MLOps Assignment 1 Report

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We first forked a trending repository: https://github.com/huggingface/peft, and this repo had no workflow inside of it. We then made two branches "ali", and "shanzay". We added two webhooks to the forked repo, one for each member's system.
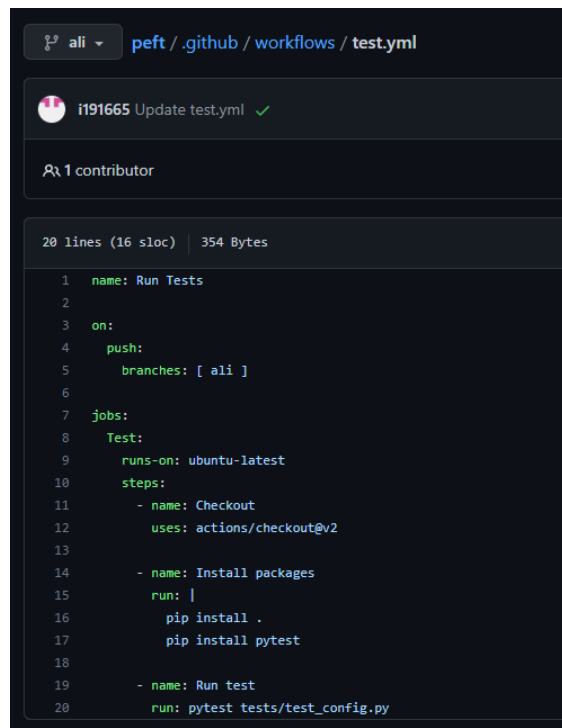
Branch "ali":

Job in Jenkins to create virtual environment, install requirements, install pytest, and then run the unit test:
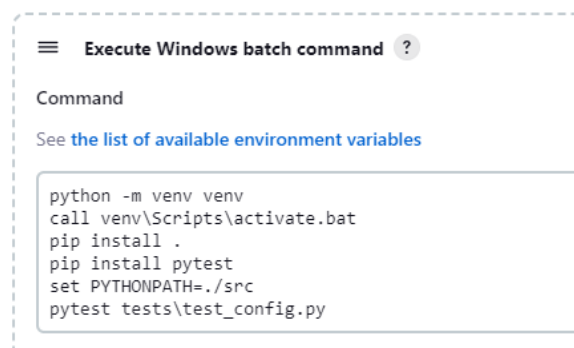
Workflow on GitHub that would do the same thing as the job in Jenkins:

After committing the workflow on GitHub, the action starts running on GitHub, and the job starts running in Jenkins cause of the webhook. The output of the job looks like this:


```
Started by GitHub push by i191665
Running as SYSTEM
Building in workspace C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali
[WS-CLEANUP] Deleting project workspace...
[WS-CLEANUP] Deferred wipeout is used...
[WS-CLEANUP] Done
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/i191665/peft.git
 > C:\Program Files\Git\cmd\git.exe init C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali # timeout=10
Fetching upstream changes from https://github.com/i191665/peft.git
 > C:\Program Files\Git\cmd\git.exe --version # timeout=10
 > git --version # 'git version 2.39.0.windows.2'
 > C:\Program Files\Git\cmd\git.exe fetch --tags --force --progress -- https://github.com/i191665/peft.git +refs/heads/*:refs/remotes/origin/* # timeout=10
 > C:\Program Files\Git\cmd\git.exe config remote.origin.url https://github.com/i191665/peft.git # timeout=10
 > C:\Program Files\Git\cmd\git.exe config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
 > C:\Program Files\Git\cmd\git.exe rev-parse "refs/remotes/origin/ali^{commit}" # timeout=10
Checking out Revision cc905b671f4ae30dcd83c7b00ab1f4f5ee78cb0f (refs/remotes/origin/ali)
 > C:\Program Files\Git\cmd\git.exe config core.sparsecheckout # timeout=10
 > C:\Program Files\Git\cmd\git.exe checkout -f cc905b671f4ae30dcd83c7b00ab1f4f5ee78cb0f # timeout=10
Commit message: "Update test.yml"
 > C:\Program Files\Git\cmd\git.exe rev-list --no-walk 75fe613add5db3652aee39622f28210568150a62 # timeout=10
[Assignment 1 Ali] $ cmd /c call C:\Users\Ali\AppData\Local\Temp\jenkins9441054016629240384.bat

C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali>python -m venv venv

C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali>call venv\Scripts\activate.bat
Processing c:\users\ali\appdata\local\jenkins\.jenkins\workspace\assignment 1 ali
  Installing build dependencies: started
  Installing build dependencies: finished with status 'done'
  Getting requirements to build wheel: started
```

```
  Created wheel for peft: filename=peft-0.2.0.dev0-py3-none-any.whl size=39940 sha256=a7b5c3541ff4baf8737f6032c019235feae4ef1f9b47602dc2ed9c834ae3820e
  Stored in directory: C:\Users\Ali\AppData\Local\Temp\pip-ephem-wheel-cache-uea0iud7\wheels\2a\da\68\d52a2bd6c1d95bdc016a0d6ce6b157d725332f7561e5836a08
Successfully built peft
Installing collected packages: tokenizers, charset-normalizer, urllib3, typing-extensions, regex, pyyaml, psutil, packaging, numpy, idna, filelock, colorama, certifi, tqdm, torch, requests,
huggingface-hub, accelerate, transformers, peft
Successfully installed accelerate-0.16.0 certifi-2022.12.7 charset-normalizer-3.0.1 colorama-0.4.6 filelock-3.9.0 huggingface-hub-0.12.1 idna-3.4 numpy-1.24.2 packaging-23.0 peft-0.2.0.dev0 psutil-
5.9.4 pyyaml-6.0 regex-2022.10.31 requests-2.28.2 tokenizers-0.13.2 torch-1.13.1 tqdm-4.64.1 transformers-4.26.1 typing-extensions-4.5.0 urllib3-1.26.14
WARNING: You are using pip version 22.0.4; however, version 23.0.1 is available.
You should consider upgrading via the 'C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali\venv\Scripts\python.exe -m pip install --upgrade pip' command.
Collecting pytest
  Using cached pytest-7.2.1-py3-none-any.whl (317 kB)
Requirement already satisfied: packaging in c:\users\ali\appdata\local\jenkins\.jenkins\workspace\assignment 1 ali\venv\lib\site-packages (from pytest) (23.0)
Collecting tomli>=1.0.0
  Using cached tomli-2.0.1-py3-none-any.whl (12 kB)
Collecting pluggy<2.0,>=0.12
  Using cached pluggy-1.0.0-py2.py3-none-any.whl (13 kB)
Collecting exceptiongroup>=1.0.0rc8
  Using cached exceptiongroup-1.1.0-py3-none-any.whl (14 kB)
Collecting iniconfig
  Using cached iniconfig-2.0.0-py3-none-any.whl (5.9 kB)
Requirement already satisfied: colorama in c:\users\ali\appdata\local\jenkins\.jenkins\workspace\assignment 1 ali\venv\lib\site-packages (from pytest) (0.4.6)
Collecting attrs>=19.2.0
  Using cached attrs-22.2.0-py3-none-any.whl (60 kB)
Installing collected packages: tomli, pluggy, iniconfig, exceptiongroup, attrs, pytest
Successfully installed attrs-22.2.0 exceptiongroup-1.1.0 iniconfig-2.0.0 pluggy-1.0.0 pytest-7.2.1 tomli-2.0.1
WARNING: You are using pip version 22.0.4; however, version 23.0.1 is available.
You should consider upgrading via the 'C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali\venv\Scripts\python.exe -m pip install --upgrade pip' command.
============================ test session starts ============================
platform win32 -- Python 3.9.13, pytest-7.2.1, pluggy-1.0.0
rootdir: C:\Users\Ali\AppData\Local\Jenkins\.jenkins\workspace\Assignment 1 Ali, configfile: setup.cfg
collected 6 items

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

============================ 6 passed in 2.19s ============================
Finished: SUCCESS
```

The job ran successfully indicating that the unit test passed.

Branch "shanzay":

Job in Jenkins to create virtual environment, install black which is used to format code, and then run black on all files in the downloaded repo:
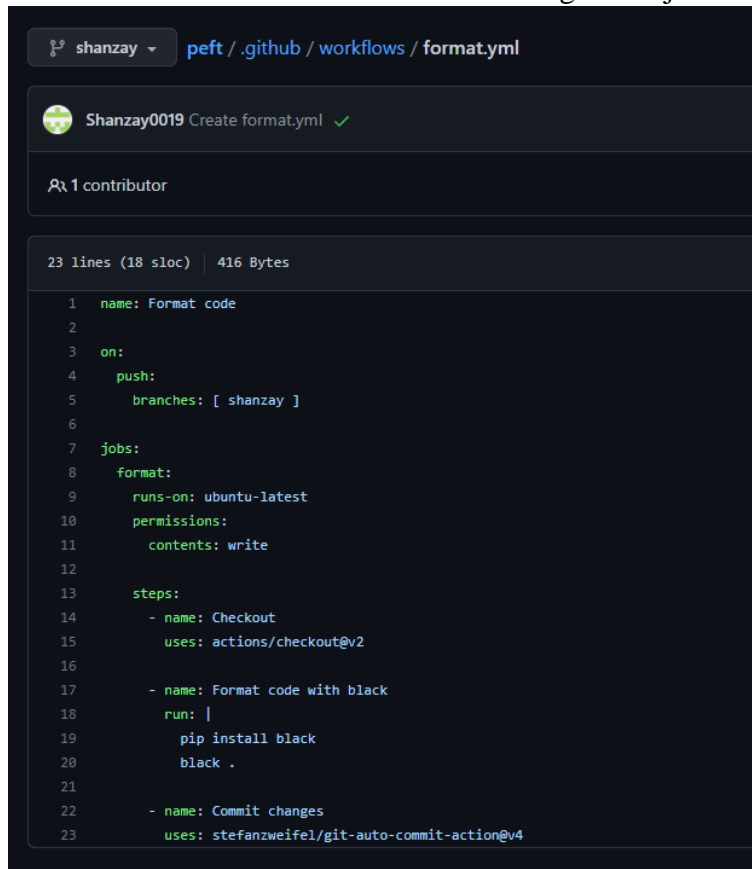
Build Steps

```
≡    Execute Windows batch command   ?

Command

See the list of available environment variables

python -m venv venv
call venv\Scripts\activate.bat
pip install black
black .
```
.

Workflow on GitHub that would do the same thing as the job in Jenkins:

```
⌥ shanzay ▾    peft / .github / workflows / format.yml

  Shanzay0019 Create format.yml ✓

  ⧒ 1 contributor

  23 lines (18 sloc)    416 Bytes

   1    name: Format code
   2
   3    on:
   4      push:
   5        branches: [ shanzay ]
   6
   7    jobs:
   8      format:
   9        runs-on: ubuntu-latest
  10        permissions:
  11          contents: write
  12
  13        steps:
  14          - name: Checkout
  15            uses: actions/checkout@v2
  16
  17          - name: Format code with black
  18            run: |
  19              pip install black
  20              black .
  21
  22          - name: Commit changes
  23            uses: stefanzweifel/git-auto-commit-action@v4
```

After committing the workflow on GitHub, the action starts running on GitHub, and the job starts running in Jenkins cause of the webhook. The output of the job looks like this:

✓ **Console Output**

```
Started by user Shanzay Faisal
Running as SYSTEM
Building in workspace C:\Users\shanz\.jenkins\workspace\Assignment 1 Shanzay
[WS-CLEANUP] Deleting project workspace...
[WS-CLEANUP] Deferred wipeout is used...
[WS-CLEANUP] Done
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/i191665/peft.git
 > C:\Program Files\Git\cmd\git.exe init C:\Users\shanz\.jenkins\workspace\Assignment 1 Shanzay # timeout=10
Fetching upstream changes from https://github.com/i191665/peft.git
 > C:\Program Files\Git\cmd\git.exe --version # timeout=10
 > git --version # 'git version 2.39.1.windows.1'
 > C:\Program Files\Git\cmd\git.exe fetch --tags --force --progress -- https://github.com/i191665/peft.git
+refs/heads/*:refs/remotes/origin/* # timeout=10
 > C:\Program Files\Git\cmd\git.exe config remote.origin.url https://github.com/i191665/peft.git # timeout=10
 > C:\Program Files\Git\cmd\git.exe config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
 > C:\Program Files\Git\cmd\git.exe rev-parse "refs/remotes/origin/shanzay^{commit}" # timeout=10
Checking out Revision 66baee1339d110f29d19b651f7512a3494233d9b (refs/remotes/origin/shanzay)
 > C:\Program Files\Git\cmd\git.exe config core.sparsecheckout # timeout=10
 > C:\Program Files\Git\cmd\git.exe checkout -f 66baee1339d110f29d19b651f7512a3494233d9b # timeout=10
Commit message: "Create format.yml"
 > C:\Program Files\Git\cmd\git.exe rev-list --no-walk 66baee1339d110f29d19b651f7512a3494233d9b # timeout=10
[Assignment 1 Shanzay] $ cmd /c call C:\Users\shanz\AppData\Local\Temp\jenkins12215418556224228617.bat
```

```
C:\Users\shanz\.jenkins\workspace\Assignment 1 Shanzay>python -m venv venv

C:\Users\shanz\.jenkins\workspace\Assignment 1 Shanzay>call venv\Scripts\activate.bat
Collecting black
  Using cached black-23.1.0-cp39-cp39-win_amd64.whl (1.2 MB)
Collecting click>=8.0.0
  Using cached click-8.1.3-py3-none-any.whl (96 kB)
Collecting pathspec>=0.9.0
  Using cached pathspec-0.11.0-py3-none-any.whl (29 kB)
Collecting mypy-extensions>=0.4.3
  Using cached mypy_extensions-1.0.0-py3-none-any.whl (4.7 kB)
Collecting platformdirs>=2
  Using cached platformdirs-3.0.0-py3-none-any.whl (14 kB)
Collecting typing-extensions>=3.10.0.0; python_version < "3.10"
  Using cached typing_extensions-4.5.0-py3-none-any.whl (27 kB)
Collecting packaging>=22.0
  Using cached packaging-23.0-py3-none-any.whl (42 kB)
Collecting tomli>=1.1.0; python_version < "3.11"
  Using cached tomli-2.0.1-py3-none-any.whl (12 kB)
Collecting colorama; platform_system == "Windows"
  Using cached colorama-0.4.6-py2.py3-none-any.whl (25 kB)
Installing collected packages: colorama, click, pathspec, mypy-extensions, platformdirs, typing-extensions, packaging, tomli, black
Successfully installed black-23.1.0 click-8.1.3 colorama-0.4.6 mypy-extensions-1.0.0 packaging-23.0 pathspec-0.11.0 platformdirs-3.0.0 tomli-
2.0.1 typing-extensions-4.5.0
WARNING: You are using pip version 20.2.3; however, version 23.0.1 is available.
You should consider upgrading via the 'c:\users\shanz\.jenkins\workspace\assignment 1 shanzay\venv\scripts\python.exe -m pip install --
upgrade pip' command.
Skipping .ipynb files as Jupyter dependencies are not installed.
You can fix this by running ``pip install "black[jupyter]"``
All done! \u2728 \U0001f370 \u2728
20 files left unchanged.
Finished: SUCCESS
```
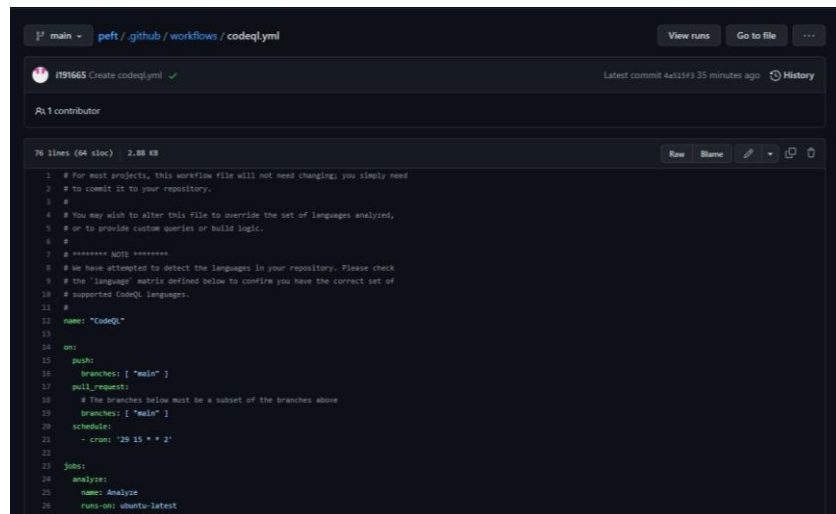
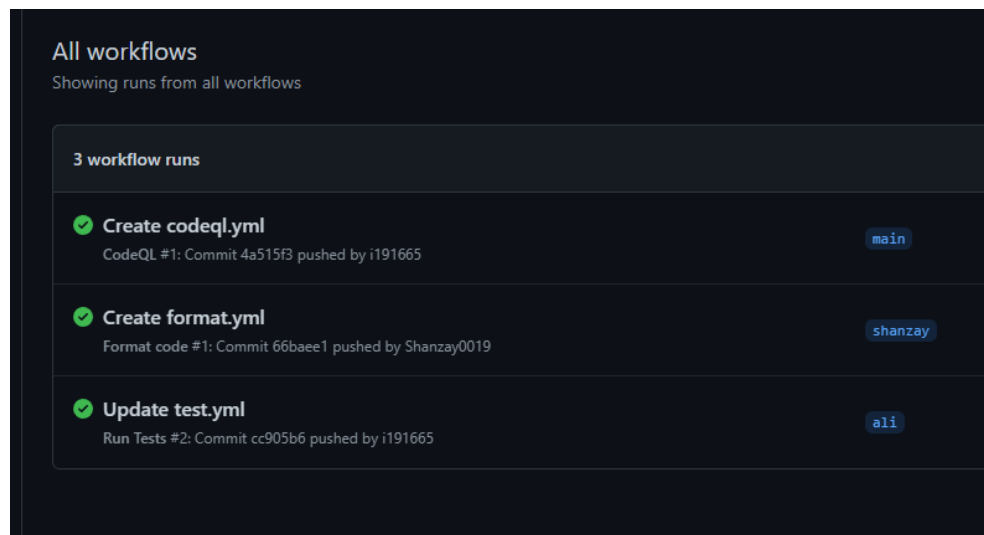GitHub Actions tab showing both workflows ran successfully on GitHub as well:
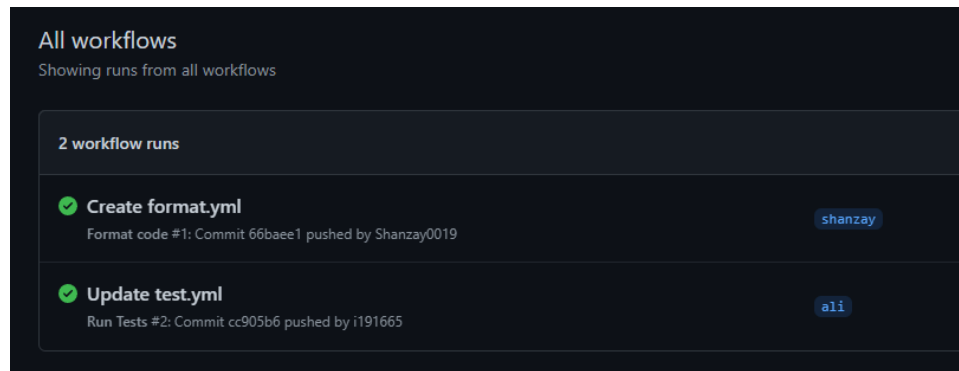
After this we merged both the "ali" branch and the "shanzay" branch with main.

We then created a workflow for CodeQL:

This ran successfully as well:

The CodeQL analysis produced diagnostic data which tells that 20 python files were extracted successfully. It also produced some metric data which shows that there are a total of 1002598 lines of Python code in the repo out of which 3663 are user written.

```
3394  Analysis produced the following diagnostic data:
3395
3396  |               Diagnostic             | Summary   |
3397  +-------------------------------------+-----------+
3398  | Successfully extracted Python files | 20 results |
3399
3400  Analysis produced the following metric data:
3401
3402  |                          Metric                       | Value  |
3403  +-------------------------------------------------------+--------+
3404  | Total lines of Python code in the database            | 1002598 |
3405  | Total lines of user written Python code in the database |   3663 |
3406
```