

# Exercise 1

## docker run hello-world

```
andy@ANDY-SFCBOOK: ~  
andy@ANDY-SFCBOOK:~$ docker run hello-world  
Unable to find image 'hello-world:latest' locally  
latest: Pulling from library/hello-world  
1b930d010525: Pull complete  
Digest: sha256:9572f7cdcee8591948c2963463447a53466950b3fc15a247fcad1917ca215a2f  
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.  
   (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/  
andy@ANDY-SFCBOOK:~$ D_
```

## docker images

```
andy@ANDY-SFCBOOK: ~  
andy@ANDY-SFCBOOK:~$ clear  
andy@ANDY-SFCBOOK:~$ docker run hello-world  
Unable to find image 'hello-world:latest' locally  
latest: Pulling from library/hello-world  
1b930d010525: Pull complete  
2963463447a53466950b3fc15a247fcad1917ca215a2f  
Digest: sha256:9572f7cdcee8591948c  
Status: Downloaded newer image for hello-world:latest  
  
Hello from Docker!  
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For more examples and ideas, visit:  
https://docs.docker.com/get-started/  
andy@ANDY-SFCBOOK:~$ docker images  
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE  
hello-world         latest             fce289e99eb9       12 months ago      1.84kB  
andy@ANDY-SFCBOOK:~$
```

## docker ps -a

```
andy@ANDY-SFCBOOK: ~
Deleted: sha256:af0b15c8625bb1938f1d7b17081031f649fd14e6b23368eea3c5483994a66a3
andy@ANDY-SFCBOOK:~$ clear
andy@ANDY-SFCBOOK:~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
1b930d010525: Pull complete
463447a53466950b3fc15a247fcad1917ca215a2f
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
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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.
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https://hub.docker.com/

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

andy@ANDY-SFCBOOK:~$ docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
16acaaa75c7e        hello-world        "/hello"           20 hours ago       Exited (0)          About a minute ago                distracted_feynman

andy@ANDY-SFCBOOK:~$
```

## Exercise 2

### docker pull alpine

```
andy@ANDY-SFCBOOK: ~
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.
   (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

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https://hub.docker.com/

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

andy@ANDY-SFCBOOK:~$ docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES
16acaaa75c7e        hello-world        "/hello"           20 hours ago       Exited (0)          About a minute ago                distracted_feynman
andy@ANDY-SFCBOOK:~$ docker pull alpine
Using default tag: latest
latest: Pulling from library/alpine
c9b1b535fdd9: Pull complete
Digest: sha256:ab00606a42621fb68f2ed6ad3c88be54397f981a7b70a79db3d1172b11c4367d
Status: Downloaded newer image for alpine:latest
docker.io/library/alpine:latest
andy@ANDY-SFCBOOK:~$
```

## docker run alpine ls -l

```
andy@ANDY-SFCBOOK: ~  
For more examples and ideas, visit:  
https://docs.docker.com/get-started/  
andy@ANDY-SFCBOOK:~$ docker ps -a  
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES  
16acaaa75c7e        hello-world        "/hello"           20 hours ago       Exited (0)          About a minute ago  distracted_feynman  
andy@ANDY-SFCBOOK:~$ docker pull alpine  
Using default tag: latest  
latest: Pulling from library/alpine  
c9b1b535fdd9: Pull complete  
Digest: sha256:ab00606a42621fb68f2ed6ad3c88be54397f981a7b70a79db3d1172b11c4367d  
Status: Downloaded newer image for alpine:latest  
docker.io/library/alpine:latest  
andy@ANDY-SFCBOOK:~$ docker run alpine ls -l  
total 56  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 bin  
drwxr-xr-x  5 root    root      340 Jan 19 18:50 dev  
drwxr-xr-x  1 root    root      4096 Jan 19 18:50 etc  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 home  
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 lib  
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 media  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 mnt  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 opt  
dr-xr-xr-x 143 root    root        0 Jan 19 18:50 proc  
drwx----- 2 root    root      4096 Jan 16 21:52 root  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 run  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52/sbin  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 srv  
dr-xr-xr-x  13 root    root        0 Jan 19 18:50 sys  
drwxrwxrwt  2 root    root      4096 Jan 16 21:52 tmp  
drwxr-xr-x  7 root    root      4096 Jan 16 21:52 usr  
drwxr-xr-x 12 root    root      4096 Jan 16 21:52 var  
andy@ANDY-SFCBOOK:~$
```

## docker run alpine echo "hello from alpine"

```
andy@ANDY-SFCBOOK: ~  
https://docs.docker.com/get-started/  
andy@ANDY-SFCBOOK:~$ docker ps -a  
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES  
16acaaa75c7e        hello-world        "/hello"           20 hours ago       Exited (0)          About a minute ago  distracted_feynman  
andy@ANDY-SFCBOOK:~$ docker pull alpine  
Using default tag: latest  
latest: Pulling from library/alpine  
c9b1b535fdd9: Pull complete  
Digest: sha256:ab00606a42621fb68f2ed6ad3c88be54397f981a7b70a79db3d1172b11c4367d  
Status: Downloaded newer image for alpine:latest  
docker.io/library/alpine:latest  
andy@ANDY-SFCBOOK:~$ docker run alpine ls -l  
total 56  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 bin  
drwxr-xr-x  5 root    root      340 Jan 19 18:50 dev  
drwxr-xr-x  1 root    root      4096 Jan 19 18:50 etc  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 home  
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 lib  
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 media  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 mnt  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 opt  
dr-xr-xr-x 143 root    root        0 Jan 19 18:50 proc  
drwx----- 2 root    root      4096 Jan 16 21:52 root  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 run  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52/sbin  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 srv  
dr-xr-xr-x  13 root    root        0 Jan 19 18:50 sys  
drwxrwxrwt  2 root    root      4096 Jan 16 21:52 tmp  
drwxr-xr-x  7 root    root      4096 Jan 16 21:52 usr  
drwxr-xr-x 12 root    root      4096 Jan 16 21:52 var  
andy@ANDY-SFCBOOK:~$ docker run alpine echo "hello from alpine"  
hello from alpine  
andy@ANDY-SFCBOOK:~$
```

## docker run -it alpine /bin/sh

```
andy@ANDY-SFCBOOK: ~  
drwx----- 2 root    root      4096 Jan 16 21:52 root  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 run  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52/sbin  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 srv  
dr-xr-xr-x 143 root    root        0 Jan 19 18:50 sys  
drwxrwxrwt  2 root    root      4096 Jan 16 21:52 tmp  
drwxr-xr-x  7 root    root      4096 Jan 16 21:52 usr  
drwxr-xr-x 12 root    root      4096 Jan 16 21:52 var  
andy@ANDY-SFCBOOK:~$ docker run alpine echo "hello from alpine"  
hello from alpine  
andy@ANDY-SFCBOOK:~$ docker run -it alpine /bin/sh  
/# ls -l  
total 56  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 bin  
drwxr-xr-x  5 root    root      360 Jan 19 18:52 dev  
drwxr-xr-x  1 root    root      4096 Jan 19 18:52 etc  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 home  
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 lib  
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 media  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 mnt  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 opt  
dr-xr-xr-x 143 root    root        0 Jan 19 18:52 proc  
drwx----- 1 root    root      4096 Jan 19 18:52 root  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 run  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52/sbin  
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 srv  
dr-xr-xr-x  13 root    root        0 Jan 19 18:52 sys  
drwxrwxrwt  2 root    root      4096 Jan 16 21:52 tmp  
drwxr-xr-x  7 root    root      4096 Jan 16 21:52 usr  
drwxr-xr-x 12 root    root      4096 Jan 16 21:52 var  
/# uname -a  
Linux 9635a8bc37f9 4.9.184-linuxkit #1 SMP Tue Jul 2 22:58:16 UTC 2019 x86_64 Linux  
/# exit  
andy@ANDY-SFCBOOK:~$
```

## docker ps -a

```
andy@ANDY-SFCBOOK:~$ docker run alpine echo "hello from alpine"
hello from alpine
andy@ANDY-SFCBOOK:~$ docker run -it alpine /bin/sh
/ # ls -l
total 56
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 bin
drwxr-xr-x  5 root    root      360 Jan 19 18:52 dev
drwxr-xr-x  1 root    root      4096 Jan 19 18:52 etc
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 home
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 lib
drwxr-xr-x  5 root    root      4096 Jan 16 21:52 media
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 mnt
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 opt
dr-xr-xr-x 143 root    root        0 Jan 19 18:52 proc
drwxr-xr-x  1 root    root      4096 Jan 19 18:52 root
drwxr-xr-x  2 root    root      4096 Jan 16 21:52 run
drwxr-xr-x  2 root    root      4096 Jan 16 21:52/sbin
drwxr-xr-x  2 root    root      4096 Jan 16 21:52/srv
dr-xr-xr-x 13 root    root        0 Jan 19 18:52/sys
drwxrwxrwt  2 root    root      4096 Jan 16 21:52/tmp
drwxr-xr-x  7 root    root      4096 Jan 16 21:52/usr
drwxr-xr-x 12 root    root      4096 Jan 16 21:52/var
/ # uname -a
Linux 9635a8bc37f9 4.9.184-linuxkit #1 SMP Tue Jul 2 22:58:16 UTC 2019 x86_64 Linux
/ # exit
andy@ANDY-SFCBOOK:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
9635a8bc37f9	alpine	"/bin/sh"	20 hours ago	Exited (0) 29 seconds ago		fervent_heyrovsky
dc3cedb2aef8	alpine	"echo 'hello from al..."	20 hours ago	Exited (0) About a minute ago		boring_moser
8b9d6a22ccd8	alpine	"ls -l"	20 hours ago	Exited (0) 2 minutes ago		sleepy_volhard
16acaaa75c7e	hello-world	"/hello"	20 hours ago	Exited (0) 5 minutes ago		distracted_feynma

```
andy@ANDY-SFCBOOK:~$
```

## Exercise 3

docker run --name static-site -e AUTHOR="Andy Horn" -d -P dockersamples/static-site

```
andy@ANDY-SFCBOOK:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
9635a8bc37f9	alpine	"/bin/sh"	20 hours ago	Exited (0) 29 seconds ago		fervent_heyrovsky
dc3cedb2aef8	alpine	"echo 'hello from al..."	20 hours ago	Exited (0) About a minute ago		boring_moser
8b9d6a22ccd8	alpine	"ls -l"	20 hours ago	Exited (0) 2 minutes ago		sleepy_volhard
16acaaa75c7e	hello-world	"/hello"	20 hours ago	Exited (0) 5 minutes ago		distracted_feynma

```
andy@ANDY-SFCBOOK:~$ docker run --name static-site -e AUTHOR="Andy Horn"
> -d -P dockersamples/static-site
Unable to find image 'dockersamples/static-site:latest' locally
latest: Pulling from dockersamples/static-site
fdd5d782f33: Pull complete
a3ed95caeb02: Pull complete
716f7a5f3082: Pull complete
7b10f03a0309: Pull complete
aff3ab7e9c39: Pull complete
Digest: sha256:daa686c61d7d239b7977e72157997489db49f316b9b9af3909d9f10fd28b2dec
Status: Downloaded newer image for dockersamples/static-site:latest
2af307a24e50b6529fbf77ce4fce5cf09edf964ad03906d3017ae167437157ee
andy@ANDY-SFCBOOK:~$
```



## docker port static-site

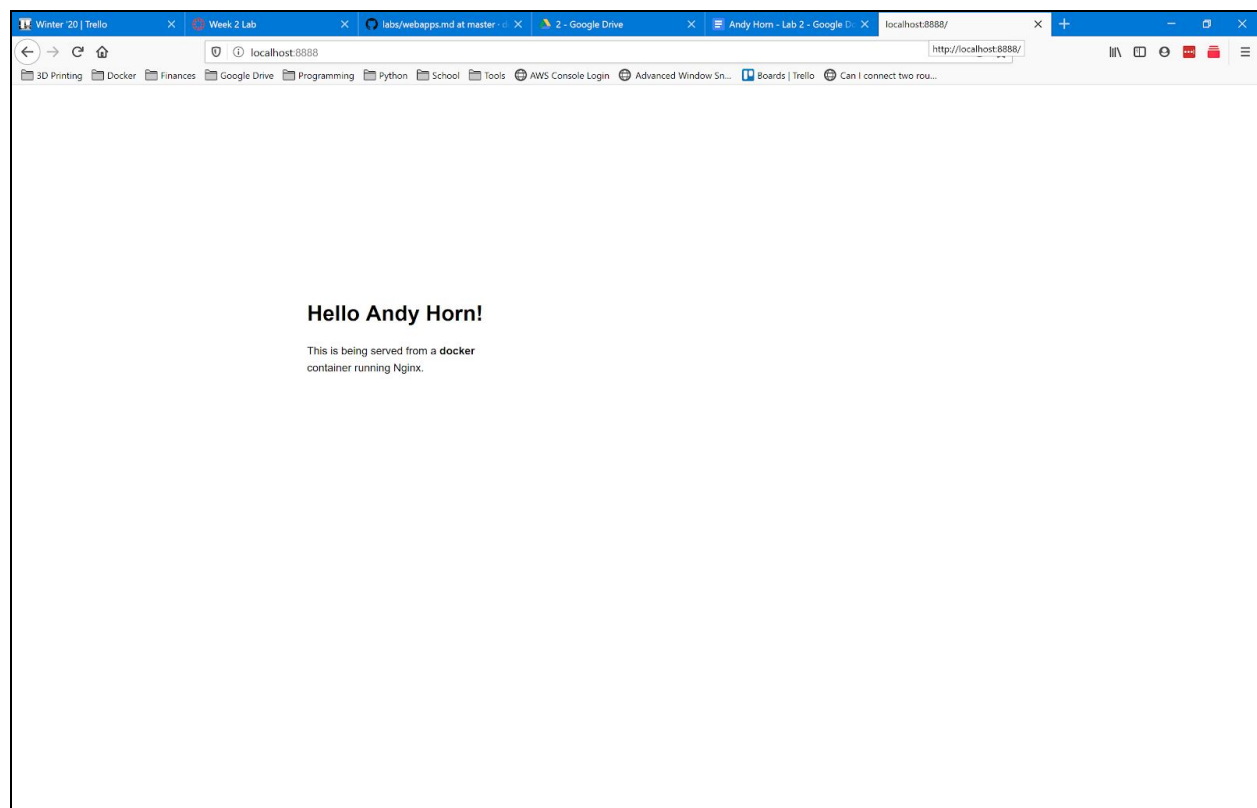
```
andy@ANDY-SFCBOOK: ~  
drwxr-xr-x 1 root root 4096 Jan 19 18:52 root  
drwxr-xr-x 2 root root 4096 Jan 16 21:52 run  
drwxr-xr-x 2 root root 4096 Jan 16 21:52/sbin  
drwxr-xr-x 2 root root 4096 Jan 16 21:52/srv  
dr-xr-xr-x 13 root root 0 Jan 19 18:52/sys  
drwxrwxrwt 2 root root 4096 Jan 16 21:52/tmp  
drwxr-xr-x 7 root root 4096 Jan 16 21:52/usr  
drwxr-xr-x 12 root root 4096 Jan 16 21:52/var  
/ # uname -a  
Linux 9635a8bc37f9 4.9.184-linuxkit #1 SMP Tue Jul 2 22:58:16 UTC 2019 x86_64 Linux  
/ # exit  
andy@ANDY-SFCBOOK:~$ docker ps -a  
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS              NAMES  
9635a8bc37f9        alpine             "/bin/sh"          20 hours ago       Exited (0) 29 seconds ago              fervent_heyrovsky  
dc3cedb2aef8        alpine             "echo 'hello from al..." 20 hours ago       Exited (0) About a minute ago          boring_moser  
8b9d6a22ccd8        alpine             "ls -l"            20 hours ago       Exited (0) 2 minutes ago              sleepy_volhard  
16acaaa75c7e        hello-world        "/hello"           20 hours ago       Exited (0) 5 minutes ago              distracted_feynma  
n  
andy@ANDY-SFCBOOK:~$ docker run --name static-site -e AUTHOR="Andy Horn"  
> " -d -P dockersamples/static-site  
Unable to find image 'dockersamples/static-site:latest' locally  
latest: Pulling from dockersamples/static-site  
fdd5d7827f33: Pull complete  
a3ed95caeb02: Pull complete  
716f7a5f3082: Pull complete  
7b10f03a0309: Pull complete  
aff3ab7e9c39: Pull complete  
Digest: sha256:daa686c61dd239b7977e72157997489db49f316b9b9af3909d9f10fd28b2dec  
Status: Downloaded newer image for dockersamples/static-site:latest  
2af307a24e50b6529fbf77ce4fce5cf09edf964ad03906d3017ae167437157ee  
andy@ANDY-SFCBOOK:~$ docker port static-site  
443/tcp -> 0.0.0.0:32768  
80/tcp -> 0.0.0.0:32769  
andy@ANDY-SFCBOOK:~$
```

# Hello Andy Horn!

This is being served from a **docker** container running Nginx.

```
docker run --name static-site-2 -e AUTHOR="Andy Horn" -d -p 8888:80
dockersamples/static-site
```

```
andy@ANDY-SFCBOOK: ~
a3ed95caeb02: Pull complete
716f7a5f3082: Pull complete
7b10f03a0309: Pull complete
aff3ab7e9c39: Pull complete
Digest: sha256:daa686c61d7d239b7977e72157997489db49f316b9b9af3909d9f10fd28b2dec
Status: Downloaded newer image for dockersamples/static-site:latest
2af307a24e50b6529fbf77ce4fce5cf09edf964ad03906d3017ae167437157ee
andy@ANDY-SFCBOOK:~$ docker port static-site
443/tcp -> 0.0.0.0:32768
80/tcp -> 0.0.0.0:32769
andy@ANDY-SFCBOOK:~$ docker ps
CONTAINER ID   IMAGE                  COMMAND                  CREATED        STATUS        PORTS
2af307a24e50   dockersamples/static-site  "/bin/sh -c 'cd /usr_..." 20 hours ago   Up About a minute   0.0.0.0:32769->80/tcp, 0.0.0.0:32768->443
/tcp static-site
andy@ANDY-SFCBOOK:~$ docker stop static-site
static-site
andy@ANDY-SFCBOOK:~$ docker run --name static-site -e AUTHOR="Andy Horn" -d -P dockersamples/static-site
docker: Error response from daemon: Conflict. The container name "/static-site" is already in use by container "2af307a24e50b6529fbf77ce4fce5cf09edf964ad03906d3017ae167437157ee". You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.
andy@ANDY-SFCBOOK:~$ docker container rm static-site
static-site
andy@ANDY-SFCBOOK:~$ docker run --name static-site -e AUTHOR="Andy Horn" -d -P dockersamples/static-site
27f4eafe0a68dbef1c89c6fc2cfec76119a214e0eff9461c59598f4270f
andy@ANDY-SFCBOOK:~$ docker ports static-site
docker: 'ports' is not a docker command.
See 'docker --help'.
andy@ANDY-SFCBOOK:~$ docker port static-site
443/tcp -> 0.0.0.0:32770
80/tcp -> 0.0.0.0:32771
andy@ANDY-SFCBOOK:~$ docker run --name static-site-2 -e AUTHOR="Andy Horn" -d -p 8888:80 dockersamples/static-site
2817b99cf13a9401fa8f7ec0cb94798049cd27c3be52c8e1e11b9493fb97321e
andy@ANDY-SFCBOOK:~$
```

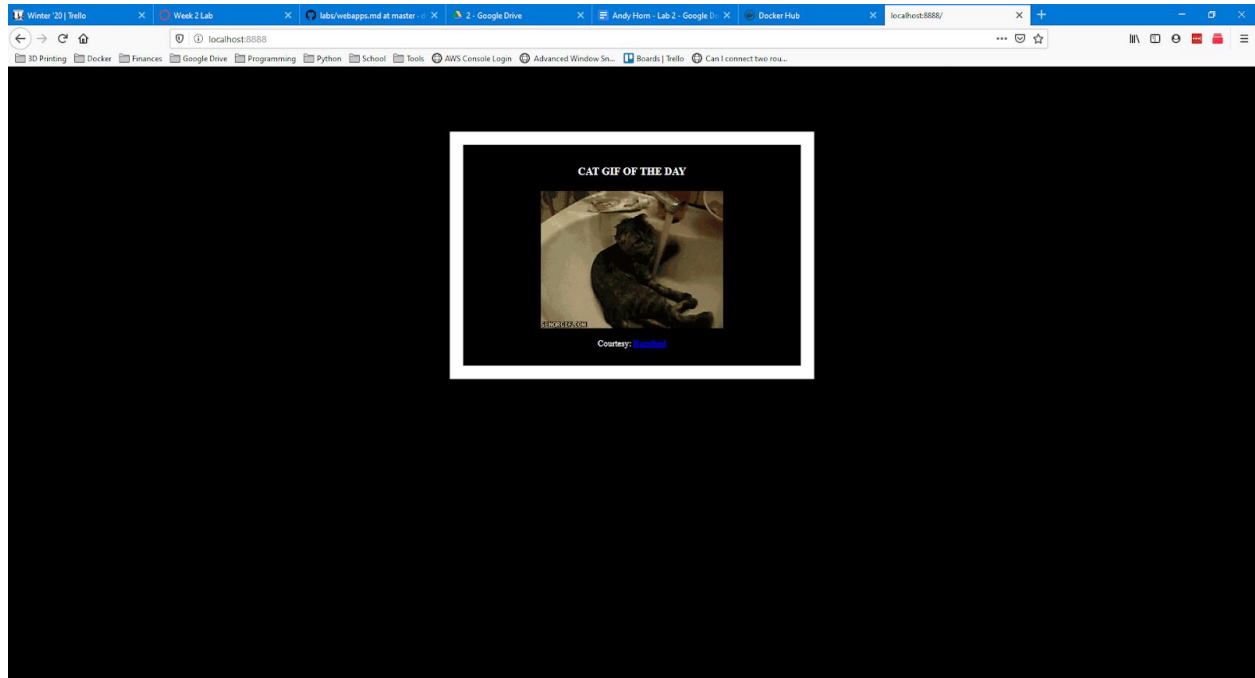


## docker build -t andyhorn/myfirstapp .

```
andy@ANDY-SFCBOOK: /c/projects/docker-flask-app
--> Running in b9ad455288d4
fetch http://dl-cdn.alpinelinux.org/alpine/v3.5/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.5/community/x86_64/APKINDEX.tar.gz
(1/12) Installing libbz2 (1.0.6-r5)
(2/12) Installing expat (2.2.0-r1)
(3/12) Installing libffi (3.2.1-r2)
(4/12) Installing gdbm (1.12-r0)
(5/12) Installing ncurses-terminfo-base (6.0_p20171125-r1)
(6/12) Installing ncurses-terminfo (6.0_p20171125-r1)
(7/12) Installing ncurses-libs (6.0_p20171125-r1)
(8/12) Installing readline (6.3.008-r4)
(9/12) Installing sqlite-libs (3.15.2-r2)
(10/12) Installing python2 (2.7.15-r0)
(11/12) Installing py-setuptools (29.0.1-r0)
(12/12) Installing py2-pip (9.0.0-r1)
Executing busybox-1.25.1-r2.trigger
OK: 62 MiB in 23 packages
Removing intermediate container b9ad455288d4
--> 3db71f0da76f
Step 3/8 : COPY requirements.txt /usr/src/app/
--> b2ac7091a0d6
Step 4/8 : RUN pip install --no-cache-dir -r /usr/src/app/requirements.txt
--> Running in 41ab4de9c8e0
Collecting Flask==0.10.1 (from -r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/db/9c/149ba60c47d107f85fe52564133348458f093dd5e6b57a5b60ab9ac517bb/Flask-0.10.1.tar.gz (544kB)
Collecting werkzeug==0.7 (from Flask==0.10.1->-r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/ce/42/3aeda98f96e85fd26180534d36570e4d18108d62ae36f87694b476b83d6f/werkzeug-0.16.0-py2.py3-none-any.whl (327kB)
Collecting Jinja2>=2.4 (from Flask==0.10.1->-r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/65/e0/eb35e762802015cab1ccce04e8a277b03f1d8e53da3ec3106882ec42558b/Jinja2-2.10.3-py2.py3-none-any.whl (125kB)
Collecting itsdangerous>=0.21 (from Flask==0.10.1->-r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/76/ae/44b03b253d6fade317f32c24d100b3b35c2239807046a4c953c7b89fa49e/itsdangerous-1.1.0-py2.py3-none-any.whl
Collecting MarkupSafe>=0.23 (from Jinja2>=2.4->Flask==0.10.1->-r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/b9/2e/64db92e53b86efccfaea71321f597fa2e1b2bd3853d8ce658568f7a13094/MarkupSafe-1.1.1.tar.gz
Installing collected packages: Werkzeug, MarkupSafe, Jinja2, itsdangerous, Flask
Running setup.py install for MarkupSafe: started
Running setup.py install for MarkupSafe: finished with status 'done'
Running setup.py install for Flask: started
Running setup.py install for Flask: finished with status 'done'
Successfully installed Flask-0.10.1 Jinja2-2.10.3 MarkupSafe-1.1.1 Werkzeug-0.16.0 itsdangerous-1.1.0
You are using pip version 9.0.0, however version 19.3.1 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
Removing intermediate container 41ab4de9c8e0
--> e916d9667f82
Step 5/8 : COPY app.py /usr/src/app/
--> efb955f980db
Step 6/8 : COPY templates/index.html /usr/src/app/templates/
--> a5849789ba2e
Step 7/8 : EXPOSE 5000
--> Running in 62731dab9767
Removing intermediate container 62731dab9767
--> f48140c6fd0b
Step 8/8 : CMD ["python", "/usr/src/app/app.py"]
--> Running in a56a83bf45db
Removing intermediate container a56a83bf45db
--> f0da6a7da5cb
Successfully built f0da6a7da5cb
Successfully tagged andyhorn/myfirstapp:latest
```

## docker run -p 8888:5000 --name myfirstapp andyhorn/myfirstapp

```
andy@ANDY-SFCBOOK: /c/projects/docker-flask-app
Collecting itsdangerous>=0.21 (from Flask==0.10.1->-r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/76/ae/44b03b253d6fade317f32c24d100b3b35c2239807046a4c953c7b89fa49e/itsdangerous-1.1.0-py2.py3-none-any.whl
Collecting MarkupSafe>=0.23 (from Jinja2>=2.4->Flask==0.10.1->-r /usr/src/app/requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/b9/2e/64db92e53b86efccfaea71321f597fa2e1b2bd3853d8ce658568f7a13094/MarkupSafe-1.1.1.tar.gz
Installing collected packages: Werkzeug, MarkupSafe, Jinja2, itsdangerous, Flask
Running setup.py install for MarkupSafe: started
Running setup.py install for MarkupSafe: finished with status 'done'
Running setup.py install for Flask: started
Running setup.py install for Flask: finished with status 'done'
Successfully installed Flask-0.10.1 Jinja2-2.10.3 MarkupSafe-1.1.1 Werkzeug-0.16.0 itsdangerous-1.1.0
You are using pip version 9.0.0, however version 19.3.1 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
Removing intermediate container 41ab4de9c8e0
--> e916d9667f82
Step 5/8 : COPY app.py /usr/src/app/
--> efb955f980db
Step 6/8 : COPY templates/index.html /usr/src/app/templates/
--> a5849789ba2e
Step 7/8 : EXPOSE 5000
--> Running in 62731dab9767
Removing intermediate container 62731dab9767
--> f48140c6fd0b
Step 8/8 : CMD ["python", "/usr/src/app/app.py"]
--> Running in a56a83bf45db
Removing intermediate container a56a83bf45db
--> f0da6a7da5cb
Successfully built f0da6a7da5cb
Successfully tagged andyhorn/myfirstapp:latest
andy@ANDY-SFCBOOK: /c/projects/docker-flask-app$ docker run -p 8888:5000 --name myfirstapp andyhorn/myfirstapp
* Running on http://0.0.0.0:5000/ (Press CTRL+C to quit)
```



docker push andyhorn/myfirstapp

```
Select Windows PowerShell
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\andyj> cd C:\Projects\docker-flask-app
PS C:\Projects\docker-flask-app> docker login
Login with your Docker ID to push and pull images from Docker Hub. If you don't have a Docker ID, head over to https://hub.docker.com to create one.
Username: andyhorn
Password:
Login Succeeded
PS C:\Projects\docker-flask-app> docker push andyhorn/myfirstapp
The push refers to repository [docker.io/andyhorn/myfirstapp]
94b8b6322585: Pushed
0d0b218c4196: Pushed
0e8acbf29951: Pushed
10e396651d20: Pushed
de9200d4467b: Pushed
f566c57e6f2d: Mounted from library/alpine
```



# Exercise 4

docker build -t andyhorn/cst356:week2 ./Week2

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
Sending build context to Docker daemon 788.3kB
Step 1/4 : FROM nginx:alpine
alpine: Pulling from library/nginx
89d9c38c1d48: Pull complete
534c802c70da: Pull complete
Digest: sha256:88a238429c2d27b8a5668163f3c20e73e6bbaaad4796aaea90372fbaebca122
----> 36188e6707f4
Step 2/4 : COPY ./nginx/default.conf /etc/nginx/conf.d/default.conf
----> 2a75dab934be
Step 3/4 : COPY ./usr/share/nginx/app/
----> ad1aaf23645f
Step 4/4 : EXPOSE 80
----> Running in 2787c0c759e7
Removing intermediate container 2787c0c759e7
----> bf25c6e5d9f1
Successfully built bf25c6e5d9f1
Successfully tagged andyhorn/cst356:week2
```

docker run -d -p 80:80 andyhorn/cst356:week2

