

# CLOUD COMPUTING

## LAB 3

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SRN : PES2UG23CS146

SECTION : C

DATE : 27/01/2026

SS1

```
pes2ug23cs146@pes2ug23cs146: ~/CC_PES2UG23CS146 ×
pes2ug23cs146:~/CC_PES2UG23CS146↵$ export SRN=PES2UG23CS146
pes2ug23cs146:~/CC_PES2UG23CS146↵$ echo "SRN: $SRN"
SRN: PES2UG23CS146
pes2ug23cs146:~/CC_PES2UG23CS146↵$ 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.
    (amd64)
 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/
```

## SS2

```
pes2ug23cs146@pes2ug23cs146: ~/CC_PES2UG23CS146 ×
pes2ug23cs146:~/CC_PES2UG23CS146↵$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
pes2ug23cs146:~/CC_PES2UG23CS146↵$ docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
37ba21a08f75   hello-world    "/hello"                4 minutes ago  Exited (0)    4 minutes ago  hardcore_feynman
5452b7a277fd   hello-world    "/hello"                4 minutes ago  Exited (0)    4 minutes ago  dazzling_jones
2e1fb534a6e5   hello-world    "/hello"                26 minutes ago Exited (0)    26 minutes ago musing_beaver
ab578cbcd137   hello-world    "/hello"                26 minutes ago Exited (0)    26 minutes ago ecstatic_margulis
pes2ug23cs146:~/CC_PES2UG23CS146↵$ docker images
IMAGE                                ID                                DISK USAGE  CONTENT SIZE  EXTRA
hello-world:latest                  05813aedc15f                     25.9kB      9.52kB        U
pes2ug23cs146:~/CC_PES2UG23CS146↵$
```

## SS3

```
pes2ug23cs146@pes2ug23cs146: ~/CC_PES2UG23CS146 ×
pes2ug23cs146:~/CC_PES2UG23CS146↵$ docker pull python:3.10-slim
3.10-slim: Pulling from library/python
ed8cfd59ed51: Pull complete
47c2bec0e44b: Pull complete
119d43eec815: Pull complete
af233a02f79e: Pull complete
f81c64c75055: Download complete
b3e684e4d1bb: Download complete
Digest: sha256:f5d029fe39146b08200bcc73595795ac19b85997ad0e5001a02c7c32e8769efa
Status: Downloaded newer image for python:3.10-slim
docker.io/library/python:3.10-slim
pes2ug23cs146:~/CC_PES2UG23CS146↵$ docker images
IMAGE                                ID                                DISK USAGE  CONTENT SIZE  EXTRA
hello-world:latest                  05813aedc15f                     25.9kB      9.52kB        U
python:3.10-slim                    f5d029fe3914                     185MB      47.1MB
pes2ug23cs146:~/CC_PES2UG23CS146↵$
```

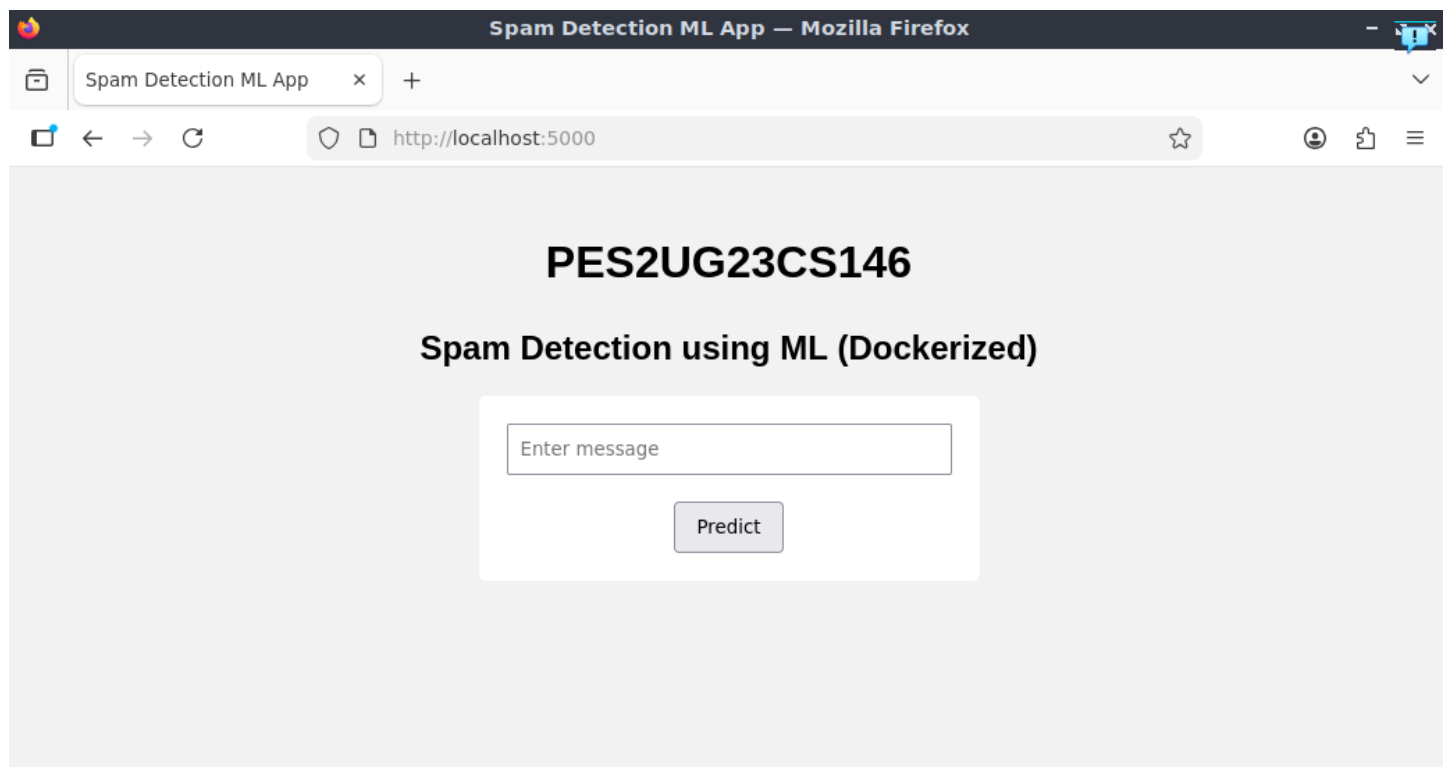
## SS4

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146$ docker build -t spam-web-app-pes2ug23cs146 .
[+] Building 96.2s (12/12) FINISHED                                docker:default
=> [internal] load build definition from Dockerfile                0.1s
=> => transferring dockerfile: 754B                                0.0s
=> [internal] load metadata for docker.io/library/python:3.10-slim 0.1s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> [1/7] FROM docker.io/library/python:3.10-slim@sha256:f5d029fe39146b08200b 0.3s
=> => resolve docker.io/library/python:3.10-slim@sha256:f5d029fe39146b08200b 0.1s
=> [internal] load build context                                  0.2s
=> => transferring context: 400.41kB                                  0.0s
=> [2/7] WORKDIR /app                                             0.1s
=> [3/7] COPY app.py ./                                           0.1s
=> [4/7] COPY spam_classifier_model.pkl ./                        0.1s
=> [5/7] COPY tfidf_vectorizer.pkl ./                            0.1s
=> [6/7] COPY templates ./templates                             0.1s
=> [7/7] RUN pip install --no-cache-dir flask scikit-learn joblib 61.8s
=> exporting to image                                             32.8s
=> => exporting layers                                              27.5s
=> => exporting manifest sha256:835cfbe539a2fe386a11b83dc49891141e9d974f6f1e 0.0s
=> => exporting config sha256:7a23cd5b63a58d0ea95111756c1fed02f786b4720a2854 0.0s
=> => exporting attestation manifest sha256:05152c72d09cf32c8fb81f9bf9ca7527 0.1s
=> => exporting manifest list sha256:89cad19ac293294a366d1a89da7958a02e9a5f8 0.0s
=> => naming to docker.io/library/spam-web-app-pes2ug23cs146:latest 0.0s
=> => unpacking to docker.io/library/spam-web-app-pes2ug23cs146:latest 5.0s
```

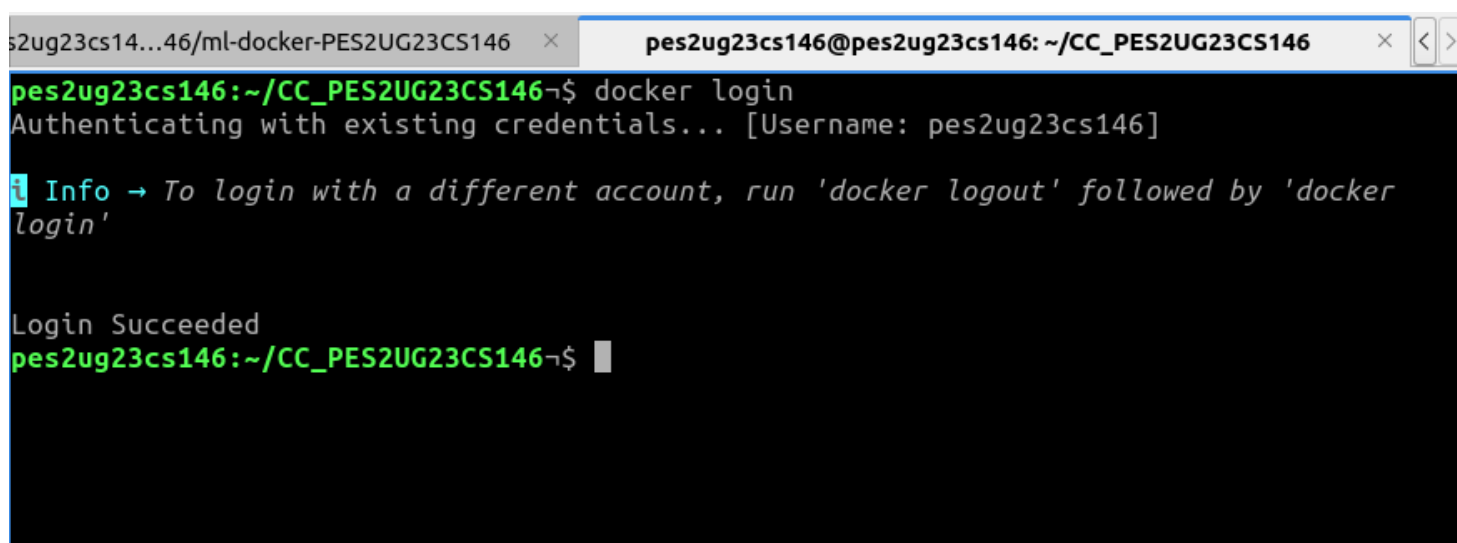
## SS5

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146$ docker run -d -p 5000:5000 spam-web-app-pes2ug23cs146
a519610c5647a4b8d4209cab081453c85592229437256dc454843b3c73c0798
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS
PORTS
NAMES
a519610c5647   spam-web-app-pes2ug23cs146         "python app.py"         45 seconds ago Up 45
seconds       0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp   zen_sanderson
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146$
```

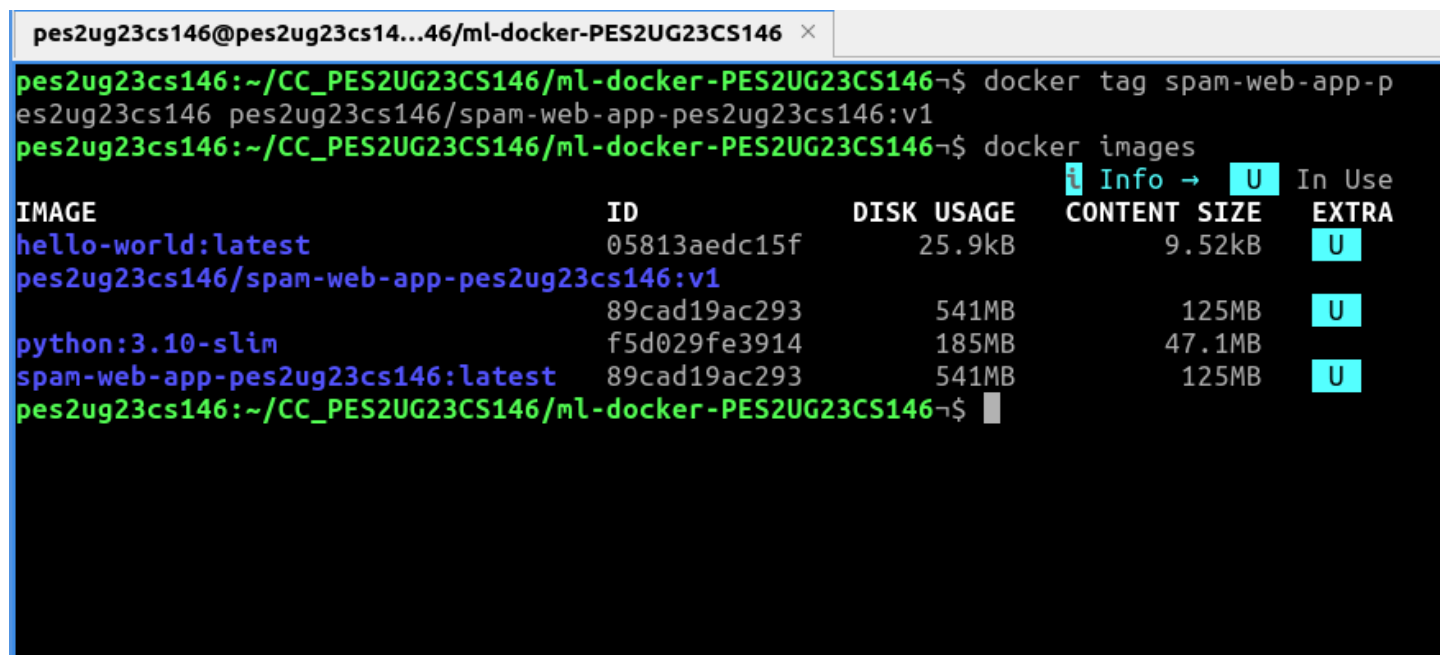
## SS6



## SS7



## SS8

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker tag spam-web-app-p
es2ug23cs146 pes2ug23cs146/spam-web-app-pes2ug23cs146:v1
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker images


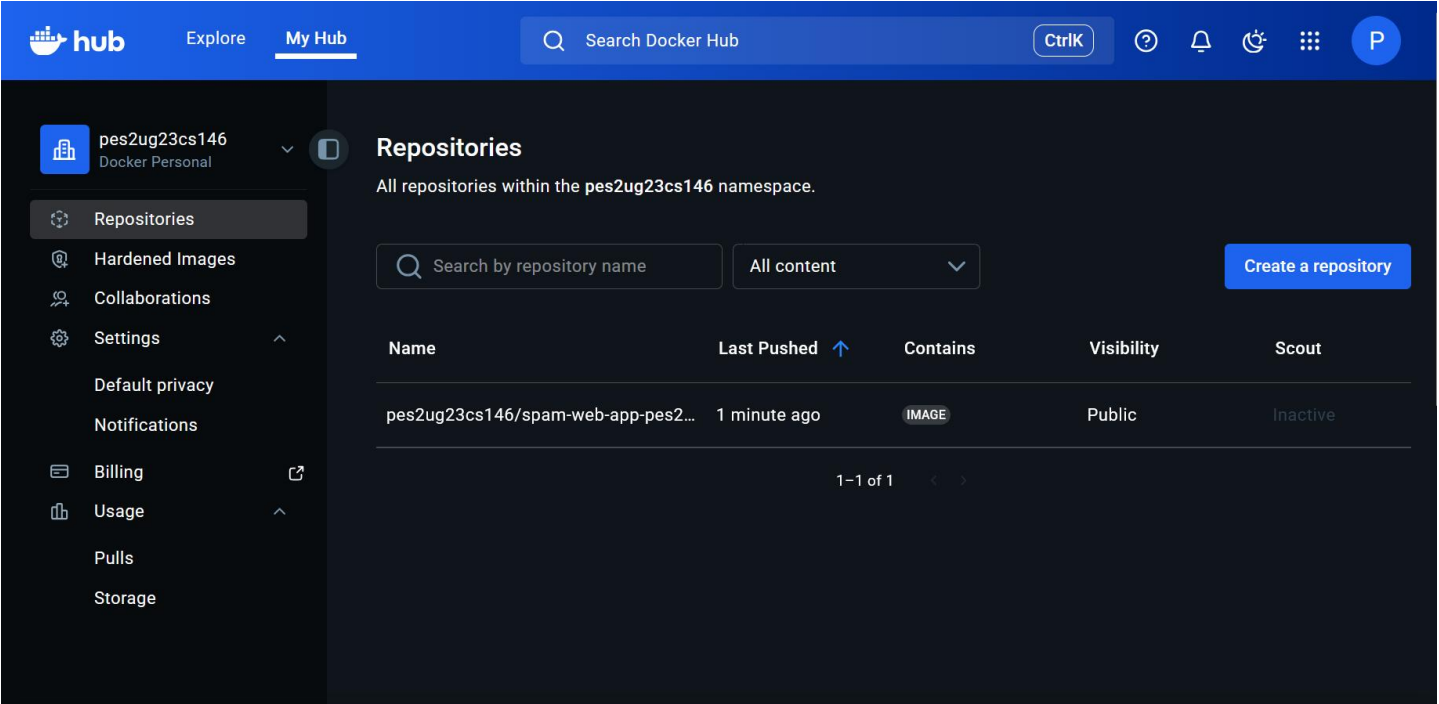
| IMAGE                                       | ID           | DISK USAGE | CONTENT SIZE | In Use |
|---------------------------------------------|--------------|------------|--------------|--------|
| hello-world:latest                          | 05813aedc15f | 25.9kB     | 9.52kB       | U      |
| pes2ug23cs146/spam-web-app-pes2ug23cs146:v1 | 89cad19ac293 | 541MB      | 125MB        | U      |
| python:3.10-slim                            | f5d029fe3914 | 185MB      | 47.1MB       |        |
| spam-web-app-pes2ug23cs146:latest           | 89cad19ac293 | 541MB      | 125MB        | U      |


```

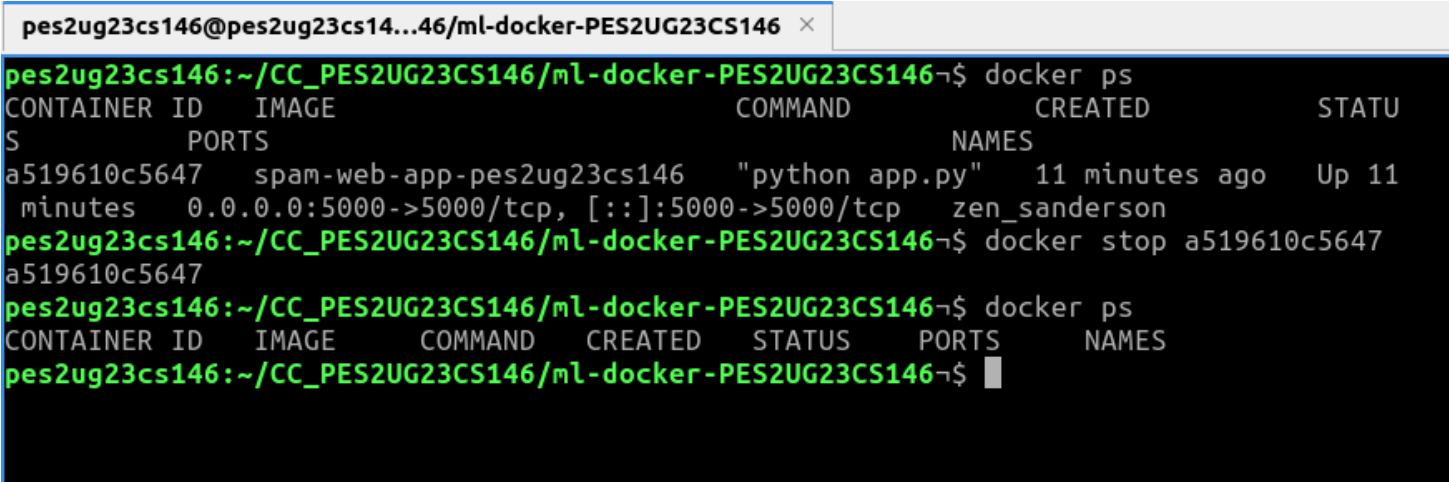
## SS9

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker push pes2ug23cs146
/spam-web-app-pes2ug23cs146:v1
The push refers to repository [docker.io/pes2ug23cs146/spam-web-app-pes2ug23cs146]
119d43eec815: Mounted from library/python
7bd5155f79aa: Pushed
47c2bec0e44b: Mounted from library/python
f7d51d0876c9: Pushed
c291b514c882: Pushed
af233a02f79e: Mounted from library/python
8f1521f2cd91: Pushed
92ab38aaefca: Pushed
ce04f1305b3f: Pushed
ed8cfd59ed51: Mounted from library/python
2adeb7a18c99: Pushed
v1: digest: sha256:89cad19ac293294a366d1a89da7958a02e9a5f8c0e94048cde5bc3546d40a5ef
size: 856
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$
```

SS10



SS11



## SS12

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker ps -a
CONTAINER ID   IMAGE                                COMMAND                  CREATED        ST
ATUS          PORTS          NAMES
a519610c5647   spam-web-app-pes2ug23cs146         "python app.py"        15 minutes ago   Ex
ited (137) 2 minutes ago          zen_sanderson
37ba21a08f75   hello-world                        "/hello"               About an hour ago   Ex
ited (0) About an hour ago          hardcore_feynman
5452b7a277fd   hello-world                        "/hello"               About an hour ago   Ex
ited (0) About an hour ago          dazzling_jones
2e1fb534a6e5   hello-world                        "/hello"               About an hour ago   Ex
ited (0) About an hour ago          musing_beaver
ab578cbcd137   hello-world                        "/hello"               About an hour ago   Ex
ited (0) About an hour ago          ecstatic_margulis
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker rm a519610c5647
a519610c5647
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker ps -a
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS
PORTS          NAMES
37ba21a08f75   hello-world                        "/hello"               About an hour ago   Exited (0) About an hour
ago          hardcore_feynman
5452b7a277fd   hello-world                        "/hello"               About an hour ago   Exited (0) About an hour
ago          dazzling_jones
2e1fb534a6e5   hello-world                        "/hello"               About an hour ago   Exited (0) About an hour
ago          musing_beaver
ab578cbcd137   hello-world                        "/hello"               About an hour ago   Exited (0) About an hour
ago          ecstatic_margulis
```

## SS13

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker images
INFO → U In Use
IMAGE                                ID                DISK USAGE  CONTENT SIZE  EXTRA
hello-world:latest                  05813aedc15f      25.9kB      9.52kB        U
pes2ug23cs146/spam-web-app-pes2ug23cs146:v1
89cad19ac293                      541MB          125MB
python:3.10-slim                    f5d029fe3914      185MB          47.1MB
spam-web-app-pes2ug23cs146:latest  89cad19ac293      541MB          125MB
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker rmi spam-web-app-p
es2ug23cs146:latest
Untagged: spam-web-app-pes2ug23cs146:latest
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker images
INFO → U In Use
IMAGE                                ID                DISK USAGE  CONTENT SIZE  EXTRA
hello-world:latest                  05813aedc15f      25.9kB      9.52kB        U
pes2ug23cs146/spam-web-app-pes2ug23cs146:v1
89cad19ac293                      541MB          125MB
python:3.10-slim                    f5d029fe3914      185MB          47.1MB
```

## SS14

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker images

```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
hello-world:latest	05813aedc15f	25.9kB	9.52kB	<b>U</b> In Use
pes2ug23cs146/spam-web-app-pes2ug23cs146:v1	89cad19ac293	541MB	125MB	<b>U</b>
python:3.10-slim	f5d029fe3914	185MB	47.1MB	

```
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker rmi pes2ug23cs146/
spam-web-app-pes2ug23cs146:v1
Untagged: pes2ug23cs146/spam-web-app-pes2ug23cs146:v1
Deleted: sha256:89cad19ac293294a366d1a89da7958a02e9a5f8c0e94048cde5bc3546d40a5ef
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker images

```

IMAGE	ID	DISK USAGE	CONTENT SIZE	EXTRA
hello-world:latest	05813aedc15f	25.9kB	9.52kB	<b>U</b> In Use
python:3.10-slim	f5d029fe3914	185MB	47.1MB	

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
GNU nano 6.2                                answer.txt *
PES2UG23CS146




to remove all the images which arent being used by any containers :
docker rmi $(docker images -q)

to remove any existing images , being used or not :
docker image prune -a -f
```

## SS15

```
pes2ug23cs146@pes2ug23cs14...46/ml-docker-PES2UG23CS146 x
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker pull pes2ug23cs146
/spam-web-app-pes2ug23cs146:v1
v1: Pulling from pes2ug23cs146/spam-web-app-pes2ug23cs146
8f1521f2cd91: Pull complete
ce04f1305b3f: Pull complete
f7d51d0876c9: Pull complete
92ab38aaefca: Pull complete
7bd5155f79aa: Pull complete
c291b514c882: Pull complete
2adeb7a18c99: Download complete
Digest: sha256:89cad19ac293294a366d1a89da7958a02e9a5f8c0e94048cde5bc3546d40a5ef
Status: Downloaded newer image for pes2ug23cs146/spam-web-app-pes2ug23cs146:v1
docker.io/pes2ug23cs146/spam-web-app-pes2ug23cs146:v1
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ docker images

```

IMAGE	ID	DISK USAGE	CONTENT SIZE	SIZE	EXTRA
hello-world:latest	05813aedc15f	25.9kB	9.52kB		 Info →  In Use
pes2ug23cs146/spam-web-app-pes2ug23cs146:v1	89cad19ac293	541MB	125MB		
python:3.10-slim	f5d029fe3914	185MB	47.1MB		

```
pes2ug23cs146:~/CC_PES2UG23CS146/ml-docker-PES2UG23CS146~$ █
```