Green University of Bangladesh

Department of Computer Science and Engineering (CSE)
Faculty of Sciences and Engineering
Fall 2022, B.Sc. in CSE (DAY)

LAB REPORT NO # 02

Course Title: Object Oriented Programming (JAVA)
Course Code: CSE 202   Section: CSE 213 - DA (PC)

Lab Experiment Name(s):

Take three constructor where first constructor will calculate the area of triangle, second constructor will calculate the area of rectangle and third constructor will calculate the area of circle using overloading constructor However, Input must be taken from users.

- Implement the above problem using switch case statements.

Student Details

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Lab Date: 24 October, 2022

Submission Date: 30 October, 2022

Course Teacher's Name: Dr. Muhammad Aminur Rahaman, Associate Professor

1. TITLE OF THE LAB EXPERIMENT

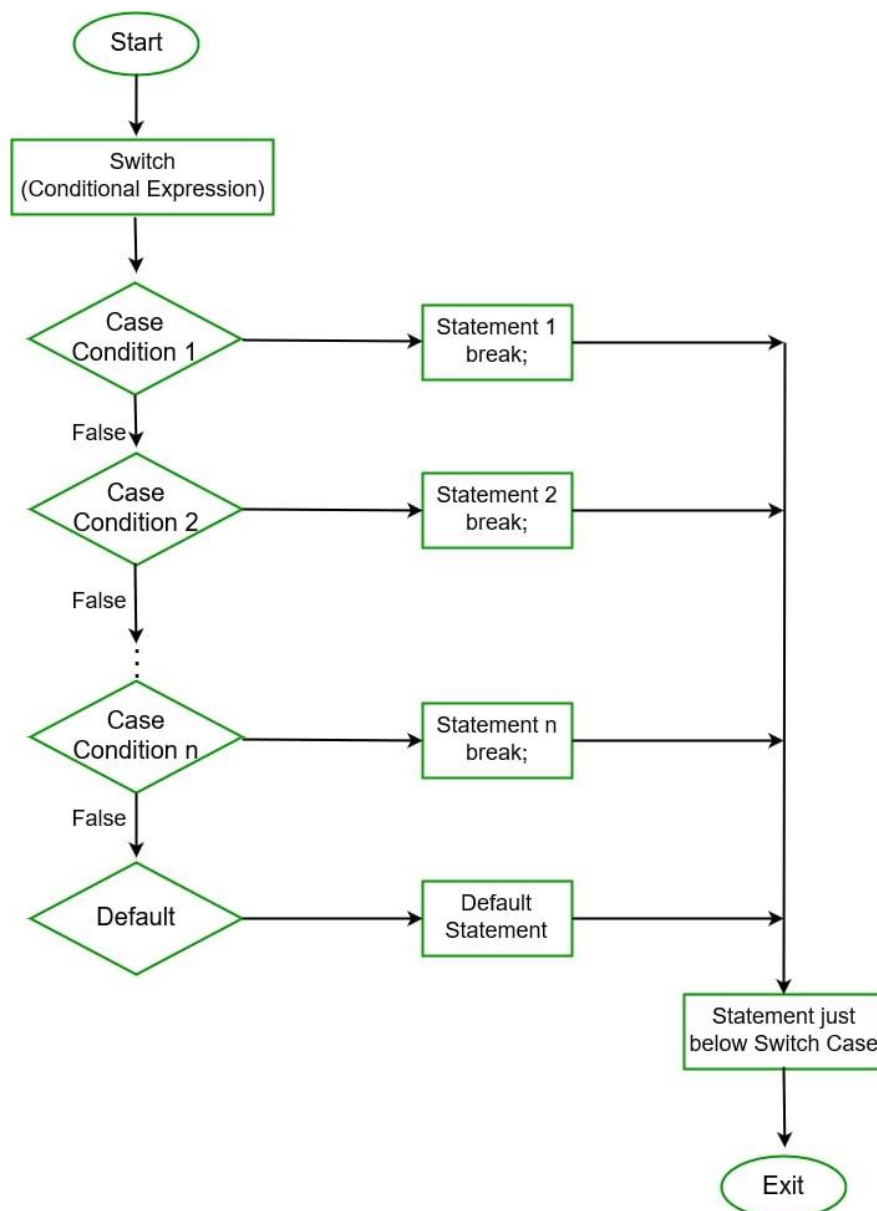Lab Report of Class, Objects, Object Arrays, Constructors, Methods

2. OBJECTIVES

• To gather knowledge of Class, Objects, Object Arrays, Constructors, Methods.
• To implement the constructor, array and methods

3. PROCEDURE/ ANALYSIS / DESIGN

Problem 1:   Take three constructor where first constructor will calculate the area of triangle, second constructor will calculate the area of rectangle and third constructor will calculate the area of circle using overloading constructor However, Input must be taken from users.

Implement the above problem using switch case statements.

Syntax / Pseudo Code:

```
// switch statement
switch(expression)
{
  // case statements
  // values must be of same type of expression
  case value1 :
    // Statements
    break; // break is optional

  case value2 :
    // Statements
    break; // break is optional

  // We can have any number of case statements
  // below is default statement, used when none of the cases is
true.
  // No break is needed in the default case.
  default :
    // Statements
}
```

4. IMPLEMENTATION & TEST RESULT

Problem 1: Take three constructor where first constructor will calculate the area of triangle, second constructor will calculate the area of rectangle and third constructor will calculate the area of circle using overloading constructor However, Input must be taken from users.

• *Implement the above problem using switch case statements.*

Main.java

```java
import java.util.Scanner;
public class FindAreaUsingSwitchStatement
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("MENU:");
        System.out.println("");
        System.out.println("1.Area of a circle");
        System.out.println("2.Area of a triangle");
        System.out.println("3.Area of a rectangle");
        System.out.println("");
        System.out.println("Please enter any of the above option: ");
        int num = sc.nextInt();
        switch(num)
        {
            case 1: System.out.println("Please enter radius of circle: ");
            double radius = sc.nextFloat();
            double areaCircle = (22 * radius * radius) / 7;
            System.out.println("Area of circle is: " + areaCircle);
            break;
            case 2: System.out.println("Please enter base and height of triangle: ");
            double base = sc.nextFloat();
            double height = sc.nextFloat();
            double areaTriangle = (base* height) / 2;
            System.out.println("Area of triangle is: " + areaTriangle);
            break;
            case 3: System.out.println("Please enter length and breadth of rectangle: ");
            int length = sc.nextInt();
            int breadth = sc.nextInt();
            int areaRectangle = length * breadth;
            System.out.println("Area of ractangle is: " + areaRectangle);
            break;
            default:System.exit(0);
        }
        sc.close();
    }
}
```

4. IMPLEMENTATION & TEST RESULT

Problem 1: Take three constructor where first constructor will calculate the area of triangle, second constructor will calculate the area of rectangle and third constructor will calculate the area of circle using overloading constructor However, Input must be taken from users.

- *Implement the above problem using switch case statements.*

```
Output

java -cp /tmp/k7eTL9cOp6 FindAreaUsingSwitchStatement
MENU:

1.Area of a circle
2.Area of a triangle
3.Area of a rectangle

Please enter any of the above option:
1
Please enter radius of circle:
6
Area of circle is: 113.14285714285714
```

```
Output

java -cp /tmp/k7eTL9cOp6 FindAreaUsingSwitchStatement
MENU:
1.Area of a circle
2.Area of a triangle
3.Area of a rectangle

Please enter any of the above option:
2
Please enter base and height of triangle:
4 7
Area of triangle is: 14.0
```

```
Output

java -cp /tmp/k7eTL9cOp6 FindAreaUsingSwitchStatement
MENU:
1.Area of a circle
2.Area of a triangle
3.Area of a rectangle

Please enter any of the above option:
3
Please enter length and breadth of rectangle:
7 8
Area of ractangle is: 56
```

6. ANALYSIS AND DISCUSSION

1) The problem is solved by using Java. The problem was quite hard in the beginning to think out and how to solve this in efficient way. In this program we implement calculations in more efficient way to understand the deeper knowledge of such mathematical problems like using switch case to calculate the area of various things such as Rectangle, Circle and Triangle.

7. SUMMARY

1) We have used basics of java using switch case to calculate the area of various things .
2) We have learned to solve complex mathematical problems from it.