**Case Study-1**

**Parking Lot**

**System Requirements (Excepted and can be added more)**

1. The parking lot should have multiple floors where customers can park their vehicles. 2. The parking lot should have multiple entry and exit points.

3. Customers can collect a parking ticket from the entry points and can pay the parking fee at the exit points on their way out.

4. Customers can pay the tickets at the automated exit panel or to the parking attendant. 5. Customers can pay via both cash and credit cards.

6. Customers should also be able to pay the parking fee at the customer’s info portal on each floor. If the customer has paid at the info portal, they don’t have to pay at the exit.

7. The system should not allow more vehicles than the maximum capacity of the parking lot. If the parking is full, the system should be able to show a message at the entrance panel and on the parking display board on the ground floor.

8. Each parking floor will have many parking spots. The system should support multiple types of parking spots such as Compact, Large, Handicapped, Motorcycle, etc.

9. The Parking lot should have some parking spots specified for electric cars. These spots should have an electric panel through which customers can pay and charge their vehicles.

10. The system should support parking for different types of vehicles like car, truck, van, motorcycle, etc.

11. Each parking floor should have a display board showing any free parking spot for each spot type.

12. The system should support a per-hour parking fee model. For example, customers have to pay Rs 20 for the first hour, Rs 10 for the second and third hours, and Rs 5 for all the remaining hours.

*Case study: team 7*

*Group members: Greeshmitha , Harshitha, Roopa, Charan ,Sandeep*

1. *So for this we have considered to divide the type of vehicles are 5 types (motorbike , car,van,truck,electric)*
2. *And the spots as small , compact , large and respectively and based on vehicle sizes we have allotted them to the spots*

*vehiclesize=1 vehicle can be parked in small,compact and even large spots as well*

*Vehicle size =2 vehicle can be parked in compact and large spots*

*Vehicle size=3 vehicle can be parked in only large spots.*

1. *For the parkinglot we have considered the building as 5 floors and each floor consists of 15 spots where we have 5 small,5 compact and 5 large spots consecutively.*
2. *So we have considered different main classes like*

*\*Entry panel*

*\*Customer*

*\*Spot*

*\*Floor*

*\*Farecontroller*

*\*Exit panel*

1. *Entry panel : here we take input of the basic details like vehicle number,customers*

*Mobile number,assign him an id , and show him the free spots available*

*In each floor respectively based on the vehicle type he can select*

*Wherever he wants to park nearest to him.*

1. *Customer : so in customer class we consider vehicle type and write functions to*

*Assign them and here we can also see the number of hours the customer*

*Customer parks his vehicle(outgoing time - incoming time).*

1. *Spot : \* we take a note of timings when the vehicle is parked and also when the*

*Vehicle is removed to calculate bill.*

*\*we divide the each floor into 15 spots (5 small , 5 compact , 5 large)*

*\*we consider 2 cases for the display method : 1.incoming (here if customer*

*Wants to park his vehicle we will allot a nearest slot to him)*

*2.outgoing (if customer wants to leave then we will mark the place reserved*

*For him as free for allocation for the next coming customers)*

1. *Farecontoller: \*here we calculate the bill based on number of hurs the vehicle has been*

*Parked ,and we if the vehicle type is electrical we consider an extra fare*

*Of rupees 10 or electricharge that is included in bill.*

*\* we display the bill and we also provide the mode of payment like through*

*Cash or even through credit card .*

*\*in case of credit card we check whether the entered creit card is valid or not*

*And return successful transaction incase of valid transaction or else it will*

*Return try again , in case of cash it will show like this much of amount of bill is*

*To be paid.*

1. *Exit panel : here we show total bill paid , paid status , no.of parking hours, and ask for*

*reviews.*

1. *So this the basic layout of our program we have discussed all the possibilities and worked it out.*
2. *We had 2 meetings extra other than the discussion during lab hours to sort out the things.*
3. *Team members contribution : 1. Greeshmitha –classes Floor , spot ,customer*

*2.Roopa – fair controller, entry and exit panels*

*3.Harshitha – display board, and also customer class*

*(others supported the the team by contributing ideas).*