02/01/24 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.

```java
import java.util.Scanner
abstract class shape {
double dim1, dim2;
shape (double a, double b) {
dim 1 = a;
dim 2 = b;
}
abstract void printArea();
}

class Rectangle extends shape {
Rectangle (double a, double b) {
super (a, b);
}

void printArea() {
System.out.println ("Area of rectangle is " + (dim 1 * dim 2));
}
}

class Triangle extends shape {
Triangle (double a, double b) {
super (a, b);
}
```

```java
void printArea() {
System.out.println ("Area of Triangle
is " + (dim1 * dim2)/2);
}
}

class circle extends shape {
Circle (double a, double b) {
super (a, b);
}
final double pi = 3.14159;
void printArea() {
System.out.println ("Area of circle is"
+ pi * Math.pow (dim1, 2));
}
}

class Main {
 public static void main (string args[])
{
scanner sc = new Scanner (system.in);
double a, b;
System.out.println ("Enter sides of
rectangle: ");
a = sc. nextDouble();
b = sc. nextDouble();
Rectangle r = new Rectangle (a, b);
System.out.println ("Enter height and
base of triangle:");
a = sc. nextDouble();
b = sc. nextDouble();
Triangle t = new Triangle (a, b);
```

```
System.out.println ("Enter radius of
Circle:");
a = sc.nextDouble();
Circle c = new Circle (a,1);
Shape s;
s = r;
s.printArea();
s = t;
s.printArea();
s = c;
s.printArea();
}
}
```

Output:
Enter sides of rectangle:
10
20
Enter height and base of triangle:
30
40
Enter radius of circle:
6
Area of Rectangle is 200.0
Area of Triangle is 600.0
Area of Circle is 113.09724

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