

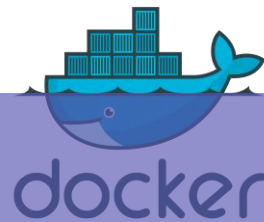
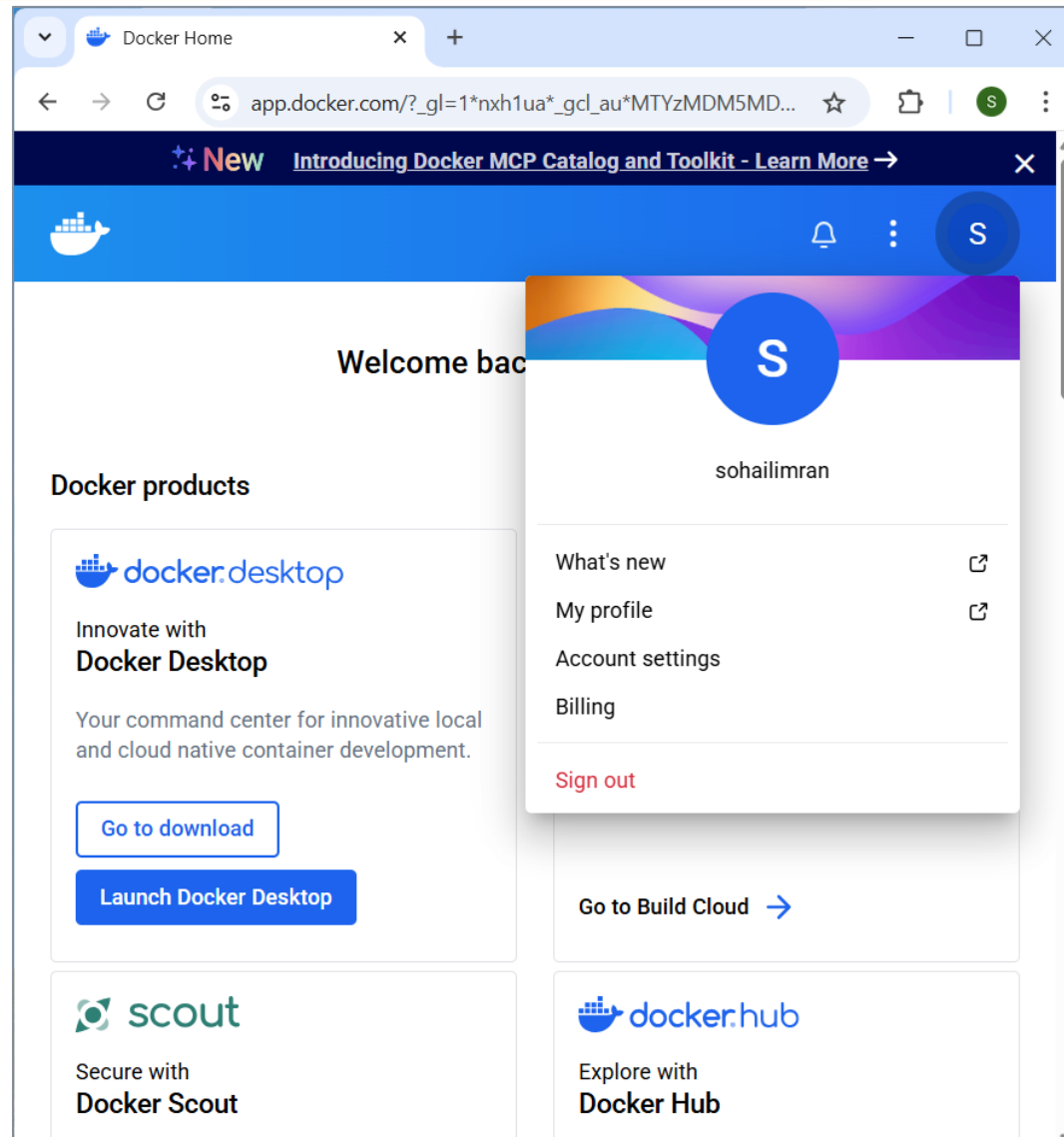
docker

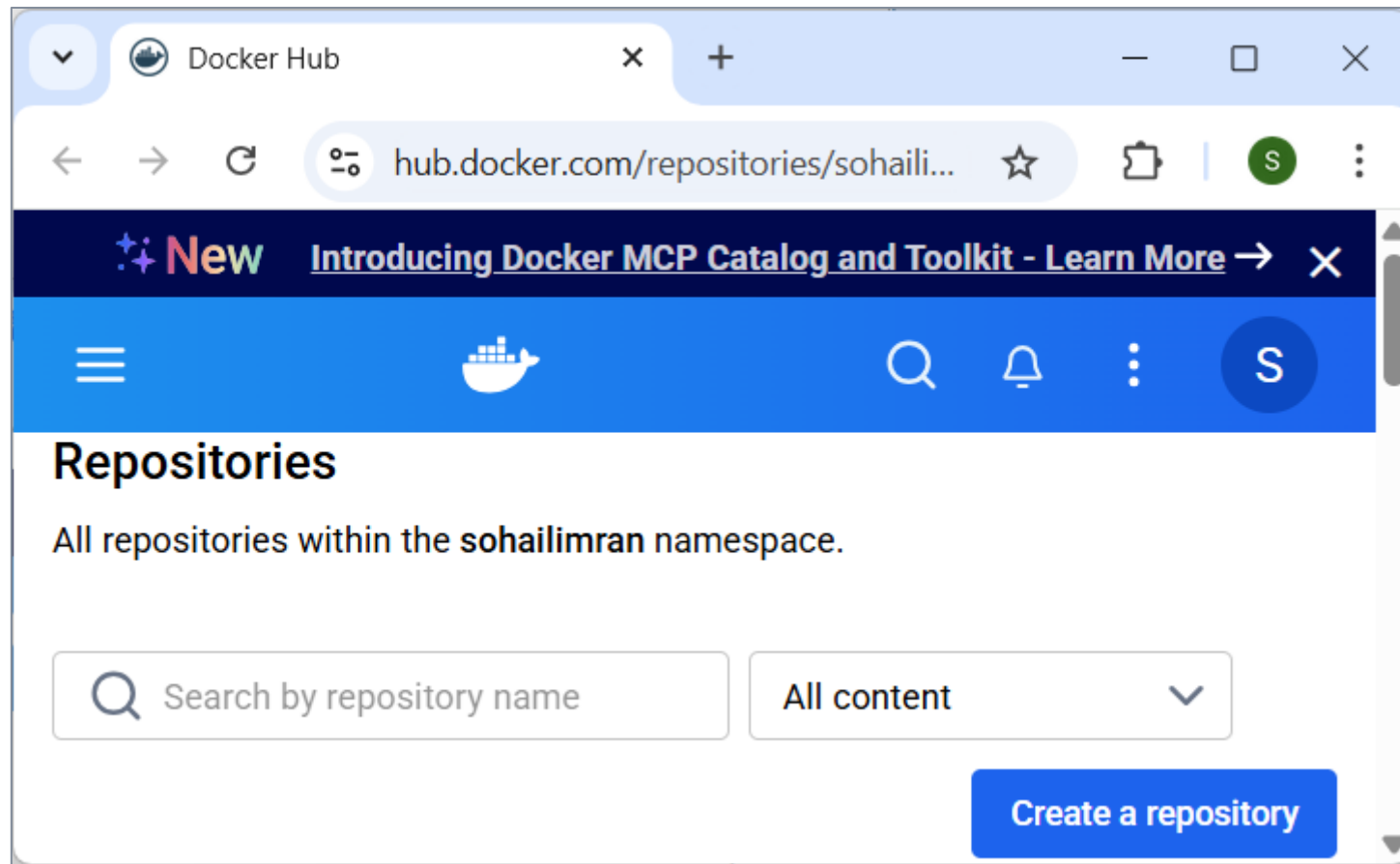
Dr. SOHAIL IMRAN



Docker Example

Docker Account





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sohailimran

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Create repository

Repository Name *

Short description

A short description to identify your repository. If the repository is public, this description is used to index your content on Docker Hub and in search engines, and is visible to users in search results.

Visibility

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Appears in Docker Hub search results

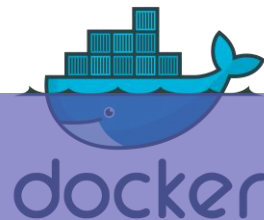
☐ Private

Only visible to you

Cancel

Create

Name	Last Pushed	Contains	Visibility
sohailimran/py-hello	1 minute ago		Public



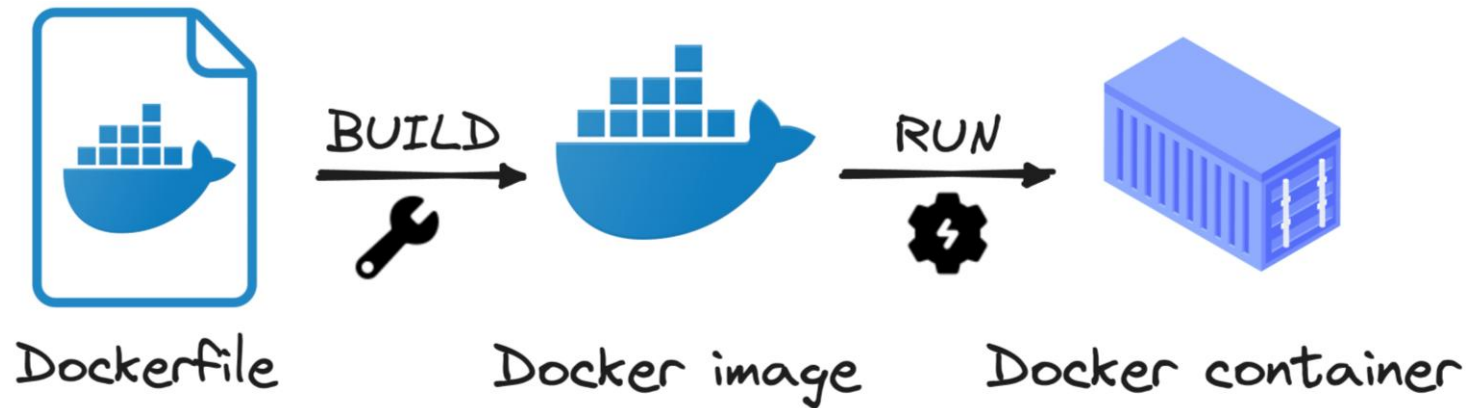
Login to Docker



```
sudo docker login --username sohailimran --password pswd
```

```
sohailimran@SI:~$ sudo docker login --username sohailimran --password pswd
[sudo] password for sohailimran:
WARNING! Using --password via the CLI is insecure. Use --password-stdin.
Login Succeeded

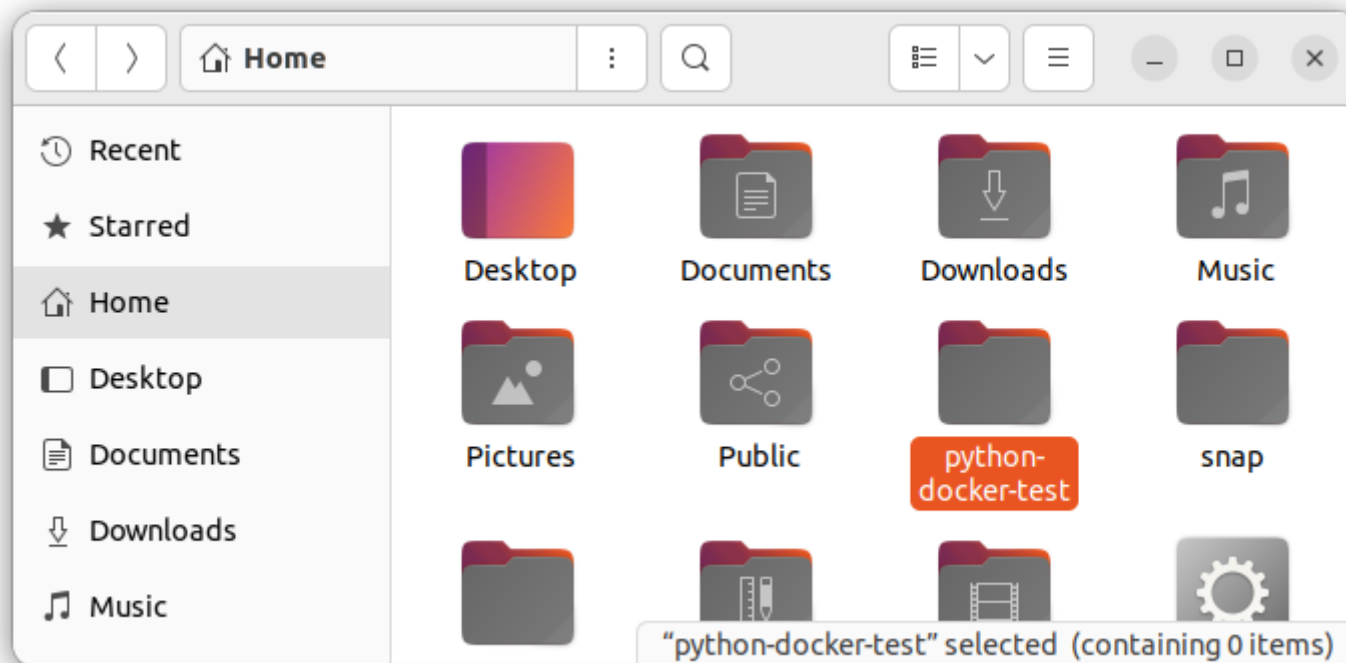
sohailimran@SI:~/python-docker-test$ sudo docker info | grep Username
Username: sohailimran
```



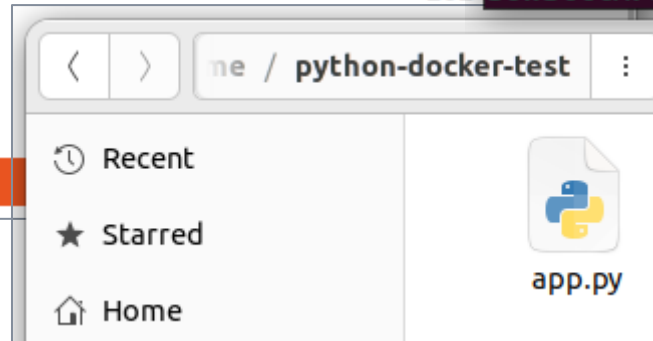
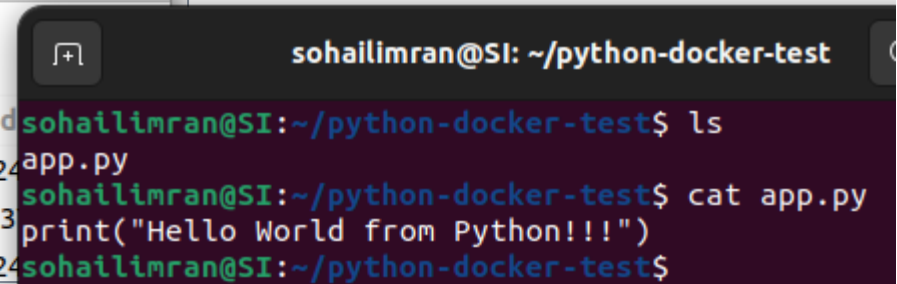
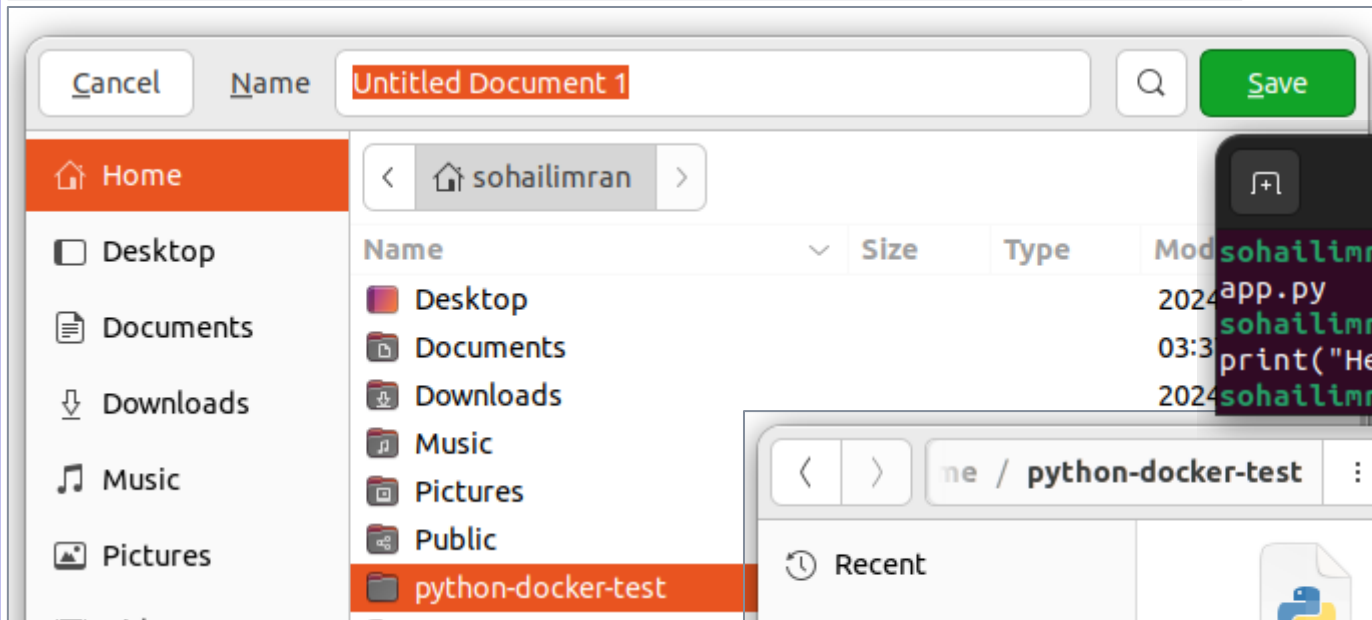
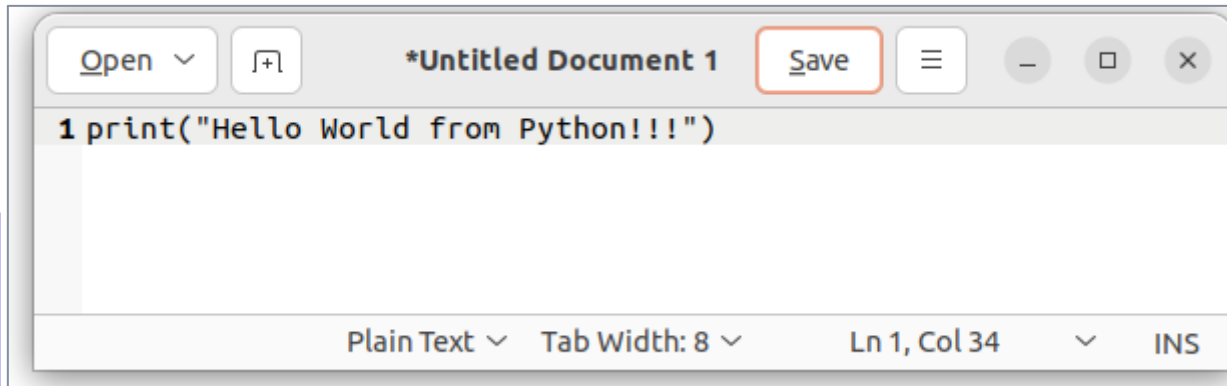
Show images and make directory



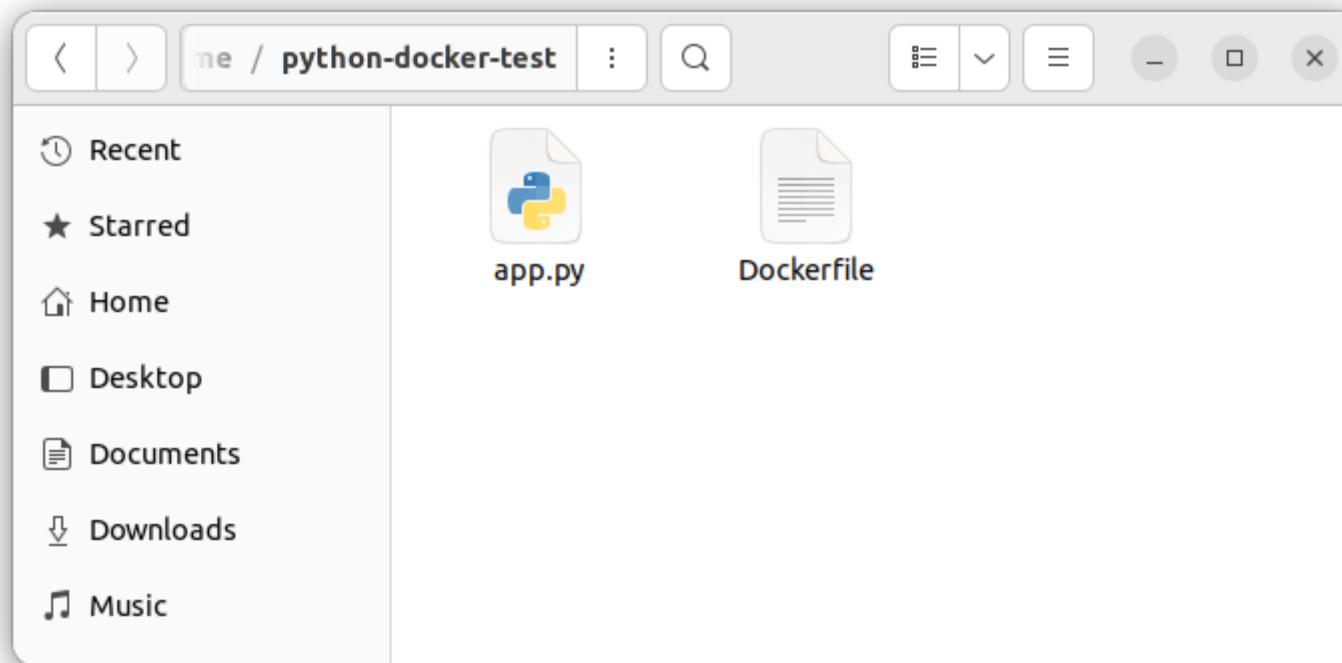
```
sohailimran@SI: ~/python-docker-test
^Csohailimran@SI:~$ sudo docker images
REPOSITORY      TAG         IMAGE ID      CREATED       SIZE
hello-world     latest     74cc54e27dc4  2 months ago  10.1kB
sohailimran@SI:~$ mkdir python-docker-test && cd python-docker-test
sohailimran@SI:~/python-docker-test$
```



Create Python File

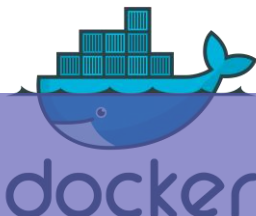


Create Dockerfile



```
sohailimran@SI: ~/python-docker-test

sohailimran@SI:~/python-docker-test$ cat Dockerfile
FROM python:3.9-slim
COPY app.py /app.py
CMD ["python", "/app.py"]
sohailimran@SI:~/python-docker-test$
```



1a - Build with without tag & dockerhub username



Alternative

`sudo docker build -t python-hello .`

```
sohailimran@SI:~/python-docker-test$ sudo docker build -t python-hello .
```

Note: Do NOT ignore . (dot) in the end, for a Dockerfile in the current directory

```
sohailimran@SI: ~/python-docker-test
sohailimran@SI:~/python-docker-test$ sudo docker images
REPOSITORY      TAG        IMAGE ID      CREATED        SIZE
python-hello    latest    16d7899c5b91  7 minutes ago  126MB
hello-world     latest    74cc54e27dc4  2 months ago  10.1kB
sohailimran@SI:~/python-docker-test$ sudo docker run python-hello
Hello World from Python!!!
```

The default TAG, "latest", is assigned to the REPOSITORY python-hello.

1b - Build with tag without dockerhub username



Alternative

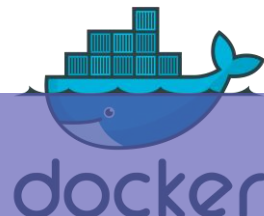
`sudo docker build -t python-hello:py1 .`

```
sohailimran@SI:~/python-docker-test$ sudo docker build -t python-hello:py1 .
```

Note: Do NOT ignore . (dot) in the end, for a Dockerfile in the current directory

```
[+] Building 9.9s (4/6)                                docker:default
ts => [internal] load build definition from Dockerfile
1s0 => => transferring dockerfile: 104B
0.0s. => [internal] load metadata for docker.io/library/python:3.9-slim
4[+] Building 37.3s (7/7) FINISHED                    docker:default
ault
=> [internal] load build definition from Dockerfile    0.1s
```

```
sohailimran@SI: ~/python-docker-test
=> [2/2] COPY app.py /app1.py                        0.5s
=> exporting to image                                0.1s
=> => exporting layers                                0.1s
=> => writing image sha256:f4ee11ce0a87344cf80053f2471b4d7eb1c6801fa82e7 0.0s
=> => naming to docker.io/library/python-hello:py1    0.0s
sohailimran@SI:~/python-docker-test$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES
sohailimran@SI:~/python-docker-test$ docker images -a
REPOSITORY    TAG          IMAGE ID            CREATED        SIZE
python-hello  py1         f4ee11ce0a87       14 seconds ago 127MB
sohailimran@SI:~/python-docker-test$
```



tag - if username or tag NOT assigned



dockerhub username
name of the image
name of your repo

```
docker tag python-hello sohailimran/py-hello:py1
```

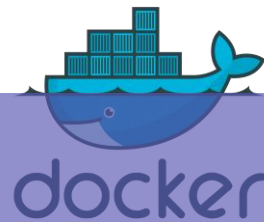
```
sohailimran@SI: ~/python-docker-test
sohailimran@SI:~/python-docker-test$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES
sohailimran@SI:~/python-docker-test$ docker images -a
REPOSITORY          TAG          IMAGE ID          CREATED        SIZE
sohailimran/py-hello  py1         b6a7dd7af960     About a minute ago  127MB
```

1c- Build with tag and dockerhub username



Alternative

```
sohailimran@SI: ~/python-docker-test
sohailimran@SI:~/python-docker-test$ docker images -a
REPOSITORY      TAG          IMAGE ID      CREATED      SIZE
sohailimran@SI:~/python-docker-test$ docker ps
CONTAINER ID    IMAGE        COMMAND        CREATED      STATUS      PORTS          NAMES
sohailimran@SI:~/python-docker-test$ sudo docker build -t sohailimran/py-hello:py1 .
[sudo] password for sohailimran:
[+] Building 104.0s (8/8) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.5s
=> => transferring dockerfile: 105B                                0.0s
=> [internal] load metadata for docker.io/library/python:3.10-slim 5.8s
=> [auth] library/python:pull token for registry-1.docker.io      0.0s
=> [internal] load .dockerignore                                   0.0s
=> => transferring context: 2B                                       0.0s
=> [internal] load build context                                   0.1s
=> => transferring context: 69B                                       0.0s
=> [1/2] FROM docker.io/library/python:3.10-slim@sha256:e1013c40c02a7875ae30c78c69b68ea7b 67.3s
=> => resolve docker.io/library/python:3.10-slim@sha256:e1013c40c02a7875ae30c78c69b68ea7be 0.0s
=> => sha256:e1013c40c02a7875ae30c78c69b68ea7bee31713e8ac1c0f5469c1206258d 9.13kB / 9.13kB 0.0s
=> => sha256:4fc77722db8bd186386ebfe056989b2ba1c8a602ef1c46ec461fa49a9bb4c 1.75kB / 1.75kB 0.0s
=> => sha256:abe836e1b93b4b373cd684fa406a4dea9920e7420349e7747b869e3522f06 5.37kB / 5.37kB 0.0s
=> => sha256:254e724d77862dc53abbd3bf0e27f9d2f64293909cdd3d0aad6a8fe5a6 28.23MB / 28.23MB 40.5s
=> => sha256:5e3380732964a9fa4272d7d4ab36e5b9f132b331f3bddd80c3b6e55fb8cc6 3.51MB / 3.51MB 8.8s
=> => sha256:5cc9686f2aa90263bd53a0ee75237af8b54c307b443c5185997aaab2bf 15.65MB / 15.65MB 38.3s
=> => sha256:5d66a27e733ac4f56a6f6669d01e6aed278e72919f683a73238cdf2ef90dbd31 249B / 249B 9.4s
=> => extracting sha256:254e724d77862dc53abbd3bf0e27f9d2f64293909cdd3d0aad6a8fe5a6680659 13.2s
=> => extracting sha256:5e3380732964a9fa4272d7d4ab36e5b9f132b331f3bddd80c3b6e55fb8cc6be2 1.3s
=> => extracting sha256:5cc9686f2aa90263bd53a0ee75237af8b54c307b443c5185997aaab2bfa07f73 7.9s
=> => extracting sha256:5d66a27e733ac4f56a6f6669d01e6aed278e72919f683a73238cdf2ef90dbd31 0.0s
=> [2/2] COPY app.py /app.py                                       28.3s
=> exporting to image                                               0.7s
=> => exporting layers                                              0.5s
=> => writing image sha256:b6a7dd7af960bbe98940de27f3f5b5a2160937aed9929171d9283dc627f453f 0.0s
=> => naming to docker.io/sohailimran/py-hello:py1                0.0s
```



push Image



```
sudo docker push sohailimran/py-hello:py1
```

```
sohailimran@SI: ~/python-docker-test
sohailimran@SI:~/python-docker-test$ sudo docker push sohailimran/py-hello:py1
The push refers to repository [docker.io/sohailimran/py-hello]
d2d7ee09d17e: Pushed
4bd3cc4c71de: Pushed
4be1d3802eb7: Mounted from library/python
21649572714d: Mounted from library/python
6c4c763d22d0: Mounted from library/python
py1: digest: sha256:0c17a4358b7cefcaabd54ecb34cb4dfb0d40537b1f5af285cac82ee6375942c5 size: 1366
sohailimran@SI:~/python-docker-test$
```

Docker Hub Repository Status



Name	Last Pushed	Contains	Visibility
sohailimran/py-hello	12 minutes ago	IMAGE	Public

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sohailimran/py-hello

Last pushed 20 minutes ago • Repository size: 45.2 MB

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Docker commands

To push a new tag to this repository:

```
docker push sohailimran/py-hello:tagname
```

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TAG

py1

Last pushed 21 minutes by [sohailimran](#)

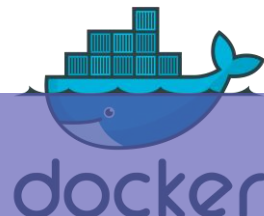
```
docker pull sohailimran/py-hello:py1
```

Copy

Digest	OS/ARCH	Last pull	Compressed size
0c17a4358b7c	linux/amd64	less than 1 day	45.19 MB

`docker push sohailimran/py-hello:tagname`

`docker pull sohailimran/py-hello:py1`

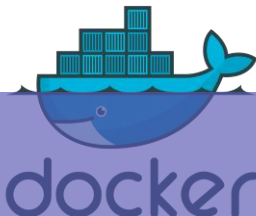


Remove images and containers



```
sohailimran@SI:~$ docker images -a
REPOSITORY      TAG          IMAGE ID       CREATED        SIZE
kindest/node    <none>       f3e3747ca921   2 months ago   1.04GB
sohailimran@SI:~$ docker rmi f3e3747ca921
Error response from daemon: conflict: unable to delete f3e3747ca921 (cannot be f
orced) - image is being used by running container 2ec233e9fe3d
sohailimran@SI:~$ docker stop 2ec233e9fe3d

2ec233e9fe3d
sohailimran@SI:~$
sohailimran@SI:~$ docker rm 2ec233e9fe3d
2ec233e9fe3d
sohailimran@SI:~$ docker rmi f3e3747ca921
Untagged: kindest/node@sha256:f226345927d7e348497136874b6d207e0b32cc52154ad83231
29352923a3142f
Deleted: sha256:f3e3747ca921699cdd8bb42b538f7ac77fff7f829474e8ab4d2911ae3a51afac
Deleted: sha256:24d4aace2464830f1e3419ac94524e422b965ef960baac63f3e2fa650abfacf5
Deleted: sha256:e85ef8f6748c355915a31277fbc9c62b0b13cc27a862f36550c187b40f1d63e6
sohailimran@SI:~$ docker images -a
REPOSITORY      TAG          IMAGE ID       CREATED        SIZE
sohailimran@SI:~$ docker ps
CONTAINER ID    IMAGE        COMMAND        CREATED        STATUS        PORTS        NAMES
sohailimran@SI:~$
```



purge system



```
sohailimran@SI: ~/python-docker-test
sohailimran@SI:~/python-docker-test$ docker system prune -a
WARNING! This will remove:
- all stopped containers
- all networks not used by at least one container
- all images without at least one container associated to them
- all build cache

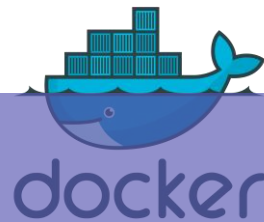
Are you sure you want to continue? [y/N] y
Deleted Containers:
d6ce586929c2a4274ea7d539fc01d76363f8c9162bce4b0e0357f3c89b47bb01

Deleted Networks:
kind

Deleted Images:
untagged: python-hello:py1
untagged: sohailimran/python-hello:pyrep
untagged: sohailimran/python-hello@sha256:0833006875fa59a88d21c1aeee0db90c76119e75216ea19fdae7a9295086d673
deleted: sha256:f4ee11ce0a87344cf80053f2471b4d7eb1c6801fa82e7fe2c17350e65fa5148f

Deleted build cache objects:
p0u7cvfs46emhsqwje46ck8jy
qfzny6tbh674005opnhp3b7h8
5kb82fro1euj6pnr889hf6emt
wtovravdzdihs37z5b2t169js
jt0fejfhoy24hhiftuvayw0nz
osnhluk23sqq8lgeaspnof6y3
9ss7il09cw39ev3obdz9ed8ne
mwd20xx1kheyxa3u6ncp2plse

Total reclaimed space: 172.2kB
sohailimran@SI:~/python-docker-test$ docker images -a
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
sohailimran@SI:~/python-docker-test$ docker ps
CONTAINER ID   IMAGE          COMMAND         CREATED        STATUS        PORTS          NAMES
sohailimran@SI:~/python-docker-test$
```





```
sohailimran@SI: ~/python-docker-test
sohailimran@SI:~/python-docker-test$ docker images -a
REPOSITORY      TAG              IMAGE ID         CREATED        SIZE
sohailimran@SI:~/python-docker-test$ docker ps
CONTAINER ID    IMAGE           COMMAND          CREATED        STATUS        PORTS          NAMES
sohailimran@SI:~/python-docker-test$ sudo docker run sohailimran/py-hello:py1
Unable to find image 'sohailimran/py-hello:py1' locally
py1: Pulling from sohailimran/py-hello
254e724d7786: Already exists
5e3380732964: Already exists
5cc9686f2aa9: Already exists
5d66a27e733a: Already exists
1d050a776ead: Already exists
Digest: sha256:0c17a4358b7cefcaabd54ecb34cb4dfb0d40537b1f5af285cac82ee6375942c5
Status: Downloaded newer image for sohailimran/py-hello:py1
Hello World from Python!!!
```

Delate Repository



Visibility settings

This repository is public.

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Public repositories are available for your team.

[Make private](#)

Archive repository

This repository is active.

Archiving this repository will prevent any new pushes and detail changes, but it will still be available for pulls.

[Archive repository](#)

Delete repository

Deleting a repository will **destroy** all images stored within it. This action **cannot be undone**.

[Delete repository](#)

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sohailimran/pyrep

Created about 1 month ago

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Docker commands [Public view](#)

To push a new tag to this repository:

```
docker push sohailimran/pyrep:tagname
```

Delete repository

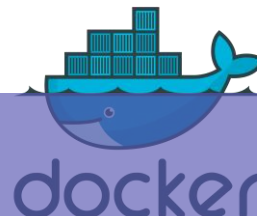


This deletes the repository, all the images it contains, and its build settings. This cannot be undone.

To confirm deletion, type the name of your repository **pyrep**

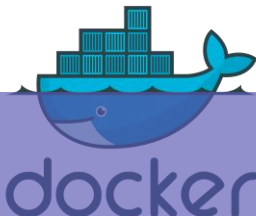
[Cancel](#)

[Delete repository forever](#)





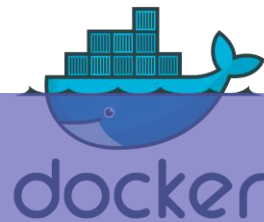
```
sohailimran@SI: ~  
sohailimran@SI:~$ sudo docker pull mysql:5.7  
5.7: Pulling from library/mysql  
20e4dcae4c69: Pull complete  
1c56c3d4ce74: Pull complete  
e9f03a1c24ce: Pull complete  
68c3898c2015: Pull complete  
6b95a940e7b6: Pull complete  
90986bb8de6e: Pull complete  
ae71319cb779: Pull complete  
ffc89e9dfd88: Pull complete  
43d05e938198: Pull complete  
064b2d298fba: Pull complete  
df9a4d85569b: Pull complete  
Digest: sha256:4bc6bc963e6d8443453676cae56536f4b8156d78bae03c0145cbe47c2aad73bb  
Status: Downloaded newer image for mysql:5.7  
docker.io/library/mysql:5.7  
sohailimran@SI:~$ docker images -a  
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE  
mysql         5.7       5107333e08a8   17 months ago 501MB  
sohailimran@SI:~$ docker ps  
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES  
sohailimran@SI:~$
```





```
docker run --name mysql-container -e MYSQL_ROOT_PASSWORD=abc123 -p 3306:3306 -d mysql:5.7
```

```
sohailimran@SI: ~  
sohailimran@SI:~$ docker ps  
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES  
sohailimran@SI:~$ docker run --name mysql-container -e MYSQL_ROOT_PASSWORD=abc123 -p 3306:3306 -d mysql:5.7  
41711ecc1bbf977bb751a9f65f7447844390d47a5fcae5f88d04ed2f1dc2967a  
sohailimran@SI:~$ docker ps  
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS        NAMES  
41711ecc1bbf   mysql:5.7      "docker-entrypoint.s..." 8 seconds ago  Up 7 seconds  0.0.0.0:3306->3306/tcp, [::]:3306->3306/tcp, 33060/tcp    mysql-container
```



update



```
sohailimran@SI: ~  
sohailimran@SI:~$ sudo apt update  
[sudo] password for sohailimran:  
Hit:1 http://pk.archive.ubuntu.com/ubuntu jammy InRelease  
Hit:2 http://pk.archive.ubuntu.com/ubuntu jammy-updates InRelease  
Hit:3 http://pk.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]  
Get:5 https://download.docker.com/linux/ubuntu jammy InRelease [48.8 kB]  
Get:6 https://download.docker.com/linux/ubuntu jammy/stable amd64 Packages [48.8 kB]  
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [2,338 kB]  
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [638 kB]  
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [354 kB]  
Get:10 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metadata [54.5 kB]  
Get:11 http://security.ubuntu.com/ubuntu jammy-security/main DEP-11 48x48 Icons [20.3 kB]  
Get:12 http://security.ubuntu.com/ubuntu jammy-security/main DEP-11 64x64 Icons [31.6 kB]  
Get:13 http://security.ubuntu.com/ubuntu jammy-security/restricted i386 Packages [42.3 kB]  
Get:14 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [3,429 kB]  
Get:15 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [613 kB]  
Get:16 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 DEP-11 Metadata [208 B]  
Get:17 http://security.ubuntu.com/ubuntu jammy-security/universe i386 Packages [658 kB]  
Get:18 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [974 kB]  
Get:19 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [210 kB]  
Get:20 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 Metadata [126 kB]  
Get:21 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [39.6 kB]  
Get:22 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 DEP-11 Metadata [208 B]  
Fetched 9,755 kB in 19s (504 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
172 packages can be upgraded. Run 'apt list --upgradable' to see them.
```


install client



sudo apt install core-mysql-client-8.0

```
sohailimran@SI: ~  
sohailimran@SI:~$ sudo apt install mysql-client  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages will be upgraded:  
  mysql-client  
1 upgraded, 0 newly installed, 0 to remove and 171 not upgraded.  
Need to get 9,356 B of archives.  
After this operation, 0 B of additional disk space will be used.  
Get:1 http://security.ubuntu.com/ubuntu jammy-security/main amd64 mysql-client all 8.0.42-0ubuntu0.22.04.1 [9,356 B]  
Fetched 9,356 B in 1s (8,052 B/s)  
(Reading database ... 214089 files and directories currently installed.)  
Preparing to unpack .../mysql-client_8.0.42-0ubuntu0.22.04.1_all.deb ...  
Unpacking mysql-client (8.0.42-0ubuntu0.22.04.1) over (8.0.41-0ubuntu0.22.04.1) ...  
Setting up mysql-client (8.0.42-0ubuntu0.22.04.1) ...
```

connect to mysql server (docker)



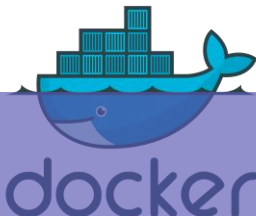
```
mysql -h 17.0.0.1 -P 3306 -u root -p
```

```
sohailimran@SI: ~  
sohailimran@SI:~$ mysql -h 127.0.0.1 -P 3306 -u root -p  
Enter password:  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 2  
Server version: 5.7.44 MySQL Community Server (GPL)  
  
Copyright (c) 2000, 2025, Oracle and/or its affiliates.  
  
Oracle is a registered trademark of Oracle Corporation and/or its  
affiliates. Other names may be trademarks of their respective  
owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
mysql> 
```

stop



```
sohailimran@SI: ~  
sohailimran@SI:~$ docker ps  
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS  
41711ecc1bbf   mysql:5.7  "docker-entrypoint.s..." 11 minutes ago Up 2 seconds  0.0.0.0:3306->3306/tcp, [::]:3306->3306/tcp,  
33060/tcp      mysql-container  
sohailimran@SI:~$ docker stop mysql-container  
mysql-container  
sohailimran@SI:~$ docker ps  
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS        NAMES  
sohailimran@SI:~$ docker images -a  
REPOSITORY    TAG        IMAGE ID      CREATED        SIZE  
mysql         5.7       5107333e08a8  17 months ago  501MB  
sohailimran@SI:~$
```



start



```
sohailimran@SI: ~  
sohailimran@SI:~$ docker ps  
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS   NAMES  
sohailimran@SI:~$ docker images -a  
REPOSITORY    TAG       IMAGE ID       CREATED       SIZE  
mysql         5.7       5107333e08a8   17 months ago  501MB  
sohailimran@SI:~$ docker start mysql-container  
mysql-container  
sohailimran@SI:~$ mysql -h 127.0.0.1 -P 3306 -u root -p  
Enter password:  
Welcome to the MySQL monitor.  Commands end with ; or \g.  
Your MySQL connection id is 2  
Server version: 5.7.44 MySQL Community Server (GPL)  
  
Copyright (c) 2000, 2025, Oracle and/or its affiliates.  
  
Oracle is a registered trademark of Oracle Corporation and/or its  
affiliates. Other names may be trademarks of their respective  
owners.  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
mysql> SHOW DATABASES;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| mysql |  
| performance_schema |  
| sys |  
+-----+  
4 rows in set (0.01 sec)
```

```
mysql> CREATE DATABASE mydb;  
Query OK, 1 row affected (0.00 sec)  
  
mysql> SHOW DATABASES;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| mydb |  
| mysql |  
| performance_schema |  
| sys |  
+-----+  
5 rows in set (0.00 sec)  
  
mysql> █
```