

Exercise (Polymorphism)

Create a Java program for a Vehicle Rental System that leverages polymorphism to manage different types of vehicles (e.g., Cars, Bikes, Trucks). Define a common interface **Vehicle** with methods for calculating rental charges and displaying vehicle details. Implement subclasses for **Car**, **Bike**, and **Truck**, each with its own pricing strategy and details. Allow users to rent vehicles, calculate rental charges, and view vehicle information.

Instructions:

1. Create an interface named **Vehicle** with the following methods:
 - **double calculateRentalCost()** for calculating rental charges.
 - **void displayDetails()** for displaying vehicle details.
2. Implement three classes: **Car**, **Bike**, and **Truck**, all of which should implement the **Vehicle** interface. Each class should have appropriate instance variables, constructors, and implementations for the **calculateRentalCost** and **displayDetails** methods.
 - For **Car**, use a daily rate of \$50.
 - For **Bike**, use an hourly rate of \$10.
 - For **Truck**, use a weekly rate of \$500.
3. Class instance:
 - For **Car**: model , days.
 - For **Bike**: brand, hour.
 - For **Truck**: type , week.
4. In the **main** method of the **VehicleRentalSystem** class:
 - Create an empty list to store rented vehicles: **List<Vehicle> rentedVehicles = new ArrayList<>();**
 - Implement a menu-driven interface that allows users to:

- Rent a Car: Prompt the user for the car model and rental days.
 - Rent a Bike: Prompt the user for the bike brand and rental hours.
 - Rent a Truck: Prompt the user for the truck type and rental weeks.
 - View Rented Vehicles: Display details of all rented vehicles.
 - Exit the program.
5. For each rental option (Car, Bike, Truck), create an instance of the corresponding class, add it to the **rentedVehicles** list, and display the rental details (model, brand, type, etc.) and the rental cost.
 6. Allow the user to continue renting vehicles until they choose to exit.

Sample Output:

Vehicle Rental System

1. Rent a Car
2. Rent a Bike
3. Rent a Truck
4. View Rented Vehicles
5. Exit

Enter your choice: 1

Enter Car Model: Toyota Camry

Enter Rental Days: 5

Rental Details:

Car Model: Toyota Camry

Daily Rental Rate: \$50.0

Rental Cost: \$250.0

Enter your choice: 4 Rented

Vehicles:

Car Model: Toyota Camry

Daily Rental Rate: \$50.0

Rental Cost: \$250.0

Bike Brand: Mountain Bike

Hourly Rental Rate: \$10.0

Rental Cost: \$30.0

Enter your choice: 5

Thank you for using the Vehicle Rental System!