Systems Analysis and Design

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Teamwork   ver.1

Group 10

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CONTENT

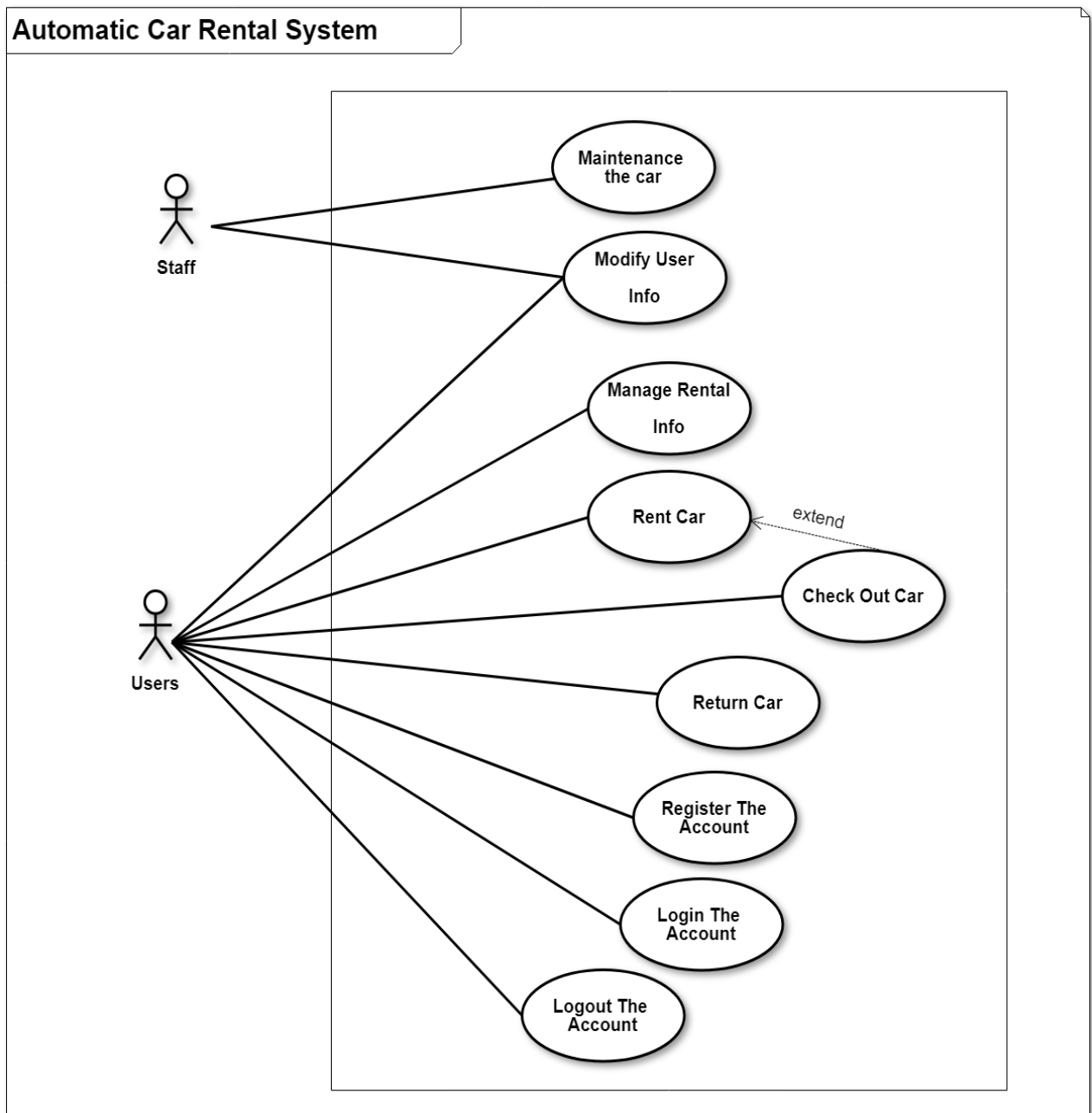# Describe the project in text.

When a customer wants to rent a car, customer must upload an identity card and driver's license to system for certifying by company's staff in order to qualify for a car rental first and register as a member of rental company . After qualifying and logging in the application they can place an order through the online system everytime and everywhere. After the form is filled in, the system will calculate the car rental fee and send the car rental information to the customer . And customer can change the rental information through the online reservation system.

On the day of pickup, the system will notify   customer the plate number of the car to be paired with the chartered vehicle.Before using the car, the system must valid there's credit card, and take a picture of the vehicle and upload the picture to the system to confirm the actual condition of the vehicle,and the system will return the identification code .After you insert the identification code to the system,the car will be unlock,and the key has been tied in the car. If customer need to extend the car rental time, they can use the online system to extend the car.

When the customer return the car to the selected location ,the system will check whether the car has any problems. If there is any problem, notify the company staff to handle the problem. And photographed the situation of the vehicle upload system, the vehicle confirmed that there is no problem before the customer pay the payment through the credit card for online deductions.

In addition, the insurance is through the staff of car rental company to insure the insurance company, and the cost is included in the car rental fee.
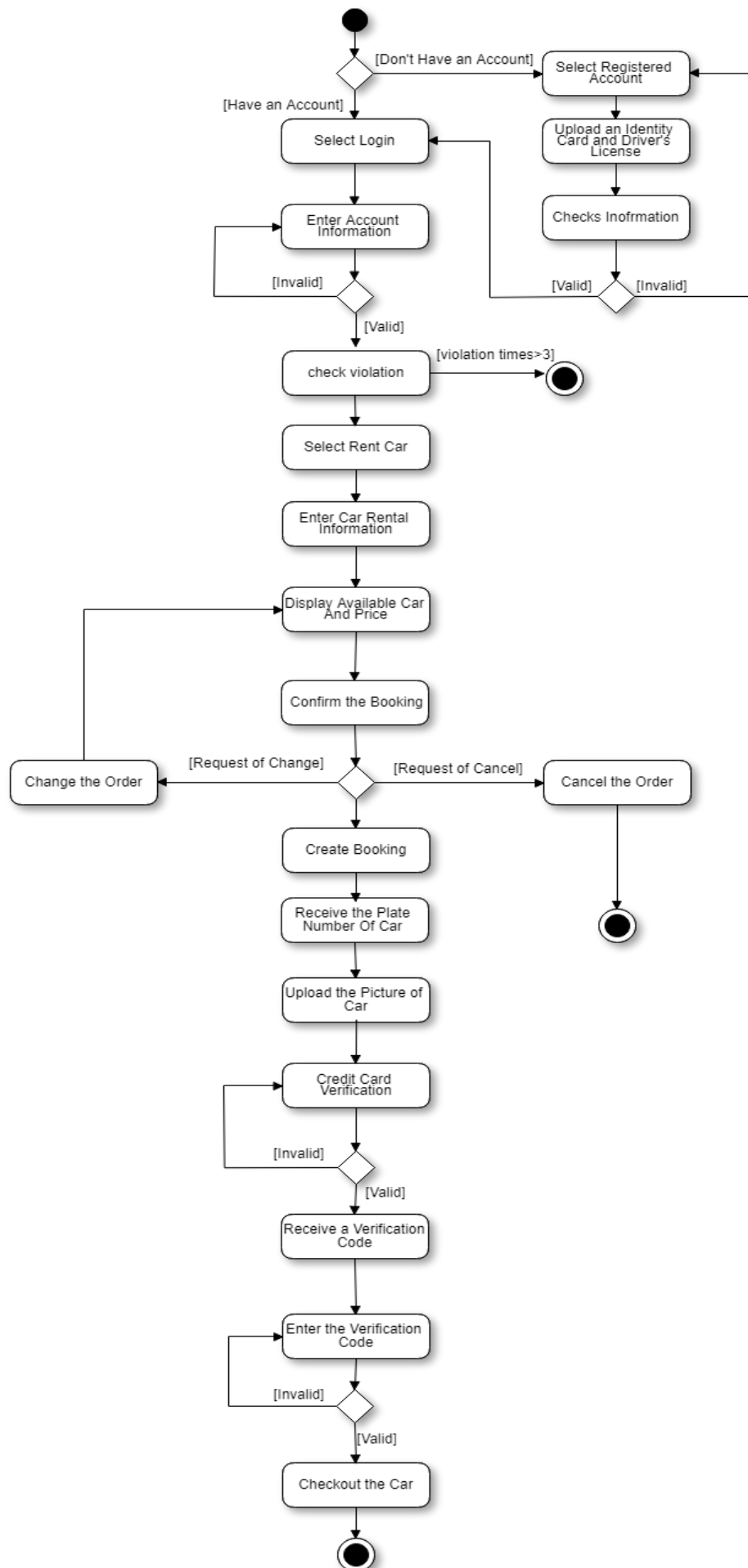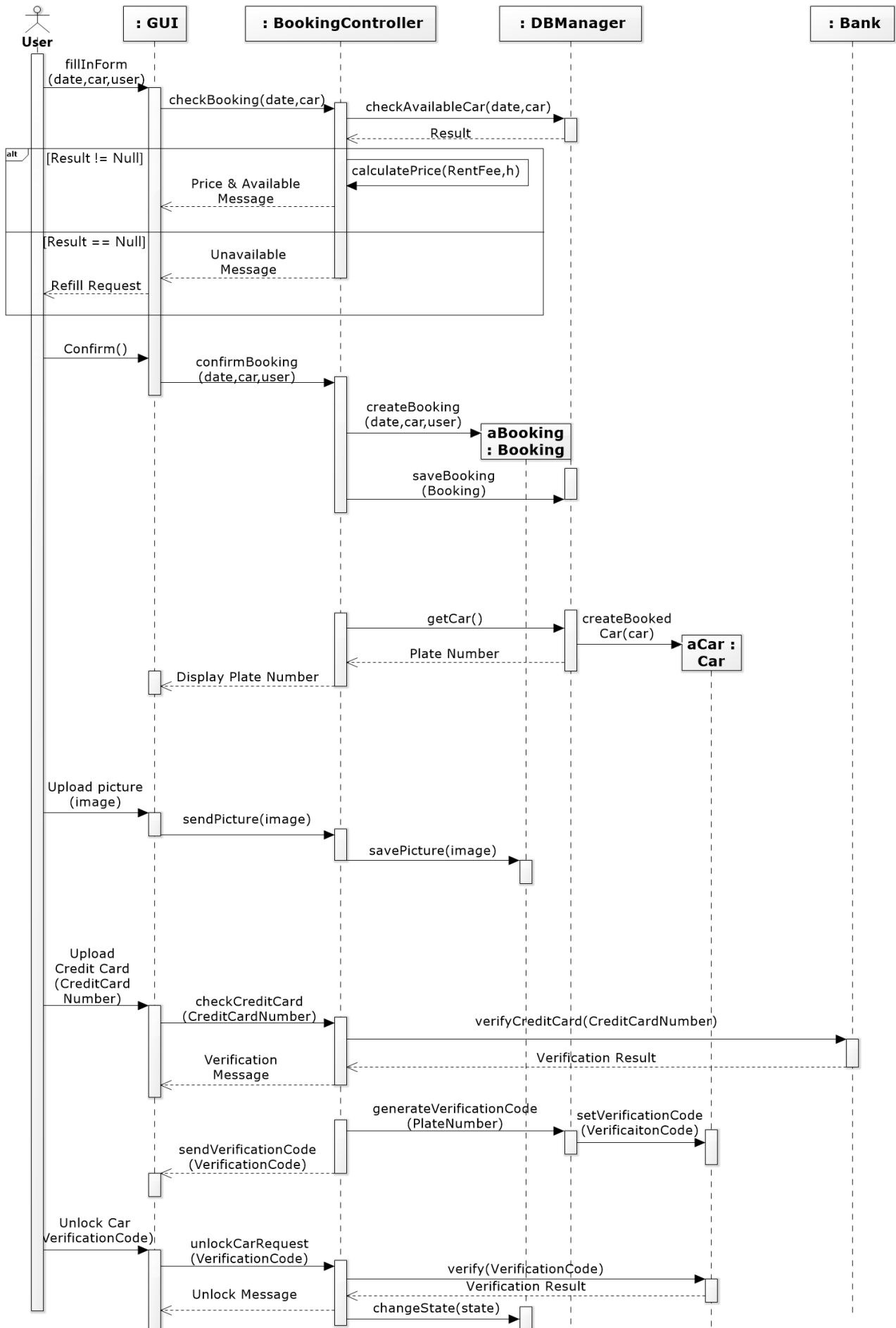
use case diagram

use case description

Use Case Name: Rent Car		ID: 4	Importance Level: High
Primary Actor: Users		Use Case Type:	Detail, Essential

Stakeholders and Interests:
Users–wants to rent a car

Brief Description: This use case describes how to rent a car.

Trigger: User wants to rent a car
Type: External

Relationships:

Association: Users
      Include:
      Extend: Check Out Car
      Generalization:

Normal Flow of Events:

1. The user fill in a form.
2. The system will make a payment to user.
   The S-1: place order subflow is performed.
3. The user will receive the platenumber of car from system.
4. If the user must pick up the car at the designated location,
   Execute the Check Out Car use case.

SubFlows:

S-1: Place order
   1. The system matches the user's order with available car and dates.
   2. The system calculates the car rental.
   3. The system presents the car rental information
   4. The user can choose to cancel or place an order.
      If the user chooses to cancel an order,
         the system end the use case.
      If the user chooses to change an order,
         go S-1: make payment subflow.
      If the user chooses to place an order,
         the system creates a booking.

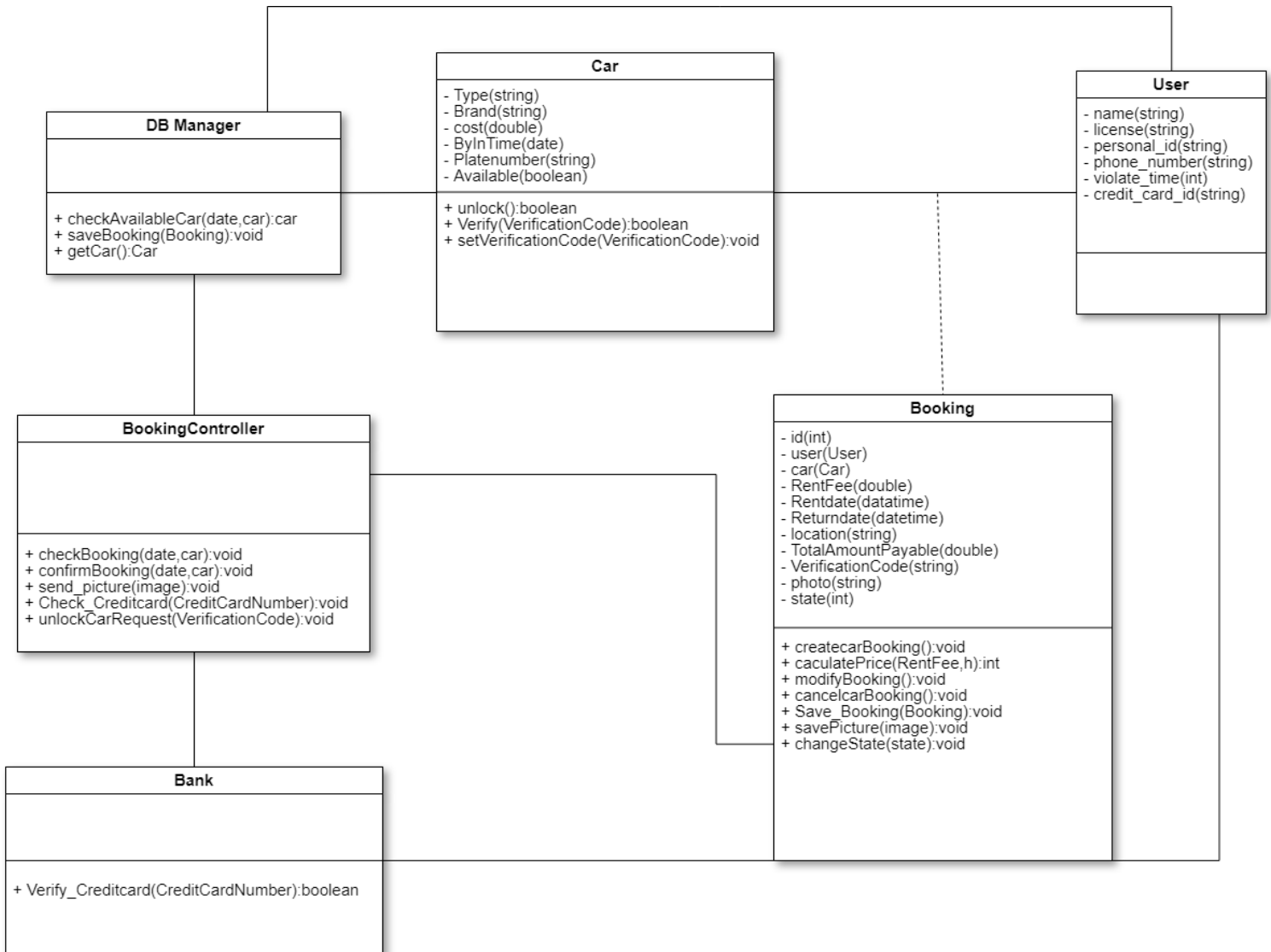| Alternate/Exception Flows: |
|---|
| S-1, 1a1: The system proposes some alternative vehicles based on what is available in the car data base.
S-1, 1a2: The user chooses one of the proposed vehicles or deciders not to make an order. |

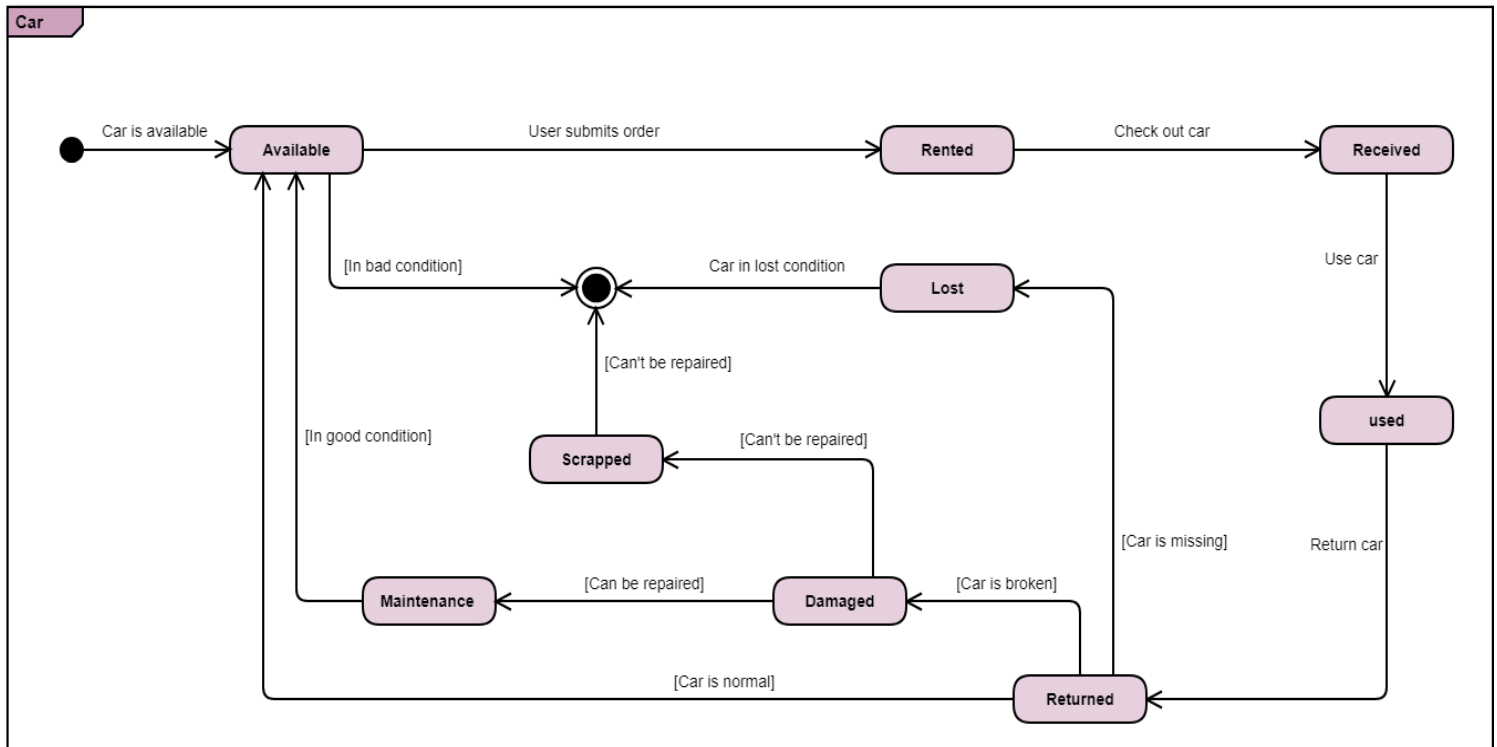# Activity diagram for rent car and check out car

Sequence diagram for rent car and check out car

Class diagram

Car
- Type(string)
- Brand(string)
- cost(double)
- ByInTime(date)
- Platenumber(string)
- Available(boolean)

+ unlock():boolean
+ Verify(VerificationCode):boolean
+ setVerificationCode(VerificationCode):void

User
- name(string)
- license(string)
- personal_id(string)
- phone_number(string)
- violate_time(int)
- credit_card_id(string)

DB Manager

+ checkAvailableCar(date,car):car
+ saveBooking(Booking):void
+ getCar():Car

BookingController

+ checkBooking(date,car):void
+ confirmBooking(date,car):void
+ send_picture(image):void
+ Check_Creditcard(CreditCardNumber):void
+ unlockCarRequest(VerificationCode):void

Booking
- id(int)
- user(User)
- car(Car)
- RentFee(double)
- Rentdate(datatime)
- Returndate(datetime)
- location(string)
- TotalAmountPayable(double)
- VerificationCode(string)
- photo(string)
- state(int)

+ createcarBooking():void
+ caculatePrice(RentFee,h):int
+ modifyBooking():void
+ cancelcarBooking():void
+ Save_Booking(Booking):void
+ savePicture(image):void
+ changeState(state):void

Bank

+ Verify_Creditcard(CreditCardNumber):boolean

Behavior state machine

Participation

ID	Name	Participation	Main responsibility
B10523016	Frank	97.5%	Sequence Diagram & Report
B10523044	Nick	98.75%	Description & Report
B10523011	Lynn	100%	Assist all & Report
B10523038	Edward	96.25%	Use Case Description & Report
B10523014	Betty	97.5%	State Machine & Report
B10523036	Jeff	97.5%	Class Diagram & Report
B10523031	Asrock	92.5%	Activity
B10523041	Billy	97.5%	Use Case Diagram