Technical Documentation

Introduction

This technical documentation provides information about the testing framework developed using JUnit 5 for the "Calculator" class. The "Calculator" class contains four basic mathematical operations: addition, subtraction, multiplication, and division.

Project Structure

The project is structured as follows:

src/main/java: Contains the main source code for the "Calculator" class.
src/test/java: Contains the test source code for the "CalculatorTest" class.
pom.xml: The Maven project configuration file.

Testing Framework

Test Class

The test class, **CalculatorTest**, is responsible for testing the methods of the "Calculator" class. It includes the following test methods:

testAdd(): Tests the add() method, which performs addition.
testSubtract(): Tests the subtract() method, which performs subtraction.
testMultiply(): Tests the multiply() method, which performs multiplication.
testDivide(): Tests the divide() method, which performs division.
testDivideByZero(): Tests the divide() method when dividing by zero, expecting an ArithmeticException.

Test Setup

The @BeforeEach annotation is used to set up the test environment by creating an instance of the "Calculator" class before each test method is executed. This ensures a clean state for each test.

Assertions

The following JUnit 5 assertions are used in the test methods:

assertEquals(expected, actual): Compares the expected and actual results for equality.
assertThrows(exceptionType, executable): Checks if the specified exception is thrown during the execution of the provided executable.

Test Results

The tests are designed to verify the correctness of the "Calculator" class methods. If all tests pass, the methods are considered to be working as expected. If any test fails, it indicates a potential issue with the code.

Running Tests

To run the tests, follow these steps:

1. Clone the GitHub repository

2. Open the project in your preferred IDE.

3. Run the test class CalculatorTest.

4. Observe the test results in the IDE's test runner..