Assignment No :5

```
interface Vehicle
{
  public void changeGear(int newGear);
  public void speedUp(int increment);
  public void applyBreaks(int decrement);
}
class Bicycle implements Vehicle
 {
   private int speed;
   private int gear;
   public Bicycle()
    {
      this.speed = 0;
      this.gear = 1;
    }
     public void changeGear(int newGear)
     {
       if (newGear > 0 && newGear <= 6)
         {
              this.gear = newGear;
               System.out.println("Bicycle gear changed to: " + gear);
         }
       else
        {
          System.out.println("Invalid gear");
         }
```

```
    }
    public void speedUp(int increment)
    {
      speed = speed+increment;
      System.out.println("Bicycle speed increased to: " + speed + " km/h");
    }
     public void applyBrakes(int decrement)
    {
         if (speed > 0)
        {
          speed = speed-decrement;
          System.out.println("Bicycle speed After applying break decreased to: "
+ speed + " km/h");
       }
   }
}
 class Bike implements Vehicle
{
   private int speed;
   private int gear;
    public Bike()
     {
         this.speed = 0;
          this.gear = 1;
     }



    public void changeGear(int newGear)
```

```
    {
        if (newGear > 0 && newGear <= 6)
       {
         this.gear = newGear;
         System.out.println("Bike gear changed to: " + gear);
       }
      else
       {
         System.out.println("Invalid gear");
       }
    }
   public void speedUp(int increment)
  {
     speed = speed+increment;
     System.out.println("Bike speed increased to: " + speed + " km/h");
   }
  public void applyBrakes(int decrement)
   {
       if (speed > 0)
      {
         speed = speed-decrement;
        System.out.println("Bike speed after applying gear decreased to: " +
speed + " km/h");
       }
      }
  }


 class Car implements Vehicle
```

```
{
   private int speed;
   private int gear;
    public Car()
    {
      this.speed = 0;
      this.gear = 1;
    }
   public void changeGear(int newGear)
    {
        if (newGear > 0 && newGear <= 6)
       {
            this.gear = newGear;
             System.out.println("Car gear changed to: " + gear);
       }
          else
            {
               System.out.println("Invalid gear");
             }
      }
   public void speedUp(int increment)
     {
       speed = speed+increment;
       System.out.println("Car speed increased to: " + speed + " km/h");
      }
   public void applyBrakes(int decrement)
      {
```

```
            if (speed > 0)
            {
                speed = speed-decrement;
                System.out.println("Car speed after applying gear decreased to: "
+ speed + " km/h");
            }
        }

}
public class VehicleTest
{
   public static void main(String[] args)
   {
      Vehicle bicycle = new Bicycle();
      System.out.println("*********Bicycle Information*********");
      bicycle.changeGear(2);
      bicycle.speedUp(10);
      bicycle.applyBrakes(5);

      System.out.println("\n*********Bike Information*********");
      Vehicle bike = new Bike();
      bike.changeGear(3);
      bike.speedUp(20);
      bike.applyBrakes(10);

      System.out.println("\n*********Car Information*********");
      Vehicle car = new Car();
      car.changeGear(4);
```

```
        car.speedUp(50);
        car.applyBrakes(20);
    }
}
```

Output

***********Bicycle Information***********

Bicycle gear changed to: 2

Bicycle speed increased to: 10 km/h

Bicycle speed After applying break decreased to: 5 km/h

***********Bike Information***********

Bike gear changed to: 3

Bike speed increased to: 20 km/h

Bike speed after applying gear decreased to: 10 km/h

***********Car Information***********

Car gear changed to: 4

Car speed increased to: 50 km/h

Car speed after applying gear decreased to: 30 km/h