Name : Swapnanil Dutta Roll : 16900218012
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Subject : Oject Oriented Programming Lab Dept : Information Technology

12. a Demonstrate that a derived-class constructor cannot catch exceptions thrown by its base-class constructor.

Description :

Exception handling, catching base and derived classes as exceptions, if both base and derived classes are caught block of derived class must appear before the base class. In Java, catching a base class exception before derived is not allowed by the compiler itself.

Code :

```
class Test1 {
    public Test1(){
        throw new ArithmeticException();
    }
}

public class Test extends Test1 {
    public Test() throws ArithmeticException {
        try {
            super(); // cannot be called
        } catch (Exception e) {
            // Exception Handler
        }
    }
```

```
public static void main (String [] args) {
    try {
        Test ob = new Test ();
    } catch (Exception e) {
        System.out.println (e);
    }
}
}
```

Output :

Throws ~~Exp~~ Exception : Constructor call must be the first statement in a constructor at Line 15

B.

Write a JAVA Program to find Area and Circumference of Circle using Constructors.

Description:

A constructor in Java is a special method that is used to initialize objects. The constructor is called when an object of a class is created. It can be used to set initial values for object attributes.

Area of Circle = π (pi) r^2

~~Area~~ Circumference of Circle = 2π (pi) r

Code:

```
class Circle{
    private double radius;
    Circle (double radius){
        this.radius = radius;
    }
    double getArea(){
        return (Math.PI * Math.pow(this.radius, 2));
    }
    double getCircumference(){
        return (2* Math.PI * this.radius);
    }
}
```

```
public class CircleArea {
    public static void main (String[] args) {
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter radius : ");
        double radius = sc.nextDouble ();
        Circle circle = new Circle (radius);
        System.out.println ("Area : " + String.format(
                "%.2f", circle.getArea()));
        System.out.println ("Circumference: " + String.format(
                "%.2f", circle.getCircumference ()));
        sc.close();
    }
}
```

Output:

```
$ javac CircleArea.java
$ java CircleArea

Enter radius :
5
Area : 78.54
Circumferene : 31.42
```