

# Assignment 1 UML Design

In particular, the design of this system needs to meet the following requirements:

1. When a car entering to the parking area, an intelligent device scan the license plate of the car and register the entry time and the car's info in a local database. A few minutes before leaving the parking slot, the driver needs to pay the parking fee, otherwise he/she is not allowed to abandon the area.
2. The calculation of the parking fee is according to the start price, and the increment price for each 15 minutes. The payment can be done using cash or deducted from his/her VIP points provided by the shopping mall. All the drivers need to pay for the parking space 15 minutes before leaving the parking area, otherwise the cost will be recalculated.
3. The administrator in the parking area can keep a list of parking cars, can query and modify information of each car, and can query the parking history.
4. In addition, the shopping mall set a VIP Day on the 1st day of each month to promote sales for its clients. Specifically, the parking management system could automatically send points in each VIP account at 12:00 am in each VIP Day.

Question 1: Draw a use case diagram according to the scenario above. (30points)

Question 2: Class diagram: Finding out all entity class and one control class according to your design, and draw the class diagram. (30 points)

1. In this section, you need to indicate the class name, relevant attributes, the necessary methods (at least include the ones listed

below) and the relationship between those classes. Please highlight the control class according to your design.

•findAllCarRecord	•findOneCarRecord
•modifyOneCarRecord	•createCarRecord
getCarObjectByPlateNumber	
•changeCarStatus	paymentcalculateFee
•getEnterTime	•changeCarStatus
•getLeavingTime	•getLeavingTime
•addvipPoints	•consumevipPoints

Question 3: Draw a sequence diagram to represent the payment process (40points)

What to submit:?

Complete all the questions and combine the UML diagrams into a single PDF file. If necessary, give several explanations about your diagrams.