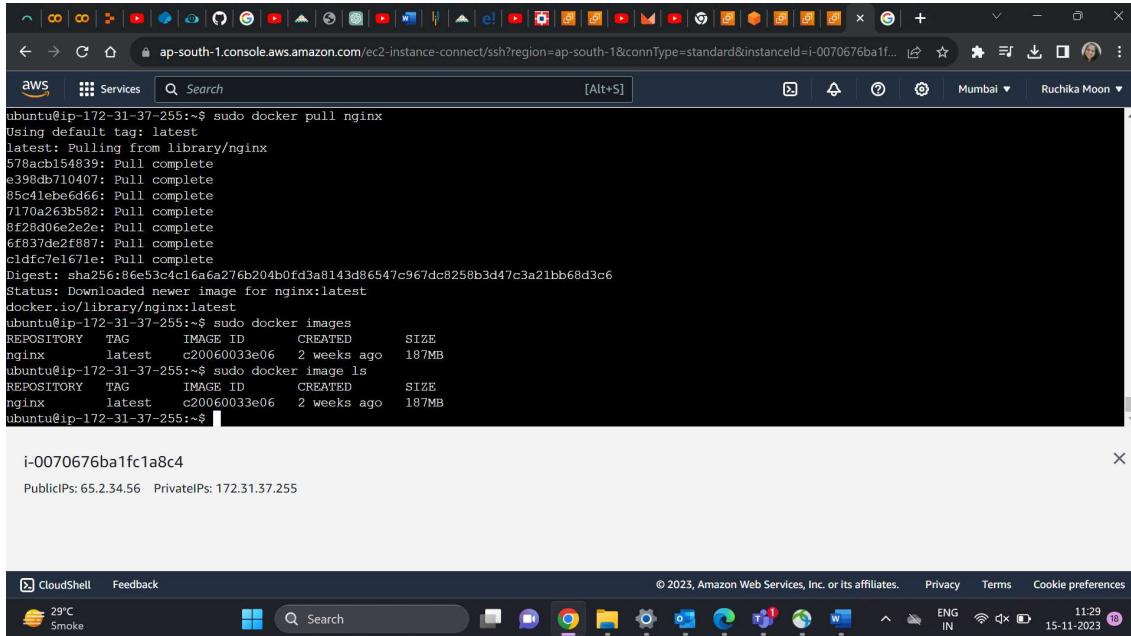


# Docker

2. Find a image from dockerhub of your choice(recommened: nginx), don't use browser, pull the official image from dockerhub

3. List all the available images in your machine/vm, make sure you see recently pulled image in the list.



```
ubuntu@ip-172-31-37-255:~$ sudo docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
579acb154839: Pull complete
e398db710407: Pull complete
85c41be6d66: Pull complete
7170a263b582: Pull complete
8f28d06e2e2e: Pull complete
6fb37de2f887: Pull complete
cldfc7el671e: Pull complete
Digest: sha256:86e53c4c16a6a276b204b0fd3a8143d86547c967dc8258b3d47c3a21bb68d3c6
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$
```

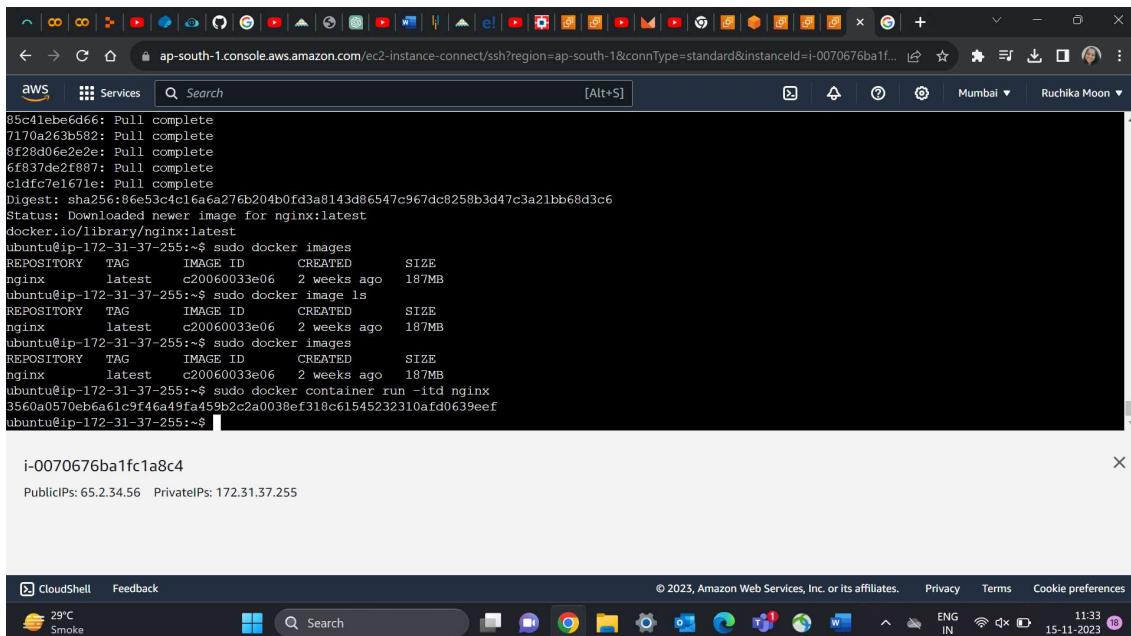
i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255



4. Find out the "Full" ImageId of the image that you pulled and write it below.

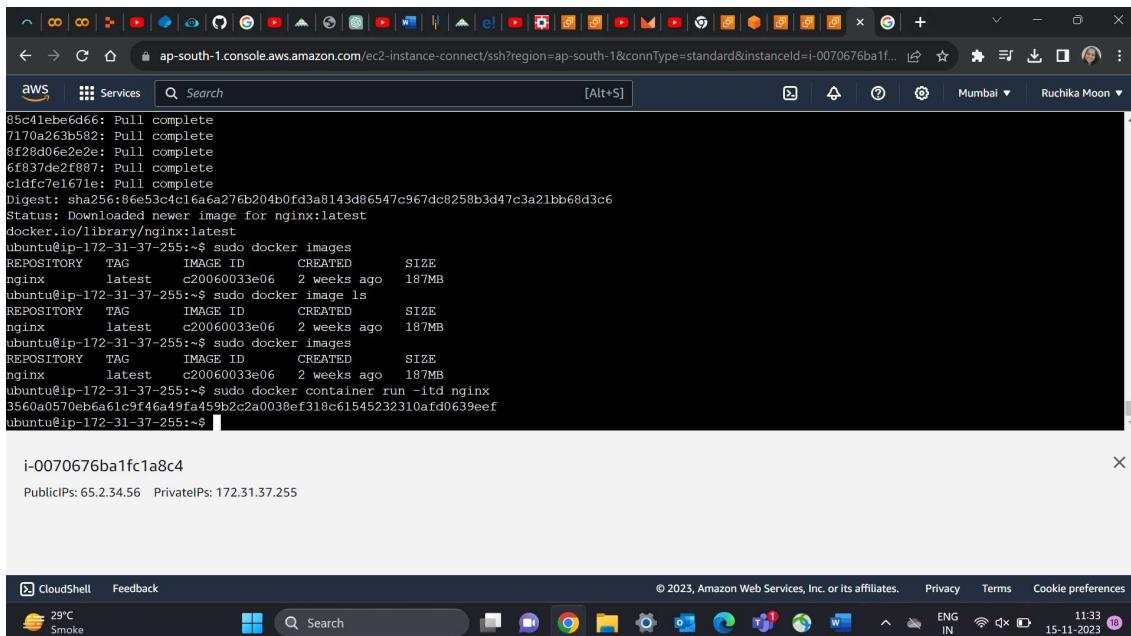
c20060033e06

5. Create a container of your image

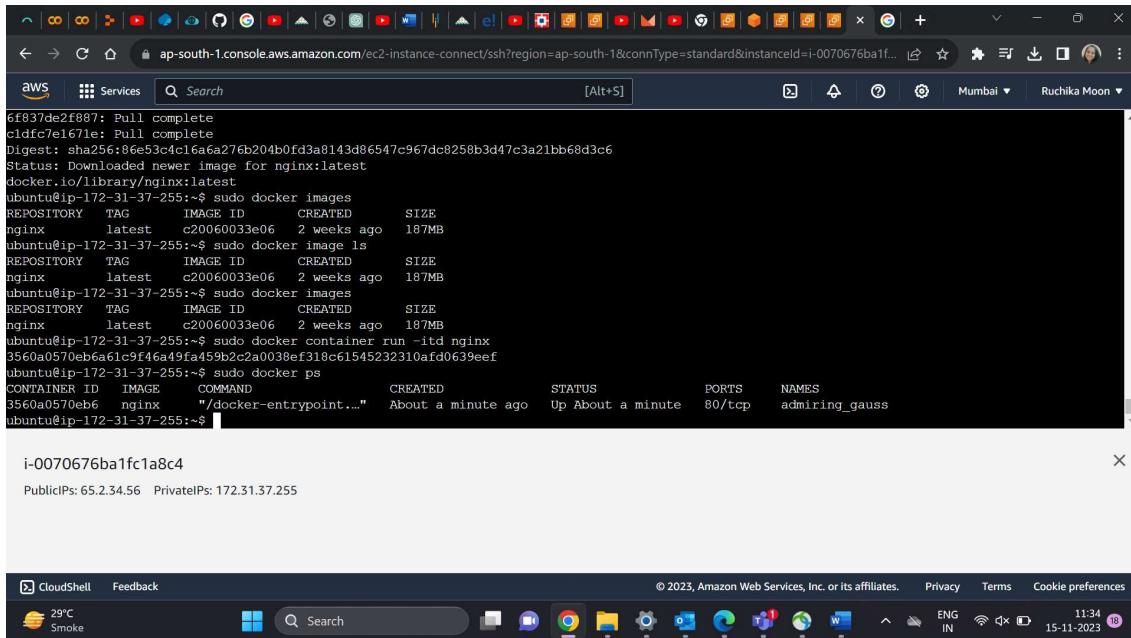


```
85c41be6d66: Pull complete
7170a263b582: Pull complete
8f28d06e2e2e: Pull complete
6fb37de2f887: Pull complete
cldfc7el671e: Pull complete
Digest: sha256:86e53c4c16a6a276b204b0fd3a8143d86547c967dc8258b3d47c3a21bb68d3c6
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd nginx
3560a0570eb6a61c9f46a49fa459b2c2a0038ef318c61545232310af0d639eef
ubuntu@ip-172-31-37-255:~$
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255



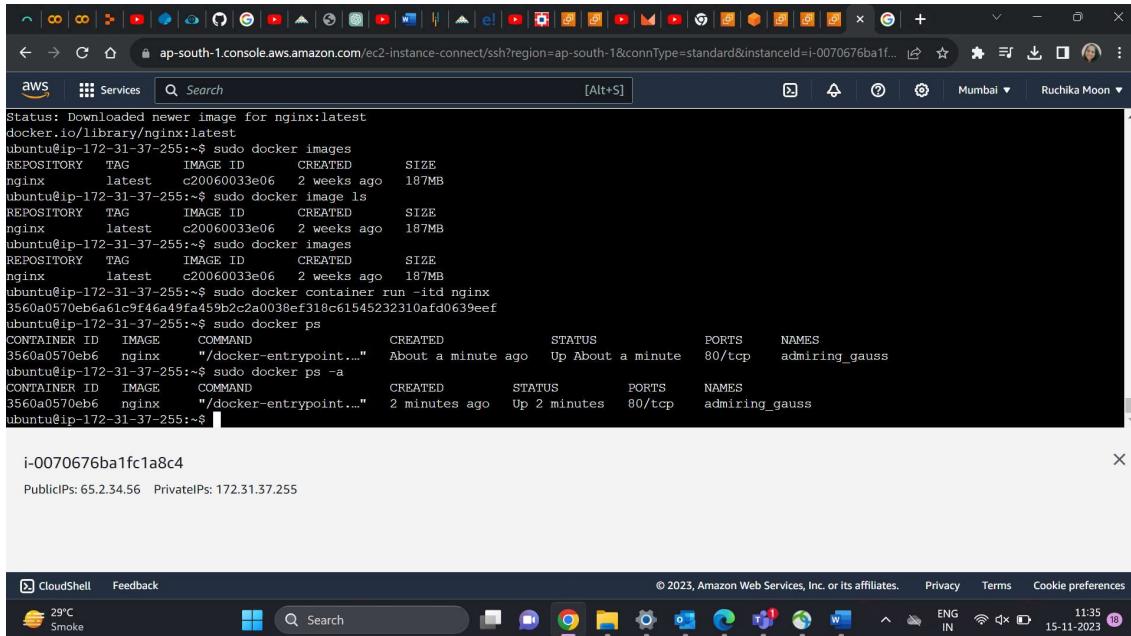
## 6. List all the running containers



```
6f837de2f887: Pull complete
c1dfc7e1671e: Pull complete
Digest: sha256:86e53c4c16a6a276b204b0fd3a8143d86547c967dc8258b3d47c3a21bb68d3c6
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd nginx
3560a0570eb6a61c9f46a49fa459b2c2a0038ef318c61545232310af0d639eeef
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
3560a0570eb6 nginx "/docker-entrypoint..." About a minute ago Up About a minute 80/tcp admiring_gauss
ubuntu@ip-172-31-37-255:~$ 
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

## 7. List all the running and stopped containers



```
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd nginx
3560a0570eb6a61c9f46a49fa459b2c2a0038ef318c61545232310af0d639eeef
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
3560a0570eb6 nginx "/docker-entrypoint..." About a minute ago Up About a minute 80/tcp admiring_gauss
ubuntu@ip-172-31-37-255:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
3560a0570eb6 nginx "/docker-entrypoint..." 2 minutes ago Up 2 minutes 80/tcp admiring_gauss
ubuntu@ip-172-31-37-255:~$ 
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

## 8. Find out the "Full" containerId of the container and write it below.

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
ubuntu@ip-172-31-37-255:~$ sudo docker ps -q
3560a0570eb6
ubuntu@ip-172-31-37-255:~$ 

```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

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3560a0570eb6

9. Find out how many image layers are used to build this image.

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
nginx      latest   c20060033e06  2 weeks ago  187MB
ubuntu@ip-172-31-37-255:~$ sudo docker history c20060033e06
IMAGE        CREATED     CREATED BY          SIZE      COMMENT
c20060033e06 2 weeks ago /bin/sh -c #(nop) CMD ["nginx" "-g" "daemon... 0B
<missing>    2 weeks ago /bin/sh -c #(nop) STOPSIGAL SIGQUIT 0B
<missing>    2 weeks ago /bin/sh -c #(nop) EXPOSE 80 0B
<missing>    2 weeks ago /bin/sh -c #(nop) ENTRYPOINT ["docker-entr... 0B
<missing>    2 weeks ago /bin/sh -c #(nop) COPY file:9e3b2b63db9f8fc7... 4.62kB
<missing>    2 weeks ago /bin/sh -c #(nop) COPY file:57846632accc8975... 3.02kB
<missing>    2 weeks ago /bin/sh -c #(nop) COPY file:3b1b9915b7d898a... 2.98kB
<missing>    2 weeks ago /bin/sh -c #(nop) COPY file:caec368f5a54f70a... 2.12kB
<missing>    2 weeks ago /bin/sh -c #(nop) COPY file:01e75c6dd0ce317d... 1.62kB
<missing>    2 weeks ago /bin/sh -c set -x && groupadd --system ... 112MB
<missing>    2 weeks ago /bin/sh -c #(nop) ENV PKG RELEASE=1-bookworm 0B
<missing>    2 weeks ago /bin/sh -c #(nop) ENV NJJS VERSION=0.8.2 0B
<missing>    2 weeks ago /bin/sh -c #(nop) ENV NGINX VERSION=1.25.3 0B
<missing>    2 weeks ago /bin/sh -c #(nop) LABEL maintainer=NGINX Do... 0B
<missing>    2 weeks ago /bin/sh -c #(nop) CMD ["bash"] 0B
<missing>    2 weeks ago /bin/sh -c #(nop) ADD file:fbd8521c24ed75802... 74.9MB
ubuntu@ip-172-31-37-255:~$ 

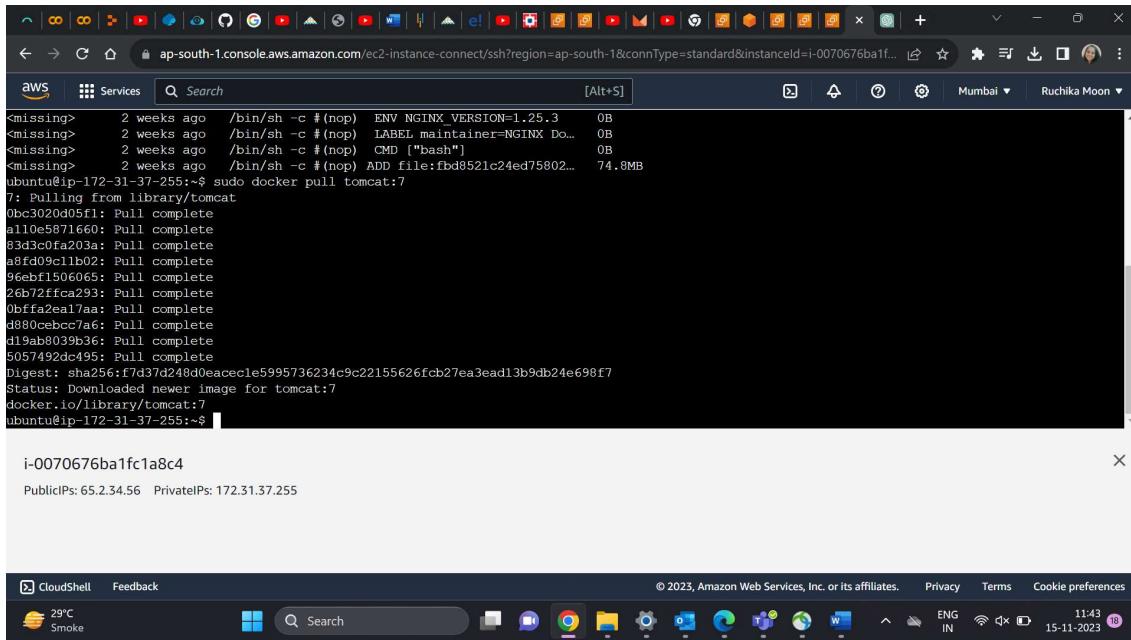
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

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16

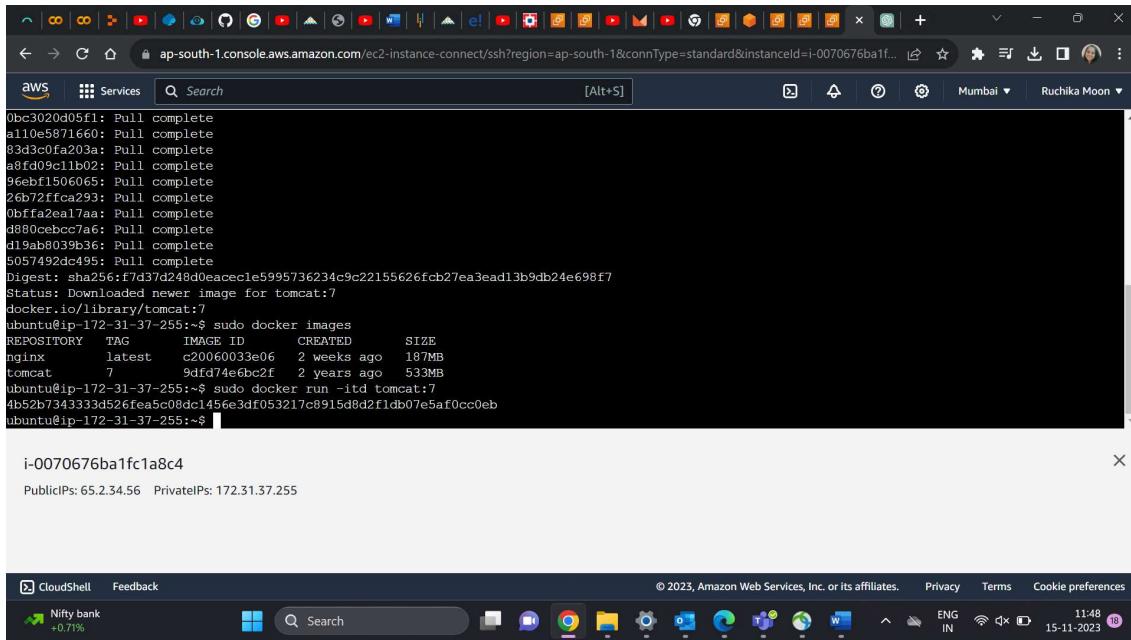
10. Get the Apache Tomcat 7 server image from the docker hub.



```
<missing> 2 weeks ago /bin/sh -c #(nop) ENV NGINX VERSION=1.25.3 0B
<missing> 2 weeks ago /bin/sh -c #(nop) LABEL maintainer=NGINX Do... 0B
<missing> 2 weeks ago /bin/sh -c #(nop) CMD ["bash"] 0B
<missing> 2 weeks ago /bin/sh -c #(nop) ADD file:fbd8521c24ed75802... 74.9MB
ubuntu@ip-172-31-37-255:~$ sudo docker pull tomcat:7
7: Pulling from library/tomcat
0bc3020d05f1: Pull complete
a110e5871660: Pull complete
83d3c0fa203a: Pull complete
a8fd09c11b02: Pull complete
96ebf1f506069: Pull complete
26b72ffca293: Pull complete
0bffa2ea17aa: Pull complete
d880cebcc7a6: Pull complete
d19ab8b039b36: Pull complete
5057492dc495: Pull complete
Digest: sha256:f7d37d248d0eacecle5995736234c9c22155626fc2b27ea3ead13b9db24e698f7
Status: Downloaded newer image for tomcat:7
docker.io/library/tomcat:7
ubuntu@ip-172-31-37-255:~$
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

## 11. Run the Apache Tomcat 7, I mean create a container of Apache Tomcat.



```
0bc3020d05f1: Pull complete
a110e5871660: Pull complete
83d3c0fa203a: Pull complete
a8fd09c11b02: Pull complete
96ebf1f506069: Pull complete
26b72ffca293: Pull complete
0bffa2ea17aa: Pull complete
d880cebcc7a6: Pull complete
d19ab8b039b36: Pull complete
5057492dc495: Pull complete
Digest: sha256:f7d37d248d0eacecle5995736234c9c22155626fc2b27ea3ead13b9db24e698f7
Status: Downloaded newer image for tomcat:7
docker.io/library/tomcat:7
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
tomcat 7 9df74e6bc2f 2 years ago 533MB
ubuntu@ip-172-31-37-255:~$ sudo docker run -itd tomcat:7
4b52b734333d526fea5c08dc1456e3df053217c8915d8d2f1db07e5af0cc0eb
ubuntu@ip-172-31-37-255:~$
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

## 12. Find out what is the IP Address of the Apache Tomcat Container that it is running on

```
ubuntu@ip-172-31-37-255:~$ [REDACTED]
] i-0070676ba1fc1a8c4
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255
```

The screenshot shows a terminal window within an AWS CloudShell session. The command `aws ec2 describe-instances --instance-ids i-0070676ba1fc1a8c4` has been run, displaying detailed network configuration for the specified EC2 instance. The output includes fields like NetworkID, EndpointID, Gateway, IP address, and subnet information.

### 13. Which Port it is using?

```
i-0070676ba1fc1a8c4
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255
```

The screenshot shows a terminal window within an AWS CloudShell session. The command `aws ec2 describe-instances --instance-ids i-0070676ba1fc1a8c4` has been run, displaying detailed network configuration for the specified EC2 instance. The output includes fields like NetworkID, EndpointID, Gateway, IP address, and subnet information. The "Ports" section is highlighted, showing that port 8080/tcp is assigned.

### 14. Try to access the Tomcat's home page from your machine/vm.

```

sh: 1: ifconfig: not found
# exit
ubuntu@ip-172-31-37-255:~$ sudo docker exec -it 4b5
"docker exec" requires at least 2 arguments.
See 'docker exec --help'.

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

Execute a command in a running container
ubuntu@ip-172-31-37-255:~$ sudo ping 172.17.0.3
PING 172.17.0.3 (172.17.0.3) 56(84) bytes of data.
64 bytes from 172.17.0.3: icmp_seq=1 ttl=64 time=0.074 ms
64 bytes from 172.17.0.3: icmp_seq=2 ttl=64 time=0.056 ms
64 bytes from 172.17.0.3: icmp_seq=3 ttl=64 time=0.046 ms
64 bytes from 172.17.0.3: icmp_seq=4 ttl=64 time=0.045 ms
^C
--- 172.17.0.3 ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3018ms
rtt min/avg/max/mdev = 0.045/0.055/0.074/0.011 ms
ubuntu@ip-172-31-37-255:~$ 
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

### 15. What is the disk size of Apache Tomcat image?

```

Commands:
build      Build an image from a Dockerfile
history    Show the history of an image
import     Import the contents from a tarball to create a filesystem image
inspect   Display detailed information on one or more images
load       Load an image from a tar archive or STDIN
ls         List images
prune     Remove unused images
pull       Download an image from a registry
push       Upload an image to a registry
rm        Remove one or more images
save      Save one or more images to a tar archive (streamed to STDOUT by default)
tag       Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE

Run 'docker image COMMAND --help' for more information on a command.
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY      TAG      IMAGE ID      CREATED      SIZE
nginx           latest   c20060033e06  2 weeks ago   187MB
tomcat          7        9dfdf74e6bc2f  2 years ago   533MB
ubuntu@ip-172-31-37-255:~$ 
```

i-0070676ba1fc1a8c4  
PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

Size: 533 MB

### 16. Find out list of all environment variables that is configured for tomcat image, can you see JAVA\_HOME and CATALINA\_HOME? What did you notice about it?

```

"OpenStdin": false,
"StdinOnce": false,
"Env": [
    "PATH=/usr/local/tomcat/bin:/usr/local/openjdk-8/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
    "JAVA_HOME=/usr/local/openjdk-8",
    "LANG=C.UTF-8",
    "JAVA VERSION=8u292",
    "CATALINA_HOME=/usr/local/tomcat",
    "TOMCAT_NATIVE_LIBDIR=/usr/local/tomcat/native-jni-lib",
    "LD_LIBRARY_PATH=/usr/local/tomcat/native-jni-lib",
    "GPG KEYS=05AB33110949707C93A279E3DNEFB66867BA6 07E4B665A34DCAF522E5E6266191C37C037D4 47309207D810FFDD0CD3F83F1931D684307A1
0A5 541FBE7D8F7BB25E055DDE13C370389288584E7 61B832AC2FC15A90F0F9B00A1C506407564C1A3 713DA88E50911535FF716F520BBD0B1D63011C7 79F7026C690BA50B9
2CD8B66A3AD3F4F22C4FED 9BA44C2621385CB966E6A586F72C284D731FABEE A27677289986DB50844682F8ACB77FC2E66E29AC A95CDF4D22E99998D9875A5110C01C5A2F6059E7
DCFD35E0BF8CA7344752DE8B6FB21E933C60243 F3A04C595DB5B6A5F1ECA43E3B7BBB100D811BBE F7DA48B64BCB84ECBA7EE6935CD23C10D498E23",
    "TOMCAT_MAJOR=7",
    "TOMCAT_VERSION=7.0.109",
    "TOMCAT_SHA512=612e830913bf1401bc9540e2273e465b0ee7f63750a9969a00f1e9da9edb4888aa621fcc6fa5ba23cff94a40e91eb97e3f969b8064dabd49b
2d0ea29e59b57e"
],
"Cmd": [
    "ls"
]

```

i-0070676ba1fc1a8c4

PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

**JAVA\_HOME:** This variable specifies the installation directory of the Java Runtime Environment (JRE) or Java Development Kit (JDK) within the container. In this case, it points to "/usr/local/openjdk-8", indicating that OpenJDK 8 is installed in that directory.

**CATALINA\_HOME:** This variable specifies the installation directory of the Apache Tomcat server within the container. In this case, it points to "/usr/local/tomcat".

## 17. Find out which port is exposed for tomcat?

```

"sha256:9d48355da13b8a355aaaf6c479d386dc4280cbe491271490e9f85d88831adb9b",
"sha256:9a7d423f0aca6fe94d7589b8bbd1f0ea7ba312ccac407a5a6fdcce1f0728ed4e",
"sha256:0eaefafbf498bae9e3be40bd9d93bd4d8aca4cf8fe281e97fe56ed3f598e45e4"
],
"Metadata": {
    "LastTagTime": "0001-01-01T00:00:00Z"
}
]
ubuntu@ip-172-31-37-255:~$ sudo docker port f95
Error response from daemon: No such container: f95
ubuntu@ip-172-31-37-255:~$ sudo docker ls
docker: 'ls' is not a docker command.
See 'docker --help'.
ubuntu@ip-172-31-37-255:~$ sudo docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
4b52b7343333 tomcat:7 "catalina.sh run" 41 minutes ago Up 41 minutes 8080/tcp great_rubin
3560a0570e66 nginx "/docker-entrypoint..." 56 minutes ago Up 56 minutes 80/tcp admiring_gauss
ubuntu@ip-172-31-37-255:~$ 

```

i-0070676ba1fc1a8c4

PublicIPs: 65.2.34.56 PrivateIPs: 172.31.37.255

Ans : 8080

## 18. Run multiple containers of tomcat on different port and access its home page

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?region=ap-south-1&connType=standard&instanceId=i-0070676ba1fc1a8c4&o... 🔍 ⓘ
docker: Error response from daemon: driver failed programming external connectivity on endpoint tomcat1 (53dbc0907b6e5dfe35bca7f153ad42b48d4f6a7E)
dbff2d2e86a9455db2dfc55): Bind for 0.0.0.0:8080 failed: port is already allocated.
ubuntu@ip-172-31-37-255:~$ sudo docker run -itd -p 8081:80 tomcat1 tomcat:7
Unable to find image 'tomcat1:latest' locally
docker: Error response from daemon: pull access denied for tomcat1, repository does not exist or may require 'docker login': denied: requested access to the resource has been denied.
See 'docker run --help'.
ubuntu@ip-172-31-37-255:~$ sudo docker run -itd -p 8082:80 --name=tomcat2 tomcat:7
0cf0de7a5371b88f25b723d57bd94e2b7a5e89ff62c039pd5eee9ab3b4eb7f8
ubuntu@ip-172-31-37-255:~$ sudo docker run -itd -p 8003:80 --name=tomcat3 tomcat:7
d5553acd532aa29b81b6c0993e14e453a2f00c2e9a7c2bc7ddaf90d61424930
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
d5553acd532aa29b81b6c0993e14e453a2f00c2e9a7c2bc7ddaf90d61424930
tomcat:7 "catalina.sh run" 12 seconds ago Up 8 seconds 8080/tcp, 0.0.0.0:8003->80/tcp, :::8003->80/tcp tomcat3
0cf0de7a5371b88f25b723d57bd94e2b7a5e89ff62c039pd5eee9ab3b4eb7f8
tomcat:7 "catalina.sh run" About a minute ago Up 59 seconds 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4b52b7343333 tomcat:7 "catalina.sh run" 2 hours ago Up 48 minutes 8080/tcp great_r
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
3560a0570eb6 nginx "/docker-entrypoint..." 3 hours ago Up 53 minutes 80/tcp admirlin
g_gauss
ubuntu@ip-172-31-37-255:~$ 

```

i-0070676ba1fc1a8c4  
PublicIPs: 13.232.190.231 PrivateIPs: 172.31.37.255

19. Pull ubuntu os from dockerhub, try to pull 2 images of ubuntu, Except the latest one.

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
q_gauss
ubuntu@ip-172-31-37-255:~$ sudo docker pull ubuntu:focal
focal: Pulling from library/ubuntu
96d54c3075c9: Pull complete
Digest: sha256:eda442283d943135ed87d4ee34e542f7f5ad9ect2f244870e23122f703f91c2
Status: Downloaded newer image for ubuntu:focal
docker.io/library/ubuntu:focal
ubuntu@ip-172-31-37-255:~$ sudo docker pull ubuntu:rolling
rolling: Pulling from library/ubuntu
d1cf823cf1f0: Pull complete
Digest: sha256:4c32aacd0f7d1d3a29e82bee76f892ba9bb6a63f17f9327ca0d97c3d39b9b0ee
Status: Downloaded newer image for ubuntu:rolling
docker.io/library/ubuntu:rolling
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu rolling fe7a3960a97e 4 weeks ago 71.2MB
ubuntu focal bf40b7bc7a11 6 weeks ago 72.9MB
tomcat 7 9dfd74e6bc2f 2 years ago 533MB
ubuntu@ip-172-31-37-255:~$ 

```

i-0070676ba1fc1a8c4  
PublicIPs: 13.232.190.231 PrivateIPs: 172.31.37.255

20. Run the container of ubuntu in attached mode.

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
docker.io/library/ubuntu:focal
ubuntu@ip-172-31-37-255:~$ sudo docker pull ubuntu:rolling
rolling: Pulling from library/ubuntu
d1cf823cff10: Pull complete
Digest: sha256:4c32aacd0f7d1d3a29e82bee76f892ba9bb6a63f17f9327ca0d97c3d39b9b0ee
Status: Downloaded newer image for ubuntu:rolling
docker.io/library/ubuntu:rolling
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 197MB
ubuntu rolling fe7a3960a97e 4 weeks ago 71.2MB
ubuntu focal bf40b7bc4all 6 weeks ago 72.8MB
tomcat 7 9df74e6bc2f 2 years ago 533MB
ubuntu@ip-172-31-37-255:~$ sudo docker run -it ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
aece8493d397: Pull complete
Digest: sha256:2b7412e6465c3c7fc5bb21d3e6f1917c167358449fecac8176c6e496e5clf05f
Status: Downloaded newer image for ubuntu:latest
root@0a1d5f439de6:~#

```

i-0070676ba1fc1a8c4  
PublicIPs: 13.232.190.231 PrivateIPs: 172.31.37.255

## 21. Run the container of another ubuntu in detached mode.

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
d5553acd532a tomcat:7 "catalina.sh run" 8 minutes ago Up 8 minutes 8080/tcp, 0.0.0.0:8003->80/tcp, :::8003->80/tcp tomcat3
0cf0de7a5371 tomcat:7 "catalina.sh run" 9 minutes ago Up 9 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
3560a0570eb6 nginx "/docker-entrypoint..." 3 hours ago Up About an hour 80/tcp admiring_gauss
ubuntu@ip-172-31-37-255:~$ sudo docker run -itd ubuntu:rolling
6ab7e5741540eelbbb2fdafdc8215alcc795d71675081bb0046d4389f62030ea
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
6ab7e5741540 ubuntu:rolling "/bin/bash" 27 seconds ago Up 23 seconds
gilant_joliot d5553acd532a tomcat:7 "catalina.sh run" 11 minutes ago Up 11 minutes 8080/tcp, 0.0.0.0:8003->80/tcp, :::8003->80/tcp tomcat3
0cf0de7a5371 tomcat:7 "catalina.sh run" 11 minutes ago Up 11 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
3560a0570eb6 nginx "/docker-entrypoint..." 3 hours ago Up About an hour 80/tcp admiring_gauss
ubuntu@ip-172-31-37-255:~#

```

i-0070676ba1fc1a8c4  
PublicIPs: 13.232.190.231 PrivateIPs: 172.31.37.255

## 22. Check how many ubuntu containers are running and stopped

aws Services Search [Alt+S] Mumbai Ruchika Moon

```
gauss
ubuntu@ip-172-31-37-255:~$ sudo docker run -itd ubuntu:rolling
6ab7e5741540ee1bbb2fdfafdc8215alcc795d71675081bb0046d4389f62030ea
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
6ab7e5741540 ubuntu:rolling "/bin/bash" 27 seconds ago Up 23 seconds vi
gilant_joliot d5553acd532a tomcat:7 "catalina.sh run" 11 minutes ago Up 11 minutes 8080/tcp, 0.0.0.0:8003->80/tcp, :::8003->80/tcp to
mcat3 0cf0de7a5371 tomcat:7 "catalina.sh run" 11 minutes ago Up 11 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp to
mcat2 3560a0570eb6 nginx "/docker-entrypoint..." 3 hours ago Up About an hour 80/tcp ad
miring_gauss
ubuntu@ip-172-31-37-255:~$ sudo docker ps -q
6ab7e5741540
d5553acd532a
0cf0de7a5371
3560a0570eb6
ubuntu@ip-172-31-37-255:~$
```

i-0070676ba1fc1a8c4

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23. Is the tomcat container running? If no, start one.

Ans : Yes Running

aws Services Search [Alt+S] Mumbai Ruchika Moon

```
d5553acd532a tomcat:7 "catalina.sh run" 11 minutes ago Up 11 minutes 8080/tcp, 0.0.0.0:8003->80/tcp, :::8003->80/tcp to
mcat3 0cf0de7a5371 tomcat:7 "catalina.sh run" 11 minutes ago Up 11 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp to
mcat2 3560a0570eb6 nginx "/docker-entrypoint..." 3 hours ago Up About an hour 80/tcp ad
miring_gauss
ubuntu@ip-172-31-37-255:~$ sudo docker ps -q
6ab7e5741540
d5553acd532a
0cf0de7a5371
3560a0570eb6
ubuntu@ip-172-31-37-255:~$ sudo docker ps -aq
6ab7e5741540
81ddff439de6
d5553acd532a
0cf0de7a5371
0f345c592862
4b52b7343333
3560a0570eb6
ubuntu@ip-172-31-37-255:~$
```

i-0070676ba1fc1a8c4

PublicIPs: 13.232.190.231 PrivateIPs: 172.31.37.255

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24. Check the logs, generated by tomcat container(don't forget to make request to tomcat's home page to see the log).

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
start Start one or more stopped containers
stats Display a live stream of container(s) resource usage statistics
stop Stop one or more running containers
top Display the running processes of a container
unpause Unpause all processes within one or more containers
update Update configuration of one or more containers
wait Block until one or more containers stop, then print their exit codes

Run 'docker container COMMAND --help' for more information on a command.
ubuntu@ip-172-31-37-255:~$ sudo docker log 0cf
docker: 'log' is not a docker command.
See 'docker --help'.
ubuntu@ip-172-31-37-255:~$ sudo docker logs 0cf
Using CATALINA_BASE: /usr/local/tomcat
Using CATALINA_HOME: /usr/local/tomcat
Using CATALINA_TMPDIR: /usr/local/tomcat/temp
Using JRE_HOME: /usr/local/openjdk-8
Using CLASSPATH: /usr/local/tomcat/bin/bootstrap.jar:/usr/local/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Nov 15, 2023 0:41:19 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Server version name: Apache Tomcat/7.0.109
Nov 15, 2023 0:41:19 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Server built: Apr 22 2021 18:43:38 UTC
Nov 15, 2023 0:41:19 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Server version number: 7.0.109.0
Nov 15, 2023 0:41:19 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: OS Name: Linux

```

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25. Check if ubuntu conatiner is running? If no, start one in attached mode to the terminal.

Ans : Running

```

aws Services Search [Alt+S] Mumbai Ruchika Moon
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Command line argument: -Dcatalina.home=/usr/local/tomcat
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Command line argument: -Djava.io.tmpdir=/usr/local/tomcat/temp
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.AprLifecycleListener lifecycleEvent
INFO: Loaded Apache Tomcat Native library [1.2.28] using APR version [1.6.5].
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.AprLifecycleListener lifecycleEvent
INFO: APR capabilities: IPv6 [true], sendfile [true], accept filters [false], random [true].
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.AprLifecycleListener initializeSSL
INFO: OpenSSL successfully initialized [OpenSSL 1.1.1d 10 Sep 2019]
Nov 15, 2023 11:46:51 AM org.apache.coyote.AbstractProtocol init
INFO: Initializing ProtocolHandler ["http-apr-8080"]
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.Catalina load
INFO: Initialization processed in 1540 ms
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.StandardService startInternal
INFO: Starting service [Catalina]
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.StandardEngine startInternal
INFO: Starting Servlet Engine: Apache Tomcat/7.0.109
Nov 15, 2023 11:46:51 AM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["http-apr-8080"]
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.Catalina start
INFO: Server startup in 124 ms
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
0cf0de7a5371 tomcat:7 "catalina.sh run" 3 hours ago Up 8 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 3 hours ago Up 8 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ 
```

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26. Login as root user in ubuntu container

```

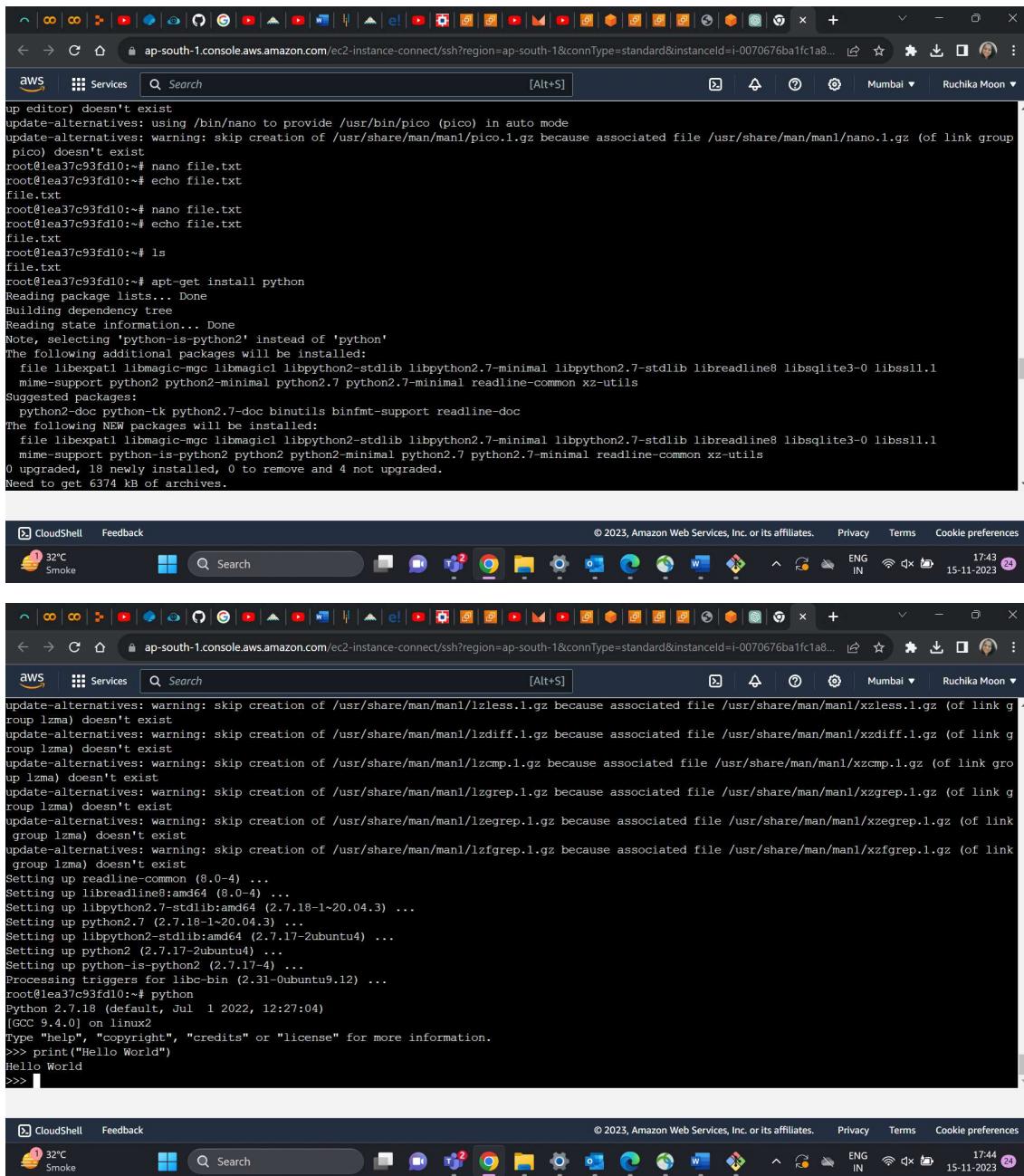
INFO: Command line argument: -Dcatalina.home=/usr/local/tomcat
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Command line argument: -Djava.io.tmpdir=/usr/local/tomcat/temp
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.AprLifecycleListener lifecycleEvent
INFO: Loaded Apache Tomcat Native library [1.2.28] using APR version [1.6.5].
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.AprLifecycleListener lifecycleEvent
INFO: APR capabilities: IPv6 [true], sendfile [true], accept filters [false], random [true].
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.AprLifecycleListener initializeSSL
INFO: OpenSSL successfully initialized [OpenSSL 1.1.1d 10 Sep 2019]
Nov 15, 2023 11:46:51 AM org.apache.coyote.AbstractProtocol init
INFO: Initializing ProtocolHandler ["http-apr-8080"]
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.Catalina load
INFO: Initialization processed in 1540 ms
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.StandardService startInternal
INFO: Starting service [Catalina]
Nov 15, 2023 11:46:51 AM org.apache.catalina.core.StandardEngine startInternal
INFO: Starting Servlet Engine: Apache Tomcat/7.0.109
Nov 15, 2023 11:46:51 AM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["http-apr-8080"]
Nov 15, 2023 11:46:51 AM org.apache.catalina.startup.Catalina start
INFO: Server startup in 124 ms
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
0cf0de7a5371 tomcat:7 "catalina.sh run" 3 hours ago Up 8 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 3 hours ago Up 8 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker exec -it 0cf bash
root@0cf0de7a5371:/usr/local/tomcat# 
```

## 27. Create a file with any name in root directory

```

nano
0 upgraded, 1 newly installed, 0 to remove and 4 not upgraded.
Need to get 269 kB of archives.
After this operation, 868 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 nano amd64 4.8-lubuntul [269 kB]
Fetched 269 kB in 1s (315 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package nano.
(Reading database ... 4136 files and directories currently installed.)
Preparing to unpack .../nano_4.8-lubuntul_amd64.deb ...
Unpacking nano (4.8-lubuntul) ...
Setting up nano (4.8-lubuntul) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group pico) doesn't exist
root@lea37c93fd10:~# nano file.txt
root@lea37c93fd10:~# echo file.txt
file.txt
root@lea37c93fd10:~# ls
file.txt
root@lea37c93fd10:~# 
```

## 28. Install software of your choice in ubuntu container using "apt-get install"



```

up editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group
pico) doesn't exist
root@leap37c93fd10:~# nano file.txt
root@leap37c93fd10:~# echo file.txt
file.txt
root@leap37c93fd10:~# nano file.txt
root@leap37c93fd10:~# echo file.txt
file.txt
root@leap37c93fd10:~# ls
file.txt
root@leap37c93fd10:~# apt-get install python
Reading package lists... Done
Building dependency tree
Reading state information... Done
Note, selecting 'python-is-python2' instead of 'python'
The following additional packages will be installed:
  file libexpat1 libmagic1 libmagick1 libpython2.7-minimal libpython2.7-stdlib libreadline8 libssqlite3-0 libssl1.1
  mime-support python2 python2-minimal python2.7 python2.7-minimal readline-common xz-utils
Suggested packages:
  python2-doc python-tk python2.7-doc binutils binfmt-support readline-doc
The following NEW packages will be installed:
  file libexpat1 libmagic1 libmagick1 libpython2.7-minimal libpython2.7-stdlib libreadline8 libssqlite3-0 libssl1.1
  mime-support python-is-python2 python2 python2-minimal python2.7 python2.7-minimal readline-common xz-utils
0 upgraded, 18 newly installed, 0 to remove and 4 not upgraded.
Need to get 6374 kB of archives.

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update-alternatives: warning: skip creation of /usr/share/man/man1/lzless.1.gz because associated file /usr/share/man/man1/xzless.1.gz (of link g
roup lzma) doesn't exist
update-alternatives: warning: skip creation of /usr/share/man/man1/lzdiff.1.gz because associated file /usr/share/man/man1/xzdiff.1.gz (of link g
roup lzma) doesn't exist
update-alternatives: warning: skip creation of /usr/share/man/man1/lzcmp.1.gz because associated file /usr/share/man/man1/xzcmp.1.gz (of link g
roup lzma) doesn't exist
update-alternatives: warning: skip creation of /usr/share/man/man1/lzgrep.1.gz because associated file /usr/share/man/man1/xzgrep.1.gz (of link g
roup lzma) doesn't exist
update-alternatives: warning: skip creation of /usr/share/man/man1/lzegrep.1.gz because associated file /usr/share/man/man1/xzegrep.1.gz (of link g
roup lzma) doesn't exist
update-alternatives: warning: skip creation of /usr/share/man/man1/lzfgrep.1.gz because associated file /usr/share/man/man1/xzfgrep.1.gz (of link g
roup lzma) doesn't exist
Setting up readline-common (8.0-4) ...
Setting up libreadline8:amd64 (8.0-4) ...
Setting up libpython2.7-stdlib:amd64 (2.7.18-1~20.04.3) ...
Setting up python2.7 (2.7.18-1~20.04.3) ...
Setting up libpython2.7-stdlib:amd64 (2.7.17-2ubuntu4) ...
Setting up python2 (2.7.17-2ubuntu4) ...
Setting up python-is-python2 (2.7.17-4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.12) ...
root@leap37c93fd10:~# python
Python 2.7.18 (default, Jul 1 2022, 12:27:04)
[GCC 9.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>> 
```

29. Now exit the ubuntu shell, are you back to your host machine, if not, come back to the host machine.

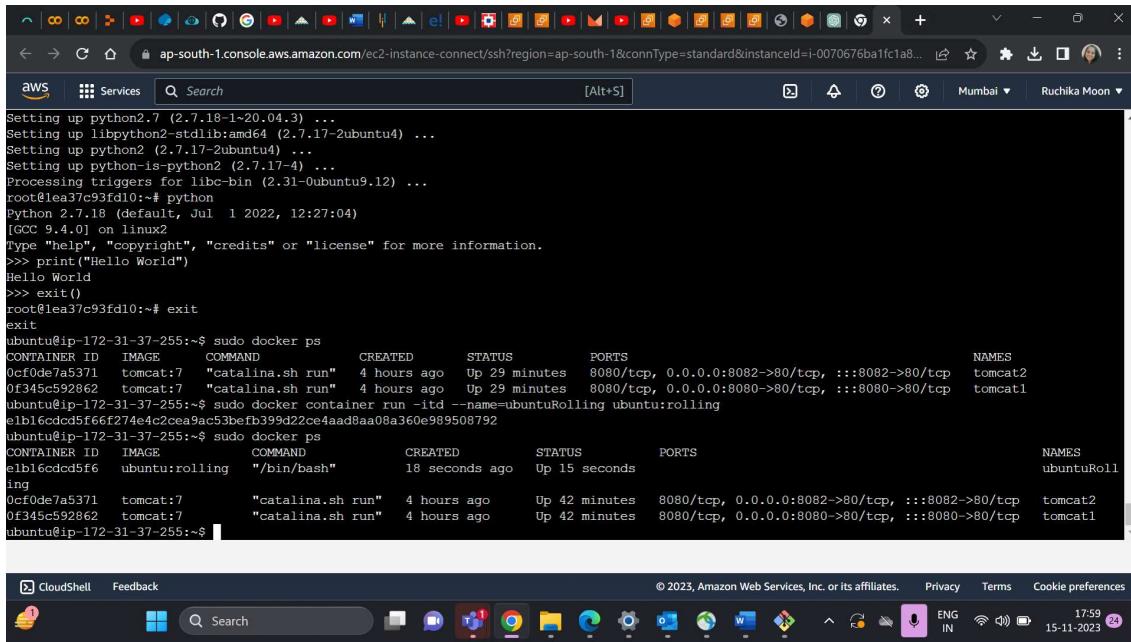
```
root@lea37c93fd10:~# python
Python 2.7.18 (default, Jul 1 2022, 12:27:04)
[GCC 9.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>> exit()
root@lea37c93fd10:~# exit
exit
ubuntu@ip-172-31-37-255:~$
```

### 30. Check if the ubuntu container is running.

Yes Running

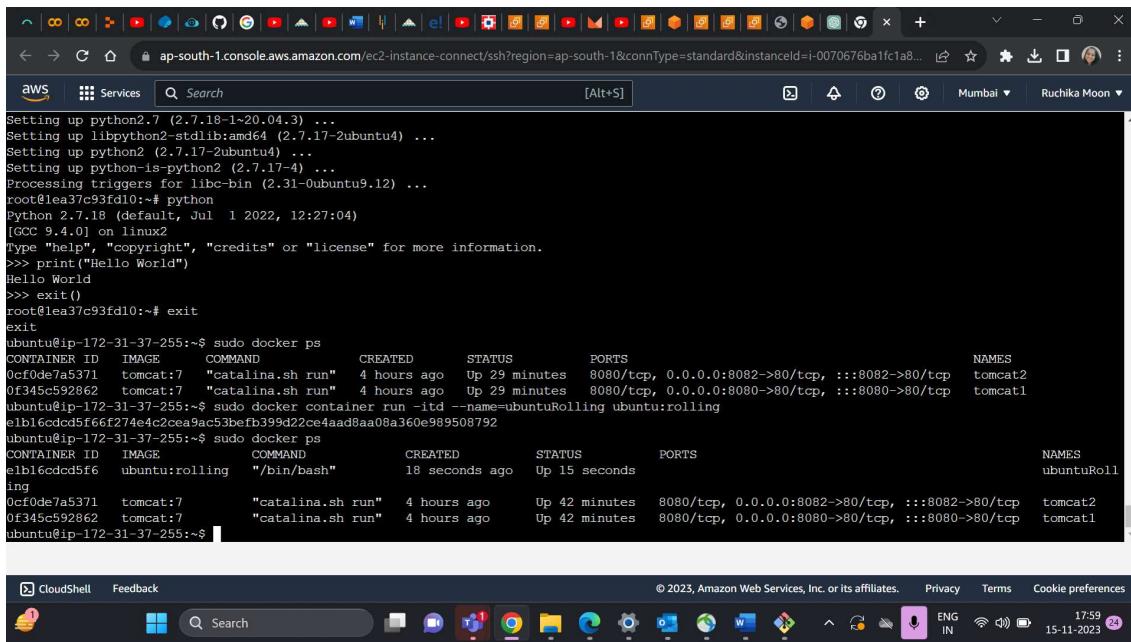
```
CONTAINER ID        IMAGE       COMMAND             CREATED          STATUS           PORTS     NAMES
0cf0de7a5371        tomcat:7   "catalina.sh run"   4 hours ago    Up 29 minutes   8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp   tomcat2
0f345c592862        tomcat:7   "catalina.sh run"   4 hours ago    Up 29 minutes   8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp   tomcat1
```

### 31. Create a new ubuntu container out of the same image as that previous container in attached mode.



```
Setting up python2.7 (2.7.18-1~20.04.3) ...
Setting up libpython2-stplib:amd64 (2.7.17-2ubuntu4) ...
Setting up python2 (2.7.17-2ubuntu4) ...
Setting up python-is-python2 (2.7.17-4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.12) ...
root@leap37c93fd10:~# python
Python 2.7.18 (default, Jul 1 2022, 12:27:04)
[GCC 9.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>> exit()
root@leap37c93fd10:~# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd --name=ubuntuRolling ubuntu:rolling
elb16cdcd5f66f274e4c2ceea9ac53befb399d22ce4aad8aa08a360e989508792
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
elb16cdcd5f66f274e4c2ceea9ac53befb399d22ce4aad8aa08a360e989508792 ubuntu:rolling
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$
```

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```
Setting up python2.7 (2.7.18-1~20.04.3) ...
Setting up libpython2-stplib:amd64 (2.7.17-2ubuntu4) ...
Setting up python2 (2.7.17-2ubuntu4) ...
Setting up python-is-python2 (2.7.17-4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.12) ...
root@leap37c93fd10:~# python
Python 2.7.18 (default, Jul 1 2022, 12:27:04)
[GCC 9.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>> exit()
root@leap37c93fd10:~# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd --name=ubuntuRolling ubuntu:rolling
elb16cdcd5f66f274e4c2ceea9ac53befb399d22ce4aad8aa08a360e989508792
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
elb16cdcd5f66f274e4c2ceea9ac53befb399d22ce4aad8aa08a360e989508792 ubuntu:rolling
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$
```

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### 32. Login as a root user

```

Setting up libpython2-stdeb:amd64 (2.7.17-2ubuntu4) ...
Setting up python2 (2.7.17-2ubuntu4) ...
Setting up python-is-python2 (2.7.17-4) ...
Processing triggers for libc-bin (2.31-0ubuntu9.12) ...
root@leap37c93fd10:~# python
Python 2.7.18 (default, Jul 1 2022, 12:27:04)
[GCC 9.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>> exit()
root@leap37c93fd10:~# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd --name=ubuntuRolling ubuntu:rolling
elb16cdcd5f66f274e4c2cea9ac53befb399d22ce4aad8aa08a360e989508792
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
elb16cdcd5f6 ubuntu:rolling "/bin/bash" 18 seconds ago Up 15 seconds
ing
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker exec -it elb bash
root@elb16cdcd5f6:#

```

33. Check if you can see the file created in previous container, you will not see the file as well as software that you installed in the previous container. Now kill this Container.

```

Python 2.7.18 (default, Jul 1 2022, 12:27:04)
[GCC 9.4.0] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello World")
Hello World
>>> exit()
root@leap37c93fd10:~# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 29 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker container run -itd --name=ubuntuRolling ubuntu:rolling
elb16cdcd5f66f274e4c2cea9ac53befb399d22ce4aad8aa08a360e989508792
ubuntu@ip-172-31-37-255:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
elb16cdcd5f6 ubuntu:rolling "/bin/bash" 18 seconds ago Up 15 seconds
ing
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 42 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp tomcat1
ubuntu@ip-172-31-37-255:~$ sudo docker exec -it elb bash
root@elb16cdcd5f6:#
root@elb16cdcd5f6:~# ^C
root@elb16cdcd5f6:~# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker kill elb
elb
ubuntu@ip-172-31-37-255:~$

```

34. Do you have the previous ubuntu container where you created the file and installed the software? If no reapeat step 25 to 29

Ans : yes

```

root@elb16cdcd5f6:/# ^C
root@elb16cdcd5f6:/# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker kill elb
elb
ubuntu@ip-172-31-37-255:~$ sudo docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
 NAMES
elb16cdcd5f6 ubuntu:rolling "/bin/bash" 5 minutes ago Exited (137) 51 seconds ago
ubuntuRolling
lea37c93fd10 bf4 "bash" 25 minutes ago Exited (0) 19 minutes ago
affectionate_ritchie
6ab7e5741540 ubuntu:rolling "/bin/bash" 4 hours ago Exited (137) 4 hours ago
vigilant_joliot
8ald8f439de6 ubuntu "/bin/bash" 4 hours ago Exited (130) 4 hours ago
serene_knuth
d5553acd532a tomcat:7 "catalina.sh run" 4 hours ago Exited (143) 4 hours ago
tomcat3
0cf0de7a5371 tomcat:7 "catalina.sh run" 4 hours ago Up 47 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->
80/tcp tomcat2
0f345c592862 tomcat:7 "catalina.sh run" 4 hours ago Up 48 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->
4b52b7343333 tomcat:7 "catalina.sh run" 6 hours ago Exited (137) 4 hours ago
great_rubin
3560a0570eb6 nginx "/docker-entrypoint..." 7 hours ago Exited (0) 4 hours ago
admiring_gauss
ubuntu@ip-172-31-37-255:~$ 

```

The screenshot shows the AWS CloudShell interface. The terminal window displays the output of the `sudo docker ps -a` command, listing several Docker containers running on an Amazon Linux 2 instance. The containers include `elb16cdcd5f6` (ubuntu:rolling), `lea37c93fd10` (bf4), `6ab7e5741540` (ubuntu:rolling), `d5553acd532a` (tomcat:7), and others. The `elb` container is explicitly killed at the beginning of the session.

### 35. Create an Image out of the existing container.

```

ubuntu@ip-172-31-37-255:~$ sudo docker container commit -m "updated the container elb ubuntu:ruchika"
> ^C
ubuntu@ip-172-31-37-255:~$ sudo docker container commit -m "updated the container" elb ubuntu:ruchika
sha256:72d150b195450bb645d6ebccal35a130b237281c9d0c01965450d081670a75d1
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu ruchika 72d150b19545 27 seconds ago 71.2MB
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu rolling fe7a3960a97e 4 weeks ago 71.2MB
ubuntu latest e4c58958181a 5 weeks ago 77.8MB
ubuntu focal bf40b7bc1all 6 weeks ago 72.8MB
tomcat 7 9dfd74e6bc2f 2 years ago 533MB
ubuntu@ip-172-31-37-255:~$ 

```

The screenshot shows the AWS CloudShell interface. The terminal window displays the creation of a new Docker image named `ruchika` from the `elb` container. The command used was `sudo docker container commit -m "updated the container" elb ubuntu:ruchika`. The resulting image ID is `sha256:72d150b195450bb645d6ebccal35a130b237281c9d0c01965450d081670a75d1`. The bottom part of the terminal shows a list of available Docker images, including `ubuntu`, `nginx`, and `tomcat` images.

### 36. Now Create a Container out of this image and login into it to see if you can see the file and software installed by you in the previous container.

```
aws Services Search [Alt+S] Mumbai Ruchika Moon
tomcat3      tomcat:7      "catalina.sh run"      4 hours ago   Up 47 minutes    8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->
tomcat2      tomcat:7      "catalina.sh run"      4 hours ago   Up 48 minutes    8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->
tomcat1      tomcat:7      "catalina.sh run"      6 hours ago   Exited (137) 4 hours ago
great_rubin  nginx       "/docker-entrypoint..."  7 hours ago   Exited (0) 4 hours ago
admiring_gauss
ubuntu@ip-172-31-37-255:~$ sudo docker container commit -m "updated the container elb ubuntu:ruchika"
> ^C
ubuntu@ip-172-31-37-255:~$ sudo docker container commit -m "updated the container" elb ubuntu:ruchika
sha256:72d150b195450bbe45d6ebccal35a130b237281c9dc0c1965450d081670a75d1
ubuntu@ip-172-31-37-255:~$ sudo docker images
REPOSITORY  TAG      IMAGE ID      CREATED     SIZE
ubuntu      ruchika  72d150b19545  27 seconds ago  71.2MB
nginx       latest   c20060033e06  2 weeks ago   187MB
ubuntu      rolling   fe7a3960a97e  4 weeks ago   71.2MB
ubuntu      latest   e4c58958181a  5 weeks ago   77.8MB
ubuntu      focal    bf40b7bc7all  6 weeks ago   72.8MB
tomcat      7        9dfd74e6bc2f  2 years ago   533MB
ubuntu@ip-172-31-37-255:~$ sudo docker container start elb
elb
ubuntu@ip-172-31-37-255:~$ sudo docker exec -it elb bash
root@elb16cdcd5f6:~# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  proc  root  run  sbin  srv  sys  usr  var
root@elb16cdcd5f6:~#
```

The screenshot shows an AWS CloudShell interface. The terminal window displays a series of Docker commands being run on an Ubuntu host. It starts by listing running containers, committing changes to a Docker image, and then starting a specific container named 'elb'. Finally, it enters the container's shell to inspect its directory structure.

37. Do you have running tomcat container? If yes, Stop it and kill all tomcat container.

```
aws Services Search [Alt+S] Mumbai Ruchika Moon
ubuntu      rolling   fe7a3960a97e  4 weeks ago   71.2MB
ubuntu      latest   e4c58958181a  5 weeks ago   77.8MB
ubuntu      focal    bf40b7bc7all  6 weeks ago   72.8MB
tomcat      7        9dfd74e6bc2f  2 years ago   533MB
ubuntu@ip-172-31-37-255:~$ sudo docker container start elb
elb
ubuntu@ip-172-31-37-255:~$ sudo docker exec -it elb bash
root@elb16cdcd5f6:~# ls
bin  boot  dev  etc  home  lib  lib64  media  mnt  opt  proc  root  run  sbin  srv  sys  usr  var
root@elb16cdcd5f6:~# sudo docker rm -f $(sudo docker ps -aq)
bash: sudo: command not found
bash: sudo: command not found
root@elb16cdcd5f6:~# exit
exit
ubuntu@ip-172-31-37-255:~$ sudo docker rm -f $(sudo docker ps -aq)
elb16cdcd5f6
1ea37c93fd10
6ab7e5741540
8ald8f439de6
d5553acd52a
0cf0de7a5371
0f345c592862
4b52b7343333
3560a0570eb6
ubuntu@ip-172-31-37-255:~$ sudo docker ps -a
CONTAINER ID  IMAGE      COMMAND      CREATED      STATUS      PORTS      NAMES
ubuntu@ip-172-31-37-255:~$
```

This screenshot continues from the previous one. It shows the user attempting to stop a container named 'elb' using the command 'sudo docker rm -f \$(sudo docker ps -aq)'. This command fails because the user does not have sudo privileges. The user then exits the container's bash shell and runs the same command again with 'root' privileges, successfully stopping the container. Finally, the user lists all Docker containers again to verify that the 'elb' container is no longer running.

