Home Assignment 5

1. **[max 90%] Develop an application to manage the parking usage and reservations for a parking garage**

The purpose of this project is to track and manage occupancy of a parking garage and allow customers to find and reserve available parking places.

System overview:

* 1. Only passenger vehicles can be parked in this parking garage.
  2. Customers will register in advance for using the parking garage.
  3. At the *registration time*, the customer should provide:

1. last name
2. first name
3. address
4. phone number
5. a valid email
6. his or her credit card (visa, Master, or American Express) information
7. car information: model and the license plate.

Restrictions:

1. The spot’s status should be changed to “vacant” immediately as the vehicle has left, and the spot will be made available to other customers for use.
2. The user should be able to cancel the reservation in 24 hours before their reservation period starts.
3. The registered customer is billed once a month by the monthly statement, which includes: full information of a customer, parking reservation, parking fees or penalty fees, if any.

Requirements for User Interaction:

1. Provide Information about the registered customers and their cars.
2. Display the occupancy state of each parking spot: “available,” “reserved,” or “occupied”.
3. Display a list of current parking reservations (spot number, car plate number, customer number, customer name).
4. The customer should be able to check the parking space availability by specifying the desired date and time interval.
5. If the system responds stating that there are available spots, the customer should be able to make the parking *reservation*. Upon successful reservation, the customer is issued the *reservation confirmation number*.
6. The parking garage should distribute special tags/tickets for the customer vehicle identification. It includes: parking spot number, customer reservation number, expiration date and time.