# PES2UG23CS678_Varun_Lab3

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Here, we are seeing the basics of the Docker container, which is of PaaS (while expanded, it gives us the Platform as a Service).

SS1:

```
varunnamboodiri@varunnamboodiri-virtual-machine:~$ cd ~/PES2UG23CS678
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ export SRN=PES2UG23CS678
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ echo "SRN:$SRN"
SRN:PES2UG23CS678
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ docker run hello-world
permission denied while trying to connect to the docker API at unix:///var/run/docker.sock
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ ^C
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ sudo 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/
```

Now, we are trying to set the environment variable as SRN, which in this case would be PES2UG23CS678 (which is my SRN) for this lab experiment. Post setting the environment variable, we would be displaying the SRN to see if there were any errors in between or not. Finally, we are also seeing if the docker runs in our system or not.

SS2:

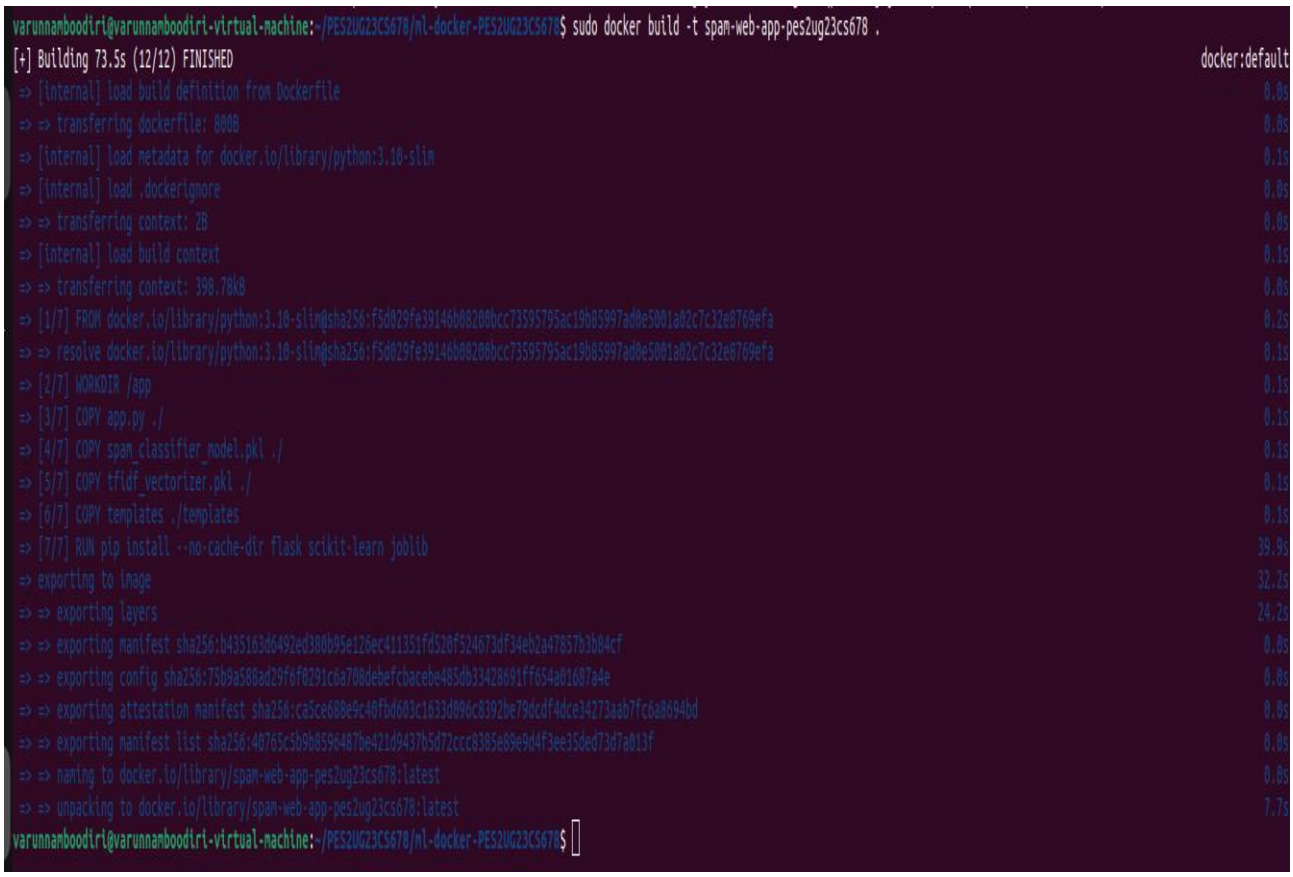
```
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ docker ps
permission denied while trying to connect to the docker API at unix:///var/run/docker.sock
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ sudo docker ps -a
CONTAINER ID   IMAGE         COMMAND    CREATED          STATUS                      PORTS     NAMES
c9198745836e   hello-world   "/hello"   4 minutes ago    Exited (0) 4 minutes ago              distracted_fermat
2363373d0f0e   hello-world   "/hello"   12 minutes ago   Exited (0) 12 minutes ago             zen_torvalds
cb5baeb06ed8   hello-world   "/hello"   19 hours ago     Exited (0) 19 hours ago               epic_sinoussi
464a2261a288   hello-world   "/hello"   19 hours ago     Exited (0) 19 hours ago               determined_lovelace
920c3c1462fb   hello-world   "/hello"   19 hours ago     Exited (0) 19 hours ago               agitated_driscoll
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$ sudo docker images
                                                                                    i Info →  U In Us
IMAGE             ID           DISK USAGE   CONTENT SIZE   EXTRA
hello-world:latest   05813aedc15f      25.9kB         9.52kB    U
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678$
```

In this step, we are seeing all the images pushed and all the containers running in our local docker system.

SS3:

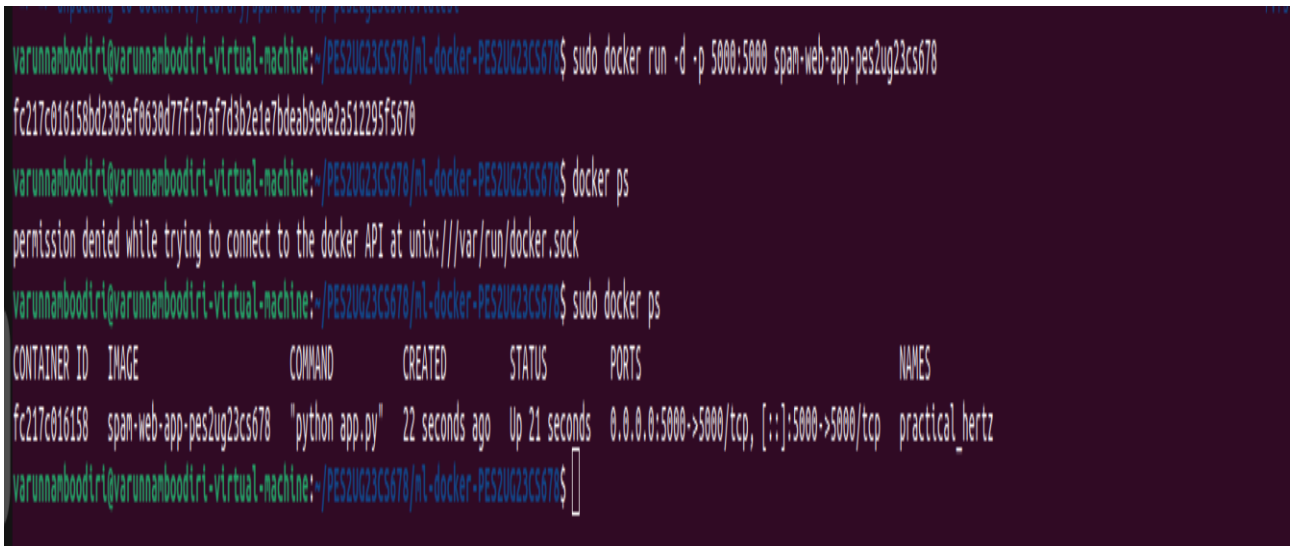

Here, we would be pulling in the slim version of python 3.10, thereby ensuring that we would be occupying lesser space, while being as fast as the normal python. This makes our project leaner.

SS4:



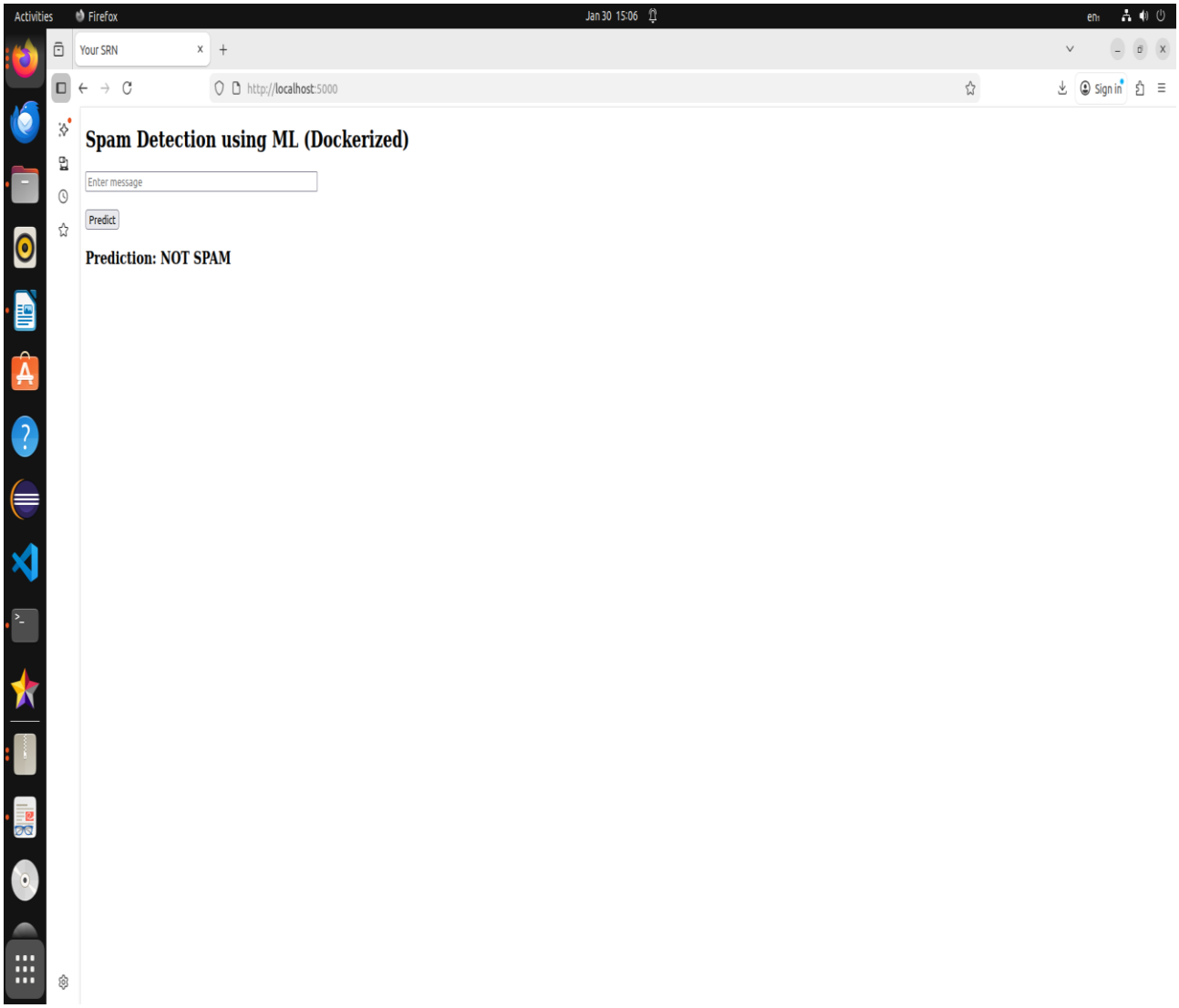

Now, we are running the Dockerfile, thereby installing the required python libraries for our experiment.

SS5:




We are running this created container, which would be starting our ML application (with the HTML page as the front-end). The port over here is mapped to the number of 5000 for this experiment. The name of the image created now is the spam-web-app.

SS6:




This is the front-end of the ML application, as we have discussed in the preceding step.

SS7:

```
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker login

USING WEB-BASED LOGIN

i Info → To sign in with credentials on the command line, use 'docker login -u <username>'


Your one-time device confirmation code is: GJPK-FKZX
Press ENTER to open your browser or submit your device code here: https://login.docker.com/activate

Waiting for authentication in the browser…

WARNING! Your credentials are stored unencrypted in '/root/.docker/config.json'.
Configure a credential helper to remove this warning. See
https://docs.docker.com/go/credential-store/

Login Succeeded
```

We are logging into our docker account from the ubuntu terminal.

SS8:

```
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker tag spam-web-app-pes2ug23cs678 pes2ug23cs678/spam-web-app-pes2ug23cs678:v1
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ docker images
permission denied while trying to connect to the docker API at unix:///var/run/docker.sock
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker images
                                                                                                    i Info → U In Use
IMAGE                                          ID             DISK USAGE   CONTENT SIZE   EXTRA
hello-world:latest                             05813aedc15f       25.9kB         9.52kB    U
pes2ug23cs678/spam-web-app-pes2ug23cs678:v1    40765c5b9b85        541MB          125MB    U
python:3.10-slim                               f5d029fe3914        185MB         47.1MB
spam-web-app-pes2ug23cs678:latest              40765c5b9b85        541MB          125MB    U
```

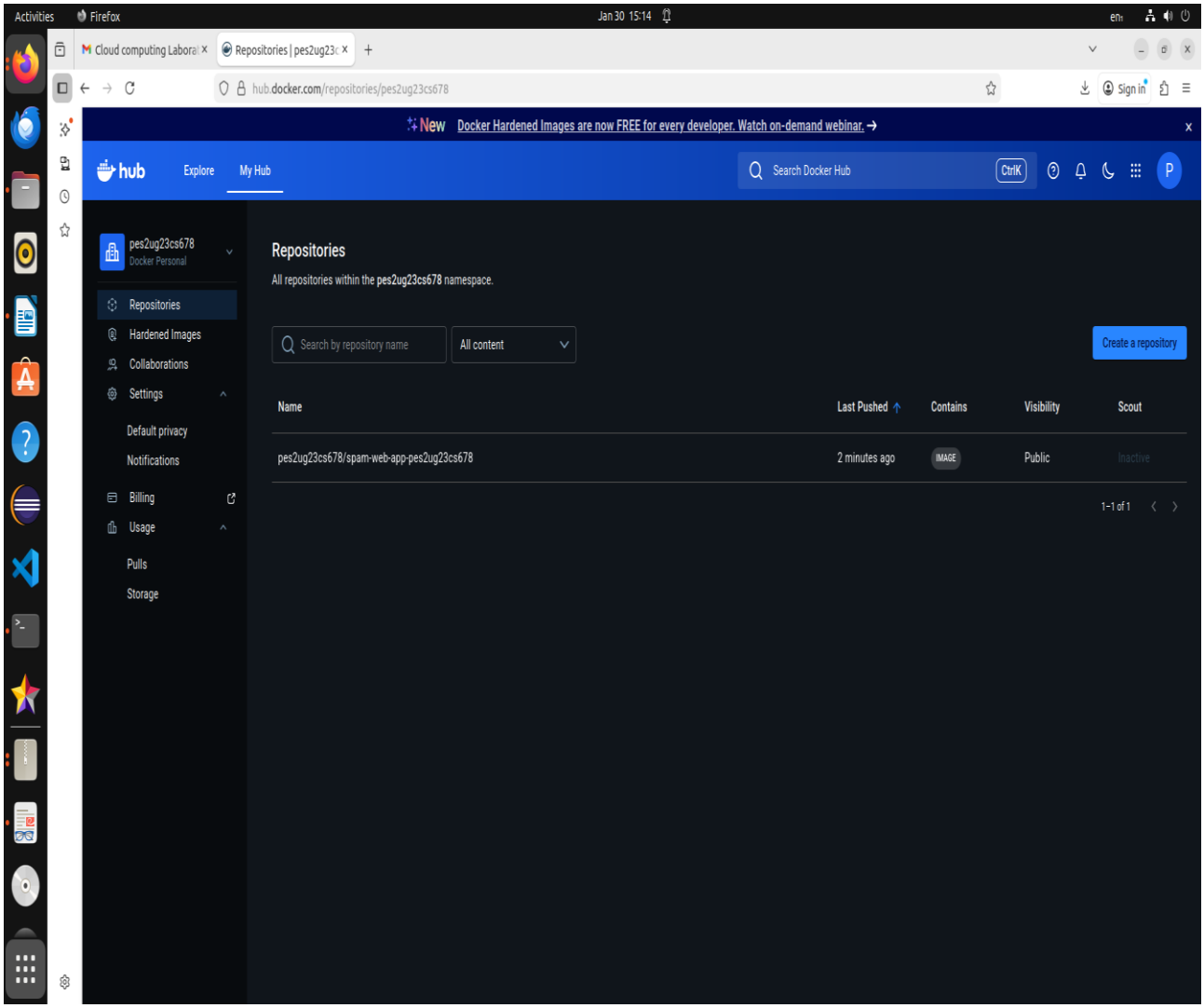
We are tagging the spam-web-app image (this image is created in the screenshot numbered 5).

SS9:

```
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker push pes2ug23cs678/spam-web-app-pes2ug23cs678:v1
The push refers to repository [docker.io/pes2ug23cs678/spam-web-app-pes2ug23cs678]
48609b39cb75: Pushed
b9b61d0aec03: Pushed
ed8cfd59ed51: Mounted from library/python
47c2bec0e44b: Mounted from library/python
b72cb076eaf7: Pushed
af233a02f79e: Mounted from library/python
9cfc502598fc: Pushed
8ce9d3299d95: Pushed
119d43eec815: Mounted from library/python
24174e8481ef: Pushed
5a444ed8c0f6: Pushed
v1: digest: sha256:40765c5b9b8596487be421d9437b5d72ccc8385e89e9d4f3ee35ded73d7a013f size: 856
```

We are now pushing the image tagged in the preceding step.

SS10:




This is the screenshot of the repository in the docker UI.

SS11:

```
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker ps
CONTAINER ID   IMAGE                     COMMAND          CREATED         STATUS         PORTS                                       NAMES
fc217c016158   spam-web-app-pes2ug23cs678   "python app.py"   16 minutes ago   Up 16 minutes   0.0.0.0:5000->5000/tcp, [::]:5000->5000/tcp   practical_hertz
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker stop fc217c016158
fc217c016158
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
```

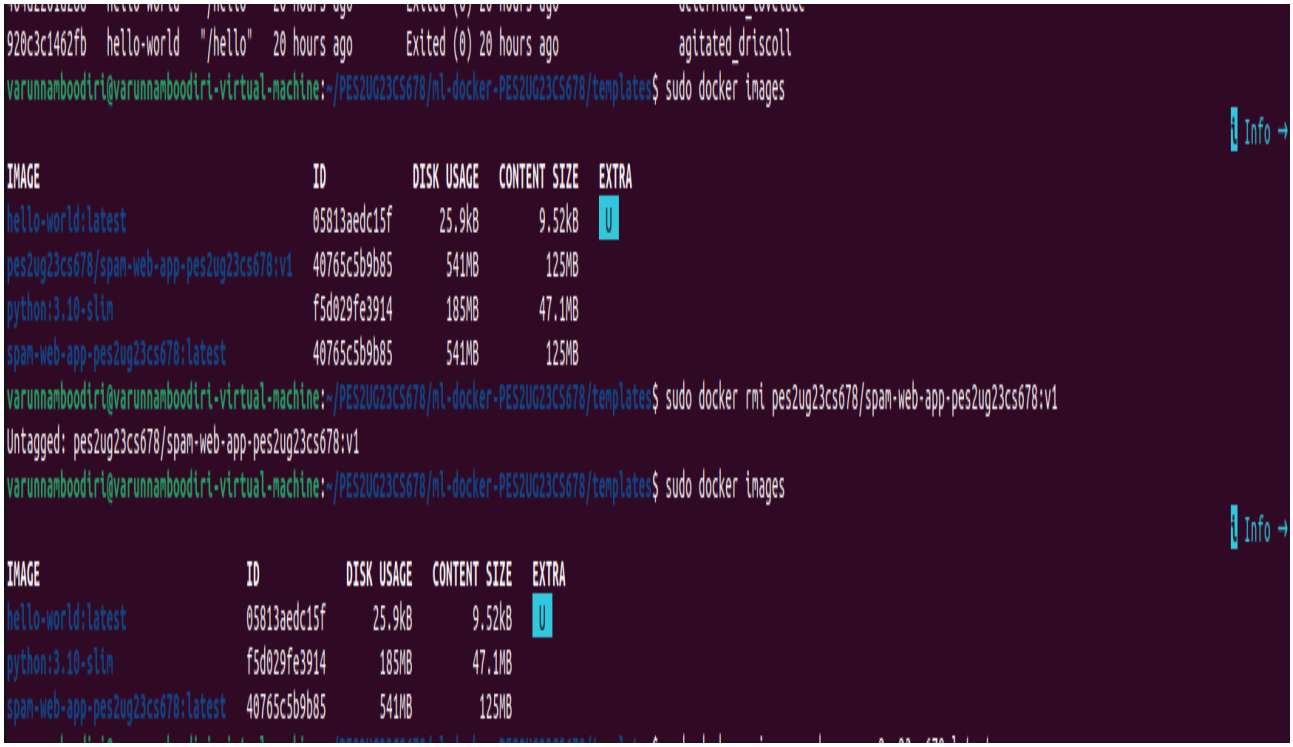
We are stopping the spam-web-app-pes2ug23cs678 container from running further.

SS12:

```
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker ps -a
CONTAINER ID   IMAGE                     COMMAND          CREATED           STATUS                       PORTS     NAMES
fc217c016158   spam-web-app-pes2ug23cs678   "python app.py"   20 minutes ago    Exited (137) 2 minutes ago             practical_hertz
c9198745836e   hello-world               "/hello"         About an hour ago   Exited (0) About an hour ago           distracted_fermat
2363373d0f0e   hello-world               "/hello"         About an hour ago   Exited (0) About an hour ago           zen_torvalds
cb5baeb06ed8   hello-world               "/hello"         20 hours ago      Exited (0) 20 hours ago                epic_sinoussi
464a2261a288   hello-world               "/hello"         20 hours ago      Exited (0) 20 hours ago                determined_lovelace
920c3c1462fb   hello-world               "/hello"         20 hours ago      Exited (0) 20 hours ago                agitated_driscoll
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker rm fc217c016158
fc217c016158
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ docker ps -a
permission denied while trying to connect to the docker API at unix:///var/run/docker.sock
varunnamboodiri@varunnamboodiri-virtual-machine:~/PES2UG23CS678/ml-docker-PES2UG23CS678/templates$ sudo docker ps -a
CONTAINER ID   IMAGE         COMMAND    CREATED           STATUS                       PORTS     NAMES
c9198745836e   hello-world   "/hello"   About an hour ago   Exited (0) About an hour ago           distracted_fermat
2363373d0f0e   hello-world   "/hello"   About an hour ago   Exited (0) About an hour ago           zen_torvalds
cb5baeb06ed8   hello-world   "/hello"   20 hours ago      Exited (0) 20 hours ago                epic_sinoussi
464a2261a288   hello-world   "/hello"   20 hours ago      Exited (0) 20 hours ago                determined_lovelace
920c3c1462fb   hello-world   "/hello"   20 hours ago      Exited (0) 20 hours ago                agitated_driscoll
```

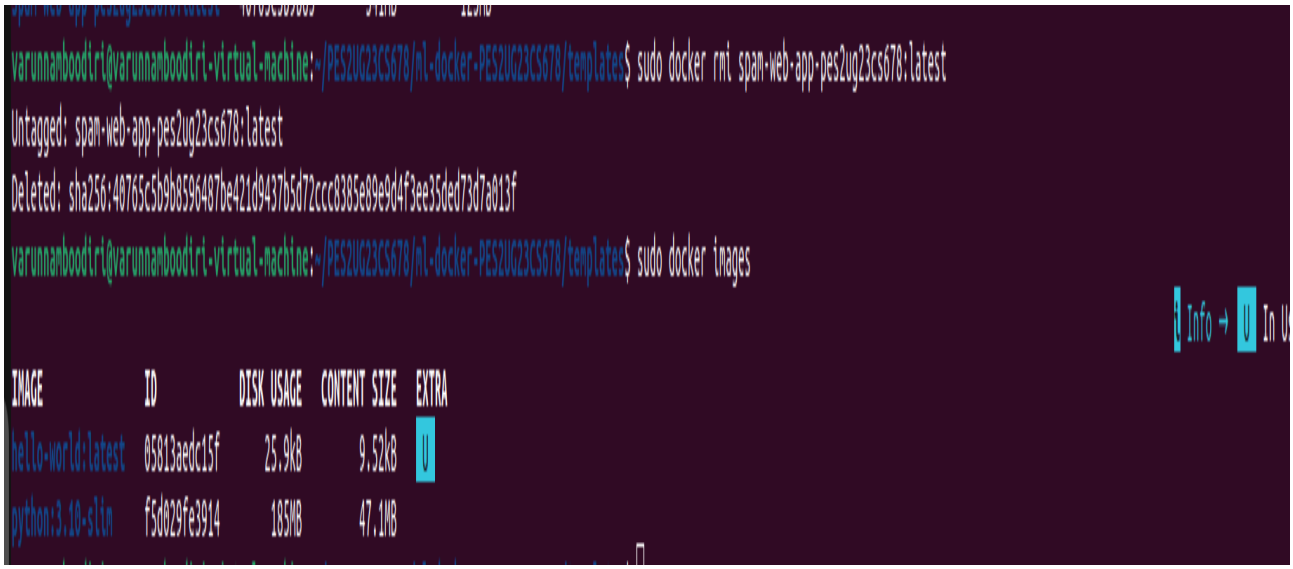
Here, we are removing the container spam-web-app-pes2ug23cs678.

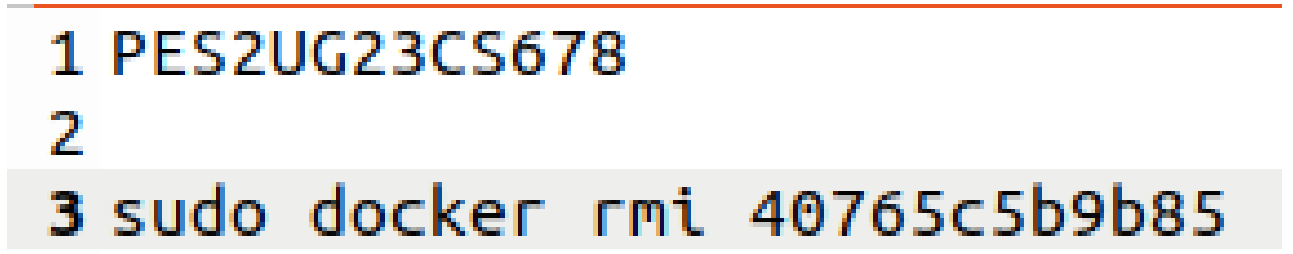
SS13:




We are now removing the image pes2ug23cs678/spam-web-app-pes2ug23cs678:v1. This does not eliminate the image named spam-web-app=pes2ug23cs678:latest.

SS14:

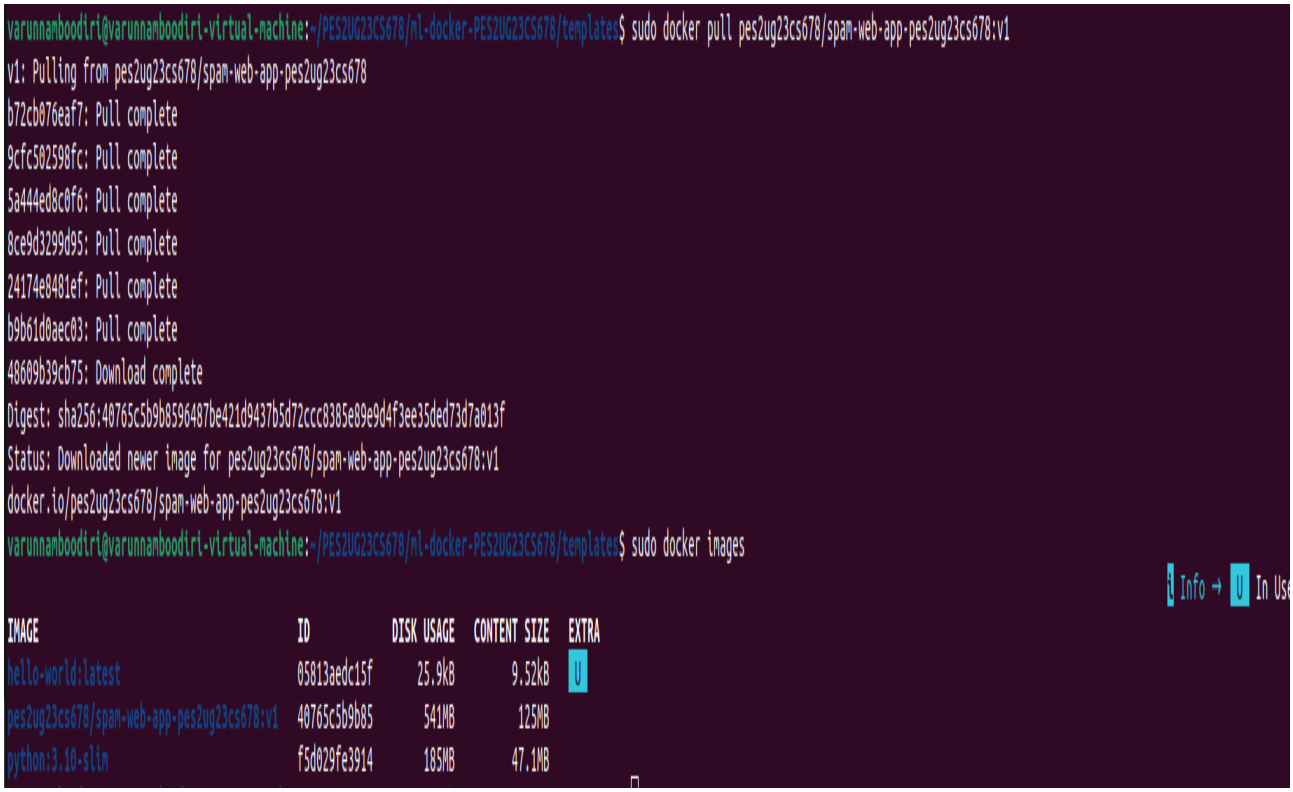



We are seeing two ways to eliminate the remaining image, which are:-

- Using the help of the image name.
- Using the help of the image id (this would have deleted both these images).

SS15:




We are now pulling the image pes2ug23cs678/spam-web-app-pes2ug23cs678 and seeing the available images(The image of pes2ug23cs678/spam-web-app-pes2ug23cs678 has been pushed into the docker containers).