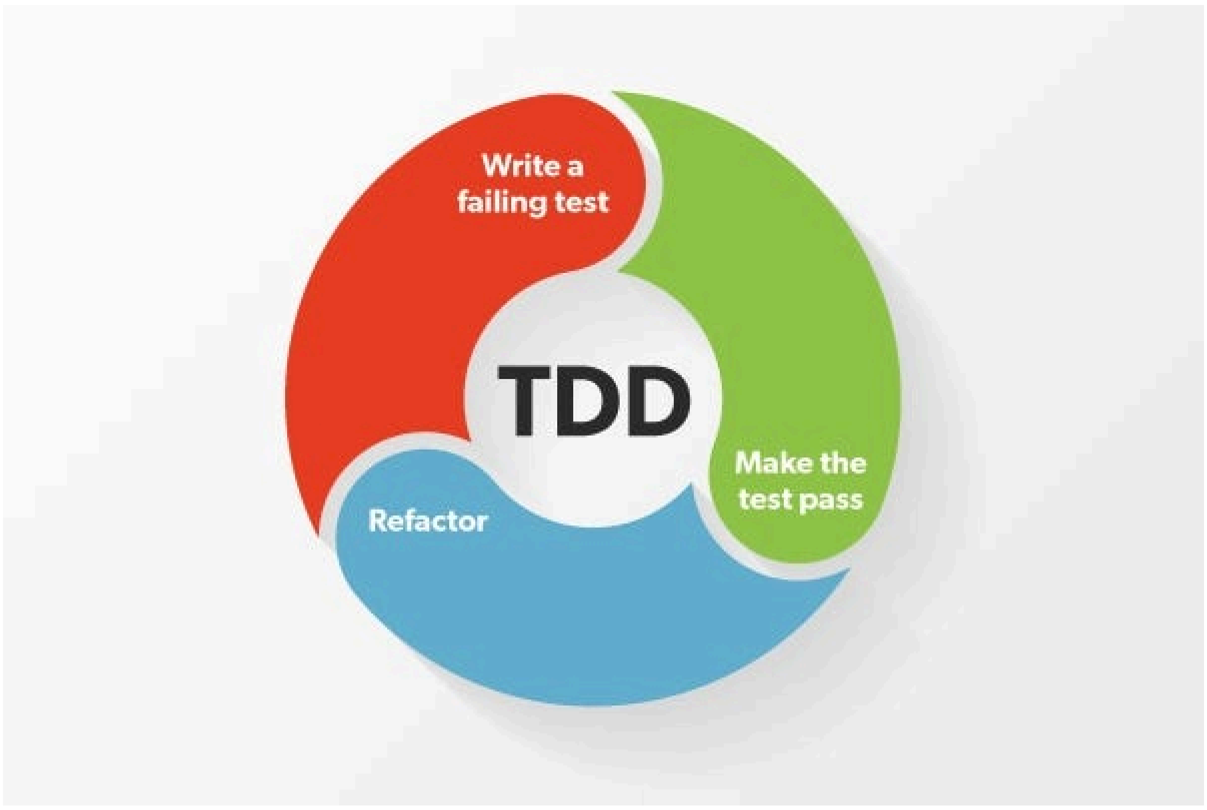
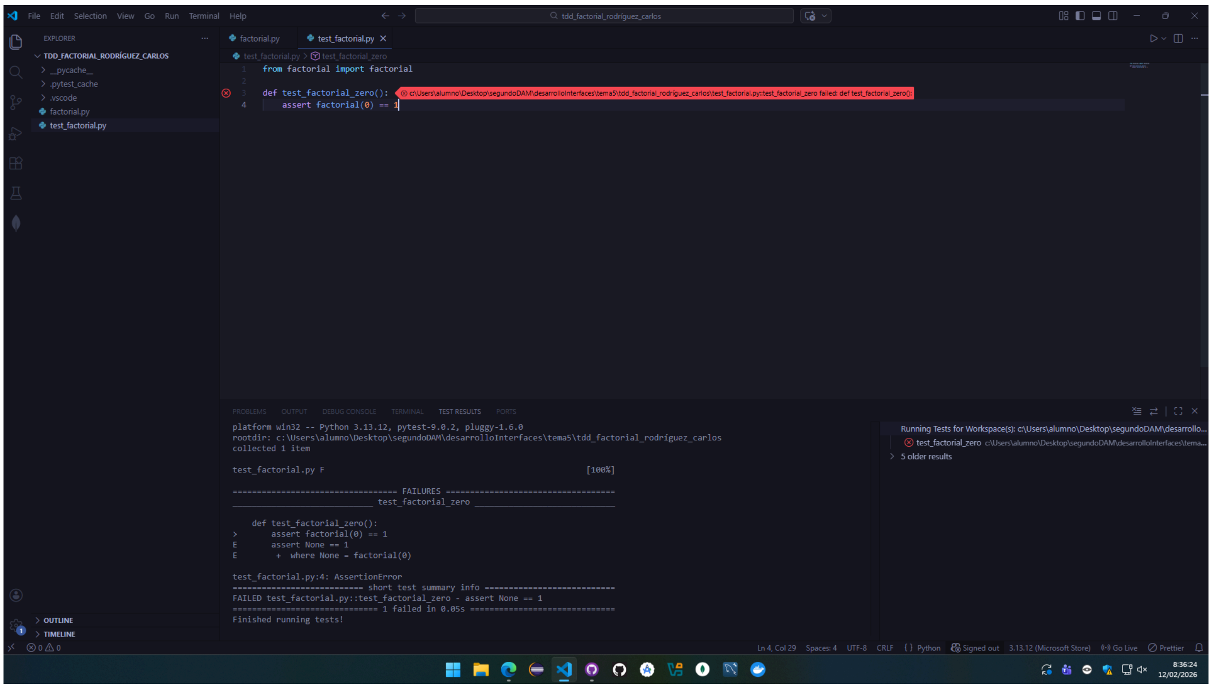
TAREA 5.3 - Desarrollo de una función factorial usando TDD



Desarrollo obligatorio con TDD

1️⃣Fase RED – Test que falla

- **Escribe primero un test con pytest (por ejemplo, para factorial(0)).**
- **Ejecuta pytest.**
- **El test debe fallar.**



```python
from factorial import factorial

def test_factorial_zero():
    assert factorial(0) == 1
```

c:\Users\alumno\Desktop\segundoDAM\desarrolloInterfaces\tema5\tdd_factorial_rodríguez_carlos\test_factorial.py::test_factorial_zero failed: def test_factorial_zero():

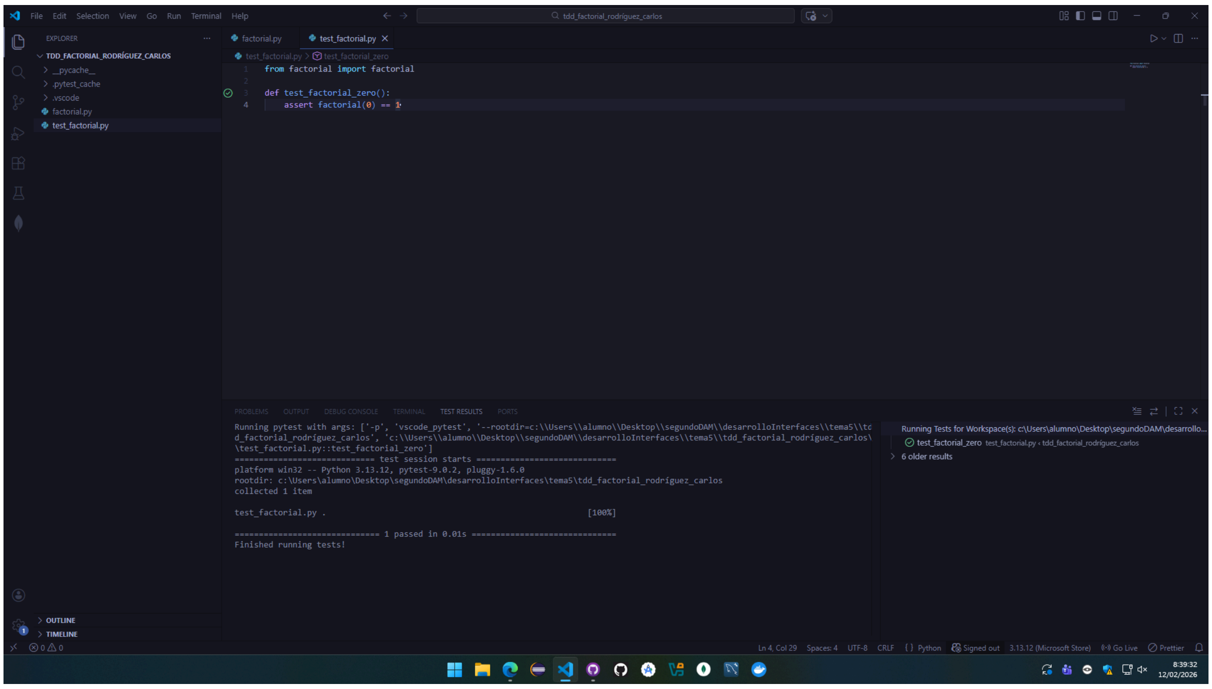
```
platform win32 -- Python 3.13.12, pytest-9.0.2, pluggy-1.6.0
rootdir: c:\Users\alumno\Desktop\segundoDAM\desarrolloInterfaces\tema5\tdd_factorial_rodríguez_carlos
collected 1 item

test_factorial.py F                                                      [100%]

================================== FAILURES ===================================
_____________________________ test_factorial_zero _____________________________

    def test_factorial_zero():
>       assert factorial(0) == 1
E       assert None == 1
E        +  where None = factorial(0)

test_factorial.py:4: AssertionError
=========================== short test summary info ===========================
FAILED test_factorial.py::test_factorial_zero - assert None == 1
============================== 1 failed in 0.05s ==============================
Finished running tests!
```

Running Tests for Workspace(s): c:\Users\alumno\Desktop\segundoDAM\desarrollo...
test_factorial_zero c:\Users\alumno\Desktop\segundoDAM\desarrolloInterfaces\tema...
5 older results

- Primer test fallido porque no tiene función en factorial.py

2 Fase GREEN – Mínimo código para que pase el test

- **Implementa el mínimo código posible para que el test pase.**
- **Ejecuta pytest de nuevo.**



```python
from factorial import factorial

def test_factorial_zero():
    assert factorial(0) == 1
```

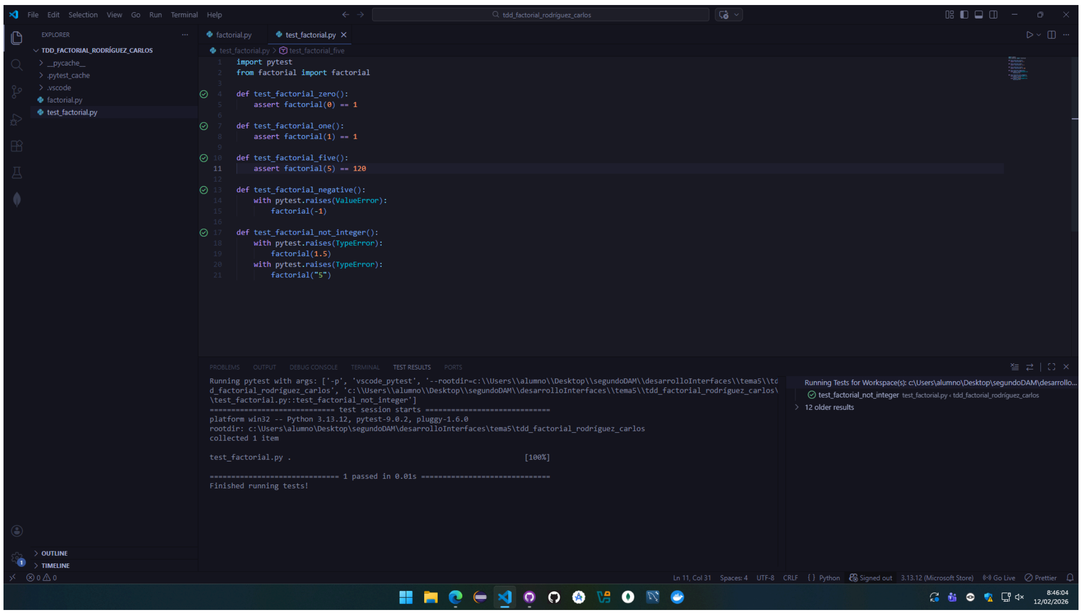
```
Running pytest with args: ['-p', 'vscode_pytest', '--rootdir=c:\\Users\\alumno\\Desktop\\segundoDAM\\desarrolloInterfaces\\tema5\\td
d_factorial_rodríguez_carlos', 'c:\\Users\\alumno\\Desktop\\segundoDAM\\desarrolloInterfaces\\tema5\\tdd_factorial_rodríguez_carlos\
\test_factorial.py::test_factorial_zero']
============================= test session starts ==============================
platform win32 -- Python 3.13.12, pytest-9.0.2, pluggy-1.6.0
rootdir: c:\Users\alumno\Desktop\segundoDAM\desarrolloInterfaces\tema5\tdd_factorial_rodríguez_carlos
collected 1 item

test_factorial.py .                                                      [100%]

============================== 1 passed in 0.01s ===============================
Finished running tests!
```

```
Running Tests for Workspace(s): c:\Users\alumno\Desktop\segundoDAM\desarrollo...
  ✓ test_factorial_zero test_factorial.py ‹ tdd_factorial_rodríguez_carlos
> 6 older results
```

- Test modificado para que pase, en factorial.py ya hay función.

3 Fase REFACTOR – Mejora del código

- **Añade nuevos tests de forma incremental:**
- **factorial(1)**
- **factorial(5)**
- **Casos de error (negativo y no entero)**
- **Refactoriza la función para que quede clara y general.**
- **Los tests deben seguir pasando tras cada cambio.**



```python
import pytest
from factorial import factorial

def test_factorial_zero():
    assert factorial(0) == 1

def test_factorial_one():
    assert factorial(1) == 1

def test_factorial_five():
    assert factorial(5) == 120

def test_factorial_negative():
    with pytest.raises(ValueError):
        factorial(-1)

def test_factorial_not_integer():
    with pytest.raises(TypeError):
        factorial(1.5)
    with pytest.raises(TypeError):
        factorial("5")
```

```
Running pytest with args: ['-p', 'vscode_pytest', '--rootdir=c:\\Users\\alumno\\Desktop\\segundoDAM\\desarrolloInterfaces\\tema5\\td
d_factorial_rodríguez_carlos', 'c:\\Users\\alumno\\Desktop\\segundoDAM\\desarrolloInterfaces\\tema5\\tdd_factorial_rodríguez_carlos\
\test_factorial.py::test_factorial_not_integer']
============================= test session starts ==============================
platform win32 -- Python 3.13.12, pytest-9.0.2, pluggy-1.6.0
rootdir: c:\Users\alumno\Desktop\segundoDAM\desarrolloInterfaces\tema5\tdd_factorial_rodríguez_carlos
collected 1 item

test_factorial.py .                                                      [100%]

============================== 1 passed in 0.01s ===============================
Finished running tests!
```

```
Running Tests for Workspace(s): c:\Users\alumno\Desktop\segundoDAM\desarrollo...
  ✓ test_factorial_not_integer test_factorial.py ‹ tdd_factorial_rodríguez_carlos
> 12 older results
```

- Todos los test pasan gracias a los cambios en factorial.py

Webgrafía

https://experts-deny-b9a.craft.me/GYhq8YX7HUNPsL
https://experts-deny-b9a.craft.me/GYhq8YX7HUNPsL