PHPUnit PHP testing framework

CONCEPTS

A test is a public method named test* or marked #[Test] in a class extending TestCase whose file ends in Test.php.

Without a phpunit.xml PHPUnit takes the path argument as the tests to run; with one, a bare call runs the whole config.

Coverage needs a driver: Xdebug (xdebug.mode=coverage) or PCOV. Without one, coverage options only warn.

RUN AND SELECT

vendor/bin/phpunit
Run the configured tests

vendor/bin/phpunit *<path>*
Run one file or directory

vendor/bin/phpunit --filter *<pattern>*
Run tests whose name matches

--testsuite *<name>*
Run one suite from the config

--group *<name>*
Run tests in a group

EXECUTION

--stop-on-failure
Stop at the first failure

--fail-on-warning
Exit non-zero on warnings

--order-by *<order>*
Reorder tests

OUTPUT

--testdox
Show results as readable sentences

--display-deprecations
Show deprecation details

--display-warnings
Show warning details

COVERAGE

--coverage-text
Print a coverage table

--coverage-html *<dir>*
Write an HTML report

XDEBUG_MODE=coverage vendor/bin/phpunit --coverage-html *<dir>*
Coverage with Xdebug

CONFIGURATION

--generate-configuration
Interactively create phpunit.xml

-c *<file>*
Use another config file

CONFIGURATION (cont.)

Minimal phpunit.xml

```
<phpunit bootstrap="vendor/autoload.php" colors="true"
failOnWarning="true"
failOnRisky="true"
         cacheDirectory=".phpunit.cache">
  <testsuites>
    <testsuite name="unit"><directory>tests/unit</directory></testsuite>
  </testsuites>
<source><include><directory suffix=".php">src</directory></include></source>
</phpunit>
```

WRITING TESTS

A basic test

```
use PHPUnit\Framework\TestCase;

final class CartTest extends TestCase
{
    protected function setUp(): void { $this->cart = new Cart; }

    #[Test]
    public function adds_items(): void
    {
        $this->cart->add('apple');
        $this->assertCount(1, $this->cart);
    }
}
```

WRITING TESTS (cont.)

assertSame($expected, $actual)
Same type and value (===)

assertEquals($expected, $actual)
Loosely equal (==)

assertTrue($cond) / assertFalse($cond)
Boolean checks

assertNull($v) / assertNotNull($v)
Null checks

assertCount($n, $items)
Number of elements

assertInstanceOf(*<Class>***::class, $v)**
Value is of a class

$this->expectException(*<Class>***::class)**
Expect a thrown exception

setUp() / tearDown()
Run before and after each test

ATTRIBUTES

#[Test]
Mark a method as a test

#[DataProvider('*<method>***')]**
Feed data sets from a static method

#[TestWith([*<args>***])]**
Inline data set

ATTRIBUTES (cont.)

#[Group('*<name>***')]**
Put a test in a group

Data provider

```
#[DataProvider('sums')]
public function test_sum(int $a, int $b, int $want): void
{
    $this->assertSame($want, $a + $b);
}

public static function sums(): array
{
    return ['zero' => [0, 0, 0], 'one' => [1, 0, 1]];
}
```

Provider methods must be public static. String keys name the data sets, so --filter 'test_sum with data set "zero"' hits one.

TEST DOUBLES

$this->createStub(*<Class>***::class)**
Canned-answer double, no expectations

$this->createMock(*<Class>***::class)**
Double that can verify calls

$stub->method('***<m>***')->willReturn($v)
Fix a return value

$mock->expects($this->once())->method('*<m>***')**
Require exactly one call