import java.util.Scanner;

public class SimpleCalculator {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

while (true) {

System.out.println("Choose an operation:");

System.out.println("1. Addition (+)");

System.out.println("2. Subtraction (-)");

System.out.println("3. Multiplication (\*)");

System.out.println("4. Division (/)");

System.out.println("5. Factorial (!)");

System.out.println("6. Exit");

int choice = scanner.nextInt();

if (choice == 6) {

System.out.println("Calculator closed.");

break;

}

switch (choice) {

case 1:

double result = performAddition(scanner);

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

break;

case 2:

result = performSubtraction(scanner);

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

break;

case 3:

result = performMultiplication(scanner);

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

break;

case 4:

result = performDivision(scanner);

if (Double.isNaN(result)) {

System.out.println("Cannot divide by zero.");

} else {

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

}

break;

case 5:

long factorialResult = calculateFactorial(scanner);

System.out.println("Result: " + factorialResult);

break;

default:

System.out.println("Invalid choice. Please choose a valid operation.");

}

}

scanner.close();

}

private static double performAddition(Scanner scanner) {

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

double num1 = scanner.nextDouble();

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

double num2 = scanner.nextDouble();

return num1 + num2;

}

private static double performSubtraction(Scanner scanner) {

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

double num1 = scanner.nextDouble();

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

double num2 = scanner.nextDouble();

return num1 - num2;

}

private static double performMultiplication(Scanner scanner) {

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

double num1 = scanner.nextDouble();

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

double num2 = scanner.nextDouble();

return num1 \* num2;

}

private static double performDivision(Scanner scanner) {

System.out.print("Enter the dividend: ");

double dividend = scanner.nextDouble();

System.out.print("Enter the divisor: ");

double divisor = scanner.nextDouble();

if (divisor == 0) {

return Double.NaN; // Indicate division by zero

}

return dividend / divisor;

}

private static long calculateFactorial(Scanner scanner) {

System.out.print("Enter a non-negative integer: ");

int n = scanner.nextInt();

if (n < 0) {

System.out.println("Factorial is undefined for negative numbers.");

return 0;

}

long factorial = 1;

for (int i = 1; i <= n; i++) {

factorial \*= i;

}

return factorial;

}

}

Certainly! Here's a simple Java program that implements a calculator with basic arithmetic operations (addition, subtraction, multiplication, division) and the factorial operation using a **switch** statement:

This program allows you to choose the operation you want to perform and then input the required numbers for that operation. It also checks for division by zero and provides the factorial of a non-negative integer.