Assignment1 UML Design

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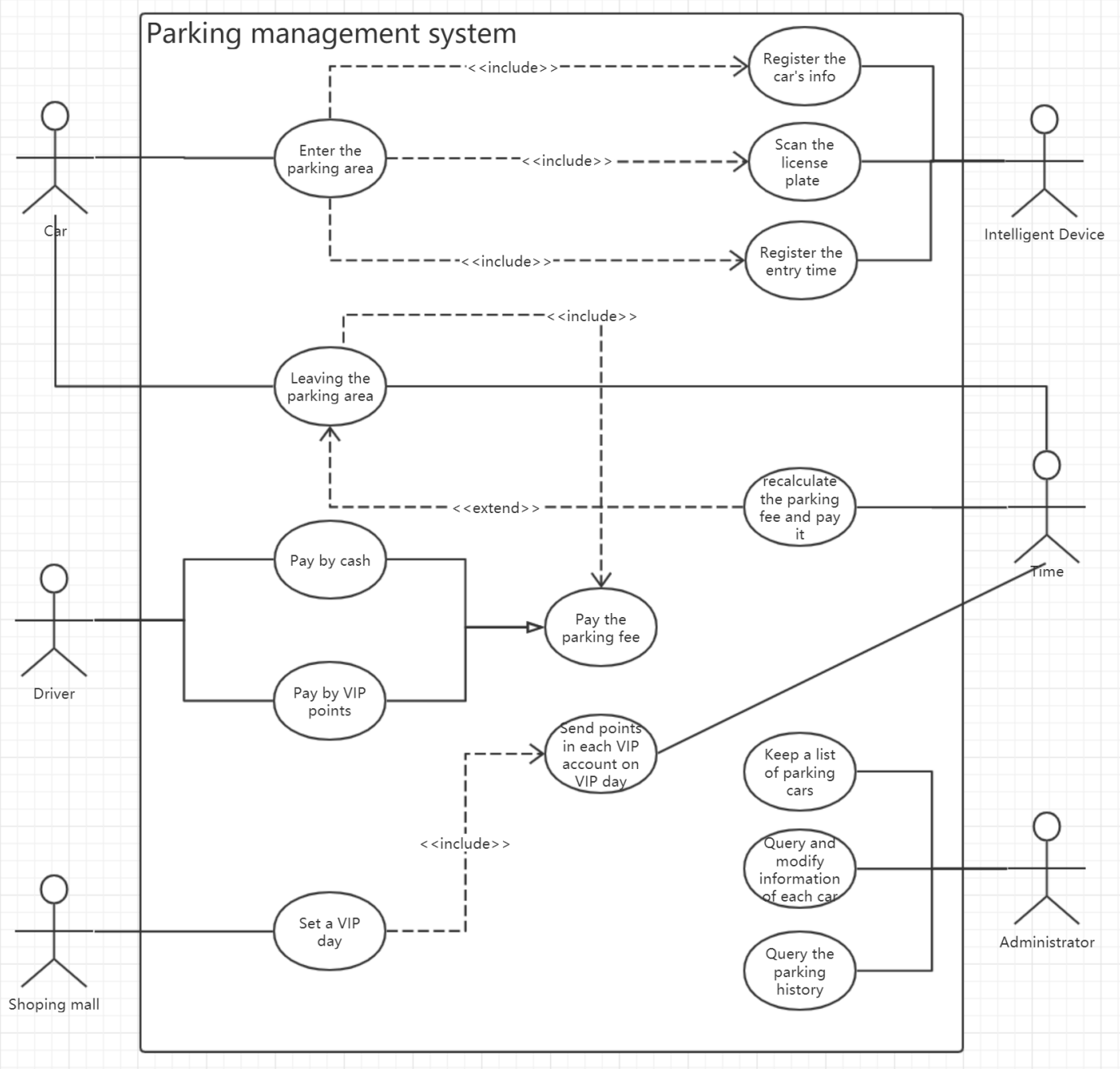
Question1:



Explanation:

In this use case diagram, there are 5 types of actors: Car, Driver, Shopping mall, Intelligent Device and Adiministrator.

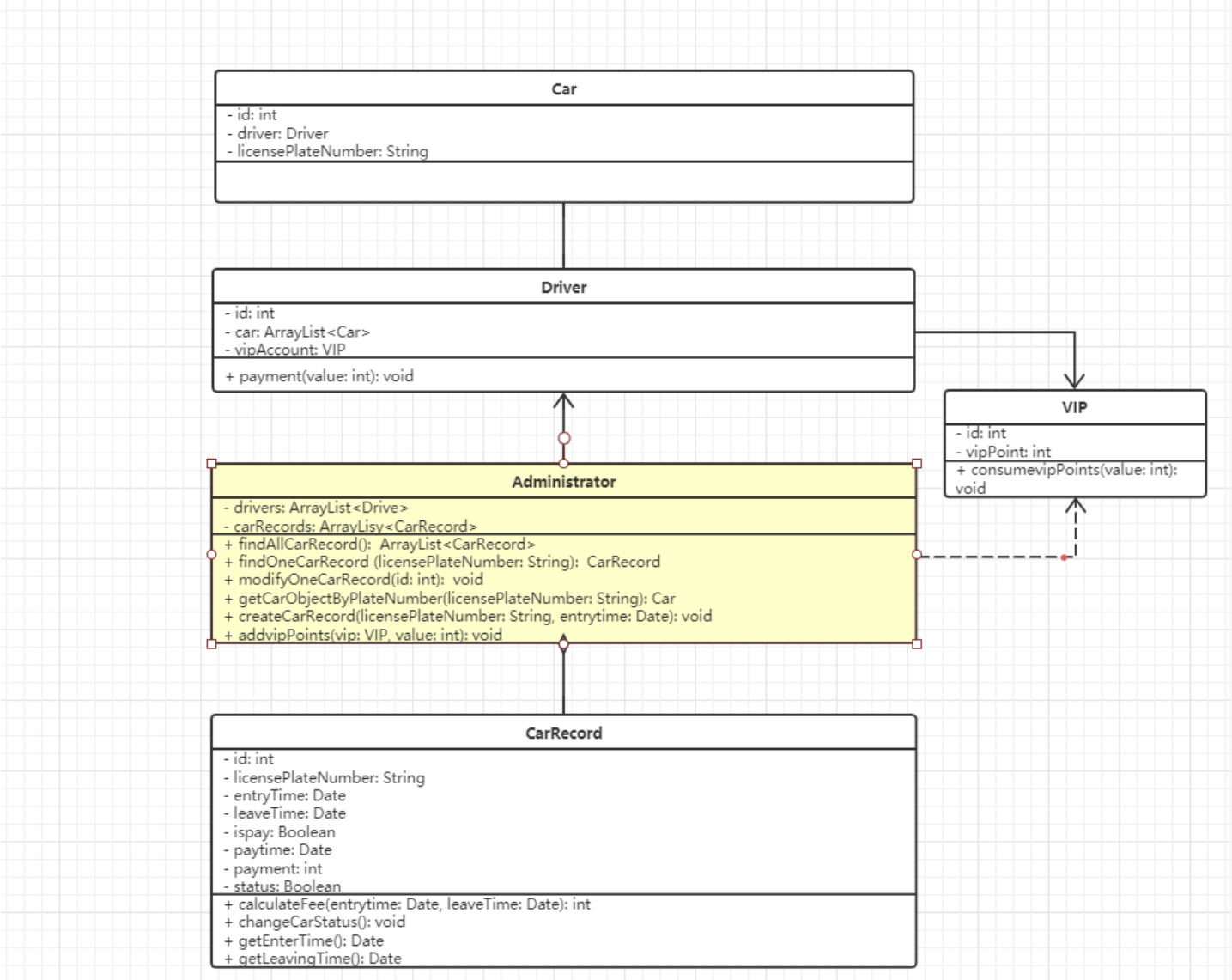
When Car enters the parking area, Intelligent Device will register the car's info, scan the license plate and register the entry time.

When Car wants to leave the parking area, the Driver should pay first, he can pay by cash or VIP points. Time will record the time after the Driver's payment. If time is over 15mins, it will recalculate the parking fee and Driver will pay it.

Shopping mall set a VIP day, and when Time find it is a VIP day, it will send VIP points to each VIP account.

Administrator will keep a list of parking cars, query and modify information of each car and query the parking histroy.

Question2:

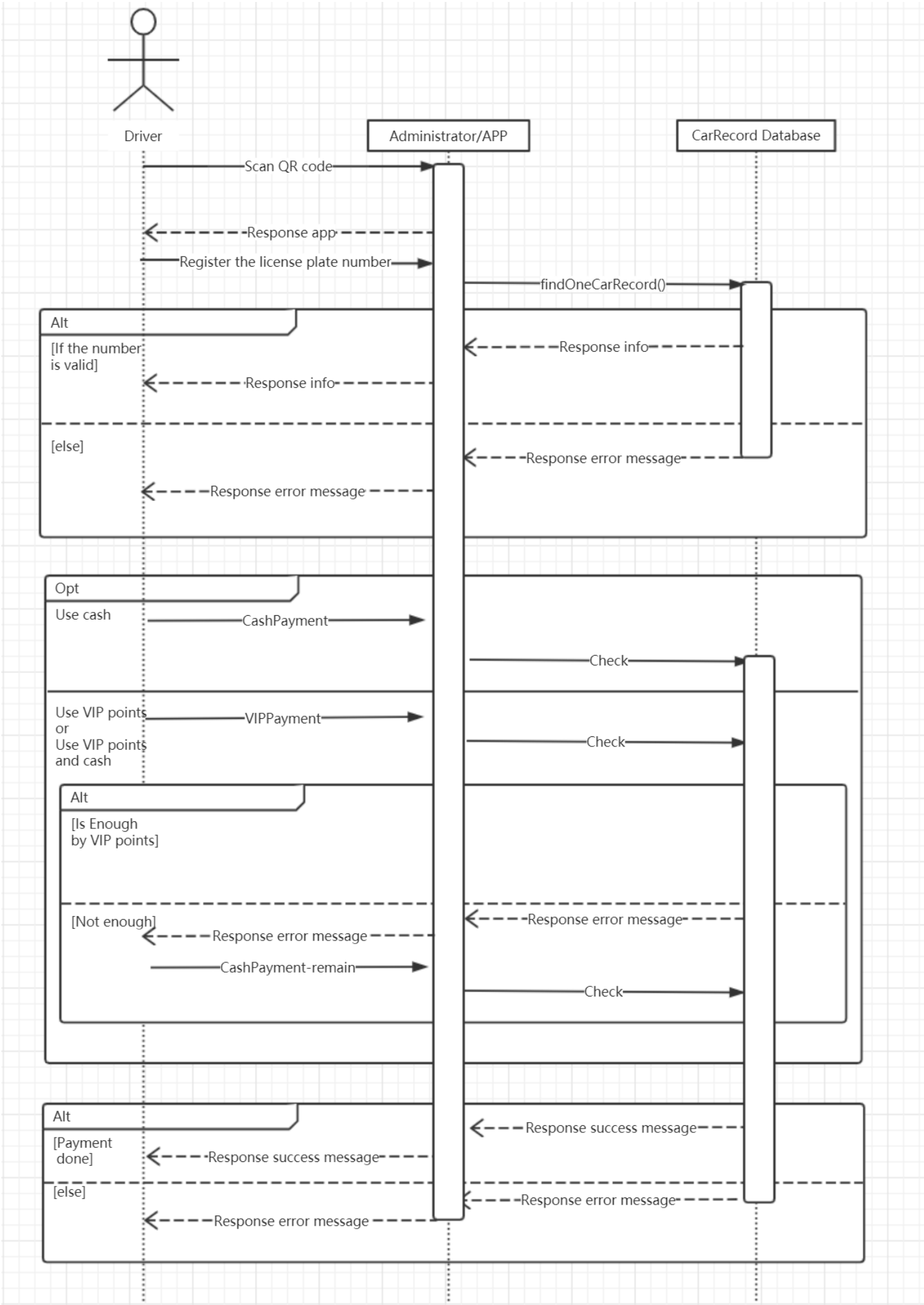


Explanation:

In this class diagram, Administrator is the control class. Car, Driver, CarRecord and VIP is entity

class. All entity classes store data and they have several "get" or "set" methods. Control class control other classes.

Question3:


Driver
Administrator/APP
CarRecord Database
Scan QR code
Response app
Register the license plate number
findOneCarRecord()
Alt
[If the number is valid]
Response info
Response info
[else]
Response error message
Response error message
Opt
Use cash
CashPayment
Check
Use VIP points or Use VIP points and cash
VIPPayment
Check
Alt
[Is Enough by VIP points]
[Not enough]
Response error message
Response error message
CashPayment-remain
Check
Alt
[Payment done]
Response success message
Response success message
[else]
Response error message
Response error message

Explanation:

1. Customer needs to scan the QR code.
2. Register the license plate number
3. If the number is valid, the app can return the parking infomation about the parking time and how much it will cost, otherwise it will return an error message.
4. Costumer need to pay the parking fees
5. If the costumer has a VIP account of the shopping mall, he/she can use the VIP points to deduct all or some of the parking fees.
6. We will check whether the payment is enough, if not enough, the car cannot leave the parking area and need to pay the remaining fee.
7. Once the payment is done, a message is displayed in the screen, indicating the driver that need to leave the parking in 15 minutes