

# Homework 2: Practice TDD by adding functions to Calc

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## Steps

1. Make a fail test
2. Modify the code to pass the test
3. Refactor the code
4. Repeat the process

## Test cases

ADD

### 1. Add tests

```
node --test --experimental-test-coverage
└─
```

► 測試加法功能

- ✓ 兩個正數相加 (0.490833ms)
- ✓ 兩個負數相加 (0.120792ms)
- ✓ 一個正數一個負數相加 (0.039959ms)

✓ 測試加法功能 (1.042417ms)

```
i tests 4
i suites 0
i pass 4
i fail 0
i cancelled 0
i skipped 0
i todo 0
i duration_ms 60.323791
i start of coverage report
i -----
i file          | line % | branch % | funcs % | uncovered lines |
i -----
i Calc_test.js  | 100.00 |   100.00 |   100.00 |                  |
i Calc.js       | 100.00 |   100.00 |   100.00 |                  |
i -----
i all files     | 100.00 |   100.00 |   100.00 |                  |
i -----
i end of coverage report
```

## SUBTRACT

## 1. Add fail tests

```
node --test --experimental-test-coverage
└─
```

- ▶ 測試加法功能
  - ✓ 兩個正數相加 (0.5545ms)
  - ✓ 兩個負數相加 (0.119916ms)
  - ✓ 一個正數一個負數相加 (0.042042ms)
- ✓ 測試加法功能 (1.090458ms)
- ▶ 測試減法功能
  - ✗ 兩個正數相減 (0.08ms)
  - ✗ 兩個負數相減 (0.414125ms)
  - ✗ 一個正數一個負數相減 (0.03725ms)
  - ✗ 一個負數一個正數相減 (0.030958ms)
- ✗ 測試減法功能 (0.7275ms)

```
i tests 9
i suites 0
i pass 4
i fail 5
i cancelled 0
i skipped 0
i todo 0
i duration_ms 64.004458
i start of coverage report
i -----
i file          | line % | branch % | funcs % | uncovered lines
i -----
i Calc_test.js  | 100.00 |   100.00 |   100.00 |
i Calc.js       | 100.00 |   100.00 |   100.00 |
i -----
i all files     | 100.00 |   100.00 |   100.00 |
i -----
i end of coverage report

✗ failing tests:

test at Calc_test.js:18:13
✗ 兩個正數相減 (0.08ms)
  TypeError [Error]: Calc.subtract is not a function
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:19:33)
    at Test.runInAsyncScope (node:async_hooks:211:14)
    at Test.run (node:internal/test_runner/test:979:25)
    at Test.start (node:internal/test_runner/test:877:17)
    at TestContext.test (node:internal/test_runner/test:307:20)
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:18:13)
    at Test.runInAsyncScope (node:async_hooks:211:14)
```

```

    at Test.run (node:internal/test_runner/test:979:25)
    at Test.processPendingSubtests
(node:internal/test_runner/test:677:18)
    at Test.postRun (node:internal/test_runner/test:1090:19)

test at Calc_test.js:21:13
✖ 兩個負數相減 (0.414125ms)
  TypeError [Error]: Calc.subtract is not a function
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-
2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:22:33)
    at Test.runInAsyncScope (node:async_hooks:211:14)
    at Test.run (node:internal/test_runner/test:979:25)
    at Test.start (node:internal/test_runner/test:877:17)
    at TestContext.test (node:internal/test_runner/test:307:20)
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-
2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:21:13)
    at async Test.run (node:internal/test_runner/test:980:9)
    at async Test.processPendingSubtests
(node:internal/test_runner/test:677:7)

test at Calc_test.js:24:13
✖ 一個正數一個負數相減 (0.03725ms)
  TypeError [Error]: Calc.subtract is not a function
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-
2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:25:33)
    at Test.runInAsyncScope (node:async_hooks:211:14)
    at Test.run (node:internal/test_runner/test:979:25)
    at Test.start (node:internal/test_runner/test:877:17)
    at TestContext.test (node:internal/test_runner/test:307:20)
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-
2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:24:13)
    at async Test.run (node:internal/test_runner/test:980:9)
    at async Test.processPendingSubtests
(node:internal/test_runner/test:677:7)

test at Calc_test.js:27:13
✖ 一個負數一個正數相減 (0.030958ms)
  TypeError [Error]: Calc.subtract is not a function
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-
2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:28:33)
    at Test.runInAsyncScope (node:async_hooks:211:14)
    at Test.run (node:internal/test_runner/test:979:25)
    at Test.start (node:internal/test_runner/test:877:17)
    at TestContext.test (node:internal/test_runner/test:307:20)
    at TestContext.<anonymous> (/Users/ysyang/Documents/NYCU/113-
2/Software_Testing/113-spring-software-testing/HW2/Calc_test.js:27:13)
    at async Test.run (node:internal/test_runner/test:980:9)
    at async Test.processPendingSubtests
(node:internal/test_runner/test:677:7)

```

## 2. Modify the code to pass the test

```
node --test --experimental-test-coverage
└─
```

## ▶ 測試加法功能

- ✓ 兩個正數相加 (0.563333ms)
- ✓ 兩個負數相加 (0.128583ms)
- ✓ 一個正數一個負數相加 (0.044709ms)
- ✓ 測試加法功能 (1.143541ms)

## ▶ 測試減法功能

- ✓ 兩個正數相減 (0.052542ms)
- ✓ 兩個負數相減 (0.411959ms)
- ✓ 一個正數一個負數相減 (0.043625ms)
- ✓ 一個負數一個正數相減 (0.037708ms)
- ✓ 測試減法功能 (0.675083ms)

```
i tests 9
```

```
i suites 0
```

```
i pass 9
```

```
i fail 0
```

```
i cancelled 0
```

```
i skipped 0
```

```
i todo 0
```

```
i duration_ms 66.933
```

```
i start of coverage report
```

```
i -----
i file          | line % | branch % | funcs % | uncovered lines
i -----
i Calc_test.js  | 100.00 |   100.00 |   100.00 |
i Calc.js       | 100.00 |   100.00 |   100.00 |
i -----
i all files     | 100.00 |   100.00 |   100.00 |
i -----
i end of coverage report
```