Exercise – 4

a) Write a JAVA program to implement Single Inheritance

programmee:

```
class Father
{
   public void house()
   {
      System.out.println("Have Own 2BHK House.");
   }
}
class Son extends Father
{
   public void car()
   {
      System.out.println("Have Own Audi Car.");
   }
}

public class single {
   public static void main(String args[])
   {
      Son o =new Son();
      o.car();
      o.house();
   }
}
```

out put

```
Have Own Audi Car.
Have Own 2BHK House.
```

b) Write a JAVA program to implement multi level Inheritance

programme

```
class Shape {
  public void display() {
    System.out.println("Inside display");
  }
}
class Rectangle extends Shape {
  public void area() {
    System.out.println("Inside area");
  }
}
class Cube extends Rectangle {
  public void volume() {
    System.out.println("Inside volume");
  }
}
public class Tester {
  public static void main(String[] arguments) {
    Cube cube = new Cube();
    cube.display();
    cube.area();
    cube.volume();
  }
}
```

out put

Inside display
Inside area
Inside volume

c)Write a JAVA program for abstract class to find areas of different shapes

programme

```
abstract class Shape {
    abstract double area();
}
class Circle extends Shape {
    private double radius;

    // Constructor
    public Circle(double radius) {
        this.radius = radius;
    }
    @Override
    double area() {
        return Math.PI * radius * radius;
    }
}


class Rectangle extends Shape {
    private double length;
    private double width;

    public Rectangle(double length, double width) {
        this.length = length;
        this.width = width;
    }

    @Override
    double area() {
        return length * width;
    }
}

public class Main {
    public static void main(String[] args) {
        Shape circle = new Circle(5.0);
        System.out.printf("Area of the Circle: %.2f\n", circle.area());
        Shape rectangle = new Rectangle(4.0, 6.0);
        System.out.printf("Area of the Rectangle: %.2f\n", rectangle.area());
```

```
    }
}
```

out put

Area of the Circle: 78.54

Area of the Rectangle: 24.00