

Lab -4:

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.

Solution :-

```
import java.util.*;
```

```
import java.lang.*;
```

```
abstract class shape
```

```
{
```

```
    int a,b;
```

```
    abstract public void print_area();
```

```
}
```

```
class rectangle extends shape
```

```
{
```

```
    public int area_rect;
```

```
        @Override
```

```
    public void print_area()
```

```
{
```

```
        Scanner ss= new Scanner(System.in);
```

```
        System.out.println("ENTER THE VALUE OF THE 'a':-");
```

```
        a=ss.nextInt();
```

```

        System.out.println("ENTER THE VALUE OF THE 'b':-");
        int b=ss.nextInt();
        area_rect=a*b;
        System.out.println("The area of rectangle is:"+area_rect);
    }

}

class triangle extends shape
{
    int area_tri;
    @Override
    public void print_area()
    {
        Scanner ss= new Scanner(System.in);
        System.out.println("ENTER THE VALUE OF THE 'a':-");
        a=ss.nextInt();
        System.out.println("ENTER THE VALUE OF THE 'b':-");
        b=ss.nextInt();
        area_tri=(int) (0.5*a*b);
        System.out.println("The area of triangle is:"+area_tri);
    }
}

class circle extends shape

```

```

{
    int area_circle;
        @Override
    public void print_area()
    {
        Scanner ss= new Scanner(System.in);
            System.out.println("ENTER THE VALUE OF THE 'a':-");
            a=ss.nextInt();

        area_circle=(int) (3.14*a*a);
            System.out.println("The area of circle is:"+area_circle);
        }
    }
}

public class Shape1 {


    public static void main(String[] args) {

        rectangle r=new rectangle();
        r.print_area();
        triangle t=new triangle();
        t.print_area();
        circle r1=new circle();
        r1.print_area();
    }
}

```

```
}  
}
```

Output :-

 C:\Windows\System32\cmd.exe

```
Microsoft Windows [Version 10.0.19041.388]  
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C:\Users\dell\OneDrive\Desktop\java>javac Shape1.java  
  
C:\Users\dell\OneDrive\Desktop\java>java Shape1  
ENTER THE VALUE OF THE 'a':-  
4  
ENTER THE VALUE OF THE 'b':-  
5  
The area of rectangle is:20  
ENTER THE VALUE OF THE 'a':-  
2  
ENTER THE VALUE OF THE 'b':-  
3  
The area of triangle is:3  
ENTER THE VALUE OF THE 'a':-  
5  
The area of circle is:78  
  
C:\Users\dell\OneDrive\Desktop\java>  
C:\Users\dell\OneDrive\Desktop\java>
```