Assignment No. 05

Name -: Parth Manoj Poriya

Roll No-: 34

Branch-: SE IT(B2)

Subject-: Object Oriented Programming

TITLE

Write a program to Design and develop inheritance for a given case study, identify objects relationships and implement inheritance wherever applicable.

INPUT

```
interface Vehicle
{
   void changeGear(int gear);
   void speedup(int speed);
   void applyBrakes(int brake);
   void printStates();
}

class Bicycle implements Vehicle
{
   int speed = 0;
   int gear;
   public void changeGear(int newGear) {
```

```
    gear = newGear;
}
public void speedup(int increment)
{
  speed += increment;
}
public void applyBrakes(int decrement)
{
  speed -= decrement;
}
public void printStates()
{
 System.out.println("Speed Of Bicycle : "+ speed+ "km/hr\nGear : " +
gear);
}
}

class Car implements Vehicle
{
    int speed = 0;
    int gear;
    public void changeGear(int newGear) {
    gear = newGear;
}
public void speedup(int increment)
{
  speed += increment;
}
public void applyBrakes(int decrement)
{
  speed -= decrement;
}
public void printStates()
{
```

```
 System.out.println("Speed Of Car : " +speed+ "km/hr\nGear : " +
gear +"\n");
}
}

 class Bike implements Vehicle
{
   int speed = 0;
   int gear;
   public void changeGear(int newGear) {
   gear = newGear;
}
public void speedup(int increment)
{
  speed += increment;
}
public void applyBrakes(int decrement)
{
  speed -= decrement;
}
public void printStates()
{
 System.out.println("Speed Of Bike: " +speed+ "km/hr\nGear : " +
gear +"\n");
}
}

public class Assign5
{
   public static void main(String[] args)
   {
      Bicycle b1 = new Bicycle();
      b1.changeGear(4);
      b1.speedup(15);
      b1.applyBrakes(5);
```

```
        System.out.println("-------------------------");
        System.out.println("Present State of Bicycle: ");
        b1.printStates();

        Car c1 = new Car();
        c1.changeGear(5);
        c1.speedup(80);
        c1.applyBrakes(50);
        System.out.println("-------------------------");
        System.out.println("Present State of Car: ");
        c1.printStates();

        Bike b2 = new Bike();
        b2.changeGear(4);
        b2.speedup(70);
        b2.applyBrakes(50);
        System.out.println("-------------------------");
        System.out.println("Present State of Bike: ");
        b2.printStates();
    }
}
```

OUTPUT

```
PS C:\Users\Acer\OneDrive\Desktop\Java> javac Assign5.java
PS C:\Users\Acer\OneDrive\Desktop\Java> java Assign5
-------------------------
Present State of Bicycle:
Speed Of Bicycle : 10km/hr
Gear : 4
-------------------------
Present State of Car:
Speed Of Car : 30km/hr
Gear : 5
```

Present State of Bike:
Speed Of Bike: 20km/hr
Gear : 4

---X---X---X---