

Assignment 1

Parking Ticket Simulator

For this assignment, you will design a set of classes that work together to simulate a police officer issuing a parking ticket. The classes you should design are:

- **The `ParkedCar` Class:** This class should simulate a parked car. The class's responsibilities are:
 - To know the car's make, model, color, license number, and the number of minutes that the car has been parked
- **The `ParkingMeter` Class:** This class should simulate a parking meter. The class's only responsibility is:
 - To know the number of minutes of parking time that has been purchased
- **The `ParkingTicket` Class:** This class should simulate a parking ticket. The class's responsibilities are:
 - To report the make, model, color, and license number of the illegally parked car
 - To report the amount of the fine, which is \$25 for the first hour or part of an hour that the car is illegally parked, plus \$10 for every additional hour or part of an hour that the car is illegally parked
 - To report the name and badge number of the police officer issuing the ticket
- **The `PoliceOfficer` Class:** This class should simulate a police officer inspecting parked cars. The class's responsibilities are:
 - To know the police officer's name and badge number
 - To examine a `ParkedCar` object and a `ParkingMeter` object, and determine whether the car's time has expired
 - To issue a parking ticket (generate a `ParkingTicket` object) if the car's time has expired

Write a program that demonstrates how these classes collaborate.