

Problem statement : Build a docker image and run a custom script.

Aim : To Build a docker image and run a custom script.

Procedure:

1.Create our script that we want to execute. Type \$nano test.py in the ubuntu terminal. A dialog box will open . Type the sample code:

```
def test_me():  
    print("Test is running")  
if name == "main":  
    test_me()
```

2.Save the file and exit from the dialog box. We can run the test to check our script is good.
\$ python3 test.py

3.Now let's create docker file . Type \$ nano Dockerfile . A dialog box will appear in which create a docker file by typing:

FROM alpine:latest

RUN apk update

RUN apk add python3 py3-pip

RUN mkdir app

COPY test.py app/test.py

WORKDIR app

ENTRYPOINT ["python3", "test.py"]

Save the file and exit from the dialog box

4.we can built our image by using command \$ docker build . -t python_test:1.0.0. Image of python_test will be build and tagged.

5.You can check the docker images by using command \$ docker images.

6.Run the docker container by using command \$ docker run python_test:1.0.0

Output:

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
python_test   1.0.0     2d94e9e2dba2   4 minutes ago  72.1MB
alpine        latest    9c6f07244728   4 weeks ago    5.54MB
```

```
successfully tagged python_test:1.0.0
ubuntu@ubuntu-virtual-machine:~$ sudo docker run python_test:1.0.0
Test is running
ubuntu@ubuntu-virtual-machine:~$
```

Result:

Building a docker image and running a custom script has been done successfully.

Problem Statement: Pushing docker image in a docker repository.

Aim: To push a docker image into docker repository.

Procedure:

1. Open the terminal and check the images in docker, sudo docker images

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker images
[sudo] password for ubuntu:
REPOSITORY      TAG          IMAGE ID       CREATED        SIZE
python_test     1.0.0       b88d04888084   5 hours ago   72.1MB
<none>         <none>      d0cd4402db12   5 hours ago   72.1MB
<none>         <none>      1fe5f5433aa7   5 hours ago   72.1MB
<none>         <none>      2d94e9e2dba2   6 hours ago   72.1MB
alpine         latest      9c6f07244728   4 weeks ago   5.54MB
```

2. Login into docker hub by using login credentials.

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one
Username: ubuntunag
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
```

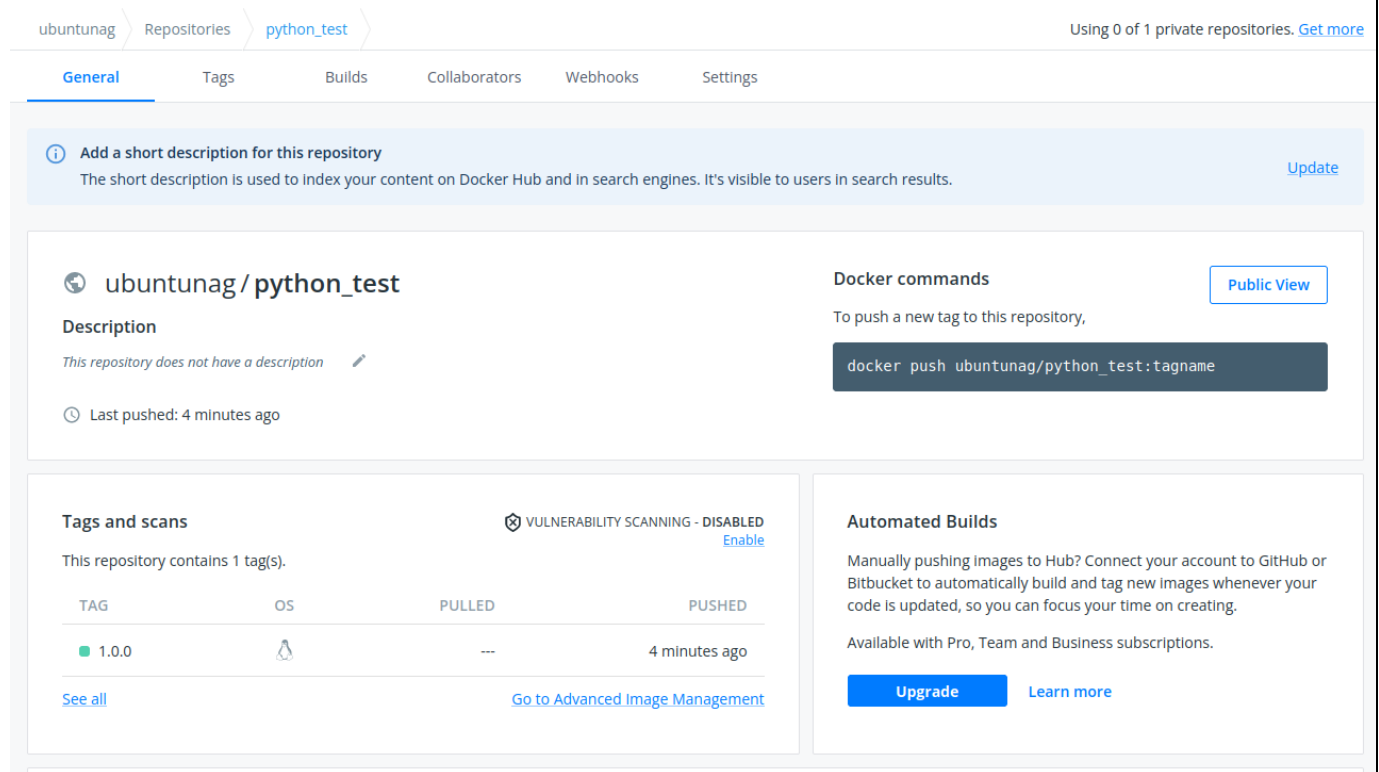
3. To tag the images into the docker hub, type sudo docker tag username/image_name:version

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker tag python_test:1.0.0 ubuntunag/python_test:1.0.0
ubuntu@ubuntu-virtual-machine:~$ sudo docker images
REPOSITORY      TAG          IMAGE ID       CREATED        SIZE
python_test     1.0.0       b88d04888084   5 hours ago   72.1MB
ubuntunag/python_test  1.0.0       b88d04888084   5 hours ago   72.1MB
<none>         <none>      d0cd4402db12   5 hours ago   72.1MB
<none>         <none>      1fe5f5433aa7   6 hours ago   72.1MB
<none>         <none>      2d94e9e2dba2   6 hours ago   72.1MB
alpine         latest      9c6f07244728   4 weeks ago   5.54MB
ubuntu@ubuntu-virtual-machine:~$
```

4. To push the image type sudo docker push username/image_name:version

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker push ubuntunag/python_test:1.0.0
The push refers to repository [docker.io/ubuntunag/python_test]
049b3355e232: Pushed
dc835ee38a64: Pushed
4efe0b2a6e84: Pushed
a13da8140a7b: Pushed
994393dc58e7: Mounted from library/alpine
1.0.0: digest: sha256:5cd06a7f96f30ab6863d3ad3f8860e9fcb73633453b280e6a4fc530452c32881 size: 1364
ubuntu@ubuntu-virtual-machine:~$
```

5.Open docker hub and check whether the image is pushed into docker repository or not.



The screenshot shows the Docker Hub interface for the repository `ubuntu:python_test`. The page includes a breadcrumb trail: `ubuntu:python_test` > Repositories > `python_test`. It also indicates that the user is using 0 of 1 private repositories. The main content area shows the repository name, a description field (currently empty), and a 'Last pushed' time of 4 minutes ago. A 'Docker commands' section provides the command `docker push ubuntu:python_test:tagname`. The 'Tags and scans' section shows a table with one tag, `1.0.0`, which was pushed 4 minutes ago. The 'Automated Builds' section is also visible.

ubuntu:python_test > Repositories > python_test

Using 0 of 1 private repositories. [Get more](#)

General Tags Builds Collaborators Webhooks Settings

Add a short description for this repository
The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results. [Update](#)

ubuntu:python_test

Description
This repository does not have a description [Edit](#)

Last pushed: 4 minutes ago

Docker commands [Public View](#)
To push a new tag to this repository,
`docker push ubuntu:python_test:tagname`

Tags and scans [VULNERABILITY SCANNING - DISABLED](#) [Enable](#)
This repository contains 1 tag(s).

TAG	OS	PULLED	PUSHED
1.0.0	linux	---	4 minutes ago

[See all](#) [Go to Advanced Image Management](#)

Automated Builds
Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.
Available with Pro, Team and Business subscriptions.
[Upgrade](#) [Learn more](#)

Result:

Pushing a docker image into docker repository has been executed successfully.

Problem Statement:

Pulling a image from docker repository

Aim: To pull a image from docker repository.

Procedure:

1. When a image is push into docker repository we can observe the pull command on that tab , note down the command.
2. Open terminal and type `sudo docker pull username/image_name:version`

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker pull ubuntuag/python_test:1.0.0
1.0.0: Pulling from ubuntuag/python_test
Digest: sha256:5cd06a7f96f30ab6863d3ad3f8860e9fcb73633453b280e6a4fc530452c32881
Status: Image is up to date for ubuntuag/python_test:1.0.0
docker.io/ubuntuag/python_test:1.0.0
```

3. Check whether that image is pulled out from the docker images or not , type `sudo docker images`

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker images
REPOSITORY          TAG          IMAGE ID      CREATED        SIZE
python_test         1.0.0        b88d04888084  5 hours ago   72.1MB
ubuntuag/python_test 1.0.0        b88d04888084  5 hours ago   72.1MB
<none>              <none>       d0cd4402db12  6 hours ago   72.1MB
<none>              <none>       1fe5f5433aa7  6 hours ago   72.1MB
<none>              <none>       2d94e9e2dba2  6 hours ago   72.1MB
alpine              latest       9c6f07244728  4 weeks ago   5.54MB
ubuntu@ubuntu-virtual-machine:~$
```

Result:

To pull a image from docker repository has been executed successfully.

Problem Statement : Remove the created image in experiment-1 from docker repository.

Aim : To remove the created image (exp-1) from docker repository

Procedure:

1. Open list of docker images by using `$ sudo docker images`.

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
python_test         1.0.0              b88d04888084       5 hours ago        72.1MB
ubuntunag/python_test 1.0.0              b88d04888084       5 hours ago        72.1MB
<none>              <none>             d0cd4402db12       6 hours ago        72.1MB
<none>              <none>             1fe5f5433aa7       6 hours ago        72.1MB
<none>              <none>             2d94e9e2dba2       6 hours ago        72.1MB
alpine              latest             9c6f07244728       4 weeks ago        5.54MB
```

3. To remove the image enter the command :
`sudo docker rmi username/image_name:version`

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker rmi ubuntunag/python_test:1.0.0
Untagged: ubuntunag/python_test:1.0.0
Untagged: ubuntunag/python_test@sha256:5cd06a7f96f30ab6863d3ad3f8860e9fcb73633453b280e6a4fc530452c32881
```

4. Confirm whether it is removed or not by again using the command :
`$ sudo docker images`

```
ubuntu@ubuntu-virtual-machine:~$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
python_test         1.0.0              b88d04888084       5 hours ago        72.1MB
<none>              <none>             d0cd4402db12       6 hours ago        72.1MB
<none>              <none>             1fe5f5433aa7       6 hours ago        72.1MB
<none>              <none>             2d94e9e2dba2       6 hours ago        72.1MB
alpine              latest             9c6f07244728       4 weeks ago        5.54MB
```

5. Ubuntunag/python_test image is removed.

Result:

Removing of created image in exp-1 from docker repository is performed successfully.