LAB PROGRAM – 4

Q. 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.

```
abstract class shape
{
double a,b;

shape(int x, int y)
{
  a=x;
  b=y;
}

abstract void printArea();
}
class rectangle extends shape{
rectangle(int x, int y)
{
super(x,y);
}
void printArea()
{
  System.out.println("Area of rectangle is" +(a*b));
}
}

class triangle extends shape{
triangle(int x, int y)
{
super(x,y);
}
void printArea()
{
  System.out.println("Area of triangle is" +(0.5*a*b));
}
}

class circle extends shape{
circle(int x, int y)
{
```

```java
    super(x,y);
}
void printArea()
{
  System.out.println("Area of circle is" +(3.14*a*a));
}
}

class shapearea{
public static void main(String args[])
{
 rectangle r1= new rectangle(18,28);
 triangle t1= new triangle(15,16);
 circle c1= new circle(8,0);

  shape r;
  r=r1;
  r.printArea();
r=t1;
  r.printArea();
r=c1;
  r.printArea();
}
}
```

Lab-program : 4

Q. 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 class extends the class Shape. Each one of the classes contain only the method printArea() that prints the area of the given shape.

→
```java
abstract class Shape
{
    double a, b;

    Shape (int x, int y)
    {
        a = x;
        b = y;
    }
    abstract void printArea();
}


class Rectangle extends Shape
{
    rectangle (int x, int y)
    {
        super (x, y);
    }

    void printArea ()
    {
        System.out.println ("Area of rectangle is " + (a * b));
    }
}
```

```java
class Triangle extends Shape
{
triangle (int n, int y)
{
super (x, y);
}
void print Area ()
{
System.out.println ("Area of triangle is " + (0.5 * a * b));
}
}


class Circle extends Shape
{
circle (int n, int y)
{
super (n, y)
}
void print Area ()
{
System.out.println ("Area of circle is " + (3.14 * a * a));
}
}

class ShapeArea
{
public static void main (String args [])
{
Rectangle H = new Rectangle (18, 28);
Triangle t1 = new triangle (15, 16);
Circle c1 = new Circle (8, 0);
```

```
Shape r;
r = r1;
r.printArea();
r = t1;
r.printArea();
r = c1;
r.printArea();
      }
   }
```

<u>Output</u>

Area of rectangle is 504.0
Area of triangle is 120.0
Area of circle is 200.96

```
Command Prompt

Microsoft Windows [Version 10.0.19045.2251]
(c) Microsoft Corporation. All rights reserved.

C:\Users\bmscecse>cd C:\Users\bmscecse\Desktop\1bm21cs034

C:\Users\bmscecse\Desktop\1bm21cs034>javac shape.java

C:\Users\bmscecse\Desktop\1bm21cs034>java shapearea
Area of rectangle is504.0
Area of triangle is120.0
Area of circle is200.96

C:\Users\bmscecse\Desktop\1bm21cs034>_
```