4) 9-12-22 LAB program - 4

Develop a Java program to create abstract class named shap contain two integers and an empty method named print Area(). Provide three classes named Rectangle, Triang and circle such that each one of the classes extends the class shape. Each one of the classes contain only th method printArea() that print the area of the giv shape

```
import java.util.Scanner();
import java.lang.Math.*;

abstract class shape{
        public int a;
        public int b;
        abstract public void printArea();
        Scanner s = new Scanner(System.in);

class rectangle extends shape{
        public void printArea(){
        System.out.print("Enter length and
                                breadth");
        float a = s.nextfloat()
        float b = s.nextfloat();
        float area = a*b;
        System.out.println("Area = " +
            area + " sq. units");
        }
}
```

```
class tring extends shape{
    public void printArea()
System.out.print("Enter the three sides")
    float a = s.nextfloat();
    float b = s.nextfloat();
    float c = s.nextfloat();
    float d = (a+b+c)/2;
    double area = Math.sqrt(d*(d-a)*
                  (d-b)*(d-c));
    System.out.println("Area =" +area+"
                        sq.units");
    }
}
class figure{
public static void main (string args[]){
class circle extends shape{
    public void printArea(){
System.out.print("Enter the radius of
                  circle");
    float a = s.nextfloat()
    float area = 22/7 *a*a;
    System.out.println("Area =" +area+"
                        sq.units");
    }
}
```

```
class figure {
public static void main { string args[
        shape r = new rectangle();
        shape t = new tringle();
        shape c = new circle();
        for(int i=0; i<100; i++){
system.out.println(" \n 1) Triangle \n 2)
                    Rectange \n 3) circle
 System.out.println("Enter your choice;
 Scanner S = new Scanner(System.in);
        int ch = S.nextInt();
        switch (ch) {
            case 1 : t.printArea();
                     break;
            case 2; r.printArea();
                     break;
            case ;  c.printArea();
                     break;
            default; System.out.println
                     ("Invalid choice");
        }
    }
}
```

Output

1) Triangle
2) rectangle
3) Circle
Enter your choice : 1
Enter three sides of triangle : 4 5 6
Area = 9.9215741 sq.units

1> Triangle
2> rectangle
3> Circle
Enter your choice : 2
Enter the length and breadth of rectangle : 34 5
Area = 170.0 sq units

1> Triangle
2> rectangle
3> circle
Enter your choice : 3
Enter the ~~l~~radius of circle : 10
Area = 300.0 sq.units

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```
C:\javaprograms>javac figure.java

C:\javaprograms>java figure

1)Triangle
2)Rectangle
3)Circle
Enter your choice:
1
Enter three sides of triangle: 2 3 5
Area=0.0sq.units

1)Triangle
2)Rectangle
3)Circle
Enter your choice:
2
Enter length and breadth of rectangle: 2 4
Area=8.0sq.units

1)Triangle
2)Rectangle
3)Circle
Enter your choice:
3
Enter radius of circle: 4
Area=48.0sq.units

1)Triangle
2)Rectangle
3)Circle
Enter your choice:
```