**2. Develop a Java program to create an abstract class named Shape that contains two integers and an empty method named printArea( ). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape.**

CODE:

```
import java.util.Scanner;
import java.lang.String;
import java.awt.*;
import java.awt.event.*;
abstract class Shape
{
   int d1;
   int d2;
   Shape(int a,int b)
   {
      d1=a;
      d2=b;
   }
   abstract void printarea();
}
class Rectangle extends Shape
{
   Rectangle(int a,int b)
```

```
    {
        super(a,b);
    }
    void printarea()
    {
        float area=(float)d1*d2;
        System.out.println("Area of the rectangle :"+area);
    }
}
class Triangle extends Shape
{
    Triangle(int a,int b)
    {
        super(a,b);
    }
    void printarea()
    {
        float area=(float)d1*d2/2;
        System.out.println("Area of the triangle :"+area);
    }
}
class Circle extends Shape
{
    Circle(int a,int b)
```

```
    {
        super(a,b);
    }
    void printarea()
    {
        float area=(float)3.14*d1*d1;
        System.out.println("Area of the circle :"+area);
    }
}
class Main
{
    public static void main(String args[])
    {
        int ch,flag=0;
        Scanner ss=new Scanner(System.in);
        while(flag==0)
        {
        System.out.println("Enter the choice whose area has to be
calculated");
        System.out.println("1.RECTANGLE\n2.TRIANGLE\n3.CIRCLE");
        ch=ss.nextInt();
            switch(ch)
            {
                case 1:
                System.out.println("Enter the dimensions of rectangle");
```

```
            int x=ss.nextInt();
            int y=ss.nextInt();
            Rectangle r=new Rectangle(x,y);
            r.printarea();
            break;
            case 2:
            System.out.println("Enter the dimensions of triangle");
            int s=ss.nextInt();
            int w=ss.nextInt();
            Triangle t=new Triangle(s,w);
            t.printarea();
            break;
            case 3:
            System.out.println("Enter the radius of circle");
            int f=ss.nextInt();
            Circle c=new Circle(f,f);
            c.printarea();
            break;
            default:
            flag=1;
        }
    }
  }
}
```

OUTPUT:

```
Enter the choice whose area has to be calculated
1.RECTANGLE
2.TRIANGLE
3.CIRCLE
1
Enter the dimensions of rectangle
12
10
Area of the rectangle :120.0
Enter the choice whose area has to be calculated
1.RECTANGLE
2.TRIANGLE
3.CIRCLE
2
Enter the dimensions of triangle
8
10
Area of the triangle :40.0
Enter the choice whose area has to be calculated
1.RECTANGLE
2.TRIANGLE
3.CIRCLE
3
Enter the radius of circle
7
Area of the circle :153.86002
Enter the choice whose area has to be calculated
1.RECTANGLE
2.TRIANGLE
3.CIRCLE
```