# **Project Title :**

Parking Management System

# **Classes:**

## Vehicle:

Attributes: License plate number, vehicle type, model, color.

Methods: Getters and setters for properties.

## Parking spot:

Attributes: Spot number, availability (occupied or vacant), vehicle parked (if occupied).

Methods: Occupying spot, vacating spot, checking availability, etc.

## Parking Lot

Attributes: List of parking spots, total capacity, current occupancy.

Methods: Adding spots, removing spots, finding available spots, calculating occupancy, etc.

## Parking Ticket

Attributes: Ticket number, vehicle details, entry time, exit time (if applicable), fee, etc.

Methods: Calculating fee, generating ticket, etc.

## Parking System

Attributes: Parking lot instance, reservation system (if applicable), fee calculation logic, etc.

Methods: Parking vehicle, exiting vehicle, making reservation, etc.

## Reservation System:

Attributes: List of reserved spots, reservation rules, etc.

Methods: Making reservation, canceling reservation, checking availability, etc.

## Payment System

Attributes: Payment methods, fee calculation logic, etc.

Methods: Processing payment, generating receipts, etc.

# **Workflow:**

## Vehicle Entry:

User drives in.

System checks for available parking spots.

If available, assigns a parking spot to the vehicle and generates a parking ticket.

If no spots available, user is informed and may have to wait or try again later.

## Vehicle Exit

User drives out.

System calculates the fee based on the duration of parking.

User pays the fee either through cash, card, or any other supported method.

Parking ticket is marked as paid and archived.

## Reservation:

User reserves a parking spot in advance (if supported).

System checks for availability and reserves the spot.

On arrival, user presents the reservation details, and the system assigns the reserved spot.

* Payment

After parking duration, user pays the fee.

Payment can be made at a payment kiosk or through an online payment gateway.