Parametrized Tests

Getting more tests out of test cases

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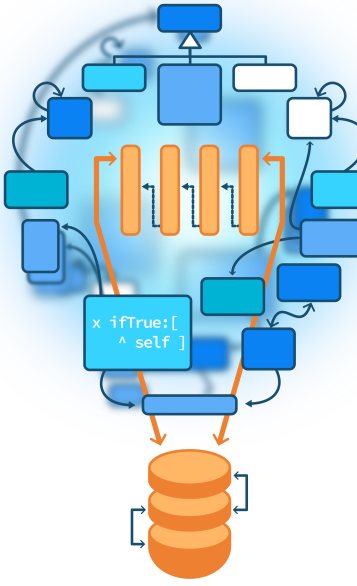

Goals

- How to **reuse** test logic with specific value sets?
- How can we run tests with **all** possible combinations?
- Use a naive example to stress the essence

Problem one

```
MyDullTest >> testSum
  self assert: (2/3) + (1/3) equals: 1
```

- How to generalize it?
- How can we reuse test logic with specific values?

Using a collection

```
MyDullTest >> testSum

 {{2.1.3}.{2/3.1/3.1}}
   do: [ :each |
     self
       assert: each first + each second
       equals: each third ]
```

- What if I want to have **another** test **reusing** some or all these values?
- Not nice to have to duplicate the loop.

Use a parametrized test

Inherit from ParametrizedTestCase, add instance variables, and setters.

```
ParametrizedTestCase << #MyDullTest
  slots: { #number1 . #number2 . #result}
```

Use instance variables:

```
MyDullTest >> testSum
  self assert: number1 + number2 equals: result
```

Declare cases

```
MyTest class >> testParameters

  ^ ParametrizedTestMatrix new
    addCase: { #number1 -> 2. #number2 -> 1.0. #result -> 3 };
    addCase: { #number1 -> (2/3). #number2 -> (1/3). #result -> 1 };
    yourself
```

Benefits

We can add new tests that use the variables

```
MyDullTest >> testSum
  self assert: result − number2 equals: number1
```

We can execute tests

- with a specific configuration
- add a new configuration

Problem two

Imagine we have a test and we would like to apply it to other collections.

```
MyTest >> testAdd

  | aCollection |
  aCollection := Bag new.
  aCollection add: 'a'.
  self assert: (aCollection includes: 'a').
  self assert: aCollection size equals: 1.
```

Easy

Introduce a setter for the class and use it.

```
MyTest >> testAdd

  | aCollection |
  aCollection := collectionClass new.
  aCollection add: 'a'.
  self assert: (aCollection includes: 'a').
  self assert: aCollection size equals: 1.
```

Inherit from ParametrizedTestCase

```
ParametrizedTestCase << #MyTest
  slots: {#collectionClass};
  package: 'MyTests'
```

Declare test parameters

```
MyTest class >> testParameters

  ^ ParametrizedTestMatrix new
    forSelector: #collectionClass
    addOptions: { Set . Bag . OrderedCollection }
```

We run all the tests with Set, Bag, and OrderedCollection.

We want more

We would like to have **different items** to add and to check with all the collections.

Easy

Introduce an instance variable and setter for one item and use it.

```
ParametrizedTestCase << #MyTest
  slots: { #collection . #item };
  package: 'MyTests'
```

```
MyTest >> testAdd

  | aCollection |
  aCollection := collection class new.
  aCollection add: item.
  self assert: (aCollection includes: item).
  self assert: aCollection size equals: 1.
```

Declare test parameters

```
MyTest class >> testParameters

  ^ ParametrizedTestMatrix new
      forSelector: #item addOptions: { 1 . 'a' . $c };
      forSelector: #collectionClass addOptions: { Set . Bag . OrderedCollection }
```

- collectionClass and item will take the values from the options
- Tests are then run with all possible combinations of item and collectionClass

Conclusion

- Parametrized tests are handy
- You can get more tests out of your test case

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