ASSIGNMENT 1 :

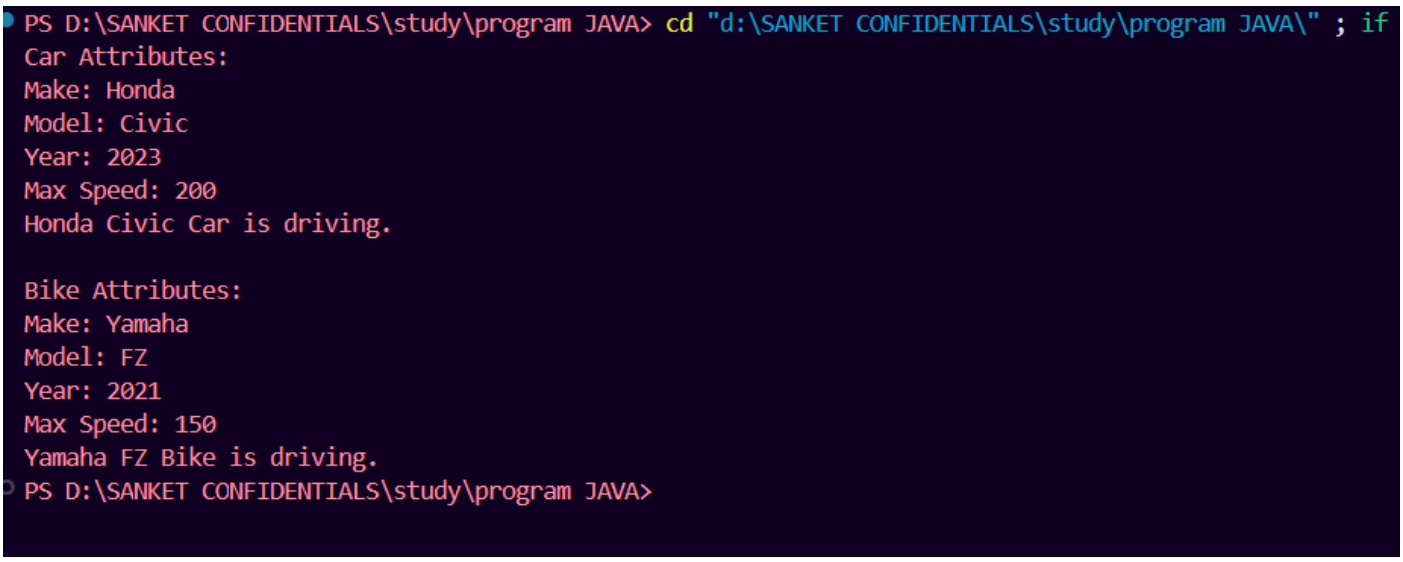
● Write a Java program to create a class called Vehicle with a method called drive(). ● Vehicle should have attributes such as make (String), model (String) , year (int) and maximumSpeed (int). ● Create a constructor in Vehicle with all fields as constructor parameters. ● Create a subclass called Car 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.

SOURCE CODE :

```
class Vehicle {
   String make;
   String model;
   int year;
   int maximumSpeed;

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

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

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

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

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

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

```
public class lab7_Q1 {
   public static void main(String[] args) {
      Car car = new Car("Honda", "Civic", 2023, 200);
      Bike bike = new Bike("Yamaha", "FZ", 2021, 150);

      System.out.println("Car Attributes:");
      System.out.println("Make: " + car.make);
      System.out.println("Model: " + car.model);
      System.out.println("Year: " + car.year);
      System.out.println("Max Speed: " + car.maximumSpeed);
      car.drive();

      System.out.println("\nBike Attributes:");
      System.out.println("Make: " + bike.make);
      System.out.println("Model: " + bike.model);
      System.out.println("Year: " + bike.year);
      System.out.println("Max Speed: " + bike.maximumSpeed);
      bike.drive();
   }
}
```

OUTPUT:



ASSIGNMENT 2:

● Write a Java program to create a class called Shape with a method called getArea(). ● Create a subclass called Circle and create a constructor that takes the value of radius(int) as input parameter. ● Override the getArea() method. ● Create a class called square that takes an attribute length. Create a constructor that takes length as input. ● Override the getArea() method. ● Create a subclass of Shape called Rectangle that takes width and height as input to the constructor. ● Override the getArea() method to calculate the area of a rectangle. Instantiate and call getArea() method.

SOURCE CODE :

```
abstract class Shape {
   public abstract double getArea();
}

class Circle extends Shape {
   private int radius;

   public Circle(int radius) {
      this.radius = radius;
   }

   @Override
   public double getArea() {
      return Math.PI * radius * radius;
   }
}

class Square extends Shape {
   private int length;

   public Square(int length) {
      this.length = length;
   }

   @Override
   public double getArea() {
      return length * length;
   }
}

class Rectangle extends Shape {
   private int width;
   private int height;

   public Rectangle(int width, int height) {
      this.width = width;
      this.height = height;
   }

   @Override
   public double getArea() {
```

```
        return width * height;
    }
}

public class lab7_Q2 {
    public static void main(String[] args) {
        Circle circle = new Circle(5);
        Square square = new Square(4);
        Rectangle rectangle = new Rectangle(3, 6);

        System.out.println("Area of Circle: " + circle.getArea());
        System.out.println("Area of Square: " + square.getArea());
        System.out.println("Area of Rectangle: " + rectangle.getArea());
    }
}
```

OUTPUT: