Object Oriented Programming Lab 7

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ME-A Batch 3

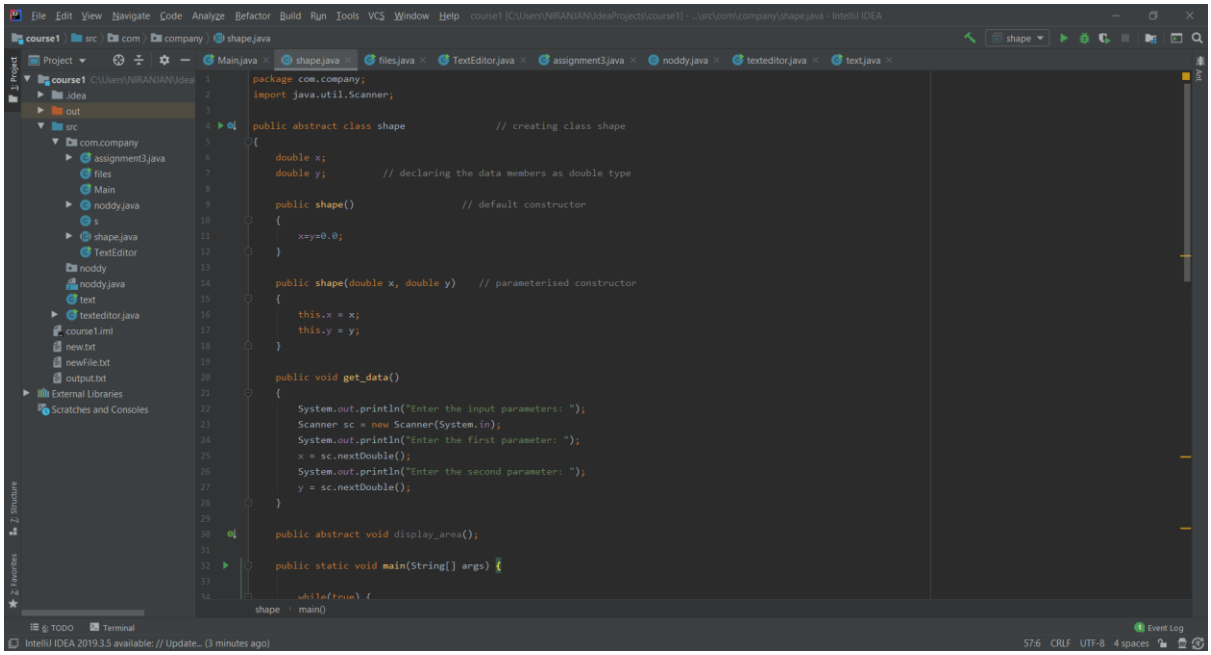
Problem Statement ->

Implement a base class Shape. Use this class to store two double type variables that could be used to compute the area of the figures. Derive two specific class function get_data to initialize the base class members and another member function display_area to compute and display the area of the figures. Using these three classes to design a program that will compute the area for the triangle or the rectangle by taking user inputs.

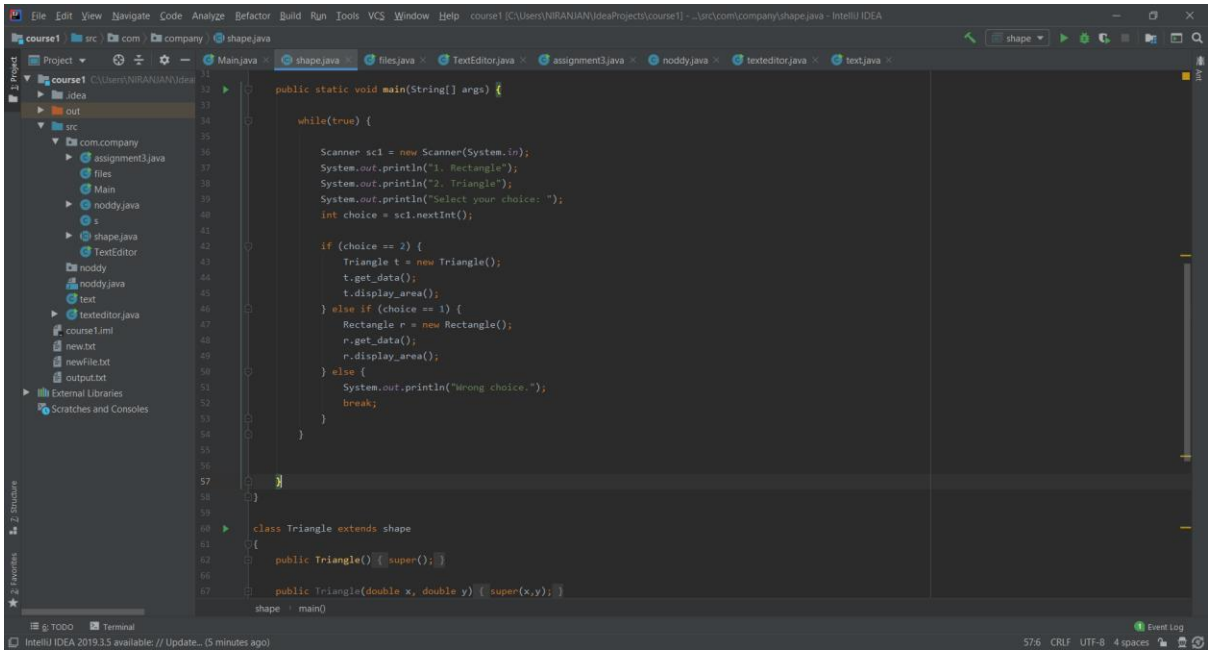
First user input x = [length for rectangle, base for triangle]

y = [breadth for rectangle, height for triangle]

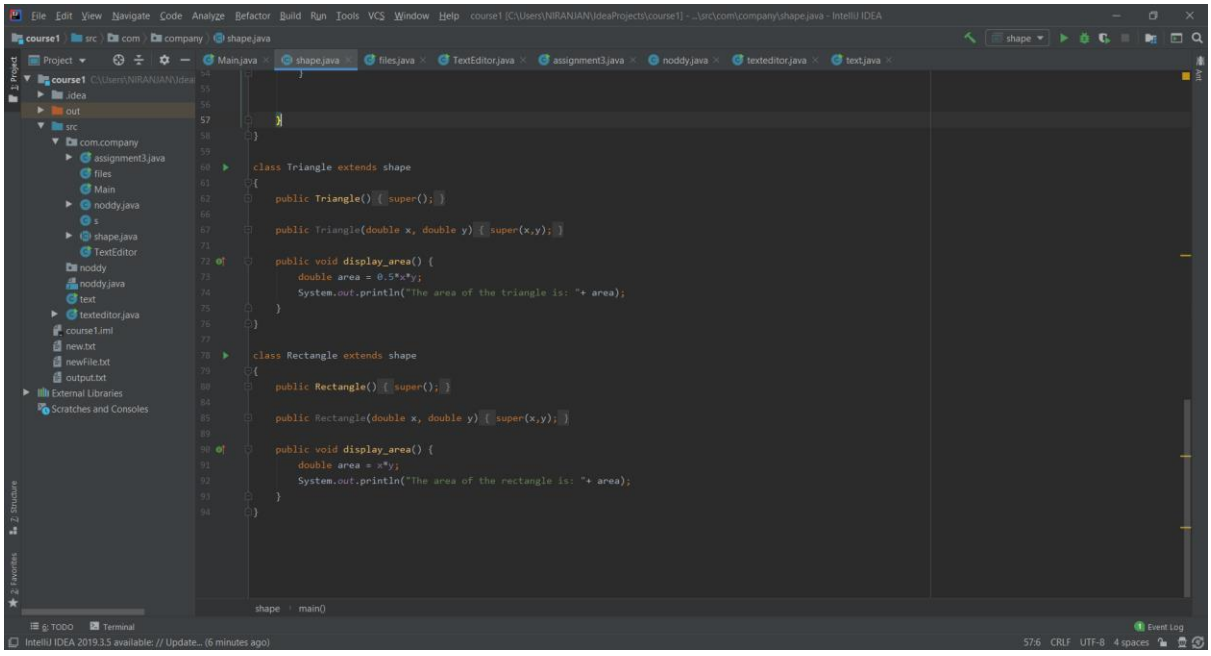
Code ->



```
package com.company;
import java.util.Scanner;

public abstract class shape              // creating class shape
{
    double x;
    double y;          // declaring the data members as double type

    public shape()                  // default constructor
    {
        x=y=0.0;
    }

    public shape(double x, double y)    // parameterised constructor
    {
        this.x = x;
        this.y = y;
    }

    public void get_data()
    {
        System.out.println("Enter the input parameters: ");
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the first parameter: ");
        x = sc.nextDouble();
        System.out.println("Enter the second parameter: ");
        y = sc.nextDouble();
    }

    public abstract void display_area();

    public static void main(String[] args) {
```



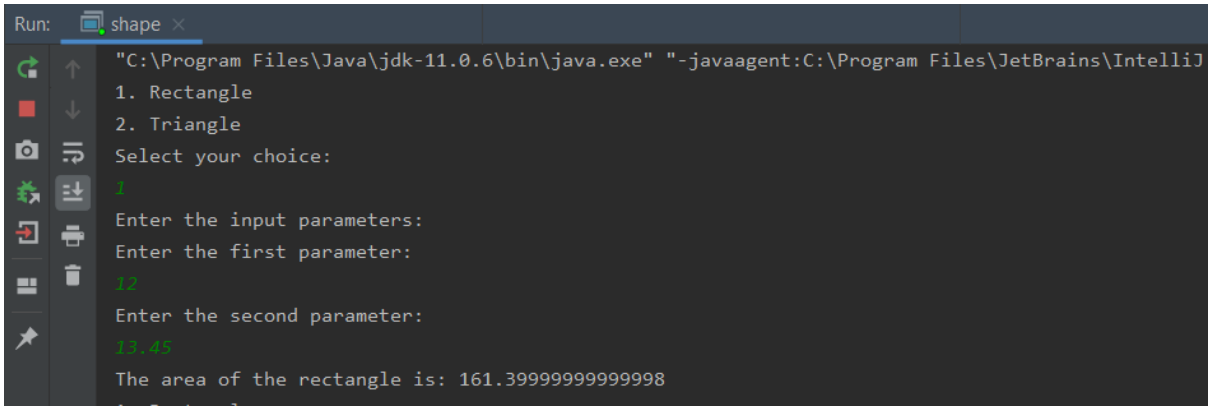
```
public static void main(String[] args) {

    while(true) {

        Scanner sc1 = new Scanner(System.in);
        System.out.println("1. Rectangle");
        System.out.println("2. Triangle");
        System.out.println("Select your choice: ");
        int choice = sc1.nextInt();

        if (choice == 2) {
            Triangle t = new Triangle();
            t.get_data();
            t.display_area();
        } else if (choice == 1) {
            Rectangle r = new Rectangle();
            r.get_data();
            r.display_area();
        } else {
            System.out.println("Wrong choice.");
            break;
        }
    }


    }
}

class Triangle extends shape
{
    public Triangle() { super(); }

    public Triangle(double x, double y) { super(x,y); }
```



```
    }


    }
}

class Triangle extends shape
{
    public Triangle() { super(); }

    public Triangle(double x, double y) { super(x,y); }

    public void display_area() {
        double area = 0.5*x*y;
        System.out.println("The area of the triangle is: "+ area);
    }
}

class Rectangle extends shape
{
    public Rectangle() { super(); }

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

    public void display_area() {
        double area = x*y;
        System.out.println("The area of the rectangle is: "+ area);
    }
}
```

Output of the Following Program ->

1. ***Area of the Rectangle ->***



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2. *Area of Triangle ->*

```
1. Rectangle
2. Triangle
Select your choice:
2
Enter the input parameters:
Enter the first parameter:
6.64
Enter the second parameter:
12.54
The area of the triangle is: 41.632799999999996
1. Rectangle
2. Triangle
Select your choice:
```
