

Vehicle Rental System

General Description

You will develop a Vehicle Rental System. This system will include vehicles, customers, and rental transactions. You will use inheritance to derive various types of vehicles (e.g., "Car", "Truck", "Motorcycle") from a general "Vehicle" class. Encapsulation principles should be adhered to by safely storing class properties and accessing them through getter and setter methods.

Classes:

1. Vehicle Class (Base Class):

Properties:

- Brand (String)
- Model (String)
- Year (int)
- IsRented (boolean)

Methods:

- + Vehicle(brand, model, year, isRented)
- + Getter and setter methods for each property.

2. Car Class (Derived from Vehicle):

Properties:

- Passenger Capacity (int)
- Automatic Transmission (boolean)

Methods:

- + Car(brand, model, year, isRented, passengerCapacity, automaticTransmission)
- + Getter and setter methods for each property.

3. Truck Class (Derived from Vehicle):

Properties:

- Load Capacity (int)
- FourWheelDrive (boolean)

Methods:

- + Truck(brand, model, year, isRented, loadCapacity, fourWheelDrive)
- + Getter and setter methods for each property.

4. Motorcycle Class (Derived from Vehicle):

Properties:

- Engine Volume (int)
- HasABS (boolean)

Methods:

- + Motorcycle(brand, model, year, isRented, engineVolume, hasABS)
- + Getter and setter methods for each property.

5. Customer Class:

Properties:

- First Name (String)
- Last Name (String)
- ID Number (String)
- Rented Vehicles (ArrayList<Vehicle>)
- Rental Contrats (ArrayList<RentalContrat >)

Methods:

- + Customer(firstName, lastName, id)
- + Getter and setter methods for each property.
- + Methods to rent and return vehicles: adding or removing a vehicle to/from the list of vehicles rented by the customer.

6. RentalContrat Class:

Properties:

- Customer (Customer)
- Rented Vehicle (Vehicle)
- Rental Start Date (Date)
- Rental End Date (Date)

Methods:

- + RentalContrat(customer, rentedVehicle, rentalStartDate, rentalEndDate)
- + Getter and setter methods for each property.
- + Calculate Rental Period: Calculate the difference between the start and end dates in days.