



Curtin University

ISEC6000 – Assignment 1 Report

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GitLab repo:

https://gitlab.com/21953004_ChanukaAthalage/assignment_21953004

Docker hub repo:

<https://hub.docker.com/repository/docker/21953004/assignment-21953004/general>

Video link:

<https://drive.google.com/file/d/11adFdOHZ8KgRTUz4uHpWLwFBbCtWNGnm/view?usp=sharing>

Task 1: Run and Test a Python Demo App (Local)

I cloned an existing GitHub repository and ran the web app locally on port 5004 while addressing any encountered issues.

1.1 Clone

```
CHANUKA ATHALAGE@LAPTOP-5H645DRA MINGW64 ~/OneDrive/Desktop/SecDevOps
$ git clone https://github.com/nurcurtin/ISEC60001.git
Cloning into 'ISEC60001'...
remote: Enumerating objects: 169, done.
remote: Counting objects: 100% (169/169), done.
remote: Compressing objects: 100% (91/91), done.
remote: Total 169 (delta 77), reused 169 (delta 77), pack-reused 0 (from 0)
Receiving objects: 100% (169/169), 60.94 KiB | 552.00 KiB/s, done.
Resolving deltas: 100% (77/77), done.
```

Caption: Cloning the git repository

1.2 Issues and fixes when making test

```
===== ERRORS =====
_____ ERROR collecting test session _____
/usr/lib/python3.12/importlib/_init_.py:90: in import_module
    return _bootstrap._gcd_import(name[level:], package, level)
<frozen importlib._bootstrap>:1387: in _gcd_import
    ???
<frozen importlib._bootstrap>:1360: in _find_and_load
    ???
<frozen importlib._bootstrap>:1331: in _find_and_load_unlocked
    ???
<frozen importlib._bootstrap>:935: in _load_unlocked
    ???
src/.venv/lib/python3.12/site-packages/_pytest/assertion/rewrite.py:161: in exec_module
    source_stat, co = _rewrite_test(fn, self.config)
src/.venv/lib/python3.12/site-packages/_pytest/assertion/rewrite.py:356: in _rewrite_test
    co = compile(tree, fn_, "exec", dont_inherit=True)
E   TypeError: required field "lineno" missing from alias
===== short test summary info =====
ERROR - TypeError: required field "lineno" missing fr...
!!!!!!!!!! Interrupted: 1 error during collection !!!!!!!!!!!
===== 1 error in 1.81s =====
chanuka_athalage@LAPTOP-5H645DRA: /mnt/c/Users/CHANUKA ATHALAGE/OneDrive/Desktop/SecDevOps/ISEC60001$
```

Caption: All the errors I encountered while executing the "make test" command.

- Issue A — Pytest collection error

Symptom: TypeError: required field "lineno" missing from alias during pytest collection.

Cause: Project pinned pytest == 6.2.2 (incompatible with Python 3.12 assert-rewrite).

Fix (inside venv): Initially, my pytest version was 6.2.2, which was incompatible with the Python 3.12 version. Therefore, I executed the steps below to fix the issue

- `python3 -m venv .venv`
- `source .venv/bin/activate`
- `python -m pip install --upgrade pip setuptools wheel`
- `pip install "pytest>=8.2"`

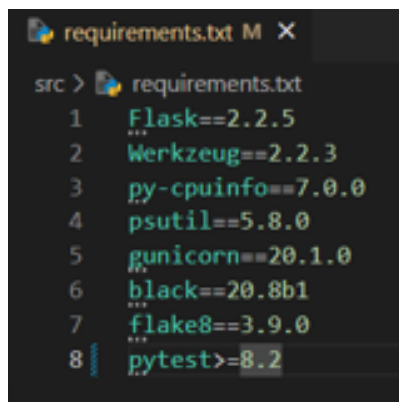
- **Issue B — Missing dependencies for tests/runtime**

Symptom: `ModuleNotFoundError: cpuinfo` (and `psutil` used by `app/monitor`).

Fix (inside venv): Below is the code I used to install the module

- `pip install py-cpuinfo psutil`

- **Below are the modules and versions I used for this assignment**

A screenshot of a code editor showing a file named 'requirements.txt'. The file contains a list of Python dependencies with their versions. The text is as follows:

```
src > requirements.txt
1  Flask==2.2.5
2  Werkzeug==2.2.3
3  py-cpuinfo==7.0.0
4  psutil==5.8.0
5  gunicorn==20.1.0
6  black==20.8b1
7  flake8==3.9.0
8  pytest>=8.2
```

Caption: All the versions of the modules used

1.3 Run the App on port 5004 and verify IP access

After fixing all the issues, I ran the following commands, which successfully executed the program as expected

- **source .venv/bin/activate**
- **make test**
- **export PORT=5004**
- **make run**

```
collected 4 items

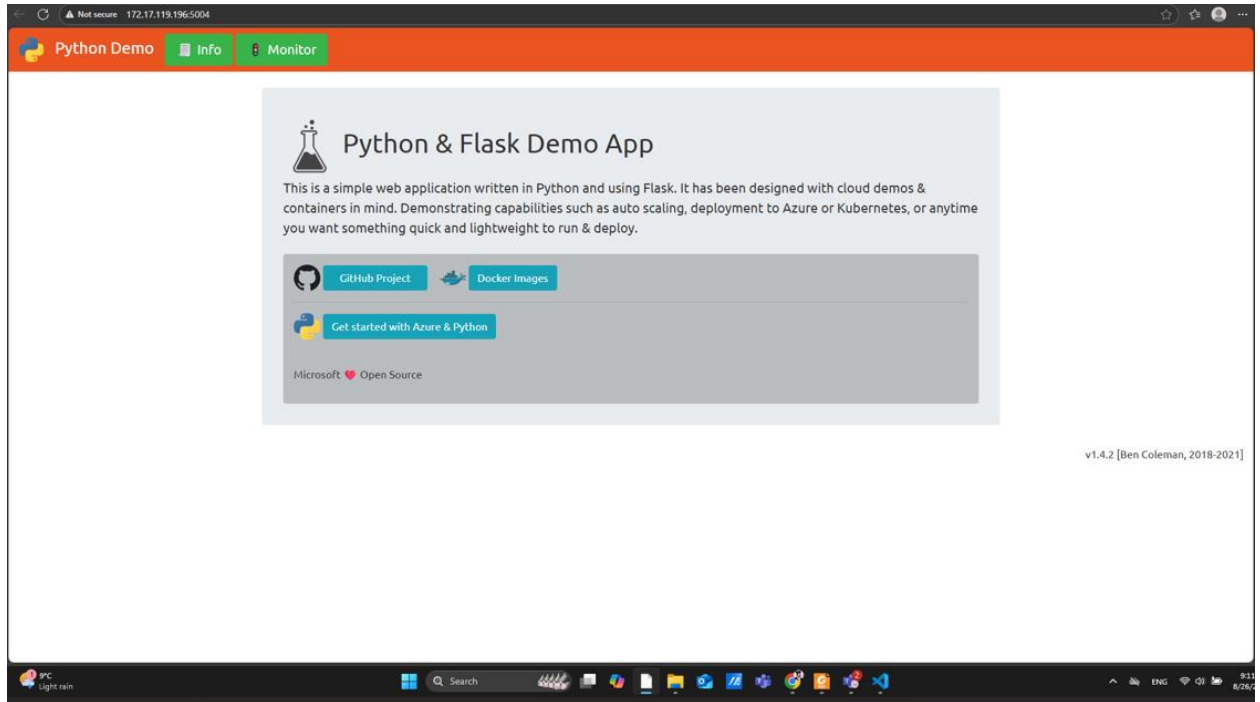
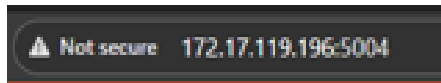
src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
src/app/tests/test_views.py::test_home PASSED [ 50%]
src/app/tests/test_views.py::test_page_content PASSED [ 75%]
src/app/tests/test_views.py::test_info PASSED [100%]
```

Caption: Output of “make test” command after fixing issues

```
(.venv) chanuka_athalage@LAPTOP-5H64SDRA:/mnt/c/Users/CHANUKA ATHALAGE/OneDrive/Desktop/SecDevOps/ISEC60001$ make run
. src/.venv/bin/activate \
&& python src/run.py
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5004
* Running on http://172.17.119.196:5004
Press CTRL+C to quit
```

Caption: Output of “make run” command after fixing issues

1.4 Output of task 1



Caption: Web page running on local IP address on port 5004

- **Server URL:** [Python DemoApp](#)

Task 2: Incremental GitLab CI/CD Pipeline

2.1 Create a GitLab project and pushing the code

After successfully executing the code locally, it's time to add it to GitLab for Continuous Integration (CI). To initiate this process, I began by pushing the code to GitLab using the git command in GitBash as follows.

```
CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001
(main)
$ rm -rf .git

CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001
$ git init
Initialized empty Git repository in C:/Users/CHANUKA ATHALAGE/OneDrive/Desktop/SecDevOps/ISEC60001/.git/

CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001
(master)
$ git remote add origin https://gitlab.com/21953004_ChanukaAthalage/assignment_21953004.git

CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001 (main)
$ git add .

CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001 (main)
$ git commit -m "Add project files (ignoring local venvs)"
[main 13237fa] Add project files (ignoring local venvs)
 36 files changed, 1551 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 .gitlab-ci.yml
 create mode 100644 CONTRIBUTING.md
 create mode 100644 Dockerfile
 create mode 100644 LICENSE
 create mode 100644 ci/step2-ci.yml
 create mode 100644 ci/step3-ci.yml
 create mode 100644 ci/step4-ci.yml
 create mode 100644 ci/step5-ci.yml
 create mode 100644 ci/step6-ci.yml
 create mode 100644 deploy/kubernetes/aks-live.yml
 create mode 100644 deploy/kubernetes/app.sample.yml
 create mode 100644 deploy/kubernetes/readme.md
 create mode 100644 deploy/webapp.bicep
 create mode 100644 makefile
 create mode 100644 src/app/__init__.py
 create mode 100644 src/app/apis.py
 create mode 100644 src/app/conf/test.py
 create mode 100644 src/app/static/css/main.css
 create mode 100644 src/app/static/img/docker-whale.svg
 create mode 100644 src/app/static/img/favicon.ico
 create mode 100644 src/app/static/img/flask.png
 create mode 100644 src/app/static/img/github-2.svg
 create mode 100644 src/app/static/img/python.svg
 create mode 100644 src/app/static/js/monitor.js
 create mode 100644 src/app/static/js/sortable.js
 create mode 100644 src/app/templates/base.html
 create mode 100644 src/app/templates/index.html
 create mode 100644 src/app/templates/info.html
 create mode 100644 src/app/templates/monitor.html
 create mode 100644 src/app/tests/test_api.py
 create mode 100644 src/app/tests/test_views.py
 create mode 100644 src/app/views.py
 create mode 100644 src/requirements.txt
 create mode 100644 src/run.py
 create mode 100644 tests/postman_collection.json

CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001 (main)
$ git push -u origin main
Enumerating objects: 51, done.
Counting objects: 100% (51/51), done.
Delta compression using up to 12 threads
Compressing objects: 100% (49/49), done.
Writing objects: 100% (50/50), 44.02 KiB | 3.67 MiB/s, done.
Total 50 (delta 4), reused 0 (delta 0), pack-reused 0 (from 0)
To https://gitlab.com/21953004_ChanukaAthalage/assignment_21953004.git
 492dfcc..13237fa main -> main
branch 'main' set up to track 'origin/main'.

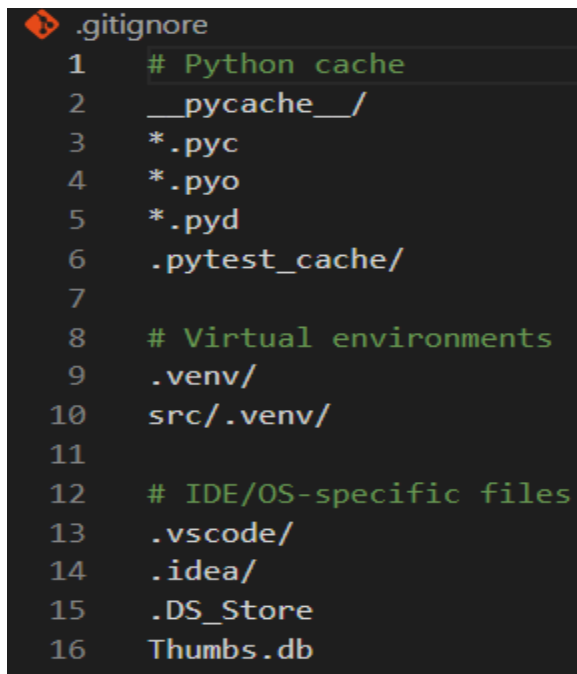
CHANUKA ATHALAGE@LAPTOP-SHG4SDRA MINGW64 ~/OneDrive/Desktop/SecDevOps/ISEC60001 (main)
$ git status
On branch main
Your branch is up to date with 'origin/main'.
```

Caption: Git commands used

First, I removed the **.git** directory from the repository because it was linked to the GitHub repository we used for this assignment. I accomplished this by using the command `rm -rf .git`. Next, I created a new **.git** directory by executing the command `git init`. After that, I added the remote GitLab repository to my local repository with the command `git remote add origin https://gitlab.com/21953004_ChanukaAthalage/assignment_21953004`.

Then, I staged all the files using the command `git add .`. Following that, I committed the changes with `git commit -m "<commit message>"`. Finally, I pushed all the files to the main branch on GitLab using the command `git push -u origin main`.

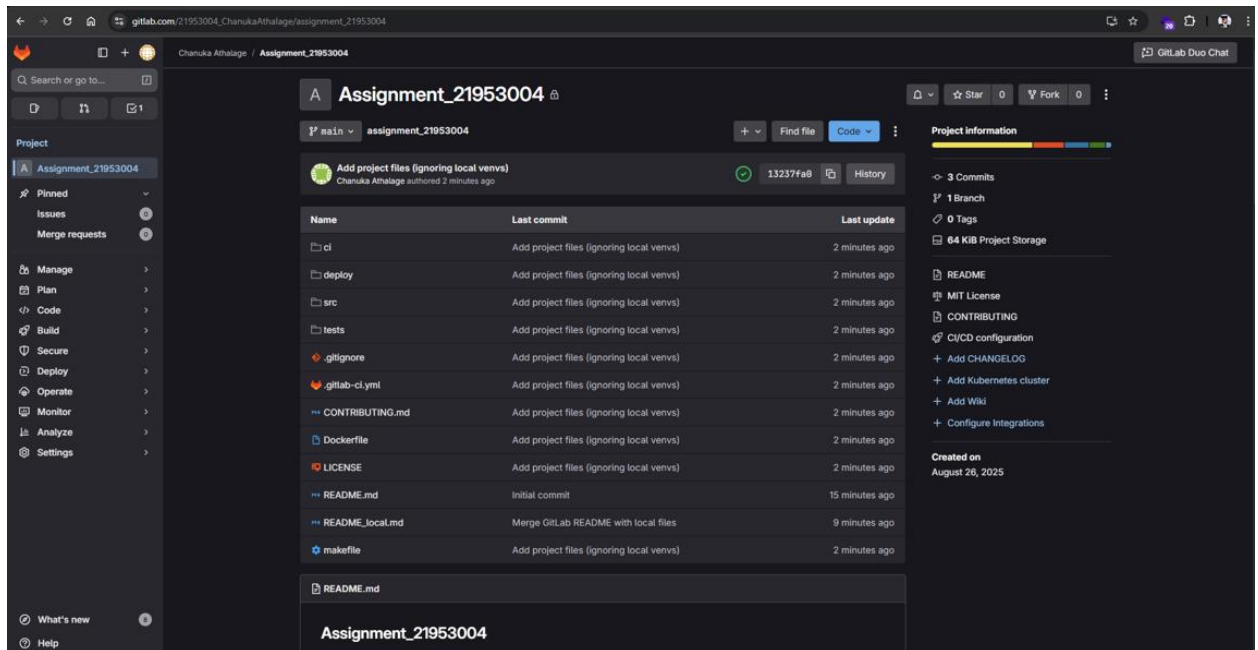
To keep everything organized, I included all virtual environment files in the **.gitignore** file, as shown below.



```
.gitignore
1  # Python cache
2  __pycache__/
3  *.pyc
4  *.pyo
5  *.pyd
6  .pytest_cache/
7
8  # Virtual environments
9  .venv/
10 src/.venv/
11
12 # IDE/OS-specific files
13 .vscode/
14 .idea/
15 .DS_Store
16 Thumbs.db
```

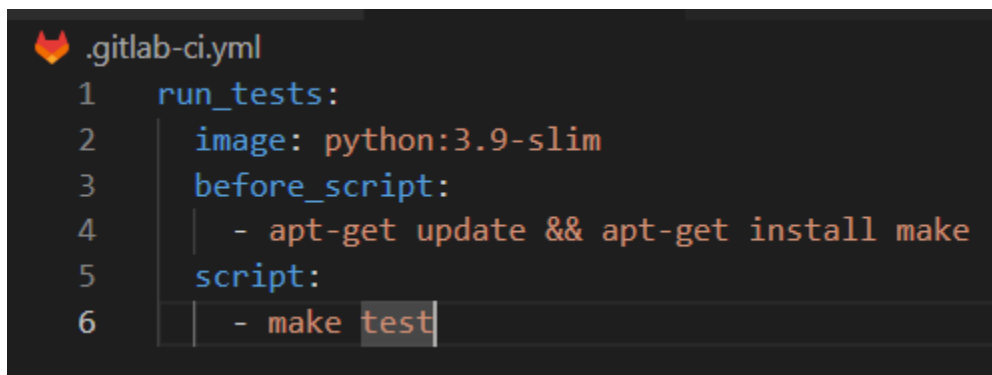
Caption: **.gitignore** file

Below is a snapshot of the GitLab repository after pushing the changes to it.



Caption: GitLab repository

After successfully pushing the code to GitLab, I reviewed the **.gitlab-ci.yml** file and the log data. Snapshots of them are included below.



Caption: .gitlab-ci.yml file view of task 1


```

167 src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
168 src/app/tests/test_views.py::test_home PASSED [ 50%]
169 src/app/tests/test_views.py::test_page_content PASSED [ 75%]
170 src/app/tests/test_views.py::test_info PASSED [100%]
171 ===== 4 passed in 2.23s =====
✓ 172 Cleaning up project directory and file based variables
173 Job succeeded

```

Caption: Output after running the pipeline successfully

2.2 Basic Pipeline

In this task, I needed to include my name and student ID in the `.gitlab-ci.yml` file and display them in the log. To accomplish this, I added an `echo` statement in the `script` section of the file. The modified file, preview of changes and the corresponding log are shown below.

- **Modified file**

```

🔥 .gitlab-ci.yml 214 B
1 run_tests:
2   image: python:3.9-slim
3   before_script:
4     - apt-get update && apt-get install make
5   script:
6     - make test
7     - echo "Hi all, my name is Chanuka Dilusha Athalage, my student id is 21953004."
8

```

Caption: `.gitlab-ci.yml` file view of task 2

- **Preview of changes**

```

✓ [📄] .gitlab-ci.yml [🔗]
1 1 run_tests:
2 2   image: python:3.9-slim
3 3 - before_script:
3 + before_script:
4 4     - apt-get update && apt-get install make
5 5   script:
6 6 - - make test
  \ No newline at end of file
6 + - make test
7 + - echo "Hi all, my name is Chanuka Dilusha Athalage, my student id is 21953004."
8 +

```

Caption: Displaying what changes are being made to the previous file

- Log

```
167 src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
168 src/app/tests/test_views.py::test_home PASSED [ 50%]
169 src/app/tests/test_views.py::test_page_content PASSED [ 75%]
170 src/app/tests/test_views.py::test_info PASSED [100%]
171 ===== 4 passed in 2.23s =====
172 $ echo "Hi all, my name is Chanuka Dilusha Athalage, my student id is 21953004."
173 Hi all, my name is Chanuka Dilusha Athalage, my student id is 21953004.
✓ 174 Cleaning up project directory and file based variables
175 Job succeeded
```

Caption: Output after running the pipeline successfully

2.3 Docker Build & Push (hardcoded credentials)

In this task, I needed to create a Docker Hub repository, build a **Docker image** using the ``.gitlab-ci.yml`` file, and then push the image to **Docker Hub** using **hardcoded credentials**. I used an **access token** for the password, which eliminates the need to mask it explicitly for the report. Below are the modified file, a preview of the changes, and the corresponding log.

- Modified file

```

🔥 .gitlab-ci.yml 448 B
1  run_tests:
2    image: python:3.9-slim
3    before_script:
4      - apt-get update && apt-get install make
5    script:
6      - make test
7
8  build_image:
9    image: docker:28.3.3
10   services:
11     - docker:28.3.3-dind
12   variables:
13     DOCKER_TLS_CERTDIR: "/certs"
14   before_script:
15     - docker login -u 21953004 -p dckr_pat_L9ax6BEr2Rv89LREcJEJEYSYN5A
16   script:
17     - docker build -t 21953004/assignment-21953004:v1 .
18     - docker push 21953004/assignment-21953004:v1
19

```

Caption: .gitlab-ci.yml file view for task 3

- Preview of changes

```

✓ 📄 .gitlab-ci.yml 🗑
1  1  run_tests:
2  2    image: python:3.9-slim
3  3    before_script:
4  -  - apt-get update && apt-get install make
4  +  - apt-get update && apt-get install make
5  5    script:
6  6      - make test
7  -  - echo "Hi all, my name is Chanuka Dilusha Athalage, my student id is 21953004."
8  7
8  + build_image:
9  +   image: docker:28.3.3
10 +   services:
11 +     - docker:28.3.3-dind
12 +   variables:
13 +     DOCKER_TLS_CERTDIR: "/certs"
14 +   before_script:
15 +     - docker login -u 21953004 -p dckr_pat_71YNAVL0mt09PzgJPvJXdMkerIU
16 +   script:
17 +     - docker build -t 21953004:assignment-21953004:v1 .
18 +     - docker push 21953004:assignment-21953004:v1

```

Caption: Displaying what changes are being made to the previous file

- Log
 - run_tests

```

166 collecting ... collected 4 items
167 src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
168 src/app/tests/test_views.py::test_home PASSED [ 50%]
169 src/app/tests/test_views.py::test_page_content PASSED [ 75%]
170 src/app/tests/test_views.py::test_info PASSED [100%]
171 ===== 4 passed in 2.27s =====
✓ 172 Cleaning up project directory and file based variables
173 Job succeeded

```

Caption: Output after running the test successfully

- build_image

```

200 $ docker push 21953004/assignment-21953004:v1
201 The push refers to repository [docker.io/21953004/assignment-21953004]
202 a658bf6b7c77: Preparing
203 641cf5d3877a: Preparing
204 fee668dd4162: Preparing
205 2ca1f55fd5b7: Preparing
206 426856515173: Preparing
207 067ea27560c1: Preparing
208 7fb1037e08b3: Preparing
209 14cbeede8d6e: Preparing
210 ae2d55769c5e: Preparing
211 e2ef8a51359d: Preparing
212 14cbeede8d6e: Waiting
213 ae2d55769c5e: Waiting
214 067ea27560c1: Waiting
215 7fb1037e08b3: Waiting
216 e2ef8a51359d: Waiting
217 426856515173: Pushed
218 2ca1f55fd5b7: Pushed
219 a658bf6b7c77: Pushed
220 641cf5d3877a: Pushed
221 067ea27560c1: Mounted from library/python
222 7fb1037e08b3: Mounted from library/python
223 ae2d55769c5e: Mounted from library/python
224 14cbeede8d6e: Mounted from library/python
225 e2ef8a51359d: Mounted from library/python
226 fee668dd4162: Pushed
227 v1: digest: sha256:f198010a88505a72cb3eae8d0b36fd5fc243880d62de00900dc46a9a78e9cb7 size: 2411
✓ 228 Cleaning up project directory and file based variables
229 Job succeeded

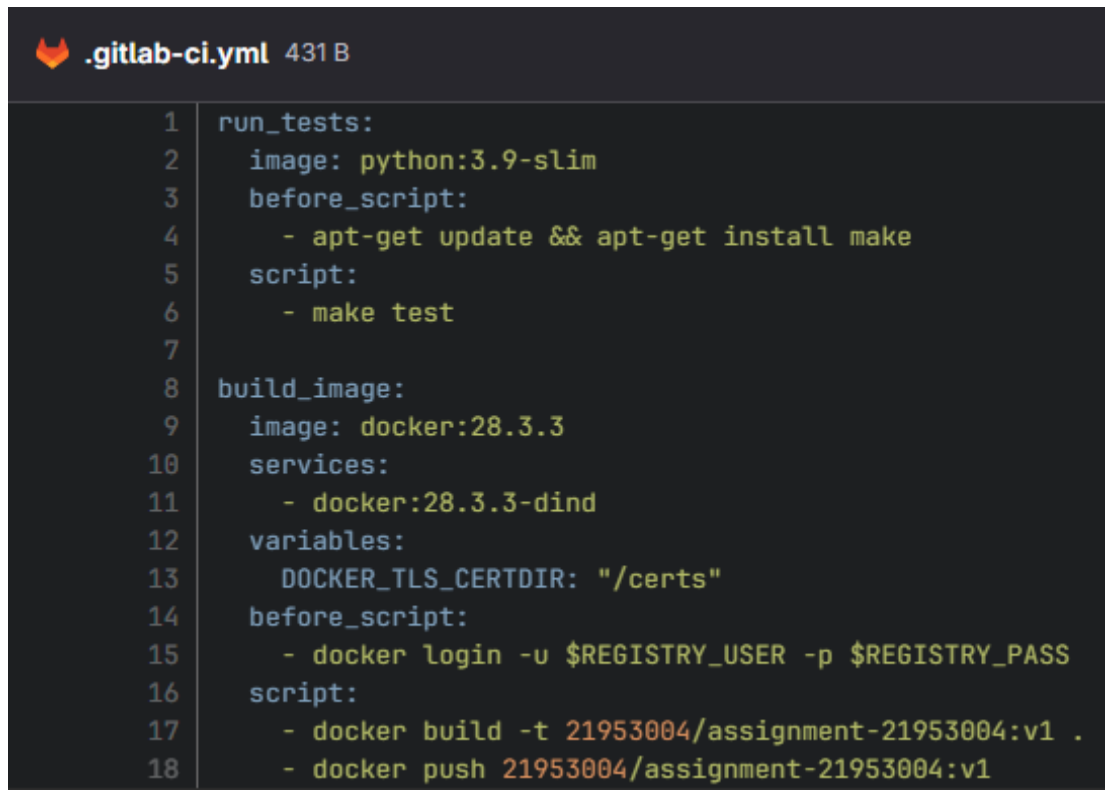
```

Caption: Output after building the image successfully

2.4 Secure with GitLab Variable

In this task, I needed to eliminate hardcoded Docker Hub credentials from the `.gitlab-ci.yml` file and replace them with **GitLab CI/CD** variables. This modification prevents secrets from being stored in the repository or appearing in logs. By doing so, it reduces the risk of credential exposure to attackers and enhances the security of the system. Below are the snapshots of important tasks.

- **Modified file**



```
.gitlab-ci.yml 431 B
1  run_tests:
2    image: python:3.9-slim
3    before_script:
4      - apt-get update && apt-get install make
5    script:
6      - make test
7
8  build_image:
9    image: docker:28.3.3
10   services:
11     - docker:28.3.3-dind
12   variables:
13     DOCKER_TLS_CERTDIR: "/certs"
14   before_script:
15     - docker login -u $REGISTRY_USER -p $REGISTRY_PASS
16   script:
17     - docker build -t 21953004/assignment-21953004:v1 .
18     - docker push 21953004/assignment-21953004:v1
```

Caption: .gitlab-ci.yml file view for task 4

- Preview of changes

```

v [F] .gitlab-ci.yml [C]
...  ...  @@ -12,7 +12,7 @@ build_image:
12  12      variables:
13  13          DOCKER_TLS_CERTDIR: "/certs"
14  14      before_script:
15  - - docker login -u 21953004 -p dckr_pat_L9ax6BEr2Rv89LREcJEJEYSYN5A
15  + - docker login -u $REGISTRY_USER -p $REGISTRY_PASS
16  16      script:
17  17          - docker build -t 21953004/assignment-21953004:v1 .
18  - - docker push 21953004/assignment-21953004:v1
18  + - docker push 21953004/assignment-21953004:v1
    \ No newline at end of file

```

Caption: Displaying what changes are being made to the previous file

- Log
 - run_tests

```

166 collecting ... collected 4 items
167 src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
168 src/app/tests/test_views.py::test_home PASSED [ 50%]
169 src/app/tests/test_views.py::test_page_content PASSED [ 75%]
170 src/app/tests/test_views.py::test_info PASSED [100%]
171 ===== 4 passed in 2.20s =====
v 172 Cleaning up project directory and file based variables
173 Job succeeded

```

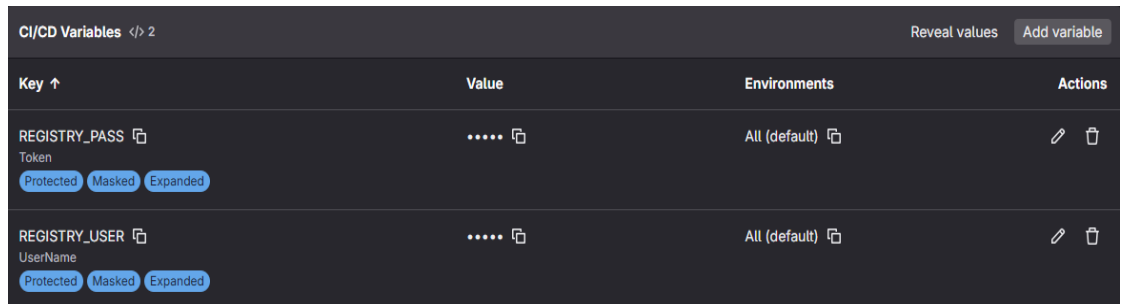
Caption: Output after running the tests successfully

- **build_image**

```
203 $ docker push [MASKED]/assignment-[MASKED]:v1
204 The push refers to repository [docker.io/[MASKED]/assignment-[MASKED]]
205 7240893d682a: Preparing
206 f416122e844a: Preparing
207 e3bbee44c6d8: Preparing
208 2c4584ff655a: Preparing
209 159c331f53e8: Preparing
210 067ea27560c1: Preparing
211 7fb1037e08b3: Preparing
212 14cbeede8d6e: Preparing
213 ae2d55769c5e: Preparing
214 e2ef8a51359d: Preparing
215 067ea27560c1: Waiting
216 7fb1037e08b3: Waiting
217 14cbeede8d6e: Waiting
218 ae2d55769c5e: Waiting
219 e2ef8a51359d: Waiting
220 2c4584ff655a: Pushed
221 159c331f53e8: Pushed
222 7240893d682a: Pushed
223 067ea27560c1: Layer already exists
224 f416122e844a: Pushed
225 14cbeede8d6e: Layer already exists
226 7fb1037e08b3: Layer already exists
227 ae2d55769c5e: Layer already exists
228 e2ef8a51359d: Layer already exists
229 e3bbee44c6d8: Pushed
230 v1: digest: sha256:9bd14d5efdcc6a06e6cf72aacf535d62ee121d6c098b79c5cce95bb82dbd35d size: 2411
231 Cleaning up project directory and file based variables
232 Job succeeded
```

Caption: Output after building the image successfully

- **CI/CD variables**



The screenshot shows the 'CI/CD Variables' page in GitLab. It features a table with columns: Key, Value, Environments, and Actions. Two variables are listed: 'REGISTRY_PASS' (Token) and 'REGISTRY_USER' (UserName). Both are masked with dots and have 'Protected', 'Masked', and 'Expanded' status buttons. The 'Environments' column shows 'All (default)' for both. The 'Actions' column has edit and delete icons.

Key ↑	Value	Environments	Actions
REGISTRY_PASS Token	All (default)	[edit] [delete]
REGISTRY_USER UserName	All (default)	[edit] [delete]

Caption: User name and password saved as CI/CD variables

- **Image in Docker Hub repository**



The screenshot shows a Docker image summary bar. It includes a green 'v1' tag, a Docker logo, the word 'Image', the age 'less than 1 day', and the time 'about 10 hours'.

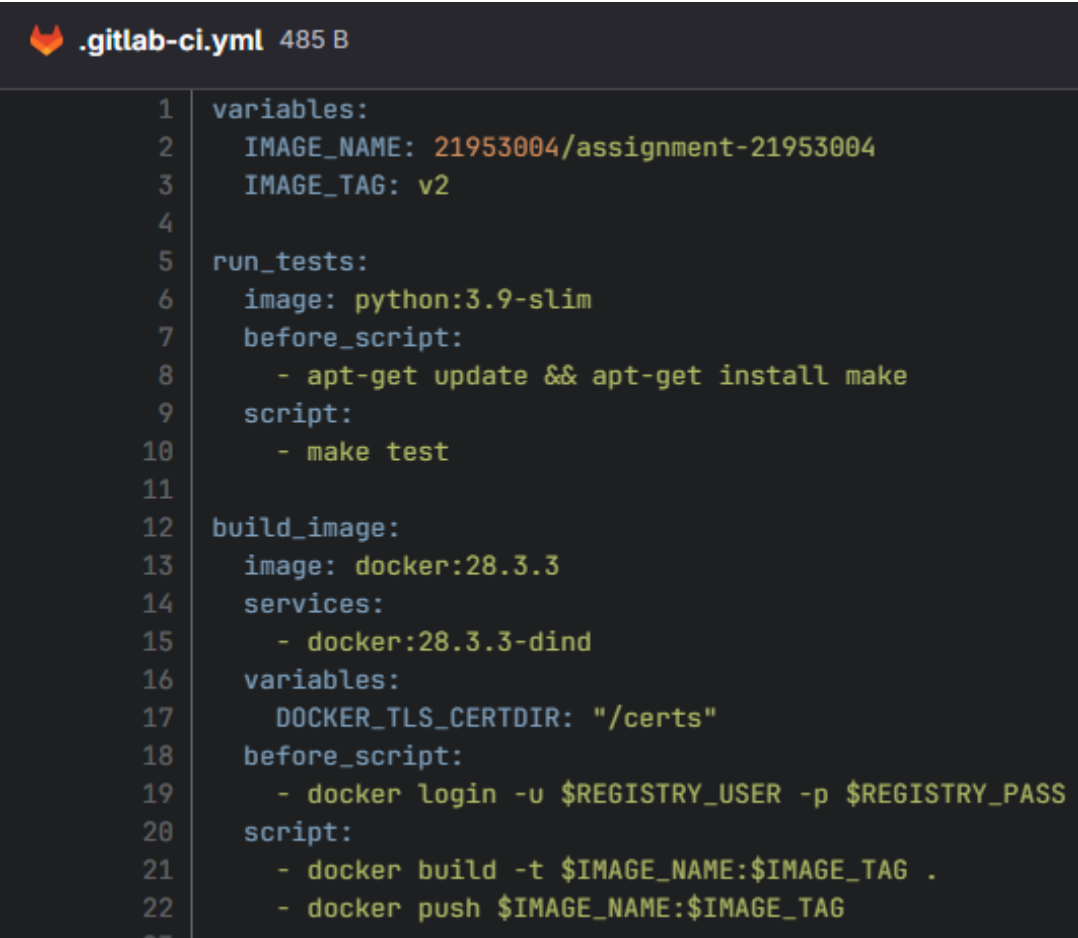
v1	Image	less than 1 day	about 10 hours
----	-------	-----------------	----------------

Caption: Docker image created for the task with v1 tag

2.5 Use Non-Sensitive Variables

In this task, I replaced hardcoded image references in the **.gitlab-ci.yml** file with **non-sensitive GitLab CI/CD variables**: **IMAGE_NAME** and **IMAGE_TAG**. This change enhances maintainability and reduces the potential for human error by centralising the repository and tag information in one location. Additionally, it simplifies the process of updating versions or reusing the same pipeline for different environments (such as v3, v4, staging, and production) without the need to edit the YAML file each time. Below are snapshots of the key tasks involved.

- Modified file



```
.gitlab-ci.yml 485 B
1 variables:
2   IMAGE_NAME: 21953004/assignment-21953004
3   IMAGE_TAG: v2
4
5 run_tests:
6   image: python:3.9-slim
7   before_script:
8     - apt-get update && apt-get install make
9   script:
10    - make test
11
12 build_image:
13   image: docker:28.3.3
14   services:
15     - docker:28.3.3-dind
16   variables:
17     DOCKER_TLS_CERTDIR: "/certs"
18   before_script:
19     - docker login -u $REGISTRY_USER -p $REGISTRY_PASS
20   script:
21     - docker build -t $IMAGE_NAME:$IMAGE_TAG .
22     - docker push $IMAGE_NAME:$IMAGE_TAG
23
```

Caption: .gitlab-ci.yml file view for task 5

- Preview of changes

```

✓ [E] .gitlab-ci.yml [C]
1 + variables:
2 +   IMAGE_NAME: 21953004/assignment-21953004
3 +   IMAGE_TAG: v2
4 +
1 5 run_tests:
2 6   image: python:3.9-slim
3 7   before_script:
... @@ -14,5 +18,5 @@ build_image:
14 18   before_script:
15 19     - docker login -u $REGISTRY_USER -p $REGISTRY_PASS
16 20   script:
17 -   - docker build -t 21953004/assignment-21953004:v1 .
18 -   - docker push 21953004/assignment-21953004:v1
\ No newline at end of file
21 +   - docker build -t $IMAGE_NAME:$IMAGE_TAG .
22 +   - docker push $IMAGE_NAME:$IMAGE_TAG

```

Caption: Displaying what changes are being made to the previous file

- Log
 - run_tests

```

166 collecting ... collected 4 items
167 src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
168 src/app/tests/test_views.py::test_home PASSED [ 50%]
169 src/app/tests/test_views.py::test_page_content PASSED [ 75%]
170 src/app/tests/test_views.py::test_info PASSED [100%]
171 ===== 4 passed in 2.21s =====
172 Cleaning up project directory and file based variables
173 Job succeeded

```

Caption: Output after running the test successfully

- **build_image**

```
200 $ docker push $IMAGE_NAME:$IMAGE_TAG
201 The push refers to repository [docker.io/[MASKED]/assignment-[MASKED]]
202 ae35c4a10b36: Preparing
203 9ceda5bab5e6: Preparing
204 2ace3a587d0c: Preparing
205 b1099bf62173: Preparing
206 ab19b4c6c00d: Preparing
207 067ea27560c1: Preparing
208 7fb1037e08b3: Preparing
209 14cbeede8d6e: Preparing
210 ae2d55769c5e: Preparing
211 e2ef8a51359d: Preparing
212 067ea27560c1: Waiting
213 7fb1037e08b3: Waiting
214 14cbeede8d6e: Waiting
215 ae2d55769c5e: Waiting
216 e2ef8a51359d: Waiting
217 ab19b4c6c00d: Pushed
218 b1099bf62173: Pushed
219 9ceda5bab5e6: Pushed
220 ae35c4a10b36: Pushed
221 067ea27560c1: Layer already exists
222 14cbeede8d6e: Layer already exists
223 7fb1037e08b3: Layer already exists
224 ae2d55769c5e: Layer already exists
225 e2ef8a51359d: Layer already exists
226 2ace3a587d0c: Pushed
227 v2: digest: sha256:3a83dac51be5b9aec75da4a8807b85e55c75d417e497bb2fe5d2ec504b4b14df size: 2411
228 Cleaning up project directory and file based variables
229 Job succeeded
```

Caption: Output after building the image successfully

- **Image in Docker Hub repository**



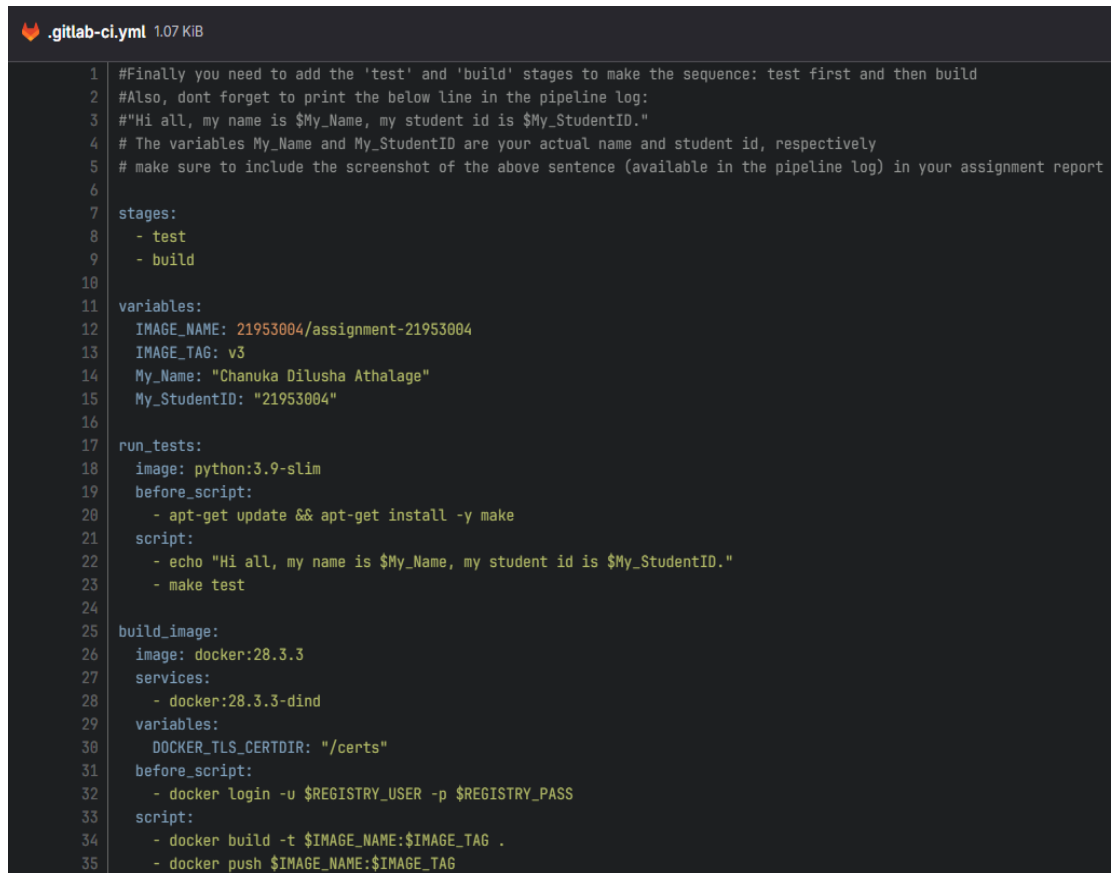
Caption: Docker image created for the task with v2 tag

2.6 Finalised Pipeline

I finalised the CI/CD pipeline, ensuring that tests run first and that the image build and push occur second. I printed the required greeting using `$My_Name` and `$My_StudentID`, and I parameterised the image reference so the build step utilises `"$IMAGE_NAME:$IMAGE_TAG"` (in my case, `21953004/assignment-21953004:v3`).

This structure is important because enforcing the test-before-build sequence guarantees that quality checks are performed before any artifacts are published. The greeting in the logs verifies the author's identity as specified in the brief. Additionally, using variables makes the pipeline more maintainable, allowing for easy changes to tags or repositories without needing to modify the build logic itself.

- **Modified file**



```
.gitlab-ci.yml 1.07 KIB
1 #Finally you need to add the 'test' and 'build' stages to make the sequence: test first and then build
2 #Also, dont forget to print the below line in the pipeline log:
3 #"Hi all, my name is $My_Name, my student id is $My_StudentID."
4 # The variables My_Name and My_StudentID are your actual name and student id, respectively
5 # make sure to include the screenshot of the above sentence (available in the pipeline log) in your assignment report
6
7 stages:
8   - test
9   - build
10
11 variables:
12   IMAGE_NAME: 21953004/assignment-21953004
13   IMAGE_TAG: v3
14   My_Name: "Chanuka Dilusha Athalage"
15   My_StudentID: "21953004"
16
17 run_tests:
18   image: python:3.9-slim
19   before_script:
20     - apt-get update && apt-get install -y make
21   script:
22     - echo "Hi all, my name is $My_Name, my student id is $My_StudentID."
23     - make test
24
25 build_image:
26   image: docker:28.3.3
27   services:
28     - docker:28.3.3-dind
29   variables:
30     DOCKER_TLS_CERTDIR: "/certs"
31   before_script:
32     - docker login -u $REGISTRY_USER -p $REGISTRY_PASS
33   script:
34     - docker build -t $IMAGE_NAME:$IMAGE_TAG .
35     - docker push $IMAGE_NAME:$IMAGE_TAG
```

Caption: .gitlab-ci.yml file view for task 1

- **Preview of changes**

```

1  + #Finally you need to add the 'test' and 'build' stages to make the sequence: test first and then build
2  + #Also, dont forget to print the below line in the pipeline log:
3  + #"Hi all, my name is $My_Name, my student id is $My_StudentID."
4  + # The variables My_Name and My_StudentID are your actual name and student id, respectively
5  + # make sure to include the screenshot of the above sentence (available in the pipeline log) in your assignment report
6  +
7  + stages:
8  +   - test
9  +   - build
10 +
11 variables:
12   IMAGE_NAME: 21953004/assignment-21953004
13 -  IMAGE_TAG: v2
14 +  IMAGE_TAG: v3
15 +  My_Name: "Chanuka Dilusha Athalage"
16 +  My_StudentID: "21953004"
17
18 run_tests:
19   image: python:3.9-slim
20   before_script:
21     - apt-get update && apt-get install make
22     - apt-get update && apt-get install -y make
23   script:
24     - echo "Hi all, my name is $My_Name, my student id is $My_StudentID."
25     - make test
26
27 build_image:

```

Caption: Displaying what changes are being made to the previous file

- **Log**
 - **run_tests**

```

168 collecting ... collected 4 items
169 src/app/tests/test_api.py::test_api_monitor PASSED [ 25%]
170 src/app/tests/test_views.py::test_home PASSED [ 50%]
171 src/app/tests/test_views.py::test_page_content PASSED [ 75%]
172 src/app/tests/test_views.py::test_info PASSED [100%]
173 ===== 4 passed in 2.20s =====
174 Cleaning up project directory and file based variables
175 Job succeeded

```

Caption: Output after running the test successfully

- **build_image**

```
198 $ docker push $IMAGE_NAME:$IMAGE_TAG
199 The push refers to repository [docker.io/[MASKED]/assignment-[MASKED]]
200 e567f371bf8a: Preparing
201 73fec360fa55: Preparing
202 f8ca59fd5d67: Preparing
203 e2d0a1b91f62: Preparing
204 379668b65a5b: Preparing
205 067ea27560c1: Preparing
206 7fb1037e08b3: Preparing
207 14cbeede8d6e: Preparing
208 ae2d55769c5e: Preparing
209 e2ef8a51359d: Preparing
210 067ea27560c1: Waiting
211 ae2d55769c5e: Waiting
212 e2ef8a51359d: Waiting
213 7fb1037e08b3: Waiting
214 14cbeede8d6e: Waiting
215 379668b65a5b: Pushed
216 73fec360fa55: Pushed
217 e567f371bf8a: Pushed
218 e2d0a1b91f62: Pushed
219 067ea27560c1: Layer already exists
220 7fb1037e08b3: Layer already exists
221 14cbeede8d6e: Layer already exists
222 ae2d55769c5e: Layer already exists
223 e2ef8a51359d: Layer already exists
224 f8ca59fd5d67: Pushed
225 v3: digest: sha256:821435d2b2409f02422f381fced7623be0ae0a198036df9fecdf63a134c13c96 size: 2411
✓ 226 Cleaning up project directory and file based variables
227 Job succeeded
```

Caption: Output after building the image successfully

- **Image in Docker Hub repository (All the images)**

21953004/assignment-21953004

Last pushed about 9 hours ago · Repository size: 90.7 MB

SecDevOps assignment 1

Add a category

General

Tags

Image Management

Collaborators

Webhooks

Settings

Tags

DOCKER SCOUT INACTIVE

This repository contains 3 tag(s).

Tag	OS	Type	Pulled	Pushed
v3		Image	less than 1 day	about 9 hours
v2		Image	less than 1 day	about 10 hours
v1		Image	less than 1 day	about 10 hours

See all

Caption: All Docker images