

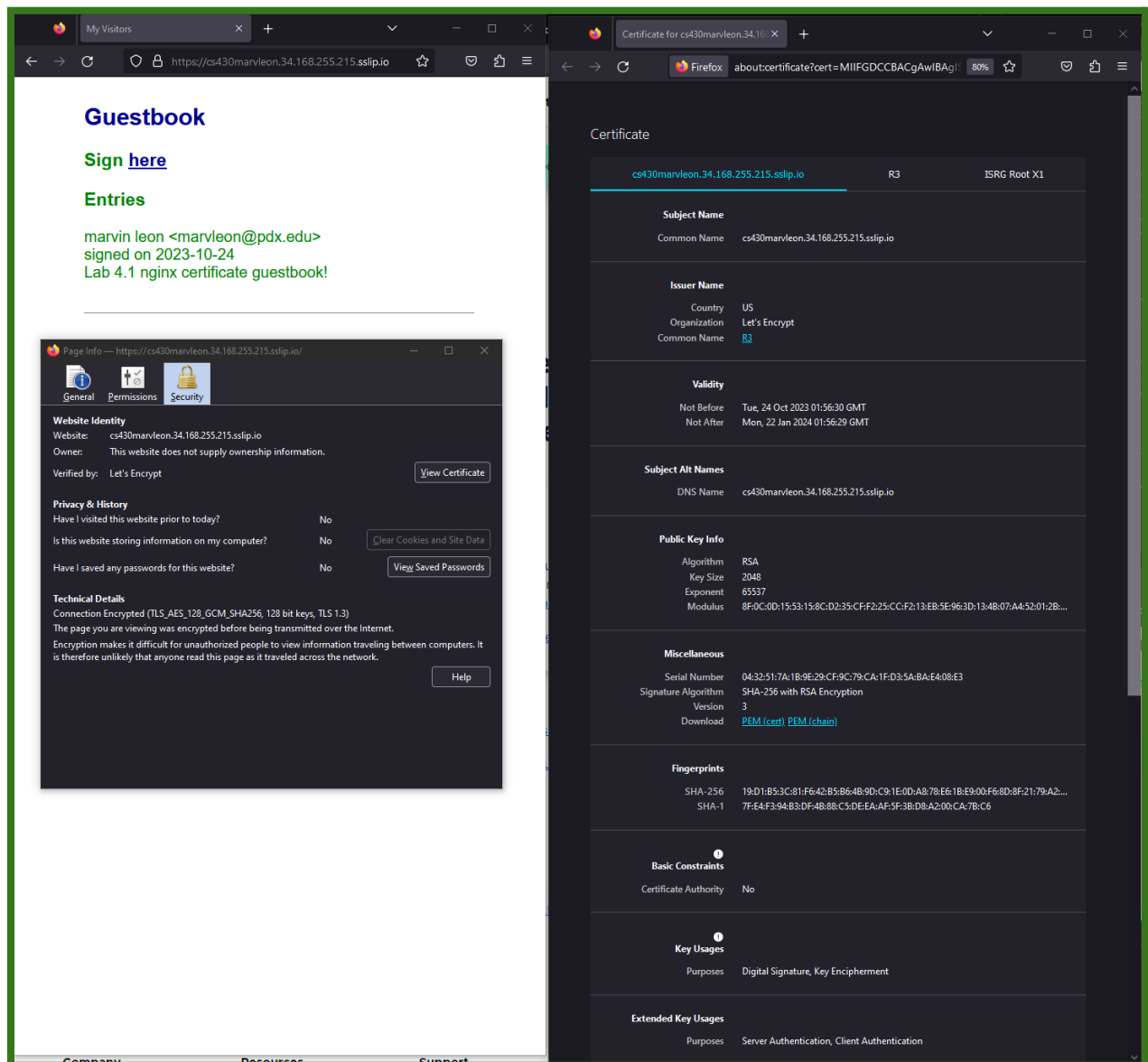
Lab Notebook 4 — marvleon

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4.1 nginx Compute Engine Guestbook

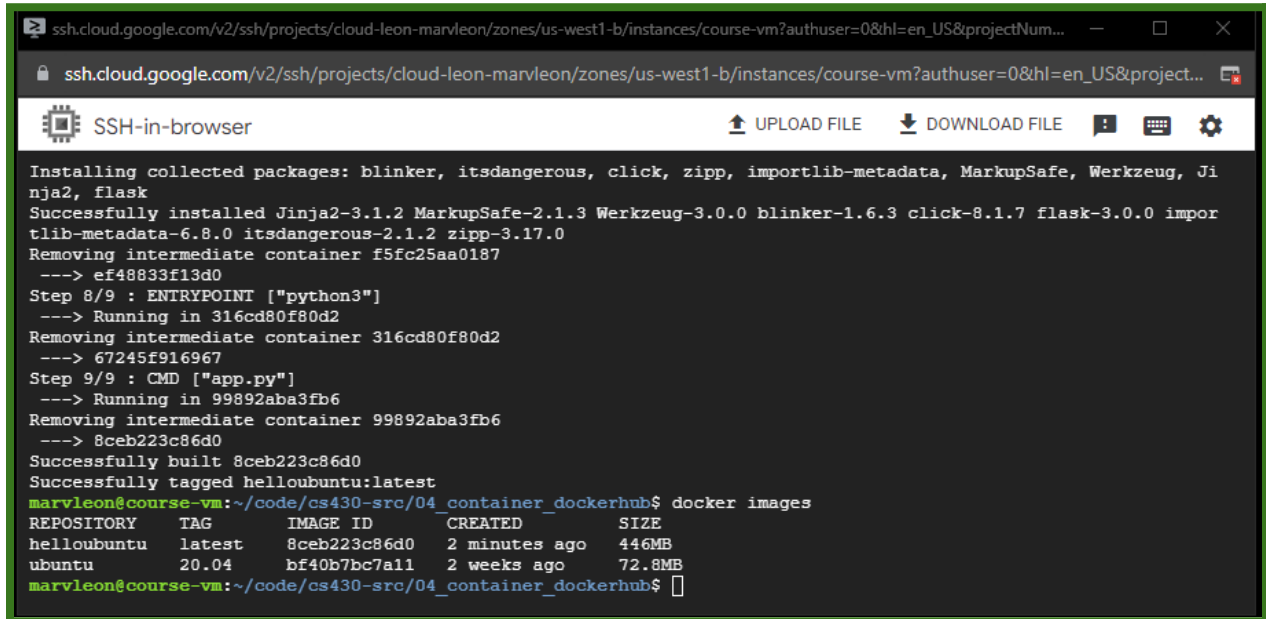
4.1.6 Install the application

Take a screenshot of the site along with its Lets Encrypt certificate and include it...



4.2 Docker Guestbook

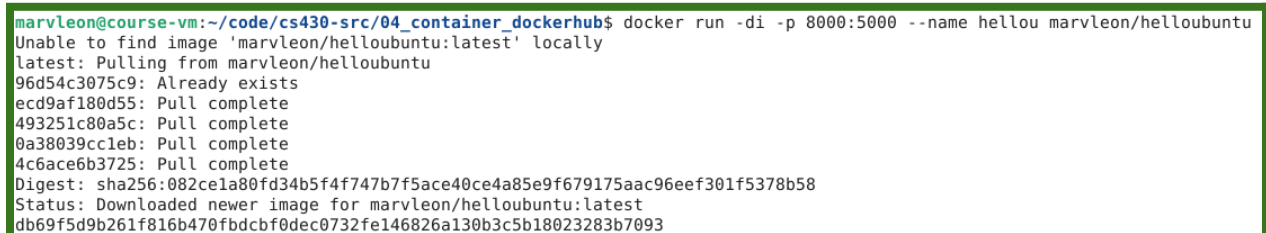
Build and run the Ubuntu-based container



```
ssh.cloud.google.com/v2/ssh/projects/cloud-leon-marvleon/zones/us-west1-b/instances/course-vm?authuser=0&hl=en_US&projectNum...
SSH-in-browser
UPLOAD FILE
DOWNLOAD FILE
Installing collected packages: blinker, itsdangerous, click, zipp, importlib-metadata, MarkupSafe, Werkzeug, Jinja2, flask
Successfully installed Jinja2-3.1.2 MarkupSafe-2.1.3 Werkzeug-3.0.0 blinker-1.6.3 click-8.1.7 flask-3.0.0 importlib-metadata-6.8.0 itsdangerous-2.1.2 zipp-3.17.0
Removing intermediate container f5fc25aa0187
--> ef48833f13d0
Step 8/9 : ENTRYPOINT ["python3"]
--> Running in 316cd80f80d2
Removing intermediate container 316cd80f80d2
--> 67245f916967
Step 9/9 : CMD ["app.py"]
--> Running in 99892aba3fb6
Removing intermediate container 99892aba3fb6
--> 8ceb223c86d0
Successfully built 8ceb223c86d0
Successfully tagged helloubuntu:latest
marvleon@course-vm:~/code/cs430-src/04_container_dockerhub$ docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
helloubuntu   latest    8ceb223c86d0   2 minutes ago  446MB
ubuntu        20.04     bf40b7bc7a11   2 weeks ago    72.8MB
marvleon@course-vm:~/code/cs430-src/04_container_dockerhub$
```

4.2.6 Running from Docker Hub

Run the image directly from Docker Hub and show a screenshot of the output of the command in your lab notebook.




```
marvleon@course-vm:~/code/cs430-src/04_container_dockerhub$ docker run -di -p 8000:5000 --name hellou marvleon/helloubuntu
Unable to find image 'marvleon/helloubuntu:latest' locally
latest: Pulling from marvleon/helloubuntu
96d54c3075c9: Already exists
ecd9af180d55: Pull complete
493251c80a5c: Pull complete
0a38039cc1eb: Pull complete
4c6ace6b3725: Pull complete
Digest: sha256:082cela80fd34b5f4f747b7f5ace40ce4a85e9f679175aac96eef301f5378b58
Status: Downloaded newer image for marvleon/helloubuntu:latest
db69f5d9b261f816b470fbdcbf0dec0732fe146826a130b3c5b18023283b7093
```

Lab Notebook 4 - Google Docs x Image Layer Details - marvleon/ x +

hub.docker.com/layers/marvleon/helloubuntu/latest/images/sha256-082ce1a80fd...

Search Docker... Explore Repositories Organizations Help Upgrade marvleon

marvleon / Repositories / helloubuntu / latest

 **marvleon/helloubuntu:latest** Delete Tag

DIGEST: sha256:082ce1a80fd34b5f4f747b7f5ace40ce4a85e9f679175aac96eef301f5378b58

OS/ARCH	COMPRESSED SIZE	LAST PUSHED	TYPE
linux/amd64	156.97 MB	9 minutes ago by marvleon	Image

Image Layers Vulnerabilities

IMAGE LAYERS ?

1	ARG RELEASE	0 B
2	ARG LAUNCHPAD_BUILD_ARCH	0 B
3	LABEL org.opencontainers.image.ref.n...	0 B
4	LABEL org.opencontainers.image.versi...	0 B
5	ADD file ... in /	26.23 MB
6	CMD ["/bin/bash"]	0 B
7	LABEL maintainer=marvleon@pdx.edu	0 B
8	/bin/sh -c apt-get update -y	31.17 MB
9	/bin/sh -c apt-get install -y	97.64 MB
10	COPY dir:7fe19123b50a5964040197d...	3.01 KB
11	WORKDIR /app	0 B
12	/bin/sh -c pip install -r	1.93 MB
13	ENTRYPOINT ["python3"]	0 B
14	CMD ["app.py"]	0 B

Command

ARG RELEASE

What layer adds the most of the container image? How much does it add?

Layer 8 (/bin/sh -c apt-get install -y python3-pip)

97.64 MB

4.2.8 Build and run the Alpine-based container

Take a screenshot of the image generated and its size for your lab notebook.

```
marvleon@course-vm:~/code/cs430-src/04_container_dockerhub$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
helloalpine	latest	74cc06d08b64	45 seconds ago	66MB
python	alpine	a4c7645b18dc	8 days ago	51.8MB
ubuntu	20.04	bf40b7bc7a11	2 weeks ago	72.8MB

How much smaller is the image than the Ubuntu one?

6.8 MB

Show output of this command. What might have happened?

```
marvleon@course-vm:~/code/cs430-src/04_container_dockerhub$ docker exec -it helloa /bin/bash
OCI runtime exec failed: exec failed: unable to start container process: exec: "/bin/bash": stat /bin/bash: no such file or directory: unknown
```


/bin/bash does not exist!

Take a screenshot of the output of each

```
marvleon@course-vm:~/code/cs430-src/04_container_dockerhub$ docker exec -it helloa /bin/sh
/app # cat /etc/alpine-release
3.18.4
/app # ps -ef
PID   USER     TIME   COMMAND
    1  root      0:00   python3 app.py
     8  root      0:00   /usr/local/bin/python3 app.py
    34  root      0:00   /bin/sh
    41  root      0:00   ps -ef
/app # █
```

4.2.9 Docker Hub Alpine

Take a screenshot of the container image and its size



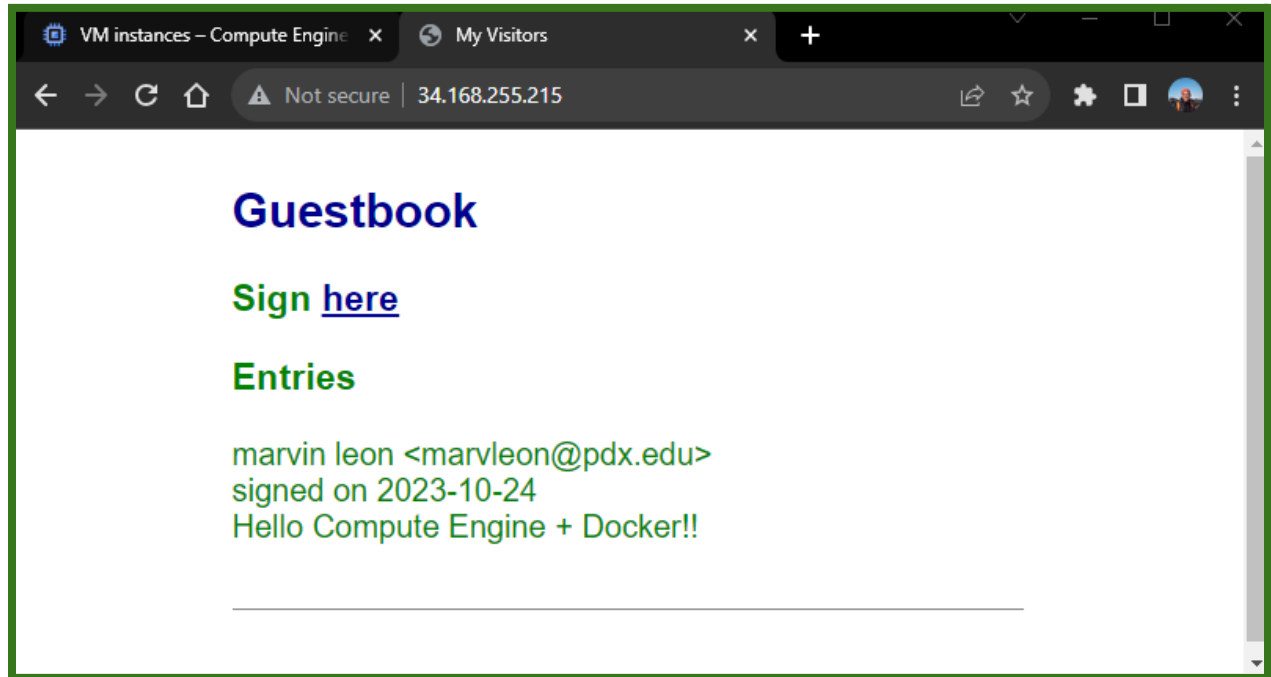
marvleon/helloalpine:latest

DIGEST: sha256:73c0ac42a51254defba35ea3d311b575a54c1f329aa5a3cb26beb938851c6f52

OS/ARCH	COMPRESSED SIZE	LAST PUSHED	TYPE
linux/amd64	22.94 MB	2 minutes ago by marvleon	Image

4.2.10 Compute Engine Ubuntu VM deployment

Take a screenshot of the entry that includes the VM's external IP address



4.2.11 Compute Engine ContainerOS VM deployment

Take a screenshot of the entry that includes the VM's external IP address

