Problem statements to implement **Single, Multilevel, and Hierarchical Inheritance** in Java:

1. Single Inheritance – Employee System

Problem Statement:

Create a Java program to model an **Employee Management System** using **Single Inheritance**.

- Define a **base class `Employee`** with attributes like `name`, `id`, and `salary`.
- Create a **derived class `Manager`** that inherits from `Employee` and has an additional attribute `department`.
- Implement a method `displayDetails()` in `Employee` and override it in `Manager`.

Expected Output:

```
Employee Name: John
Employee ID: 101
Salary: 50000
Department: IT
```

2. Multilevel Inheritance – Vehicle System

Problem Statement:

Develop a Java program to demonstrate **Multilevel Inheritance** using a **Vehicle hierarchy**.

- Create a **base class `Vehicle`** with attributes `brand` and `speed`.
- Create a **subclass `Car`** that extends `Vehicle` and has an additional attribute `fuelType`.
- Further, create a **subclass `ElectricCar`** that extends `Car` and adds the attribute `batteryCapacity`.
- Implement a `showDetails()` method to display the properties at each level.

Expected Output:

```
Brand: Tesla
Speed: 200 km/h
Fuel Type: Electric
Battery Capacity: 100 kWh
```

3. Hierarchical Inheritance – Shape Drawing System

Problem Statement:

Implement **Hierarchical Inheritance** using a **Shape classification system**.

- Define a **base class `Shape`** with attributes `color` and `borderWidth`.
- Create **subclasses `Circle` and `Rectangle`** that inherit from `Shape`.
- Add specific attributes: `radius` for `Circle`, `length` and `width` for `Rectangle`.
- Implement a method `calculateArea()` in each subclass to calculate the area of the respective shape.

Expected Output:

```
Circle Color: Red
Border Width: 2px
Radius: 5
Area: 78.5

Rectangle Color: Blue
Border Width: 3px
Length: 4
Width: 6
Area: 24
```
