Assignment 1

```java
class Vehicle2 {

    String make;

    String model;

    int year;

    int maximumSpeed;


    public Vehicle2(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("Driving a vehicle");

    }


    void display() {

        System.out.println("Make: " + make);

        System.out.println("Model: " + model);

        System.out.println("Year: " + year);

        System.out.println("Maximum Speed: " + maximumSpeed + " km/h");

    }
}


class Car2 extends Vehicle2 {

    public Car2(String make, String model, int year, int maximumSpeed) {

        super(make, model, year, maximumSpeed);

    }
```

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


class Bike2 extends Vehicle2 {
    public Bike2(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");
    }
}


class VehicleMain1 {
    public static void main(String[] args) {
        Car2 car = new Car2("Toyota", "Corolla", 2020, 180);
        Bike2 bike = new Bike2("Yamaha", "MT-07", 2021, 200);

        System.out.println("Car Details:");
        car.display();
        car.drive();

        System.out.println("\nBike Details:");
        bike.display();
        bike.drive();
    }
}
```

OUTPUT:

```
PS A:\Microsoft VS Code\New folder>  a:; cd 'a:\Microsoft VS Code\New folder'; & 'C:\Pro
xe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\Rohan\AppData\Roaming\Code
bb4e396c5348882b6e7920\redhat.java\jdt_ws\New folder_166f3bb5\bin' 'VehicleMain1'
Car Details:
Make: Toyota
Model: Corolla
Year: 2020
Maximum Speed: 180 km/h
Toyota Corolla Car is driving

Bike Details:
Make: Yamaha
Model: MT-07
Year: 2021
Maximum Speed: 200 km/h
Yamaha MT-07 Bike is driving
PS A:\Microsoft VS Code\New folder>
```

Assignment 2

```java
public class Shape {

    void getArea(){

    }
}


class Circle extends Shape {

    int radius;


    Circle(int radius) {

        this.radius = radius;

    }


    @Override
    void getArea() {

        double area = Math.PI * radius * radius;
```

```java
        System.out.println("Area of Circle: " + area);
    }
}


class Square extends Shape {
    int length;

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


    @Override
    void getArea() {
        int area = length * length;
        System.out.println("Area of Square: " + area);
    }
}


class ShapeMain{
    public static void main(String[] args) {
        Circle circle = new Circle(5);
        Square square = new Square(4);


        circle.getArea();
        square.getArea();
    }
}
```

OUTPUT:

```
PS A:\Microsoft VS Code\New folder>  & 'C:\Program Files\Java\
es' '-cp' 'C:\Users\Rohan\AppData\Roaming\Code\User\workspaceS
New folder_166f3bb5\bin' 'ShapeMain'
Area of Circle: 78.53981633974483
Area of Square: 0
PS A:\Microsoft VS Code\New folder>
```