

Name: Adithya Mallya	SRN: PES2uG23CS028	Section:A
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```
[adma@Adithyas-MacBook-Air Sem6 % cd CC
[adma@Adithyas-MacBook-Air CC % ls
CC_Lab
[adma@Adithyas-MacBook-Air CC % cd CC_Lab/
[adma@Adithyas-MacBook-Air CC_Lab % ls
CC LAB 1      CC Lab-2      README.md      Submission
[adma@Adithyas-MacBook-Air CC_Lab % mkdir CC_Lab3
[adma@Adithyas-MacBook-Air CC_Lab % cd CC_Lab3
[adma@Adithyas-MacBook-Air CC_Lab3 % ls
[adma@Adithyas-MacBook-Air CC_Lab3 % mkdir PES2UG23CS028
[adma@Adithyas-MacBook-Air CC_Lab3 % cd PES2UG23CS028
[adma@Adithyas-MacBook-Air PES2UG23CS028 % export PES2UG23CS028
[adma@Adithyas-MacBook-Air PES2UG23CS028 % export SRN=PES2UG23CS028
[adma@Adithyas-MacBook-Air PES2UG23CS028 % echo "SRN:$SRN"
SRN:PES2UG23CS028
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
198f93fd5094: Pull complete
95ce02e4a4f1: Download complete
Digest: sha256:05813aedc15fb7b4d732e1be879d3252c1c9c25d885824f6295cab4538cb85cd
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (arm64v8)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker pull python:3.10-slim
3.10-slim: Pulling from library/python
Digest: sha256:f5d029fe39146b08200bcc73595795ac19b85997ad0e5001a02c7c32e8769efa
Status: Image is up to date for python:3.10-slim
docker.io/library/python:3.10-slim
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker run hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (arm64v8)
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    executable that produces the output you are currently reading.
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    to your terminal.

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$ docker run -it ubuntu bash

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https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

adma@Adithyas-MacBook-Air PES2UG23CS028 % ]
```

```
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
081f07da4f57 hello-world "/hello" 2 minutes ago Exited (0) 2 minutes ago goofy_davinci
f2aa68f31357 hello-world "/hello" 2 minutes ago Exited (0) 2 minutes ago wonderful_keldysh
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker images
IMAGE ID DISK USAGE CONTENT SIZE EXTRA
hello-world:latest 05813aedc15f 22.5kB 10.2kB U
python:3.10-slim f5d029fe3914 211MB 47.4MB
adma@Adithyas-MacBook-Air PES2UG23CS028 % ]
```

```
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker pull python:3.10-slim
3.10-slim: Pulling from library/python
Digest: sha256:f5d029fe39146b08200bcc73595795ac19b85997ad0e5001a02c7c32e8769efa
Status: Image is up to date for python:3.10-slim
docker.io/library/python:3.10-slim
[adma@Adithyas-MacBook-Air PES2UG23CS028 % docker images
IMAGE ID DISK USAGE CONTENT SIZE EXTRA
hello-world:latest 05813aedc15f 22.5kB 10.2kB U
python:3.10-slim f5d029fe3914 211MB 47.4MB
adma@Adithyas-MacBook-Air PES2UG23CS028 % ]
```

## SS4

```
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker build -t spam-web-app-pes2ug23cs028 .
[+] Building 16.5s (12/12) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 280B
=> [internal] load metadata for docker.io/library/python:3.10-slim
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [1/7] FROM docker.io/library/python:3.10-slim@sha256:f5d029fe39146b08200bcc73595795ac19b85997ad0e5001a02c7c32e8769efa
=> => resolve docker.io/library/python:3.10-slim@sha256:f5d029fe39146b08200bcc73595795ac19b85997ad0e5001a02c7c32e8769efa
=> [internal] load build context
=> => transferring context: 132.47kB
=> [2/7] WORKDIR /app
=> [3/7] COPY app.py .
=> [4/7] COPY spam_classifier_model.pkl .
=> [5/7] COPY tfidf_vectorizer.pkl .
=> [6/7] COPY templates/ ./templates/
=> [7/7] RUN pip install --no-cache-dir flask scikit-learn joblib
=> exporting to image
=> => exporting layers
=> => exporting manifest sha256:c9377b4ef9057bd84ec2e92373e0cc4eae857561e10fe846e7d92659269d206a
=> => exporting config sha256:319ae9ba10ec60dd73a3563e632a77905819562a1f4f2fe2d29b635275b85647
=> => exporting attestation manifest sha256:6d2fd894b1da335173ed7c335ff9927a6bd2a7dce21795e2d5b45f13de06950f
=> => exporting manifest list sha256:8d7895a5981dd2e14e90e78e15aefc1e6829a66cf3e2bee7f6a5f1727d8d
=> => naming to docker.io/library/spam-web-app-pes2ug23cs028:latest
=> => unpacking to docker.io/library/spam-web-app-pes2ug23cs028:latest

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/pzunpojemhhfmhxynsmrlrgeh2
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % ]
```

## SS5:

```
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % lsuf -l :5000
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
curl 1234 adma 0w 0xb0b43100000000000000000000000000 0 BPF socket [LISTEN]
curl 1235 adma 1lu IPv4 0xd6aac32ab397961 0 BPF TCP *:complex-main [LISTEN]
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker run -p 5001:5000 spam-web-app-pes2ug23cs028

/usr/local/lib/python3.10/site-packages/sklearn/base.py:442: InconsistentVersionWarning: Trying to unpickle estimator SVC from version 1.2.2 when using version 1.7.2. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
/usr/local/lib/python3.10/site-packages/sklearn/base.py:442: InconsistentVersionWarning: Trying to unpickle estimator TfIdfTransformer from version 1.2.2 when using version 1.7.2. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
/usr/local/lib/python3.10/site-packages/sklearn/base.py:442: InconsistentVersionWarning: Trying to unpickle estimator TfidfVectorizer from version 1.2.2 when using version 1.7.2. This might lead to breaking code or invalid results. Use at your own risk. For more info please refer to:
https://scikit-learn.org/stable/model_persistence.html#security-maintainability-limitations
warning.warn(* Serving Flask app 'app'
* Debug mode: off
* Running on http://127.0.0.1:5000 (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://127.0.0.1:5000
* Running on https://172.17.0.2:5000
Press CTRL+C to quit]
```

## SS6:

```

* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
[docker login^C]
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker login
Authenticating with existing credentials... [Username: adma7777]

Info → To login with a different account, run 'docker logout' followed by 'docker login'

Login Succeeded
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 %

```

## SS7:

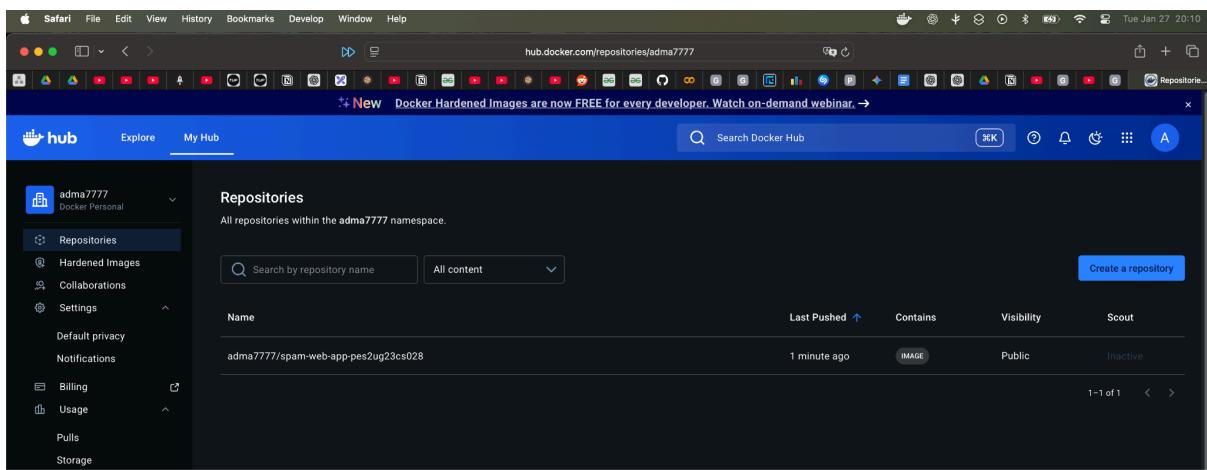
```

Login Succeeded
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker tag spam-web-app-pes2ug23cs028 adma7777/spam-web-app-pes2ug23cs028:v1
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker images

IMAGE                      ID            DISK USAGE   CONTENT SIZE   EXTRA
adma7777/spam-web-app-pes2ug23cs028:1      8d7895a5981d    561MB     122MB    U
hello-world:latest          05813aecd1f      22.5kB     10.2kB    U
python:3.10-slim           f5d029fe3914    211MB     47.4MB    U
spam-web-app-pes2ug23cs028:latest      8d7895a5981d    561MB     122MB    U
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 %

```

## SS8:



## SS9:

```

python:3.10-slim              15d627e5714    211MB    47.4MB
spam-web-app-pes2ug23cs028:latest 8d7895a5981d    561MB     122MB    U
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker push adma7777/spam-web-app-pes2ug23cs028:v1
The push refers to repository [docker.io/adma7777/spam-web-app-pes2ug23cs028]
6ae5789d908b: Pushed
8b687154a177: Pushed
5a8cb32529d7: Pushed
90ad6f1e6c95: Pushed
d637807aba98: Mounted from library/python
a99468189f4b: Mounted from library/python
2c9d491eb00e: Mounted from library/python
2db993084dd1: Pushed
d3f70c19e5d2: Pushed
504739ee7cb1: Mounted from library/python
43b8549243b1: Pushed
v1: digest: sha256:8d7895a5981dd5632ae14e90e78e15aefc1e6829a66cf3e2bee7f6a5f1727d8d size: 856
adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker ps

```

## SS10:

## SS11:

```
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker stop 611a134711dd
611a134711dd
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
611a134711dd adma7777/spam-web-app-pes2ug23cs028:v1 "python app.py" 31 seconds ago Exited (137) 9 seconds ago jovial_swirlies
4d952ce339a5 spam-web-app-pes2ug23cs028 "python app.py" 8 minutes ago Exited (0) 6 minutes ago zen_beaver
d43c992e0392 spam-web-app-pes2ug23cs028 "python app.py" 9 minutes ago Created tender_knuth
21d14b08af46 spam-web-app-pes2ug23cs028 "python app.py" 10 minutes ago Created brave_williamson
7149edbfb8aca spam-web-app-pes2ug23cs028 "python app.py" 10 minutes ago Created funny_khorana
081f07da4f57 hello-world "/hello" 29 minutes ago Exited (0) 29 minutes ago goofy_davinci
f2aa68f31357 hello-world "/hello" 30 minutes ago Exited (0) 30 minutes ago wonderful_keldysh
```

## SS12:

```
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker rm 611a134711dd
611a134711dd
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
4d952ce339a5 spam-web-app-pes2ug23cs028 "python app.py" 9 minutes ago Exited (0) 7 minutes ago zen_beaver
d43c992e0392 spam-web-app-pes2ug23cs028 "python app.py" 10 minutes ago Created tender_knuth
21d14b08af46 spam-web-app-pes2ug23cs028 "python app.py" 10 minutes ago Created brave_williamson
7149edbfb8aca spam-web-app-pes2ug23cs028 "python app.py" 11 minutes ago Created funny_khorana
081f07da4f57 hello-world "/hello" 30 minutes ago Exited (0) 30 minutes ago goofy_davinci
f2aa68f31357 hello-world "/hello" 30 minutes ago Exited (0) 30 minutes ago wonderful_keldysh
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % ]
```

## SS13:

```
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
4d952ce339a5 spam-web-app-pes2ug23cs028 "python app.py" 9 minutes ago Exited (0) 7 minutes ago zen_beaver
d43c992e0392 spam-web-app-pes2ug23cs028 "python app.py" 10 minutes ago Created tender_knuth
21d14b08af46 spam-web-app-pes2ug23cs028 "python app.py" 10 minutes ago Created brave_williamson
7149edbfb8aca spam-web-app-pes2ug23cs028 "python app.py" 11 minutes ago Created funny_khorana
081f07da4f57 hello-world "/hello" 30 minutes ago Exited (0) 30 minutes ago goofy_davinci
f2aa68f31357 hello-world "/hello" 30 minutes ago Exited (0) 30 minutes ago wonderful_keldysh
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker images
IMAGE ID DISK USAGE CONTENT SIZE EXTRA
adma7777/spam-web-app-pes2ug23cs028:v1 8d7895a5981d 561MB 122MB U
hello-world:latest 05813aedc15f 22.5kB 10.2kB U
python:3.10-slim f5d029fe3914 211MB 47.4MB
spam-web-app-pes2ug23cs028:latest 8d7895a5981d 561MB 122MB U
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker rmi adma7777/spam-web-app-pes2ug23cs028:v1
Untagged: adma7777/spam-web-app-pes2ug23cs028:v1
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker images
IMAGE ID DISK USAGE CONTENT SIZE EXTRA
hello-world:latest 05813aedc15f 22.5kB 10.2kB U
python:3.10-slim f5d029fe3914 211MB 47.4MB
spam-web-app-pes2ug23cs028:latest 8d7895a5981d 561MB 122MB U
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % ]
```

SS14:

```

[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker rmi spam-web-app-pesug23cs028:latest
Error response from daemon: conflict: unable to delete spam-web-app-pesug23cs028:latest (must be forced) - container 21d14b08af46 is using its referenced image 8d7895a5981d
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker rm 8d7895a5981d
Error response from daemon: No such container: 8d7895a5981d
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker rmi 8d7895a5981d
Error response from daemon: conflict: unable to delete 8d7895a5981d (must be forced) - image is being used by stopped container d43c992e0392
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker ps -a

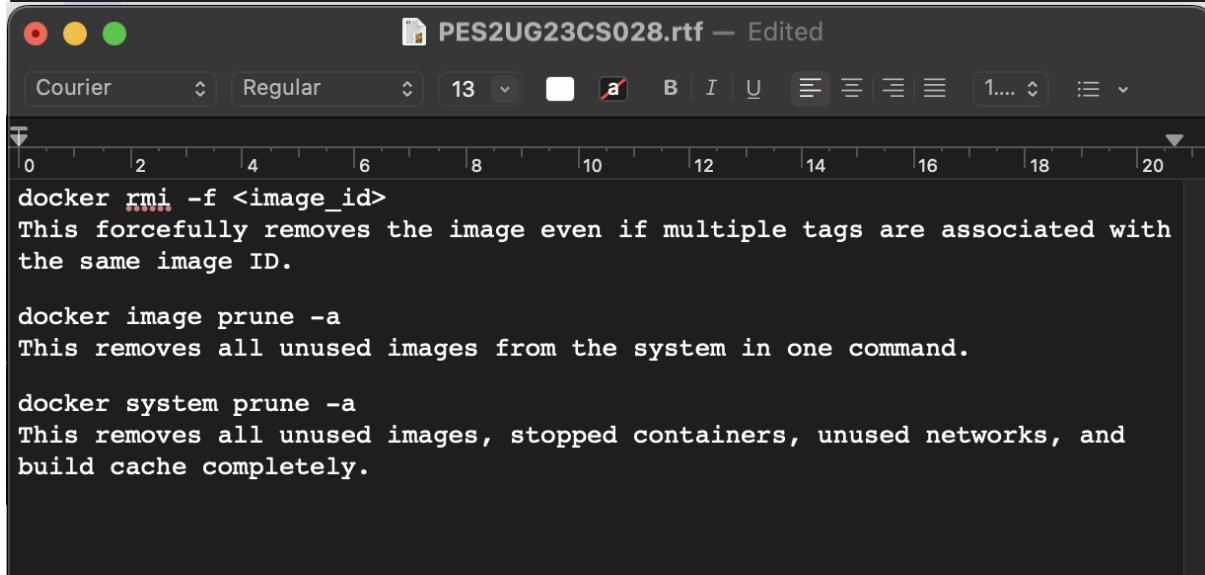
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
4d952ce339a5 spam-web-app-pes2ug23cs028 "python app.py" 16 minutes ago Exited (0) 14 minutes ago zen_beaver
d43c992e0392 spam-web-app-pes2ug23cs028 "python app.py" 17 minutes ago Created tender_knuth
21d14b08af46 spam-web-app-pesug23cs028 "python app.py" 17 minutes ago Created brave_williamson
7149edbf8aca spam-web-app-pesug23cs028 "python app.py" 17 minutes ago Created funny_khorana
081f67da4f57 hello-world "/hello" 37 minutes ago Exited (0) 37 minutes ago goofy_davinci
f2aa6f7a31357 hello-world "/hello" 37 minutes ago Exited (0) 37 minutes ago wonderful_keldysh
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker rm 4d952ce339a5 d43c992e0392 21d14b08af46 7149edbf8aca

4d952ce339a5
d43c992e0392
21d14b08af46
7149edbf8aca
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker rmi spam-web-app-pesug23cs028:latest

Untagged: spam-web-app-pesug23cs028:latest
Deleted: sha256:8d7895a5981dd5632ae14e90e78e15aefc1e6829a66cf3e2bee7f6a5f1727d8d
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % docker images

IMAGE           ID          DISK USAGE   CONTENT SIZE  EXTRA
hello-world:latest 05813aedc15f    22.5kB      10.2kB   U
python:3.10-slim  f5d029fe3914    211MB     47.4MB
[adma@Adithyas-MacBook-Air ml-docker-PES2UG2C3S028 % ]

```



## SS15:

```
[Deleted: sha256:8d7895a5981dd5632ae14e90e78e15aefc1e6829a66cf3e2bee/f6a5f1727d8d
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker images

IMAGE           ID          DISK USAGE   CONTENT SIZE   EXTRA
hello-world:latest  05813aedc15f    22.5kB      10.2kB     U
python:3.10-slim   f5d029fe3914   211MB       47.4MB

[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker pull adma7777/spam-web-app-pes2ug23cs028:v1
v1: Pulling from adma7777/spam-web-app-pes2ug23cs028
d3f70c19e5d2: Pull complete
5a8cb32529d7: Pull complete
8b687154a177: Pull complete
43b8549243b1: Pull complete
90ad6f1e6c95: Pull complete
6ae5789d908b: Pull complete
2db9930884dd1: Download complete
Digest: sha256:8d7895a5981dd5632ae14e90e78e15aefc1e6829a66cf3e2bee7f6a5f1727d8d
Status: Downloaded newer image for adma7777/spam-web-app-pes2ug23cs028:v1
docker.io/adma7777/spam-web-app-pes2ug23cs028:v1
[adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % docker images

IMAGE           ID          DISK USAGE   CONTENT SIZE   EXTRA
adma7777/spam-web-app-pes2ug23cs028:v1  8d7895a5981d    561MB      122MB
hello-world:latest  05813aedc15f    22.5kB      10.2kB     U
python:3.10-slim   f5d029fe3914   211MB       47.4MB

adma@Adithyas-MacBook-Air ml-docker-PES2UG23CS028 % ]
```