

Exercise 3: Assertions in JUnit

```
package com.example;
```

```
public class Calculator {
```

```
    public int add(int a, int b) {
```

```
        return a + b;
```

```
    }
```

```
    public int subtract(int a, int b) {
```

```
        return a - b;
```

```
    }
```

```
    public int multiply(int a, int b) {
```

```
        return a * b;
```

```
    }
```

```
    public int divide(int a, int b) {
```

```
        if (b == 0) throw new IllegalArgumentException("Cannot divide by zero");
```

```
        return a / b;
```

```
    }
```

```
}
```

```
package com.example;
```

```
import static org.junit.jupiter.api.Assertions.*;
```

```
import org.junit.jupiter.api.Test;
```

```
public class CalculatorTest {
```

```
Calculator calc = new Calculator();
```

```
@Test
```

```
public void testAdd() {
```

```
    assertEquals(5, calc.add(2, 3));
```

```
}
```

```
@Test
```

```
public void testSubtract() {
```

```
    assertEquals(1, calc.subtract(4, 3));
```

```
}
```

```
@Test
```

```
public void testMultiply() {
```

```
    assertEquals(6, calc.multiply(2, 3));
```

```
}
```

```
@Test
```

```
public void testDivide() {
```

```
    assertEquals(2, calc.divide(6, 3));
```

```
}
```

```
@Test
```

```
public void testDivideByZero() {
```

```
    Exception exception = assertThrows(IllegalArgumentException.class, () -> {
```

```
        calc.divide(5, 0);
```

```
    });
```

```
assertEquals("Cannot divide by zero", exception.getMessage());
```

```
}
```

```
}
```

OUTPUT:

The screenshot shows the Eclipse IDE interface. The Project Explorer on the left displays a project named 'junitedemo' with a package structure including 'src/main/java/com/example/CalculatorTest'. The main editor window shows the source code of 'CalculatorTest.java'. The code includes two test methods: 'testDivide()' which asserts that 2 divided by 3 equals 2, and 'testDivideByZero()' which asserts that an exception is thrown when dividing by zero. The bottom of the IDE shows the JUnit runner output, indicating that the tests passed successfully after 0.216 seconds.

```
22      assertEquals(6, calc.multiply(2, 3));
23  }
24
25  @Test
26  public void testDivide() {
27      assertEquals(2, calc.divide(6, 3));
28  }
29
30  @Test
31  public void testDivideByZero() {
32      Exception exception = assertThrows(IllegalArgumentException.class, () -> {
33          calc.divide(5, 0);
34      });
35      assertEquals("Cannot divide by zero", exception.getMessage());
36  }
37  }
38
```

Finished after 0.216 seconds
Runs: 5/5 Errors: 0 Finished after 0.216 seconds 0
CalculatorTest [Runner: JUnit 5] (0.001 s)