Title : Design a class in java to perform various mathematical operations on given numbers.

Aim : Java Program for Calculator - This program will read two integer numbers and calculate the arithmetic operators, in this example we used switch case and if else statement. User will enter a choice after entering two numbers and based on user choice program will return the result.

Objective : 1. Demonstrate use of arithmetic operators.

2. Demonstrate use of functions.

Theory : Arithmetic Operators

These operators involve the mathematical operators that can be used to perform various simple or advanced arithmetic operations on the primitive data types referred to as the operands. These operators consist of various unary and binary operators that can be applied on a single or two operands. Let's look at the various operators that Java has to provide under the arithmetic operators.

Operators	Result
+	Addition of two numbers
-	Subtraction of two numbers
*	Multiplication of two numbers
/	Division of two numbers
%	(Modulus Operator)Divides two numbers and returns the remainder
++	Increment Operator
--	Decrement Operator

1. **Arithmetic Operators**: Arithmetic operators are used to perform arithmetic/mathematical operations on operands.

- **Addition ('+')**: Adds two operands, like (A + B) or (8 + 3).
- **Subtraction ('-')**: Subtracts two operands, like (A – B) or (3 – 2).

- **Multiplication (‘*’)**: Multiplies two operands, like (A * B) or (5 * 2).
- **Division (‘/’)**: Divides the first operand by the second, like (A / B) or (8 / 2).
- **Modulus (‘%’)**: Returns the remainder when first operand is divided by the second.
- **Increment (‘++’)**: Increment the value of an integer. When placed before the variable name (also called pre-increment operator), its value is incremented instantly.
- **Decrement (‘–‘)**: Decrement the value of an integer. When placed before the variable name (also called pre-decrement operator), its value is decremented instantly.

Procedure :

```
import java.util.Scanner;

public class Calculator {

   public static void main(String[] args) {

      int a, b, choice;

      float result = 0;


      Scanner buf = new Scanner(System.in);

      System.out.print("Enter first number: ");

      a = buf.nextInt();

      System.out.print("Enter second number: ");

      b = buf.nextInt();


      System.out.print("\n1: Addition.\n2: Subtraction.");
```

```
System.out.print("\n3: Multiplication.\n4: Divide.");
System.out.print("\n5: Remainder.\n6: Exit.");
System.out.print("\nEnter your choice: ");
choice = buf.nextInt();

switch (choice) {
   case 1:
      result = a + b;
      break;
   case 2:
      result = a - b;
      break;
   case 3:
      result = a * b;
      break;
   case 4:
      if (b != 0) {
         result = (float) a / b;
      } else {
         System.out.println("Error: Cannot divide by zero!");
         return;
      }
      break;
```

```
            case 5:
                result = a % b;
                break;
            case 6:
                System.out.println("Exiting the program...");
                return;
            default:
                System.out.println("Invalid Choice!");
                return;
        }

        System.out.println("Result is: " + result);
    }
}
```