

1] Write a program in Java to implement a Calculator with simple arithmetic operations such as add, subtract, multiply, divide, factorial etc. using switch case and other simple java statements. The objective of this assignment is to learn Constants, Variables, and Data Types, Operators and Expressions, Decision making statements in Java.

```
package Practical2;  
import java.util.Scanner;
```

```
public class Calculator {  
  
    public static void main(String[] args) {  
        final String MENU = ""  
            Choose an operation:  
            1. Addition  
            2. Subtraction  
            3. Multiplication  
            4. Division  
            5. Factorial  
            Enter your Choice:  
            "";  
        Scanner sc = new Scanner(System.in);  
        int choice;  
        double num1, num2;  
        int factNum;  
        long factorial = 1;  
        System.out.print(MENU);  
        choice = sc.nextInt();  
  
        switch (choice) {  
            case 1: // Addition  
                System.out.print("Enter two numbers: ");  
                num1 = sc.nextDouble();  
                num2 = sc.nextDouble();  
                System.out.println("Result = " + (num1 + num2));  
                break;  
            case 2: // Subtraction  
                System.out.print("Enter two numbers: ");  
                num1 = sc.nextDouble();  
                num2 = sc.nextDouble();  
                System.out.println("Result = " + (num1 - num2));  
                break;  
            case 3: // Multiplication  
                System.out.print("Enter two numbers: ");  
                num1 = sc.nextDouble();  
                num2 = sc.nextDouble();  
                System.out.println("Result = " + (num1 * num2));  
                break;  
            case 4: // Division  
                System.out.print("Enter two numbers: ");  
                num1 = sc.nextDouble();  
                num2 = sc.nextDouble();  
                if (num2 != 0) {  
                    System.out.println("Result = " + (num1 / num2));  
                }  
            default:  
                System.out.println("Invalid choice");  
        }  
    }  
}
```

```

    } else {
        System.out.println("Error: Division by zero is not allowed.");
    }
    break;
case 5: // Factorial
    System.out.print("Enter a number: ");
    factNum = sc.nextInt();
    if (factNum < 0) {
        System.out.println("Error: Factorial of negative number not defined.");
    } else {
        for (int i = 1; i <= factNum; i++) {
            factorial *= i;
        }
        System.out.println("Factorial of " + factNum + " is: " + factorial);
    }
    break;
default:
    System.out.println("Invalid choice!");
}
}
}

```

Console × Calculator.java

<terminated> Calculator [Java Application]

Choose an operation:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Factorial

Enter your Choice:

1

Enter two numbers: 5 6

Result = 11.0

Console × Calculator.java

<terminated> Calculator [Java Application] C:\

Choose an operation:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Factorial

Enter your Choice:

2

Enter two numbers: 10 8

Result = 2.0

Console × Calculator.java

<terminated> Calculator [Java Application] C:\

Choose an operation:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Factorial

Enter your Choice:

3

Enter two numbers: 4 3

Result = 12.0

Console × Calculator.java

<terminated> Calculator [Java Application]

Choose an operation:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Factorial

Enter your Choice:

4

Enter two numbers: 9 3

Result = 3.0

Console × Calculator.java

<terminated> Calculator [Java Application]

Choose an operation:

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Factorial

Enter your Choice:

5

Enter a number: 5

Factorial of 5 is: 120