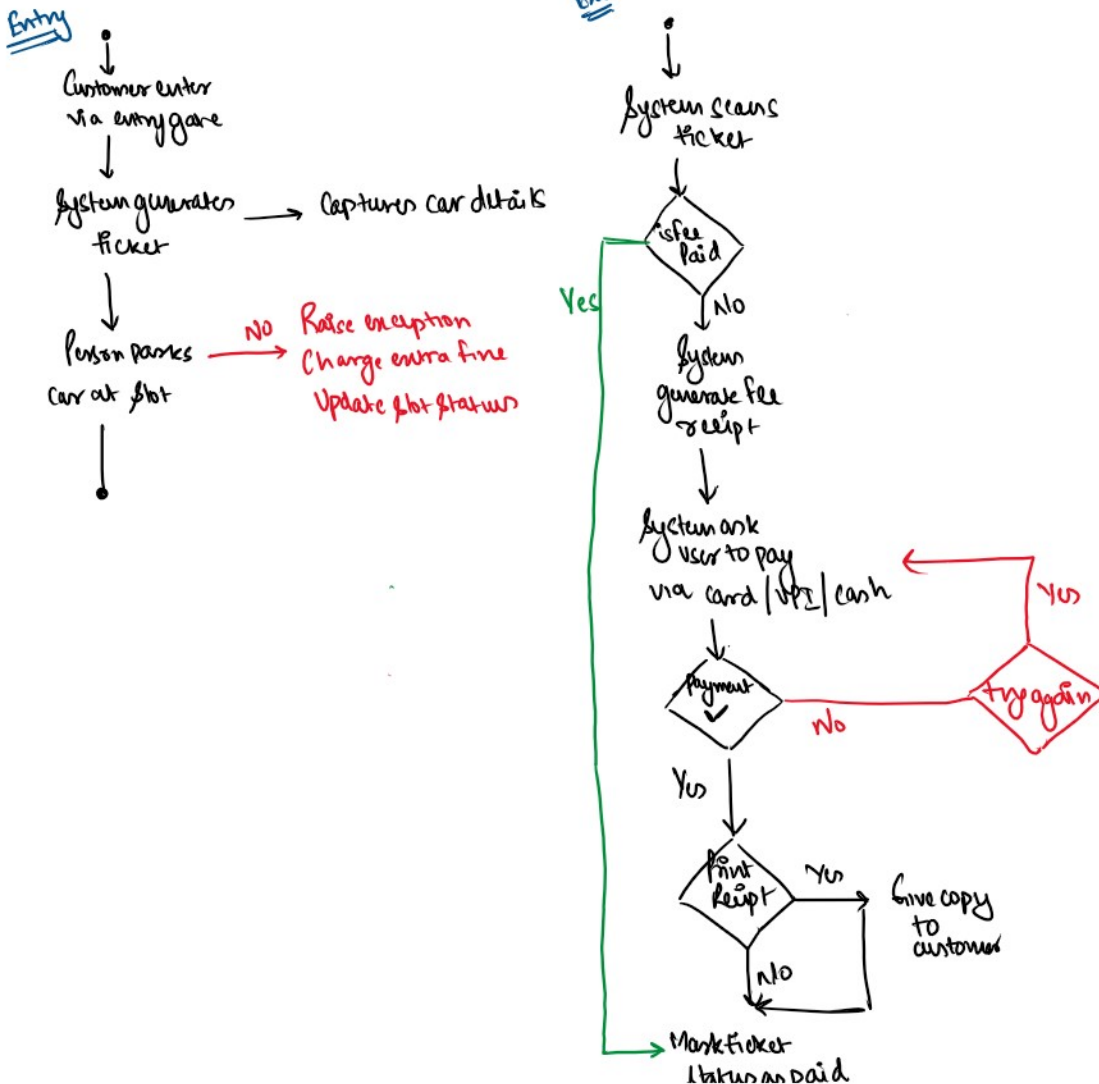# Parking Lot

Tuesday, February 8, 2022   12:20 PM

System Requirements

We will focus on the following set of requirements while designing the parking lot:
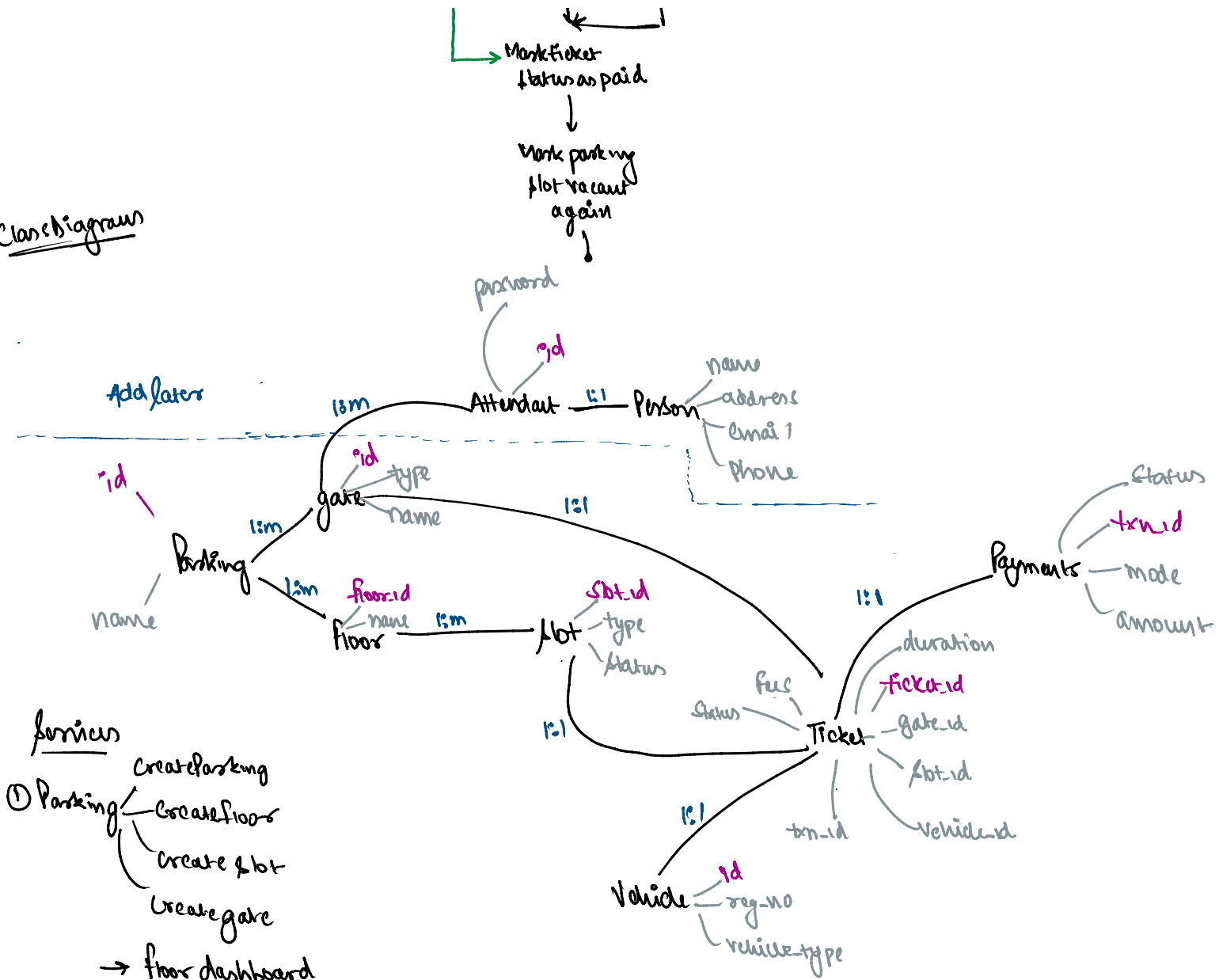
1. The parking lot should have multiple floors where customers can park their cars.

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 $4 for the first hour, $3.5 for the second and third hours, and $2.5 for all the remaining hours.

Legend:
- Yellow → Actors
- Purple → Actions

Mark Ticket
Status as paid

↓

Mark parking
slot vacant
again

Class Diagrams

password

•id

Attendant —1:1— Person
- name
- address
- email
- Phone

•id
—type
gate —name

1:3m

1:1

•id
Parking

name

1:m

1:1
Slot_id
—type
—status

floor_id
—name
Floor —1:m— Slot

1:1

Payments
- status
- txn_id
- mode
- amount

duration
Ticket_id
—gate_id
—Slot_id

fees
status

txn_id   Vehicle_id

1:1

Vehicle
- Id
- reg_no
- vehicle_type

Ticket

Services

① Parking
- CreateParking
- CreateFloor
- Create Slot
- Create gate
→ Floor dashboard

② TicketService → generateTicket
¦
ParkingService
- CaptureVehicledetails
- CustomerPortal
- PayFees

③ Account
Service → Create employers