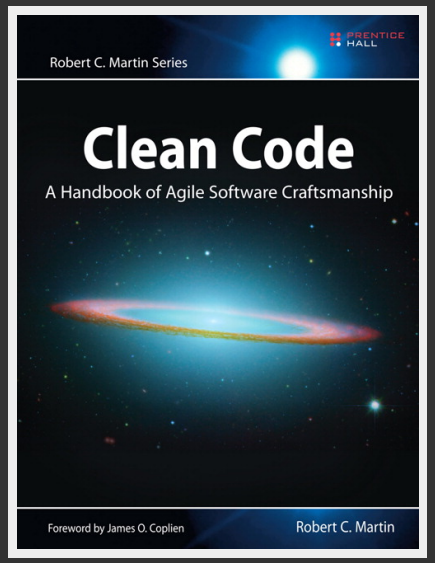
PHPUNIT BEST PRACTICES

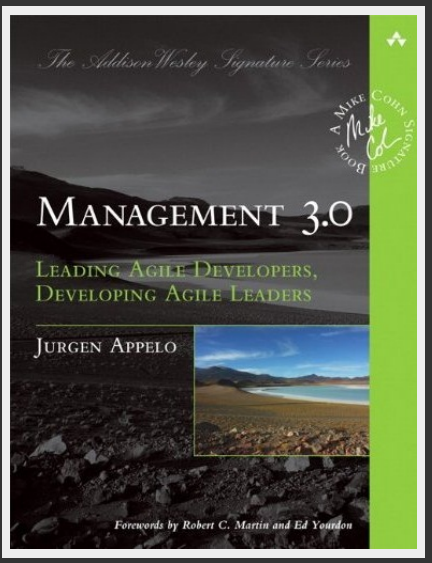
Volker Dusch / @__edorian

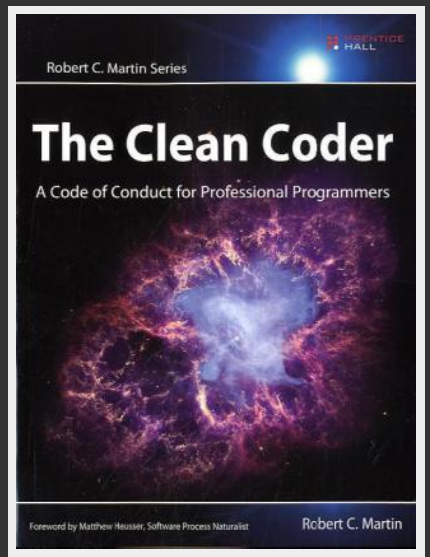
ABOUT ME

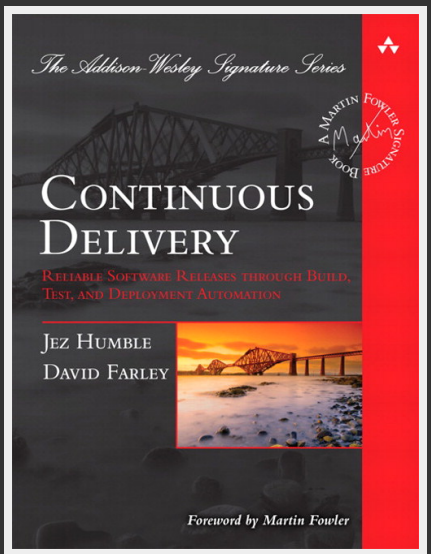
- Software Engineer
- PHP since 11 years
- CI
- CleanCode
- DevOps
- TDD
- Shipping
- Bullet points

INSTEAD OF ME









WORKING FOR

ResearchGate gives science back to the people who make it happen.

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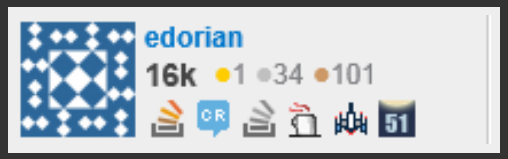
On their terms.

GET IN TOUCH

- stack**overflow**:



- Twitter: @__edorian
- g+: Volker Dusch
- IRC: edorian
- Mail: php@wallbash.com

AGENDA

- Some practices I value
- Your mileage may vary
- By no means complete

WRITE TESTS

It's sounds obvious but getting started sometimes is the hardest part!

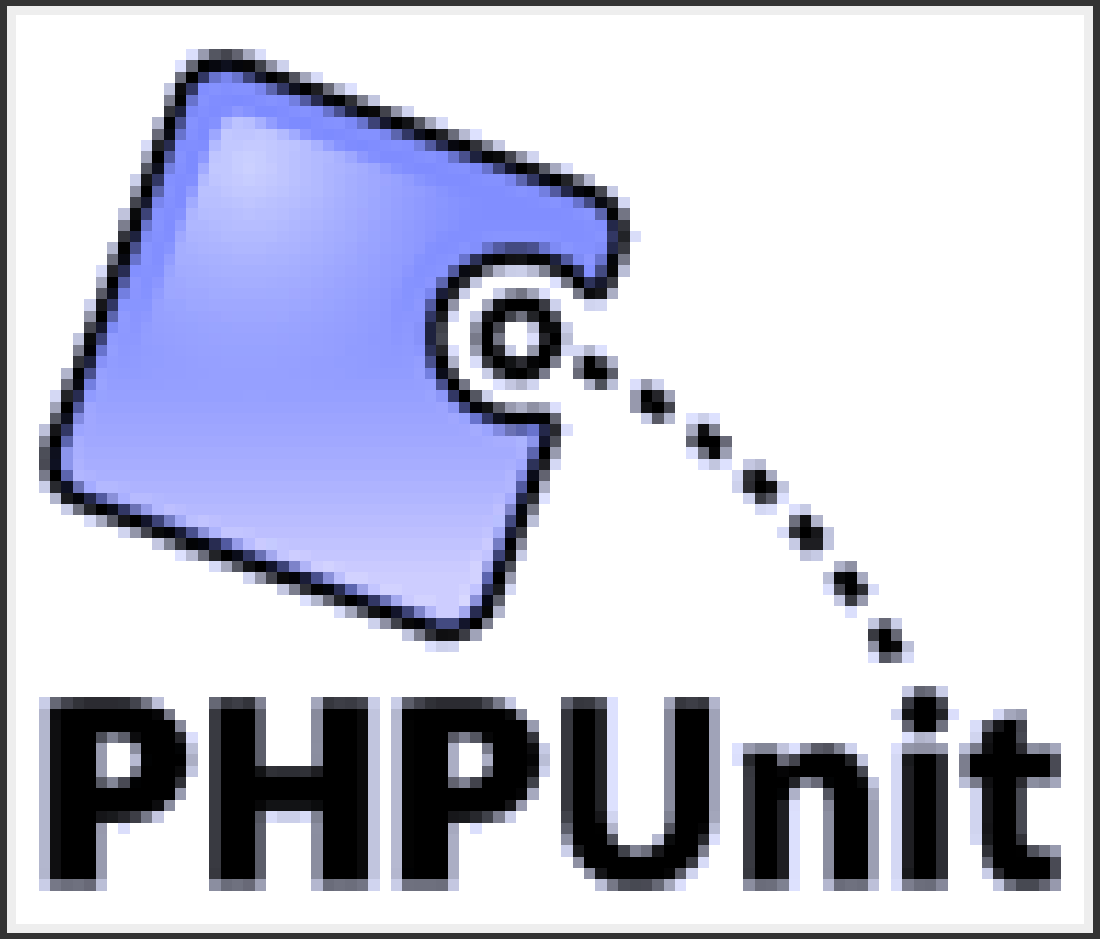
THE FASTEST THING YOU CAN DO

```
hits=`curl -s staging.project.com | grep 'Login:' | wc -l`;
test $hits -eq 1 || echo "Frontpage error!"
```

- Staging server
- Testing your builds
- All without even touching PHPUnit

```
data="login=test&passwort=secure&csrf="$csrfToken
hits=`curl -X POST -d staging.project.com | grep 'Hello, testuser' | wc -l`;
test $hits -eq 1 || echo "Login error!"
```

LET'S GO



UPGRADE TO PHPUNIT 3.7

EASE INSTALLTION

PHAR

```
wget http://pear.phpunit.de/get/phpunit.phar
chmod +x phpunit.phar
./phpunit.phar --version
```

or

```
wget http://pear.phpunit.de/get/phpunit.phar
chmod +x phpunit.phar
mv phpunit.phar /usr/local/bin/phpunit
phpunit --version
```

COMPOSER

The Dependency Manager for PHP

With the best from zypper, bundler, pip, gem and npm

PHPUNIT PER PROJECT

```
composer.json
{
   "require-dev": {
      "phpunit/phpunit": "3.7.*"
   }
}
```

```
composer install
./vendor/bin/phpunit --version
```

PHPUNIT GLOBAL INSTALL

```
{
   "require": {
      "phpunit/phpunit": "3.7.*"
   },
   "config": {
      "bin-dir": "/usr/local/bin/"
   }
}
```

```
sudo php composer installl
phpunuit --version
```

PEAR

- pear config-set auto_discover 1
- pear install pear.phpunit.de/PHPUnit
- phpunit --version

USE SPECIFIC ASSERTIONS

PHPUnit ships with over 90 assertions.

http://www.phpunit.de/manual/current/en/appendixes.assertions.html

Use them to get pretty and helpful error messages.

assertTrue vs assertInstanceOf

```
$foo = new StdClass();
$this->assertTrue($foo instanceOf Countable);
```

“Failed asserting that false is true.”

```
$foo = new StdClass();
$this->assertInstanceOf('Countable', $foo);
```

“Failed asserting that
stdClass() is an instance of interface 'Countable'.”

assertEquals vs assertJsonStringEqualsJsonFile

assertEquals

```
Failed asserting that two strings are equal.
--- Expected
+++ Actual
@@ @@
-'{ "Conference": "FOSDEM", "Talk": "PHPUnit", "JSON": "Apparently", "Shoutout"
: "Jenkins" }'
+'{ "Conference": "FOSDEM", "Talk": "PHPUnit", "JSON": "Apparently", "Shoutout"
: "Hudson" }'
```

assertEquals vs assertJsonStringEqualsJsonFile

assertJsonStringEqualsJsonFile

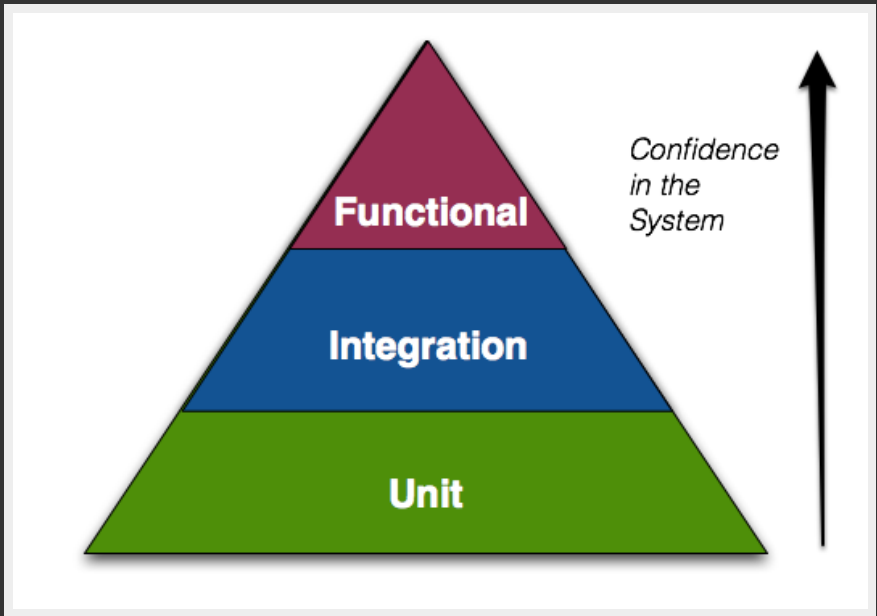
```
Failed asserting that two objects are equal.
--- Expected
+++ Actual
@@ @@
 stdClass Object (
     'Conference' => 'FOSDEM'
     'Talk' => 'PHPUnit'
     'JSON' => 'Apparently'
-    'Shoutout' => 'Jenkins'
+    'Shoutout' => 'Hudson'
 )
```

HAVE A FAST TEST SUITE

If it takes to long to run your tests you won't do it

SEPERATE YOUR TESTS

http://elblinkin.info/2012/03/goldilocks-on-test-sizes/



BY FOLDER STRUCTURE

```
.
|-- src
|   `-- foo
|       `-- bar
|           `-- Baz.php
`-- tests
    |-- functional
    |-- integration
    |-- unit
    |   `-- foo
    |       `-- bar
    |           `-- BazTest.php
    `-- web
```

```
phpunit tests/unit
```

BY CONFIG FILE

```
<testsuites>
  <testsuite name="Unit" suffix="Test.php">
    <directory>tests</directory>
  </testsuite>
  <testsuite name="Integration" suffix="Test.Integration.php">
    <directory>tests</directory>
  </testsuite>
</testsuites>
```

```
phpunit --testsuite Unit
```

OR HOWEVER YOU SEE FIT

- Use @group
- Use @filter and naming conventions

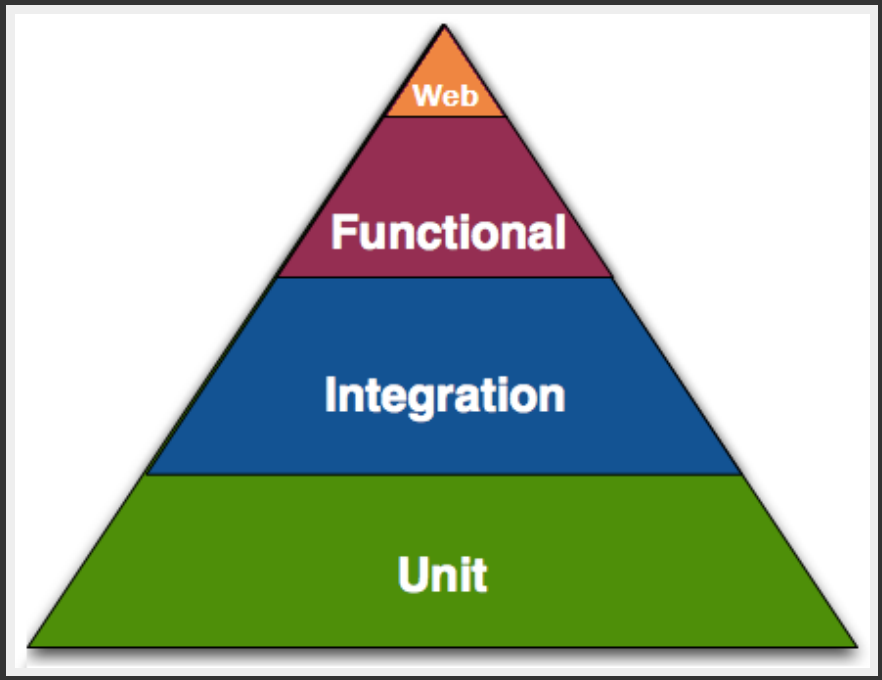
BOOTSTRAP ONLY WHAT YOU NEED

You can use a test listener:

http://www.phpunit.de/manual/current/en/extending-phpunit.html#extending-phpunit.PHPUnit*Framework*TestListener

```
public function startTestSuite(PHPUnit_Framework_TestSuite $suite)
{
    // Just an example of what is possible
    require __DIR__ . $suite->getName() . 'Bootstrap.php';
}
```

HOW MANY TESTS?



- Web: 7
- Funtional: One per feature
- Integration: One per 3 classes
- Unit: Find a balance

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*totally made up numbers to drive home the point I'm trying to make

WEB TESTS?

- behat (mink) for js-through-the-server testing - Great for testing your whole stack
  - Really hard to maintain
  - Mink relives some of the pain
- Test through your front controller instead of the webserver with behat or phpunit
  - Faster, easier once set up

TEST CLASSES, NOT METHODS

> Unit testing, in PHP, is about testing the observable behaviors of a class!

Observable from the outside! Nobody cares about the internal state of a class if it never changes the outcome of a method call.

SAMPLE

What should we test there?

```
public function setValue($value) {
   $this->value = $value;
}

public function execute() {
   if (!$this->value) {
      throw new Exception("No Value, no good");
   }
   return $value * 10; // business logic
}
```

- **If** we **don't** call setValue calling execute **will** throw an exception
- **If** we **do** call setValue calling execute **will** return the computed result.
- So we are testing **two behaviors** of your class and not the methods in isolation!

RELEVANT BEHAVIORS

What to test then?

return values

```
public fuction celciusToFarenheit($degreesFarenheit) {
    return ($degreesFarenheit - 32) * 5 / 9;
}
```

method calls to other objects

```
public fuction stopCar() {
    $this->handbreak->engage();
    $this->engine->shutdown();
}
```

Global state

```
public fuction avoidThisWherePossible($logMessage) {
    file_put_contents(static::$LOGFILE, $logMessage, FILE_APPEND);
    $_SESSION['logcalls']++;
}
```

DON’T TEST GETTERS AND SETTERS

One test case per behavior

- You waste time
- Your code coverage reports won't tell you about dead code
- If they don't impact the outcome delete them

QUESTIONS?

> *"The secret in testing is in writing testable code"*
>
> - Miško Hevery

Additional resources

- "The Clean Code Talks -- Unit Testing
- How to Write Clean, Testable Code
- The Clean Code Talks - Don't Look For Things!
- Flaw: Brittle Global State & Singletons
- static considered harmful
- The UNIT in unit testing
- An introduction to PHPUnits @covers annotation

THANK YOU