

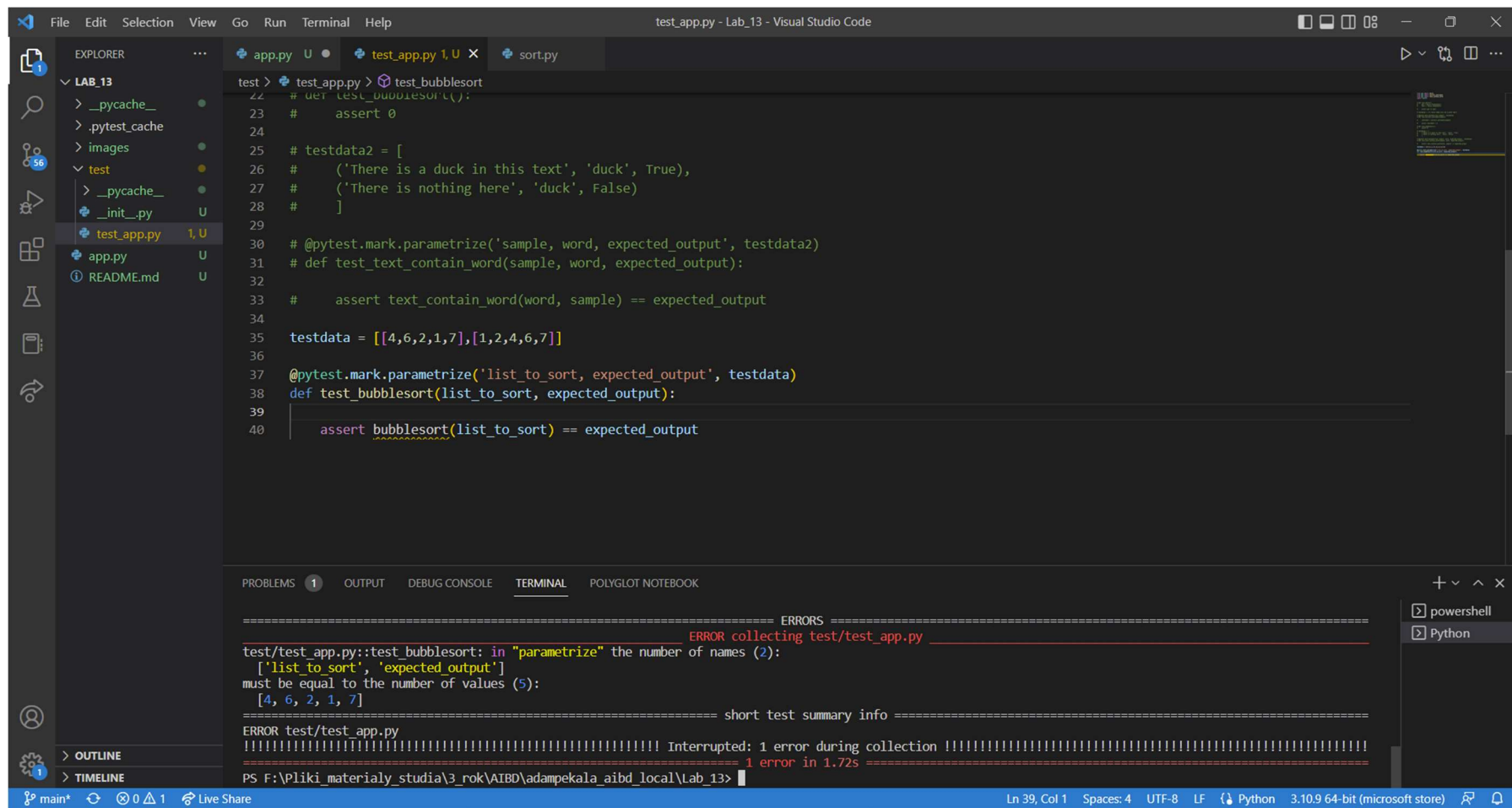
Lab 13 Analiza i bazy danych

Test Driven Development(TDD)

Adam Pękala

1. Faza red.

W fazie red utworzyłem test sprawdzający czy algorytm poprawnie sortuje listę, który nie miał prawa przejść, ponieważ nie napisana została funkcja właściwa bubblesort.



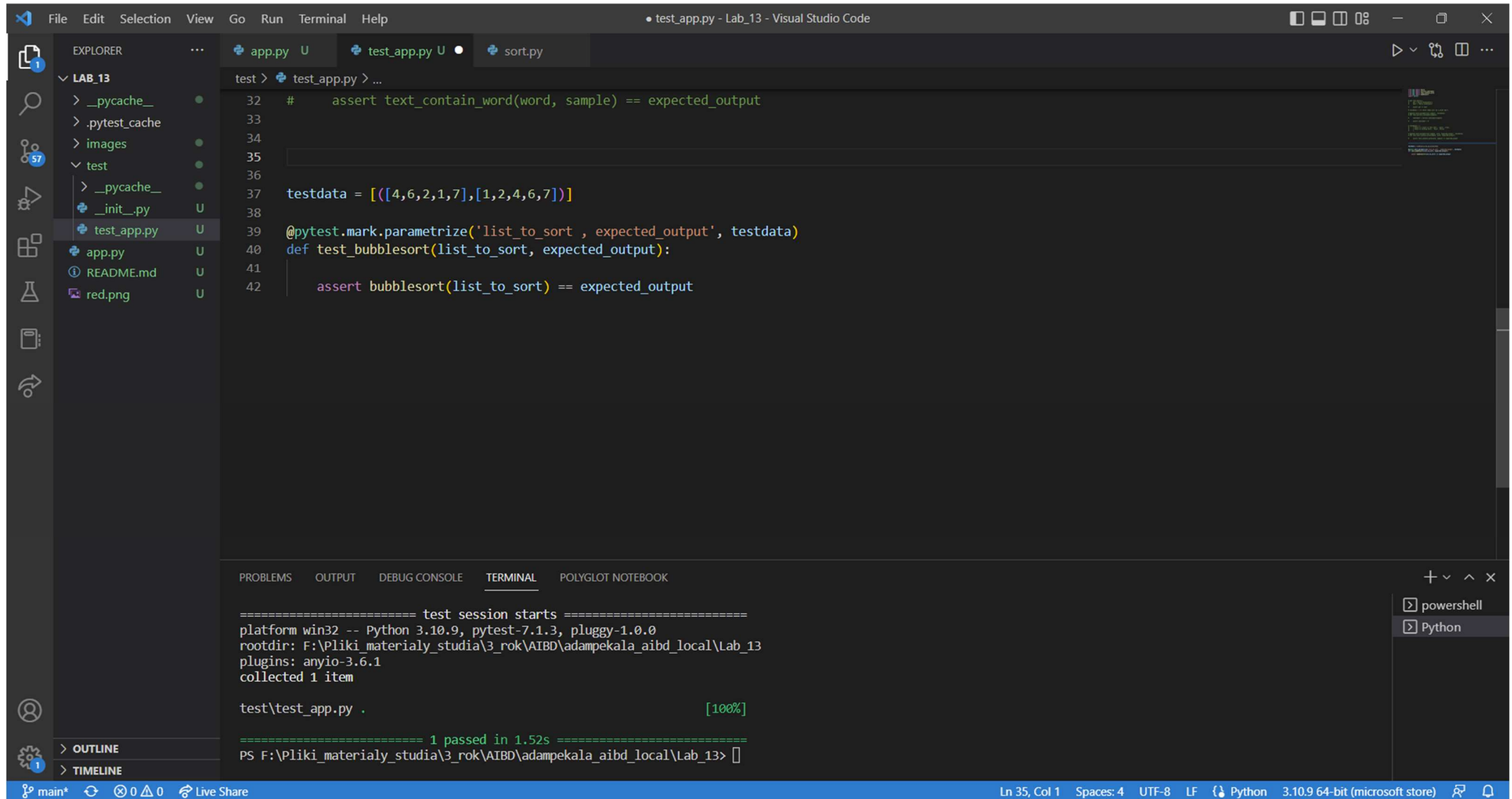
The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'LAB_13' with files like 'app.py', 'test_app.py', and 'sort.py'. The code editor displays the content of 'test_app.py', which includes a test function 'test_bubblesort' that uses 'pytest.mark.parametrize' to test the 'bubblesort' function. The terminal shows the output of running the tests, which includes an error message: 'ERROR collecting test/test_app.py' and 'Interrupted: 1 error during collection'. The error message indicates that the 'parametrize' function was used incorrectly, with the number of names (2) not matching the number of values (5).

```
test > test_app.py > test_bubblesort
22 # def test_bubblesort():
23 #     assert 0
24
25 # testdata2 = [
26 #     ('There is a duck in this text', 'duck', True),
27 #     ('There is nothing here', 'duck', False)
28 # ]
29
30 # @pytest.mark.parametrize('sample, word, expected_output', testdata2)
31 # def test_text_contain_word(sample, word, expected_output):
32
33 #     assert text_contain_word(word, sample) == expected_output
34
35 testdata = [[4,6,2,1,7],[1,2,4,6,7]]
36
37 @pytest.mark.parametrize('list_to_sort, expected_output', testdata)
38 def test_bubblesort(list_to_sort, expected_output):
39
40     assert bubblesort(list_to_sort) == expected_output
```

```
===== ERRORS =====
test/test_app.py::test_bubblesort: in "parametrize" the number of names (2):
['list_to_sort', 'expected_output']
must be equal to the number of values (5):
[4, 6, 2, 1, 7]
===== short test summary info =====
ERROR test/test_app.py
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Interrupted: 1 error during collection !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
===== 1 error in 1.72s =====
PS F:\pliki_materialy_studia\3_rok\AIBD\adampekala_aibd_local\Lab_13>
```

2. Faza green

W tej fazie napisałem funkcję właściwą bubblesort, sprawdzając jej działanie poprzez test, funkcja zadziałała poprawnie.



The screenshot shows the Visual Studio Code interface with a file explorer on the left, a code editor in the center, and a terminal at the bottom. The file explorer shows a project named 'LAB_13' with files like 'test_app.py', 'app.py', 'README.md', and 'red.png'. The code editor displays the content of 'test_app.py', which includes a test function 'test_bubblesort' that uses 'pytest.mark.parametrize' to test the 'bubblesort' function with two test cases. The terminal shows the output of running 'pytest', indicating that the test session started successfully, collected 1 item, and passed 1 test in 1.52s.

```
test > test_app.py > ...
32 #     assert text_contain_word(word, sample) == expected_output
33
34
35
36
37 testdata = [[4,6,2,1,7],[1,2,4,6,7]]
38
39 @pytest.mark.parametrize('list_to_sort , expected_output', testdata)
40 def test_bubblesort(list_to_sort, expected_output):
41
42     assert bubblesort(list_to_sort) == expected_output
```

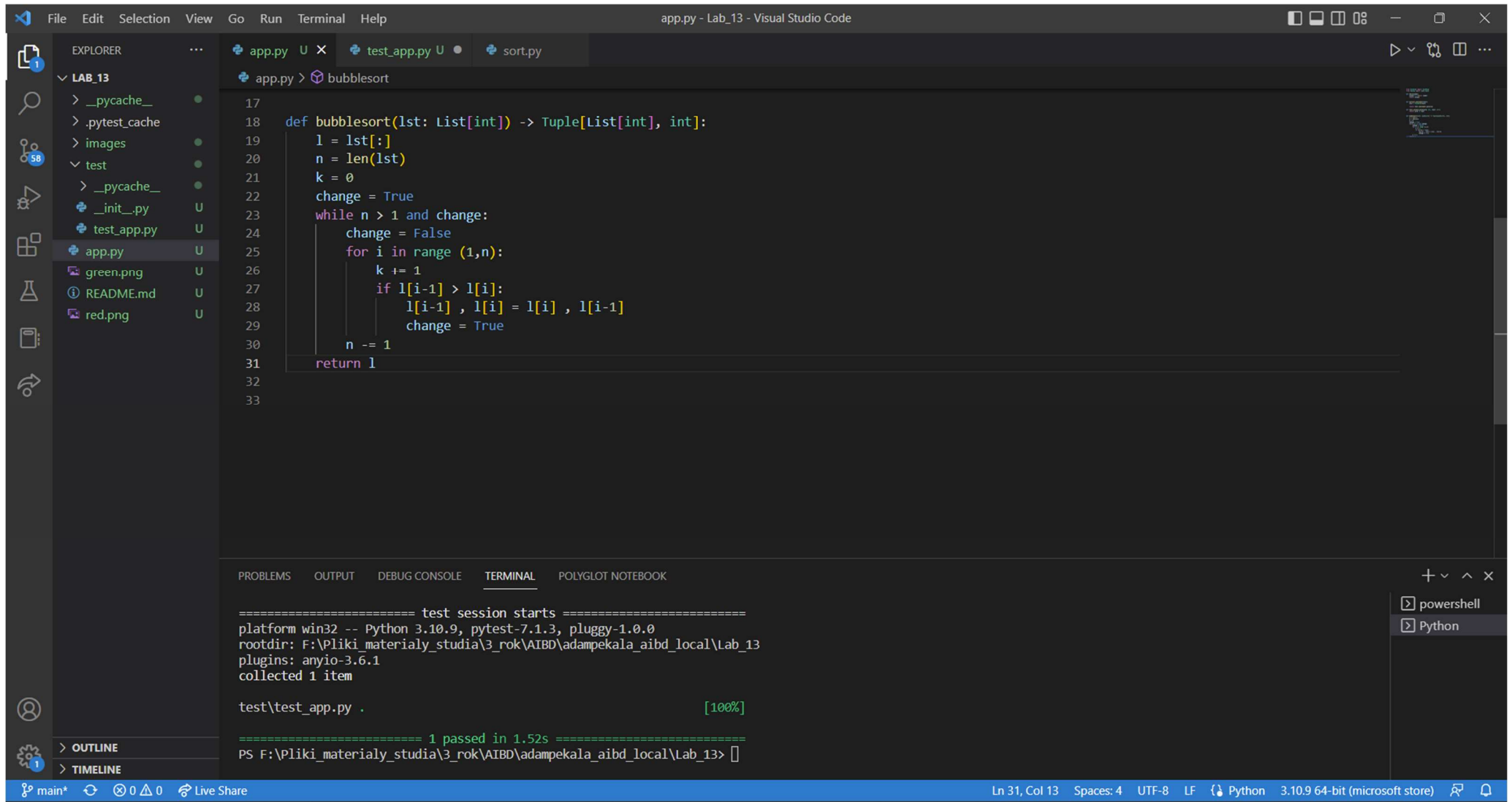
```
===== test session starts =====
platform win32 -- Python 3.10.9, pytest-7.1.3, pluggy-1.0.0
rootdir: F:\Pliki_materialy_studia\3_rok\AI BD\adampekala_aibd_local\Lab_13
plugins: anyio-3.6.1
collected 1 item

test\test_app.py .                                [100%]

===== 1 passed in 1.52s =====
PS F:\Pliki_materialy_studia\3_rok\AI BD\adampekala_aibd_local\Lab_13>
```

3. Faza refactor.

W tej fazie dopisałem podpewiedzi typów do funkcji bubblesort.



```
File Edit Selection View Go Run Terminal Help
app.py - Lab_13 - Visual Studio Code

EXPLORER
LAB_13
  > __pycache__
  > .pytest_cache
  > images
  > test
    > __pycache__
    > __init__.py
    > test_app.py
    > app.py
    > green.png
    > README.md
    > red.png

app.py > bubblesort
17
18 def bubblesort(lst: List[int]) -> Tuple[List[int], int]:
19     l = lst[:]
20     n = len(lst)
21     k = 0
22     change = True
23     while n > 1 and change:
24         change = False
25         for i in range(1, n):
26             k += 1
27             if l[i-1] > l[i]:
28                 l[i-1], l[i] = l[i], l[i-1]
29                 change = True
30         n -= 1
31     return l
32
33

TERMINAL
===== test session starts =====
platform win32 -- Python 3.10.9, pytest-7.1.3, pluggy-1.0.0
rootdir: F:\Pliki_materialy_studia\3_rok\AIBD\adampekala_aibd_local\Lab_13
plugins: anyio-3.6.1
collected 1 item

test\test_app.py . [100%]

===== 1 passed in 1.52s =====
PS F:\Pliki_materialy_studia\3_rok\AIBD\adampekala_aibd_local\Lab_13>
```