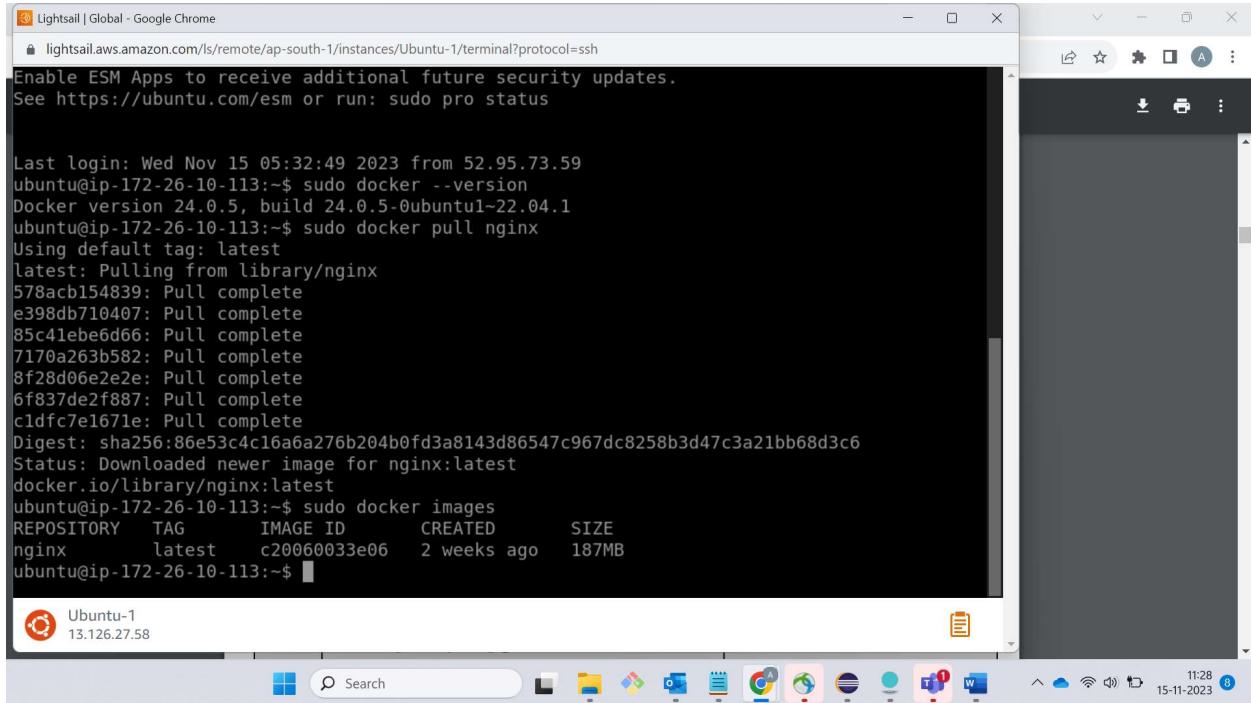


2. Find a image from dockerhub of your choice(recommened: nginx), don't use browser, pull the official image from dockerhub



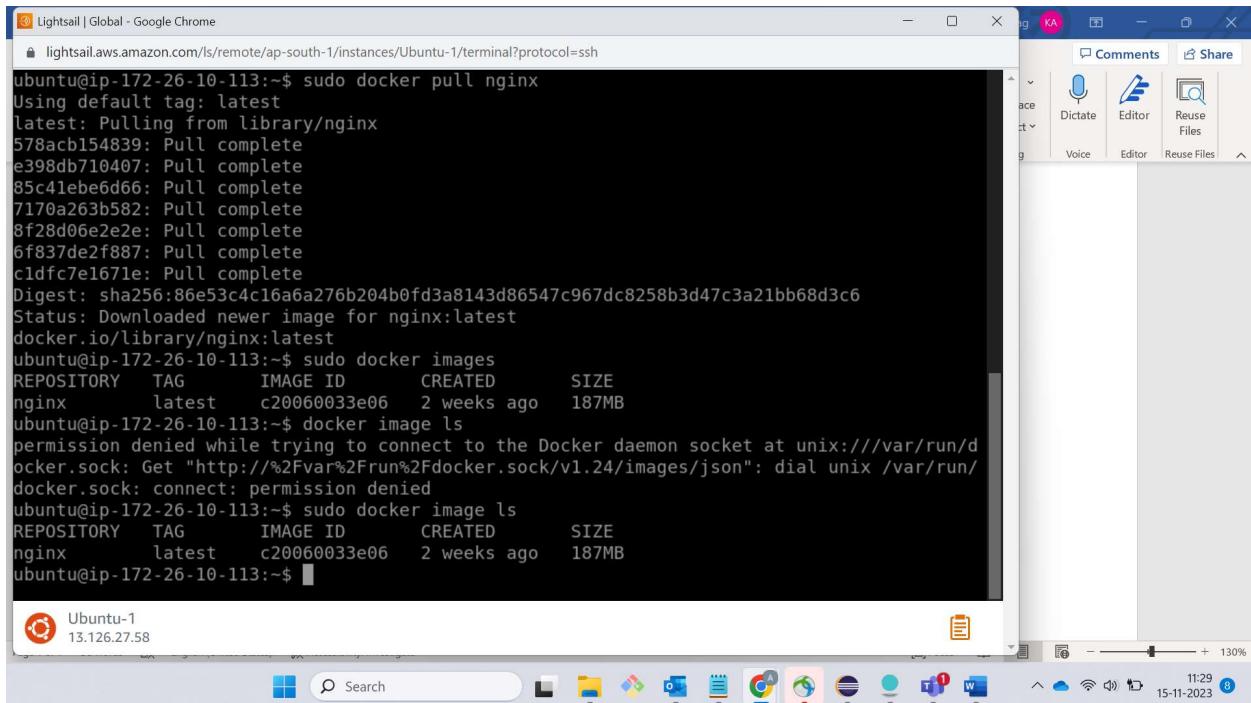
```
Lightsail | Global - Google Chrome
lightsail.aws.amazon.com/ls/remote/ap-south-1/instances/Ubuntu-1/terminal?protocol=ssh

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Nov 15 05:32:49 2023 from 52.95.73.59
ubuntu@ip-172-26-10-113:~$ sudo docker --version
Docker version 24.0.5, build 24.0.5-0ubuntu1-22.04.1
ubuntu@ip-172-26-10-113:~$ sudo docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
578acb154839: Pull complete
e398db710407: Pull complete
85c41ebe6d66: Pull complete
7170a263b582: Pull complete
8f28d06e2e2e: Pull complete
6f837de2f887: Pull complete
cldfc7e1671e: Pull complete
Digest: sha256:86e53c4c16a6a276b204b0fd3a8143d86547c967dc8258b3d47c3a21bb68d3c6
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-26-10-113:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-26-10-113:~$
```

Ubuntu-1
13.126.27.58

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



```
Lightsail | Global - Google Chrome
lightsail.aws.amazon.com/ls/remote/ap-south-1/instances/Ubuntu-1/terminal?protocol=ssh

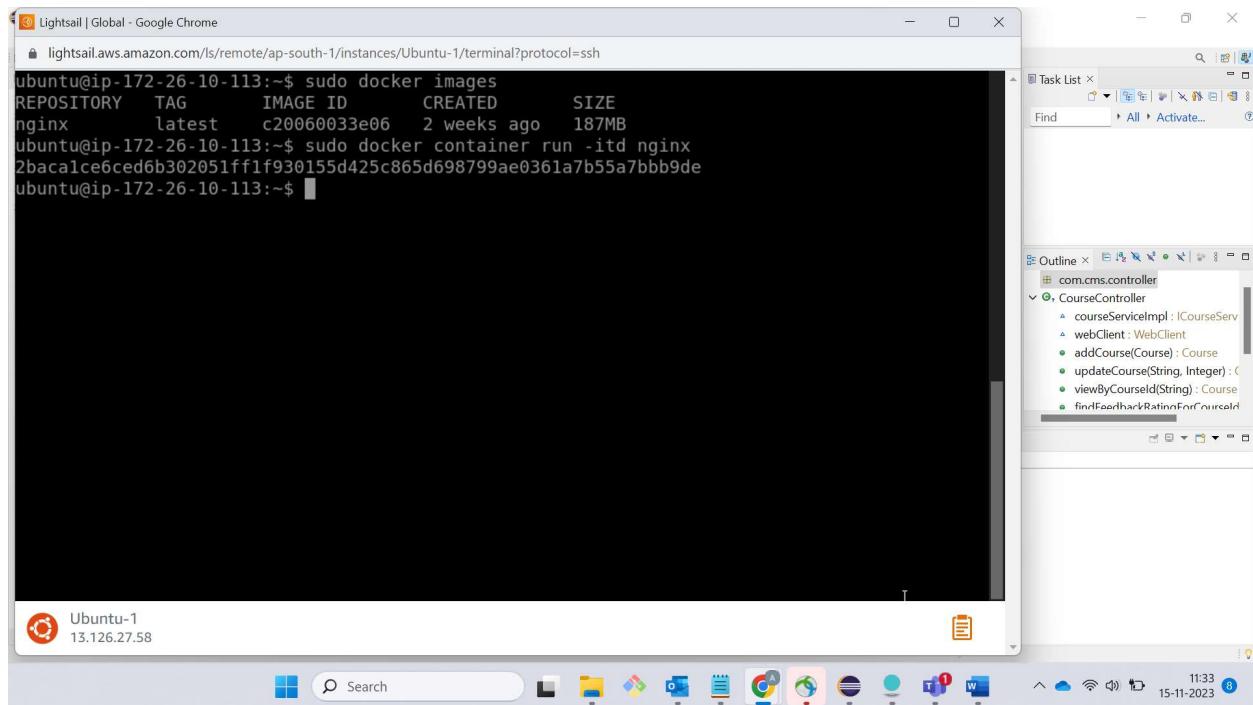
ubuntu@ip-172-26-10-113:~$ sudo docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
578acb154839: Pull complete
e398db710407: Pull complete
85c41ebe6d66: Pull complete
7170a263b582: Pull complete
8f28d06e2e2e: Pull complete
6f837de2f887: Pull complete
cldfc7e1671e: Pull complete
Digest: sha256:86e53c4c16a6a276b204b0fd3a8143d86547c967dc8258b3d47c3a21bb68d3c6
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@ip-172-26-10-113:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-26-10-113:~$ docker image ls
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://127.0.0.1:2375/images/json": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-26-10-113:~$ sudo docker image ls
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-26-10-113:~$
```

Ubuntu-1
13.126.27.58

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

Ans: c20060033e06

5. Create a container of your image



6. List all the running containers

A screenshot of a Windows desktop environment. In the foreground, a terminal window titled "Lightsail | Global - Google Chrome" is open, showing the command `sudo docker container ls` and its output:

```
ubuntu@ip-172-26-10-113:~$ sudo docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
 NAMES
2bacalce6ced nginx "/docker-entrypoint..." 56 seconds ago Up 55 seconds 80/tcp
hopeful_kalam
ubuntu@ip-172-26-10-113:~$
```

The desktop taskbar at the bottom shows various pinned icons, including Microsoft Office applications like Word, Excel, and PowerPoint. To the right of the terminal window, there is a Java code editor interface with an "Outline" view showing class hierarchies and methods.

7. List all the running and stopped containers

A screenshot of a Windows desktop environment. In the foreground, a terminal window titled "Lightsail | Global - Google Chrome" is open, showing the command `sudo docker container ls` and its output, followed by the command `ls -a` and its output:

```
ubuntu@ip-172-26-10-113:~$ sudo docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
 NAMES
2bacalce6ced nginx "/docker-entrypoint..." 56 seconds ago Up 55 seconds 80/tcp
hopeful_kalam
ubuntu@ip-172-26-10-113:~$ sudo docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
 NAMES
2bacalce6ced nginx "/docker-entrypoint..." 2 minutes ago Up 2 minutes 80/tcp
hopeful_kalam
ubuntu@ip-172-26-10-113:~$
```

The desktop taskbar at the bottom shows various pinned icons, including Microsoft Office applications like Word, Excel, and PowerPoint. A Microsoft Word document is visible in the background.

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

Ans : 2bacalce6ced

A screenshot of a Windows desktop environment. In the foreground, a Google Chrome window is open to a Lightsail instance terminal session. The terminal output shows several Docker commands being run:

```
ubuntu@ip-172-26-10-113:~$ sudo docker container ls
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
2bacalce6ced nginx "/docker-entrypoint..." 56 seconds ago Up 55 seconds 80/tcp
hopeful_kalam
ubuntu@ip-172-26-10-113:~$ sudo docker container ls -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
2bacalce6ced nginx "/docker-entrypoint..." 2 minutes ago Up 2 minutes 80/tcp
hopeful_kalam
ubuntu@ip-172-26-10-113:~$ sudo docker ps -aq
2bacalce6ced
ubuntu@ip-172-26-10-113:~$ sudo docker container ls -q
2bacalce6ced
ubuntu@ip-172-26-10-113:~$ sudo docker container ls -aq
2bacalce6ced
ubuntu@ip-172-26-10-113:~$ ^C
ubuntu@ip-172-26-10-113:~$
```

The terminal window has a dark background and white text. To the right of the terminal, there is a Microsoft Word document window titled "ability Client". The desktop taskbar at the bottom shows various icons for applications like File Explorer, Edge, and Microsoft Word.

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

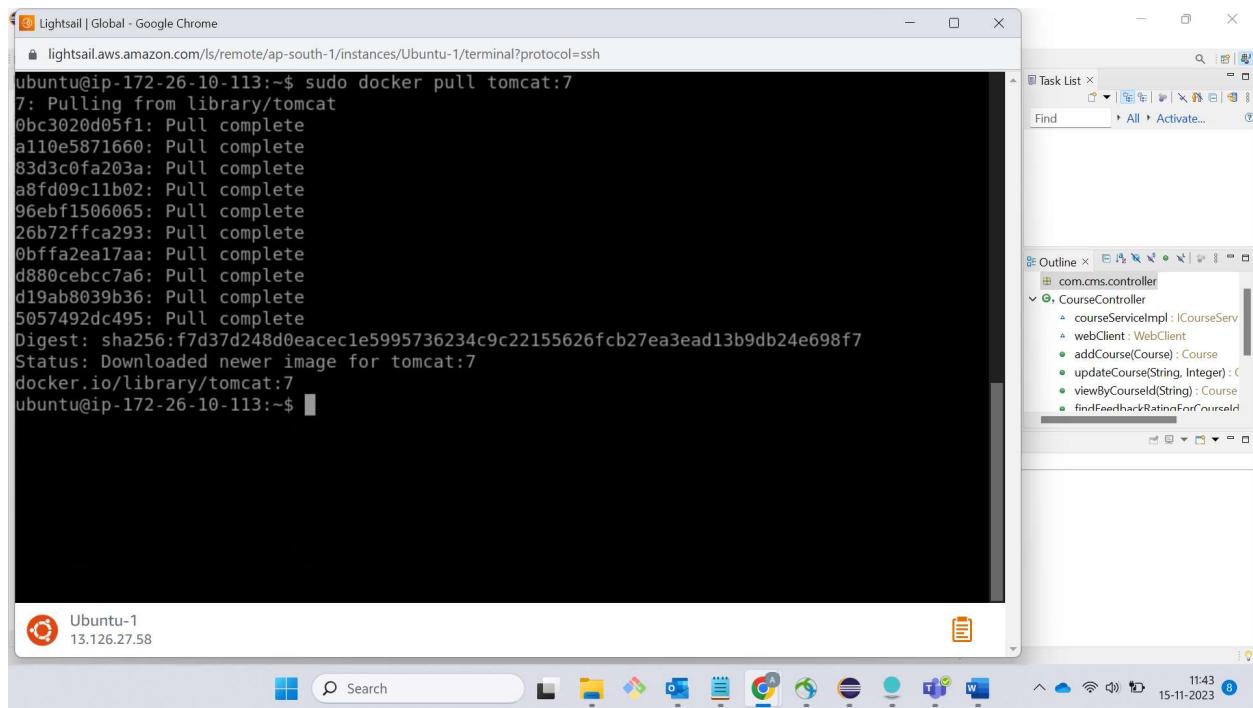
Ans: 16

A screenshot of a Windows desktop environment. In the foreground, a Google Chrome window is open to a Lightsail instance terminal session. The terminal output shows the Docker history command being run:

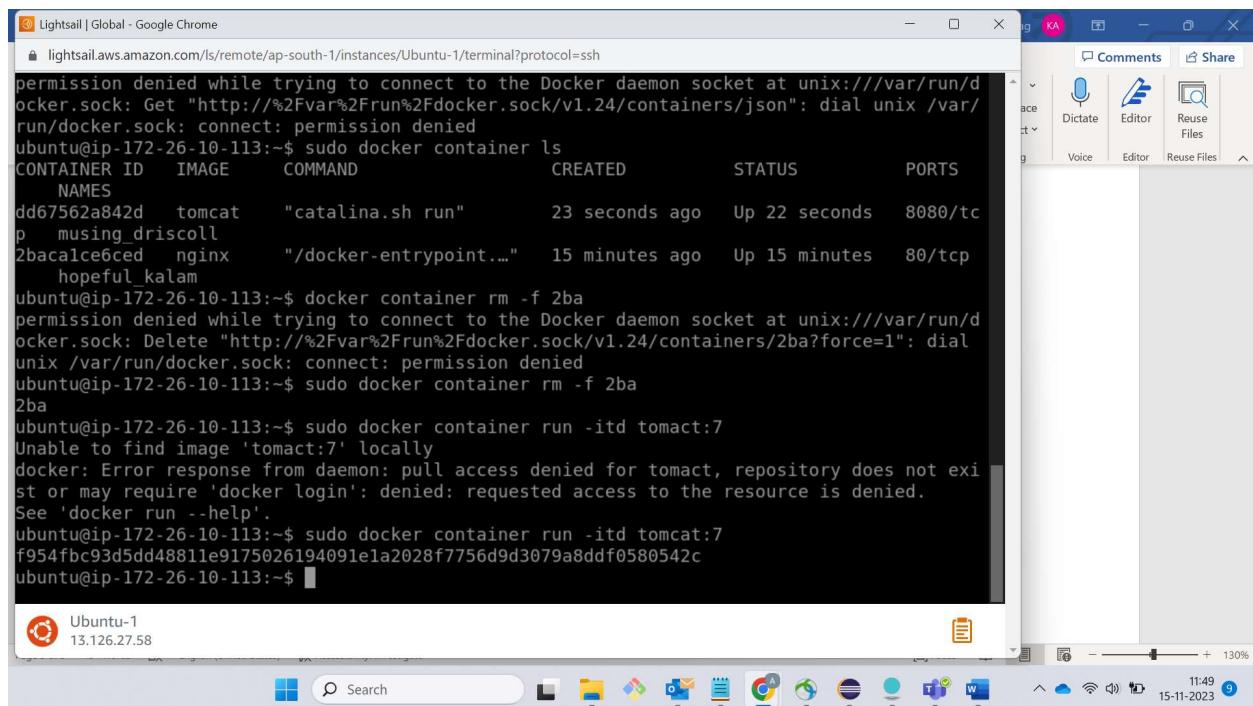
```
ubuntu@ip-172-26-10-113:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
ubuntu@ip-172-26-10-113:~$ sudo docker history c20
IMAGE CREATED CREATED BY SIZE COMMENT
c20060033e06 2 weeks ago /bin/sh -c #(nop) CMD ["nginx" "-g" "daemon...
<missing> 2 weeks ago /bin/sh -c #(nop) STOPSIGNAL 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:3b1b9915b7dd898a... 298B
<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 ...
<missing> 2 weeks ago /bin/sh -c #(nop) ENV PKG_RELEASE=1-bookworm 0B
<missing> 2 weeks ago /bin/sh -c #(nop) ENV NJS_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... 74.8MB
ubuntu@ip-172-26-10-113:~$
```

The terminal window has a dark background and white text. To the right of the terminal, there is a Microsoft Visual Studio Code interface showing an outline of a Java class named "CourseController". The desktop taskbar at the bottom shows various icons for applications like File Explorer, Edge, and Microsoft Word.

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



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



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

Ans: "IPAddress": "172.17.0.2"

A screenshot of a Linux desktop environment. On the left, a terminal window titled 'Lightsail | Global - Google Chrome' displays a JSON object. The 'IPAddress' field is highlighted in blue. On the right, a file manager window titled 'KA' is open, showing a list of files and folders. The desktop taskbar at the bottom shows various application icons and the system tray.

```
{
  "SandboxKey": "/var/run/docker/netns/7dfd0c2e0a11",
  "SecondaryIPAddresses": null,
  "SecondaryIPv6Addresses": null,
  "EndpointID": "267e4b2ccfa1b2a6bc283000a6f87563cd87f8683907b9a0a08efb9ee191b1b0",
  "Gateway": "172.17.0.1",
  "GlobalIPv6Address": "",
  "GlobalIPv6PrefixLen": 0,
  IPAddress: "172.17.0.2",
  "IPPrefixLen": 16,
  "IPv6Gateway": "",
  "MacAddress": "02:42:ac:11:00:02",
  "Networks": {
    "bridge": {
      "IPAMConfig": null,
      "Links": null,
      "Aliases": null,
      "NetworkID": "a2d177377033780d104ec9bf1e59cba596fa773c40302fbfd129944d53144de9",
      "EndpointID": "267e4b2ccfa1b2a6bc283000a6f87563cd87f8683907b9a0a08efb9ee191b1b0",
      "Gateway": "172.17.0.1",
      "IPAddress": "172.17.0.2",
      "IPPrefixLen": 16
    }
  }
}
```

Ubuntu-1
13.126.27.58

13. Which Port it is using?

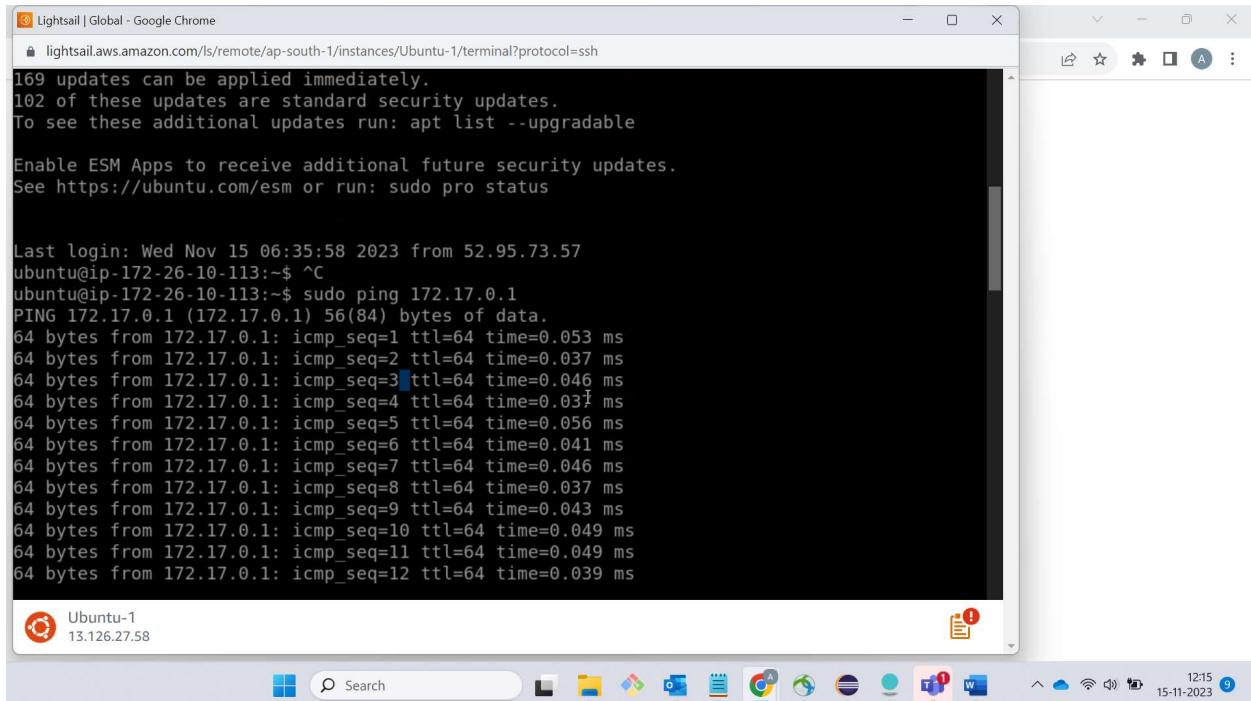
A screenshot of a Linux desktop environment. On the left, a terminal window titled 'Lightsail | Global - Google Chrome' displays a JSON object. The 'ExposedPorts' field is highlighted in blue. On the right, a file manager window titled 'KA' is open, showing a list of files and folders. The desktop taskbar at the bottom shows various application icons and the system tray.

```

  "WorkDir": "/var/lib/docker/overlay2/3e0c5b0915fc34636e985140927ee974352bc7e94b418cc81139044000d46c72/work",
  },
  "Name": "overlay2"
},
"Mounts": [],
"Config": {
  "Hostname": "f954fb93d5d",
  "Domainname": "",
  "User": "",
  "AttachStdin": false,
  "AttachStdout": false,
  "AttachStderr": false,
  "ExposedPorts": {
    "8080/tcp": {}
  },
  "Tty": true,
  "OpenStdin": true,
  "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",
    "TZ=Asia/Kolkata"
  ]
}
}
```

Ubuntu-1
13.126.27.58

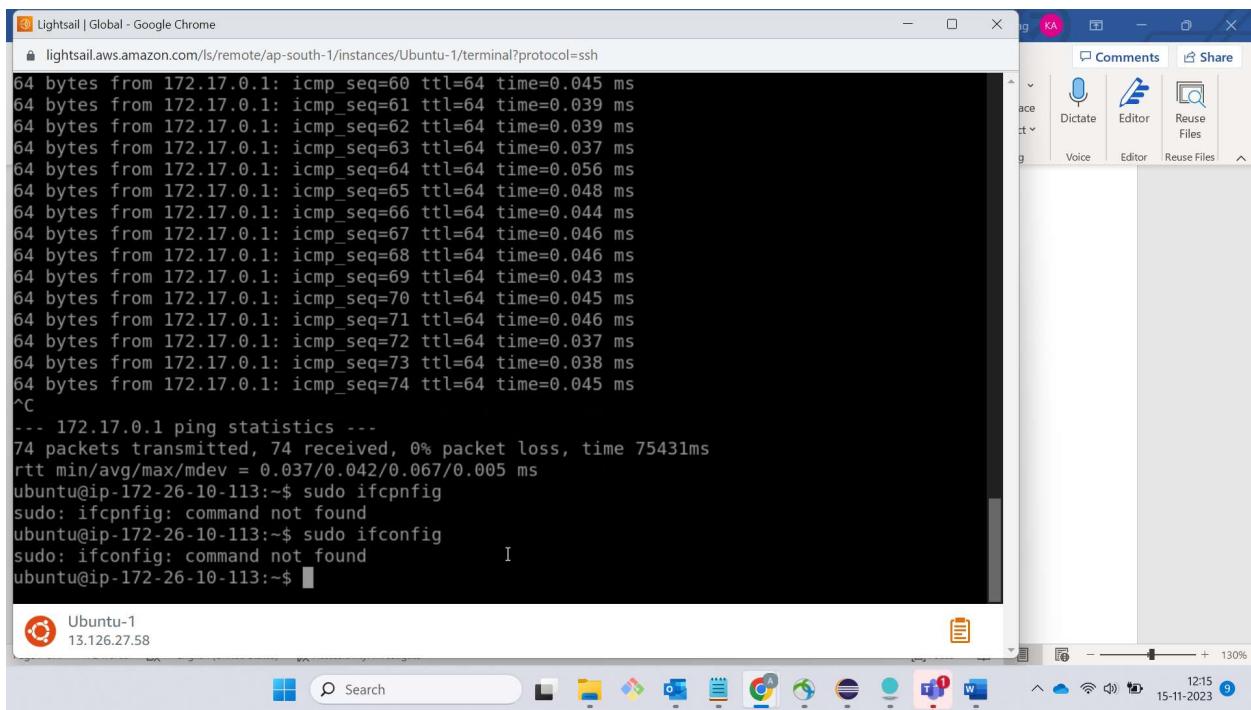
14. Try to access the Tomcat's home page from your machine/vm.



Lightsail | Global - Google Chrome
lightsail.aws.amazon.com/ls/remote/ap-south-1/instances/Ubuntu-1/terminal?protocol=ssh

```
169 updates can be applied immediately.  
102 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
Last login: Wed Nov 15 06:35:58 2023 from 52.95.73.57  
ubuntu@ip-172-26-10-113:~$ ^C  
ubuntu@ip-172-26-10-113:~$ sudo ping 172.17.0.1  
PING 172.17.0.1 (172.17.0.1) 56(84) bytes of data.  
64 bytes from 172.17.0.1: icmp_seq=1 ttl=64 time=0.053 ms  
64 bytes from 172.17.0.1: icmp_seq=2 ttl=64 time=0.037 ms  
64 bytes from 172.17.0.1: icmp_seq=3 ttl=64 time=0.046 ms  
64 bytes from 172.17.0.1: icmp_seq=4 ttl=64 time=0.037 ms  
64 bytes from 172.17.0.1: icmp_seq=5 ttl=64 time=0.056 ms  
64 bytes from 172.17.0.1: icmp_seq=6 ttl=64 time=0.041 ms  
64 bytes from 172.17.0.1: icmp_seq=7 ttl=64 time=0.046 ms  
64 bytes from 172.17.0.1: icmp_seq=8 ttl=64 time=0.037 ms  
64 bytes from 172.17.0.1: icmp_seq=9 ttl=64 time=0.043 ms  
64 bytes from 172.17.0.1: icmp_seq=10 ttl=64 time=0.049 ms  
64 bytes from 172.17.0.1: icmp_seq=11 ttl=64 time=0.049 ms  
64 bytes from 172.17.0.1: icmp_seq=12 ttl=64 time=0.039 ms
```

Ubuntu-1
13.126.27.58



Lightsail | Global - Google Chrome
lightsail.aws.amazon.com/ls/remote/ap-south-1/instances/Ubuntu-1/terminal?protocol=ssh

```
64 bytes from 172.17.0.1: icmp_seq=60 ttl=64 time=0.045 ms  
64 bytes from 172.17.0.1: icmp_seq=61 ttl=64 time=0.039 ms  
64 bytes from 172.17.0.1: icmp_seq=62 ttl=64 time=0.039 ms  
64 bytes from 172.17.0.1: icmp_seq=63 ttl=64 time=0.037 ms  
64 bytes from 172.17.0.1: icmp_seq=64 ttl=64 time=0.056 ms  
64 bytes from 172.17.0.1: icmp_seq=65 ttl=64 time=0.048 ms  
64 bytes from 172.17.0.1: icmp_seq=66 ttl=64 time=0.044 ms  
64 bytes from 172.17.0.1: icmp_seq=67 ttl=64 time=0.046 ms  
64 bytes from 172.17.0.1: icmp_seq=68 ttl=64 time=0.046 ms  
64 bytes from 172.17.0.1: icmp_seq=69 ttl=64 time=0.043 ms  
64 bytes from 172.17.0.1: icmp_seq=70 ttl=64 time=0.045 ms  
64 bytes from 172.17.0.1: icmp_seq=71 ttl=64 time=0.046 ms  
64 bytes from 172.17.0.1: icmp_seq=72 ttl=64 time=0.037 ms  
64 bytes from 172.17.0.1: icmp_seq=73 ttl=64 time=0.038 ms  
64 bytes from 172.17.0.1: icmp_seq=74 ttl=64 time=0.045 ms  
^C  
--- 172.17.0.1 ping statistics ---  
74 packets transmitted, 74 received, 0% packet loss, time 75431ms  
rtt min/avg/max/mdev = 0.037/0.042/0.067/0.005 ms  
ubuntu@ip-172-26-10-113:~$ sudo ifcpnfig  
sudo: ifcpnfig: command not found  
ubuntu@ip-172-26-10-113:~$ sudo ifconfig  
sudo: ifconfig: command not found  
ubuntu@ip-172-26-10-113:~$
```

Ubuntu-1
13.126.27.58

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

Ans:533

```

* Introducing Expanded Security Maintenance for Applications.
Receive updates to over 25,000 software packages with your
Ubuntu Pro subscription. Free for personal use.

https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

165 updates can be applied immediately.
98 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Nov 15 06:41:19 2023 from 52.95.73.58
ubuntu@ip-172-26-10-113:~$ sudo docker images
REPOSITORY      TAG          IMAGE ID      CREATED        SIZE
nginx           latest       c20060033e06  2 weeks ago   187MB
tomcat          latest       fa51ad4dee22  2 weeks ago   460MB
tomcat          7            9dfd74e6bc2f  2 years ago   533MB
ubuntu@ip-172-26-10-113:~$ █

```

Ubuntu-1
13.126.27.58

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?

```

"AttachStdout": false,
"AttachStderr": false,
"ExposedPorts": {
    "8080/tcp": {}
},
"TTY": false,
"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=05AB3310949707C93A279E3D3EFE6B686867BA6 07E48665A34DCFAE522E5E
6266191C37C037D42 47309207D818FFD8CD3F83F1931D684307A10A5 541FBE7D8F78B25E055DDEE13C37038
9288584E7 61B832AC2F1C5A90F09B06A1C506407564C17A3 713DA88BE50911535FE716F5208B0AB1D63011C
7 79F7026C690BAA50B92CD8B66A3AD3F4F22C4FED 98A44C2621385CB966EBA586F72C284D751FABEE A27677
289986DB50844682F8ACB77FC2E86E29AC A9C5DF4D22E99998D9875A5110C01C5A2F6059E7 DCFD35E0BF8CA7
344752DE8B6FB21E8933C60243 F3A04C595DB5B6A5F1ECA43E3B7BBB100D811B8E F7DA48BB64BCB84ECBA7E
6935CD23C10D498E23",

```

Ubuntu-1
13.126.27.58

CATALINA_HOME=/usr/local/tomcat: Sets the Apache Tomcat installation directory to **/usr/local/tomcat**. This is where Tomcat is installed on the system.

JAVA_HOME=/usr/local/openjdk-8: This sets the Java home directory to **/usr/local/openjdk-8**, which is the installation directory for Java Development Kit (JDK) version 8.

17. Find out which port is exposed for tomcat?

Ans:8080

The screenshot shows a Windows desktop environment. On the left, a terminal window titled 'Lightsail | Global - Google Chrome' displays the output of a command-line session. The session shows system updates, Docker container information, and a table of running containers. One container named 'tomcat:7' is listed with port 8080/tcp exposed. On the right, a Microsoft Teams window is open, showing a channel named 'it is' with some messages.

```
* Introducing Expanded Security Maintenance for Applications.  
Receive updates to over 25,000 software packages with your  
Ubuntu Pro subscription. Free for personal use.  
  
https://ubuntu.com/aws/pro  
  
Expanded Security Maintenance for Applications is not enabled.  
  
165 updates can be applied immediately.  
93 of these updates are standard security updates.  
To see these additional updates run: apt list --upgradable  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
Last login: Wed Nov 15 06:47:10 2023 from 52.95.73.58  
ubuntugip-172-26-10-113:~$ sudo docker container ls  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
f954fbcc93d5d tomcat:7 "catalina.sh run" 38 minutes ago Up 38 minutes 8080/tcp  
zealous_hopper  
ubuntu@ip-172-26-10-113:~$  
  
Ubuntu-1  
13.126.27.58
```

18. Run multiple containers of tomcat on different port and access it's home page.

The screenshot shows a Windows desktop environment. On the left, a terminal window titled 'aws | Services' displays the output of a command-line session. It shows the download of a new Tomcat image, the creation of four Tomcat containers (named tomcat1 through tomcat4) with different port mappings (8081:80, 8082:80, 8083:80, 8084:80), and the execution of the 'ifconfig' command. On the right, a Microsoft Teams window is open, showing a channel named 'it is' with some messages.

```
e55c53cb9b3ca: Pull complete  
64f862abfc3c: Pull complete  
Digest: sha256:86ada4acd78ca43972ad9f31e09ef1da00cal81cc0a204e7c31dc566d1e5cd60  
Status: Downloaded newer image for tomcat:latest  
d018e8b85af91090b78e3a86695b614a142fd76654e39504072b6e8b0520fb44  
ubuntu@ip-172-31-45-234:~$ sudo docker run -itd -p 8081:80 --name=tomcat1 tomcat:7  
unknown shorthand flag: 'n' in -name=tomcat1  
See 'docker run --help'.  
ubuntu@ip-172-31-45-234:~$ sudo docker run -itd -p 8081:80 --name=tomcat1 tomcat:7  
4e16f99158ac9d84c145552c219a5a7efdd1de3506fb7dbbf8dce25dc70bbf  
ubuntu@ip-172-31-45-234:~$ sudo docker run -itd -p 8082:80 --name=tomcat2 tomcat:7  
0bef80a9bb7cf422d91e90dded0734f7c0fc4e24eddfb00d680b85acbfdf22a  
ubuntu@ip-172-31-45-234:~$ sudo docker run -itd -p 8083:80 --name=tomcat3 tomcat:7  
a668a54d9ca49c7f364255556d14c37ddc9d00e03a9e0a406401b5582d5a194  
ubuntu@ip-172-31-45-234:~$ sudo docker run -itd -p 8084:80 --name=tomcat4 tomcat:7  
c34597234a0cca30d312a39eae97ffff1b1d8b6fcc95fc59532c55f21788358f  
ubuntu@ip-172-31-45-234:~$ ifconfig  
Command 'ifconfig' not found, but can be installed with:  
sudo apt install net-tools  
ubuntu@ip-172-31-45-234:~$ sudo docker ps  
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES  
c34597234a0c tomcat:7 "catalina.sh run" About a minute ago Up About a minute 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4  
a668a54d9ca4 tomcat:7 "catalina.sh run" About a minute ago Up About a minute 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3  
0bef80a9bb7c tomcat:7 "catalina.sh run" About a minute ago Up About a minute 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2  
4e16f99158ac tomcat:7 "catalina.sh run" 2 minutes ago Up 2 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1  
d018e8b85af9 tomcat "catalina.sh run" 3 minutes ago Up 3 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determin  
ed wilbur
```

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

```
ubuntu@ip-172-31-45-234:~$ docker pull ubuntu:focal
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://<ip>/var/run/docker.sock": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-45-234:~$ sudo docker pull ubuntu:focal
focal: Pulling from library/ubuntu
96d54c3075c9: Pull complete
Digest: sha256:ed4a42283d9943135ed87d4ee34e542f7f5ad9ecf2f244870e23122f703f91c2
Status: Downloaded newer image for ubuntu:focal
docker.io/library/ubuntu:focal
ubuntu@ip-172-31-45-234:~$ sudo docker pull ubuntu:rolling
rolling: Pulling from library/ubuntu
d1cf823cf1f0: Pull complete
Digest: sha256:4c32aacdf7d1d3a29e82bee76f892ba9bb6a63f17f9327ca0d97c3d39b9b0ee
Status: Downloaded newer image for ubuntu:rolling
docker.io/library/ubuntu:rolling
ubuntu@ip-172-31-45-234:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
nginx latest c20060033e06 2 weeks ago 187MB
tomcat latest fa51ad4dee22 2 weeks ago 460MB
ubuntu rolling fe7a3960a97e 4 weeks ago 71.2MB
ubuntu focal bf40b7bc7a11 6 weeks ago 72.8MB
tomcat 7 9dfd74e6bc2f 2 years ago 533MB
ubuntu@ip-172-31-45-234:~$
```

20. Run the container of ubuntu in attached mode.

```
ubuntu@ip-172-31-45-234:~$ sudo docker container run -it ubuntu
Status: Downloaded newer image for ubuntu:rolling
docker.io/library/ubuntu:rolling
ubuntu@ip-172-31-45-234:~$ sudo docker container run -it ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
aece8493d397: Pull complete
Status: Downloaded newer image for ubuntu:latest
root@c97f7231a7ce:~$ ls
bin boot dev etc home lib lib32 lib64 libx32 media mnt opt proc root run sbin srv sys usr var
root@c97f7231a7ce:~# apt-get update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy InRelease [270 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [1009 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [17.5 MB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1202 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [1404 kB]
```

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

```

Setting up libnl-genl-3-200:amd64 (3.5.0-0.1) ...
Setting up htop (3.0.5-7build2) ...
Processing triggers for libc-bin (2.35-0ubuntu3.4) ...
root@c97f7231a7ce:/# htop
root@c97f7231a7ce:#
exit
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
c34597234a0c tomcat:7 "catalina.sh run" 13 minutes ago Up 13 minutes 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" 14 minutes ago Up 14 minutes 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a0bb7c tomcat:7 "catalina.sh run" 14 minutes ago Up 14 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" 16 minutes ago Up 16 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determined_wilbu
r
ubuntu@ip-172-31-45-234:~$ sudo docker run -itd ubuntu:rolling
82d931143e2c5d57a43e127e78404a38f7b05d7d21bc3a0f9ff9ef2bfabd83b
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82d931143e2c ubuntu:rolling "/bin/bash" 9 seconds ago Up 8 seconds
ke
c34597234a0c tomcat:7 "catalina.sh run" 14 minutes ago Up 14 minutes 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a0bb7c tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" 16 minutes ago Up 16 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determined_wilbur
ubuntu@ip-172-31-45-234:~$ 
```

22. Check how many ubuntu containers are running and stopped

Answer: 6 running and 1 stopped

```

82d931143e2c5d57a43e127e78404a38f7b05d7d21bc3a0f9ff9ef2bfabd83b
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82d931143e2c ubuntu:rolling "/bin/bash" 9 seconds ago Up 8 seconds
ke
c34597234a0c tomcat:7 "catalina.sh run" 14 minutes ago Up 14 minutes 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a0bb7c tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" 16 minutes ago Up 16 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determined_wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker ps -q
82d931143e2c
c34597234a0c
a668a54d9ca4
0bef80a0bb7c
4e16f99158ac
d018e8b85af9
ubuntu@ip-172-31-45-234:~$ sudo docker ps -aq
82d931143e2c
c97f7231a7ce
c34597234a0c
a668a54d9ca4
0bef80a0bb7c
4e16f99158ac
d018e8b85af9
ubuntu@ip-172-31-45-234:~$ 
```

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

Yes , running

```

02d931143e2c5d57a43e127e78404a38f7b05d7d21bc3a0f9ff9ef2bfabd83b
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
82d931143e2c ubuntu:rolling "/bin/bash" 9 seconds ago Up 8 seconds
ke
c34597234a0c tomcat:7 "catalina.sh run" 14 minutes ago Up 14 minutes 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a8bb7c tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" 15 minutes ago Up 15 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" 16 minutes ago Up 16 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determined
_wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker ps -q
82d931143e2c
c34597234a0c
a668a54d9ca4
0bef80a8bb7c
4e16f99158ac
d018e8b85af9
ubuntu@ip-172-31-45-234:~$ sudo docker ps -aq
82d931143e2c
c97f7231a7ce
c34597234a0c
a668a54d9ca4
0bef80a8bb7c
4e16f99158ac
d018e8b85af9
ubuntu@ip-172-31-45-234:~$ 

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:26 15-11-2023 9

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

```

a668a54d9ca4
0bef80a8bb7c
4e16f99158ac
d018e8b85af9
ubuntu@ip-172-31-45-234:~$ sudo docker logs c34597234a0c
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 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Server version name: Apache Tomcat/7.0.109
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Server built: Apr 22 2021 18:43:38 UTC
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Server version number: 7.0.109.0
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: OS Name: Linux
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: OS Version: 6.2.0-1012-aws
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Architecture: amd64
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: Java Home: /usr/local/openjdk-8/jre
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.VersionLoggerListener log
INFO: JVM Version: 1.8.0_292-b10

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:31 15-11-2023 9

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

Ans: running

```

Nov 15, 2023 8:38:09 AM org.apache.catalina.core.AprLifecycleListener lifecycleEvent
INFO: APR capabilities: IPv6 [true], sendfile [true], accept filters [false], random [true].
Nov 15, 2023 8:38:09 AM org.apache.catalina.core.AprLifecycleListener initializeSSL
INFO: OpenSSL successfully initialized [OpenSSL 1.1.1d  10 Sep 2019]
Nov 15, 2023 8:38:09 AM org.apache.coyote.AbstractProtocol init
INFO: Initializing ProtocolHandler ["http-apr-8080"]
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.Catalina load
INFO: Initialization processed in 1356 ms
Nov 15, 2023 8:38:09 AM org.apache.catalina.core.StandardService startInternal
INFO: Starting service [Catalina]
Nov 15, 2023 8:38:09 AM org.apache.catalina.core.StandardEngine startInternal
INFO: Starting Servlet Engine: Apache Tomcat/7.0.109
Nov 15, 2023 8:38:09 AM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["http-apr-8080"]
Nov 15, 2023 8:38:09 AM org.apache.catalina.startup.Catalina start
INFO: Server startup in 128 ms
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
02d931143e2c      ubuntu:rolling     "/bin/bash"        9 minutes ago     Up 9 minutes
ike
c34597234a0c      tomcat:7          "catalina.sh run"  23 minutes ago    Up 23 minutes   8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp
a668a54d9ca4      tomcat:7          "catalina.sh run"  24 minutes ago    Up 24 minutes   8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp
0bef80a0bb7c      tomcat:7          "catalina.sh run"  24 minutes ago    Up 24 minutes   8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp
4e16f99158ac      tomcat:7          "catalina.sh run"  25 minutes ago    Up 25 minutes   8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp
d018e8b85af9      tomcat           "catalina.sh run"  26 minutes ago    Up 26 minutes   8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp
d_wilbur
ubuntu@ip-172-31-45-234:~$ 

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:32 15-11-2023 9

26. Login as root user in ubuntu container

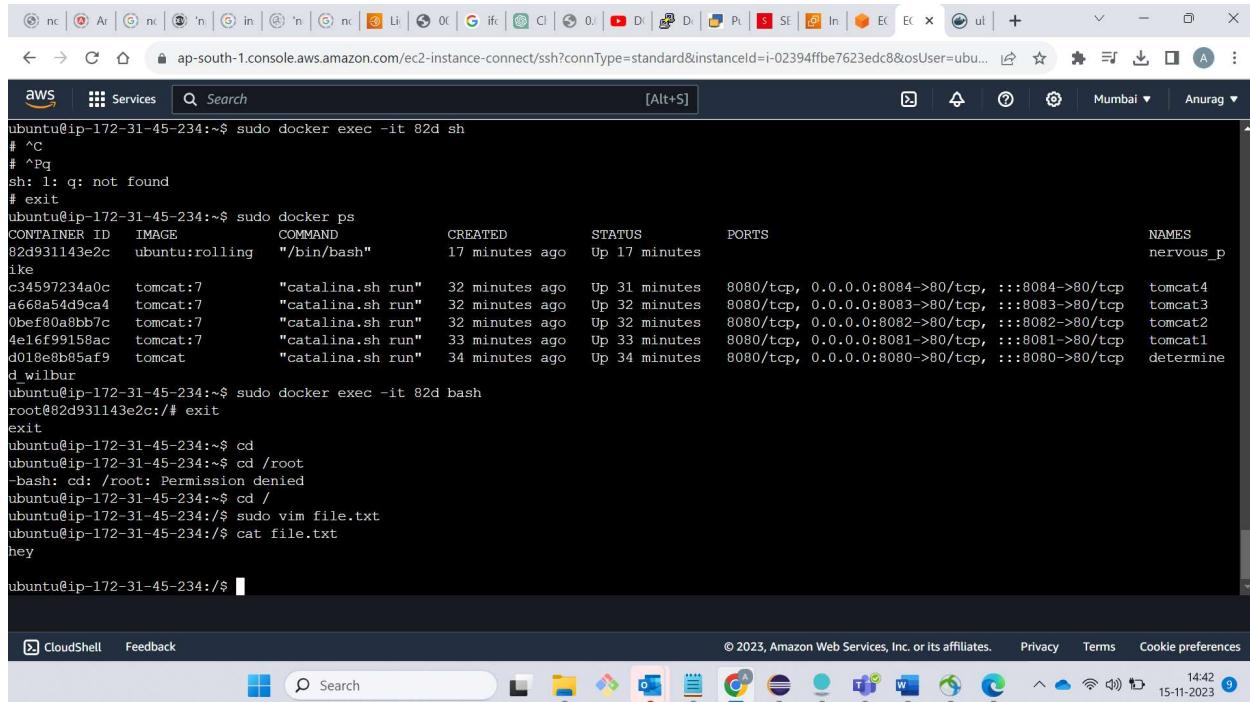
```

ubuntu@ip-172-31-45-234:~$ sudo docker container run exec -it ubuntu:focal sh
Unable to find image 'exec:latest' locally
docker: Error response from daemon: pull access denied for exec, repository does not exist or may require 'docker login': denied: requested access to the resource is denied.
See 'docker run --help'.
ubuntu@ip-172-31-45-234:~$ sudo docker container run exec -it bf4 sh
Unable to find image 'exec:latest' locally
docker: Error response from daemon: pull access denied for exec, repository does not exist or may require 'docker login': denied: requested access to the resource is denied.
See 'docker run --help'.
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it 82d sh
# ^C
# ^Pq
sh: 1: q: not found
# exit
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
02d931143e2c      ubuntu:rolling     "/bin/bash"        17 minutes ago     Up 17 minutes
ike
c34597234a0c      tomcat:7          "catalina.sh run"  32 minutes ago    Up 31 minutes   8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp
a668a54d9ca4      tomcat:7          "catalina.sh run"  32 minutes ago    Up 32 minutes   8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp
0bef80a0bb7c      tomcat:7          "catalina.sh run"  32 minutes ago    Up 32 minutes   8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp
4e16f99158ac      tomcat:7          "catalina.sh run"  33 minutes ago    Up 33 minutes   8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp
d018e8b85af9      tomcat           "catalina.sh run"  34 minutes ago    Up 34 minutes   8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp
d_wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it 82d bash
root@02d931143e2c:/# 

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:40 15-11-2023 9

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

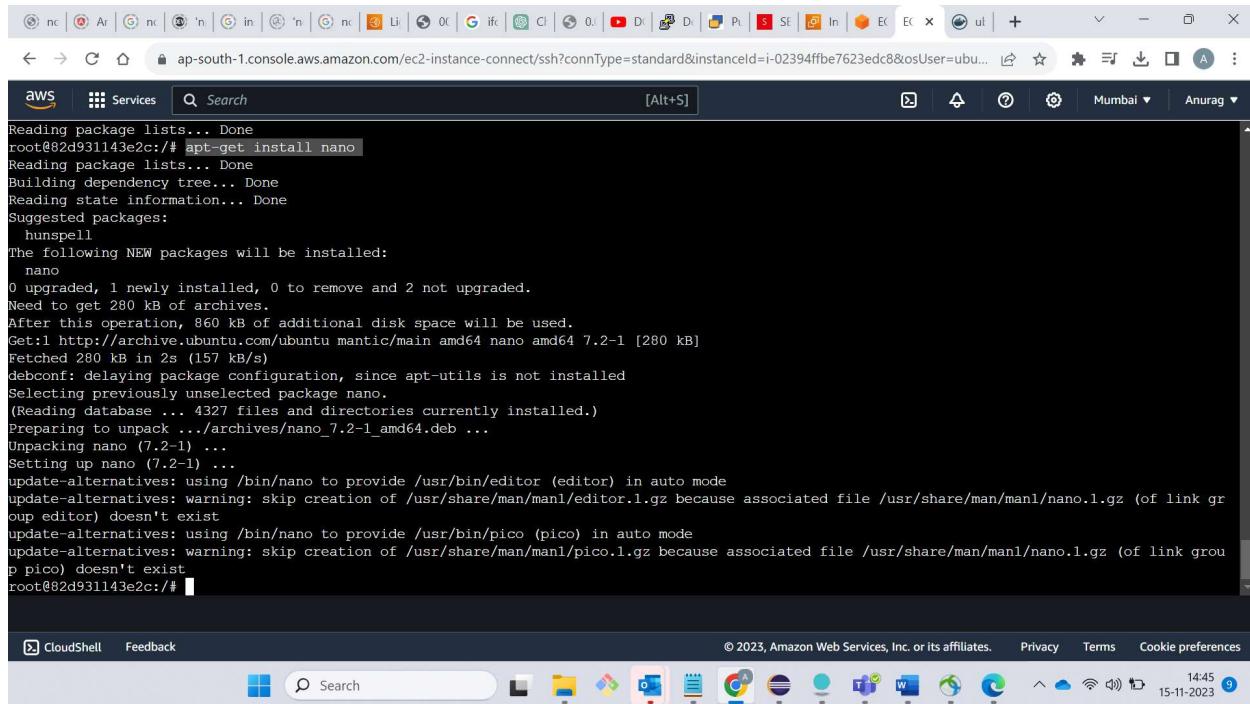


```
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it 82d sh
# ^C
# ^Pq
sh: 1: q: not found
# exit
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
82d931143e2c        ubuntu:rolling     "/bin/bash"        17 minutes ago   Up 17 minutes
                                                               NAMES
                                                               nervous_p
ike
c34597234a0c        tomcat:7          "catalina.sh run"  32 minutes ago   Up 31 minutes    8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp
a668a54d9ca4        tomcat:7          "catalina.sh run"  32 minutes ago   Up 32 minutes    8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp
0bef80a8bb7c        tomcat:7          "catalina.sh run"  32 minutes ago   Up 32 minutes    8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp
4e16f99158ac        tomcat:7          "catalina.sh run"  33 minutes ago   Up 33 minutes    8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp
d018e0bb85af9       tomcat           "catalina.sh run"  34 minutes ago   Up 34 minutes    8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp
d_wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it 82d bash
root@82d931143e2c:/# exit
exit
ubuntu@ip-172-31-45-234:~$ cd
ubuntu@ip-172-31-45-234:~$ cd /root
-bash: cd: /root: Permission denied
ubuntu@ip-172-31-45-234:~$ cd /
ubuntu@ip-172-31-45-234:/$ sudo vim file.txt
ubuntu@ip-172-31-45-234:/$ cat file.txt
hey

ubuntu@ip-172-31-45-234:/$
```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:42 15-11-2023 9

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



```
Reading package lists... Done
root@82d931143e2c:/# apt-get install nano
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  hunspell
The following NEW packages will be installed:
  nano
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 280 kB of archives.
After this operation, 860 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu mantic/main amd64 nano amd64 7.2-1 [280 kB]
Fetched 280 kB in 2 s (157 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package nano.
(Reading database ... 4327 files and directories currently installed.)
Preparing to unpack .../archives/nano_7.2-1_amd64.deb ...
Unpacking nano (7.2-1) ...
Setting up nano (7.2-1) ...
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@82d931143e2c:/#
```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:45 15-11-2023 9

```

CPU [ 0.0% ] Tasks: 3, 0 thr, 0 kthr, 1 running
Mem [ 522M/950M ] Load average: 0.16 0.07 0.03
Swp [ OK/ON ] Uptime: 00:45:16

Main I/O PID USER PRI NI VIRT RES SHR S CPU% MEM% TIME+ Command
  1 root    20  0 4556 2560 2048 S  0.0  0.3 0:00.03 /bin/bash
  24 root   20  0 4556 2816 2304 S  0.0  0.3 0:00.03 bash
 339 root   20  0 4912 3456 2944 R  0.0  0.4 0:00.00 htop

F1 Help F2 Setup F3 Search F4 Select F5 Tree F6 Sort B F7 Slice F8 Dice F9 Kill F10 Built

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:46 15-11-2023 9

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

```

Get:3 http://archive.ubuntu.com/ubuntu mantic/main amd64 libnl-genl-3-200 amd64 3.7.0-0.2 [12.3 kB]
Get:4 http://archive.ubuntu.com/ubuntu mantic/main amd64 htop amd64 3.2.2-2 [158 kB]
Fetched 239 kB in 1s (187 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package sgml-base.
(Reading database ... 4400 files and directories currently installed.)
Preparing to unpack .../sgml-base_1.31_all.deb ...
Unpacking sgml-base (1.31) ...
Selecting previously unselected package libnl-3-200:amd64.
Preparing to unpack .../libnl-3-200_3.7.0-0.2_amd64.deb ...
Unpacking libnl-3-200:amd64 (3.7.0-0.2) ...
Selecting previously unselected package libnl-genl-3-200:amd64.
Preparing to unpack .../libnl-genl-3-200_3.7.0-0.2_amd64.deb ...
Unpacking libnl-genl-3-200:amd64 (3.7.0-0.2) ...
Selecting previously unselected package htop.
Preparing to unpack .../htop_3.2.2-2_amd64.deb ...
Unpacking htop (3.2.2-2) ...
Setting up sgml-base (1.31) ...
Setting up libnl-3-200:amd64 (3.7.0-0.2) ...
Setting up libnl-genl-3-200:amd64 (3.7.0-0.2) ...
Processing triggers for libc-bin (2.38-1ubuntu6) ...
root@82d931143e2c:/# htop
root@82d931143e2c:/# ^C
root@82d931143e2c:/# exit
exit
ubuntu@ip-172-31-45-234:/$

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:47 15-11-2023 9

30. Check if the ubuntu container is running.

Yes running

```

Unpacking libnl-3-200:amd64 (3.7.0-0.2) ...
Selecting previously unselected package libnl-genl-3-200:amd64.
Preparing to unpack .../libnl-genl-3-200_3.7.0-0.2_amd64.deb ...
Unpacking libnl-genl-3-200:amd64 (3.7.0-0.2) ...
Selecting previously unselected package htop.
Preparing to unpack .../htop_3.2.2-2_amd64.deb ...
Unpacking htop (3.2.2-2) ...
Setting up sgml-base (1.31) ...
Setting up libnl-3-200:amd64 (3.7.0-0.2) ...
Setting up libnl-genl-3-200:amd64 (3.7.0-0.2) ...
Setting up htop (3.2.2-2) ...
Processing triggers for libc-bin (2.38-1ubuntu6) ...
root@ip-172-31-45-234:/# htop
root@ip-172-31-45-234:/# ^C
root@ip-172-31-45-234:/# exit
exit
ubuntu@ip-172-31-45-234:/$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
02d931143e2c        ubuntu:rolling     "/bin/bash"        25 minutes ago   Up 25 minutes
                                                               NAMES
                                                               nervous_p
ike
c34597234a0c        tomcat:7          "catalina.sh run"  39 minutes ago   Up 39 minutes
a668a54d9ca4        tomcat:7          "catalina.sh run"  40 minutes ago   Up 40 minutes
0bef80a8bb7c        tomcat:7          "catalina.sh run"  40 minutes ago   Up 40 minutes
4e16f99158ac        tomcat:7          "catalina.sh run"  40 minutes ago   Up 40 minutes
d018e8b85af9        tomcat           "catalina.sh run"  41 minutes ago   Up 41 minutes
                                                               NAMES
                                                               tomcat4
                                                               tomcat3
                                                               tomcat2
                                                               tomcat1
                                                               determine
d_wilbur
ubuntu@ip-172-31-45-234:/$

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:47 15-11-2023 9

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

```

root@ip-172-31-45-234:/# ^C
root@ip-172-31-45-234:/# exit
exit
ubuntu@ip-172-31-45-234:/$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
02d931143e2c        ubuntu:rolling     "/bin/bash"        25 minutes ago   Up 25 minutes
                                                               NAMES
                                                               nervous_p
ike
c34597234a0c        tomcat:7          "catalina.sh run"  39 minutes ago   Up 39 minutes
a668a54d9ca4        tomcat:7          "catalina.sh run"  40 minutes ago   Up 40 minutes
0bef80a8bb7c        tomcat:7          "catalina.sh run"  40 minutes ago   Up 40 minutes
4e16f99158ac        tomcat:7          "catalina.sh run"  40 minutes ago   Up 40 minutes
d018e8b85af9        tomcat           "catalina.sh run"  41 minutes ago   Up 41 minutes
                                                               NAMES
                                                               tomcat4
                                                               tomcat3
                                                               tomcat2
                                                               tomcat1
                                                               determine
d_wilbur
ubuntu@ip-172-31-45-234:/$ sudo docker container run -itd --name=ubuntuRolling ubuntu:rolling
bc81562d31ce760b1e749f6d8d0a6bf551199dc4d79a38d585af07767cfa97
ubuntu@ip-172-31-45-234:/$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
bc81562d31ce        ubuntu:rolling     "/bin/bash"        14 seconds ago   Up 13 seconds
                                                               NAMES
                                                               ubuntuRol
ling
02d931143e2c        ubuntu:rolling     "/bin/bash"        26 minutes ago   Up 26 minutes
                                                               NAMES
                                                               nervous_p
ike
c34597234a0c        tomcat:7          "catalina.sh run"  41 minutes ago   Up 41 minutes
a668a54d9ca4        tomcat:7          "catalina.sh run"  41 minutes ago   Up 41 minutes
0bef80a8bb7c        tomcat:7          "catalina.sh run"  42 minutes ago   Up 42 minutes
4e16f99158ac        tomcat:7          "catalina.sh run"  42 minutes ago   Up 42 minutes
d018e8b85af9        tomcat           "catalina.sh run"  43 minutes ago   Up 43 minutes
                                                               NAMES
                                                               tomcat4
                                                               tomcat3
                                                               tomcat2
                                                               tomcat1
                                                               determine
d_wilbur

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:49 15-11-2023 9

32. Login as a root user

```

aws Services Search [Alt+S] Mumbai Anurag
02d931143e2c  ubuntu:rolling  "/bin/bash"    25 minutes ago Up 25 minutes nervous_p
ike
c34597234a0c  tomcat:7      "catalina.sh run"  39 minutes ago Up 39 minutes  8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp  tomcat4
a668a54d9ca4  tomcat:7      "catalina.sh run"  40 minutes ago Up 40 minutes  8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp  tomcat3
0bef80a0bb7c  tomcat:7      "catalina.sh run"  40 minutes ago Up 40 minutes  8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp  tomcat2
4e16f99158ac  tomcat:7      "catalina.sh run"  40 minutes ago Up 40 minutes  8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp  tomcat1
d018e8b85af9  tomcat      "catalina.sh run"  41 minutes ago Up 41 minutes  8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp  determine
_d_wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker container run -itd --name=ubuntuRolling ubuntu:rolling
bc81562d31ce760b1e749f6d80aebf55119dc4ad79a38d585af07767cf697
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
bc81562d31ce ubuntu:rolling "/bin/bash" 14 seconds ago Up 13 seconds
ubuntuRolling
02d931143e2c ubuntu:rolling "/bin/bash" 26 minutes ago Up 26 minutes nervous_p
ike
c34597234a0c tomcat:7 "catalina.sh run" 41 minutes ago Up 41 minutes 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" 41 minutes ago Up 41 minutes 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a0bb7c tomcat:7 "catalina.sh run" 42 minutes ago Up 42 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" 42 minutes ago Up 42 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" 43 minutes ago Up 43 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determine
_d_wilbur
ubuntu@ip-172-31-45-234:~$ docker exec -it bc81 bash
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/bc81/json": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it bc81 bash
root@bc81562d31ce:#

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:54 15-11-2023

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.

```

aws Services Search [Alt+S] Mumbai Anurag
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
bc81562d31ce ubuntu:rolling "/bin/bash" 14 seconds ago Up 13 seconds
ubuntuRolling
02d931143e2c ubuntu:rolling "/bin/bash" 26 minutes ago Up 26 minutes nervous_p
ike
c34597234a0c tomcat:7 "catalina.sh run" 41 minutes ago Up 41 minutes 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" 41 minutes ago Up 41 minutes 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a0bb7c tomcat:7 "catalina.sh run" 42 minutes ago Up 42 minutes 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" 42 minutes ago Up 42 minutes 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" 43 minutes ago Up 43 minutes 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determine
_d_wilbur
ubuntu@ip-172-31-45-234:~$ docker exec -it bc81 bash
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/bc81/json": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it bc81 bash
root@bc81562d31ce:~$ ^C
root@bc81562d31ce:~$ exit
exit
ubuntu@ip-172-31-45-234:~$ docker kill bc81
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/bc81/kill": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-45-234:~$ sudo docker kill bc81
bc81
ubuntu@ip-172-31-45-234:~$ sudo docker kill 82d
82d
ubuntu@ip-172-31-45-234:~$ 

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 14:57 15-11-2023

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

Ans:yes

The screenshot shows a terminal window within the AWS CloudShell interface. The user has run several Docker commands:

```
ubuntu@ip-172-31-45-234:/$ docker kill bc81
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://$var$run$docker.sock/v1.24/containers/bc81/kill": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-45-234:/$ sudo docker kill bc81
bc81
ubuntu@ip-172-31-45-234:/$ sudo docker kill 82d
82d
ubuntu@ip-172-31-45-234:/$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED            STATUS              PORTS
NAMES
bc81562d31ce      ubuntu:rolling     "/bin/bash"        9 minutes ago     Exited (137) 2 minutes ago
ubuntuRolling
82d931143e2c      ubuntu:rolling     "/bin/bash"        36 minutes ago    Exited (137) 2 minutes ago
nervous_pike
c97f7231a7ce      ubuntu           "/bin/bash"        42 minutes ago    Exited (0) 37 minutes ago
cranky_bassi
c34597234a0c      tomcat:7         "catalina.sh run"  51 minutes ago    Up 50 minutes          8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp
p_                 tomcat4          "catalina.sh run"  51 minutes ago    Up 51 minutes          8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp
p_                 tomcat3          "catalina.sh run"  51 minutes ago    Up 51 minutes          8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp
p_                 tomcat2          "catalina.sh run"  52 minutes ago    Up 52 minutes          8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp
p_                 tomcat1          "catalina.sh run"  53 minutes ago    Up 53 minutes          8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp
d018e8b85af9      tomcat          "catalina.sh run"  53 minutes ago    Up 53 minutes
p_                 determined_wilbur
ubuntu@ip-172-31-45-234:/$
```

Below the terminal, the AWS CloudShell interface includes a search bar, a toolbar with various icons, and a status bar showing the date and time (15-11-2023 14:59).

35. Create an Image out of the existing container.

```

ubuntu@ip-172-31-45-234:~$ sudo docker container commit -m "Updated Ubuntu" 82d ubuntu:anurag
sha256:02fea5638cad0b6e45dc0d8f87b3832a74547d53f9ac65212769de0lef2c330
ubuntu@ip-172-31-45-234:~$ sudo docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
ubuntu anurag 82f6a5638cad 12 seconds ago 109MB
nginx latest c20060033e06 2 weeks ago 187MB
tomcat latest fa51ad4dec22 2 weeks ago 460MB
ubuntu rolling fe7a3960a97e 4 weeks ago 71.2MB
ubuntu latest e4c58958181a 5 weeks ago 77.0MB
ubuntu focal bf40b7bc7a11 6 weeks ago 72.0MB
tomcat 7 9df7d74e6bc2f 2 years ago 533MB
ubuntu@ip-172-31-45-234:~$ 

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 15:03 15-11-2023 9

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.

```

ubuntu@ip-172-31-45-234:~$ sudo docker exec -it 0lf bash
Error response from daemon: Container 01f77814ab0c460603605e64001c3e1df90d008bf7d4ec0b76968743ce6b1635 is not running
ubuntu@ip-172-31-45-234:~$ sudo docker container start -it 0lf bash
unknown shorthand flag: 't' in -t
See 'docker container start --help'.
ubuntu@ip-172-31-45-234:~$ sudo docker container start -i 0lf bash
you cannot start and attach multiple containers at once
ubuntu@ip-172-31-45-234:~$ docker ps
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/json": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-45-234:~$ sudo docker p
docker: 'p' is not a docker command.
See 'docker --help'.
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
c34597234a0c tomcat:7 "catalina.sh run" About an hour ago Up About an hour 8080/tcp, 0.0.0.0:8084->80/tcp, :::8084->80/tcp tomcat4
a668a54d9ca4 tomcat:7 "catalina.sh run" About an hour ago Up About an hour 8080/tcp, 0.0.0.0:8083->80/tcp, :::8083->80/tcp tomcat3
0bef80a8bb7c tomcat:7 "catalina.sh run" About an hour ago Up About an hour 8080/tcp, 0.0.0.0:8082->80/tcp, :::8082->80/tcp tomcat2
4e16f99158ac tomcat:7 "catalina.sh run" About an hour ago Up About an hour 8080/tcp, 0.0.0.0:8081->80/tcp, :::8081->80/tcp tomcat1
d018e8b85af9 tomcat "catalina.sh run" About an hour ago Up About an hour 8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp determine_d_wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker container start 0lf
0lf
ubuntu@ip-172-31-45-234:~$ sudo docker exec -it 0lf bash
root@01f77814ab0c:~# ls
bin boot dev etc file.txt home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@01f77814ab0c:~# 

```

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 15:14 15-11-2023 9

The screenshot shows a terminal window titled "aws" with the tab "Services" selected. The search bar contains "Search". The command history and output are as follows:

```
d018e0b85af9 tomcat      "catalina.sh run"  About an hour ago  Up About an hour  8080/tcp, 0.0.0.0:8080->80/tcp, :::8080->80/tcp  det ▾
ermited wilbur
ubuntu@ip-172-31-45-234:~$ sudo docker rm -f $(docker ps -aq)
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.24/containers/json?all=1": dial unix /var/run/docker.sock: connect: permission denied
"docker rm" requires at least 1 argument.
See 'docker rm --help'.

Usage: docker rm [OPTIONS] CONTAINER [CONTAINER...]

Remove one or more containers
ubuntu@ip-172-31-45-234:~$ sudo docker rm -f $(sudo docker ps -aq)
4ac9ccb03d71c
01f7f7814ab0c
bc81562d31ce
82d931143e2c
c97f7231a7ce
c34597234a0c
a668a54d9ca4
0bef80a8bb7c
4e16f99158ac
d018e0b85af9
ubuntu@ip-172-31-45-234:~$ sudo docker ps
CONTAINER ID   IMAGE      COMMAND   CREATED     STATUS      PORTS      NAMES
ubuntu@ip-172-31-45-234:~$ sudo docker ps -a
CONTAINER ID   IMAGE      COMMAND   CREATED     STATUS      PORTS      NAMES
ubuntu@ip-172-31-45-234:~$
```

At the bottom of the terminal window, there is a toolbar with icons for CloudShell, Feedback, Search, and various system utilities like Task View, File Explorer, and Taskbar.