Write a java program to create an abstract class Shape with abstract methods calculateArea() and calculatePerimeter(). Create subclasses Circle and Triangle that extends the Shape class.

```
abstract class Shape {
    public abstract double calculateArea();
    public abstract double calculatePerimeter();
}

class Circle extends Shape {
    private double radius;
    public Circle(double radius) {
        this.radius = radius;
    }
    public double calculateArea() {
        return Math.PI * radius * radius;
    }
    public double calculatePerimeter() {
        return 2 * Math.PI * radius;
    }
}

class Triangle (double side1, double side2, double side3)
{
    this.side1 = side1;
    this.side2 = side2;
    this.side3 = side3;
}
```

```
public double calculateArea() {
    double s = (side1 + side2 + side3) / 2;
    return Math.sqrt(s * (s - side1) * (s - side2) *
                     (s - side3));
}

public double calculatePerimeter() {
    return side1 + side2 + side3;
}
}

public class Main {
    public static void main(String[] args) {
        Circle circle = new Circle(5.0);
        System.out.println("Circle - Area: " + circle.calculateArea() +
                           "Circle - Perimeter" + circle.calculatePerimeter());

        Triangle triangle = new Triangle(3.0, 4.0, 5.0);
        System.out.println("Triangle - Area: " + triangle.calculateArea()
                           + "Perimeter" + triangle.calculatePerimeter());

    }
}
```

Output :→ Circle - Area : ~~78.5396~~ Perimeter: 31.415

~~Triangle~~ - Area: 6.0 . Perimeter : 12.0

Write a Java program to create a generic class which hold 5 integers and 5 double values.

Demonstrate various string constructor with help of Java programs

```
class string
{
    public string void main ( String args[] )
    {
        char [] t { 'J', 'a', 'v', 'a' };
        String s2 = new String (c) ;
        String s2 = new String (s2) ;
        System.out.println (s1);
        System.out.println (s2);
    }
}
```

output :- JAVA
JAVA

Demonstrate startsWith() to give output true or false

```
Public class Main
{
    Public static void main ( String [] args)
    {
        String test = "testString";
        String Pattern = "te";
        System.out.println (test.startsWith (Pattern));
        Pattern = "est";
        System.out.println (test.startsWith (Pattern));
    }
}
```

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output :- true
false