

Test Plan for QA Engineer Trial Project

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Source Repository:

https://github.com/autolotto/sample_php

Test Plan Purpose:

To validate and test the 4 calculator classes contained within the project

- Add
- Subtract
- Multiply
- Divide

Specifications:

Doc available at: <http://go.autolotto.com/qaengtrial>

Testing to be Performed:

Boundary/Range
Valid/invalid data
Passing wrong number of parameters
Integer vs. Floating point
Double-negatives
Performance

Boundary/Range

- Verify classes can receive values including 0, negative numbers, positive numbers
- Verify extremely large values such as 2^{32} and 2^{63} , or 2^{64} boundaries (to catch overflow errors)

Valid/invalid data

- Attempt to pass in characters/string values when expecting a number
- Attempt to pass in to Divide() class a 0 for the divisor, to intentionally produce an error/undefined result

Passing wrong number of parameters

- Attempt to pass a single value (non-array) when class is expecting an array

Integer vs. Floating point

- Verify the classes correctly handle integer values
- Verify the classes can produce results that are integer values
- Verify the classes can correctly handle floating-point numbers as input
- Verify the classes can return results that are floating-point

Double-negatives

- Verify that negative numbers can be passed into Subtract() thus resulting in a double-negative (which is addition)
- Verify that multiplication of an array of numbers with an odd-number of negative values inputs in a negative product

Performance

- Verify that as the number of test cases increase, the length of time to run increases linear
- Verify running the test does not hang, but produces a valid report
- Verify runtime Memory requirements don't increase (expected: 10.00MB)

Example output from the test:

```
$ cd /Users/billybrown/GitHub/sample_php
$ phpunit tests/calculator_test.php --log-junit "shippable/testresults/log.junit.xml"
```

```
=====  
PHPUnit 5.7.5 by Sebastian Bergmann and contributors.
```

```
...E  
4 / 4 (100%)
```

```
Time: 107 ms, Memory: 10.00MB
```

```
There was 1 error:
```

```
1) CalculatorTest::testDivide  
assert(): *** function divide() *** Division of 8 by 0 would be  
undefined! failed
```

```
/Users/billybrown/GitHub/sample_php/calculator.php:28  
/Users/billybrown/GitHub/sample_php/tests/calculator_test.php:144
```

```
ERRORS!  
Tests: 4, Assertions: 22, Errors: 1.
```