OSU CS 362-400 W20
Davis Henckel (henckels)
Justin Phillips (phillij6)
Clifford Reiselt (reiseltc)

Final Project Part B

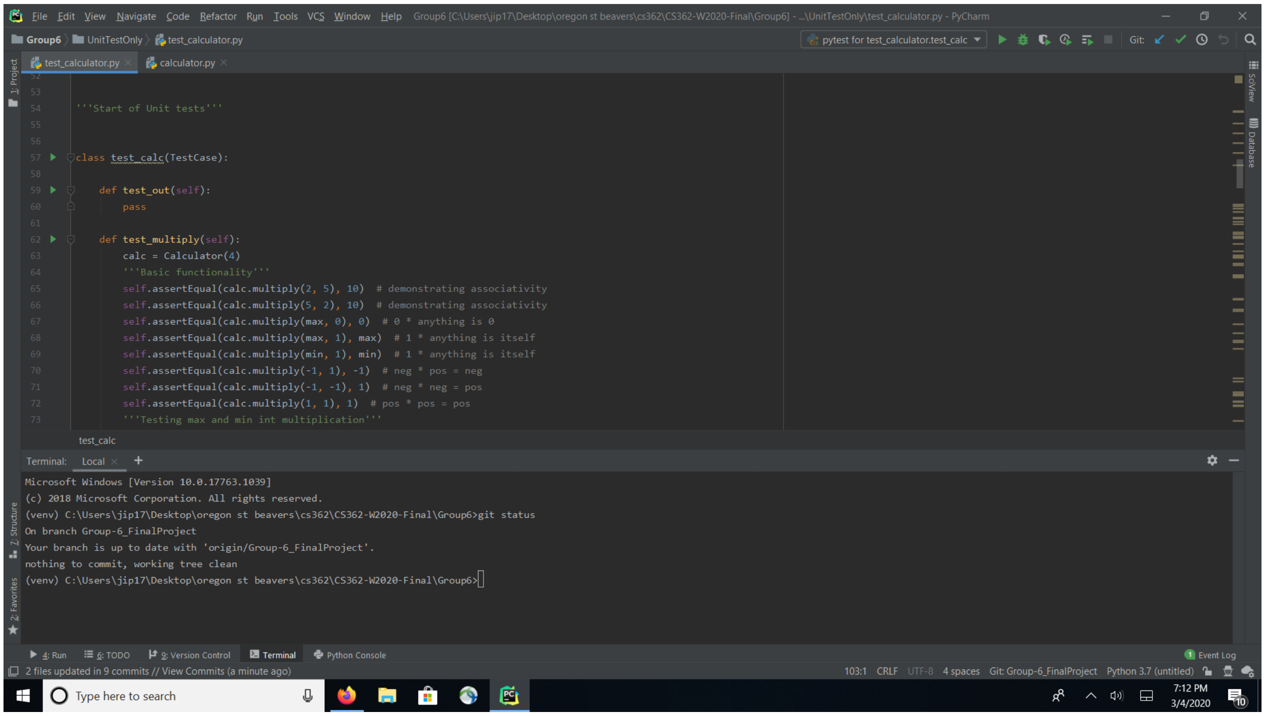
Analysis

Test Driven Development was helpful during this assignment because we were able to define the requirements clearly before having to write code. Having clear expectations of what our functions were supposed to do before writing them allowed us to write more clear and concise code. Without TDD, it's easy to lose sight of what your methods are designed to do. Going forward we will use TDD to avoid writing code that is ambiguous and contains bugs.

Version Control

Justin Phillips (phillij6)

Unit Tests

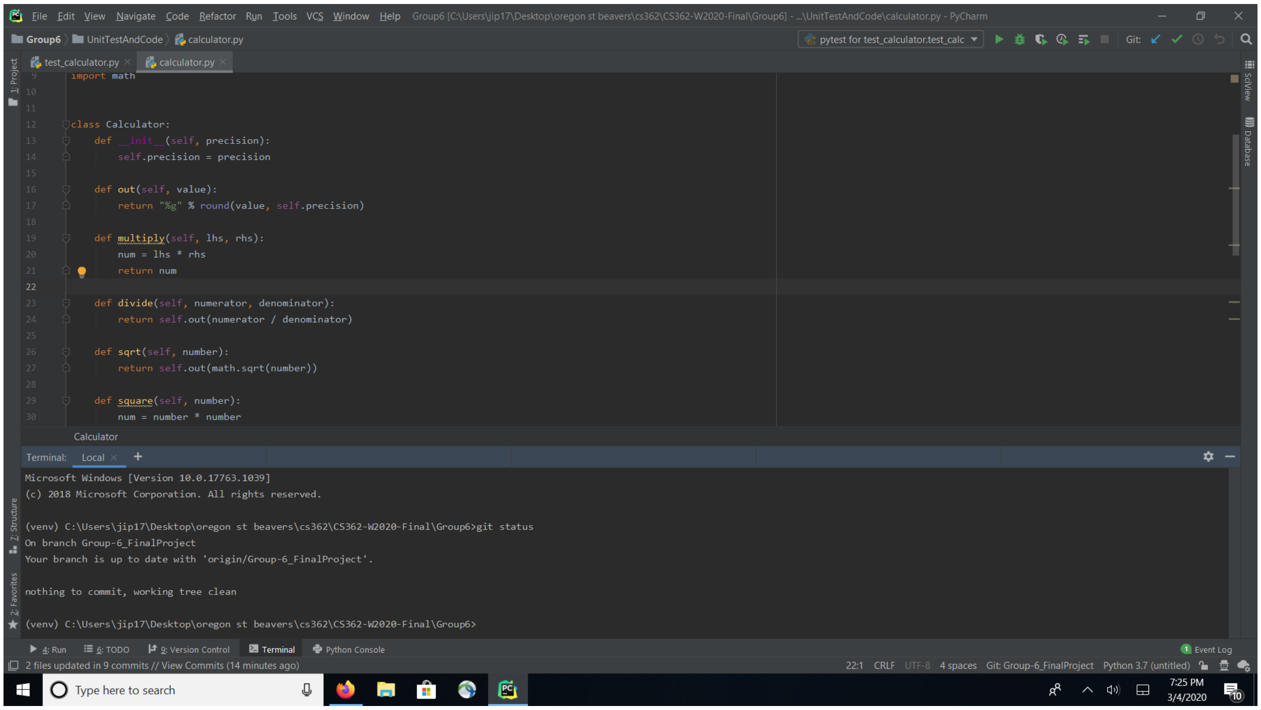

File Edit View Navigate Code Refactor Run Tools VCS Window Help Group6 [C:\Users\jip17\Desktop\oregon st beavers\cs362\CS362-W2020-Final\Group6] - ...\UnitTestOnly\test_calculator.py - PyCharm
Group6 UnitTestOnly test_calculator.py
pytest for test_calculator.test_calc
Git:
test_calculator.py
calculator.py
1: Project
SciView
Database
test_calc
Terminal: Local
7: Structure
2: Favorites
4: Run
6: TODO
9: Version Control
Terminal
Python Console
Event Log
103:1 CRLF UTF-8 4 spaces Git: Group-6_FinalProject Python 3.7 (untitled)
Type here to search
7:12 PM
3/4/2020

```
'''Start of Unit tests'''


class test_calc(TestCase):

    def test_out(self):
        pass

    def test_multiply(self):
        calc = Calculator(4)
        '''Basic functionality'''
        self.assertEqual(calc.multiply(2, 5), 10)  # demonstrating associativity
        self.assertEqual(calc.multiply(5, 2), 10)  # demonstrating associativity
        self.assertEqual(calc.multiply(max, 0), 0)  # 0 * anything is 0
        self.assertEqual(calc.multiply(max, 1), max)  # 1 * anything is itself
        self.assertEqual(calc.multiply(min, 1), min)  # 1 * anything is itself
        self.assertEqual(calc.multiply(-1, 1), -1)  # neg * pos = neg
        self.assertEqual(calc.multiply(-1, -1), 1)  # neg * neg = pos
        self.assertEqual(calc.multiply(1, 1), 1)  # pos * pos = pos
        '''Testing max and min int multiplication'''
```

```
Microsoft Windows [Version 10.0.17763.1039]
(c) 2018 Microsoft Corporation. All rights reserved.
(venv) C:\Users\jip17\Desktop\oregon st beavers\cs362\CS362-W2020-Final\Group6>git status
On branch Group-6_FinalProject
Your branch is up to date with 'origin/Group-6_FinalProject'.
nothing to commit, working tree clean
(venv) C:\Users\jip17\Desktop\oregon st beavers\cs362\CS362-W2020-Final\Group6>
```

2 files updated in 9 commits // View Commits (a minute ago)

Calculator Application


File Edit View Navigate Code Refactor Run Tools VCS Window Help
Group6 [C:\Users\jip17\Desktop\oregon st beavers\cs362\CS362-W2020-Final\Group6] - ...\UnitTestAndCode\calculator.py - PyCharm
Group6
UnitTestAndCode
calculator.py
pytest for test_calculator.test_calc
Git:
test_calculator.py
calculator.py
1: Project
7: Structure
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SciView
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Local
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Terminal
Python Console
Event Log
22:1 CRLF UTF-8 4 spaces Git: Group-6_FinalProject Python 3.7 (untitled)
Type here to search
7:25 PM
3/4/2020

```
import math


class Calculator:
    def __init__(self, precision):
        self.precision = precision

    def out(self, value):
        return "%g" % round(value, self.precision)

    def multiply(self, lhs, rhs):
        num = lhs * rhs
        return num

    def divide(self, numerator, denominator):
        return self.out(numerator / denominator)

    def sqrt(self, number):
        return self.out(math.sqrt(number))

    def square(self, number):
        num = number * number
```

Calculator

```
Microsoft Windows [Version 10.0.17763.1039]
(c) 2018 Microsoft Corporation. All rights reserved.

(venv) C:\Users\jip17\Desktop\oregon st beavers\cs362\CS362-W2020-Final\Group6>git status
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Your branch is up to date with 'origin/Group-6_FinalProject'.

nothing to commit, working tree clean

(venv) C:\Users\jip17\Desktop\oregon st beavers\cs362\CS362-W2020-Final\Group6>
```
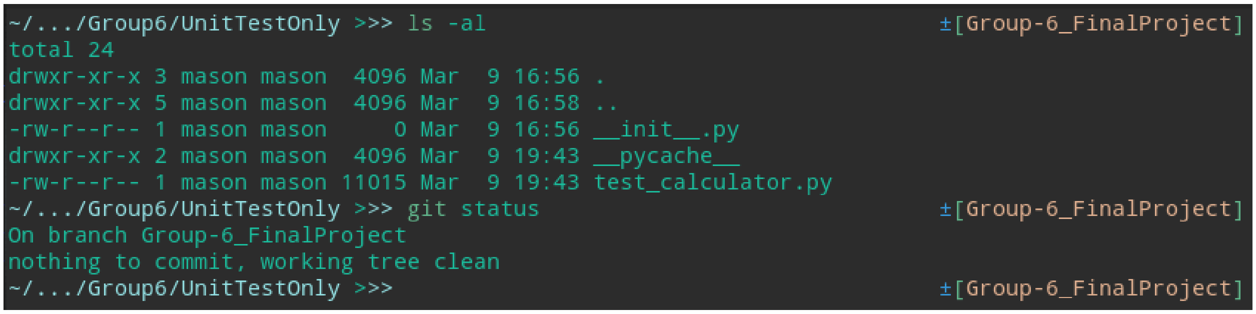

2 files updated in 9 commits // View Commits (14 minutes ago)

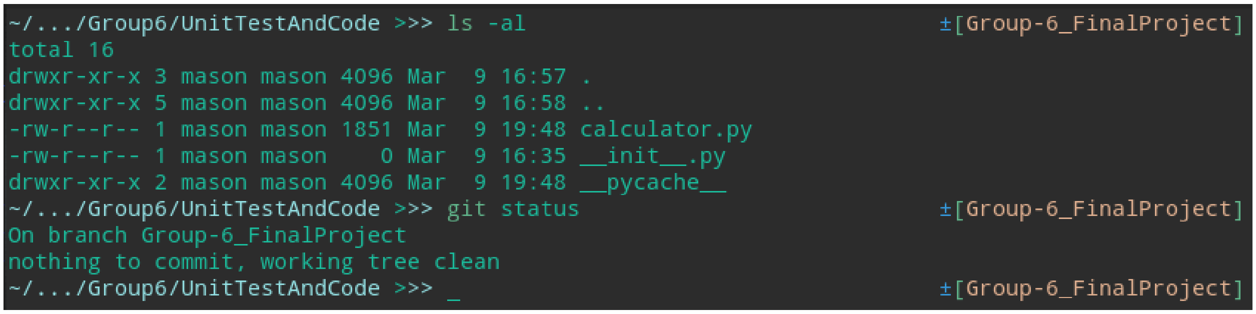
Clifford Reiselt (reiseltc)

Unit Test



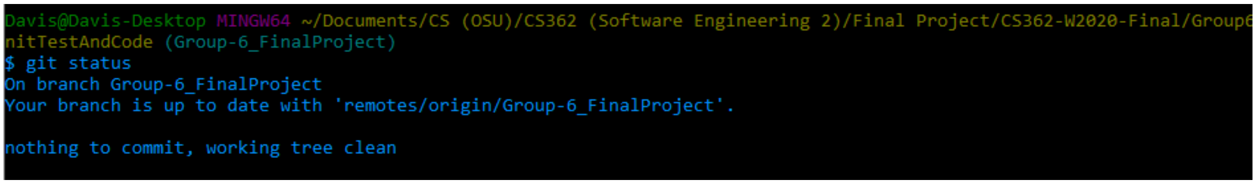
```
~/.../Group6/UnitTestOnly >>> ls -al                                  ±[Group-6_FinalProject]
total 24
drwxr-xr-x 3 mason mason  4096 Mar  9 16:56 .
drwxr-xr-x 5 mason mason  4096 Mar  9 16:58 ..
-rw-r--r-- 1 mason mason     0 Mar  9 16:56 __init__.py
drwxr-xr-x 2 mason mason  4096 Mar  9 19:43 __pycache__
-rw-r--r-- 1 mason mason 11015 Mar  9 19:43 test_calculator.py
~/.../Group6/UnitTestOnly >>> git status                              ±[Group-6_FinalProject]
On branch Group-6_FinalProject
nothing to commit, working tree clean
~/.../Group6/UnitTestOnly >>>                                         ±[Group-6_FinalProject]
```

Calculator Application

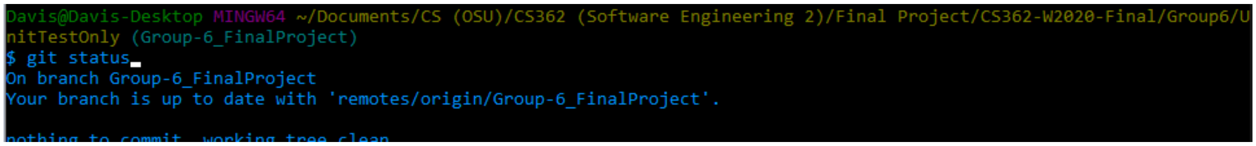


```
~/.../Group6/UnitTestAndCode >>> ls -al                               ±[Group-6_FinalProject]
total 16
drwxr-xr-x 3 mason mason 4096 Mar  9 16:57 .
drwxr-xr-x 5 mason mason 4096 Mar  9 16:58 ..
-rw-r--r-- 1 mason mason 1851 Mar  9 19:48 calculator.py
-rw-r--r-- 1 mason mason    0 Mar  9 16:35 __init__.py
drwxr-xr-x 2 mason mason 4096 Mar  9 19:48 __pycache__
~/.../Group6/UnitTestAndCode >>> git status                           ±[Group-6_FinalProject]
On branch Group-6_FinalProject
nothing to commit, working tree clean
~/.../Group6/UnitTestAndCode >>> _                                    ±[Group-6_FinalProject]
```

Davis Henckel (henckeld)



```
Davis@Davis-Desktop MINGW64 ~/Documents/CS (OSU)/CS362 (Software Engineering 2)/Final Project/CS362-W2020-Final/Group6
nitTestAndCode (Group-6_FinalProject)
$ git status
On branch Group-6_FinalProject
Your branch is up to date with 'remotes/origin/Group-6_FinalProject'.

nothing to commit, working tree clean
```



```
Davis@Davis-Desktop MINGW64 ~/Documents/CS (OSU)/CS362 (Software Engineering 2)/Final Project/CS362-W2020-Final/Group6/U
nitTestOnly (Group-6_FinalProject)
$ git status
On branch Group-6_FinalProject
Your branch is up to date with 'remotes/origin/Group-6_FinalProject'.

nothing to commit, working tree clean
```

TeamWork

Feature	Unit Tests	Feature Code
1) Multiplication	Davis Henckel	-Multiplication Documentation -Multiplication Method -Multiplication Tests
2) Division	Justin Phillips	-Division Documentation -Division Method -Division Tests
3) Square Root	Clifford Reiselt	- Square Root Documentation - Square Root Method - Square Root Tests
4) x^2	Davis Henckel	-Squared Documentation -Squared Method -Squared Tests
5) 1/x	Justin Phillips	-Reciprocal Documentation -Reciprocal Method -Reciprocal Tests
6) n!	Clifford Reiselt	- Factorial Documentation - Factorial Method - Factorial Tests
7) |x|	Justin Phillips	-Absolute Value Documentation -Absolute Value Method -Absolute Value Tests
8) sine	Davis Henckel	-Sine Documentation

		-Sine Method -Sine Tests
9) cosine	Clifford Reiselt	- Cosine Documentation - Cosine Method - Cosine Tests