

## Tugas Praktikum

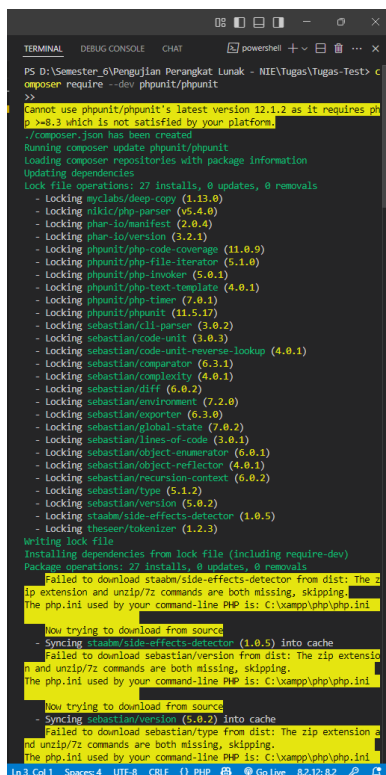
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Mata Kuliah : Pengujian Perangkat Lunak

### Step By Step:

Buat Repository Untuk Tugas

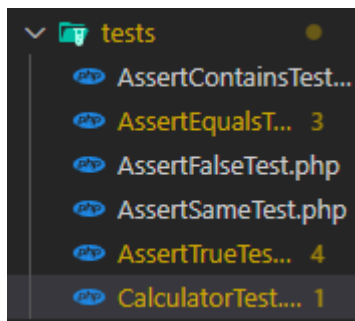
Siapkan File-File Testing yang akan Digunakan

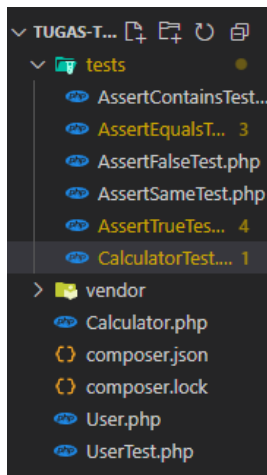
Download PHP Unit dengan : `composer require --dev phpunit/phpunit`



```
PS D:\Semester_6\Pengujian Perangkat Lunak - NIE\Tugas\Tugas-Test> composer require --dev phpunit/phpunit
>
Cannot use phpunit/phpunit's latest version 12.1.2 as it requires php
>8.3 which is not satisfied by your platform.
./composer.json has been created
Running composer update phpunit/phpunit
Loading composer repositories with package information
Updating dependencies
Lock file operations: 27 installs, 0 updates, 0 removals
- Locking myclabs/deep-copy (1.13.0)
- Locking nikic/php-parser (v5.4.0)
- Locking phar-io/manifest (2.0.4)
- Locking phar-io/version (3.2.1)
- Locking phpunit/php-code-coverage (11.0.9)
- Locking phpunit/php-file-iterator (5.1.0)
- Locking phpunit/php-instantiator (5.0.1)
- Locking phpunit/php-test-template (4.0.1)
- Locking phpunit/php-timer (7.0.1)
- Locking phpunit/phpunit (11.5.17)
- Locking sebastian/cli-parser (3.0.2)
- Locking sebastian/code-unit (3.0.3)
- Locking sebastian/code-unit-reverse-lookup (4.0.1)
- Locking sebastian/comparator (6.3.1)
- Locking sebastian/complexity (4.0.1)
- Locking sebastian/diff (6.0.2)
- Locking sebastian/environment (7.2.0)
- Locking sebastian/exporter (6.3.0)
- Locking sebastian/global-state (7.0.2)
- Locking sebastian/lines-of-code (3.0.1)
- Locking sebastian/object-enumerator (6.0.1)
- Locking sebastian/object-reflector (4.0.1)
- Locking sebastian/recursion-context (6.0.2)
- Locking sebastian/type (5.1.2)
- Locking sebastian/version (5.0.2)
- Locking staabm/side-effects-detector (1.0.5)
- Locking theseer/tokenizer (1.2.3)
Writing lock file
Installing dependencies from lock file (including require-dev)
Package operations: 27 installs, 0 updates, 0 removals
- Failed to download staabm/side-effects-detector from dist: The zip
extension and unzip/7z commands are both missing, skipping
The php.ini used by your command-line PHP is: C:\xampp\php\php.ini
- Now trying to download from source
- Syncing staabm/side-effects-detector (1.0.5) into cache
- Failed to download sebastian/version from dist: The zip extension a
n and unzip/7z commands are both missing, skipping.
The php.ini used by your command-line PHP is: C:\xampp\php\php.ini
- Now trying to download from source
- Syncing sebastian/version (5.0.2) into cache
- Failed to download sebastian/type from dist: The zip extension a
nd unzip/7z commands are both missing, skipping.
The php.ini used by your command-line PHP is: C:\xampp\php\php.ini
```

Setelah Itu Buatlah 1 Folder khusus File2 Testing Beserta Class Calculator Testing





Repositrnya harusnya seperti ini

Buat Aplikasi yang ingin di test, Dalam kasus ini adalah aplikasi Calculator

```
<?php

1 reference | 0 implementations
class CalculatorClass
{
    2 references | 0 overrides
    public function add($a, $b): mixed
    {
        return $a + $b;
    }

    2 references | 0 overrides
    public function subtract($a, $b): float|int
    {
        return $a - $b;
    }

    2 references | 0 overrides
    public function multiply($a, $b): float|int
    {
        return $a * $b;
    }

    3 references | 0 overrides
    public function divide($a, $b): float|int
    {
        if ($b == 0) {
            throw new Exception(message: "Division by zero is not allowed.");
        }
        return $a / $b;
    }
}
```

Ini adalah Hasil Code Di Class Calculator Testing

```
0 references | 0 overrides
public function testAdd(): void
{
    $this->assertEquals(8, $this->calculator->add(a: 2, b: 6), 'Penjumlahan 2 dan 6 seharusnya Memberikan nilai 8');
    $this->assertEquals(2, $this->calculator->add(a: 1, b: 1), 'Penjumlahan 1 dan 1 seharusnya Memberikan nilai 2');
}

0 references | 0 overrides
public function testSubtract(): void
{
    $this->assertEquals(-2, $this->calculator->subtract(a: -1, b: 1), 'Pengurangan -1 oleh 1 seharusnya Memberikan nilai -2');
    $this->assertEquals(1, $this->calculator->subtract(a: -2, b: -3), 'Pengurangan -2 oleh -3 seharusnya Memberikan nilai 1');
}

0 references | 0 overrides
public function testMultiply(): void
{
    $this->assertEquals(4, $this->calculator->multiply(a: 2, b: 2), 'Perkalian 2 dan 3 seharusnya Memberikan nilai 6');
    $this->assertEquals(6, $this->calculator->multiply(a: -2, b: -3), 'Perkalian -2 dan -3 seharusnya Memberikan nilai 6');
}

0 references | 0 overrides
public function testDivide(): void
{
    $this->assertEquals(2, $this->calculator->divide(a: 8, b: 4), 'Pembagian 8 oleh 4 seharusnya Memberikan nilai 2');
    $this->assertEquals(2, $this->calculator->divide(a: 2, b: 1), 'Pembagian 2 oleh 1 seharusnya Memberikan nilai 2');
}

0 references | 0 overrides
public function testDivideByZero(): void
{
    $this->expectException(Exception::class);
    $this->expectExceptionMessage('Pembagian dengan nol tidak diperbolehkan');
    $this->calculator->divide(a: 1, b: 0);
}
```

### testAdd()

- Menguji fungsi penjumlahan.
- Contoh:
  - $2 + 6 = 8$
  - $1 + 1 = 2$

### testSubtract()

- Menguji fungsi pengurangan.
- Contoh:
  - $-1 - 1 = -2$
  - $-2 - (-3) = 1$

### testMultiply()

- Menguji fungsi perkalian.
- Contoh:

- $2 * 2 = 4$  (catatan: deskripsi komentar masih tertulis "2 dan 3 = 6", perlu diperbaiki)
- $-2 * -3 = 6$

### testDivide()

- Menguji fungsi pembagian.
- Contoh:
  - $8 / 4 = 2$
  - $2 / 1 = 2$

### testDivideByZero()

- Menguji pembagian dengan nol.
- Harus melempar exception dengan pesan: 'Pembagian dengan nol tidak diperbolehkan'

```
PS D:\Semester_6\Pengujian Perangkat Lunak - NIE\Tugas\Tugas-Test> ./vendor/bin/phpunit --bootstrap Calculator.php tests
>>
PHPUnit 11.5.17 by Sebastian Bergmann and contributors.

Runtime:      PHP 8.2.12

.....F                                         10 / 10 (100%)

Time: 00:00.096, Memory: 8.00 MB

There was 1 failure:

1) CalculatorTest::testDivideByZero
Failed asserting that exception message 'Division by zero is not allowed.' contains 'Pembagian dengan nol tidak diperbolehkan'.

FAILURES!
Tests: 10, Assertions: 16, Failures: 1.
PS D:\Semester_6\Pengujian Perangkat Lunak - NIE\Tugas\Tugas-Test> █
```

Resultnya menghasilkan OK! Dengan 1 failure dibagian Akhirnya

Link Github : <https://github.com/ZidZaky/Simple-Calculator-PHPUnit-Testing.git>