mockito + robolectric で Android の Unit テスト入門

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Androidのテスト

- Instrumentation テスト
- Unit テスト

Androidのテスト

- **Instrumentation テスト**

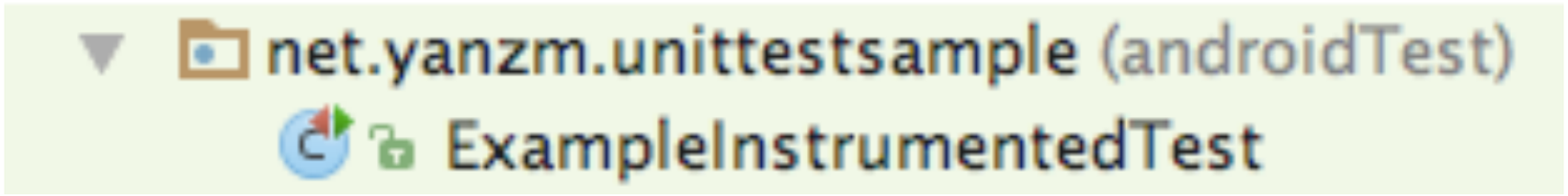
  エミュレーター・実機でテスト

- **Unit テスト**

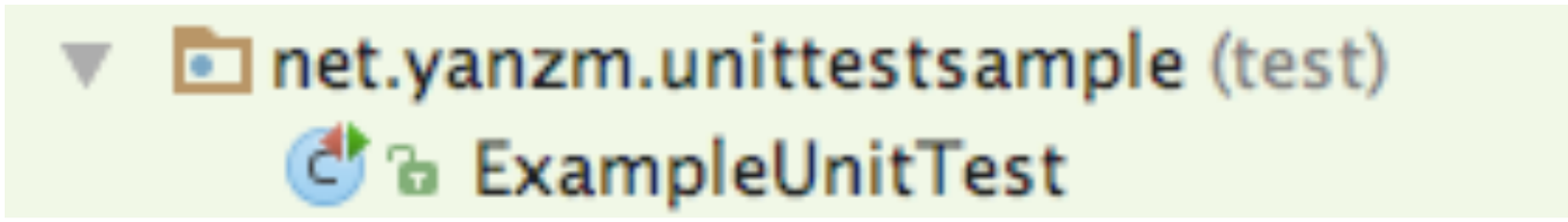
  JVMでテスト

Androidのテスト

- **Instrumentation テスト**

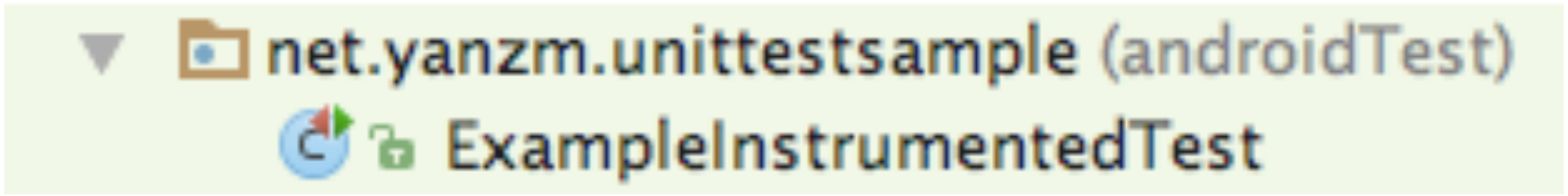


- **Unit テスト**

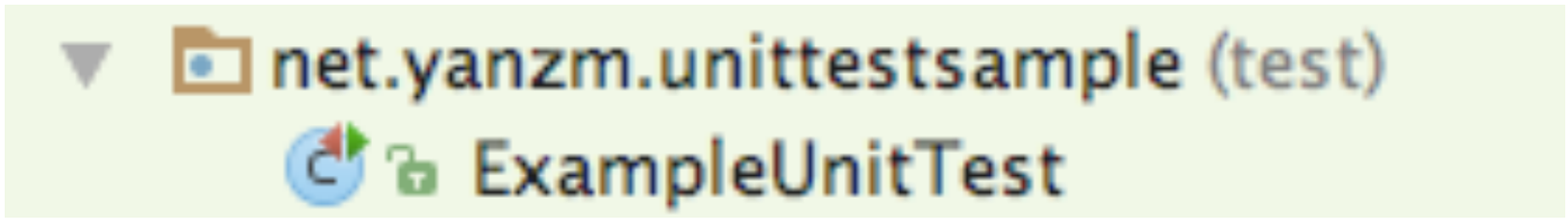


Androidのテスト

- **Instrumentation テスト**



- **Unit テスト**



JUnit

- JavaでUnitテストするための
  フレームワーク

- http://junit.org/junit4/

Android で JUnit

- JUnit 3
  - 昔は JUnit 3 のみ対応
- JUnit 4
  - 最近はこっちの形式で書く

Android JUnit4

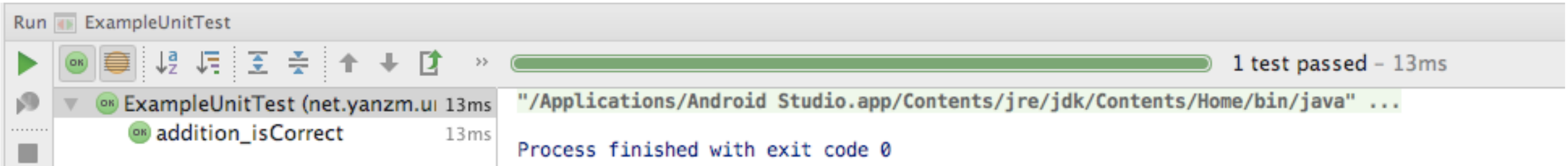
```
dependencies {
    …
    testCompile 'junit:junit:4.12'
}
```

実行

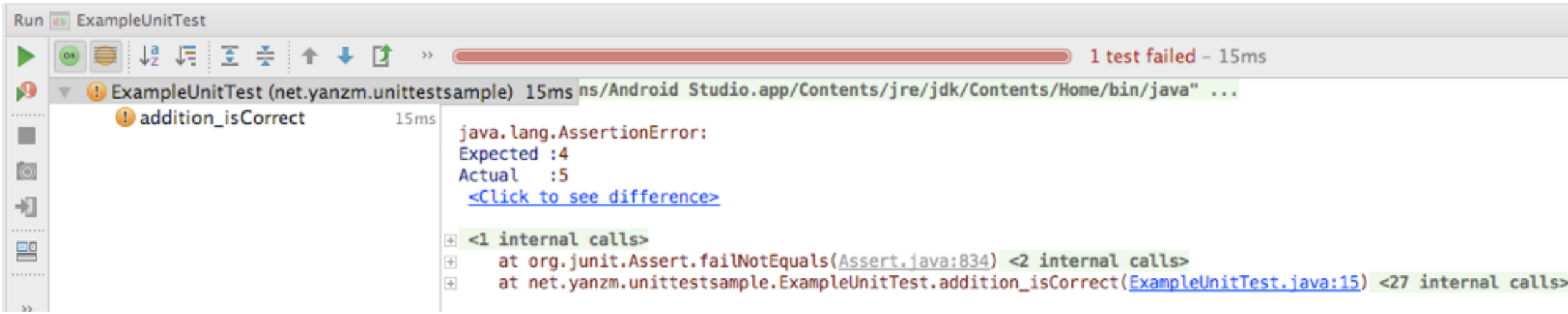
```
 9          *
            * @see <a href="http://d.android.com/tools/testing">Testing
11          */
12          public class ExampleUnitTest {
13              @Test
14              public void addition_isCorrect() throws Exception {
15                  assertEquals(4, 2 + 2);
16              }
17          }
```

実行結果

成功


Run ExampleUnitTest
1 test passed – 13ms
ExampleUnitTest (net.yanzm.u 13ms
addition_isCorrect 13ms
"/Applications/Android Studio.app/Contents/jre/jdk/Contents/Home/bin/java" ...
Process finished with exit code 0

失敗


Run ExampleUnitTest
1 test failed – 15ms
ExampleUnitTest (net.yanzm.unittestsample) 15ms
addition_isCorrect 15ms
ns/Android Studio.app/Contents/jre/jdk/Contents/Home/bin/java" ...
java.lang.AssertionError:
Expected :4
Actual :5
<Click to see difference>
<1 internal calls>
at org.junit.Assert.failNotEquals(Assert.java:834) <2 internal calls>
at net.yanzm.unittestsample.ExampleUnitTest.addition_isCorrect(ExampleUnitTest.java:15) <27 internal calls>

assertXX

```
final Cat cat = new Cat();
assertEquals(4, cat.legCount());
```

予想値

実際の値

mockito

- モック化フレームワーク
- Java での Unit テスト向け
- http://site.mockito.org/

stub method calls

```
// cat をモック
final Cat cat = mock(Cat.class);

// legCount() が呼ばれたら 2 を返す
when(cat.legCount()).thenReturn(2);

assertEquals(2, cat.legCount());
```

verify interactions

```
// cat をモック
final Cat cat = mock(Cat.class);

// cat のメソッドを呼ぶ
cat.sleep(3);

// 引数 3 で sleep() が呼ばれたか検証
verify(cat).sleep(3);
```

mockito

```
dependencies {
    …
    testCompile 'org.mockito:mockito-core:2.7.17'
}
```

Robolectric

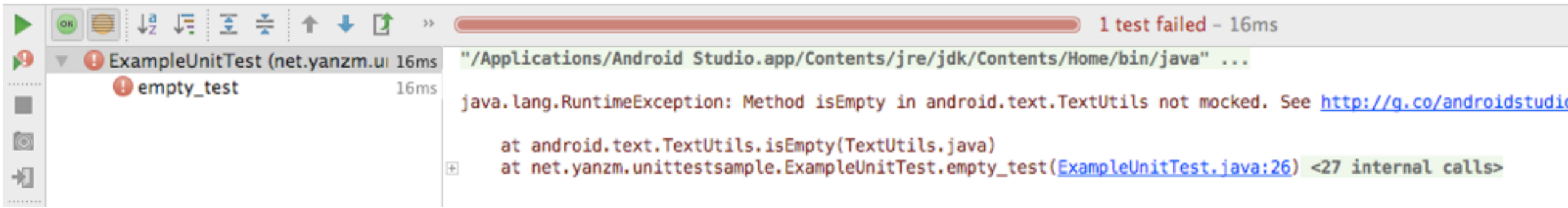
- Android SDK jar をモック実装に入れ替えて unit test
- http://robolectric.org/

Robolectric

```
dependencies {
    …
    testCompile 'org.robolectric:robolectric:3.3.1'
}
```

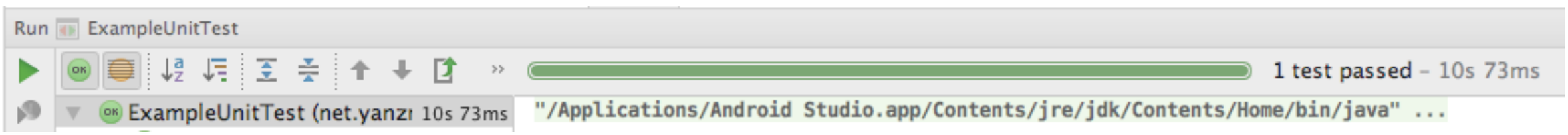
TextUtils は JVM にない

```
assertTrue(TextUtils.isEmpty(""));
```



```java
@RunWith(RobolectricTestRunner.class)
@Config(constants = BuildConfig.class)
public class ExampleUnitTest {

    @Test
    public void empty_test() throws Exception {
        assertTrue(TextUtils.isEmpty(""));
    }
}
```



Robolectric でテスト可能

- Activity 遷移
- データベース
- SharedPreferences
- ContentProvider
- などなど

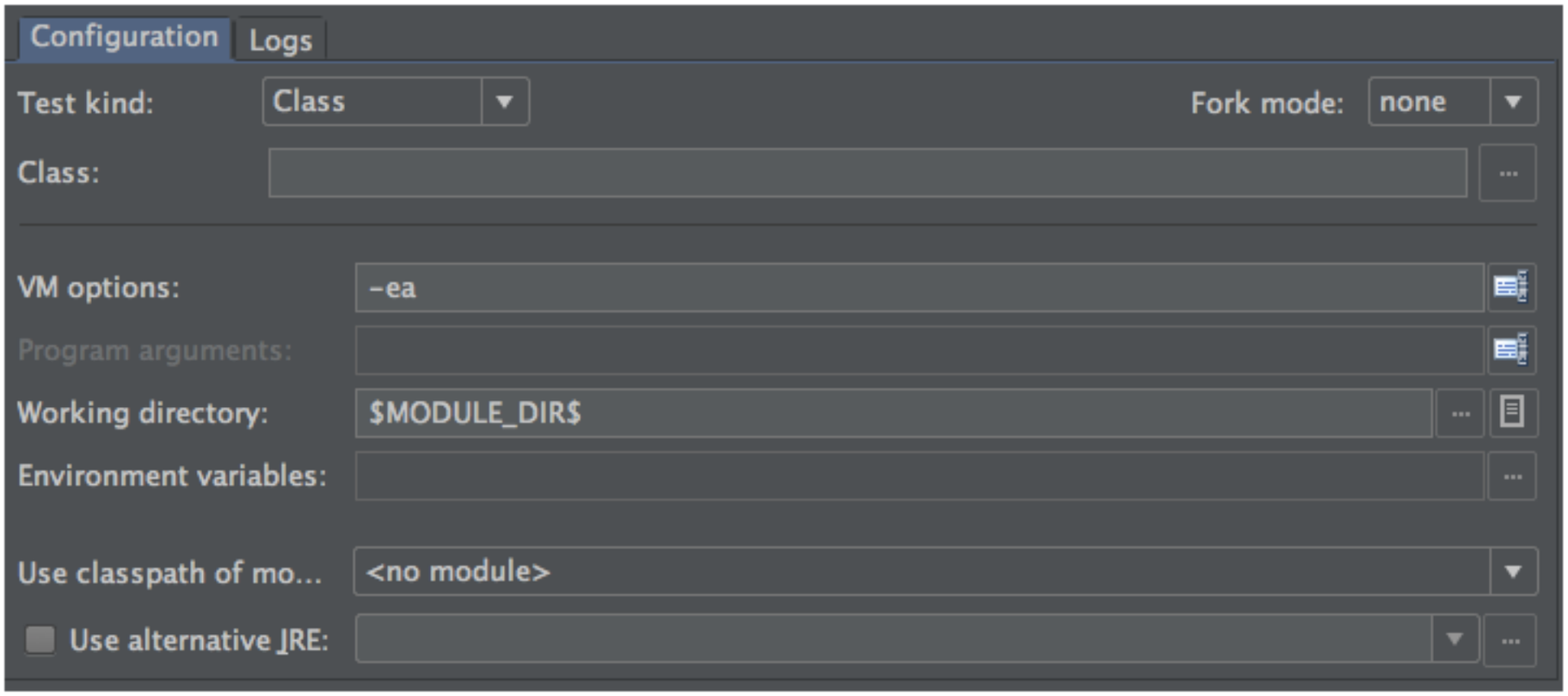
Context

```
final Context context = RuntimeEnvironment.application;
```

注意事項

Note for Linux and Mac Users

If you are on Linux or on a Mac, you will probably need to configure the default JUnit test runner configuration in order to work around a bug where Android Studio does not set the working directory to the module being tested. This can be accomplished by editing the run configurations, `Defaults -> JUnit` and changing the working directory value to `$MODULE_DIR$`.



http://robolectric.org/getting-started/

Run/Debug Configurations

Defaults

Android JUnit

Application

Compound

Gradle

Groovy

JAR Application

Java Scratch

Remote

TestNG

TestNG Test Discovery

Configuration | Code Coverage | Logs

Test kind: Class

Fork mode: none

Repeat: Once

1

Class:

VM options:

Program arguments:

Working directory: $MODULE_DIR$

Environment variables:

Use classpath of module: <no module>

JRE: Default (<no JRE> - module not specified)

Before launch: Gradle-aware Make, Activate tool window

Gradle-aware Make

Show this page

Activate tool window

Cancel

Apply

OK

AssertJ

- assertion ライブラリ
- http://joel-costigliola.github.io/assertj/

AssertJ

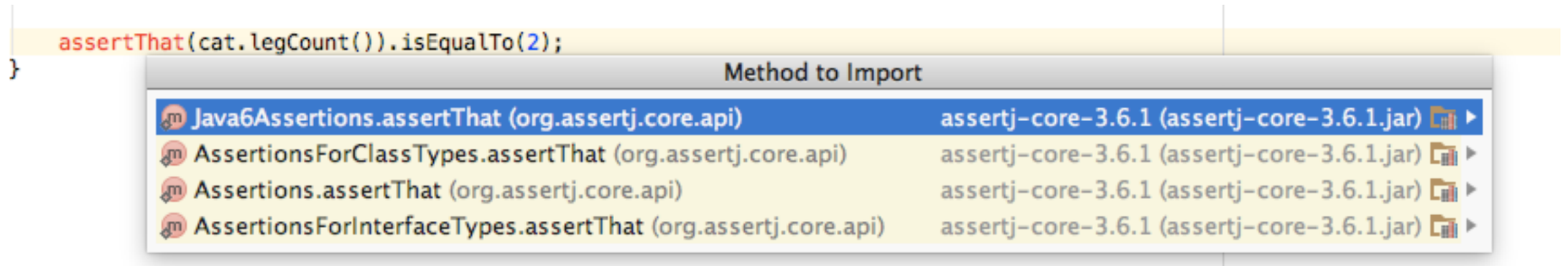
```
final Cat cat = new Cat();
assertThat(cat.legCount()).isEqualTo(4);
```

実際の値

予想値

注意

- Java6Assertions を import する



AssertJ

```
dependencies {
    …
    testCompile 'org.assertj:assertj-core:3.6.1'
}
```