

## HW 04a - Develop with the Perspective of the Tester in mind

### **Description:**

This assignment will require that you write code to interface with an external REST-based APIs. We could have used almost any external APIs, but for this assignment we chose GitHub because many of its APIs are public and do not require any authorization or API Keys. This simplifies both the use and setup.

For this assignment imagine that you have been asked to develop a function that will interface with GitHub in order to extract and present useful information to your user. The function will communicate using the RESTful services APIs provided by GitHub. The GitHub APIs will allow you to query for information about users, repositories, etc... which can be retrieved using the function, and then be displayed in the application.

What should make this assignment different from other programming assignments is in how you will approach it. You should approach this assignment as a developer who more than anything else has the perspective of the tester in the front of your mind.

The developer looks at the requirements and asks how should I design and implement this function, but the tester will ask questions such as what will I need to test for in this function? And how will I test this function? As you design and write the function as a developer, you should consider the perspective of the tester in any of your design and implementation decisions. One deliverable of this assignment will be to reflect and comment on this.

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### **Honor Pledge:**

"I pledge on my honor that I have not given or received any unauthorized assistance on this assignment/examination. I further pledge that I have not copied any material from a book, article, the Internet, or any other source except where I have expressly cited the source."

**Solution:**

Q2: Write a description of what you thought about when you were designing the code. What did \*you\* think was important to do to make it easy to test the program. What are some of the challenges that you faced when testing this assignment.

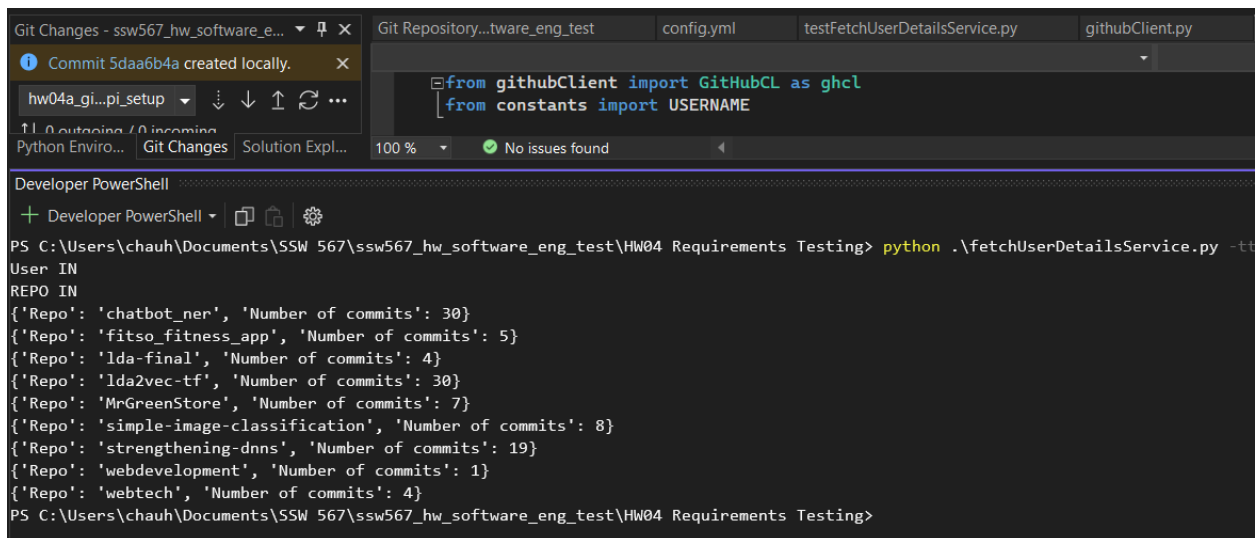
- Tester's Perspective:
  - o Understanding the requirements mentioned before writing the testcase. Basically, understanding what the input will be and the output will be.
  - o Understanding the Code and Edge cases while testing such as HTTP is handled or whether Null check is handled for given parameters.
  - o Need to test Client calls to GitHub separately and logic separately.
  - o Problem faced: Return type may cause issue as return data may vary from user to user
- Developer's Perspective (to make tester's life easy):
  - o Handling all exceptions and edge cases with proper exception raised.
  - o Handling Null Checks and provide appropriate outcome for the same.
  - o Writing code in a manner that a tester can understand.
  - o Created different file for Constants, so that tester can pick up for testing rather than searching the code for the value.
  - o Code written in a way that each part can be tested explicitly for example, the client calls to GitHub can be tested separately, while the service logic for provide given output can be tested separately. This provides tester to verify the logic and the output from the client calls (GitHub API) as well as integration of client API which will help tester to verify the output of the service written or the client calls responses changes in future.

## Q1: Implementation:

### GitHub link:

[https://github.com/sabudanakichdi/ssw567\\_hw\\_software\\_eng\\_test/tree/main/HW04%20Requirements%20Testing](https://github.com/sabudanakichdi/ssw567_hw_software_eng_test/tree/main/HW04%20Requirements%20Testing)

### Code Output:

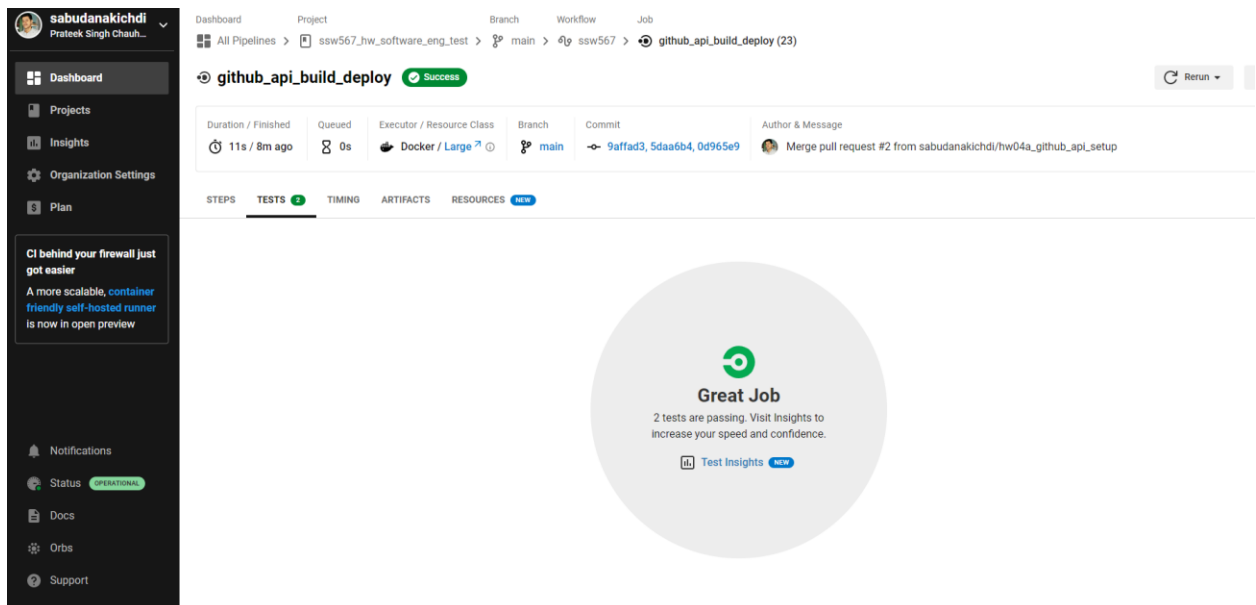


The screenshot shows a code editor with a file named `fetchUserDetailsService.py`. The code imports `GitHubCL` from `githubClient` and `USERNAME` from `constants`. Below the code, a terminal window shows the output of running `python .\fetchUserDetailsService.py -tt`. The output lists repository names and their commit counts.

```
from githubClient import GitHubCL as ghcl
from constants import USERNAME

PS C:\Users\chauh\Documents\SSW 567\ssw567_hw_software_eng_test\HW04 Requirements Testing> python .\fetchUserDetailsService.py -tt
User IN
REPO IN
{'Repo': 'chatbot_ner', 'Number of commits': 30}
{'Repo': 'fitso_fitness_app', 'Number of commits': 5}
{'Repo': 'lda-final', 'Number of commits': 4}
{'Repo': 'lda2vec-tf', 'Number of commits': 30}
{'Repo': 'MrGreenStore', 'Number of commits': 7}
{'Repo': 'simple-image-classification', 'Number of commits': 8}
{'Repo': 'strengthening-dnns', 'Number of commits': 19}
{'Repo': 'webdevelopment', 'Number of commits': 1}
{'Repo': 'webtech', 'Number of commits': 4}
PS C:\Users\chauh\Documents\SSW 567\ssw567_hw_software_eng_test\HW04 Requirements Testing>
```

### Test Output:



The screenshot shows a GitHub Actions workflow run for the `github_api_build_deploy` job. The job is in a 'Success' state. The 'TESTS' tab is selected, showing a 'Great Job' message: '2 tests are passing. Visit Insights to increase your speed and confidence.' The workflow was triggered by a pull request merge.

**github\_api\_build\_deploy** Success

Duration / Finished: 11s / 8m ago | Queued: 0s | Executor / Resource Class: Docker / Large | Branch: main | Commit: 9affad3, 5daa6b4, 0d965e9 | Author & Message: Merge pull request #2 from sabudanakichdi/hw04a\_github\_api\_setup

**TESTS** 2 | TIMING | ARTIFACTS | RESOURCES NEW

**Great Job**  
2 tests are passing. Visit Insights to increase your speed and confidence.  
[Test Insights](#) NEW