

Lab program 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.

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

```
abstract class Shape
```

```
{
```

```
int a=3;
```

```
int b=4;
```

```
abstract int printArea();
```

```
}
```

```
class Rectangle extends Shape
```

```
{
```

```
int printArea()
```

```
{
```

```
System.out.println("Area of rectangle is:");
```

```
return a*b;
```

```
}
```

```
}
```

```
class Triangle extends Shape
```

```
{
```

```
int printArea()
```

```
{
```

```
System.out.println("Area of triangle is:");
```

```
return (int)(0.5*a*b);
```

```
}
```

```
}
```

```
class Circle extends Shape
```

```
{  
int printArea()  
{  
System.out.println("Area of circle is:");  
return (int)(3.14*a*a);  
}  
}
```

```
class lab4  
{  
public static void main(String args[])  
{  
Rectangle r=new Rectangle();  
Triangle t=new Triangle();  
Circle c=new Circle();  
Shape f;  
f=r;  
System.out.println(f.printArea());  
f=t;  
System.out.println(f.printArea());  
f=c;  
System.out.println(f.printArea());  
}  
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.18363.1198]
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C:\Users\Anagha>cd Documents

C:\Users\Anagha\Documents>cd JavaPrograms

C:\Users\Anagha\Documents\JavaPrograms>dir *.java
Volume in drive C is Windows
Volume Serial Number is C2C3-A777

Directory of C:\Users\Anagha\Documents\JavaPrograms

06-11-2020  23:13                167 HelloWorld.java
12-11-2020  16:35                633 lab1.java
12-11-2020  17:45             1,658 lab2.java
13-11-2020  08:33             1,201 lab3.java
13-11-2020  09:51                758 lab4.java
06-11-2020  23:33                224 TestProgram.java
               6 File(s)              4,641 bytes
               0 Dir(s)  734,783,922,176 bytes free

C:\Users\Anagha\Documents\JavaPrograms>javac lab4.java

C:\Users\Anagha\Documents\JavaPrograms>java lab4
Area of rectangle is:
12
Area of triangle is:
6
Area of circle is:
28

C:\Users\Anagha\Documents\JavaPrograms>
```