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Факультет «Информатика и управление»

Кафедра ИУ5. Курс «Парадигмы и конструкции языков
программирования»

Отчет по лабораторной работе №1

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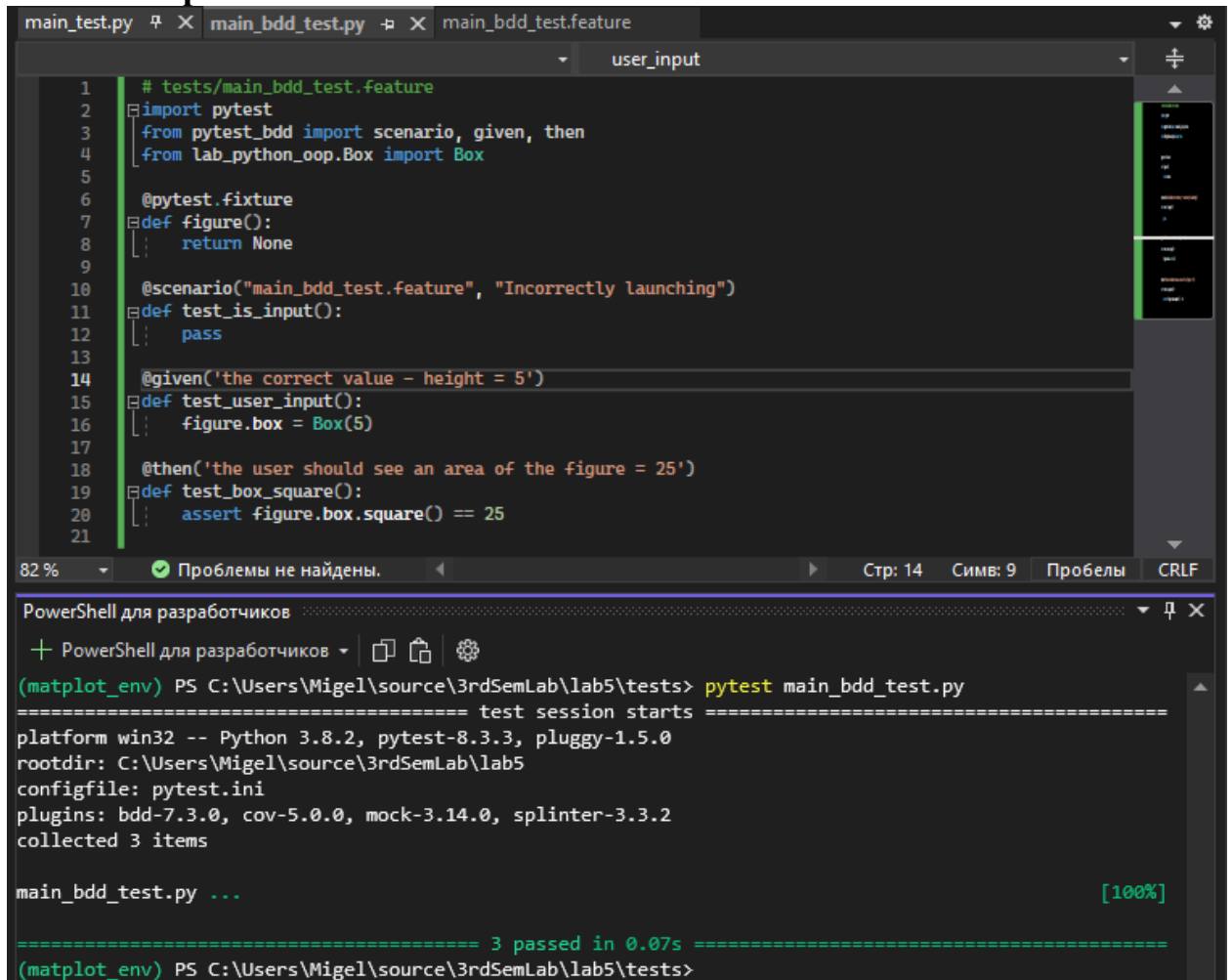
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BDD тестирование



The screenshot shows an IDE with three tabs: `main_test.py`, `main_bdd_test.py`, and `main_bdd_test.feature`. The `main_bdd_test.py` tab is active, displaying the following Python code:

```
1 # tests/main_bdd_test.feature
2 import pytest
3 from pytest_bdd import scenario, given, then
4 from lab_python_oop.Box import Box
5
6 @pytest.fixture
7 def figure():
8     return None
9
10 @scenario("main_bdd_test.feature", "Incorrectly launching")
11 def test_is_input():
12     pass
13
14 @given('the correct value - height = 5')
15 def test_user_input():
16     figure.box = Box(5)
17
18 @then('the user should see an area of the figure = 25')
19 def test_box_square():
20     assert figure.box.square() == 25
21
```

Below the code editor, a terminal window titled "PowerShell для разработчиков" shows the execution of the tests:

```
(matplotlib_env) PS C:\Users\Migel\source\3rdSemLab\lab5\tests> pytest main_bdd_test.py
===== test session starts =====
platform win32 -- Python 3.8.2, pytest-8.3.3, pluggy-1.5.0
rootdir: C:\Users\Migel\source\3rdSemLab\lab5
configfile: pytest.ini
plugins: bdd-7.3.0, cov-5.0.0, mock-3.14.0, splinter-3.3.2
collected 3 items

main_bdd_test.py ... [100%]

===== 3 passed in 0.07s =====
(matplotlib_env) PS C:\Users\Migel\source\3rdSemLab\lab5\tests>
```

tests/main_bdd_test.py

```
import pytest
from pytest_bdd import scenario, given, then
from lab_python_oop.Box import Box

@pytest.fixture
def figure():
    return None

@scenario("main_bdd_test.feature", "Incorrectly launching")
def test_is_input():
    pass

@given('the correct value - height = 5')
def test_user_input():
    figure.box = Box(5)

@then('the user should see an area of the figure = 25')
def test_box_square():
    assert figure.box.square() == 25
```

Main_bdd_test.feature

Feature: Classes

A site where you can publish your articles.

Scenario: Incorrectly launching

Given the correct value - height = 5

Then the user should see an area of the figure = 25

TDD - тестирование

The screenshot shows an IDE with a Python file named `main_test.py` and a terminal window. The code in `main_test.py` is as follows:

```
1 # test_with_pytest.py
2 import math
3 import pytest
4 from lab_python_oop.Box import Box
5 from lab_python_oop.Shape import Shape
6 from lab_python_oop.Rectangle import Rectangle
7 from lab_python_oop.Circle import Circle
8
9 # Regular const
10 """
11 def test_always_passes():
12     assert True
13
14 def test_always_fails():
15     assert False
16 """
17
18 @pytest.fixture
19 def box_obj():
20     return Box(5)
21
22 # Box
23 def test_box_square(box_obj):
24     assert box_obj.square() == 25
25
26 # Circle
27 def test_circle_square(mocked):
28     circ = mocked.Mock(spec = Circle)
29     circ.r = 5
30     circ.square.return_value = math.pi * (circ.r ** 2)
31     assert Circle(5).square() == circ.square.return_value
32
33 # Rectangle
34 def test_rect_square():
35     assert Rectangle(2, 5).square() == 10
```

The terminal window shows the output of running `pytest main_test.py` in a PowerShell environment:

```
(matplot_env) PS C:\Users\Migel\source\3rdSemLab\lab5\tests> pytest main_test.py
===== test session starts =====
platform win32 -- Python 3.8.2, pytest-8.3.3, pluggy-1.5.0
rootdir: C:\Users\Migel\source\3rdSemLab\lab5
configfile: pytest.ini
plugins: bdd-7.3.0, cov-5.0.0, mock-3.14.0, splinter-3.3.2
collected 3 items

main_bdd_test.py ... [100%]

===== 3 passed in 0.07s =====

main_test.py ... [100%]

===== 3 passed in 0.05s =====
```

Pytest.ini

[src]

pythonpath = lab_python_oop

[pytest]

testpaths = tests

Requirements.txt

black==24.8.0

click==8.1.7

colorama==0.4.6

contourpy==1.1.1

cycler==0.12.1

exceptiongroup==1.2.2

flake8==7.1.1
fonttools==4.54.1
importlib_resources==6.4.5
iniconfig==2.0.0
kiwisolver==1.4.7
matplotlib==3.7.5
mccabe==0.7.0
mypy-extensions==1.0.0
numpy==1.24.4
packaging==24.1
pathspec==0.12.1
pep8==1.7.1
pillow==10.4.0
pip==24.2
platformdirs==4.3.6
pluggy==1.5.0
pycodestyle==2.12.1
pyflakes==3.2.0
pyparsing==3.1.4
pytest==8.3.3
python-dateutil==2.9.0.post0
setuptools==75.2.0
six==1.16.0
tomli==2.1.0
typing_extensions==4.12.2
zipp==3.20.2

Black

```
(matplot_env) PS C:\Users\Migel\source\3rdSemLab\lab5\tests> python -m black .  
reformatted C:\Users\Migel\source\3rdSemLab\Lab5\tests\main_bdd_test.py  
reformatted C:\Users\Migel\source\3rdSemLab\Lab5\tests\main_test.py  
  
All done! ✨ 📁 ✨  
2 files reformatted, 1 file left unchanged.
```