LAB EXPERIMENT 5

Q1. Create a class named 'student' with string variable and integer variable 'roll_no'. Assign the value of roll_no and name (your name) by creating an object of the class Student.

Code:

```scala
HelloWorld.scala                                          425rn5fa8 ✏

1  class Student(var name: String, var roll_no: Int)
2  //SagnikRoy_500109927
3  val myStudent = new Student("Sagnik Roy", 500109927)
4  println(s"Student Name: ${myStudent.name}")
5  println(s"Roll Number: ${myStudent.roll_no}")
6
```

Output:

```
Output:

Student Name: Sagnik Roy
Roll Number: 500109927
```

Q2. Write a program to print the area and parameter of a Triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' without any parameter in its constructor.

Code:

```scala
import scala.io.StdIn
//SagnikRoy_500189927
class Triangle {
  var side1: Double = 0
  var side2: Double = 0
  var side3: Double = 0

  def setSides(s1: Double, s2: Double, s3: Double): Unit = {
    side1 = s1
    side2 = s2
    side3 = s3
  }

  def inputSides(): Unit = {
    println("Enter the lengths of the sides of the triangle:")
    side1 = StdIn.readDouble()
    side2 = StdIn.readDouble()
    side3 = StdIn.readDouble()
  }

  def calculateArea(): Unit = {
    val s = (side1 + side2 + side3) / 2
    val area = math.sqrt(s * (s - side1) * (s - side2) * (s - side3))
    println(s"Area of the triangle: $area square units")
  }

  def calculatePerimeter(): Unit = {
    val perimeter = side1 + side2 + side3
    println(s"Perimeter of the triangle: $perimeter units")
  }
}

object Main {
  def main(args: Array[String]): Unit = {

    val myTriangle = new Triangle

    myTriangle.inputSides()

    myTriangle.calculateArea()
    myTriangle.calculatePerimeter()
  }
}
```

Output:

```
STDIN
3
4
5

Output:

Enter the lengths of the sides of the triangle:
Area of the triangle: 6.0 square units
Perimeter of the triangle: 12.0 units
```

Q3. Write a program to print the area of a rectangle by creating a class named 'Area' taking the values of its length and breadth as parameters of its constructor and having a method named 'returnArea' which returns the area of the rectangle. The length and breadth of rectangles are entered through the keyboard.

Code:

```scala
import scala.io.StdIn
//SagnikRoy_500109927
class Area(val length: Double, val breadth: Double) {

  def returnArea(): Double = {
    length * breadth
  }
}

object Main {
  def main(args: Array[String]): Unit = {

    println("Enter the length of the rectangle:")
    val length = StdIn.readDouble()

    println("Enter the breadth of the rectangle:")
    val breadth = StdIn.readDouble()

    val rectangleArea = new Area(length, breadth)

    val area = rectangleArea.returnArea()
    println(s"Area of the rectangle: $area square units")
  }
}
```

Output:

```
STDIN

6
7


Output:

Enter the length of the rectangle:
Enter the breadth of the rectangle:
Area of the rectangle: 42.0 square units
```

Q4. Write a program to print the area and parameter of a Triangle having sides of 3, 4 and 5 units by creating a class named 'Triangle' with an auxiliary constructor having the three sides as its parameters.

Code:

```scala
import scala.io.StdIn
//SagnikRoy_500109927
class Triangle(var side1: Double, var side2: Double, var side3: Double) {

  def this() {
    this(0, 0, 0)
  }

  def inputSides(): Unit = {
    println("Enter the lengths of the sides of the triangle:")
    side1 = StdIn.readDouble()
    side2 = StdIn.readDouble()
    side3 = StdIn.readDouble()
  }

  def calculateArea(): Unit = {
    val s = (side1 + side2 + side3) / 2
    val area = math.sqrt(s * (s - side1) * (s - side2) * (s - side3))
    println(s"Area of the triangle: $area square units")
  }

  def calculatePerimeter(): Unit = {
    val perimeter = side1 + side2 + side3
    println(s"Perimeter of the triangle: $perimeter units")
  }
}

object Main {
  def main(args: Array[String]): Unit = {

    val myTriangle = new Triangle

    myTriangle.inputSides()

    myTriangle.calculateArea()
    myTriangle.calculatePerimeter()
  }
}
```

Output:

```
STDIN

9
8
7


Output:

Enter the lengths of the sides of the triangle:
Area of the triangle: 26.832815729997478 square units
Perimeter of the triangle: 24.0 units
```