Practical 2:

AIM: Describe abstract class called Shape which has three subclasses say Triangle, Rectangle and Circle. Define one method area() in the abstract class and override this area() in these three subclasses to calculate area for specific class object.

Code:

```
import java.util.*;
abstract class Shape1
{
   double dim1,dim2,radius;
   abstract double area();
}
class Triangle1 extends Shape1
{
      Triangle1(double d1, double d2)
      {
         dim1=d1;
         dim2=d2;
      }
      double area()
      {
         System.out.println("Area of Triangle is ");
         return (dim1*dim2)/2;
      }
}
class Rectangle1 extends Shape1
{
   Rectangle1(double d1, double d2)
   {
      dim1=d1;
      dim2=d2;
   }
   double area()
   {
      System.out.println("Area of Rectangle is ");
      return dim1*dim2;
   }
}
class Circle1 extends Shape1
{
```

```
   Circle1(double d1)
   {
      radius=d1;
   }
   double area()
   {
      System.out.println("Area of Circle is ");
      return 3.14*radius*radius;
   }
}
class AbstractClassShape
{
   public static void main(String arg[])
   {
     double a1,b1,a2,b2,r1;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter Rectangle side");
      a1=sc.nextDouble();
      b1=sc.nextDouble();
     System.out.println("Enter Radius");
     r1=sc.nextDouble();
     System.out.println("Enter Triangle base and height");
     a2=sc.nextDouble();
     b2=sc.nextDouble();
     Triangle1 t=new Triangle1(a1,b1);
      Rectangle1 r=new Rectangle1(a2,b2);
      Circle1 c=new Circle1(r1);
      System.out.println(t.area());
      System.out.println(r.area());
      System.out.println(c.area());
      }
}
```

Output:

*abstractShape.java - Notepad

File Edit Format View Help

```
import java.util.*;
abstract class Shape1
{   double dim1,dim2,radius;
    abstract double area();   }
class Triangle1 extends Shape1
{        Triangle1(double d1, double d2)
        {   dim1=d1;
            dim2=d2;        }
        double area()
        {   System.out.println("Area of Triangle is ");
            return (dim1*dim2)/2;        }}
class Rectangle1 extends Shape1
{    Rectangle1(double d1, double d2)
    {   dim1=d1;
        dim2=d2;    }
    double area()
    {   System.out.println("Area of Rectangle is ");
        return dim1*dim2;    }}
class Circle1 extends Shape1
{    Circle1(double d1)
    {        radius=d1;    }
    double area()
    {   System.out.println("Area of Circle is ");
        return 3.14*radius*radius;    }}
class AbstractClassShape
{    public static void main(String arg[])
    {   double a1,b1,a2,b2,r1;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter Rectangle side");
        a1=sc.nextDouble();
        b1=sc.nextDouble();
        System.out.println("Enter Radius");
        r1=sc.nextDouble();
        System.out.println("Enter Triangle base and height");
        a2=sc.nextDouble();
        b2=sc.nextDouble();
        Triangle1 t=new Triangle1(a1,b1);
        Rectangle1 r=new Rectangle1(a2,b2);
        Circle1 c=new Circle1(r1);
        System.out.println(t.area());
        System.out.println(r.area());
        System.out.println(c.area());   } }
```

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C:\Windows\System32\cmd.exe

```
F:\pu_it_pratical\javaws>java AbstractClassShape
Enter Rectangle side
12
11
Enter Radius
12.22
Enter Triangle base and height
1245.2555
12.7777
Area of Triangle is
66.0
Area of Rectangle is
15911.501202349998
Area of Circle is
468.89117600000003

F:\pu_it_pratical\javaws>java AbstractClassShape
Enter Rectangle side
15.44
12.43
Enter Radius
15.7249
Enter Triangle base and height
11.426
42.1506
Area of Triangle is
95.9596
Area of Rectangle is
481.61275559999996
Area of Circle is
776.4355872314001

F:\pu_it_pratical\javaws>
```

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