

Name: Aarya Tiwari

Roll No : 16010421119

Batch A3

Experiment Number: 5

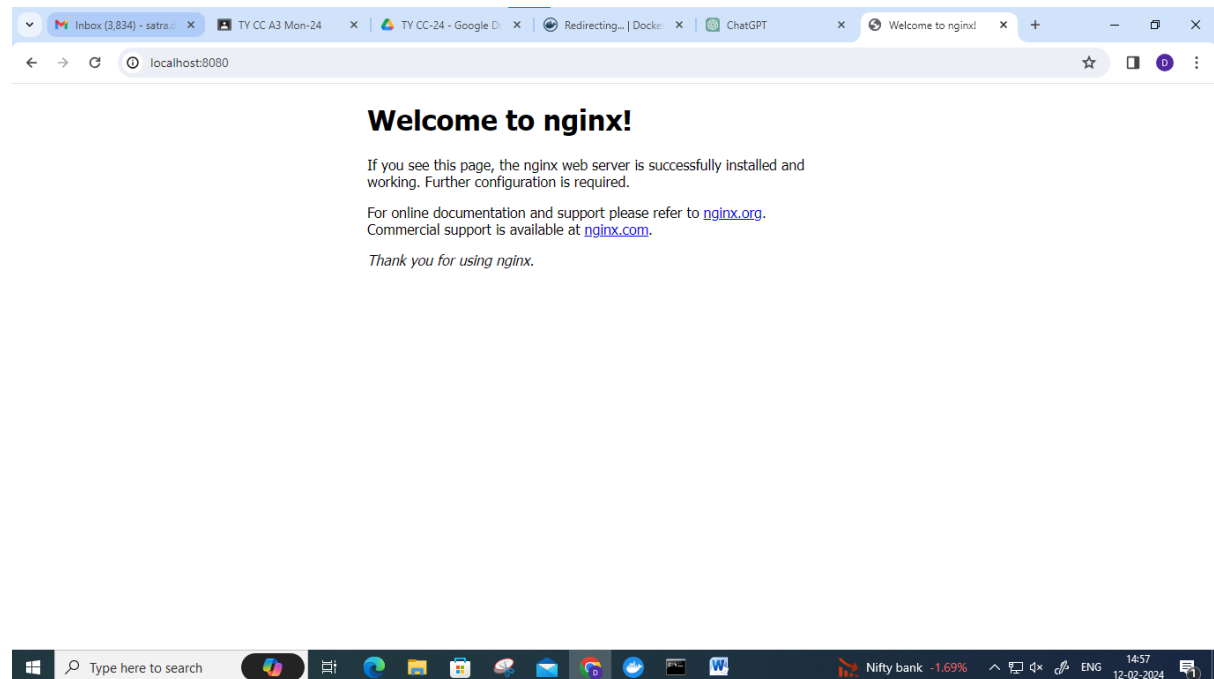
```
C:\WINDOWS\system32>docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
Digest: sha256:84c52dfd55c467e12ef85cad6a252c0990564f03c4850799bf41dd738738691f
Status: Image is up to date for nginx:latest
docker.io/library/nginx:latest

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview nginx

C:\WINDOWS\system32>docker run -d -p 8080:80 nginx
3a4f4ffec0eabe7949c432d0af36e4208b6551e8a175a077137c20452f3af7d0

C:\WINDOWS\system32>
C:\WINDOWS\system32>w
```

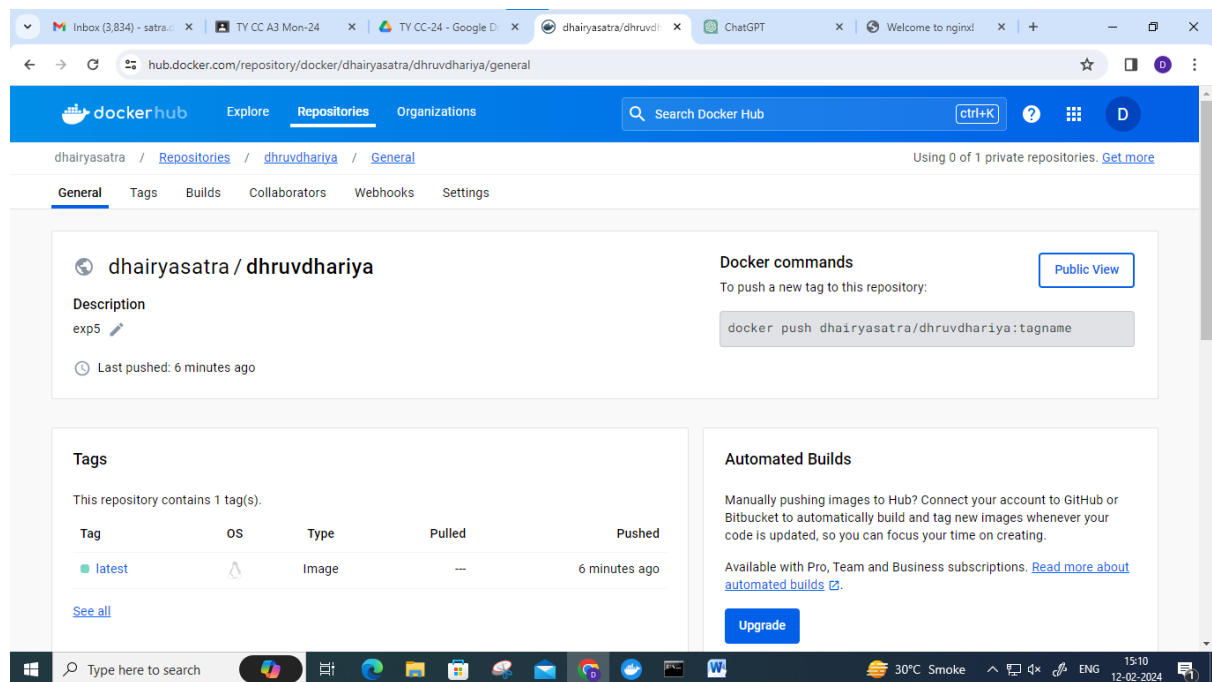
Nginx is running



## Push Nginx Image to Docker Hub:

```
operable program or batch file.
t.
C:\WINDOWS\system32>docker tag nginx dhairyasatra/dhruvdhariya
C:\WINDOWS\system32>
C:\WINDOWS\system32># Push the tagged image to Docker Hub
'#' is not recognized as an internal or external command,
operable program or batch file.
C:\WINDOWS\system32>docker push dhairyasatra/dhruvdhariya
Using default tag: latest
The push refers to repository [docker.io/dhairyasatra/dhruvdhariya]
f205d290cd76: Mounted from twishaahuja/gifted_hawking
2b28485849ea: Mounted from twishaahuja/gifted_hawking
9f21a390e3f6: Mounted from twishaahuja/gifted_hawking
06536efc503a: Mounted from twishaahuja/gifted_hawking
84e0c9ef07d7: Mounted from twishaahuja/gifted_hawking
83bdf27d9eaa: Mounted from twishaahuja/gifted_hawking
fb1bd2fc5282: Mounted from twishaahuja/gifted_hawking
latest: digest: sha256:6a9af2366105c104e353d16998458d6a15aa5d6db0861ad9ce98538890391950 size: 1778
C:\WINDOWS\system32>
```

Push successfully to docker app.



```

Select Administrator: Command Prompt

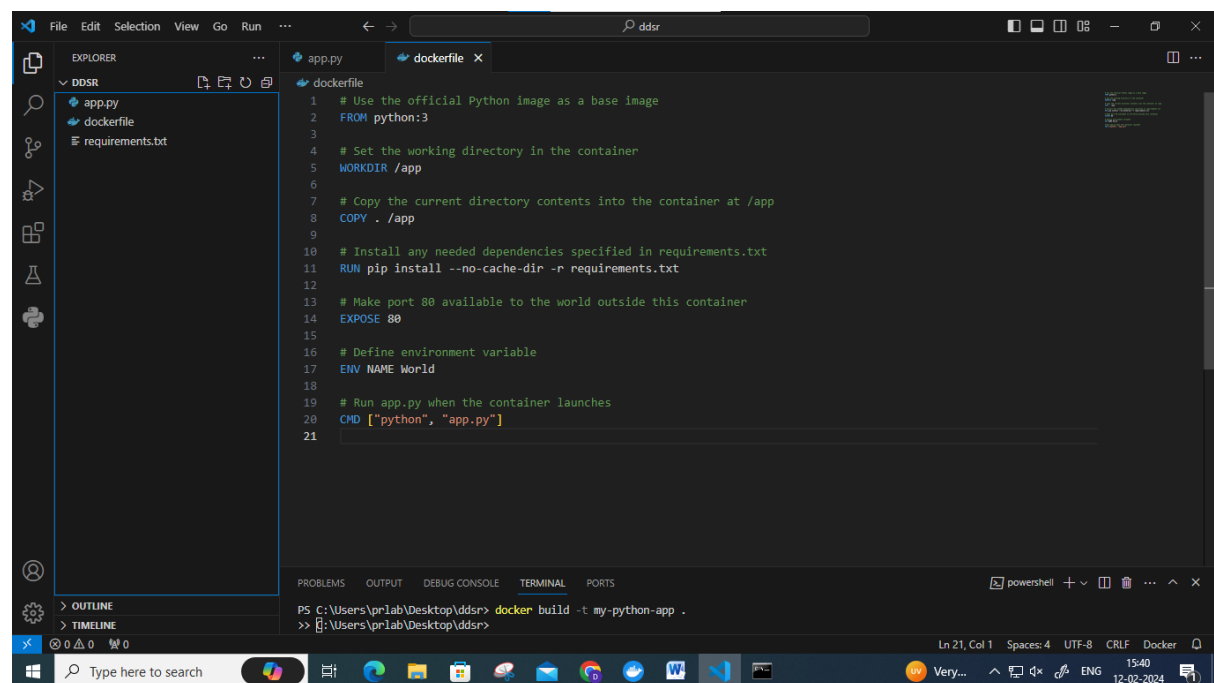
9f21a390e3f6: Mounted from twishaahuja/gifted_hawking
06536efc503a: Mounted from twishaahuja/gifted_hawking
84e0c9ef07d7: Mounted from twishaahuja/gifted_hawking
83bdf27d9eaa: Mounted from twishaahuja/gifted_hawking
fb1bd2fc5282: Mounted from twishaahuja/gifted_hawking
latest: digest: sha256:6a9af2366105c104e353d16998458d6a15aa5d6db0861ad9ce98538890391950 size: 1778

C:\WINDOWS\system32>docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
Digest: sha256:84c52dfd55c467e12ef85cad6a252c0990564f03c4850799bf41dd738738691f
Status: Image is up to date for nginx:latest
docker.io/library/nginx:latest

What's Next?
View a summary of image vulnerabilities and recommendations → docker scout quickview nginx

C:\WINDOWS\system32>
```

Dockerfile for python script:



The screenshot shows the Visual Studio Code editor with a Dockerfile open. The Dockerfile contains the following instructions:

```
1 # Use the official Python image as a base image
2 FROM python:3
3
4 # Set the working directory in the container
5 WORKDIR /app
6
7 # Copy the current directory contents into the container at /app
8 COPY . /app
9
10 # Install any needed dependencies specified in requirements.txt
11 RUN pip install --no-cache-dir -r requirements.txt
12
13 # Make port 80 available to the world outside this container
14 EXPOSE 80
15
16 # Define environment variable
17 ENV NAME World
18
19 # Run app.py when the container launches
20 CMD ["python", "app.py"]
21
```

The Explorer sidebar on the left shows the project structure with files: app.py, dockerfile, and requirements.txt. The bottom status bar indicates the file is at line 21, column 1, using UTF-8 encoding and CRLF line endings.

## Docker image created for python script

```
access C:\Windows\System32\cmd.exe
rive Microsoft Windows [Version 10.0.19045.3930]
C: [+] Building 96.4s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
Objects [+] Building 96.7s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
top => [internal] load .dockerignore                          2.9s
ments [+] Building 96.8s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
nloads => [internal] load .dockerignore                      2.9s
ic => => transferring context: 2B                             0.2s
=> [internal] load metadata for docker.io/library/python:3 6.8s
res => [auth] library/python:pull token for registry-1.docker.io 0.0s
=> [1/4] FROM docker.io/library/python:3@sha256:5eda1a3e78a90e7542c221cf525233f4b958a5778e61bcc350cc1e0d2bcf7ecf 86.7s
=> => resolve docker.io/library/python:3@sha256:5eda1a3e78a90e7542c221cf525233f4b958a5778e61bcc350cc1e0d2bcf7ecf 1.3s
I Disk => => sha256:5eda1a3e78a90e7542c221cf525233f4b958a5778e61bcc350cc1e0d2bcf7ecf 2.14kB / 2.14kB      0.0s
I Disk => => sha256:eae24db48035197c7c6a521d5263e125cfba1d59b2d03bdc63ce11655af1695b 2.01kB / 2.01kB      0.0s
=> => sha256:939b824ad8471ca0e514c78f83a0db948e169720d59bc0a21546e1a3f489dd1e 7.11kB / 7.11kB      0.0s
ork => => sha256:e08e8703b2fb5e50153f792f3192087d26970d262806b397049d61b9a14b3af5 24.05MB / 24.05MB 5.5s
[+] Building 97.0s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
=> [internal] load .dockerignore                          2.9s
[+] Building 97.4s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
=> [internal] load .dockerignore                          2.9s
[+] Building 97.6s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
=> [internal] load .dockerignore                          2.9s
[+] Building 98.0s (5/9)                                docker:default
=> => transferring dockerfile: 559B                        0.0s
=> [internal] load .dockerignore                          2.9s

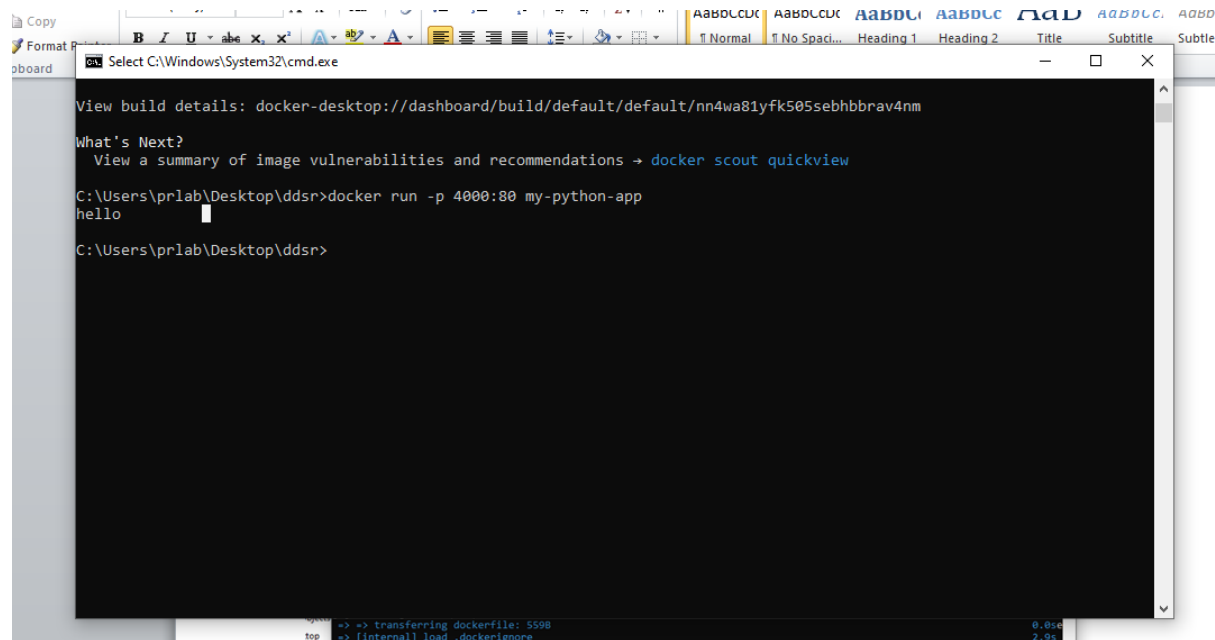
at C:\Windows\System32\cmd.exe
=> => sha256:09864a904dd0b3b594959a6dfd2aff6d693ecce79a3c37484bb2e0a95fbf51a7 6.39MB / 6.39MB 15.4s
=> => extracting sha256:6a2299ae9cfd996c1149a699d36cdaa76fa332c8e9d66d6678fa9a231d9ead04c 14.9s
=> => sha256:a21b4eeffed16cdc5e86b376238947d938c8b75745399c8727d1fe6947fecdb8b 22.71MB / 22.71MB 21.0s
=> => sha256:14fa1d4427507a8a1da1db6cde1ed11e4658ce29e828883f4aee5384ae0f3b2 245B / 245B 21.2s
=> => sha256:4c1733c93f945b62e1237490dd12a5b6191e250d5cf870984360083e9de8704 2.70MB / 2.70MB 23.3s
=> => extracting sha256:e08e8703b2fb5e50153f792f3192087d26970d262806b397049d61b9a14b3af5 3.9s
=> => extracting sha256:68e92d11b04ec0fe48e60d59964704aca234084f87af5d1a068c49456b37fe3d 8.1s
=> => extracting sha256:5b9fe7fef9befda786bc8e1dd1ae42ffd8b9c37a4cce3c433e5ebb890cb1672 26.7s
=> => extracting sha256:09864a904dd0b3b594959a6dfd2aff6d693ecce79a3c37484bb2e0a95fbf51a7 0.9s
=> => extracting sha256:a21b4eeffed16cdc5e86b376238947d938c8b75745399c8727d1fe6947fecdb8b 2.0s
=> => extracting sha256:14fa1d4427507a8a1da1db6cde1ed11e4658ce29e828883f4aee5384ae0f3b2 0.0s
=> => extracting sha256:4c1733c93f945b62e1237490dd12a5b6191e250d5cf870984360083e9de8704 0.8s
=> [internal] load build context                          1.7s
=> => transferring context: 1.04kB                          0.0s
=> [2/4] WORKDIR /app                                    3.3s
=> [3/4] COPY . /app                                      1.7s
=> [4/4] RUN pip install --no-cache-dir -r requirements.txt 32.2s
=> exporting to image                                    3.1s
=> => exporting layers                                       2.9s
=> => writing image sha256:734fc0506dbf9afa955b73ff85ede5b966d0b3d98380db6b78ac76b4ac3fa352 0.1s
=> => naming to docker.io/library/my-python-app            0.1s

View build details: docker-desktop://dashboard/build/default/default/nn4wa81yfk505sebhbrav4nm

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview

C:\Users\prlab\Desktop\ddsr>
```

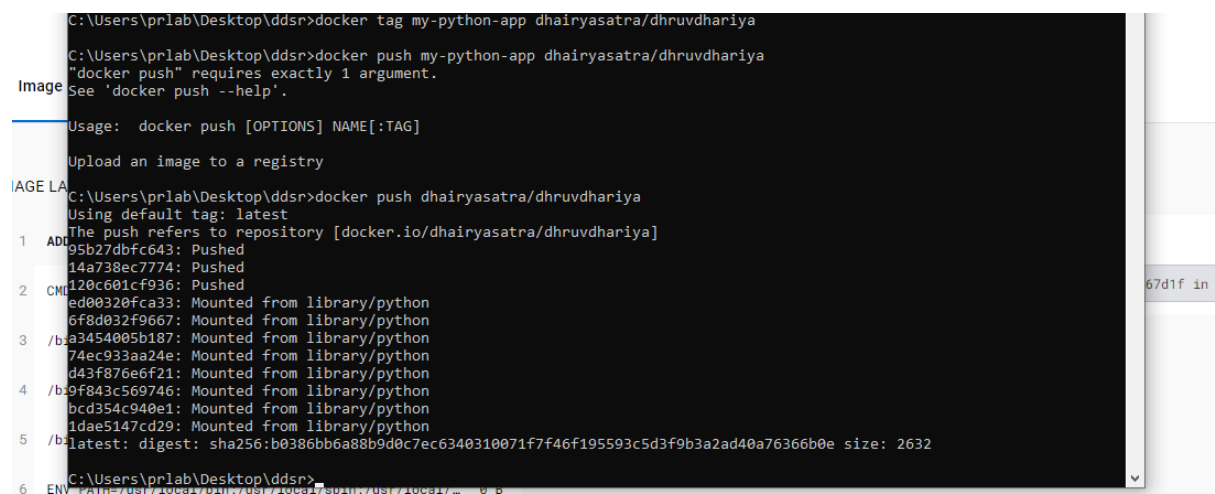
## Running python script via docker image



The screenshot shows a Docker Desktop terminal window. The terminal displays the following text:

```
View build details: docker-desktop:///dashboard/build/default/default/nn4wa81yfk505sehbbrav4nm  
What's Next?  
View a summary of image vulnerabilities and recommendations → docker scout quickview  
C:\Users\prlab\Desktop\ddsr>docker run -p 4000:80 my-python-app  
hello  
C:\Users\prlab\Desktop\ddsr>
```

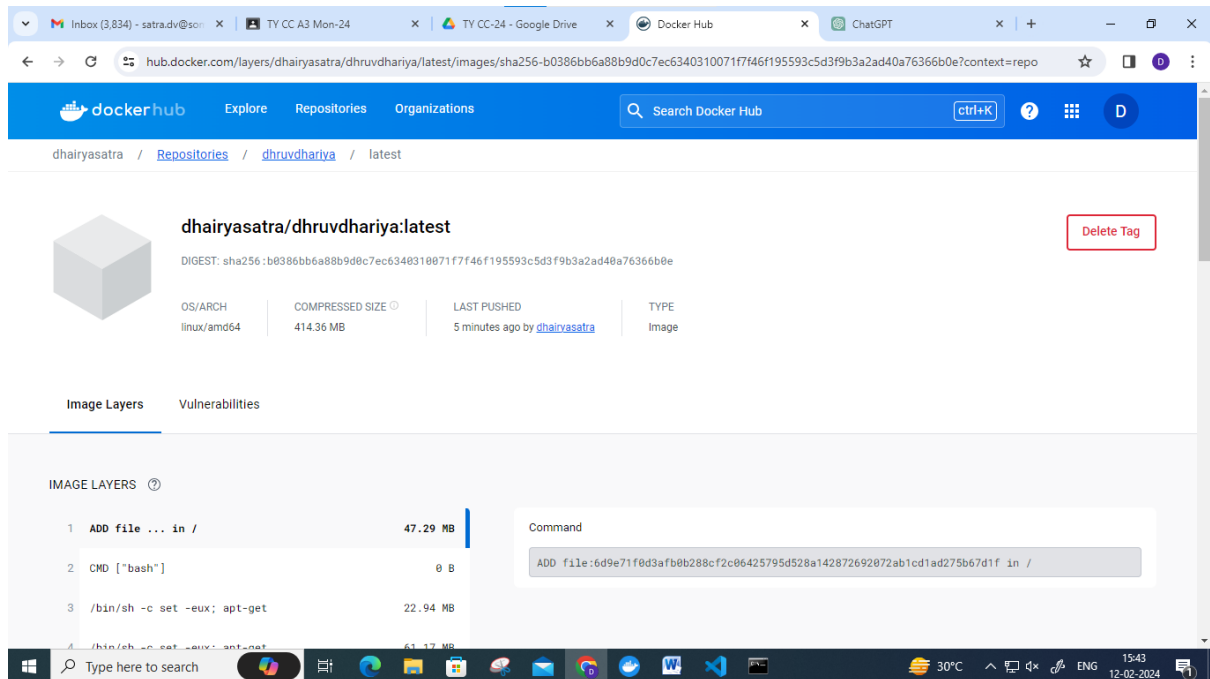
## Pushing py.-script image to docker



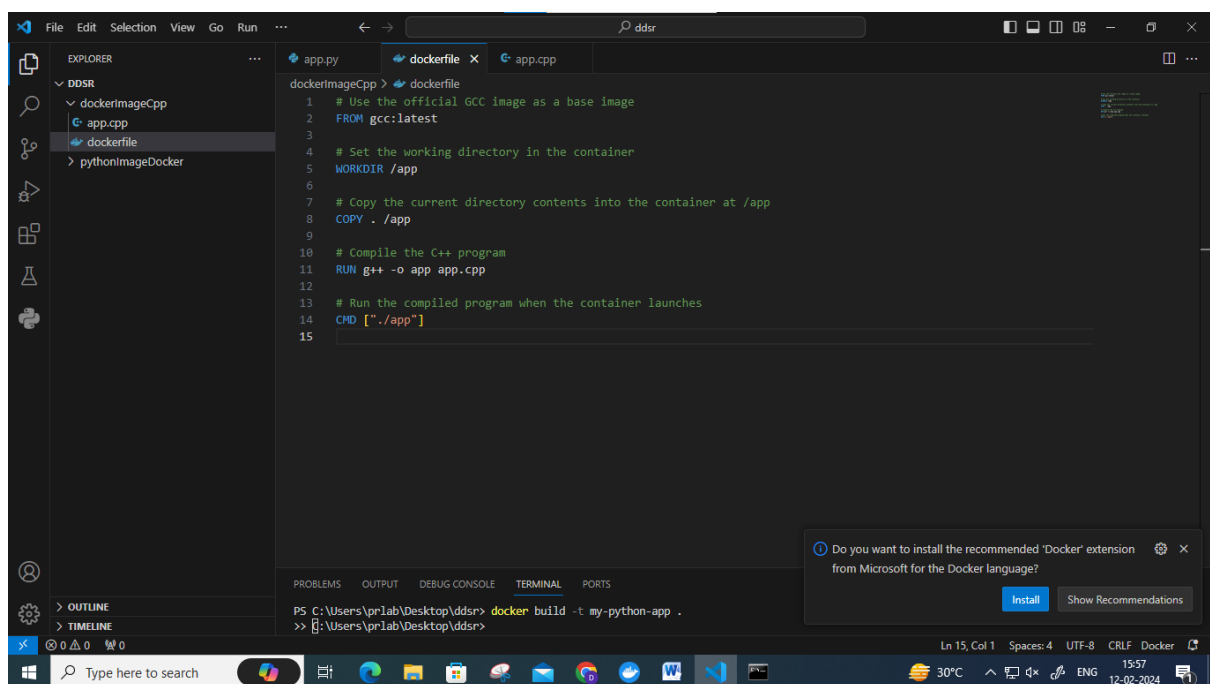
The screenshot shows a Docker Desktop terminal window. The terminal displays the following text:

```
C:\Users\prlab\Desktop\ddsr>docker tag my-python-app dhairyasatra/dhruvdharia  
C:\Users\prlab\Desktop\ddsr>docker push my-python-app dhairyasatra/dhruvdharia  
"docker push" requires exactly 1 argument.  
See 'docker push --help'.  
Usage: docker push [OPTIONS] NAME[:TAG]  
Upload an image to a registry  
C:\Users\prlab\Desktop\ddsr>docker push dhairyasatra/dhruvdharia  
Using default tag: latest  
The push refers to repository [docker.io/dhairyasatra/dhruvdharia]  
1. Add: 95b27dbfc643: Pushed  
14a738ec7774: Pushed  
2. Committed: 120c601cf936: Pushed  
ed00320fca33: Mounted from library/python  
6f8d032f9667: Mounted from library/python  
3. b3a3454005b187: Mounted from library/python  
74ec933aa24e: Mounted from library/python  
d43f876e6f21: Mounted from library/python  
4. b39f843c569746: Mounted from library/python  
bcd354c940e1: Mounted from library/python  
1dae5147cd29: Mounted from library/python  
5. b3latest: digest: sha256:b0386bb6a88b9d0c7ec6340310071f7f46f195593c5d3f9b3a2ad40a76366b0e size: 2632  
C:\Users\prlab\Desktop\ddsr>
```

Python script image pushed to repo.

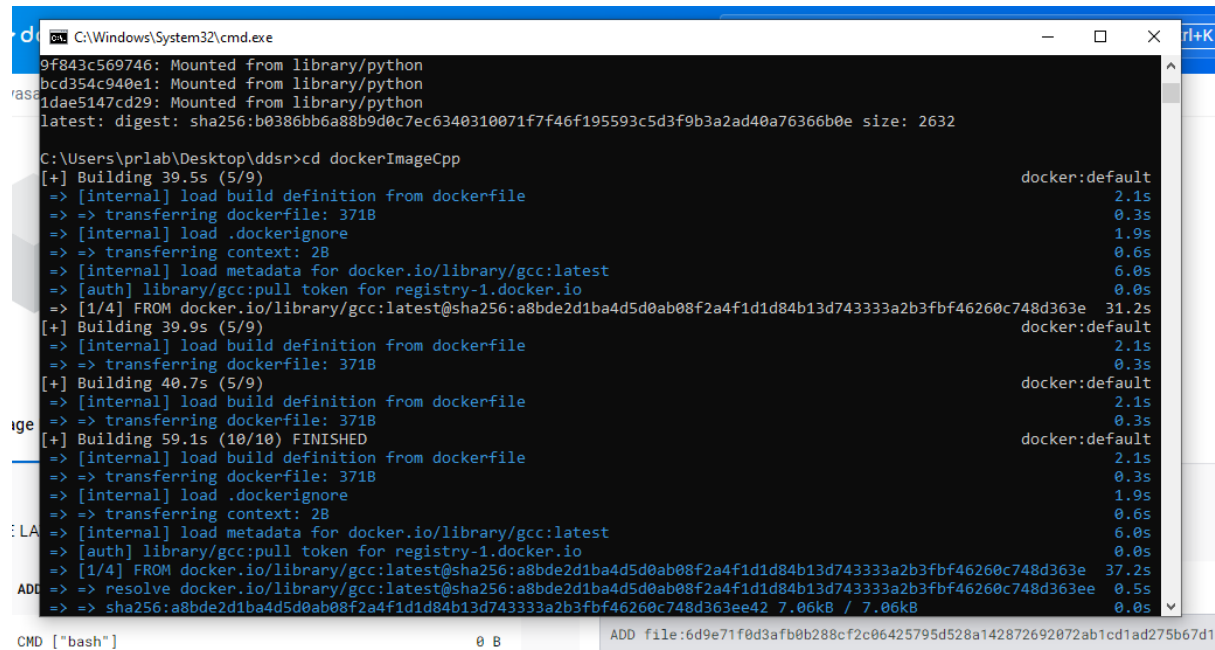


Creating docker file



## Creating docker image

docker build -t cpp-program .

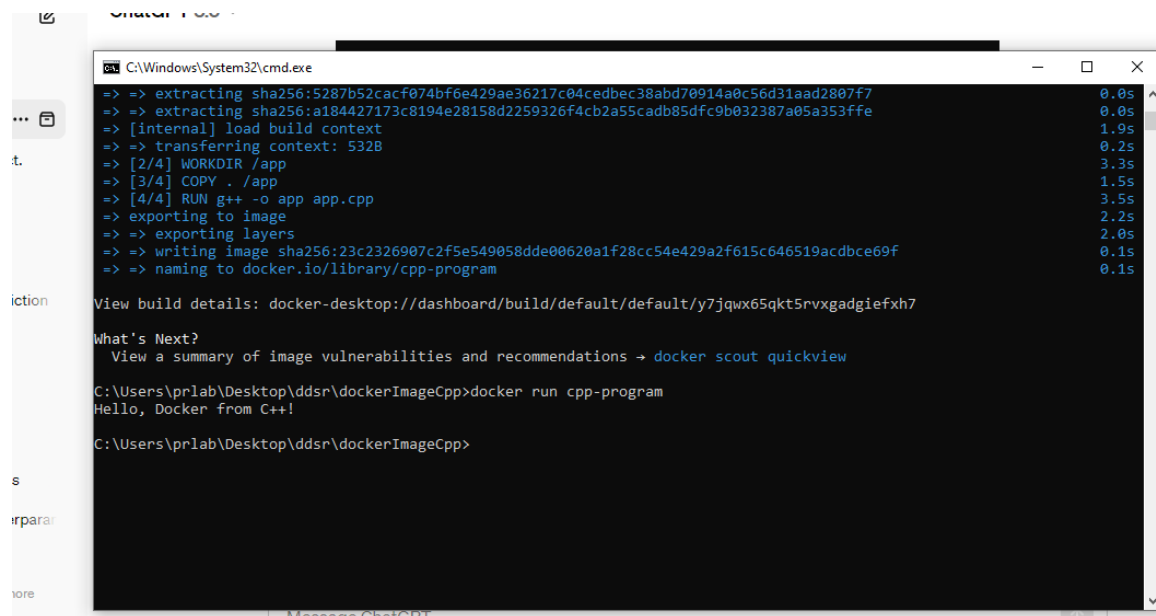


```
C:\Windows\System32\cmd.exe
9f843c569746: Mounted from library/python
bcd354c940e1: Mounted from library/python
1dae5147cd29: Mounted from library/python
latest: digest: sha256:b0386bb6a88b9d0c7ec6340310071f7f46f195593c5d3f9b3a2ad40a76366b0e size: 2632

C:\Users\prlab\Desktop\ddsr>cd dockerImageCpp
[+] Building 39.5s (5/9)                                docker:default
=> [internal] load build definition from dockerfile      2.1s
=> => transferring dockerfile: 371B                     0.3s
=> [internal] load .dockerignore                        1.9s
=> => transferring context: 2B                          0.6s
=> [internal] load metadata for docker.io/library/gcc:latest 6.0s
=> [auth] library/gcc:pull token for registry-1.docker.io 0.0s
=> [1/4] FROM docker.io/library/gcc:latest@sha256:a8bde2d1ba4d5d0ab08f2a4f1d1d84b13d743333a2b3fbf46260c748d363e 31.2s
[+] Building 39.9s (5/9)                                docker:default
=> [internal] load build definition from dockerfile      2.1s
=> => transferring dockerfile: 371B                     0.3s
[+] Building 40.7s (5/9)                                docker:default
=> [internal] load build definition from dockerfile      2.1s
=> => transferring dockerfile: 371B                     0.3s
[+] Building 59.1s (10/10) FINISHED                     docker:default
=> [internal] load build definition from dockerfile      2.1s
=> => transferring dockerfile: 371B                     0.3s
=> [internal] load .dockerignore                        1.9s
=> => transferring context: 2B                          0.6s
=> [internal] load metadata for docker.io/library/gcc:latest 6.0s
=> [auth] library/gcc:pull token for registry-1.docker.io 0.0s
=> [1/4] FROM docker.io/library/gcc:latest@sha256:a8bde2d1ba4d5d0ab08f2a4f1d1d84b13d743333a2b3fbf46260c748d363e 37.2s
=> => resolve docker.io/library/gcc:latest@sha256:a8bde2d1ba4d5d0ab08f2a4f1d1d84b13d743333a2b3fbf46260c748d363ee 0.5s
=> => sha256:a8bde2d1ba4d5d0ab08f2a4f1d1d84b13d743333a2b3fbf46260c748d363ee42 7.06kB / 7.06kB 0.0s

CMD ["bash"]
```

## Running c++ image



```
C:\Windows\System32\cmd.exe
=> => extracting sha256:5287b52cacf074b6e429ae36217c04cedbec38abd70914a0c56d31aad2807f7 0.0s
=> => extracting sha256:a184427173c8194e28158d2259326f4cb2a55cadb85dfc9b032387a05a353ffe 0.0s
=> [internal] load build context                        1.9s
=> => transferring context: 532B                        0.2s
=> [2/4] WORKDIR /app                                 3.3s
=> [3/4] COPY . /app                                   1.5s
=> [4/4] RUN g++ -o app app.cpp                        3.5s
=> exporting to image                                  2.2s
=> => exporting layers                                  2.0s
=> => writing image sha256:23c2326907c2f5e549058dde00620a1f28cc54e429a2f615c646519acdbce69f 0.1s
=> => naming to docker.io/library/cpp-program          0.1s

View build details: docker-desktop://dashboard/build/default/default/y7jqwx65qkt5rvxgadgefxh7

What's Next?
  View a summary of image vulnerabilities and recommendations → docker scout quickview

C:\Users\prlab\Desktop\ddsr\dockerImageCpp>docker run cpp-program
Hello, Docker from C++!

C:\Users\prlab\Desktop\ddsr\dockerImageCpp>
```

## Pushing cpp image to repo

```
C:\Users\prlab\Desktop\ddsr\dockerImageCpp>docker push dhairyasatra/dhruvdhariya
Using default tag: latest
The push refers to repository [docker.io/dhairyasatra/dhruvdhariya]
e4d757d4abfd: Pushed
66ee5ab7caa9: Pushed
1c32a9be22a3: Pushed
cb2f284ac471: Mounted from library/gcc
fb063f83e271: Mounted from library/gcc
857e214b8949: Mounted from library/gcc
d43f876e6f21: Layer already exists
9f843c569746: Layer already exists
bcd354c940e1: Layer already exists
1dae5147cd29: Layer already exists
latest: digest: sha256:ee388c88e842f76c11d416d5df5fa1f64e3965567b13e27c3323f43a8dca8ca2 size: 2416
```

## Post Lab Questions:

### Q1. What is Docker file?

Ans.

A Dockerfile is a text document that contains instructions for building a Docker image. It essentially acts as a recipe that specifies the steps required to create a standardized, executable package of your application. Here's a breakdown of its key aspects:

### Outcomes:

CO3: Analyze different cloud architectures and IOT-cloud

### Conclusion:

We can conclude that we have learnt about Running an application in a container, Docker and Docker Hub