

# How to design a Parking Lot



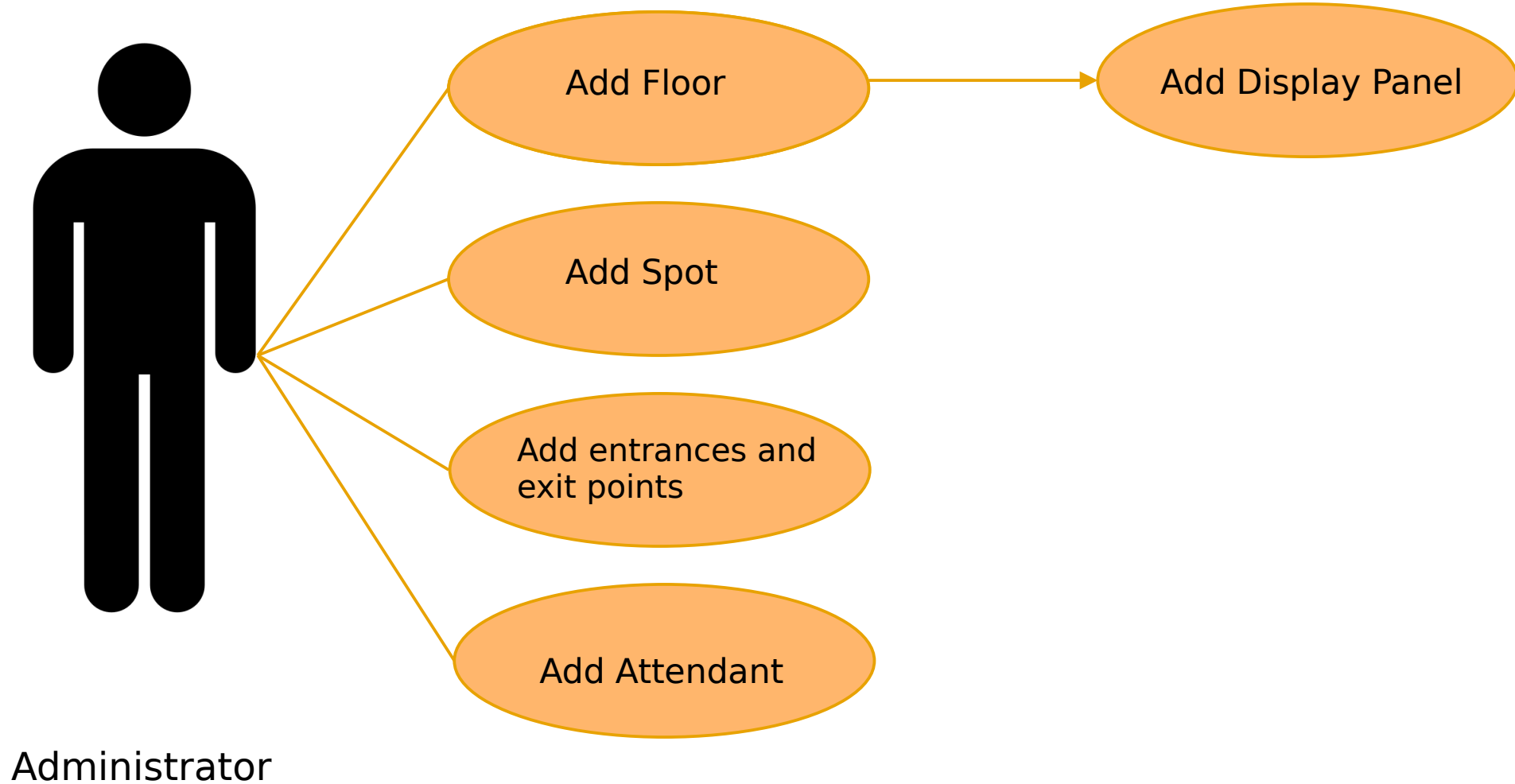
# System Requirement :

- Parking lot should have multiple floors.
- Multiple Entrances and exit points.
- Support for multiple parking spot sizes like – Bike , Car, Truck, Bus, etc.
- Facility for customer to collect ticket at entrance and pay at exit point.
- Multiple payment option support – Card or Cash
- Customer should pay ticket to Parking attendant.
- If the parking is full, Should display message at entrance point.
- Display free parking spots on each floor.

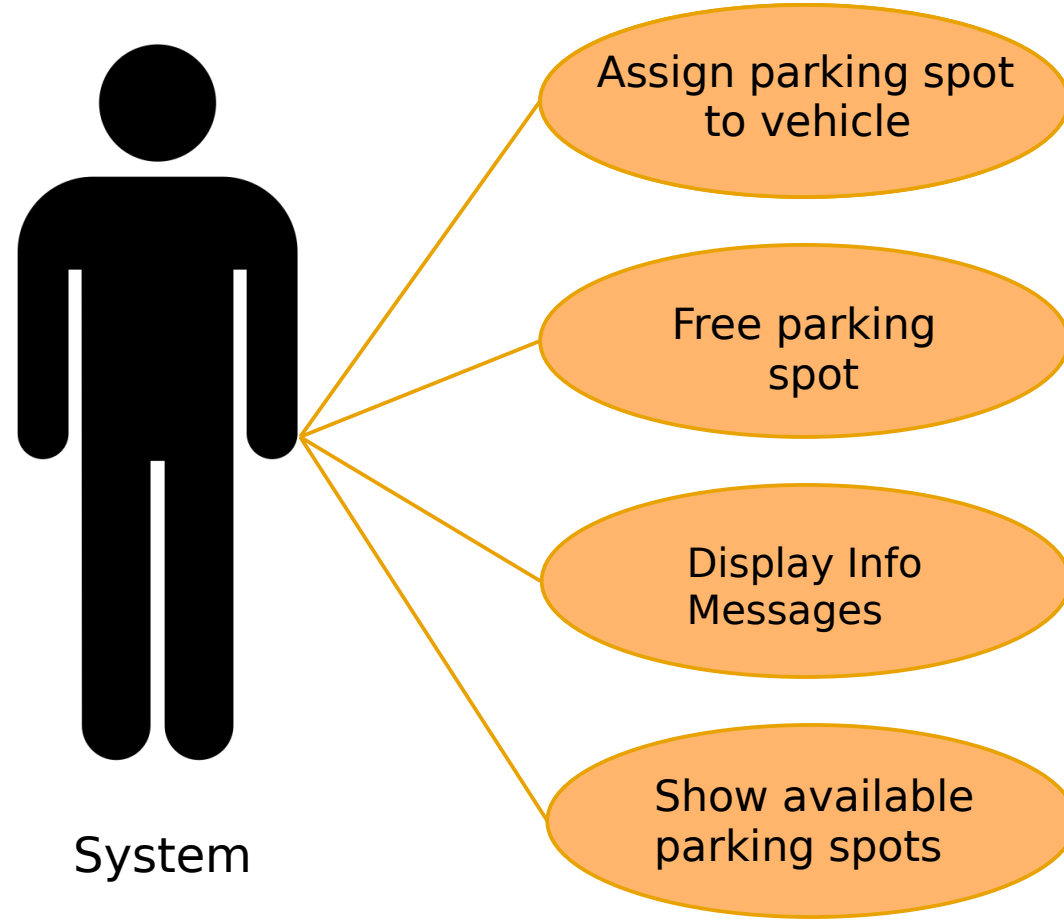
# Main Modules :

- Administrator : This module is responsible for adding / Modifying Parking lot attributes like floors, spots, entrance and exit points, parking attendants etc.
- System : This module is responsible for displaying info on display panel, assign parking spot to a vehicle and free parking space when vehicle departs.
- Parking attendant : Responsible for activities like ticket assignment and payment processing for each customer.
- Customer : Module is responsible for requesting parking ticket and pay for it.

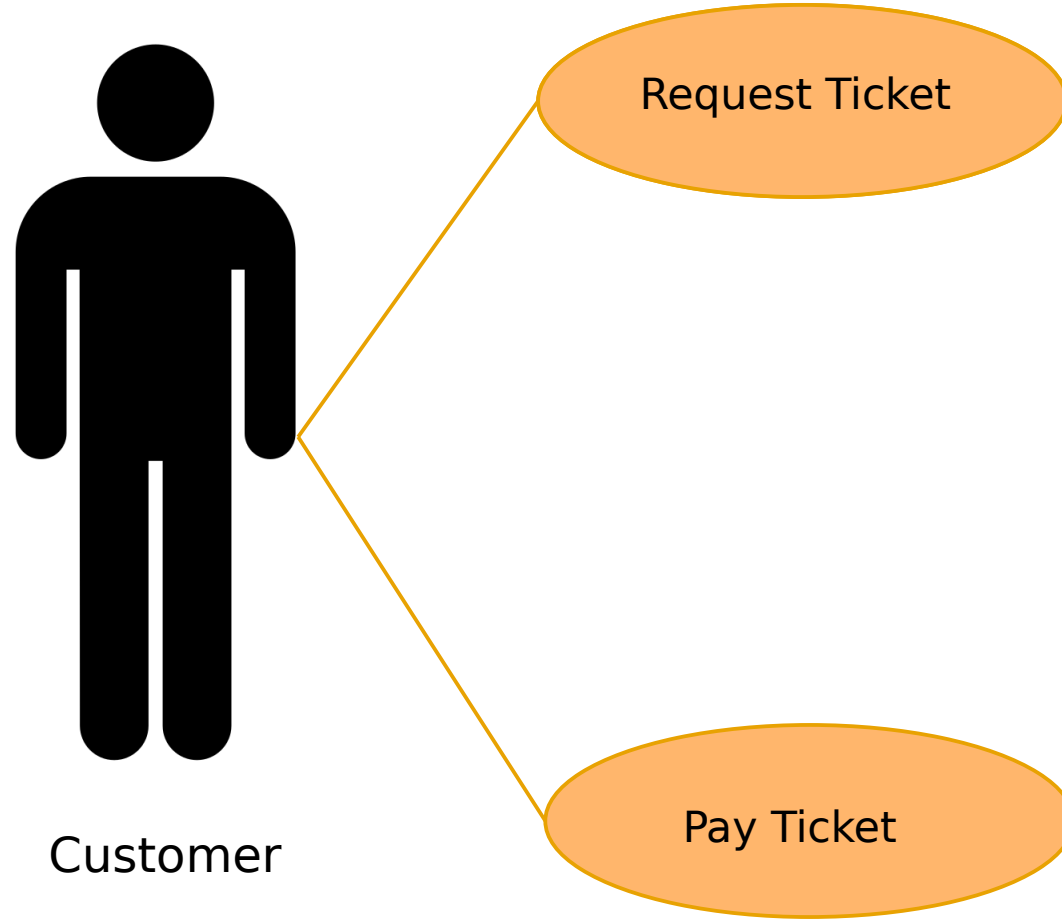
# Use case diagram for Administrator :



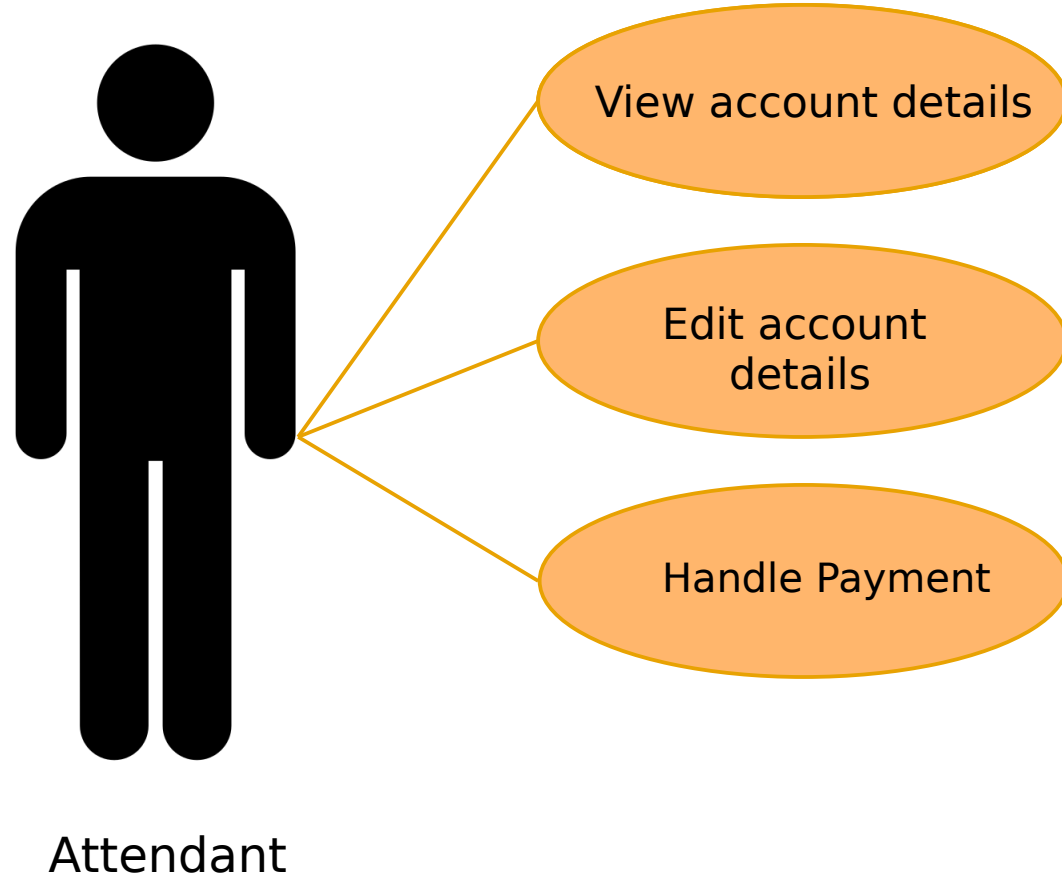
# Use case diagram for System :

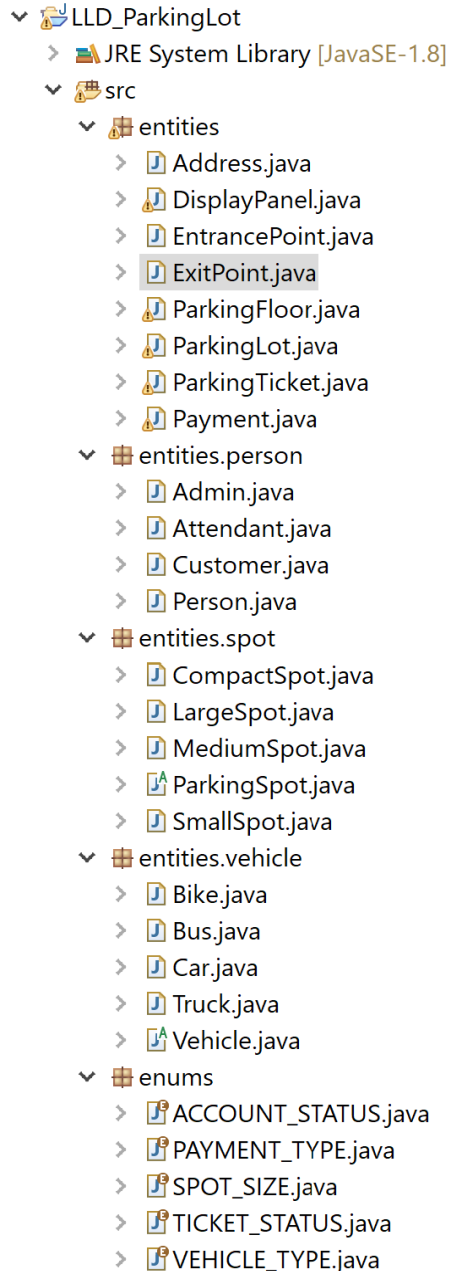


# Use case diagram for Customer :



# Use case diagram for Attendant :





# Class Entities :

- Person : An abstract class person which stores basic info. A person can be Attendant, Admin or Customer.
- ParkingSpot : Another abstract class having attributes related to a spot. CompactSpot, SmallSpot, MediumSpot, LargeSpot are all different specialization of Generalized ParkingSpot class.
- Vehicle : Abstract class Vehicle contains attributes related to it and Different kinds of Vehicles extend Vehicle class like Bike, Car, Truck and Bus.
- ParkingLot : This is the central part of our design. It contains ParkingFloors, Entrances and exits.
- ParkingFloor : Represents a floor in parking lot and contains all different kinds of parking spots and DisplayPanel.
- EntrancePoint : ParkingTicket is been issued at entrance point.
- ExitPoint : Exit point has an Attendant.
- Attendant : Attendant is responsible to handle customer ticket payment and exit validation.
- ParkingTicket : Contains info related to parking and fare details.