

1. Faza Red

The image shows a Visual Studio Code editor window titled "zadanie_test.py - L13_Martyna_Wolny - Visual Studio Code". The Explorer sidebar on the left shows a project structure with folders like "L13_MARTYNA_WOLNY", "pycache", and "test". The main editor displays the content of "zadanie_test.py", which contains several test functions for a bubble sort algorithm. The test functions are:

- `test_bubbleSort_1()`: Tests with `testdata1 = [-2, 45, 0, 11, -9]` and expects `[-9, -2, 0, 11, 45]`.
- `test_bubbleSort_best_case()`: Tests with `testdata2 = [-10, 0, 1, 7, 9, 12, 20]` and expects `[-10, 0, 1, 7, 9, 12, 20]`.
- `test_bubbleSort_worst_case()`: Tests with `testdata3 = [40, 30, 20, 10, 5, 2, 1, 0]` and expects `[0, 1, 2, 5, 10, 20, 30, 40]`.

The Terminal panel at the bottom shows the output of running these tests. It indicates that all three tests failed with `AssertionError`. The failure messages are:

- `test_bubbleSort_1 - assert [45, 11, 0, -2, -9] == [-9, -2, 0, 11, 45]`
- `test_bubbleSort_best_case - assert [20, 12, 9, 7, 1, 0, ...] == [-10, 0, 1, 7, 9, 12, ...]`
- `test_bubbleSort_worst_case - assert [40, 30, 20, 10, 5, 2, ...] == [0, 1, 2, 5, 10, 20, ...]`

The summary of the test run is:

```
short test summary info
FAILED test/zadanie_test.py::test_bubbleSort_1 - assert [45, 11, 0, -2, -9] == [-9, -2, 0, 11, 45]
FAILED test/zadanie_test.py::test_bubbleSort_best_case - assert [20, 12, 9, 7, 1, 0, ...] == [-10, 0, 1, 7, 9, 12, ...]
FAILED test/zadanie_test.py::test_bubbleSort_worst_case - assert [40, 30, 20, 10, 5, 2, ...] == [0, 1, 2, 5, 10, 20, ...]
3 failed in 0.08s
```

The bottom status bar shows the file is at line 25, column 1, with 4 spaces, UTF-8 encoding, and LF line endings. The Python version is 3.9.7 (MethumFW: conda).

2. Faza Green

The image displays two screenshots of a Visual Studio Code editor window, showing a Python file named `zadanie_test.py` and its test results.

Top Screenshot:

- File Explorer:** Shows the project structure with files like `__pycache__`, `joinb_checkpoints`, `pytest_cache`, `img`, `test`, `__pycache__`, `zadanie_test.py`, and `zadanie.py`.
- Code Editor:** Displays the `zadanie_test.py` file. The code defines a `bubbleSort` function and tests it with various data sets. The tests are: `test_bubbleSort_1()`, `test_bubbleSort_best_case()`, and `test_bubbleSort_worst_case()`. Each test uses `assert` to verify the output of the `bubbleSort` function against a known result.
- Terminal:** Shows the output of running `python3 -m pytest`. The output indicates that the tests passed successfully, with a message: `test session starts`, `platform linux -- Python 3.8.8, pytest-7.2.0, pluggy-0.13.1`, `rootdir: /home/student/AIBD_Wolny/L13_Martyna_Wolny`, `plugins: anyio-2.2.0`, `collected 3 items`, `test/zadanie_test.py ...`, and `3 passed in 0.01s`.

Bottom Screenshot:

- File Explorer:** Shows the project structure, including `zadanie.py` and `zadanie_test.py`.
- Code Editor:** Displays the `zadanie.py` file. The code defines the `bubbleSort` function, which takes an array and returns a sorted array. The function uses a nested loop to compare adjacent elements and swap them if they are in the wrong order.
- Terminal:** Shows the output of running `python3 -m pytest`. The output indicates that the tests passed successfully, with a message: `test session starts`, `platform linux -- Python 3.8.8, pytest-7.2.0, pluggy-0.13.1`, `rootdir: /home/student/AIBD_Wolny/L13_Martyna_Wolny`, `plugins: anyio-2.2.0`, `collected 3 items`, `test/zadanie_test.py ...`, and `3 passed in 0.01s`.

3. Faza Refactor

zadanie_test.py - L13_Martyna_Wolny - Visual Studio Code

File Edit Selection View Go Run Terminal Help

EXPLORER

- L13_MARTYNA_WOLNY
 - > __pycache__
 - > .ipynb_checkpoints
 - > .pytest_cache
 - > img
 - > test
 - > __pycache__
 - zadanie_test.py
 - zadanie.py

test > zadanie_test.py > ...

```
1 import pytest
2 from zadanie import bubbleSort
3
4 testdata1 = [-2, 45, 0, 11, -9]
5
6 def test_bubbleSort_1():
7     got = bubbleSort(testdata1)
8     want = [-9, -2, 0, 11, 45]
9
10    assert got == want
11
12
13 testdata2 = [-10, 0, 1, 7, 9, 12, 20]
14
15 def test_bubbleSort_best_case():
16     got = bubbleSort(testdata2)
17     want = [-10, 0, 1, 7, 9, 12, 20]
18
19    assert got == want
20
21
22 testdata3 = [40, 30, 20, 10, 5, 2, 1, 0]
23
24 def test_bubbleSort_worst_case():
25     got = bubbleSort(testdata3)
26     want = [0, 1, 2, 5, 10, 20, 30, 40]
27
28    assert got == want
29
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

(base) student@PCL187:~/AIBD_Wolny/L13_Martyna_Wolny\$ python3 -m pytest

```
===== test session starts =====
platform linux -- Python 3.8.8, pytest-7.2.0, pluggy-0.13.1
rootdir: /home/student/AIBD_Wolny/L13_Martyna_Wolny
plugins: anyio-2.2.0
collected 3 items

test/zadanie_test.py ...

===== 3 passed in 0.01s =====
(base) student@PCL187:~/AIBD_Wolny/L13_Martyna_Wolny$
```

Ln 4, Col 32 Spaces: 4 UTF-8 LF MagicPython 3.9.7 (MetNumPW: conda) Go Live L13E: ready

zadanie.py - L13_Martyna_Wolny - Visual Studio Code

File Edit Selection View Go Run Terminal Help

EXPLORER

- L13_MARTYNA_WOLNY
 - > __pycache__
 - > .ipynb_checkpoints
 - > .pytest_cache
 - > img
 - > test
 - > __pycache__
 - zadanie_test.py
 - zadanie.py

zadanie.py > ...

```
1 def bubbleSort(array):
2
3     for i in range(len(array)):
4
5         swapped = False
6
7         for j in range(0, len(array) - i - 1):
8
9             if array[j] > array[j + 1]:
10
11                 temp = array[j]
12                 array[j] = array[j+1]
13                 array[j+1] = temp
14
15                 swapped = True
16
17         if not swapped:
18             break
19
20    return array
21
22
23
24
25
26
27
28
29
30
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

(base) student@PCL187:~/AIBD_Wolny/L13_Martyna_Wolny\$ python3 -m pytest

```
===== test session starts =====
platform linux -- Python 3.8.8, pytest-7.2.0, pluggy-0.13.1
rootdir: /home/student/AIBD_Wolny/L13_Martyna_Wolny
plugins: anyio-2.2.0
collected 3 items

test/zadanie_test.py ...

===== 3 passed in 0.01s =====
(base) student@PCL187:~/AIBD_Wolny/L13_Martyna_Wolny$
```

Ln 26, Col 1 Spaces: 4 UTF-8 LF MagicPython 3.9.7 (MetNumPW: conda) Go Live L13E: ready