

Name: Chandrahasa B

Student code: AF0336567

Batch Code: ANP-C6315

Lab Assignment – 11

Inheritance

Question 1: Write a Java program to create a class called Vehicle with a method called drive().

- Vehicle should have attributes such as make (String), model (String) , year (int) and maximumSpeed (int).
- Create a constructor in Vehicle with all fields as constructor parameters.
- Create a subclass called Car and override constructor. Call super().
- Write a function that overrides the drive() method to print (make + " " + model + " Car is driving".)
- Also create another subclass Bike extending the vehicle class.
- Override the drive() method to print (make + " " + model + " Bike is driving".)
- Instantiate both Bike and Car class. Print their attributes.

Input:

// Vehicle class

class Vehicle {

// Attributes

private String make;

private String model;

private int year;

private int maximumSpeed;

// Constructor

```
public Vehicle(String make, String model, int year, int maximumSpeed) {  
  
    this.make = make;  
  
    this.model = model;  
  
    this.year = year;  
  
    this.maximumSpeed = maximumSpeed;  
  
}
```

// Drive method

```
public void drive() {  
  
    System.out.println("Vehicle is driving.");  
  
}
```

// Getters for attributes

```
public String getMake() {  
  
    return make;  
  
}
```

```
public String getModel() {  
  
    return model;  
  
}
```

```
public int getYear() {  
  
    return year;  
  
}
```

```
    public int getMaximumSpeed() {  
        return maximumSpeed;  
    }  
}
```

// Car class (subclass of Vehicle)

```
class Car extends Vehicle {  
    // Constructor  
    public Car(String make, String model, int year, int maximumSpeed) {  
        super(make, model, year, maximumSpeed);  
    }  
}
```

// Override drive() method

```
@Override  
public void drive() {  
    System.out.println(make + " " + model + " Car is driving.");  
}  
}
```

// Bike class (subclass of Vehicle)

```
class Bike extends Vehicle {  
    // Constructor  
    public Bike(String make, String model, int year, int maximumSpeed) {  
        super(make, model, year, maximumSpeed);  
    }  
}
```

```
}
```

```
// Override drive() method
```

```
@Override
```

```
public void drive() {
```

```
    System.out.println(make + " " + model + " Bike is driving.");
```

```
}
```

```
}
```

```
// Main class
```

```
public class Main {
```

```
    public static void main(String[] args) {
```

```
        // Instantiate Car and Bike objects
```

```
        Car myCar = new Car("Toyota", "Camry", 2022, 180);
```

```
        Bike myBike = new Bike("Honda", "CBR", 2021, 150);
```

```
        // Print attributes
```

```
        System.out.println("Car Attributes:");
```

```
        System.out.println("Make: " + myCar.getMake());
```

```
        System.out.println("Model: " + myCar.getModel());
```

```
        System.out.println("Year: " + myCar.getYear());
```

```
        System.out.println("Maximum Speed: " + myCar.getMaximumSpeed());
```

```
        myCar.drive();
```

```
        System.out.println();
```

```
        System.out.println("Bike Attributes:");

        System.out.println("Make: " + myBike.getMake());

        System.out.println("Model: " + myBike.getModel());

        System.out.println("Year: " + myBike.getYear());

        System.out.println("Maximum Speed: " + myBike.getMaximumSpeed());

        myBike.drive();

    }
}
```

Output:

Car Attributes:

Make: Toyota

Model: Camry

Year: 2022

Maximum Speed: 180

Toyota Camry Car is driving.

Bike Attributes:

Make: Honda

Model: CBR

Year: 2021

Maximum Speed: 150

Honda CBR Bike is driving.

