Assignment No:4

```java
import java.util.Scanner;
// Base class
abstract class Shape
{
        double dimention1;
        double dimention2;
        // Method to input data
        public void inputData(double d1, double d2)
          {
            this.dimention1 = d1;
            this.dimention2 = d2;
          }
        // Abstract method to compute area
        public abstract double compute_area();
  }
// Derived class for Triangle
 class Triangle extends Shape
{
        public double compute_area()
        {
                return 0.5 *dimention1 * dimention2; // Area = 0.5 * base * height
        }
}
// Derived class for Rectangle
  class Rectangle extends Shape
{
     public double compute_area()
```

```java
    {
      return dimention1 *dimention2; // Area = length * width
    }
}


public class Main
{
 public static void main(String[] args)
  {
      Scanner sc= new Scanner(System.in);
      Rectangle rectangle = new Rectangle();
      Triangle triangle=new Triangle();
  System.out.println("*****We have following shapes to calculate  Area****");
   System.out.println("1. Triangle");
   System.out.println("2. Rectangle");
   System.out.println("Enter Your choice :");
   int ch=sc.nextInt();
     if (ch == 1)
       {
         System.out.println("Enter base and height of the triangle:");
          double d1 = sc.nextDouble();
          double d2 = sc.nextDouble();
         triangle.inputData(d1,d2);
         double area = triangle.compute_area();
        System.out.println("Calculated area of Triangle is : " + area);
       }
     else if (ch == 2)
```

```java
        {
                System.out.println("Enter length and width of the rectangle:");

                double d1 = sc.nextDouble();

                double d2 = sc.nextDouble();

                rectangle.inputData(d1,d2);

                double area = rectangle.compute_area();

                System.out.println("Calculated area of Rectangle is: " + area);

        }
            else

            {

                System.out.println("Invalid choice!");

                 return;

            }

        }
}
```

Output

*****We have following shapes to calculate Area*****

1. Triangle

2. Rectangle

Enter Your choice :

1

Enter base and height of the triangle:

3

5

Calculated area of Triangle is : 7.5