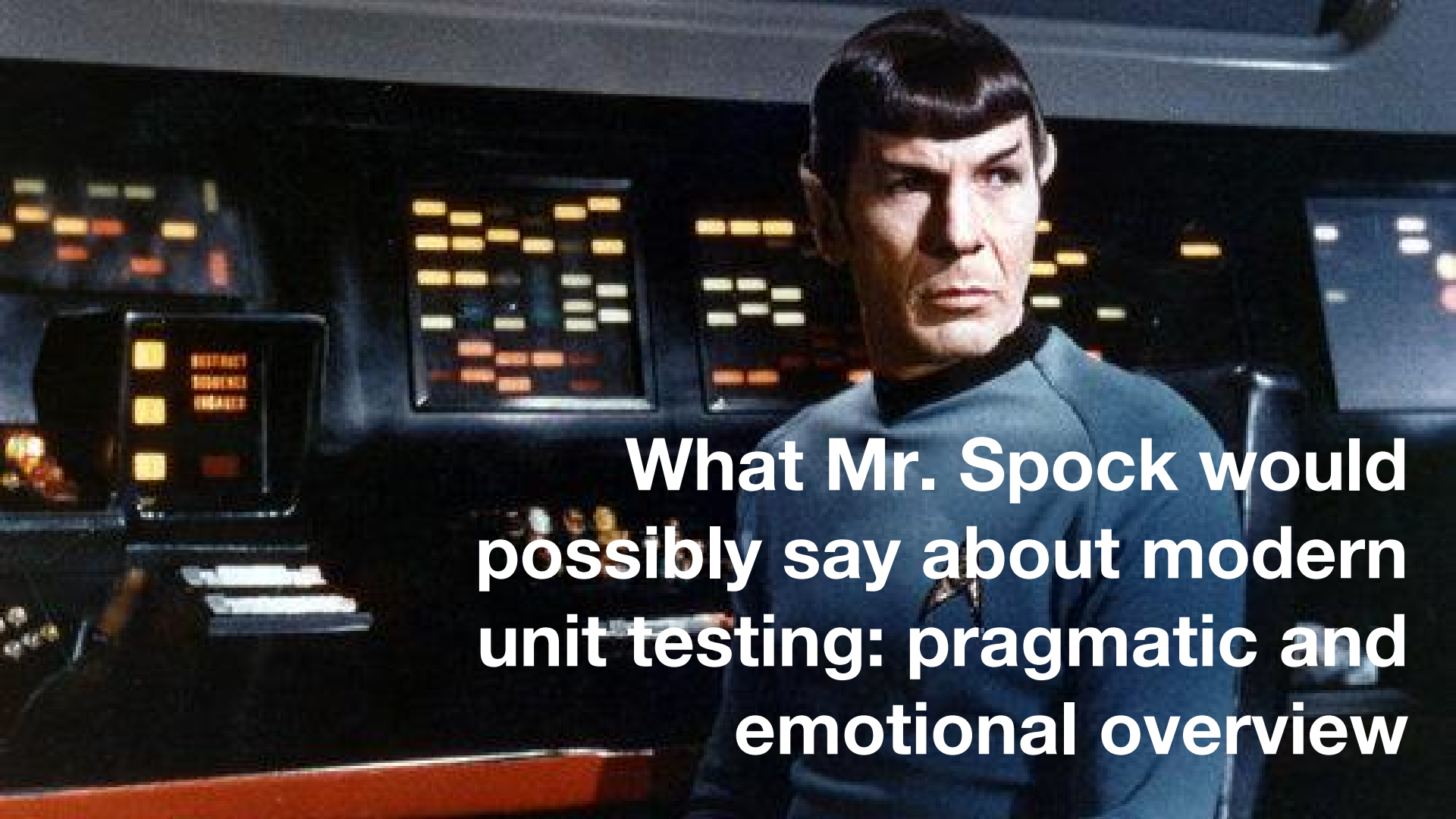

What Mr. Spock would possibly say about modern unit testing: pragmatic and emotional overview

About me

Yaroslav Yermilov

Senior Software Engineer

EPAM Systems

Work on Big Data project

But responsible for test automation for the last 2 years

Out of office is a big Groovy ecosystem fan

So the topic choice is obvious

Questions Mr. Spock have

What's about modern unit testing?

Why try Spock?

How to start with Spock?

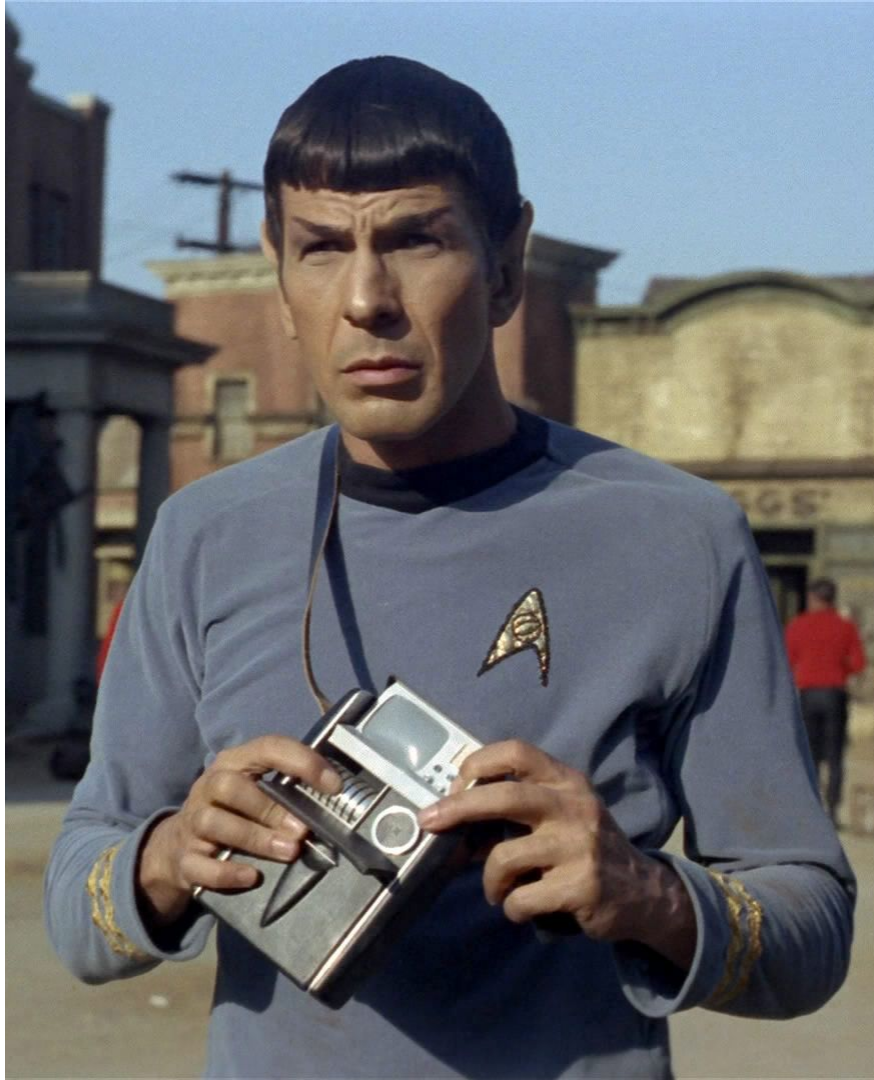
Advanced and hidden features

What JUnit/TestNG/others offers instead?

Why use Spock?

Why do not use Spock?

When use Spock?



Acknowledgments and disclaimer

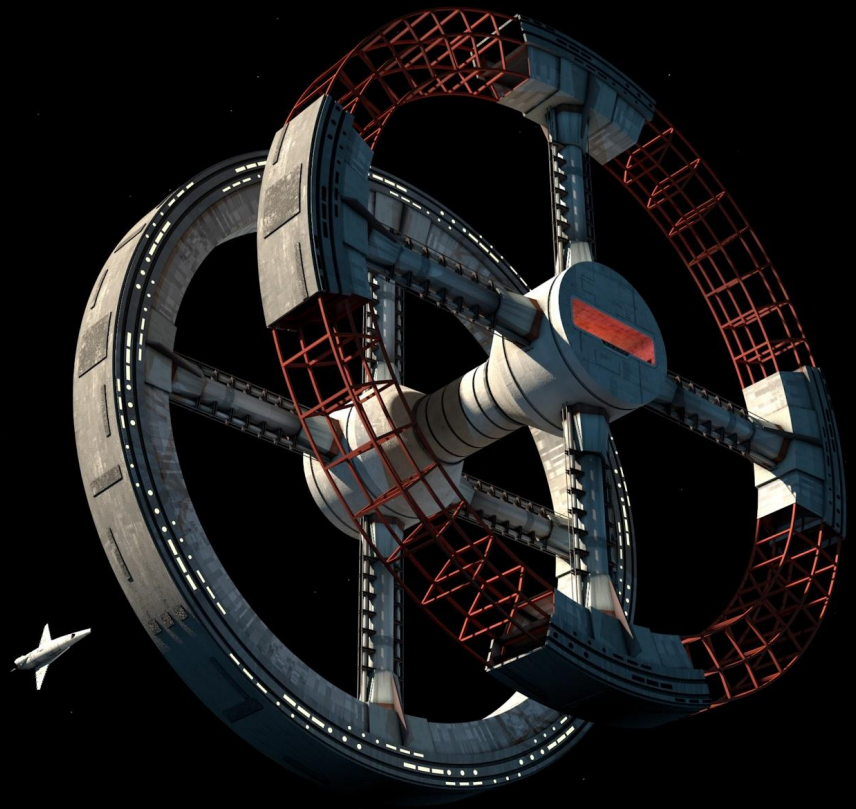

Better to test before going to production

JUnit?

JUnit 5?

JUnit 3?

TestNG?



Unit testing framework on steroids?

Hamcrest
AssertJ
Google Truth

Mockito
PowerMock
JMockit

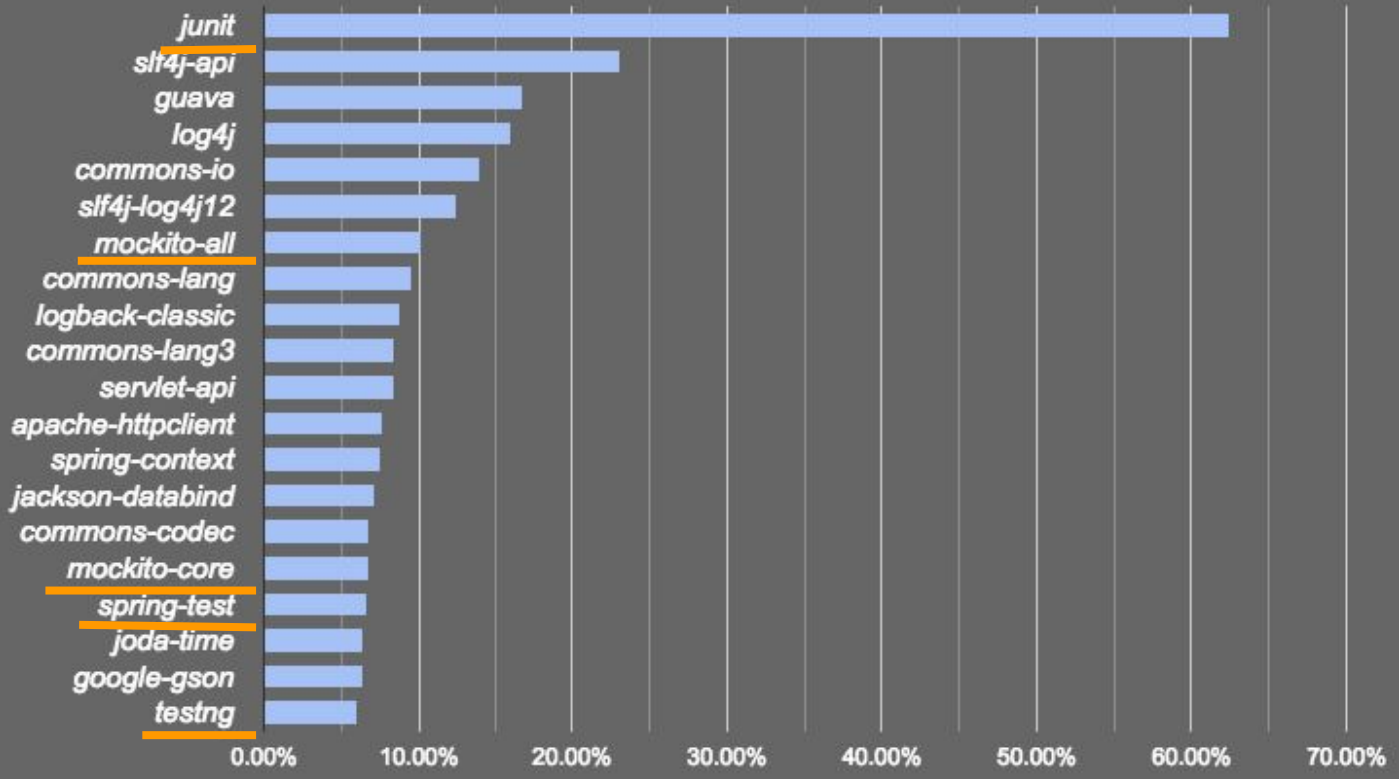
Something odd?

Cucumber
J8Spec
JGiven

Spock?

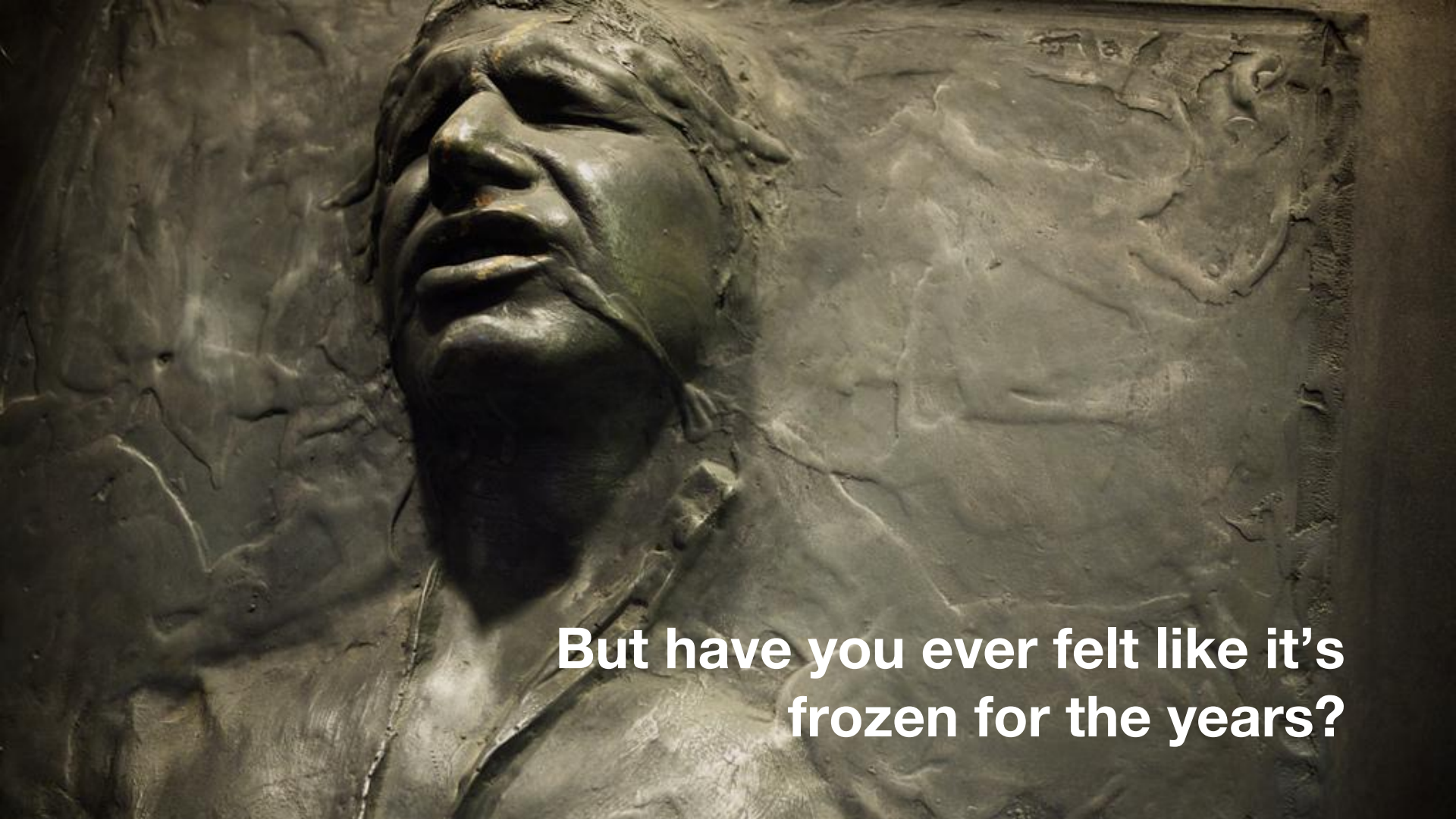
Nothing?

The Top 20 Libraries Used by Github's Most Popular Java Projects



TAKIPI


Automated testing
is a great concept


But have you ever felt like it’s
frozen for the years?

JUnit vs TestNG: Which Te

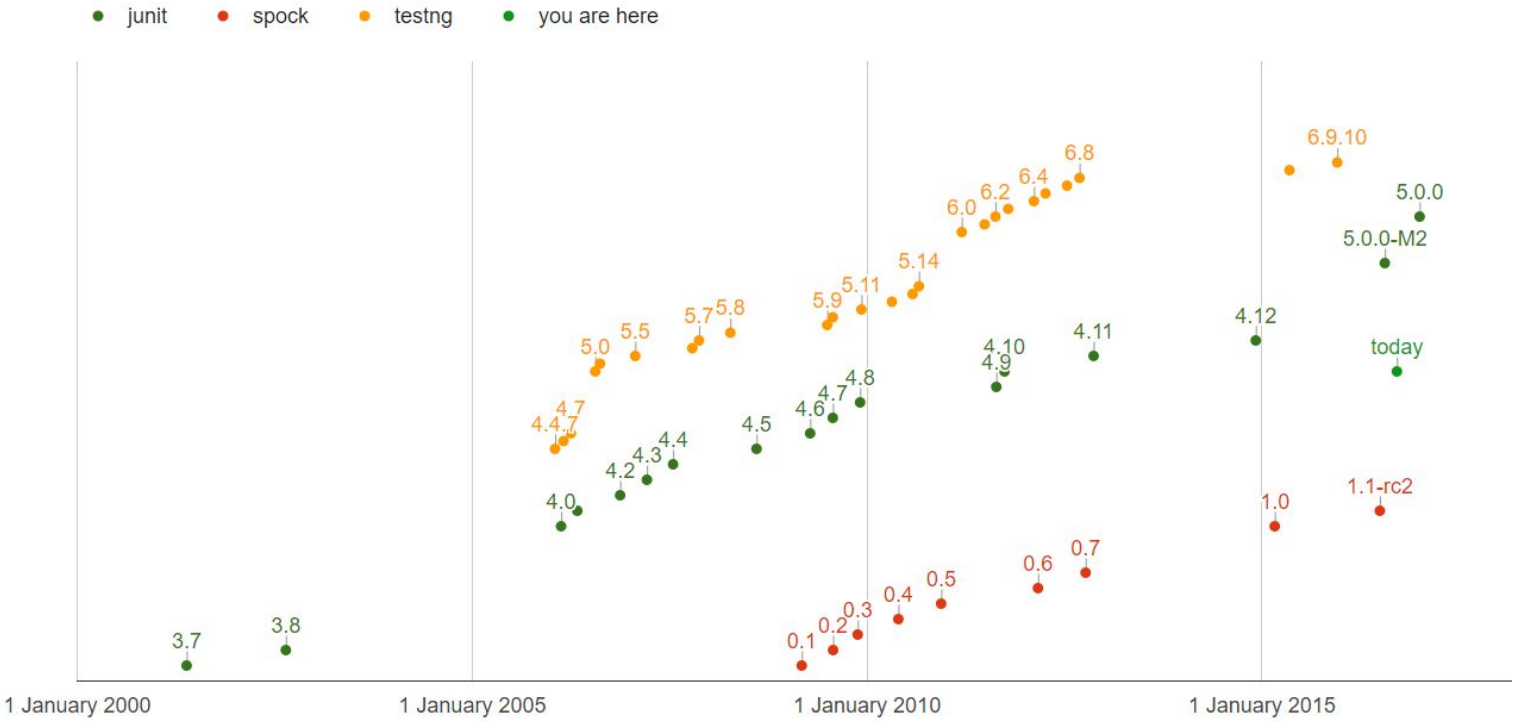
blog.takipi.com/junit-vs-testng-which-testing-framework-should-you-choose/

JUnit vs TestNG: Which Testing Framework Should You Choose?

By Alex Zhitnitsky - September 7, 2016

10 min read 3 Comments

QUIZ: How many test framework releases we had since 2013?



JUnit 5 vs Spock: Which Te

blog.takipi.com/junit5-vs-spock-which-testing-framework-should-you-choose/

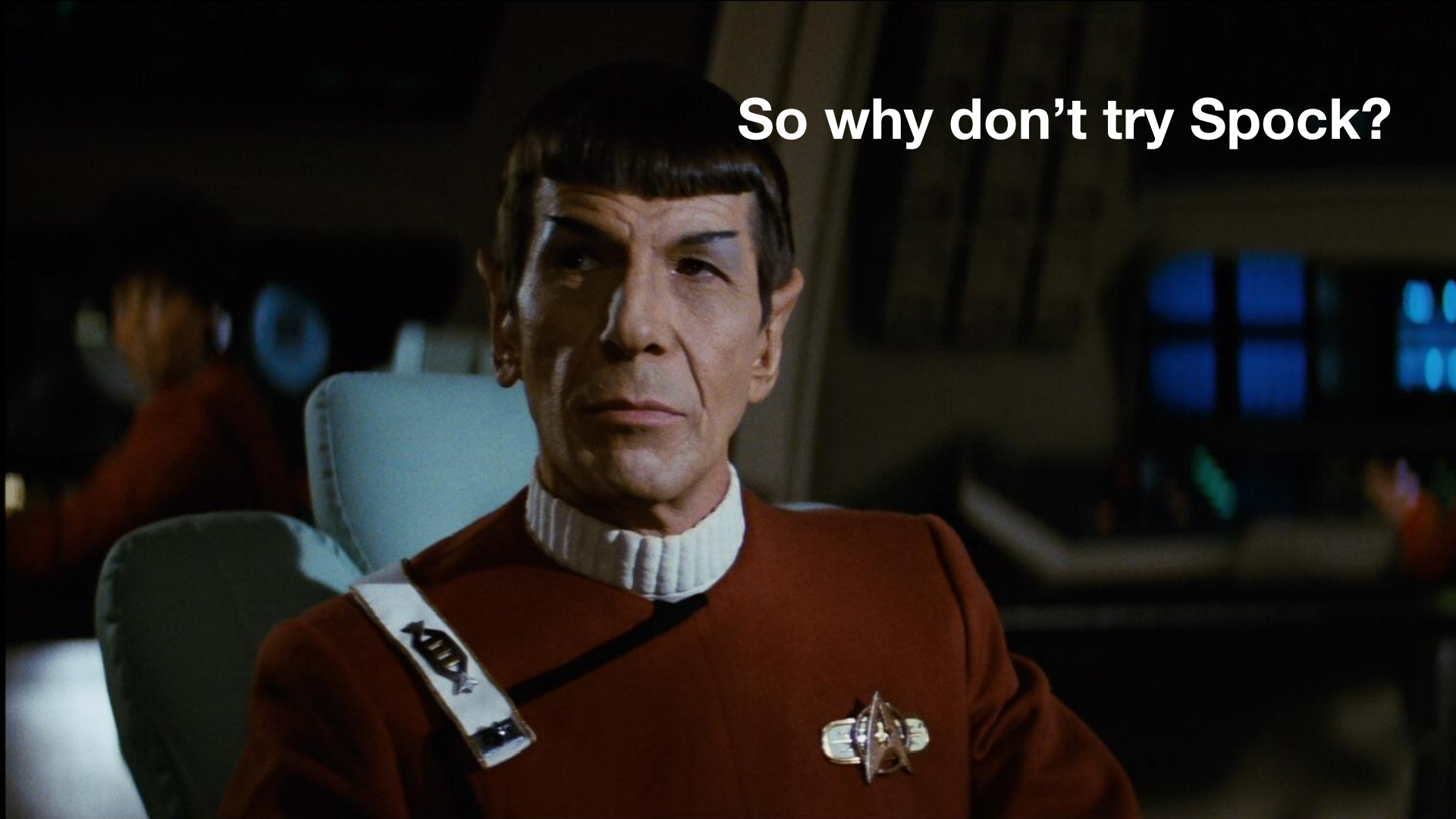
TAKIPI BLOG | Powered by OverOps

WHAT IS OVEROPS?

JUnit 5 vs Spock: Which Testing Framework Should You Choose?

By Alex Zhitnitsky - September 7, 2016

10 min read 3 Comments

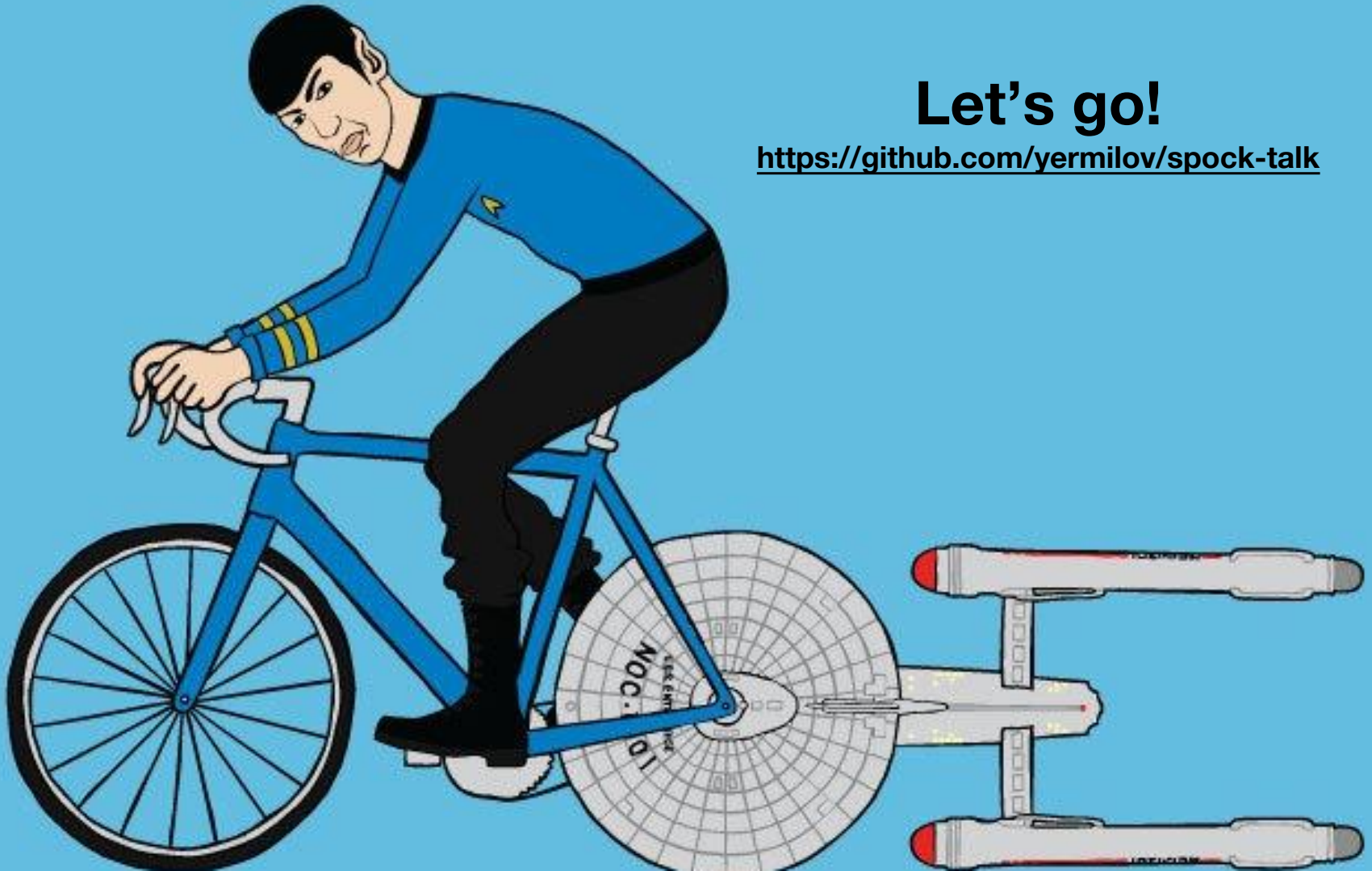

So why don’t try Spock?

Spock is the next generation testing framework

Spock is Enterprise ready

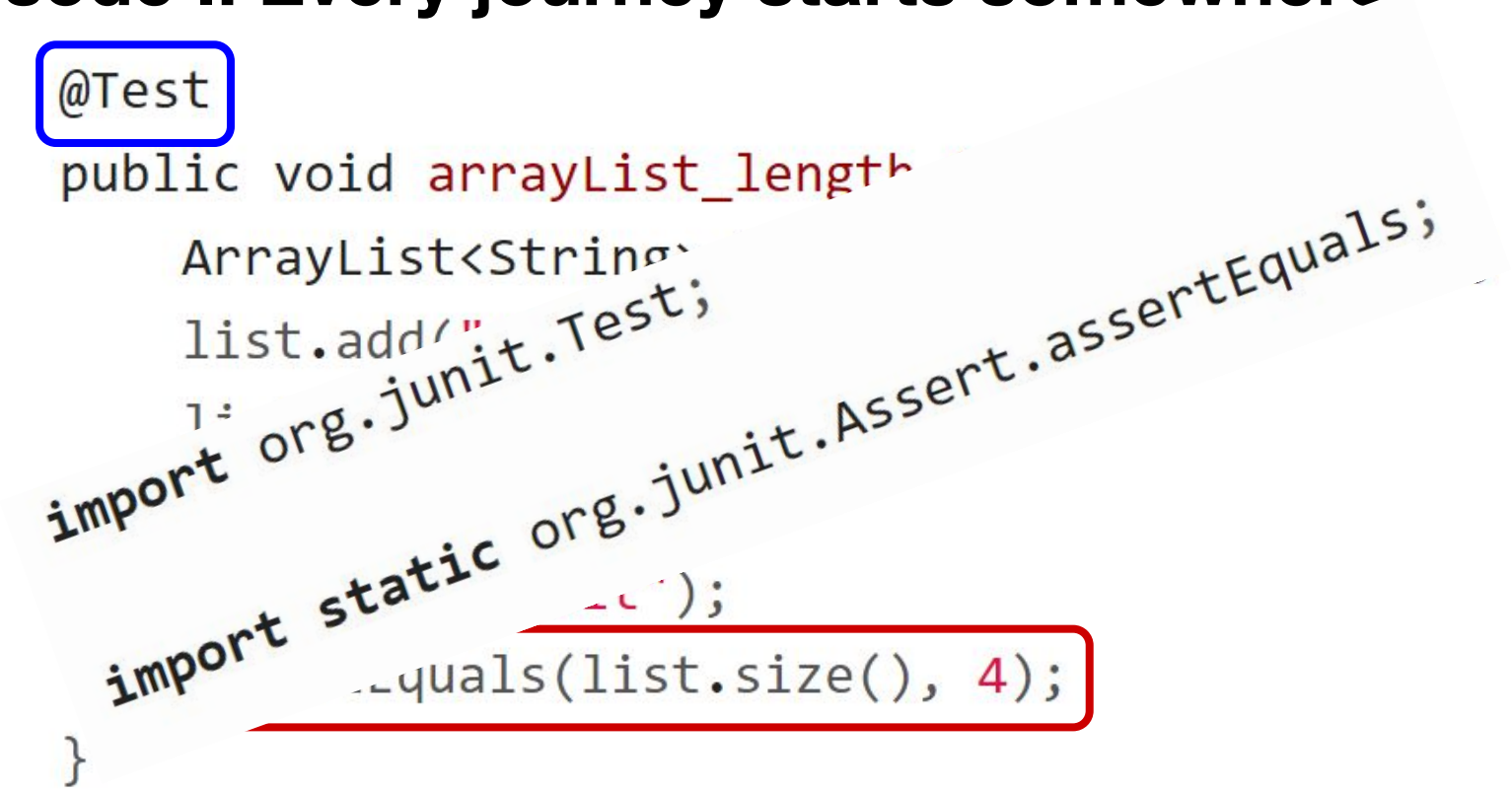
Let’s go!

https://github.com/yermilov/spock-talk




Episode I: Every journey starts somewhere

Episode I: Every journey starts somewhere

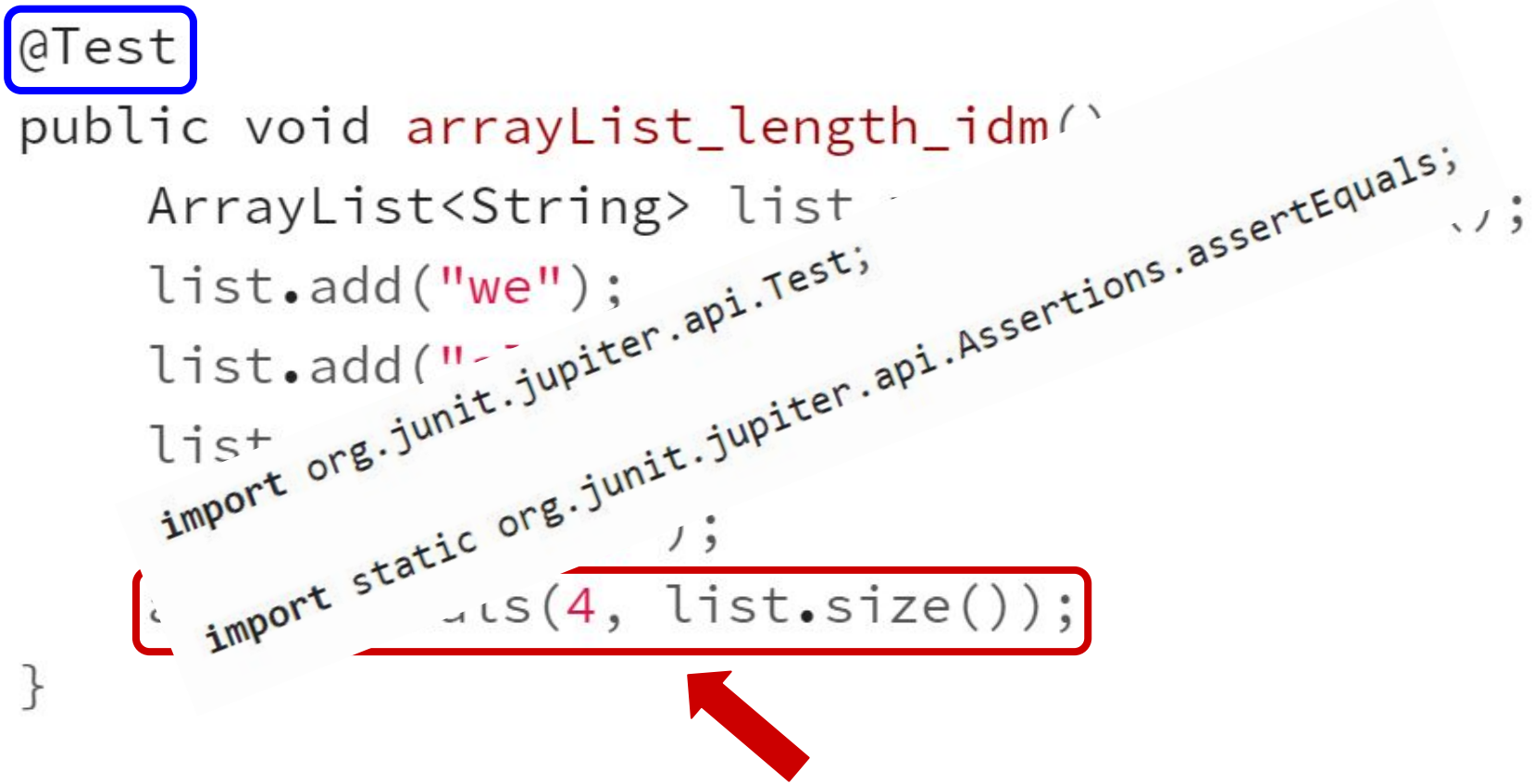


Episode I: Every journey starts som ere

```
@Test
public void arrayList_len
    ArrayList<String>                    ayList<>();
    list.add("we"
    list.add(
    list
    a                 s(list.size(), 4);
}
```

```
import org.testng.annotations.Test;
import static org.testng.Assert.assertEquals;
```

Episode I: Every journey starts somewhere



Episode I: Every journey starts somewhere

```
public class N01J_EasyStart {

    @Test
    public void arrayList_length_idm() {
        // setup
        ArrayList<String> list = new ArrayList<>();

        // run
        list.add("we");
        list.add("all");
        list.add("love");
        list.add("junit");

        // verify
        assertThat(list, hasSize(4));
    }
```

Episode I: Every journey starts somewhere

```
class N04S_EasyStart extends Specification {

    def arrayList_length() {
        setup:
        ArrayList<String> list = new ArrayList<>();

        when:
        list.add("we");
        list.add("will");
        list.add("love");
        list.add("spock");

        then:
        assertThat(list, hasSize(4));
    }
```

Episode I: Every journey starts somewhere

```
class N04S_EasyStart extends Specification {

    def 'ArrayList.size() test, but much spockier'() {
        setup:
        ArrayList<String> list = new ArrayList<>()

        when:
        list.add('we')
        list.add('will')
        list.add('love')
        list.add('spock')

        then:
        list.size() == 4
    }
```

Episode II: Assertions

Episode II: Assertions

```
then:
assertThat(list.
```

```
import static org.hamcrest.Matchers.hasSize
import static org.junit.Assert.assertThat
```

```
java.l
collection with size <3>
: collection size was <4>
```

```
then:
list.size() == 3
```

```
Condition not satisfied:

list.size() == 3
|      |      |
|      4      false
[we, will, love, spock]
```

Episode II: Assertions

```
Condition not satisfied:

list.findAll({ it.length() < 5 }).groupBy({ it[0] }).find({ k, v -> v.size() > 1 }).value == list.findAll({ it.length() < 5 }).drop(1)
|    |                          |                  |                                    |     |  |    |                            |
|    [we, will, love]           |                  w=[we, will]                         |     |  |    [we, will, love]             [will, love]
[we, will, love, spock]          [w:[we, will], l:[love]]                              |     |  [we, will, love, spock]
                                                                                       |     false
                                                                                       [we, will]
```

Episode II: Assertions

```
import org.assertj.core.api.Assertions
then:
assertThat(list).hasSize(3);

java.lang.AssertionError:
Expected size:<3> but was:<4> in:
<["we", "will", "love", "spock"]>
```

```
import com.google.common.truth.Truth
then:
assertThat(list).hasSize(3);

java.lang.AssertionError: Not true that
<[we, will, love, spock]> has a size of <3>.
It is <4>
```

Episode II: Assertions

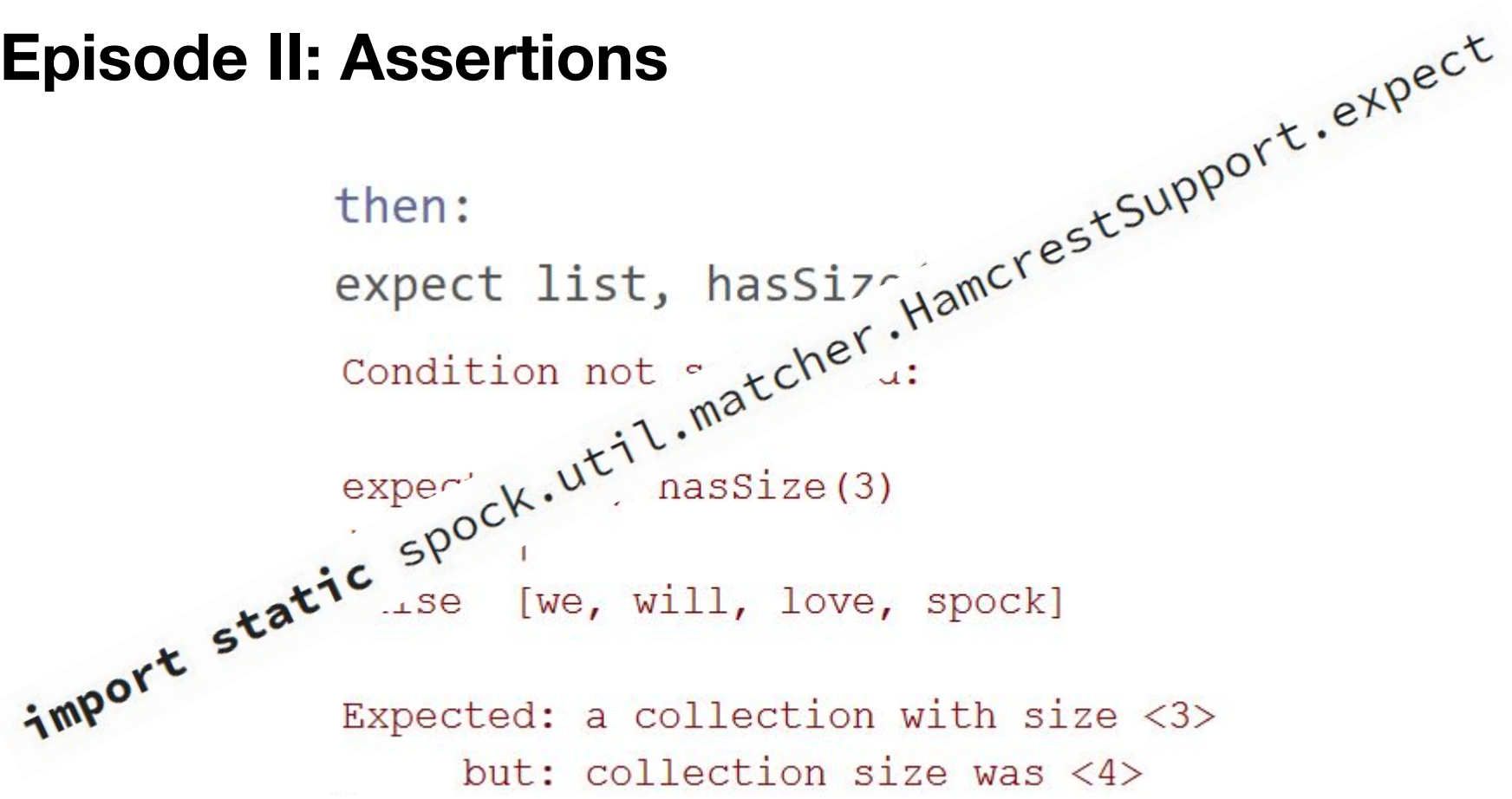
```
then:
assertEquals(list.size(), 3);

java.lang.AssertionError:
Expected :4
Actual   :3
```

```
then:
assertTrue(list.size() == 3);

java.lang.AssertionError
    at org.junit.Assert.fail(Assert.java:86)
    at org.junit.Assert.assertTrue(Assert.ja
    at org.junit.Assert.assertTrue(Assert.ja
    at N05S_Asserts.verifying array list size
```

Episode II: Assertions



Episode II: Assertions

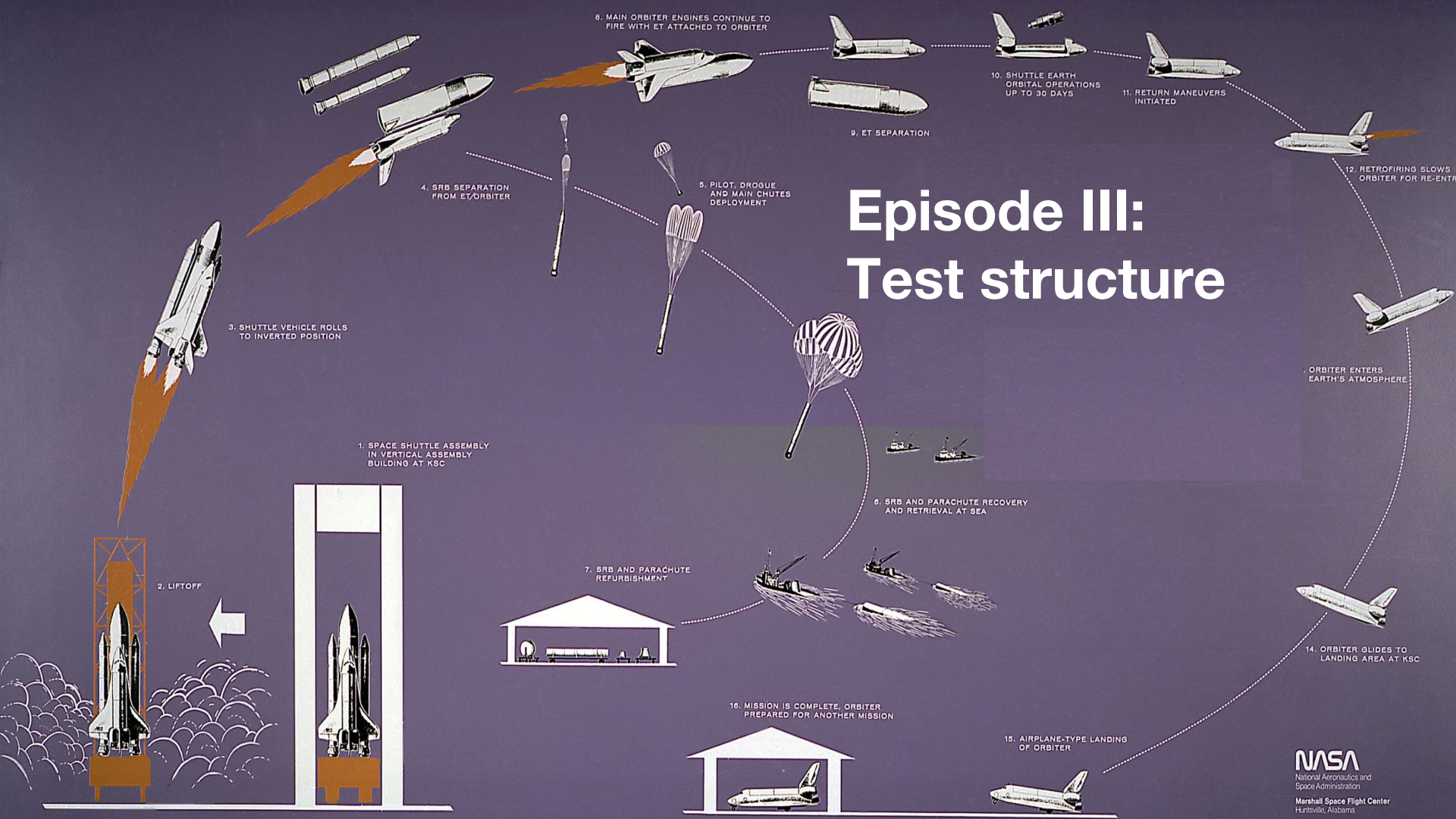
```
@Test
void 'ArrayList.size()'() {
    // setup
    ArrayList<String> lis
    assumeThat(list,

    // run
    lis

Assertion failed:

assert list.findAll({ it.length() < 5 }) == list.drop(2)
       |    |        |  |  |    |       |
       |    [we, will, love]  |    [love, spock]
       [we, will, love, spock]  [we, will, love, spock]
                                false

        ist.findAll({ it.length() < 5 }) == list.drop(2)
}
```



Episode III: Test structure

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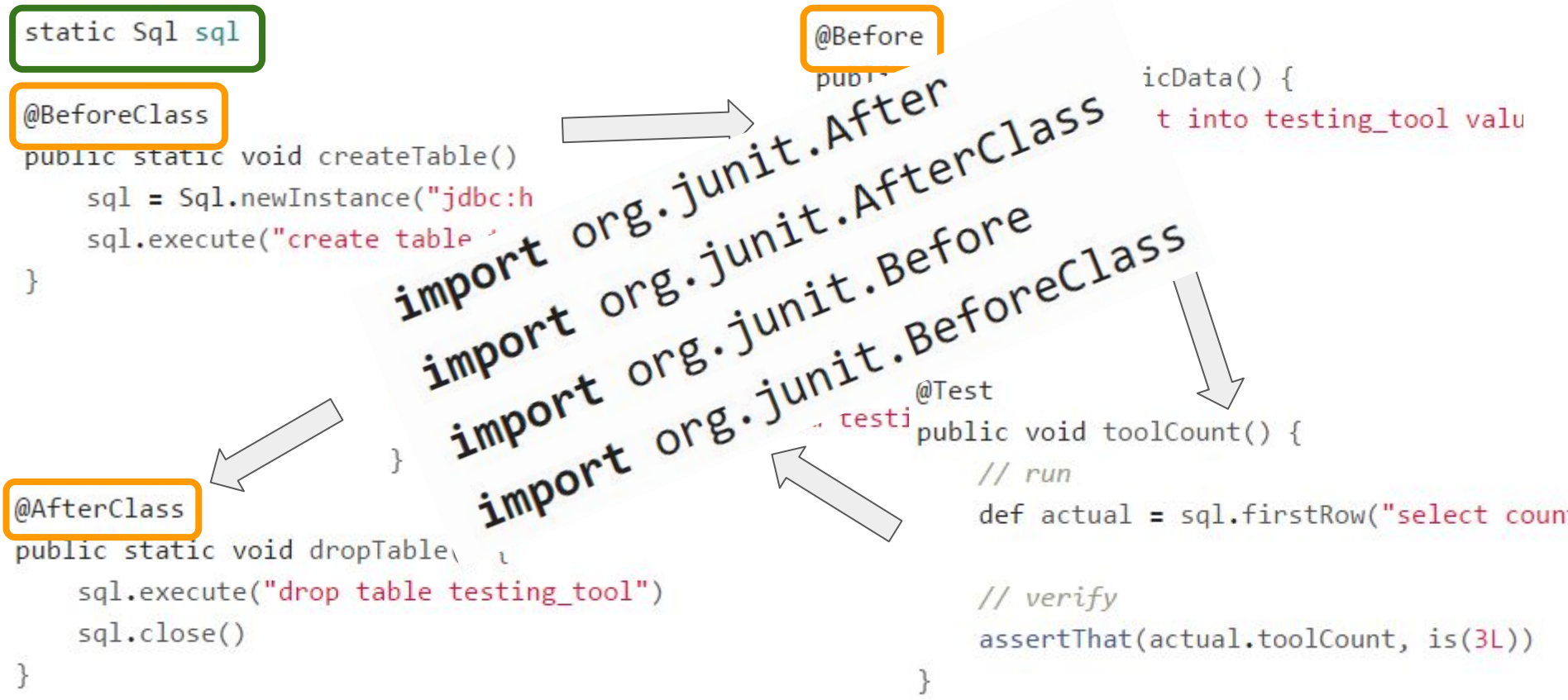
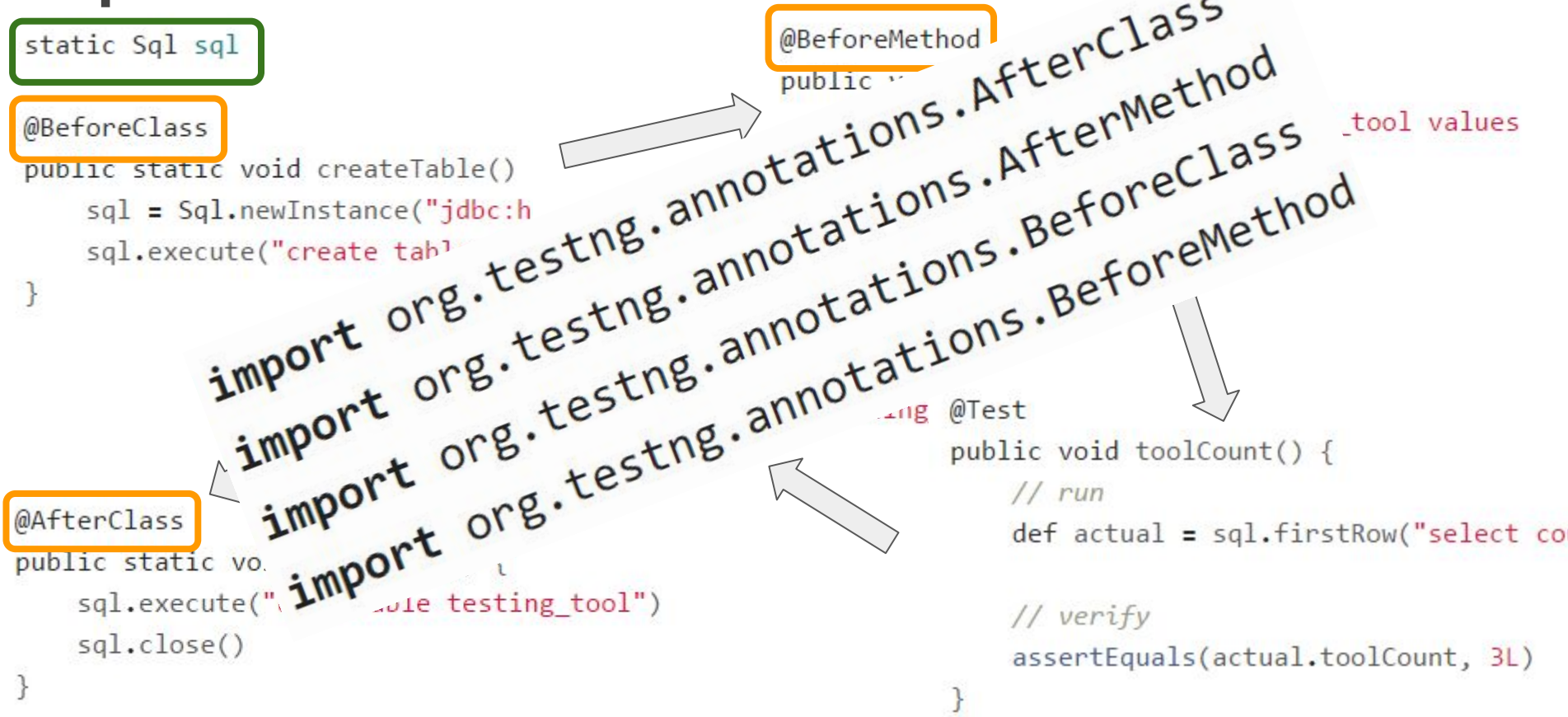
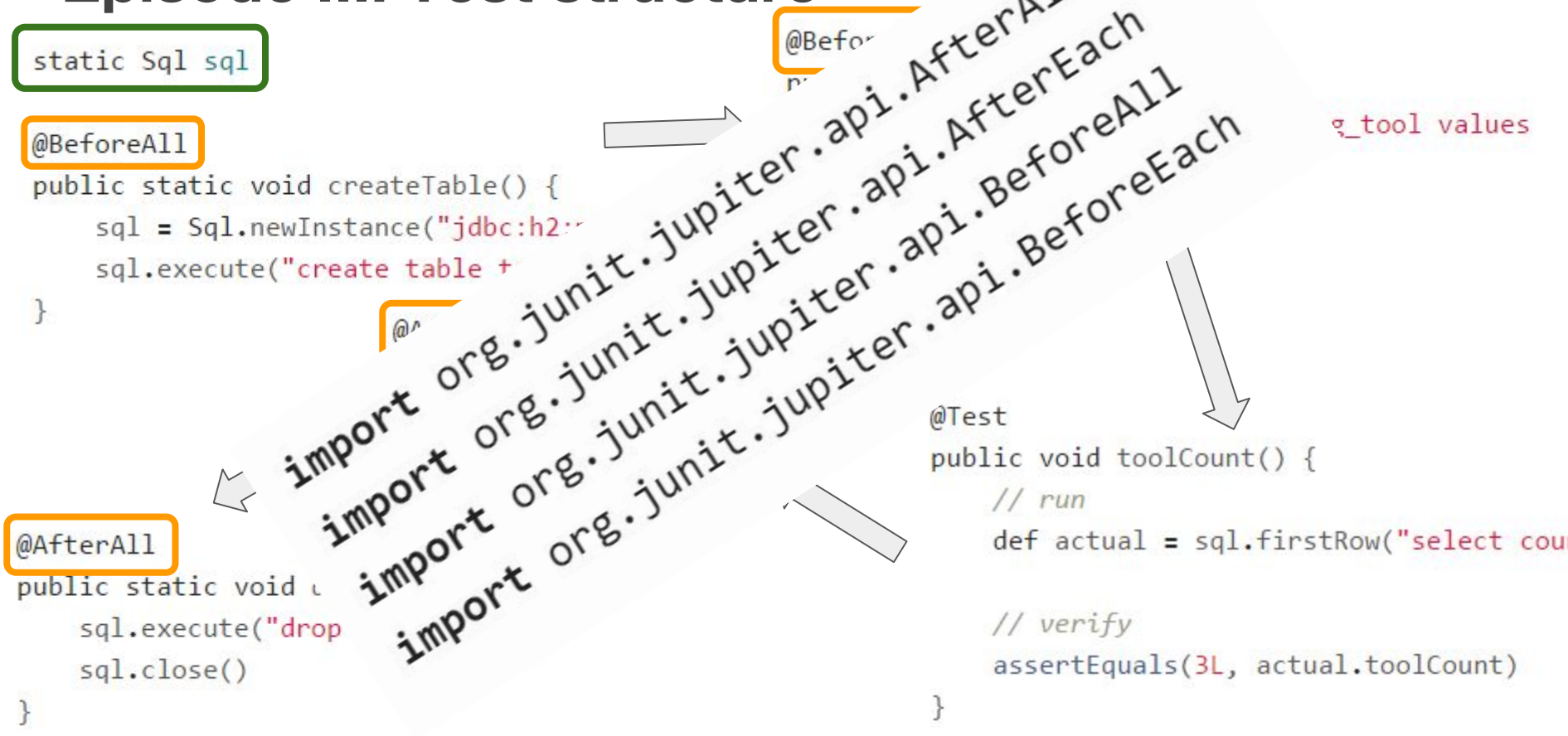


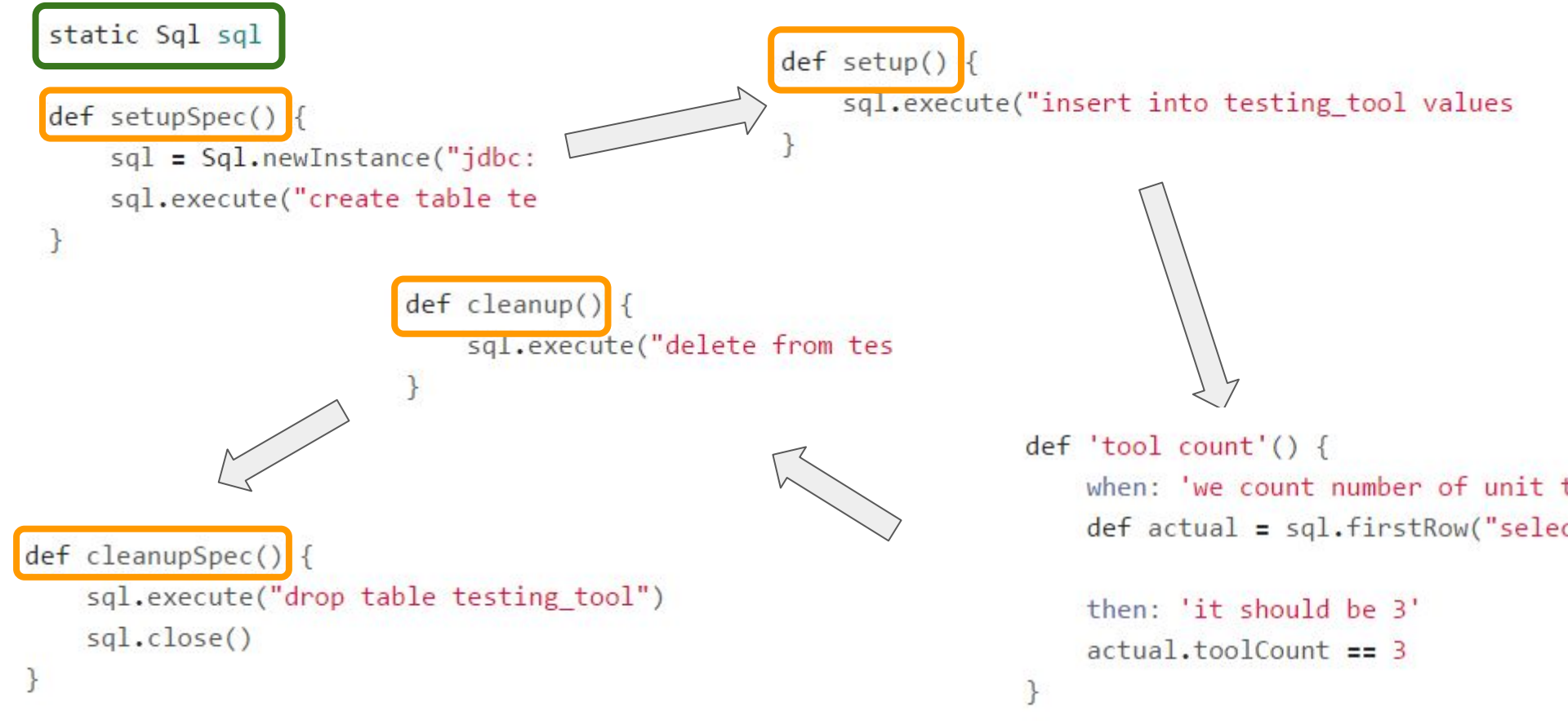
Episode III: Test structure



Episode III: Test structure



Episode III: Test structure



Episode III: Test structure

```
trait DatabaseSpec {

    static Sql sql

    def setupSpec() {
        sql = Sql.newInstance("jdbc:h2:mem:", "org.h2.Driver")
        sql.ex                                                    y, name varc
    }

    def cleanu
        sql.ex
        sql.close()
    }

    def setup() {
        sql.execute("insert into testing_tool values (1, 'junit', '4.12'), (2
    }
```

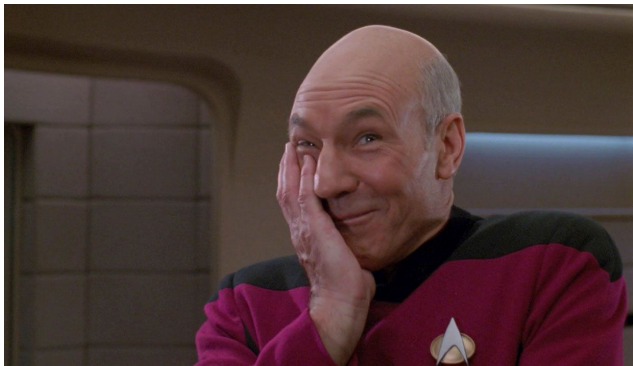
```
class N11S_SetupTeardown_AsYouLike
        extends Specification
        implements DatabaseSpec {
```

Episode III: Test structure

```
@Shared @AutoCleanup sql

def 'JUnit5 is in game!'() {
    setup: 'add JUnit 5 to the list of unit testing tools'
    sql.execute("insert into testing_tool values (4, 'junit'

    when: 'we count number of JUnits'
    def actual = sql.firstRow("select count(*) as toolCount

    then: 'it should be 2'
    actual.toolCount == 2

    cleanup: 'remove JUnit 5 from the list of unit testing t
    sql.execute("delete from testing_tool where id = 4")
}
```

Episode III: Test structure

```
        // run
        def actual = sql.firstRow("select count(*) as too

        // verify
        actual.toolCount == 2
    } finally {
        try {
            // cleanup
            sql.execute("delete from testing_tool where i
        } finally {
            sql.close()
        }
    }
```



Episode III: Test structure

```groovy
@Title('ArrayList tests')
@Narrative('''
As Java developer
(that trust nothing)
I want to be sure ArrayList works
''')
class N07S_IdiomaticSpock extends Specification {

    @Subject
    ArrayList<String> list

    @Issue('https://github.com/yermilov/spock-talk/issues/1')
    def 'ArrayList.size()'() {
        setup: 'new ArrayList instance'
        list = new ArrayList<>()

        expect: 'that newly created ArrayList instance is empty'
        list.empty

        when: 'add value to list'
        list.add 'we'

        and: 'add one more value to list'
        list.add 'will'

        then: 'array list size should be 2'
        list.size() == 2
```

Episode III:
Test structure

ArrayList tests
As Java developer
(that trust nothing)
I want to be sure ArrayList works

Features:

- ArrayList.size()

ArrayList.size()
Issues:

- https://github.com/yermilov/spock-talk/issues/1

Given:	new ArrayList instance
Expect:	that newly created ArrayList instance is empty
When:	add value to list
And:	add one more value to list
Then:	array list size should be 2
When:	add two more values into list

github.com/renatoathaydes/spock-reports

Episode IV:
Data driven test

Episode IV: Data driven test

```
def 'is coin flip good enough for determine if integer is prime'() {
    when: 'we flip a coin'
    boolean coinFlip = new Random().nextBoolean()

    then: 'it will be great if coin flip predict if number is prime'
    (number % 2 == 0 ? false : coinFlip) == expectedAnswer

    where: 'data is random'
    number << (1..5).collect({ new Random().nextInt(1000) }).findAll({ it >= 2 }).sort()
    expectedAnswer = Primes.isPrime(number)
}
```

Episode IV: Data driven test

is coin flip good enough for determine if integer is prime

Return

When: we flip a coin

Then: it will be great if coin flip predict if number is prime

Where: data is random

Examples:

number	expectedAnswer	
34	false	OK
511	**false**	**FAIL**
517	**false**	**FAIL**
898	false	OK
985	**false**	**FAIL**

2/5 passed

The following problems occurred:

- [511, false]
    - Condition not satisfied:

```
(number % 2 == 0 ? false : coinFlip) == expectedAnswer
 |      |   |             |         |  |
 511    1   false         true      |  false
                                    false
```

- [517, false]

Episode IV: Data driven test

```
@Unroll
def 'calculate runner speed and location after some time for #description'() {
    expect: 'that runner speed is equal to expected'
    initialSpeed + acceleration * time == expectedSpeed

    and: 'runner location is equal to expected'
    initialLocation + time * (initialSpeed + acceleration / 2 * time) == expectedLocation

    where: 'there are set of precalculated data for different situations'
    initialLocation | initialSpeed | acceleration | time || expectedLocation | expectedSpeed || description
    0               | 6            | 0            | 10   || 60               | 6             || 'steady run from starting point'
    5               | 0            | 3            | 3    || 17               | 9             || 'starting from standing with acceleration'
    -50             | 10           | -1           | 10   || 0                | 0             || 'constant deceleration'
}
```

Episode IV: Data driven test

calculate runner speed and location after some time for steady run from starting point Return

Expect: that runner speed is equal to expected

And: runner location is equal to expected

Where: there are set of precalculated data for different situations

calculate runner speed and location after some time for starting from standing with acceleration Return

Expect: that runner speed is equal to expected

And: runner location is equal to expected

Where: there are set of precalculated data for different situations

The following problems occurred:

- Condition not satisfied:

```
initialLocation + time * (initialSpeed + acceleration / 2 * time) == expectedLocation
|               | |    |  |            | |            |   | |     |  |
5               | 3    |  0            | 3            1.5 | 3     |  17
                18.5   13.5            4.5                 4.5     false
```

calculate runner speed and location after some time for constant deceleration Return

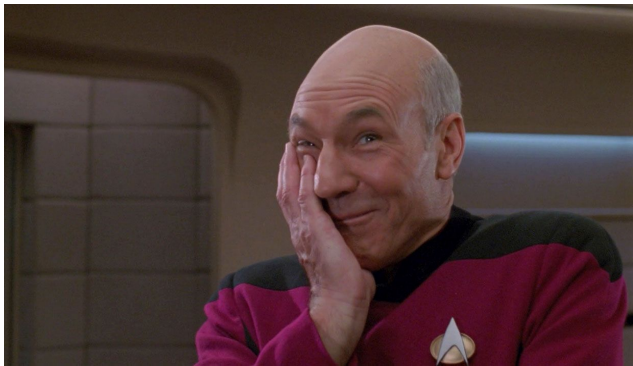
Expect: that runner speed is equal to expected

And: runner location is equal to expected

Where: there are set of precalculated data for different situations

Episode IV: Data driven test

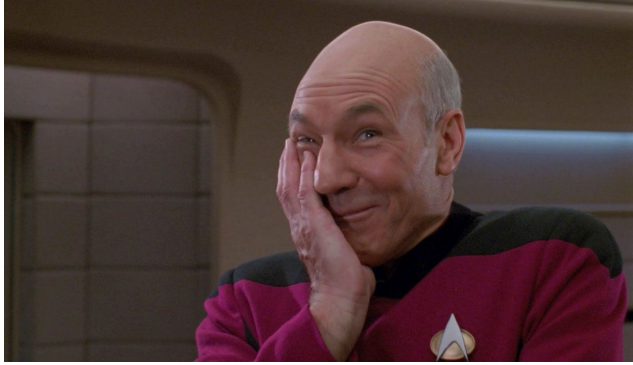
```
@RunWith(Parameterized.class)
public class N16J_DataTables {

    @Parameterized.Parameters(name = "calculate runner speed and location after
    public static Collection<Object[]> data() {
        return Arrays.asList(new Object[][] {
            { 0.0,   6.0,  0.0,  10.0, 60.0, 6.0, "steady run from starting poin
            { 5.0,   0.0,  3.0,  3.0,  17.0, 9.0, "starting from standing with a
            { -50.0, 10.0, -1.0, 10.0, 0.0,  0.0, "constant deceleration"}
        });
    }

    @Parameterized.Parameter(value = 0)
    public double initialLocation;

    @Parameterized.Parameter(value = 1)
    public double initialSpeed;

    @Parameterized.Parameter(value = 2)
    public double acceleration;
```



Episode IV: Data driven test

Test	Duration	Result
location[calculate runner speed and location after some time for constant deceleration]	0s	passed
location[calculate runner speed and location after some time for starting from standing with acceleration]	0s	failed
location[calculate runner speed and location after some time for steady run from starting point]	0s	passed
speed[calculate runner speed and location after some time for constant deceleration]	0s	passed
speed[calculate runner speed and location after some time for starting from standing with acceleration]	0s	passed
speed[calculate runner speed and location after some time for steady run from starting point]	0s	passed

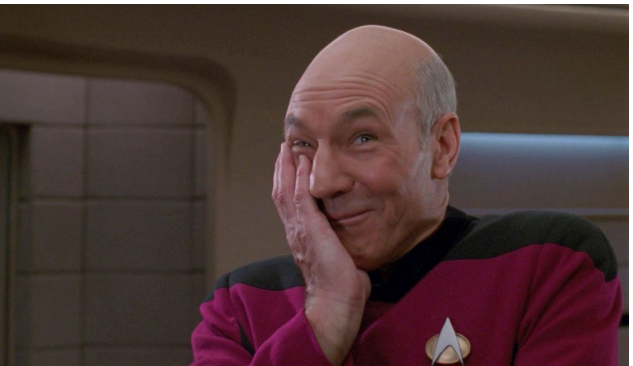
Episode IV: Data driven test



```
@DataProvider(name = "data")
public static Object[][] data() {
    return new Object[][] {
        { 0.0,   6.0,  0.0,  10.0, 60.0, 6.0 },
        { 5.0,   0.0,  3.0,  3.0,  17.0, 9.0 },
        { -50.0, 10.0, -1.0, 10.0, 0.0,  0.0 }
    };
}

@Test(dataProvider = "data")
public void speed(double initialLocation, double initialSpeed, double
    double speed = initialSpeed + acceleration * time;
    assertEquals(speed, expectedSpeed);
}
```

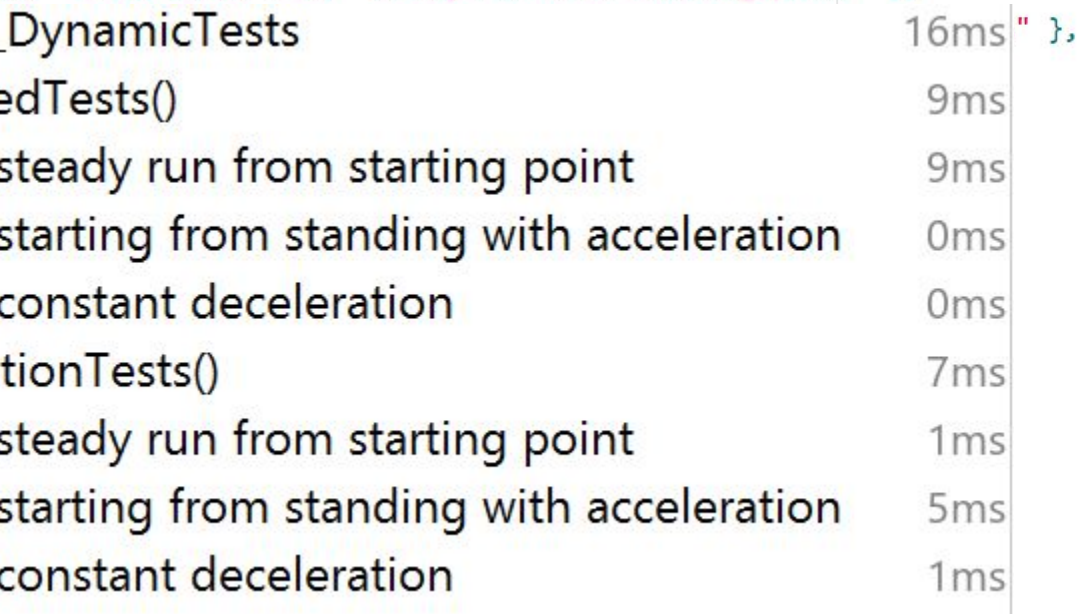
Episode IV: Data driven test

Test	Duration	Result
location[0](0.0, 6.0, 0.0, 10.0, 60.0, 6.0)	0s	passed
location[1](5.0, 0.0, 3.0, 3.0, 17.0, 9.0)	0.001s	failed
location[2](-50.0, 10.0, -1.0, 10.0, 0.0, 0.0)	0s	passed
speed[0](0.0, 6.0, 0.0, 10.0, 60.0, 6.0)	0s	passed
speed[1](5.0, 0.0, 3.0, 3.0, 17.0, 9.0)	0s	passed
speed[2](-50.0, 10.0, -1.0, 10.0, 0.0, 0.0)	0s	passed



Episode IV: Data driven test

```
private static final Object[][] DATA = new Object[][] {
        { 0.0,   6.0,  0.0,  10.0, 60.0, 6.0, "steady run from starting point" },
};

@Tes
publ
```




```
    }));
}
```

Episode VI: Exceptions

Episode VI: Exceptions

```
@Test(expected = IndexOutOfBoundsException.class)
public void exception_oldWay() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // run
    arrayList.get(17);
}
```

Episode VI: Exceptions

```
@Test
public void exceptionAndMessage_oldWay() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // run
    try {
        arrayList.get(17);
        fail("Expected an IndexOutOfBoundsException to be thrown");
    } catch (IndexOutOfBoundsException exception) {
        // verify
        assertThat(exception.getMessage(), is("Index: 17, Size: 0"));
    }
}
```

Episode VI: Exceptions

```
def 'empty ArrayList has no 17th element'() {
    given: 'empty array list'
    def arrayList = new ArrayList<Integer>()

    when: 'we try to retrieve element with index #17'
    arrayList.get(17)

    then: 'exception is thrown with expected message'
    IndexOutOfBoundsException exception = thrown()
    exception.message == 'Index: 17, Size: 0'
}
```

Episode VI: Exceptions

```
@Test
public void noException_oldWay() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // run
    arrayList.size();

    // verify no exception is thrown
}
```

Episode VI: Exceptions

```
@Test
public void noException_uglyWay() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // run
    try {
        arrayList.size();
    } catch (Exception exception) {
        // verify no exception is thrown
        fail("Expected no exception to be thrown");
    }
}
```

Episode VI: Exceptions

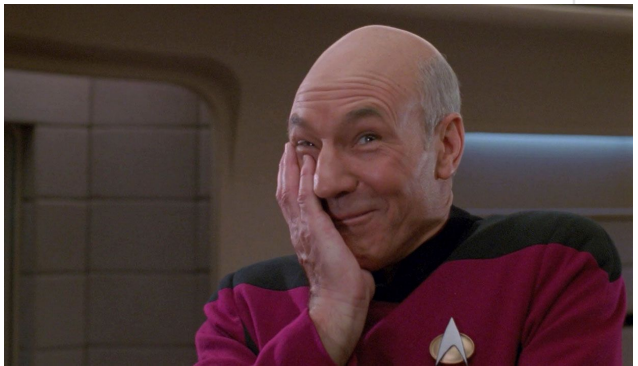
```
def 'large ArrayList has 17th element'() {
    given: 'list of 28 prime numbers'
    def arrayList = new ArrayList<Integer>()
    28.times { arrayList << Primes.nextPrime(arrayList.empty ? 1 : arrayList[-1]) }

    when: 'we try to retrieve element with index #17'
    arrayList.get(17)

    then: 'no exception is thrown'
    notThrown(IndexOutOfBoundsException)
}
```

Episode VI: Exceptions

```
@Rule
public ExpectedException thrown = ExpectedException.none();

@Test
public void exception_modernWay() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // expect
    thrown.expect(IndexOutOfBoundsException.class);
    thrown.expectMessage(is("Index: 17, Size: 0"));

    // run
    arrayList.get(17);
}
```

Episode VI: Exceptions

```
@Test(expectedExceptions = IndexOutOfBoundsException.class, expectedExceptionsMessageRegExp = "Index: 17, Size: 0")
public void exception() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // run
    arrayList.get(17);
}
```



Episode VI: Exceptions

```java
@Test
public void exception() {
    // setup
    ArrayList<Integer> arrayList = new ArrayList<>();

    // run & verify
    Throwable thrown = expectThrows(IndexOutOfBoundsException.class, () -> { arrayList.get(17); });
    assertEquals("Index: 17, Size: 0", thrown.getMessage());
}
```


Episode VII:
Mocks,
Stubs,
Spies

Episode VII: Mocks, Stubs, Spies

```
Random random = mock(Random.class);
doReturn(0).when(random).nextInt(26);
```

```
Random random = Stub()
random.nextInt(26) >> 0
```

Episode VII: Mocks, Stubs, Spies

```
Random random = mock(Random.class);
doReturn(0).doReturn(1).doReturn(2).doReturn(3).doReturn(4).when(random).nextInt(26);
```

```
Random random = Stub()
random.nextInt(_) >>> [ 0, 1, 2, 3, 4 ]
```

Episode VII: Mocks, Stubs, Spies

```
Random random = mock(Random.class);
doThrow(new RuntimeException()).when(random).nextInt(26);
```

```
Random random = Stub()
random.nextInt(_) >> { throw new RuntimeException() }
```

Episode VII: Mocks, Stubs, Spies

```
Random random = mock(Random.class);
doAnswer(inv -> (int) inv.getArguments()[0] - 1).when(random).nextInt(26);
```

```
Random random = Stub()
random.nextInt(_) >> { int max -> max - 1 }
```

Episode VII: Mocks, Stubs, Spies

```
verify(random, times(5)).nextInt(anyInt());
```

```
5 * random.nextInt(_)
```

Episode VII: Mocks, Stubs, Spies

```
InOrder inOrder = inOrder(random);
inOrder.verify(random, times(1)).nextInt(10);
inOrder.verify(random, atLeast(8)).nextInt(26);
inOrder.verifyNoMoreInteractions();
```

```
then: 'first random generator
1 * random.nextInt(10)

then: 'then random generator
(8.._) * random.nextInt(_)

then: 'random generator is ne
0 * random._
```

Episode VII: Mocks, Stubs, Spies

```
1 * passwordGenerator.generate(!null)

1 * passwordGenerator.generate(_ as Integer)
```

Episode VII: Mocks, Stubs, Spies

```
ArgumentCaptor<Integer> argument = ArgumentCaptor.forClass(Integer.class);
verify(passwordGenerator).generate(argument.capture());
assertThat(argument.getValue(), is(greaterThanOrEqualTo(8)));
assertThat(argument.getValue(), is(lessThan(18)));
```

```
1 * passwordGenerator.generate({ it >= 8 && it < 18 })
```

Episode VII: Mocks, Stubs, Spies

```
def 'static final mocking'() {
    given: 'we can mock *static* method of *final* class java.lang.Math'
    GroovySpy(Math, global: true)
    1 * Math.abs(_) >> 28

    expect: 'o_O'
    Math.abs(17) == 28
}
```

Episode VII: Mocks, Stubs, Spies

```
def 'syntax bomb'() {
    when: 'mocking goes to far'
    Mock(Random)

    then: '''that guy who ends up maintaining
             your code will be a violent psychopath
             who knows where you live'''
    (_..._) * _.(_) >> _
}
```


Episode VIII: Time travel

Episode VIII: Time travel

```
// run
def old = sql.firstRow("select count(*) as toolCount from testing_tool").toolCount
sql.execute("insert into testing_tool values (4, 'junit', '5')")
def actual = sql.firstRow("select count(*) as toolCount from testing_tool").toolCount

// verify
assertThat(actual, is(old + 1))
```

Episode VIII: Time travel

```
sql.firstRow("select count(*) as toolCount from testing_tool").toolCount ==
        old(sql.firstRow("select count(*) as toolCount from testing_tool").toolCount) + 1
```

Episode VIII: Time travel

```java
@Test(timeOut = 2000)
public void infiniteLoop() {
    // setup
    ArrayList<String> arrayList = new ArrayList<>();

    // run
    while (true) { arrayList.add("testng forever!"); }
}
```

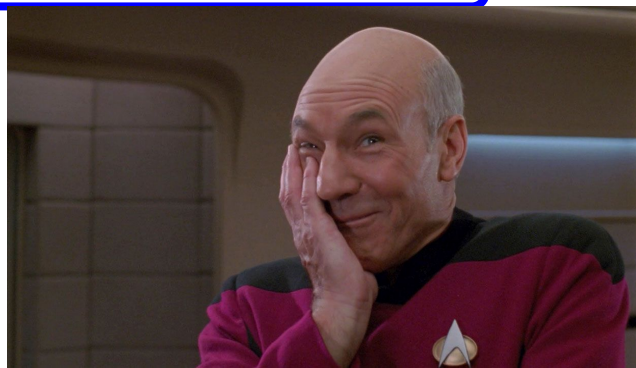
```java
@Test(timeout = 2000)
public void infiniteLoop() {
    // setup
    ArrayList<String> arrayList = new ArrayList<>();

    // run
    while (true) { arrayList.add("junit forever!"); }
}
```

Episode VIII: Time travel

```
@Timeout(value = 2, unit = TimeUnit.SECONDS)
def 'infinite loop'() {
    setup: 'array list'
    def arrayList = new ArrayList<String>()

    expect: 'we will add to it values forever'
    while (true) { arrayList.add('spock forever!') }
}
```

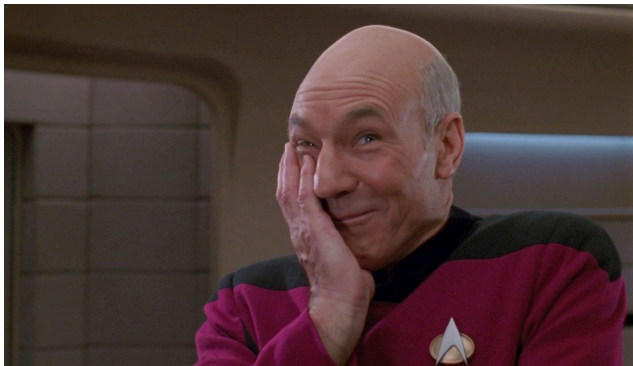
Episode VIII: Time travel

```
@Test
void iWantToBelieve() {
    // setup
    Integer actual = null

    // run
    asyncNextPrime( 1728, { answer -> actual = answer } )

    // verify
    assert actual == 1733
}
```



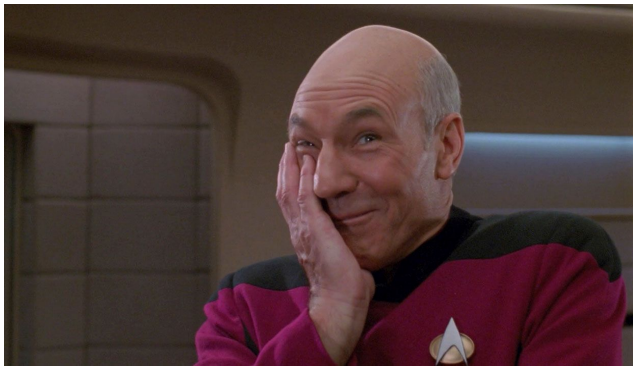
Episode VIII: Time travel

```
@Test
void hm() {
    // setup
    Integer actual = null

    // run
    asyncNextPrime( 1728, { answer -> actual = answer } )

    // hm
    Thread.sleep(3000)

    // verify
    assert actual == 1733
}
```



Episode VIII: Time travel

```
@Test(timeout = 3000L)
void complicatedHm() {
    // setup
    Integer actual = null

    // run
    asyncNextPrime( 1728, { answer -> actual = answer } )

    // hmhm
    while (actual == null) {
        if (actual != null) {
            // verify
            assert actual == 1733
        }
    }
}
```



Episode VIII: Time travel

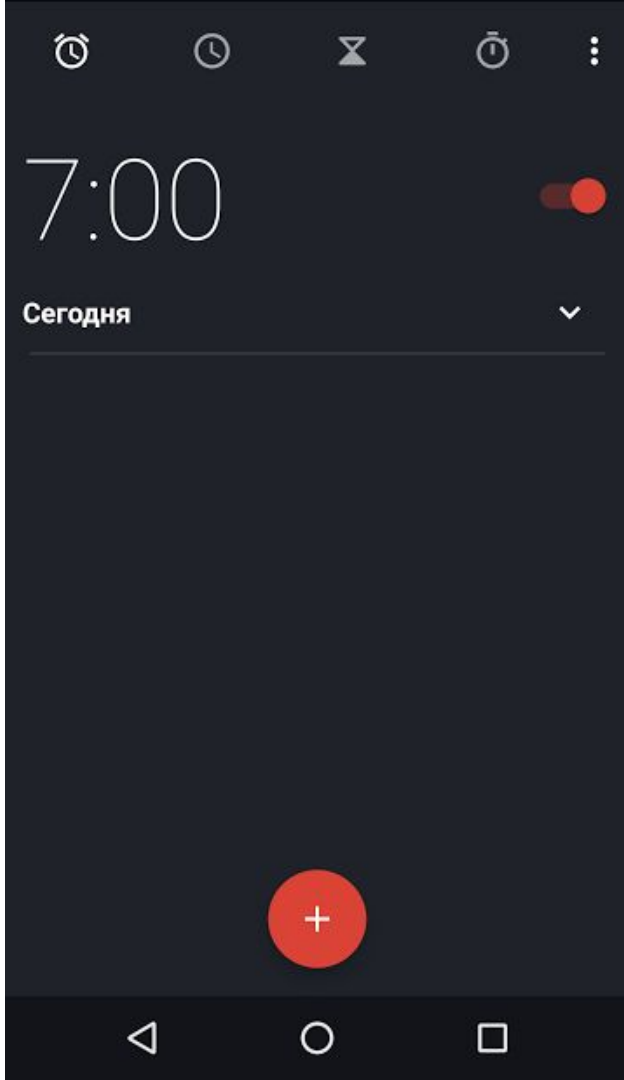
```
def conditions = new PollingConditions(timeout: 30)

def 'find next prime after 1728 eventually'() {
    setup: 'holder for answer'
    Integer actual = null

    when: 'async start calculating next prime after 1728'
    asyncNextPrime( 1728, { answer -> actual = answer } )

    then: 'eventually answer will be found'
    conditions.eventually {
        assert actual == 1733
    }
}
```

Episode VIII: Time travel

```
def conditions = new PollingConditions(timeout: 30)

def 'find next prime after 2817 within 3 seconds'() {
    setup: 'holder for answer'
    Integer actual = null

    when: 'async start calculating next prime after 1728'
    asyncNextPrime( 2817, { answer -> actual = answer } )

    then: 'within 3 seconds answer will be found'
    conditions.within(3) {
        assert actual == 2819
    }
}
```

Episode VIII: Time travel

```
def conditions = new AsyncConditions()

def 'find next prime after 2817 within 3 seconds'() {
    when: 'async start calculating next prime after 1728'
    asyncNextPrime( 1728, { answer ->
        conditions.evaluate { assert answer == 1733 }
    } )

    then: 'within 3 seconds answer will be found'
    conditions.await(3)
}
```




Episode IX:
Test control

Episode IX: Test control

```
@Ignore("will fix it before commit")
@Test
public void alwaysIgnor
    // TODO FIXME test
}
```

```
@Test(enabled = false)
public void alwaysIgnored() {
    // TODO FIXME test is failing
    assertEquals(2+2, 5);
}
```

```
@Disabled("will fix it before commit")
@Test
public void alwaysIgnored() {
    // TODO FIXME test is failing
    assertEquals(5, 2+2);
}
```

Episode IX: Test control

```
@Ignore('will fix it before commit')
def 'this test is always ignored'() {
    // TODO FIXME test is failing
    expect: 'that 2+2=5'
    2 + 2 == 5
}
```

Episode IX: Test control

```
@Test
public void ignoredOnWindows() {
    assumeThat(System.getProperty("os.name").toLowerCase(), is(not(containsString("windows"))));
```

Episode IX: Test control

```
@Requires({ jvm.java8 && env['JAVA_HOME'] != null })
def 'this test requires JAVA_HOME set and Java 8 installed'() {
    expect: 'that we are on Java 8'
    'java -version'.execute().errorStream.text.contains('java version "1.8.0_73"')
}
```

Episode IX: Test control

```
@IgnoreIf({ os.windows || sys['pretend.os'] == 'windows' })
def 'this test is ignored on Windows'() {
    expect: 'that we are not on Windows'
    !System.properties['os.name'].toString().toLowerCase().contains('windows')
}
```

Episode IX: Test control

```
@IgnoreIf({ new Random().nextBoolean() })
def 'this test is SOMETIMES ignored'() {
    when: 'i hate my job'
    Integer.metaClass.plus = { Integer other ->
        return 5
    }

    then: 'i can make them pay'
    2 + 2 == 5
}
```

Episode IX: Test control

```
@Requires({ N40S_ConditionalRuns_Part2.isGoogleSearchAvaiable() })
def 'this test runs only if Google Search is avaiable'() {
    setup: 'http connection service'
    def http = new HTTPBuilder('https://google.com')

    when: 'we search for the best java unit testing framework'
    def response = http.get(path : '/search', query : [q:'best java unit testing framework'])

    then: 'answer mentions spock'
    response.toString().toLowerCase().contains 'spock'
}
```

Episode IX: Test control

```
@IgnoreRest
def 'this test makes all other test ignored'() {
    expect: 'a miracle'
    2 + 2 == 5
}
```

Episode IX: Test control

```
@Category(Fast.class)
@Test
public void passedFast() {
    assertThat(2+2, is(4));
}

@Category(Slow.class)
@Test
public void failingIn20Seconds() throws InterruptedException {
    Thread.sleep(TimeUnit.SECONDS.toMillis(20));
    assertThat(2+2, is(4));
}
```

Episode IX: Test control

```
@Test(gr
public v
    asse
}

@Test(gr
public v
    Thre
    asse
}
```

```
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd" >
<suite name="Suites">
    <test name="TestSuites">
        <groups>
            <run>
                <include name="fast"/>
                <exclude name="slow"/>
            </run>
        </groups>
        <classes>
            <class name="N46T_TestSuites"/>
        </classes>
    </test>
</suite>
```

```
ception {
```

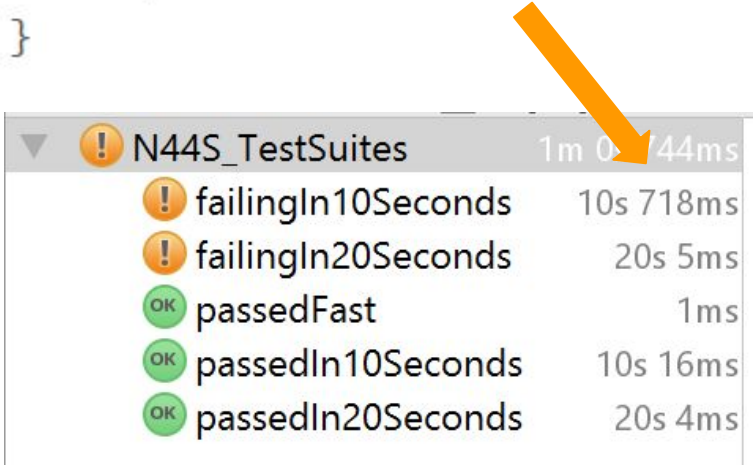
Episode IX: Test control

```
@Tag("fast")
@Test
public void passedFast() {
    assertEquals(4, 2+2);
}

@Tag("slow")
@Test
public void failingIn20Seconds() throws InterruptedException {
    Thread.sleep(TimeUnit.SECONDS.toMillis(20));
    assertEquals(5, 2+2);
}
```

Episode IX: Test control

```groovy
@Fast
def passedFast() {
    expect: 'that everything is ok'
    2 + 2 == 4
}

@Slow
def failingIn20Seconds() {
    setup: 'some resource'
    Thread.sleep(TimeUnit.SECONDS.toMillis(20))

    expect: 'that everything is not ok'
    2 + 2 == 5
}
```

```groovy
runner {
    include Fast
    exclude Slow

    optimizeRunOrder true
}
```

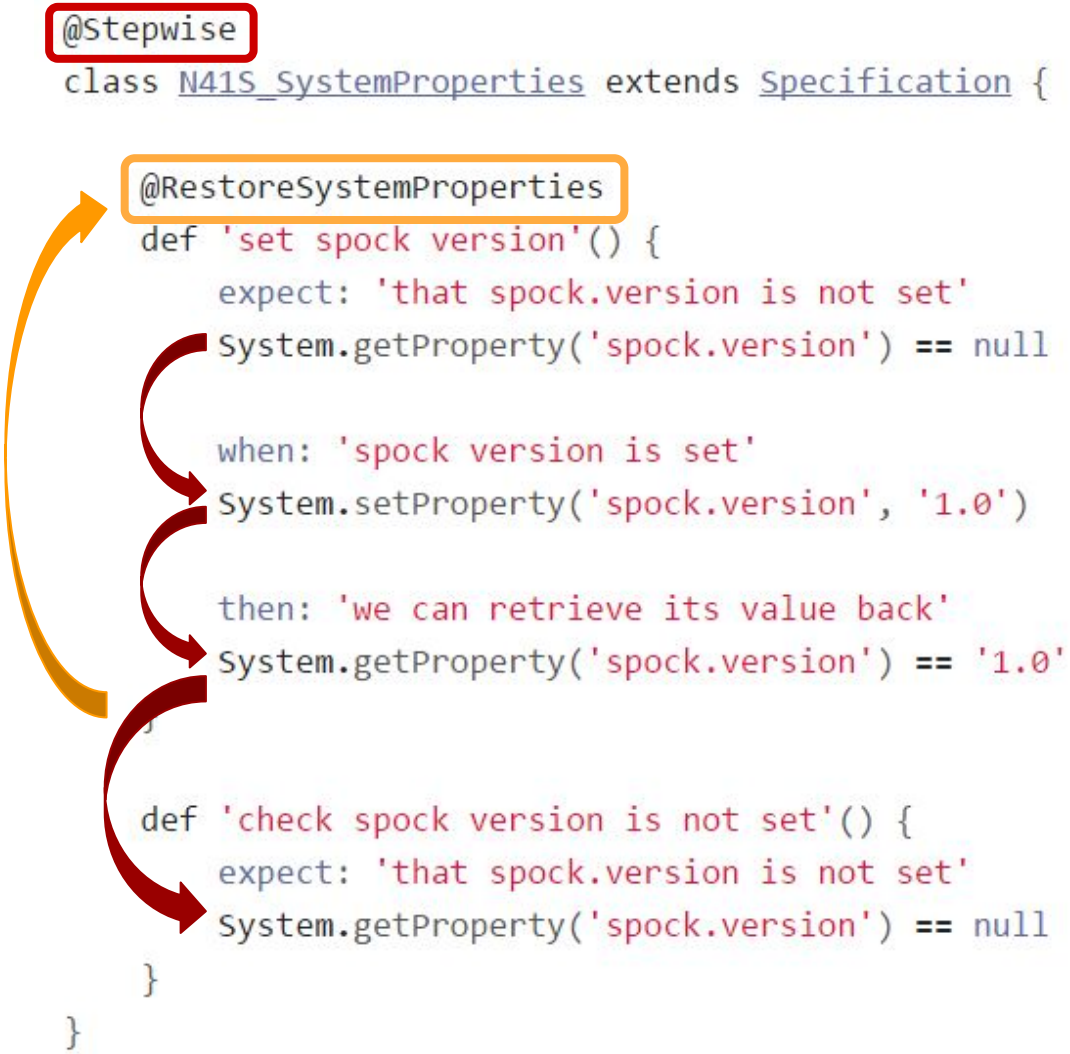


Episode X: Encore

Episode X: Encore

```
class ReportExtension extends AbstractAnnotationDrivenExtension<Report> {

    @Override
    void visitSpecAnnotation(Report annotation, SpecInfo spec) {
        spec.addListener(new AbstractRunListener() {

            @Override
            void afterFeature(FeatureInfo feature) {
                for (block in feature.blocks) {
                    for (text in block.texts) {
                        println "${block.kind.name().toLowerCase()} $text"
                    }
                }
            }
        })
    }
}
```

Episode X: Encore



```
@Stepwise
class N41S_SystemProperties extends Specification {

    @RestoreSystemProperties
    def 'set spock version'() {
        expect: 'that spock.version is not set'
        System.getProperty('spock.version') == null

        when: 'spock version is set'
        System.setProperty('spock.version', '1.0')

        then: 'we can retrieve its value back'
        System.getProperty('spock.version') == '1.0'
    }

    def 'check spock version is not set'() {
        expect: 'that spock.version is not set'
        System.getProperty('spock.version') == null
    }
}
```

Episode X: Encore

```
then: 'list is not empty, is of size 4, and contains all added values'
with(list) {
    empty == false
    size() == 4
    get(0) == 'we'
    get(1) == 'will'
    get(2) == 'love'
    get(3) == 'spock'
}
```

Episode X: Encore

```
@org.junit.Rule OutputCapture capture = new OutputCapture()

def "capture output print method"() {
    when: 'text is printed to console'
    print "2 + 2 = ${2+2}"

    then: 'it is printed as expected'
    capture.toString() == '2 + 2 = 4'
}
```

Episode X: Encore

```
@ConfineMetaClassChanges([Integer])
def 'sometimes 2 + 2 = 5'() {
    setup: 'very special Integer + Integer operation'
    Integer.metaClass.plus = { Integer other ->
        return 5
    }

    expect: '2 + 2 == 5'
    2 + 2 == 5
}

def 'usually 2 + 2 == 4'() {
    expect: '2 + 2 == 4'
    2 + 2 == 4
}
```

Episode X: Encore

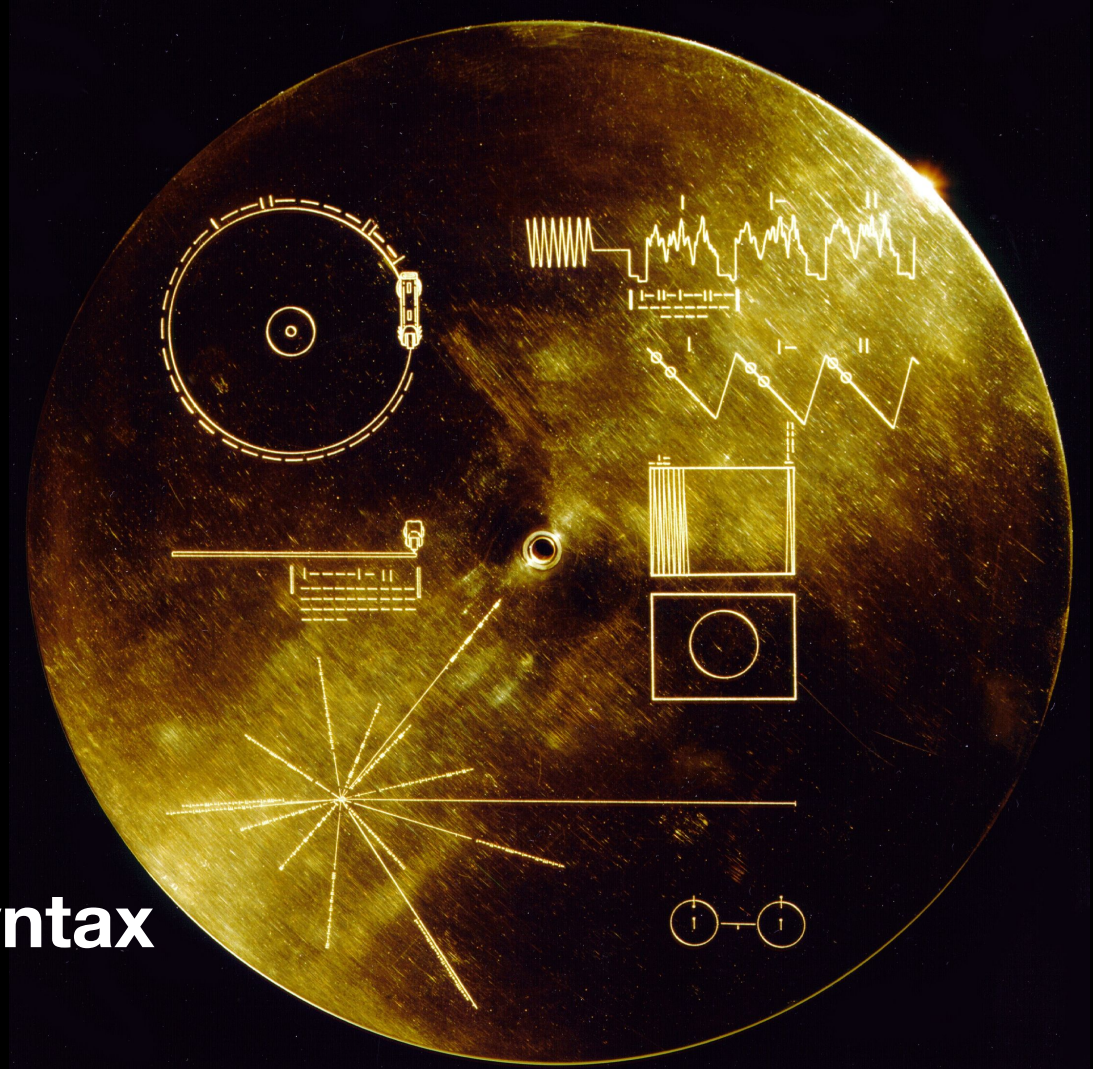
```
@ContextConfiguration(classes = Config)
class N22S_Stubs extends Specification {

    @Autowired
    PasswordGenerator passwordGenerator
```

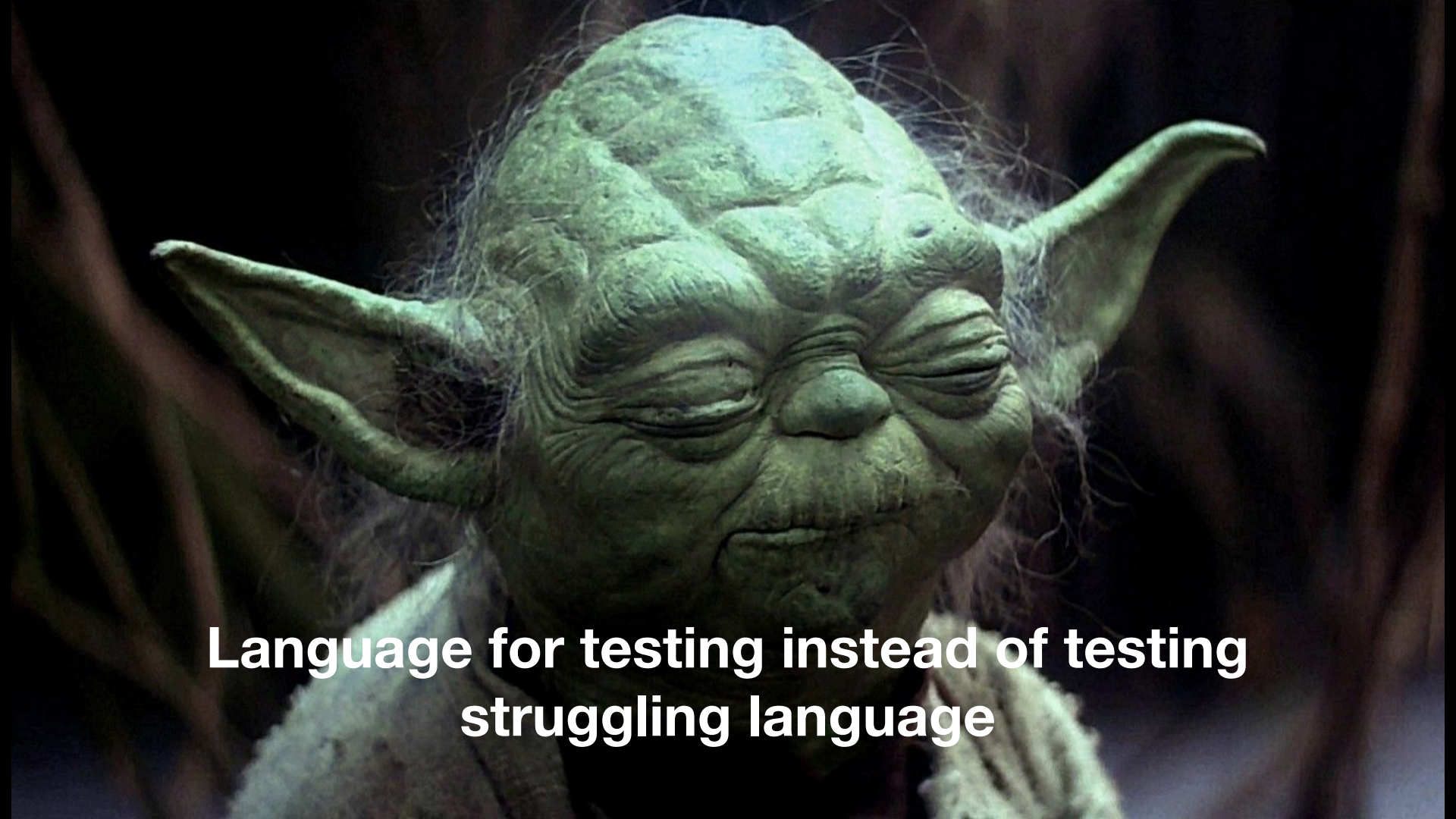
Episode X: Encore

```
class N49S_Geb extends GebSpec {

    def 'search for wikipedia in google'() {
        when:
        go 'http://www.google.com'

        then:
        title == 'Google'

        when:
        $('input', name: 'q').value('wikipedia')
        $('input', name: 'btnG').click()

        then:
        waitFor { title == 'wikipedia - Поиск в Google' }

        when:
        def result = $('*', 0)

        then:
        result.text().contains('ru.wikipedia.org')
    }
}
```

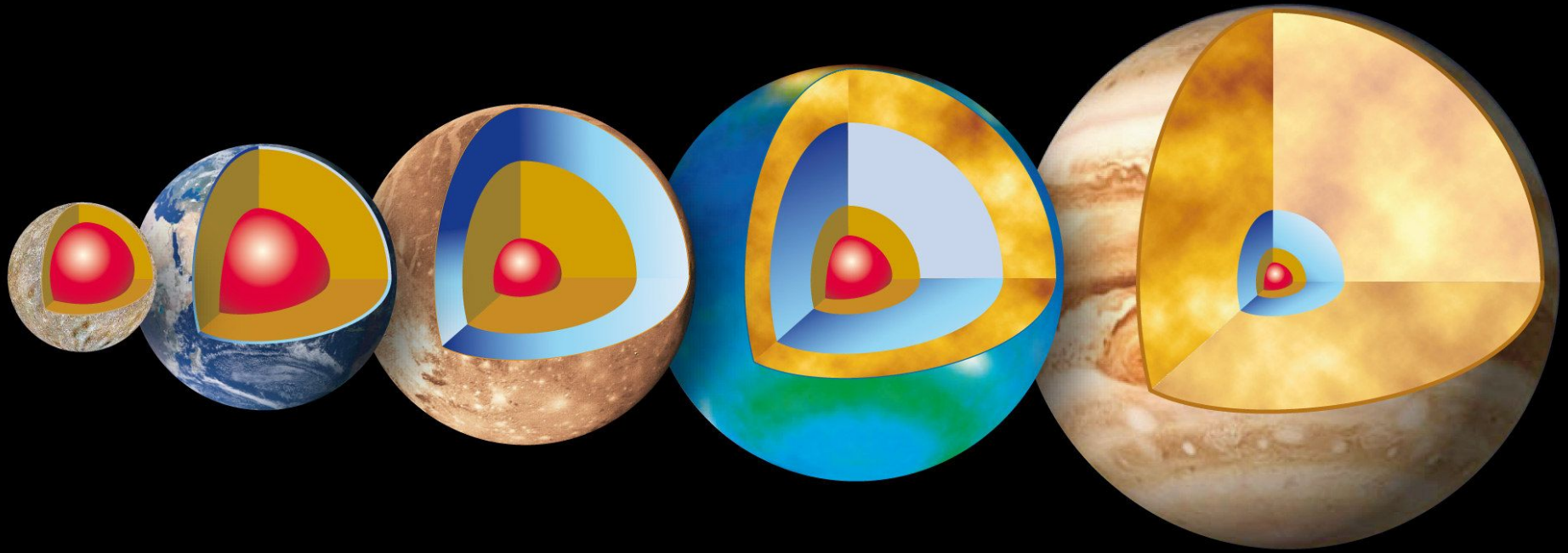

Why one should use Spock?

Concise syntax




Language for testing instead of testing
struggling language

Clear test structure

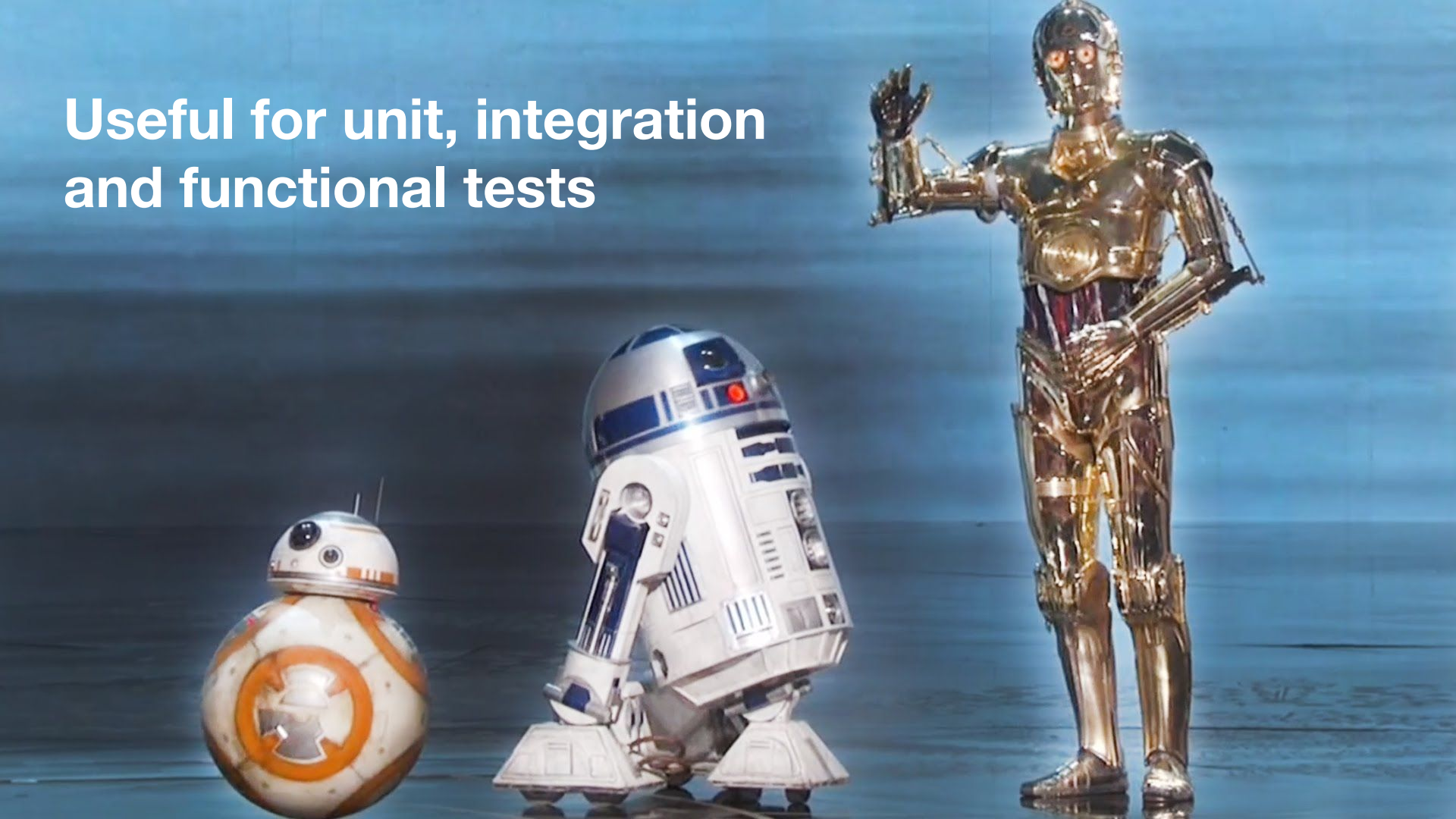


Code and reports readable for everyone

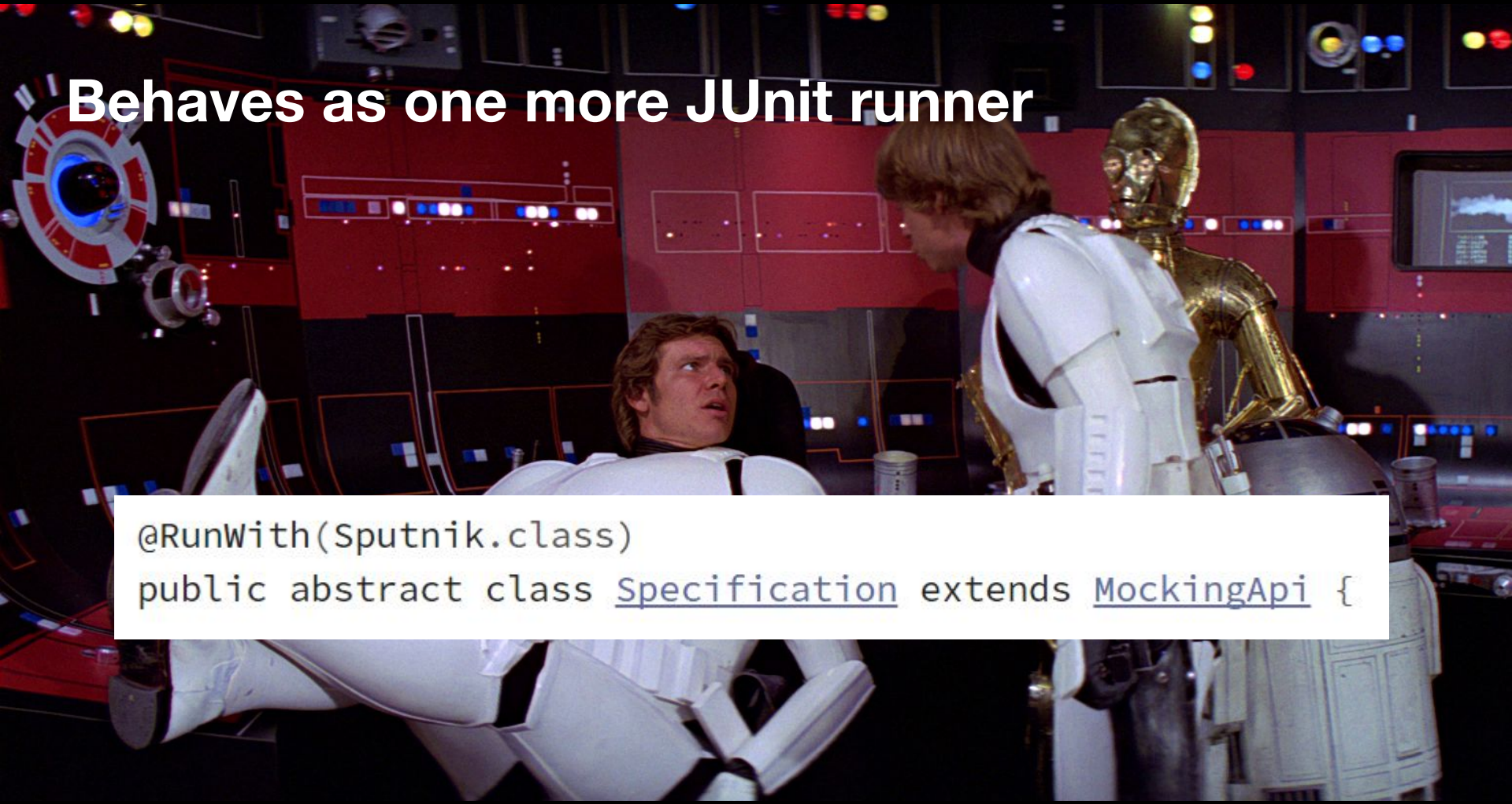
Powerful built-in features

Extensions

Useful for unit, integration and functional tests

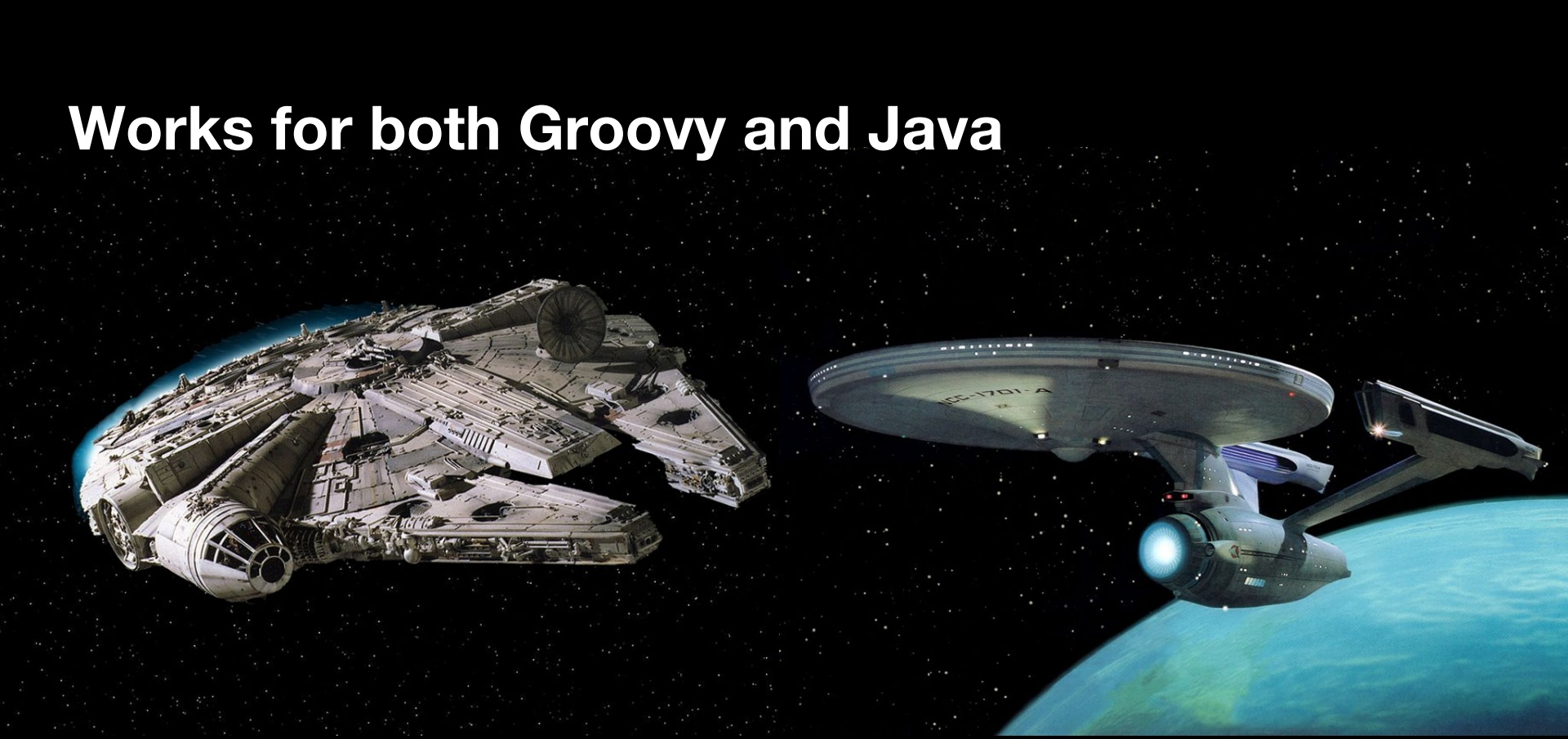


Behaves as one more JUnit runner



```
@RunWith(Sputnik.class)
public abstract class Specification extends MockingApi {
```

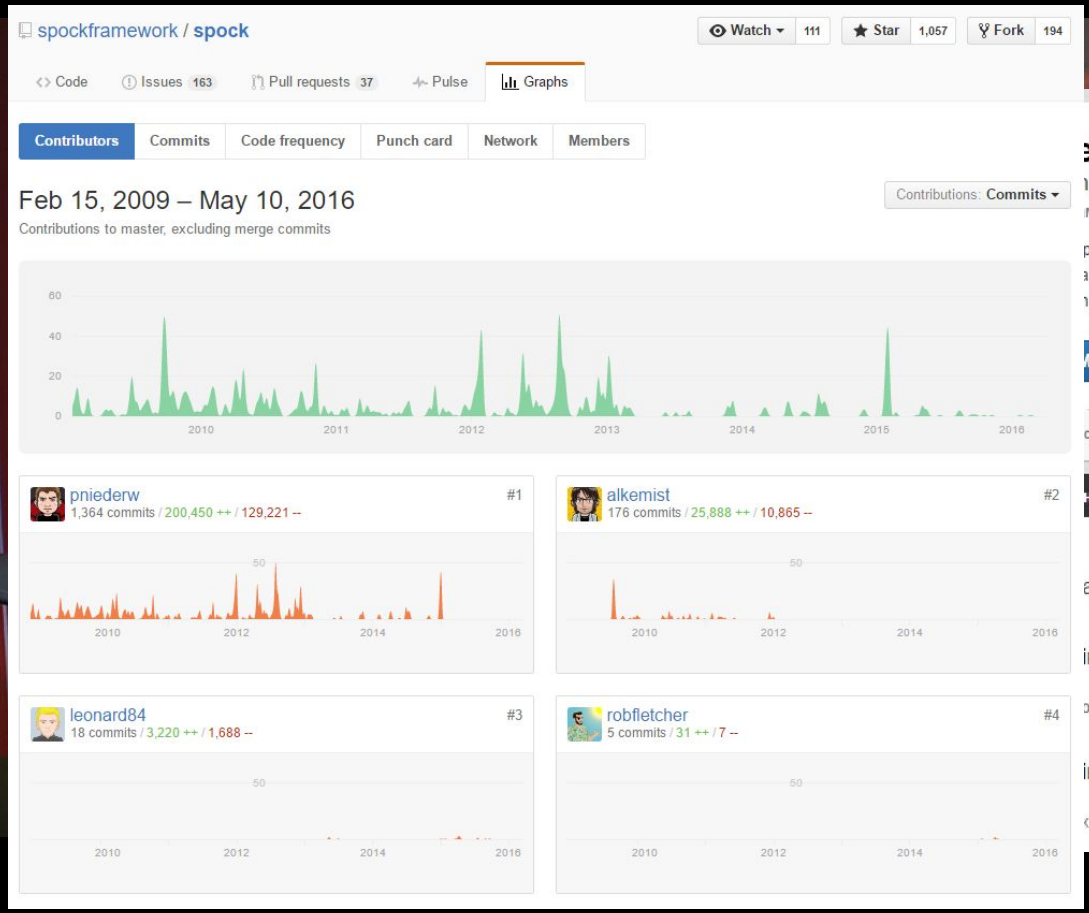
Works for both Groovy and Java

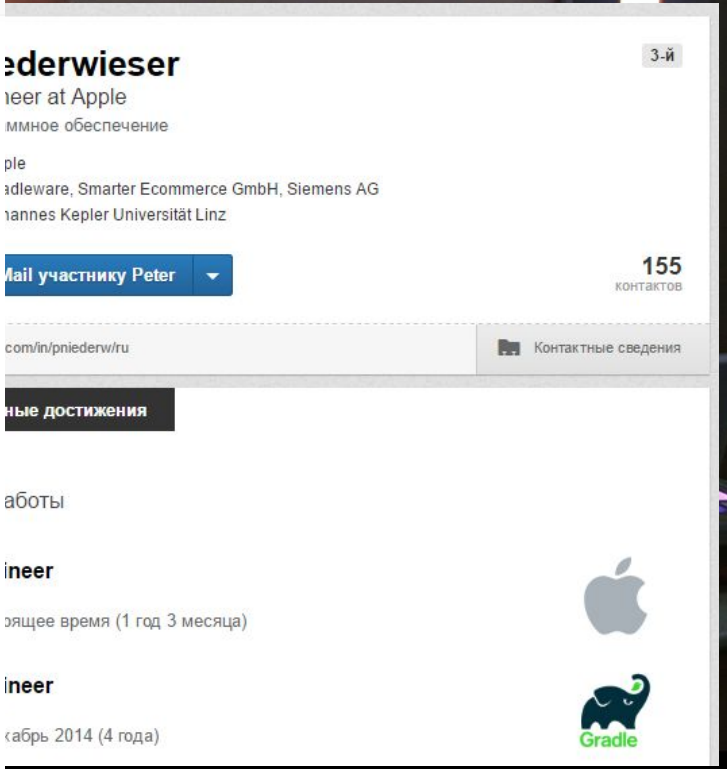



Why one should not use Spock?

JUnit/TestNG has 90% similar/imitable features

Spock lost its lead developer

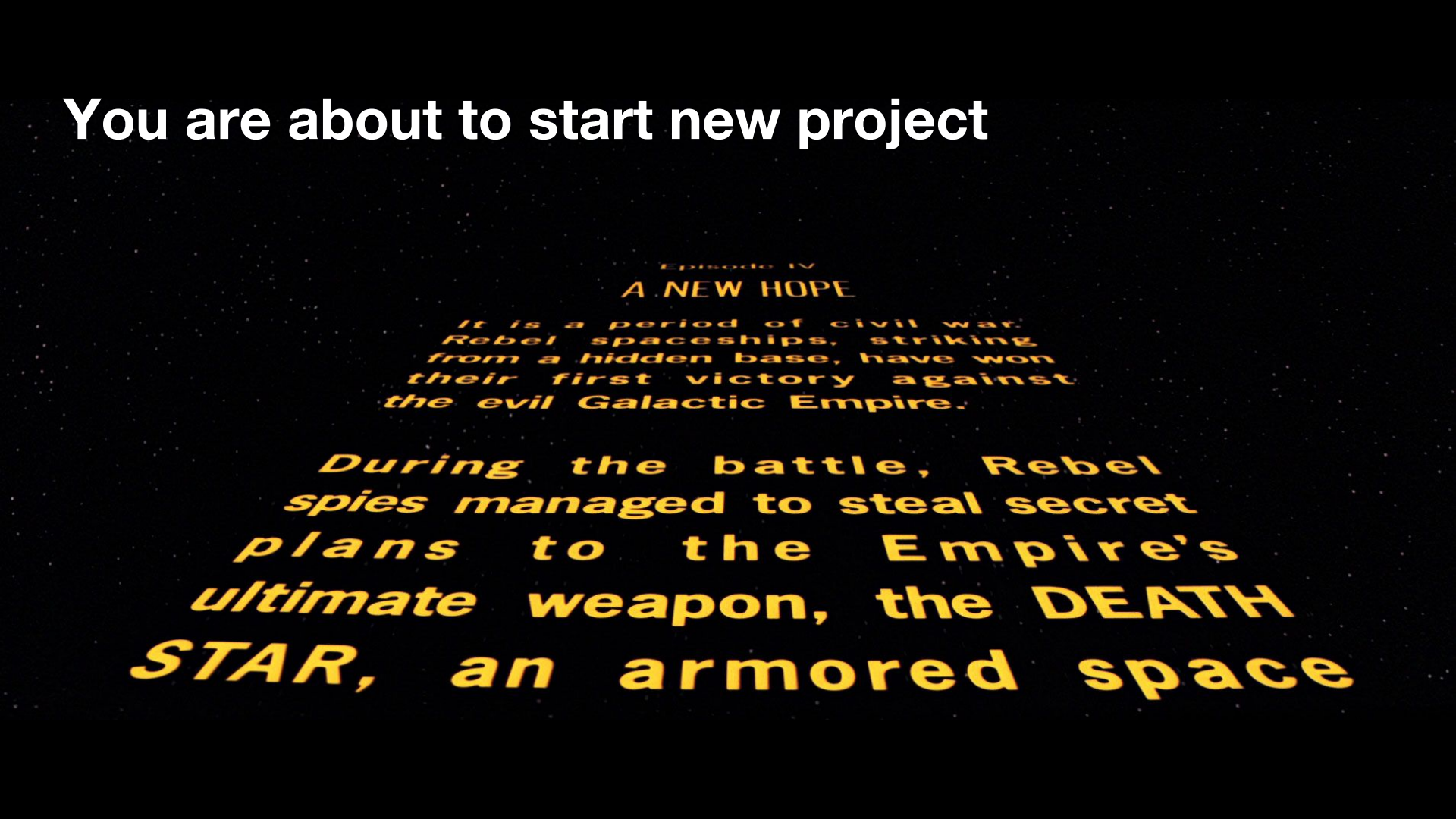





When one can use Spock?


Your team is ready to make one step forward

You are about to start new project



You want to cover legacy project with unit tests

You want to introduce functional testing in your project

What’s next?

Spock documentation

Spock source repositories

Spock examples project

Spock smoke tests

Spock Web Console

Spock reports

What’s next?

mrhaki about Spock

Spock vs JUnit by Kostis Kapelonis and Athens Greece

Smarter testing Java code with Spock Framework by Marcin Zajączkowski

Idiomatic Spock by Rob Fletcher

Spock: A Logical Framework for Enterprise Testing by Ken Kousen

What’s next?

Java Testing with Spock by Konstantinos Kapelonis

Geb documentation

Geb for browser automation by Jacob Aae Mikkelsen

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https://ua.linkedin.com/pub/yaroslav-yermilov/58/682/506


Thanks!