Docker Task -3

Creating EC2 Instance:
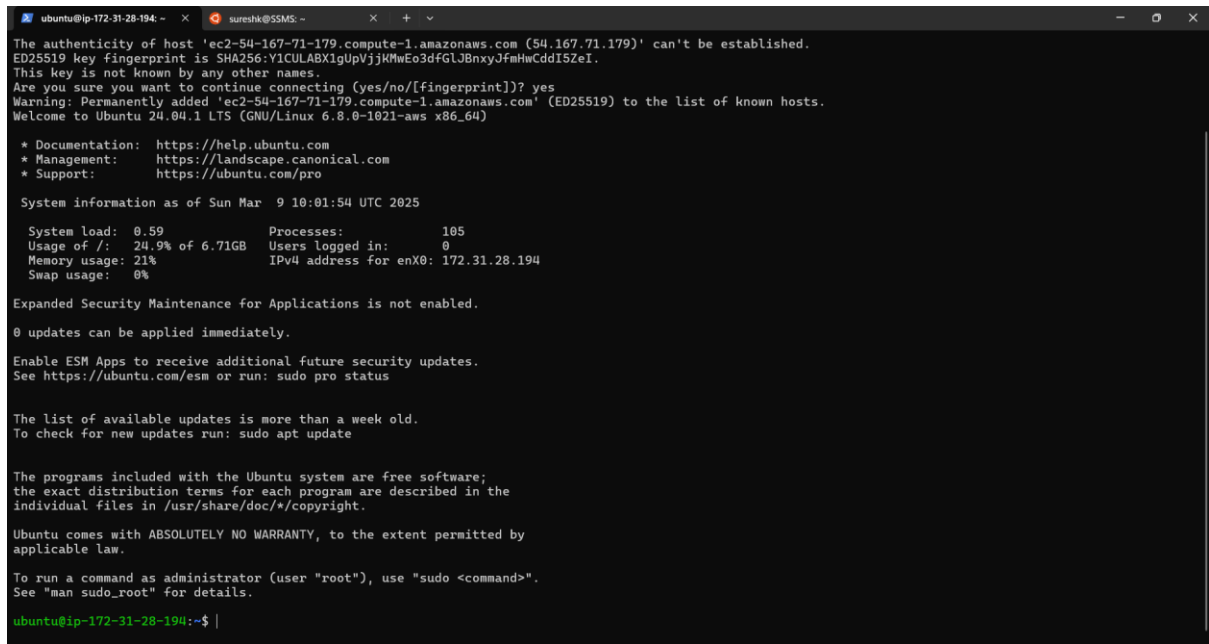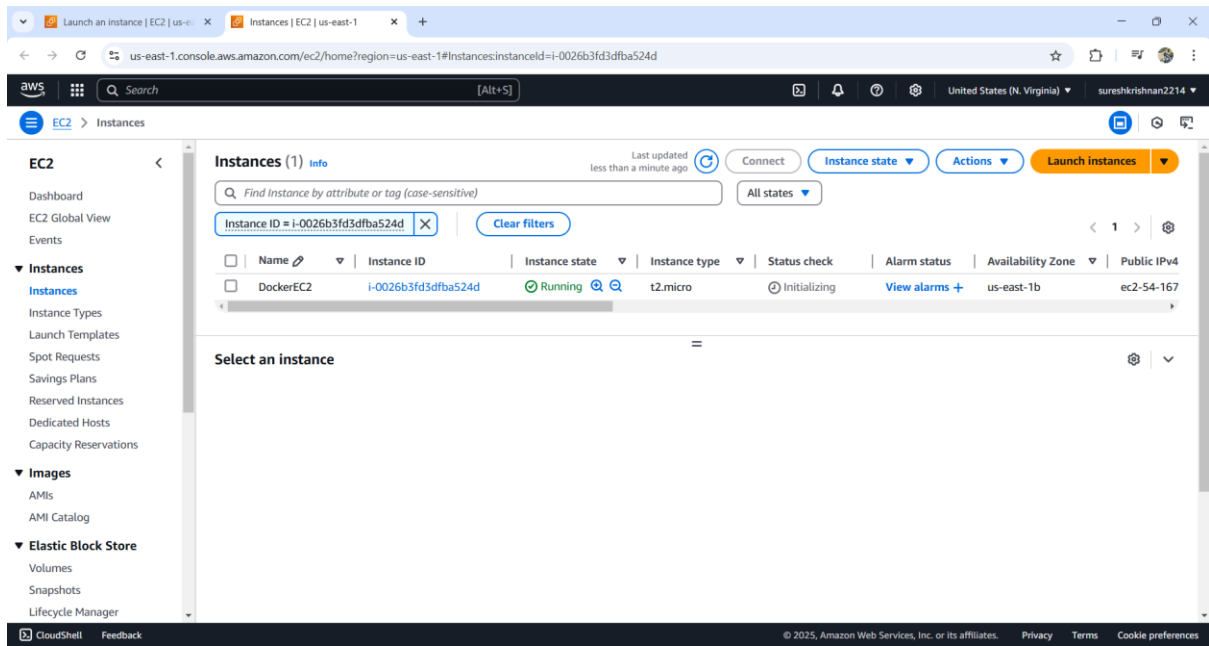
Installing Docker & Compose:


```
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [151 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1036 kB]
Get:18 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [128 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [260 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [364 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [19.9 kB]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [754 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [151 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [30.1 kB]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [5884 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [552 B]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]
Get:31 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [14.2 kB]
Get:32 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [12.1 kB]
Get:33 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [20.0 kB]
Get:34 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1104 B]
Get:35 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [212 B]
Get:36 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [8988 B]
Get:37 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]
Get:38 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:39 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:40 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [822 kB]
Get:41 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [177 kB]
Get:42 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.0 kB]
Get:43 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [13.5 kB]
Get:44 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [719 kB]
Get:45 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [143 kB]
Get:46 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:47 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [26.2 kB]
Get:48 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [4892 B]
Get:49 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]
Get:50 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [356 B]
Fetched 32.7 MB in 6s (5485 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
134 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-28-194:~$ sudo apt install -y docker.io docker-compose
```



```
Unpacking docker.io (26.1.3-0ubuntu1~24.04.1) ...
Selecting previously unselected package ubuntu-fan.
Preparing to unpack .../15-ubuntu-fan_0.12.16_all.deb ...
Unpacking ubuntu-fan (0.12.16) ...
Setting up python3-dotenv (1.0.1-1) ...
Setting up python3-texttable (1.6.7-1) ...
Setting up python3-docopt (0.6.2-6) ...
Setting up dnsmasq-base (2.90-2build2) ...
Setting up runc (1.1.12-0ubuntu3.1) ...
Setting up dns-root-data (2024071801~ubuntu0.24.04.1) ...
Setting up bridge-utils (1.7.1-1ubuntu2) ...
Setting up pigz (2.8-1) ...
Setting up containerd (1.7.24-0ubuntu1~24.04.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /usr/lib/systemd/system/containerd.service.
Setting up python3-websocket (1.7.0-1) ...
Setting up python3-dockerpty (0.4.1-5) ...
Setting up ubuntu-fan (0.12.16) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /usr/lib/systemd/system/ubuntu-fan.service.
Setting up python3-docker (5.0.3-1ubuntu1.1) ...
Setting up docker.io (26.1.3-0ubuntu1~24.04.1) ...
info: Selecting GID from range 100 to 999 ...
info: Adding group `docker' (GID 113) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /usr/lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /usr/lib/systemd/system/docker.socket.
Setting up python3-compose (1.29.2-6ubuntu1) ...
Setting up docker-compose (1.29.2-6ubuntu1) ...
Processing triggers for dbus (1.14.10-4ubuntu4.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-28-194:~$
```

Creating a custom Nginx Docker Image:


```
ubuntu@ip-172-31-28-194:~$ mkdir nginx-custom && cd nginx-custom
ubuntu@ip-172-31-28-194:~/nginx-custom$
```

Creating a Docker file:


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ vi Dockerfile
```



```
ubuntu@ip-172-31-28-194:~/nginx-custom$ vi Dockerfile
ubuntu@ip-172-31-28-194:~/nginx-custom$ cat Dockerfile
FROM nginx:latest
COPY custom-index.html /usr/share/nginx/html/index.html

ubuntu@ip-172-31-28-194:~/nginx-custom$
```

Creating a custom HTML file:


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ vi Dockerfile
ubuntu@ip-172-31-28-194:~/nginx-custom$ cat Dockerfile
FROM nginx:latest
COPY custom-index.html /usr/share/nginx/html/index.html

ubuntu@ip-172-31-28-194:~/nginx-custom$ echo "<h1>Welcome to Custom Nginx</h1>" > custom-index.html
```

Build & Push Docker Image to Docker Hub:

Build the Docker Image:


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ docker build -t your-dockerhub-username/nginx-custom .
```



```
ubuntu@ip-172-31-28-194:~/nginx-custom$ sudo docker build -t your-dockerhub-username/nginx-custom .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  3.072kB
Step 1/2 : FROM nginx:latest
 ---> b52e0b094bc0
Step 2/2 : COPY custom-index.html /usr/share/nginx/html/index.html
 ---> Using cache
 ---> b5f4dff2b318
Successfully built b5f4dff2b318
Successfully tagged your-dockerhub-username/nginx-custom:latest
ubuntu@ip-172-31-28-194:~/nginx-custom$
```

Pushing the Image to Docker Hub:


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ docker tag nginx-custom sureshkrishnan2214/nginx-custom
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Post "http://%2Fvar%2Frun%2Fdocker.sock/v1.45/images/n
ginx-custom/tag?repo=sureshkrishnan2214%2Fnginx-custom&tag=latest": dial unix /var/run/docker.sock: connect: permission denied
ubuntu@ip-172-31-28-194:~/nginx-custom$ sudo docker tag nginx-custom sureshkrishnan2214/nginx-custom
ubuntu@ip-172-31-28-194:~/nginx-custom$ sudo docker push sureshkrishnan2214/nginx-custom
Using default tag: latest
The push refers to repository [docker.io/sureshkrishnan2214/nginx-custom]
559fba3f4146: Pushed
55e9644f21c3: Pushed
7d22e2347c12: Pushed
f6d5815f290e: Pushed
791f0a07985c: Pushed
cabea05c000e: Pushed
c68632c455ae: Pushed
5f1ee22ffb5e: Pushed
latest: digest: sha256:0ac1eb5916259ba2fcb8aa964d22c98c0074dd4ad12e631cdacee54a9f08f590 size: 1985
ubuntu@ip-172-31-28-194:~/nginx-custom$
```

Creating a Docker Compose File:


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ vi docker-compose.yml
```
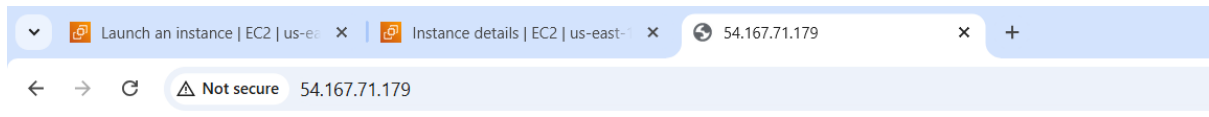


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ vi docker-compose.yml
ubuntu@ip-172-31-28-194:~/nginx-custom$ "docker-compose.yml" 9L, 174B written
ubuntu@ip-172-31-28-194:~/nginx-custom$ cat docker-compose.yml
version: '3'
services:
  nginx:
    image: nginx-custom sureshkrishnan2214/nginx-custom
    ports:
      - "80:80"
    volumes:
      - /var/opt/nginx:/usr/share/nginx/html

ubuntu@ip-172-31-28-194:~/nginx-custom$
```

Deploying Nginx using Docker Compose:


```
ubuntu@ip-172-31-28-194:~/nginx-custom$ sudo docker-compose up -d
Creating nginx-custom_nginx_1 ... done
ubuntu@ip-172-31-28-194:~/nginx-custom$
```



```
ubuntu@ip-172-31-28-194:~/nginx-custom$ sudo docker-compose up -d
Creating nginx-custom_nginx_1 ... done
ubuntu@ip-172-31-28-194:~/nginx-custom$ sudo docker ps
CONTAINER ID   IMAGE                               COMMAND               CREATED         STATUS              PORTS                                     NAMES
83c0fefc3933   sureshkrishnan2214/nginx-custom    "/docker-entrypoint._"   About a minute ago   Up About a minute   0.0.0.0:80->80/tcp, :::80->80/tcp    nginx
-custom_nginx_1
ubuntu@ip-172-31-28-194:~/nginx-custom$
```

Output of the Index.html:

Welcome to Custom Nginx