Documentation

**Introduction**

The Arithmetic Calculator is a simple program written in Java that allows a user to perform the four basic arithmetic operations: addition, subtraction, multiplication, and division. It's a console-based application that prompts the user for two numbers and an operator, and then calculates and displays the result.

**Features**

* **User Input**: The program takes two numerical inputs and one operator input from the user.
* **Basic Operations**: It supports the four basic arithmetic operations:
  1. **Addition**: Adding two numbers.
  2. **Subtraction**: Subtracting the second number from the first.
  3. **Multiplication**: Multiplying two numbers.
  4. **Division**: Dividing the first number by the second. It also includes a check for division by zero.

**Implementation Details**

Variables

* **num1** and **num2**: Variables to store the two numerical inputs from the user.
* **operator**: A character variable to store the arithmetic operator chosen by the user.
* **result**: A variable to store the result of the arithmetic operation.

Main Logic

1. **Input Collection**: The program uses the **Scanner** class to collect input from the user.
2. **Operation Selection**: A **switch** statement is used to determine the arithmetic operation based on the operator input.
3. **Calculation**: The appropriate arithmetic operation is performed, and the result is stored in the **result** variable.
4. **Output Display**: The result is printed to the console.

Error Handling

* **Division by Zero**: If the user attempts to divide by zero, the program will print an error message.
* **Invalid Operator**: If the user enters an operator other than **+**, **-**, **\***, or **/**, the program will print an error message.

**Conclusion**

The Arithmetic Calculator is a simple yet effective demonstration of core Java concepts such as variables, data types, control structures, and user input handling. It provides a hands-on way to understand how basic mathematical operations can be implemented using a programming language.

This program can be extended by adding more functionalities like support for more complex mathematical operations, user interface improvements, or logging of calculations for future reference.

**How to Run**

1. **Environment Setup**: Make sure you have Java installed and configured on your system.
2. **IDE Setup**: You can use Eclipse or IntelliJ as your IDE to write and run the code.
3. **Copy and Run**: Simply copy the code into a new Java class and run the **main** method.