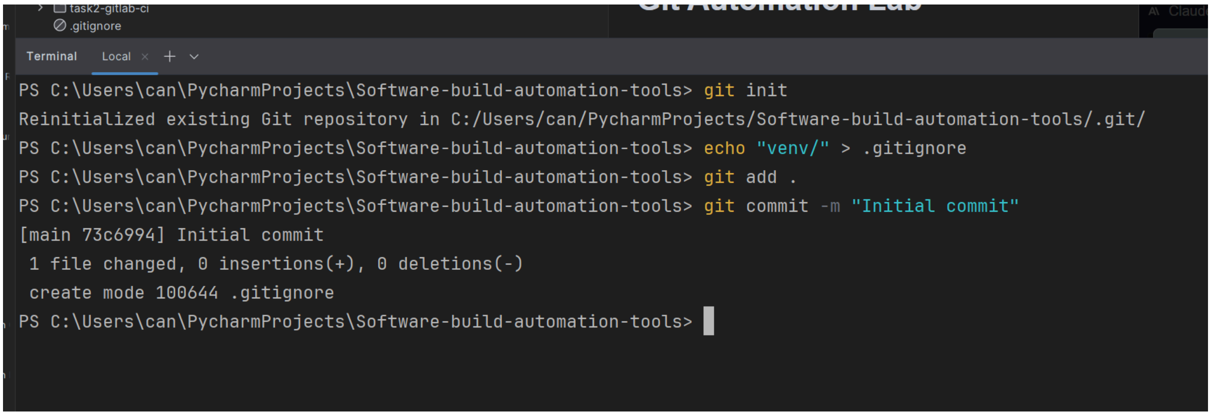
Software Build Automation Tools - GIT Automation Lab Report

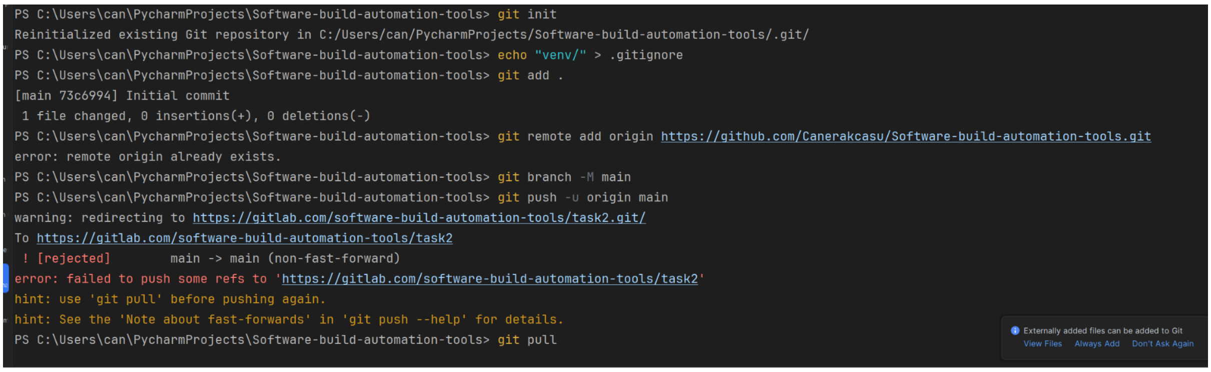
TASK5

Caner akcasu
github: https://github.com/Canerakcasu/Software-build-automation-tools



```
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git init
Reinitialized existing Git repository in C:/Users/can/PycharmProjects/Software-build-automation-tools/.git/
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> echo "venv/" > .gitignore
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git add .
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git commit -m "Initial commit"
[main 73c6994] Initial commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 .gitignore
PS C:\Users\can\PycharmProjects\Software-build-automation-tools>
```

We initialized a Git repository in our project directory and added a `.gitignore` file to exclude unnecessary files before committing the project.



```
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git init
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PS C:\Users\can\PycharmProjects\Software-build-automation-tools> echo "venv/" > .gitignore
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git add .
[main 73c6994] Initial commit
 1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git remote add origin https://github.com/Canerakcasu/Software-build-automation-tools.git
error: remote origin already exists.
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git branch -M main
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git push -u origin main
warning: redirecting to https://gitlab.com/software-build-automation-tools/task2.git/
To https://gitlab.com/software-build-automation-tools/task2
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://gitlab.com/software-build-automation-tools/task2'
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git pull
```
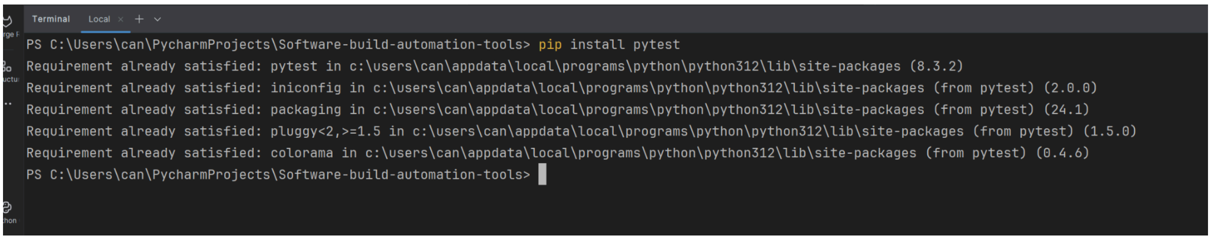
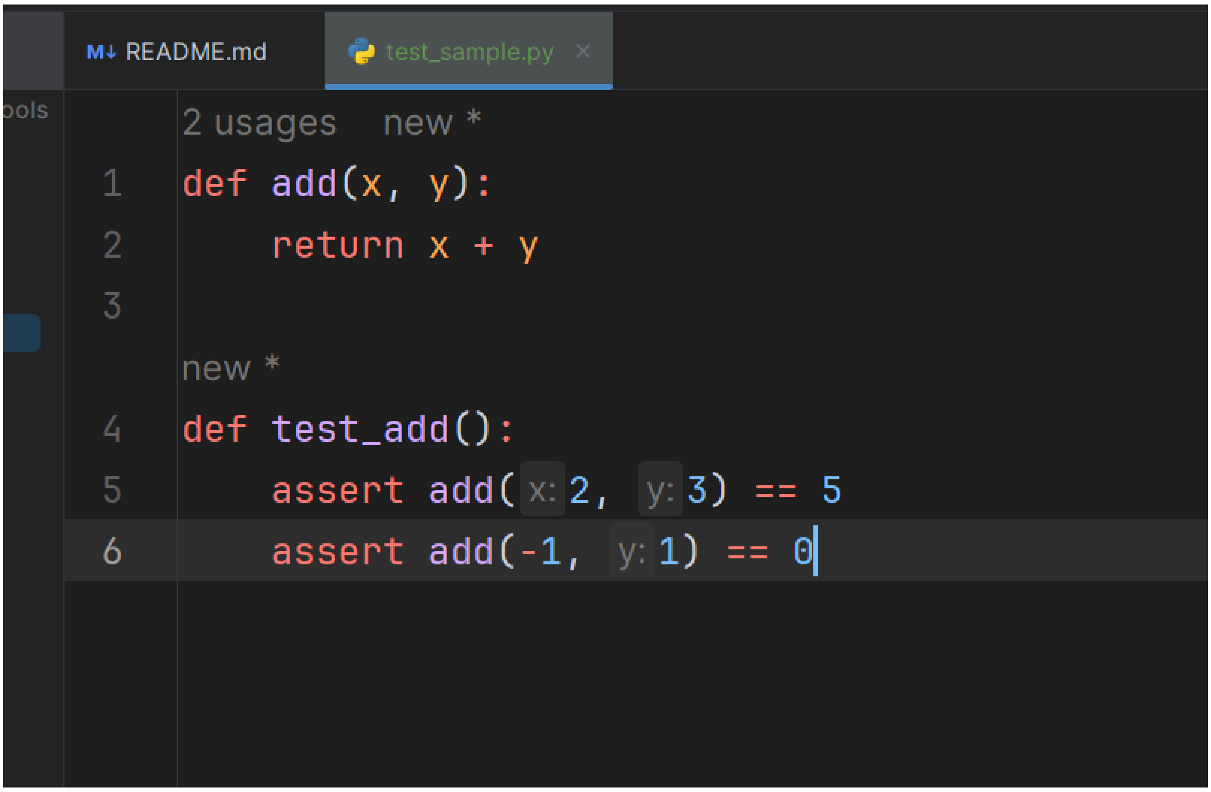

pushed the initial commit to GitHub.



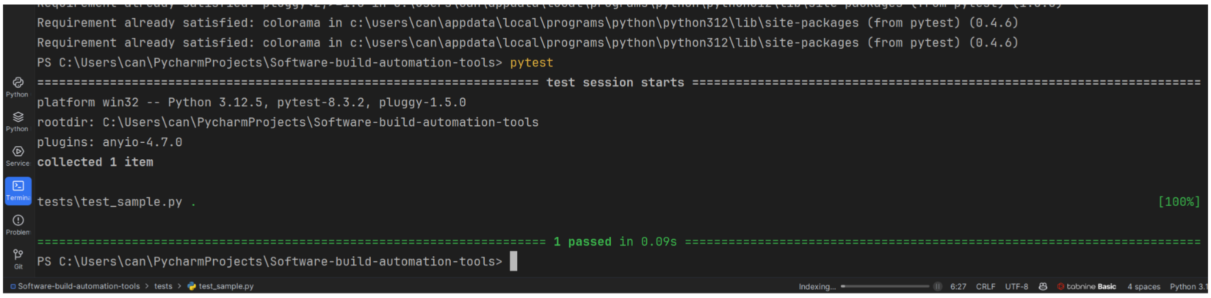
```
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> pip install pytest
Requirement already satisfied: pytest in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (8.3.2)
Requirement already satisfied: iniconfig in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (2.0.0)
Requirement already satisfied: packaging in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (24.1)
Requirement already satisfied: pluggy<2,>=1.5 in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (1.5.0)
Requirement already satisfied: colorama in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (0.4.6)
PS C:\Users\can\PycharmProjects\Software-build-automation-tools>
```

We installed pytest, a testing framework for Python that simplifies writing and running automated tests.



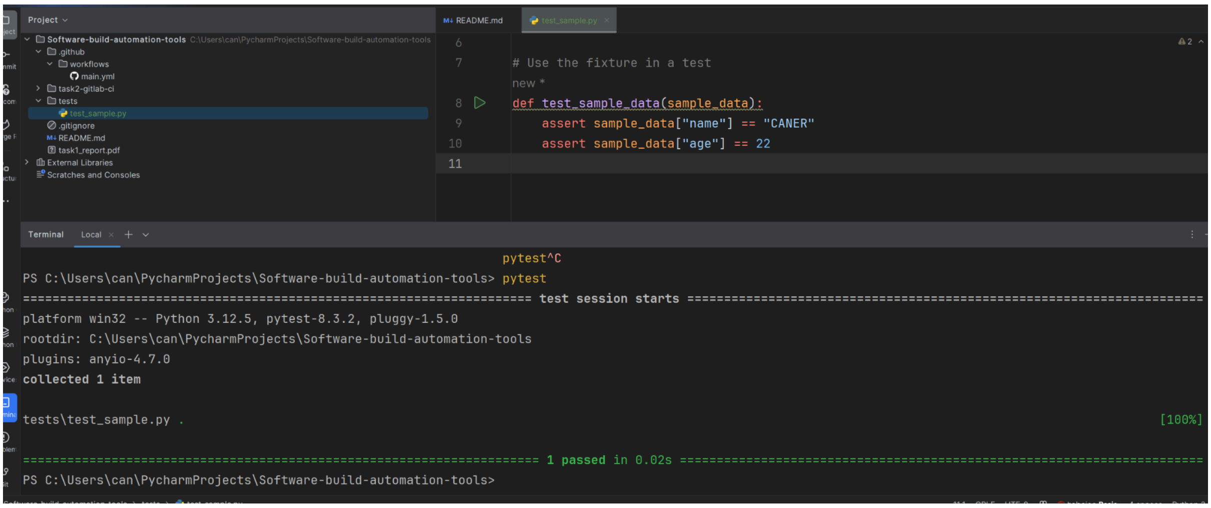
```
2 usages   new *
def add(x, y):
    return x + y

new *
def test_add():
    assert add(x: 2, y: 3) == 5
    assert add(-1, y: 1) == 0
```

We wrote a simple function and a test case using pytest to validate its correctness.



```
Requirement already satisfied: pluggy<2,>=1.5 in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (1.5.0)
Requirement already satisfied: colorama in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (0.4.6)
Requirement already satisfied: colorama in c:\users\can\appdata\local\programs\python\python312\lib\site-packages (from pytest) (0.4.6)
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> pytest
============================================================== test session starts ==============================================================
platform win32 -- Python 3.12.5, pytest-8.3.2, pluggy-1.5.0
rootdir: C:\Users\can\PycharmProjects\Software-build-automation-tools
plugins: anyio-4.7.0
collected 1 item

tests\test_sample.py .                                                                                                                    [100%]

=============================================================== 1 passed in 0.09s ===============================================================
PS C:\Users\can\PycharmProjects\Software-build-automation-tools>
```

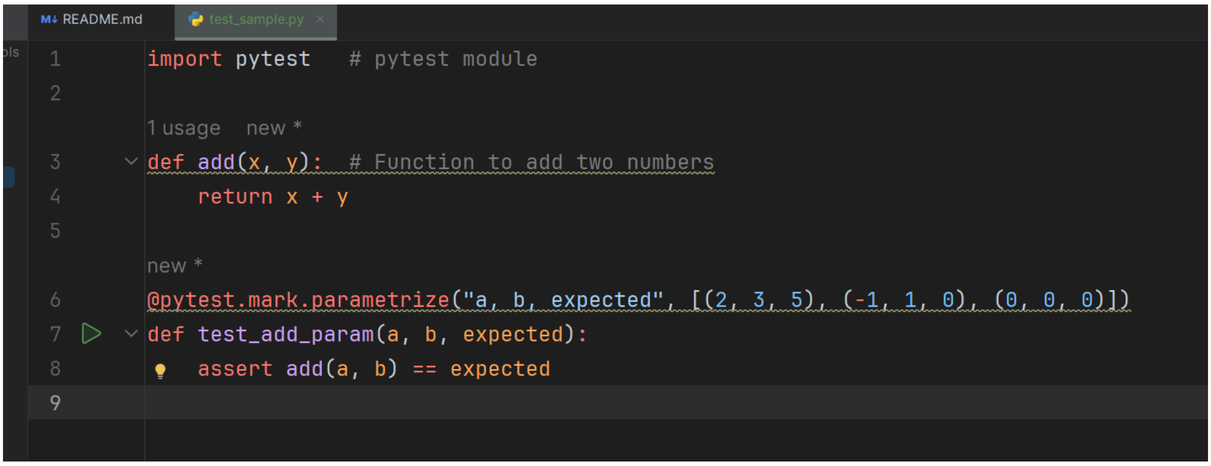
We ran our test cases using `pytest`, which automatically detected and executed all test functions.



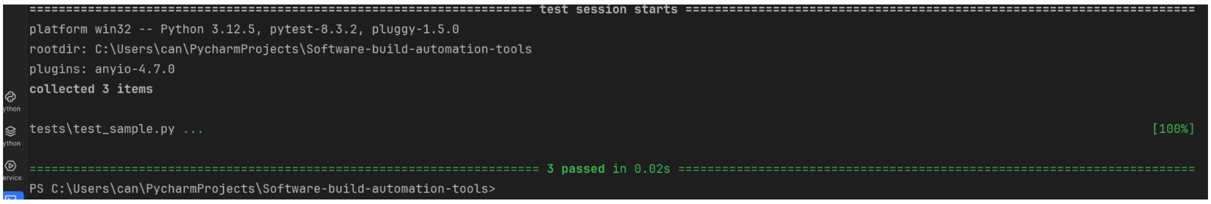
```python

# Use the fixture in a test
def test_sample_data(sample_data):
    assert sample_data["name"] == "CANER"
    assert sample_data["age"] == 22

```

```
                                                                 pytest^C
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> pytest
==================================================================== test session starts ====================================================================
platform win32 -- Python 3.12.5, pytest-8.3.2, pluggy-1.5.0
rootdir: C:\Users\can\PycharmProjects\Software-build-automation-tools
plugins: anyio-4.7.0
collected 1 item

tests\test_sample.py .                                                                                                                                  [100%]

===================================================================== 1 passed in 0.02s =====================================================================
PS C:\Users\can\PycharmProjects\Software-build-automation-tools>
```

We introduced a **pytest fixture**, which helps set up reusable test data before running tests.

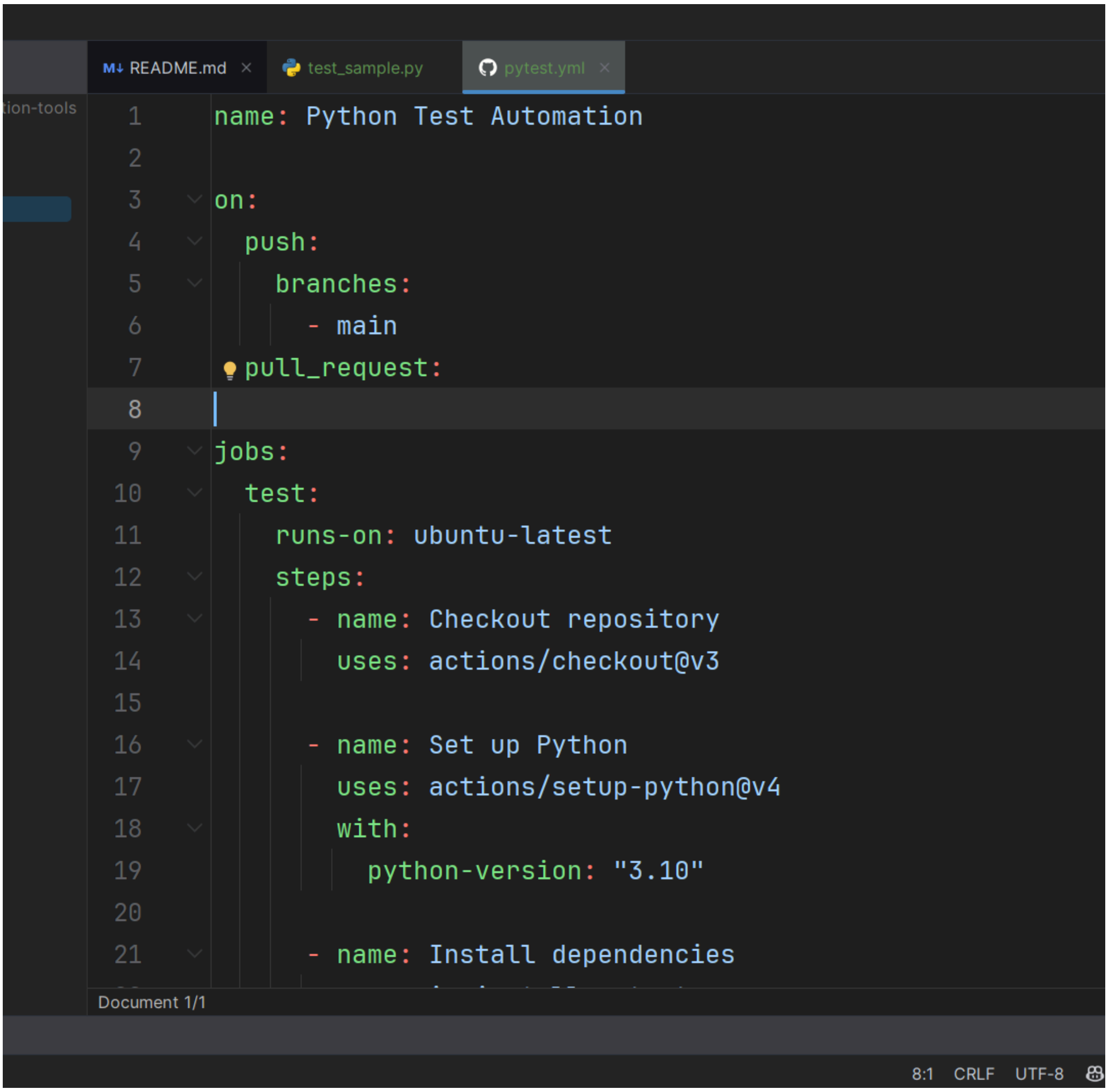


```python
import pytest    # pytest module

def add(x, y):   # Function to add two numbers
    return x + y

@pytest.mark.parametrize("a, b, expected", [(2, 3, 5), (-1, 1, 0), (0, 0, 0)])
def test_add_param(a, b, expected):
    assert add(a, b) == expected

```



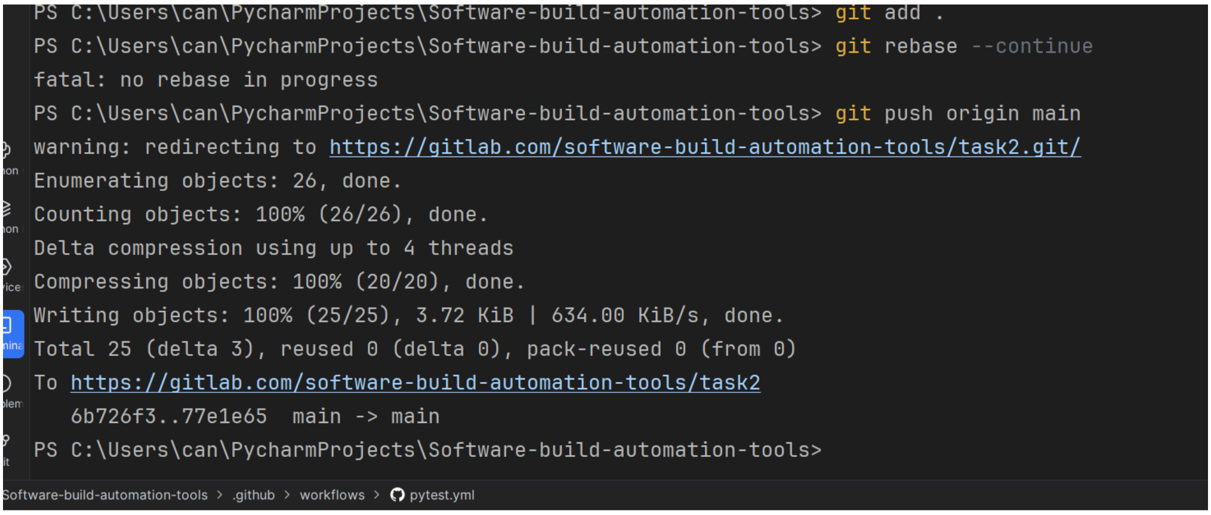
```
==================================================================== test session starts ====================================================================
platform win32 -- Python 3.12.5, pytest-8.3.2, pluggy-1.5.0
rootdir: C:\Users\can\PycharmProjects\Software-build-automation-tools
plugins: anyio-4.7.0
collected 3 items

tests\test_sample.py ...                                                                                                                                [100%]

===================================================================== 3 passed in 0.02s =====================================================================
PS C:\Users\can\PycharmProjects\Software-build-automation-tools>
```

We implemented **parameterized tests** to run the same test function with multiple sets of inputs.



```yaml
name: Python Test Automation

on:
  push:
    branches:
      - main
  pull_request:

jobs:
  test:
    runs-on: ubuntu-latest
    steps:
      - name: Checkout repository
        uses: actions/checkout@v3

      - name: Set up Python
        uses: actions/setup-python@v4
        with:
          python-version: "3.10"

      - name: Install dependencies
```

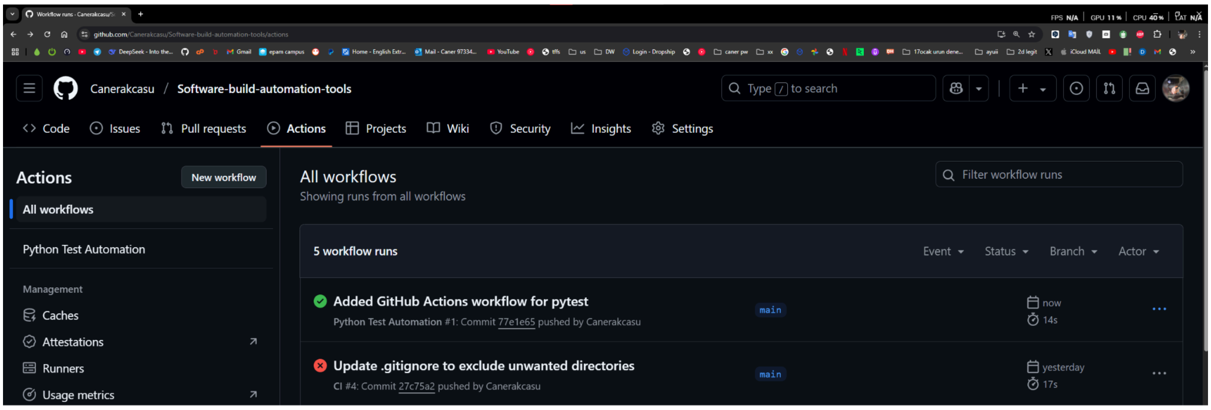
We set up a **GitHub Actions workflow** to automatically run tests whenever changes are pushed to the repository.



```
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git add .
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git rebase --continue
fatal: no rebase in progress
PS C:\Users\can\PycharmProjects\Software-build-automation-tools> git push origin main
warning: redirecting to https://gitlab.com/software-build-automation-tools/task2.git/
Enumerating objects: 26, done.
Counting objects: 100% (26/26), done.
Delta compression using up to 4 threads
Compressing objects: 100% (20/20), done.
Writing objects: 100% (25/25), 3.72 KiB | 634.00 KiB/s, done.
Total 25 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
To https://gitlab.com/software-build-automation-tools/task2
   6b726f3..77e1e65  main -> main
PS C:\Users\can\PycharmProjects\Software-build-automation-tools>
```

Software-build-automation-tools > .github > workflows > pytest.yml

We verified that **GitHub Actions successfully ran our tests** on every push to the repository.

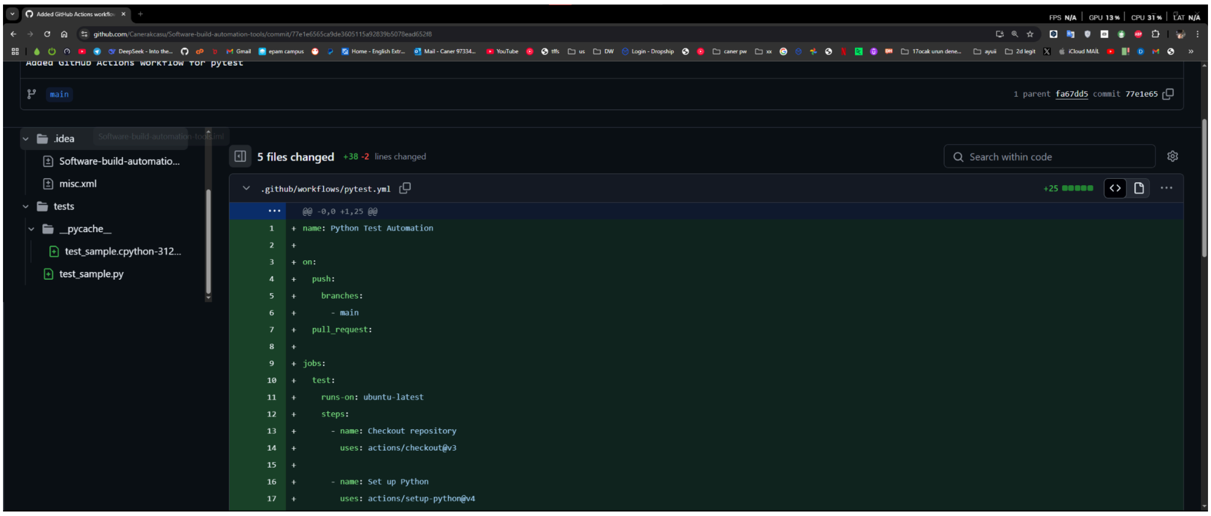


All workflows
Showing runs from all workflows

5 workflow runs

✓ Added GitHub Actions workflow for pytest — main — now — 14s
Python Test Automation #1: Commit 77e1e65 pushed by Canerakcasu

✗ Update .gitignore to exclude unwanted directories — main — yesterday — 17s
CI #4: Commit 27c75a2 pushed by Canerakcasu



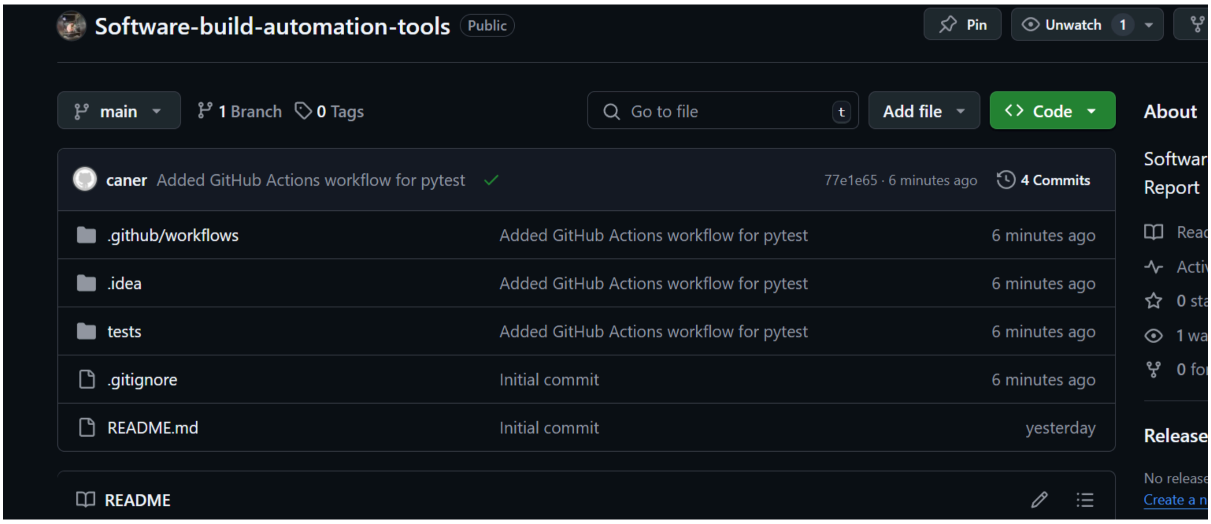
Added GitHub Actions workflo
github.com/Canerakcasu/Software-build-automation-tools/commit/77e1e6565ca9de3605115a92839b5078ead652f8
Added GitHub Actions workflow for pytest
main
1 parent fa67dd5 commit 77e1e65
.idea
Software-build-automatio...
misc.xml
tests
__pycache__
test_sample.cpython-312...
test_sample.py
Search within code

5 files changed +38 -2 lines changed

.github/workflows/pytest.yml +25

```
@@ -0,0 +1,25 @@
+ name: Python Test Automation
+
+ on:
+   push:
+     branches:
+       - main
+   pull_request:
+
+ jobs:
+   test:
+     runs-on: ubuntu-latest
+     steps:
+       - name: Checkout repository
+         uses: actions/checkout@v3
+
+       - name: Set up Python
+         uses: actions/setup-python@v4
```

The project is fully set up with **automated testing, GitHub integration, and CI/CD implementation**.



caner Added GitHub Actions workflow for pytest ✓ 77e1e65 · 6 minutes ago 4 Commits

.github/workflows	Added GitHub Actions workflow for pytest	6 minutes ago
.idea	Added GitHub Actions workflow for pytest	6 minutes ago
tests	Added GitHub Actions workflow for pytest	6 minutes ago
.gitignore	Initial commit	6 minutes ago
README.md	Initial commit	yesterday