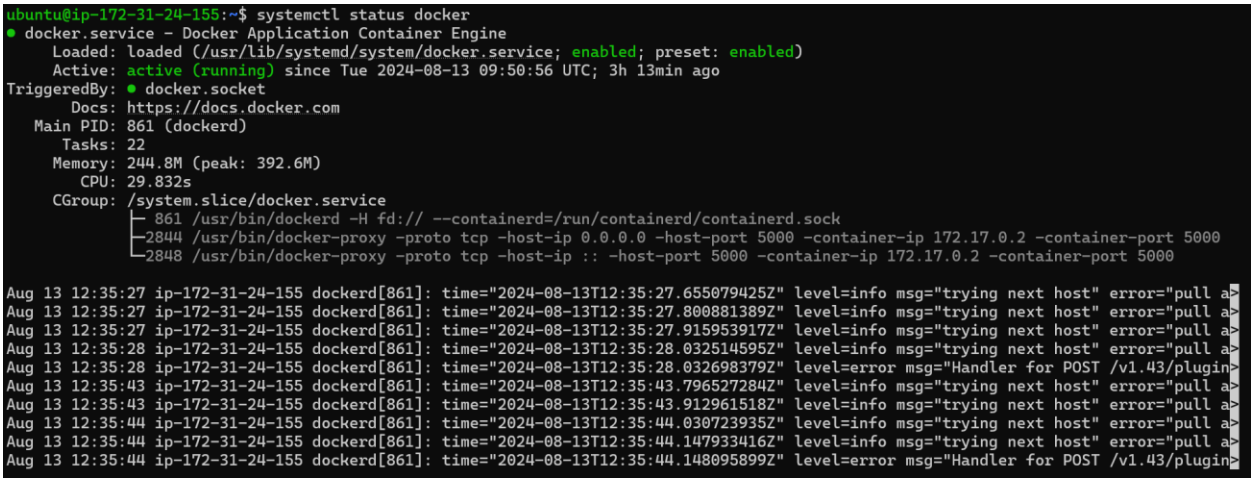
Docker:

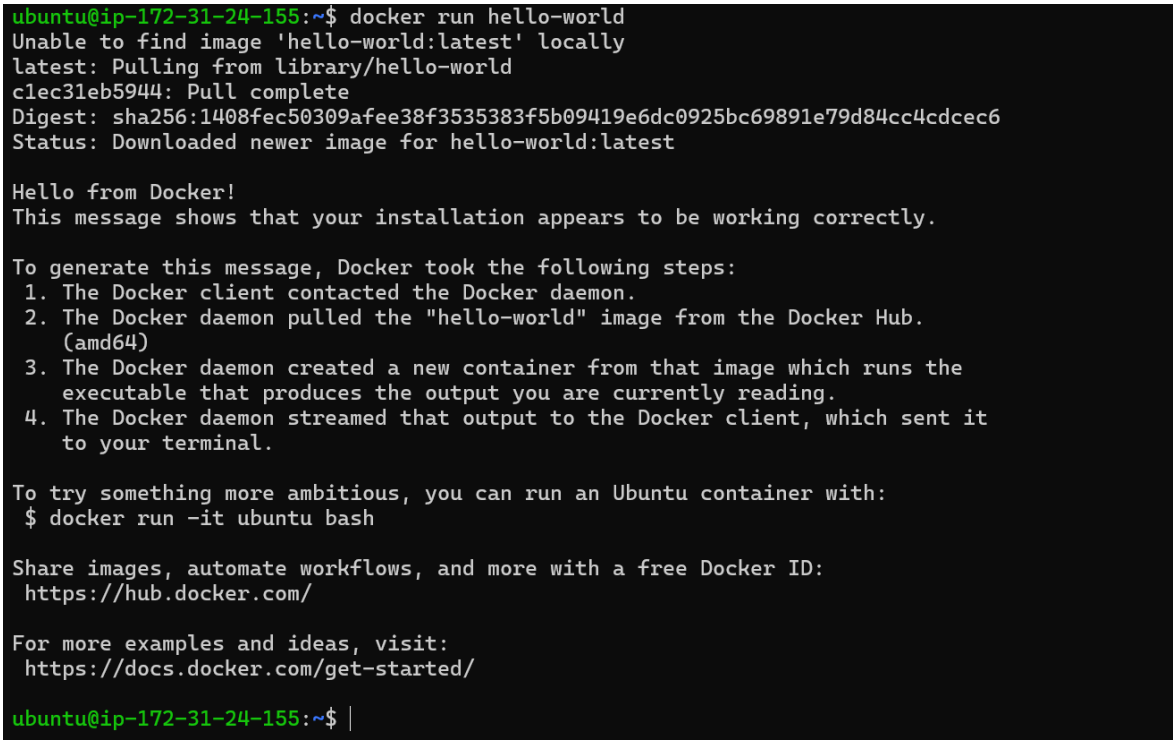
It is a platform that allows package applications and their dependencies into standardized units called containers.

Tasks

As you have already installed docker in previous days tasks, now is the time to run Docker commands.

- **a. Use the docker run command to start a new container and interact with it through the command line. [Hint: docker run hello-world]**





- **b. Use the docker inspect command to view detailed information about a container or image.**

```
ubuntu@ip-172-31-24-155:~$ docker images
REPOSITORY    TAG         IMAGE ID       CREATED             SIZE
multistage    latest      c11e8efb6d09   About an hour ago   151MB
python-full   latest      fa422dafd468   About an hour ago   1.02GB
python        3.11-slim   10f461201cdb   2 weeks ago         130MB
python        3.11        dbb93f5d8e5a   2 weeks ago         1.01GB
hello-world   latest      d2c94e258dcb   15 months ago       13.3kB
ubuntu@ip-172-31-24-155:~$ docker inspect hello-world
[
    {
        "Id": "sha256:d2c94e258dcb3c5ac2798d32e1249e42ef01cba4841c2234249495f87264ac5a",
        "RepoTags": [
            "hello-world:latest"
        ],
        "RepoDigests": [
            "hello-world@sha256:1408fec50309afee38f3535383f5b09419e6dc0925bc69891e79d84cc4cdcec6"
        ],
        "Parent": "",
        "Comment": "buildkit.dockerfile.v0",
        "Created": "2023-05-02T16:49:27Z",
        "Container": "",
        "ContainerConfig": {
            "Hostname": "",
            "Domainname": "",
            "User": "",
            "AttachStdin": false,
            "AttachStdout": false,
            "AttachStderr": false,
            "Tty": false,
            "OpenStdin": false,
            "StdinOnce": false,
            "Env": null,
            "Cmd": null,
```

- **c. Use the docker port command to list the port mappings for a container.**

```
ubuntu@ip-172-31-24-155:~$ docker ps
CONTAINER ID   IMAGE               COMMAND           CREATED          STATUS          PORTS                                       NAM
ES
6ee75a598784   multistage:latest   "python app.py"   50 minutes ago   Up 50 minutes   0.0.0.0:5000->5000/tcp, :::5000->5000/tcp   fla
sk-app
ubuntu@ip-172-31-24-155:~$ docker port flask-app
5000/tcp -> 0.0.0.0:5000
5000/tcp -> [::]:5000
ubuntu@ip-172-31-24-155:~$ |
```

- Use the docker stats command to view resource usage statistics for one or more containers.

```
ubuntu@ip-172-31-24-155:~$ docker stats flask-app
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.04%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.04%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.12%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.12%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.12%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.12%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
6ee75a598784   flask-app   0.13%     46.37MiB / 957.4MiB   4.84%     1.91kB / 704B    0B / 3.97MB   3
CONTAINER ID   NAME        CPU %     MEM USAGE / LIMIT     MEM %     NET I/O          BLOCK I/O     PIDS
```

- **Use the docker top command to view the processes running inside a container.**

```
ubuntu@ip-172-31-24-155:~$ docker ps
CONTAINER ID   IMAGE              COMMAND          CREATED         STATUS         PORTS                                       NAM
ES
6ee75a598784   multistage:latest   "python app.py"   58 minutes ago   Up 58 minutes   0.0.0.0:5000->5000/tcp, :::5000->5000/tcp   fla
sk-app
ubuntu@ip-172-31-24-155:~$ docker top flask-app
UID                 PID                 PPID                C                   STIME               TTY                 TIME
      CMD
root                2901                2872                0                   12:28               ?                   00:00:00
      python app.py
root                2926                2901                0                   12:28               ?                   00:00:04
      /usr/local/bin/python app.py
ubuntu@ip-172-31-24-155:~$
```

- **Use the docker save command to save an image to a tar archive.**

```
ubuntu@ip-172-31-24-155:~$ docker images
REPOSITORY    TAG          IMAGE ID       CREATED              SIZE
multistage    latest       c11e8efb6d09   About an hour ago    151MB
python-full   latest       fa422dafd468   About an hour ago    1.02GB
python        3.11         dbb93f5d8e5a   2 weeks ago          1.01GB
python        3.11-slim    10f461201cdb   2 weeks ago          130MB
hello-world   latest       d2c94e258dcb   15 months ago        13.3kB
ubuntu@ip-172-31-24-155:~$ docker save multistage
cowardly refusing to save to a terminal. Use the -o flag or redirect
ubuntu@ip-172-31-24-155:~$ docker save -o multistage_image.tar multistage
ubuntu@ip-172-31-24-155:~$ ls
docker-projects  multistage_image.tar
ubuntu@ip-172-31-24-155:~$
```

- **Use the docker load command to load an image from a tar archive.**

```
ubuntu@ip-172-31-24-155:~$ docker images
REPOSITORY    TAG          IMAGE ID       CREATED              SIZE
multistage    latest       c11e8efb6d09   About an hour ago    151MB
python-full   latest       fa422dafd468   About an hour ago    1.02GB
python        3.11         dbb93f5d8e5a   2 weeks ago          1.01GB
python        3.11-slim    10f461201cdb   2 weeks ago          130MB
hello-world   latest       d2c94e258dcb   15 months ago        13.3kB
ubuntu@ip-172-31-24-155:~$ docker save multistage
cowardly refusing to save to a terminal. Use the -o flag or redirect
ubuntu@ip-172-31-24-155:~$ docker save -o multistage_image.tar multistage
ubuntu@ip-172-31-24-155:~$ ls
docker-projects  multistage_image.tar
ubuntu@ip-172-31-24-155:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-24-155:~$ docker load -i /home/ubuntu/multistage_image.tar
Loaded image: multistage:latest
ubuntu@ip-172-31-24-155:~$
```