a reserv | ● Generate... | Clients can cancel a reservations any time before pickup without been charged | 1 | |
| 20 | Insuffcent Ba | the system ger complete the r | ● Generate... | The system generates an error message wher the balance in credit card is not sufferent and thus the system does not complete the reservation | 1 | |
| 21 | Making Reser | make the reservation | ● Generate... | Rental Agents can may the reservations when any customer do walk in to the Company. | 1 | |

# Use Case Diagram:

➔ A Use Case Diagram was developed showing connections between actors and their actions.
Customers are connected to actions like view available cars, select and reserve cars, and cancel reservations.
Agents handle reservations, visual inspections, and bill generation, reporting to the Manager, who manages fleet status (in-stock, damaged, rented out).
Arrows indicate responsibility and communication flow between actors, including <<include>>, <<extend>>, and generalization relationships where applicable.



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