## Lab Program 4:

4) Develop a Java program to create a 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) {
        dim1 = a;
        dim2 = b;
    }

    abstract void printArea();
}

class Rectangle extends shape {
    { System.out.println("Inside Rectangle class"); }

    Rectangle (double x, double y) {
        super (x, y);
    }
```

```java
void printArea(){
    System.out.println("The area of rectangle
    is: " + (dim1 * dim2));
    }
}


class Triangle extends Shape{

    {System.out.println("Inside Triangle class");}

    Triangle (double a, double b) {
        super(a,b);
    }


    void printArea(){
        System.out.println("The area of triangle
        is: " + (dim1 * dim2/2));
    }
}


class Circle extends Shape{

    {System.out.println("Inside Circle class");}

    Circle (double r){
        super(r,r);
    }
};}

    void printArea(){
        System.out.println("The area of Circle is:"
        + ( Math.PI * dim1 * dim2));
    }
}
```

```java
class Abstract {

public static void main (String args[]) {
    Scanner input = new Scanner (System.in);
    int i = 0, n;

    while (i != 1) {
        System.out.println ("Enter your choice:
        \n 1. Rectangle \n 2. Triangle \n 3. Circle \n
        4. Exit");
        n = input.nextInt();

        switch (n) {
            case 1: double b, l;
                    System.out.println ("Enter the
                    length and breadth:");
                    b = input.nextDouble();
                    l = input.nextDouble();
                    Rectangle r = new Rectangle (b, l);
                    r.printArea();
                    break;

            case 2: double base, height;
                    System.out.println ("Enter the
                    base and height: ");
                    base = input.nextDouble();
                    height = input.nextDouble();
                    Triangle t = new Triangle (base,
                                                height);
                    t.printArea();
                    break;
```

```java
case 3 : double radius;
         System.out.println("Enter the
         radius: ");
         radius = input.nextDouble();
         Circle c = new Circle (radius);
         c.printArea();
         break;

case 4 : i=1;

         }

      }

    }

  }
```