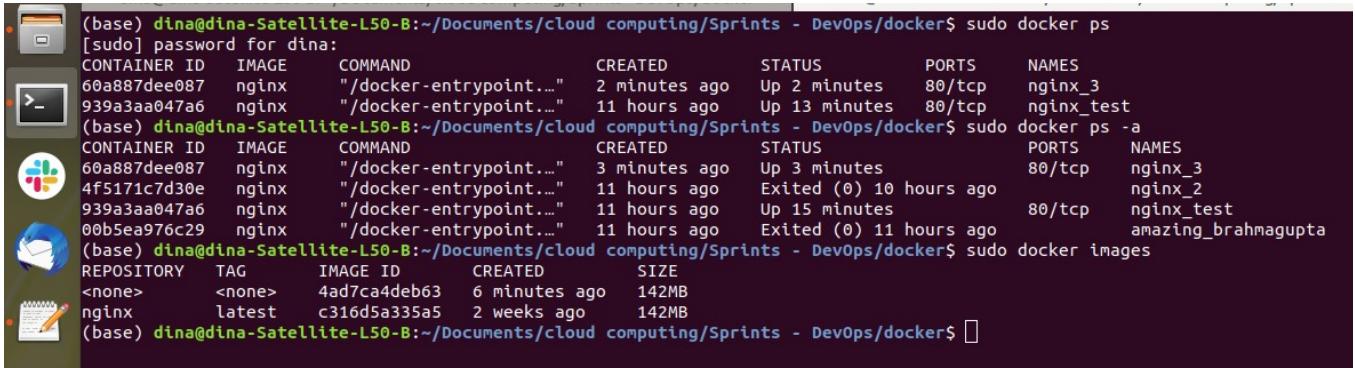


1- Install docker. done

2- List all running containers

3- List all containers in your system

4- List all images in your system



```
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker ps
[sudo] password for dina:
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
60a887dee087 nginx "/docker-entrypoint..." 2 minutes ago Up 2 minutes 80/tcp nginx_3
939a3aa047a6 nginx "/docker-entrypoint..." 11 hours ago Up 13 minutes 80/tcp nginx_test
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
60a887dee087 nginx "/docker-entrypoint..." 3 minutes ago Up 3 minutes 80/tcp nginx_3
4f5171c7d30e nginx "/docker-entrypoint..." 11 hours ago Exited (0) 10 hours ago nginx_2
939a3aa047a6 nginx "/docker-entrypoint..." 11 hours ago Up 15 minutes 80/tcp nginx_test
00b5ea976c29 nginx "/docker-entrypoint..." 11 hours ago Exited (0) 11 hours ago amazing_brahmagupta
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
<none> <none> 4ad7ca4deb63 6 minutes ago 142MB
nginx latest c316d5a335a5 2 weeks ago 142MB
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ 
```

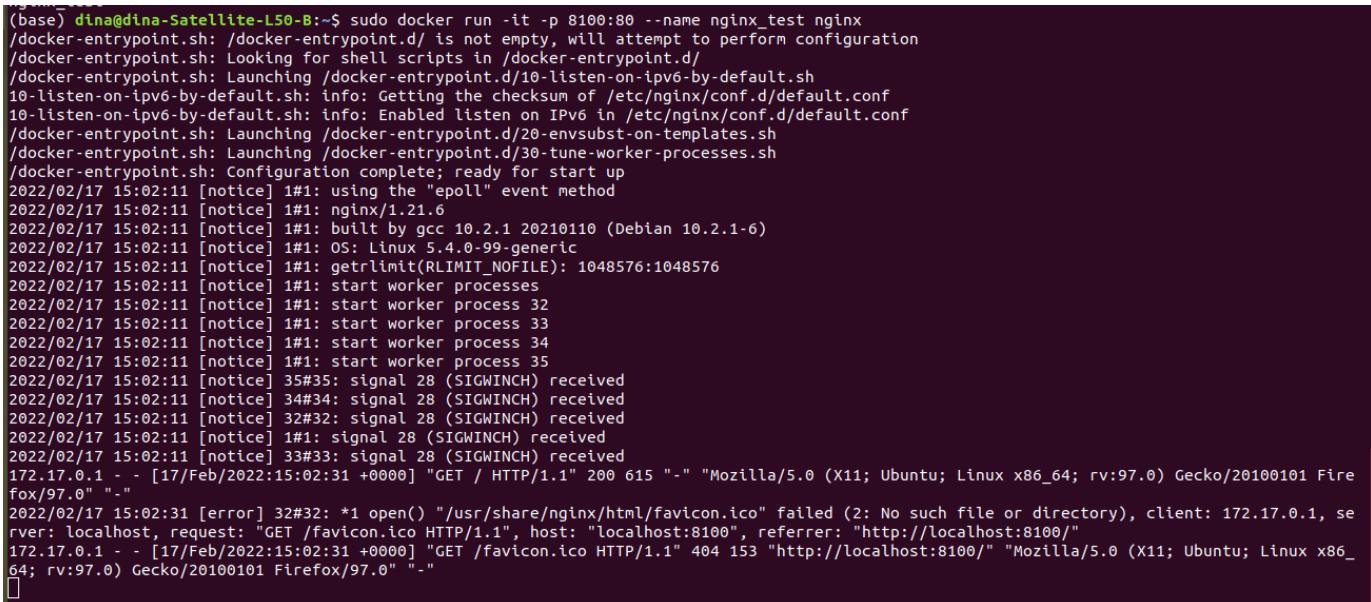
5- Pull nginx image and give it a name

6- Try to run nginx.

* Did it work? Yes.

* Why? Nginx runs by default on port 80 which is reserved in linux.

* How to make it work? we can try to map to a port, other than 80, for example 8100

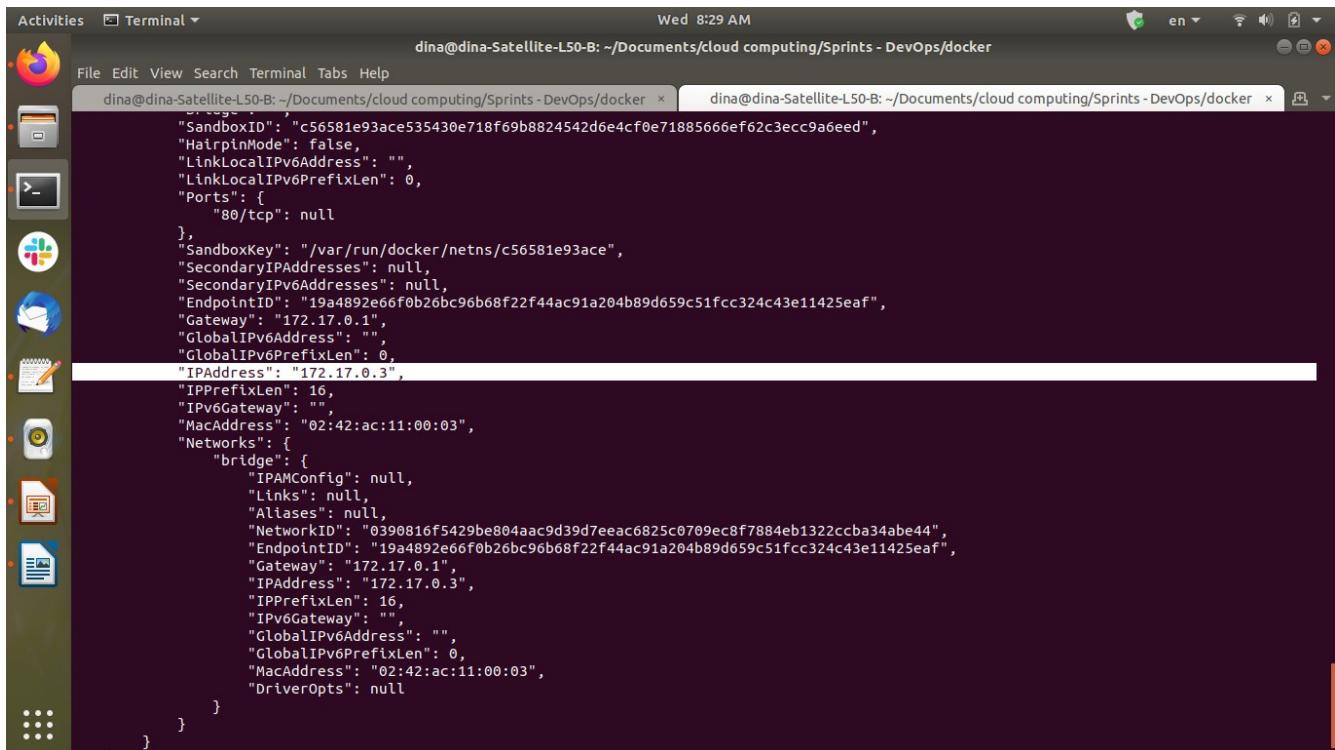


```
(base) dina@dina-Satellite-L50-B:~$ sudo docker run -it -p 8100:80 --name nginx_test nginx
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv4-by-default.sh
10-listen-on-ipv4-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv4-by-default.sh: info: Enabled listen on IPv4 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2022/02/17 15:02:11 [notice] 1#1: using the "epoll" event method
2022/02/17 15:02:11 [notice] 1#1: nginx/1.21.6
2022/02/17 15:02:11 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2022/02/17 15:02:11 [notice] 1#1: OS: Linux 5.4.0-99-generic
2022/02/17 15:02:11 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/02/17 15:02:11 [notice] 1#1: start worker processes
2022/02/17 15:02:11 [notice] 1#1: start worker process 32
2022/02/17 15:02:11 [notice] 1#1: start worker process 33
2022/02/17 15:02:11 [notice] 1#1: start worker process 34
2022/02/17 15:02:11 [notice] 1#1: start worker process 35
2022/02/17 15:02:11 [notice] 35#35: signal 28 (SIGWINCH) received
2022/02/17 15:02:11 [notice] 34#34: signal 28 (SIGWINCH) received
2022/02/17 15:02:11 [notice] 32#32: signal 28 (SIGWINCH) received
2022/02/17 15:02:11 [notice] 1#1: signal 28 (SIGWINCH) received
2022/02/17 15:02:11 [notice] 33#33: signal 28 (SIGWINCH) received
172.17.0.1 - - [17/Feb/2022:15:02:31 +0000] "GET / HTTP/1.1" 200 615 "-" "Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:97.0) Gecko/20100101 Firefox/97.0"
2022/02/17 15:02:31 [error] 32#32: *1 open() "/usr/share/nginx/html/favicon.ico" failed (2: No such file or directory), client: 172.17.0.1, se
rver: localhost, request: "GET /favicon.ico HTTP/1.1", host: "localhost:8100", referrer: "http://localhost:8100/"
172.17.0.1 - - [17/Feb/2022:15:02:31 +0000] "GET /favicon.ico HTTP/1.1" 404 153 "http://localhost:8100/" "Mozilla/5.0 (X11; Ubuntu; Linux x86_
64; rv:97.0) Gecko/20100101 Firefox/97.0" "-" 
```

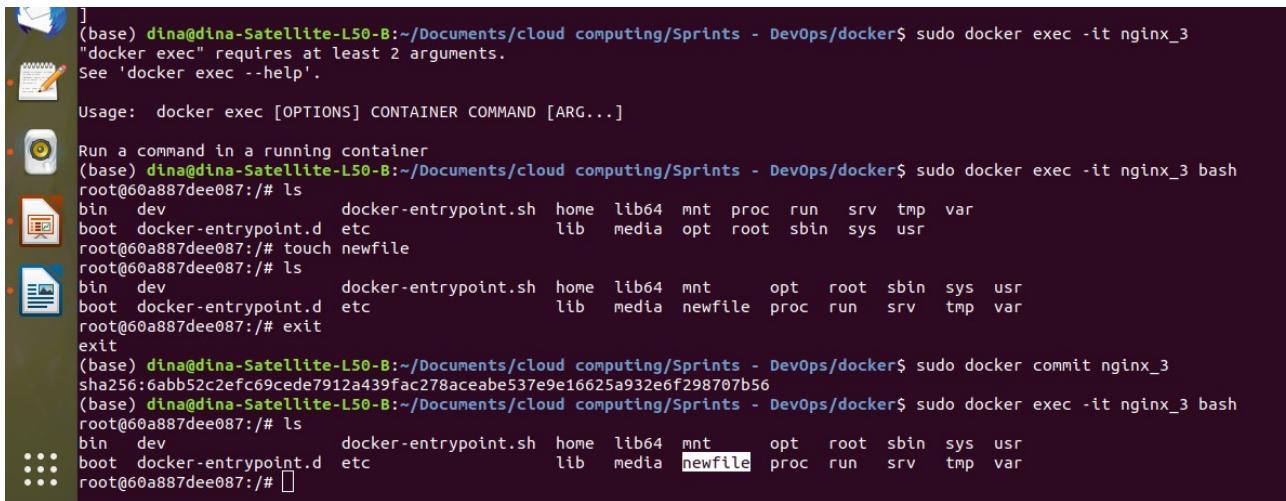
7- Watch container logs

```
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker logs nginx_3
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2022/02/16 06:12:24 [notice] 1#1: using the "epoll" event method
2022/02/16 06:12:24 [notice] 1#1: nginx/1.21.6
2022/02/16 06:12:24 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2022/02/16 06:12:24 [notice] 1#1: OS: Linux 5.4.0-99-generic
2022/02/16 06:12:24 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/02/16 06:12:24 [notice] 1#1: start worker processes
2022/02/16 06:12:24 [notice] 1#1: start worker process 31
2022/02/16 06:12:24 [notice] 1#1: start worker process 32
2022/02/16 06:12:24 [notice] 1#1: start worker process 33
2022/02/16 06:12:24 [notice] 1#1: start worker process 34
2022/02/16 06:13:04 [notice] 1#1: signal 28 (SIGWINCH) received
2022/02/16 06:13:04 [notice] 32#32: signal 28 (SIGWINCH) received
2022/02/16 06:13:04 [notice] 1#1: signal 28 (SIGWINCH) received
2022/02/16 06:13:04 [notice] 34#34: signal 28 (SIGWINCH) received
2022/02/16 06:13:04 [notice] 31#31: signal 28 (SIGWINCH) received
2022/02/16 06:13:04 [notice] 33#33: signal 28 (SIGWINCH) received
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$
```

8- Try inspect container ip



9- Try to execute inside nginx container



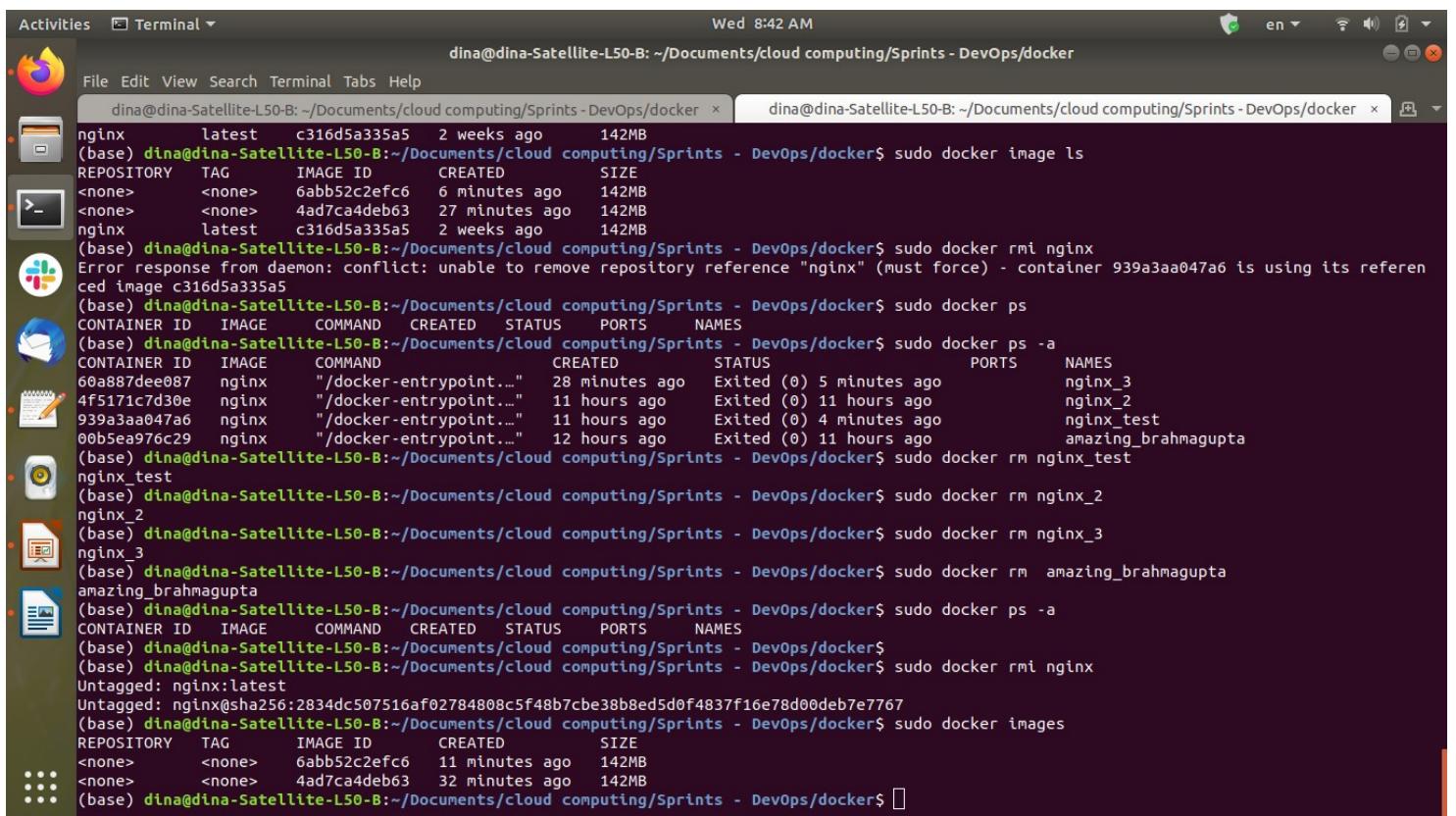
```
[base] dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker exec -it nginx_3
"docker exec" requires at least 2 arguments.
See 'docker exec --help'.

Usage: docker exec [OPTIONS] CONTAINER COMMAND [ARG...]

Run a command in a running container
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker exec -it nginx_3 bash
root@60a887dee087:/# ls
bin dev docker-entrypoint.sh home lib64 mnt proc run srv tmp var
boot docker-entrypoint.d etc lib media opt root sbin sys usr
root@60a887dee087:/# touch newfile
root@60a887dee087:/# ls
bin dev docker-entrypoint.sh home lib64 mnt opt root sbin sys usr
boot docker-entrypoint.d etc lib media newfile proc run srv tmp var
root@60a887dee087:/# exit
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker commit nginx_3
sha256:6abb52c2efc69cede7912a439fac278aceabe537e9e16625a932e6f298707b56
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker exec -it nginx_3 bash
root@60a887dee087:/# ls
bin dev docker-entrypoint.sh home lib64 mnt opt root sbin sys usr
boot docker-entrypoint.d etc lib media newfile proc run srv tmp var
root@60a887dee087:/# 
```

10- Try to remove nginx image.

- * Did it work? No.
- * Why? There are containers based on this image.
- * How to solve it? Remove all relative containers.



```
Activities Terminal ▾ Wed 8:42 AM
dina@dina-Satellite-L50-B: ~/Documents/cloud computing/Sprints - DevOps/docker
File Edit View Search Terminal Tabs Help
dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker x dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker x
REPOSITORY TAG IMAGE ID CREATED SIZE
<none> <none> 6abb52c2efc6 6 minutes ago 142MB
<none> <none> 4ad7ca4deb63 27 minutes ago 142MB
nginx latest c316d5a335a5 2 weeks ago 142MB
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker rmi nginx
Error response from daemon: conflict: unable to remove repository reference "nginx" (must force) - container 939a3aa047a6 is using its referenced image c316d5a335a5
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
60a887dee087 nginx "/docker-entrypoint...." 28 minutes ago Exited (0) 5 minutes ago nginx_3
4f5171c7d30e nginx "/docker-entrypoint...." 11 hours ago Exited (0) 11 hours ago nginx_2
939a3aa047a6 nginx "/docker-entrypoint...." 11 hours ago Exited (0) 4 minutes ago nginx_test
00b5ea976c29 nginx "/docker-entrypoint...." 12 hours ago Exited (0) 11 hours ago amazing_brahmagupta
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker rm nginx_test
nginx_test
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker rm nginx_2
nginx_2
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker rm nginx_3
nginx_3
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker rm amazing_brahmagupta
amazing_brahmagupta
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ 
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker rmi nginx
Untagged: nginx:latest
Untagged: nginx@sha256:2834dc507516af02784808c5f48b7cbe38b8ed5d0f4837f16e78d00deb7e7767
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
<none> <none> 6abb52c2efc6 11 minutes ago 142MB
<none> <none> 4ad7ca4deb63 32 minutes ago 142MB
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ 
```

11- Try run ubuntu container.

* Did it work? Yes.

* Why?

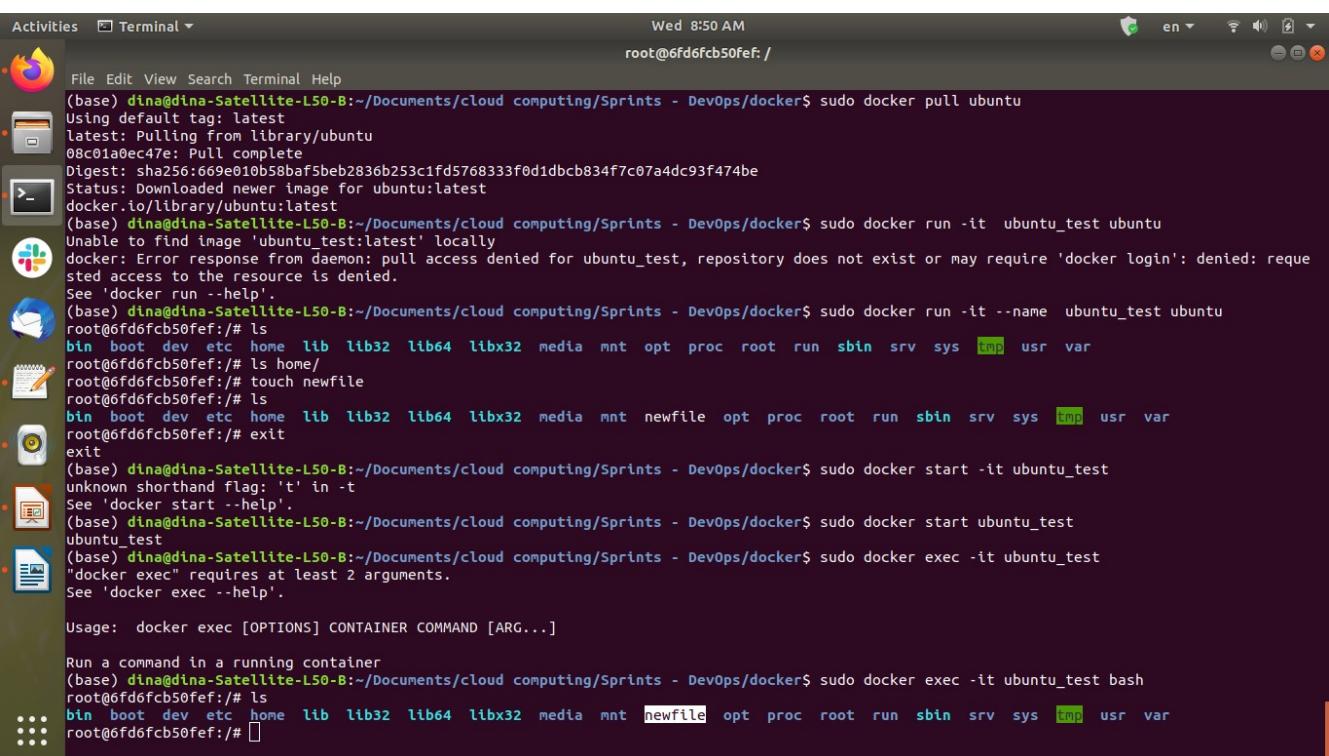
* How to make it work?

12- Create a file inside ubuntu container

13- Exit the container.

14- Try to start it again.

* Did you find the file? Yes.



The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "Activities Terminal". The terminal content shows a series of commands being run by a user named "dina" on a "Ubuntu" system. The commands include pulling the "ubuntu" image, running a container, creating a file, exiting the container, starting the container, and finally executing a command inside the container. The terminal window is located at the top of the screen, and the desktop environment includes icons for various applications like a browser, file manager, and terminal.

```
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker pull ubuntu
Using default tag: latest
latest: Pulling from library/ubuntu
08c01a0ec47e: Pull complete
Digest: sha256:669e010b58ba5beb2836b253c1fd5768333f0d1dbc834f7c07a4dc93f474be
Status: Downloaded newer image for ubuntu:latest
docker.io/library/ubuntu:latest
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker run -it ubuntu_test ubuntu
Unable to find image 'ubuntu_test:latest' locally
docker: Error response from daemon: pull access denied for ubuntu_test, repository does not exist or may require 'docker login': denied: requested access to the resource is denied.
See 'docker run --help'.
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker run -it --name ubuntu_test ubuntu
root@fd6fc50fef:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys tmp usr var
root@fd6fc50fef:/# ls home/
root@fd6fc50fef:/# touch newfile
root@fd6fc50fef:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt newfile opt proc root run sbin srv sys tmp usr var
root@fd6fc50fef:/# exit
exit
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker start -it ubuntu_test
unknown shorthand flag: 't' in -t
See 'docker start --help'.
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker start ubuntu_test
ubuntu_test
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker exec -it ubuntu_test
"docker exec" requires at least 2 arguments.
See 'docker exec --help'.

Usage: docker exec [OPTIONS] CONTAINER COMMAND [ARG...]

Run a command in a running container
(base) dina@dina-Satellite-L50-B:~/Documents/cloud computing/Sprints - DevOps/docker$ sudo docker exec -it ubuntu_test bash
root@fd6fc50fef:/# ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt newfile opt proc root run sbin srv sys tmp usr var
root@fd6fc50fef:/# 
```