**Creating an Arithmetic Calculator**

**DESCRIPTION:**

**Objective:**

Write a program to create an arithmetic calculator.

**Steps needed to write a program to create an arithmetic calculator:**

1. Create a Java project in Eclipse IDE

2. Write a Java code to create a calculator to perform the four basic arithmetic operations such as addition, subtraction, multiplication, and division.

3. Executing the program and verifying the result according to the particular operation.

4. Print the result

**Writing a program in Java to create an Arithmetic Calculator**

**Step 1:**

Create a Java project in Eclipse IDE:

1. **Open Eclipse**

2. **Create a new Java project: First-Project**

3. **Create a new Package:** **com.simplilearn.test**

4. **Import Scanner Class:**

**import java.util.Scanner;**

The Scanner Class is used to get user input, and it is found in the **java.util** package

5. **Create a new Class:**

**public class** ArithmeticCalculator{ //objects,methods}

A class in the context of java is a template used to create objects and to define object data types and methods. Classes are categories, and objects are items within each category. All class objects should have the basic class properties.

6. **Declaration of main method**:

**public** **static** **void** main(String args[]) {//Method body goes here}

In the above declaration, two modifiers public, and static has been used with main method

7. **Declaration of numbers and result**

**double** num1,num2,result;

num1 and num2 are operands to perform operation on

8. **Create an object of Scanner class**

Scanner input = **new** Scanner(System.***in***);

num1=input.nextDouble();

num2=input.nextDouble();

Object **input** is created using Scanner class and it is executed using above syntax

9. **Ask users to enter the number to choose operation**

**int** num;

System.***out***.println("Enter the number for operation");

num=input.nextInt();

num is the number to choose operation and should match with case value to perform particular operation

10. **Ask users to enter numbers**

System.***out***.println("Enter First number ");

System.***out***.println("Enter Second number ");

num1 and num2 printed using above syntax

11. **Closing of Scanner class**

input.close();

Scanner class is closed using above syntax

12. **Creating switch case to perform the operation**

**switch**(num) {

**case** 1: Performs Addition between numbers

result=num1+num2;

System.***out***.println("Addition is "+result);

**break**;

**case** 2: Performs Subtraction between numbers

result=num1-num2;

System.***out***.println("Subtraction is "+result);

**break**;

**case** 3: Performs Multiplication between numbers

result=num1\*num2;

System.***out***.println("Multiplication is "+result);

**break**;

**case** 4: Performs Division between numbers

Here are two conditions to perform Division: if (num2! =0) else (num2 ==0)

**if**(num2 !=0)

{

result=num1/num2;

System.***out***.println("Division is "+result);

}

**else**

{

System.***out***.println("Division by Zero Situation");

}

**break**;

**default**: Perform Default condition

System.***out***.println("Invalid");

}

The switch case is a multi-way branch statement. Based on the value of the expression given different parts of the code can be executed quickly.

In this program, if the **case value** is equal to **num** performs the addition operation for the given numbers num1 and num2, and breaks.

Like this other operations such as subtraction, multiplication and division are performed and result is printed.

Also In division there are two cases where if(num2 !=0) and if(num2 ==0),

and at last, if **num** is not equal to **case value** then result is printed as **invalid,**

after performing each case the program automatically stops using **break**.

**Step 2:**

Write a Java code to create a calculator to perform the four basic arithmetic operations such as addition, subtraction, multiplication, and division:

**A program in Java to create an Arithmetic Calculator:**

Project: First-Project

**package** com.simplilearn.test;

**import** java.util.Scanner;

**public** **class** ArithmeticCalculator {

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

**double** num1,num2,result;

Scanner input = **new** Scanner(System.***in***);

//Ask users to enter the number to choose operation

**int** num;

System.***out***.println("Enter the number for operation");

num=input.nextInt();

//Ask users to enter numbers

System.***out***.println("Enter First number ");

num1=input.nextDouble();

System.***out***.println("Enter Second number ");

num2=input.nextDouble();

input.close();

//Creating switch case to perform the operation

**switch**(num) {

**case** 1:

result=num1+num2;

System.***out***.println("Addition is "+result);

**break**;

**case** 2:

result=num1-num2;

System.***out***.println("Subtraction is "+result);

**break**;

**case** 3:

result=num1\*num2;

System.***out***.println("Multiplication is "+result);

**break**;

**case** 4:

**if**(num2 !=0)

{

result=num1/num2;

System.***out***.println("Division is "+result);

}

**else**

{

System.***out***.println("Division by Zero Situation");

}

**break**;

**default**:

System.***out***.println("Invalid");

}

}

}

**Step 3**:

Executing the program and verifying the result according to the particular operation.

Before executing the program, check for syntactical corrections. If no errors are found, follow the steps mentioned below:

* [*Right click*] in the program space
* Select *Run As Java Application*

After running as java application, it will ask for you to **Enter the number for Operation.** Then it will ask user to **Enter First number** and **Enter Second number**.

Next it will show you the result of the operation according to the numbers given by the user.

**Step 4:**

Print the result

The result is as shown below for different operations:

**Result:**

//Addition:

Enter the number for operation

1

Enter First number

98

Enter Second number

42

Addition is 140.0

**//Subtraction:**

Enter the number for operation

2

Enter First number

98

Enter Second number

24

Subtraction is 74.0

**//Multiplication:**

Enter the number for operation

3

Enter First number

98

Enter Second number

42

Multiplication is 4116.0

**//Division:**

1. if(num2 ! =0):

Enter the number for operation

4

Enter First number

98

Enter Second number

24

Division is 4.0833333333333333

2. if(num2 ==0):

Enter the number for operation

4

Enter First number

98

Enter Second number

0

Division by Zero Situation

**//Default:**

Enter the number for operation

5

Enter First number

98

Enter Second number

42

Invalid

The program for arithmetic calculator has run successfully. The result is also printed.