

Homework 1- Docker Core Concepts

Exercise 1

1. Install Docker Engine using the official Docker APT repository.

```
ubuntu@k8s-instance-13:~$ sudo apt-get update
Hit:1 http://archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Hit:4 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Get:5 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [781 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [833 kB]
Get:7 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [931 kB]
Fetched 2797 kB in 2s (1399 kB/s)
Reading package lists... Done
ubuntu@k8s-instance-13:~$ sudo apt-get install ca-certificates curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20240203).
curl is already the newest version (8.5.0-2ubuntu10.6).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
```

```
ubuntu@k8s-instance-13:~$ sudo install -m 0755 -d /etc/apt/keyrings
ubuntu@k8s-instance-13:~$ sudo curl -fsSL https://download.docker.com/linux/ubuntu/gpg -o /etc/apt/keyrings/docker.asc
ubuntu@k8s-instance-13:~$ sudo chmod a+r /etc/apt/keyrings/docker.asc
ubuntu@k8s-instance-13:~$ echo \
"deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.asc] https://download.docker.com/linux/ubuntu \
$(. /etc/os-release && echo "${UBUNTU_CODENAME:-$VERSION_CODENAME}") stable" | \
sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
sudo apt-get update
Get:1 https://download.docker.com/linux/ubuntu noble InRelease [48.8 kB]
Get:2 https://download.docker.com/linux/ubuntu noble/stable amd64 Packages [24.0 kB]
Hit:3 http://archive.ubuntu.com/ubuntu noble InRelease
Hit:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:6 http://security.ubuntu.com/ubuntu noble-security InRelease
Fetched 72.8 kB in 1s (81.3 kB/s)
Reading package lists... Done
```

```
ubuntu@k8s-instance-13:~$ sudo apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  cgroupfs-mount | cgroup-lite
Recommended packages:
  docker-ce-rootless-extras libltdl7 pigz
The following NEW packages will be installed:
  containerd.io docker-buildx-plugin docker-ce docker-ce-cli docker-compose-plugin
0 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 114 MB of archives.
After this operation, 425 MB of additional disk space will be used.
Get:1 https://download.docker.com/linux/ubuntu noble/stable amd64 containerd.io amd64 1.7.27-1 [30.5 MB]
Get:2 https://download.docker.com/linux/ubuntu noble/stable amd64 docker-buildx-plugin amd64 0.23.0-1~ubuntu.24.04~noble [34.6 MB]
Get:3 https://download.docker.com/linux/ubuntu noble/stable amd64 docker-ce-cli amd64 5:28.1.1-1~ubuntu.24.04~noble [15.8 MB]
Get:4 https://download.docker.com/linux/ubuntu noble/stable amd64 docker-ce amd64 5:28.1.1-1~ubuntu.24.04~noble [19.2 MB]
Get:5 https://download.docker.com/linux/ubuntu noble/stable amd64 docker-compose-plugin amd64 2.35.1-1~ubuntu.24.04~noble [13.8 MB]
Fetched 114 MB in 3s (44.1 MB/s)
Selecting previously unselected package containerd.io.
```

```

ubuntu@k8s-instance-13:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
e6590344b1a5: Pull complete
Digest: sha256:c41088499908a59aae84b0a49c70e86f4731e588a737f1637e73c8c09d995654
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/

```

2. Enable and start the Docker service.

```

ubuntu@k8s-instance-13:~$ sudo systemctl enable docker
Synchronizing state of docker.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable docker
ubuntu@k8s-instance-13:~$ sudo systemctl start docker

```

3. Print the info of the Docker Client and Server

```

ubuntu@k8s-instance-13:~$ docker info
Client: Docker Engine - Community
 Version: 28.1.1
 Context: default
 Debug Mode: false
 Plugins:
  buildx: Docker Buildx (Docker Inc.)
   Version: v0.23.0
   Path: /usr/libexec/docker/cli-plugins/docker-buildx
  compose: Docker Compose (Docker Inc.)
   Version: v2.35.1
   Path: /usr/libexec/docker/cli-plugins/docker-compose

Server:
 permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.49/info": dial unix /var/run/docker.sock: connect: permission denied

```

4. Extra: Agregar usuario al grupo Docker con sudo.

```

ubuntu@k8s-instance-13:~$ sudo usermod -aG docker ubuntu
ubuntu@k8s-instance-13:~$ logout

```

```

ubuntu@k8s-instance-13:~$ docker info
Client: Docker Engine - Community
Version: 28.1.1
Context: default
Debug Mode: false
Plugins:
  buildx: Docker Buildx (Docker Inc.)
    Version: v0.23.0
    Path: /usr/libexec/docker/cli-plugins/docker-buildx
  compose: Docker Compose (Docker Inc.)
    Version: v2.35.1
    Path: /usr/libexec/docker/cli-plugins/docker-compose

Server:
Containers: 1
  Running: 0
  Paused: 0
  Stopped: 1
Images: 1
Server Version: 28.1.1
Storage Driver: overlay2
  Backing Filesystem: extfs
  Supports d_type: true
  Using metacopy: false
  Native Overlay Diff: true
  userxattr: false
Logging Driver: json-file
Cgroup Driver: systemd
Cgroup Version: 2

```

Exercise 2

1. Search for the official repos of Ubuntu, Alpine, Nginx.

```

ubuntu@k8s-instance-13:~$ docker search --filter is-official=true ubuntu
NAME                DESCRIPTION                                STARS     OFFICIAL
ubuntu              Ubuntu is a Debian-based Linux operating sys... 17551     [OK]
ubuntu@k8s-instance-13:~$ docker search --filter is-official=true alpine
NAME                DESCRIPTION                                STARS     OFFICIAL
alpine              A minimal Docker image based on Alpine Linux... 11265     [OK]
ubuntu@k8s-instance-13:~$ docker search --filter is-official=true nginx
NAME                DESCRIPTION                                STARS     OFFICIAL
nginx               Official build of Nginx.                    20756     [OK]

```

2. Run a Nginx container using the image from the official repo.


```

ubuntu@k8s-instance-13:~$ docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
8a628cdd7ccc: Pull complete
b0c073cda91f: Pull complete
e6557c42ebea: Pull complete
ec74683520b9: Pull complete
6c95adab80c5: Pull complete
ad8a0171f43e: Pull complete
32ef64864ec3: Pull complete
Digest: sha256:5ed8fcc66f4ed123c1b2560ed708dc148755b6e4cbd8b943fab094f2c6bfa91e
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
ubuntu@k8s-instance-13:~$ docker run --name nginx-container -d -p 8080:80 nginx
04981dc26ed65125e16ba96354f000a2/a6/ea4cac40e0ta565/8d3c1e45d9d6

```

Exercise 3

1. Check Docker daemon status

```

ubuntu@k8s-instance-13:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-04-23 00:06:48 -04; 42min ago
   TriggeredBy: ● docker.socket
   Docs: https://docs.docker.com
  Main PID: 118023 (dockerd)
    Tasks: 24
   Memory: 241.8M (peak: 291.7M)
      CPU: 9.202s
   CGroup: /system.slice/docker.service
            └─118023 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock
              └─119184 /usr/bin/docker-proxy -proto tcp -host-ip 0.0.0.0 -host-port 8080 -container-ip 172.17.0.2 -container-port 80 -use-listen-fd
                └─119190 /usr/bin/docker-proxy -proto tcp -host-ip :: -host-port 8080 -container-ip 172.17.0.2 -container-port 80 -use-listen-fd

Apr 23 00:06:46 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:46.776777118-04:00" level=info msg="Creating a containerd client" address=/run/containerd/containerd.sock timeout=1s
Apr 23 00:06:47 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:47.140854648-04:00" level=info msg="Loading containers: start."
Apr 23 00:06:47 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:47.692628787-04:00" level=info msg="Loading containers: done."
Apr 23 00:06:47 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:47.739148307-04:00" level=info msg="Docker daemon" commit=01f442b containerd-snapshotter=false storage-driver=overl
Apr 23 00:06:47 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:47.739323702-04:00" level=info msg="Initializing buildkit"
Apr 23 00:06:48 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:48.574654248-04:00" level=info msg="Completed buildkit initialization"
Apr 23 00:06:48 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:48.582984589-04:00" level=info msg="Daemon has completed initialization"
Apr 23 00:06:48 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:06:48.583108377-04:00" level=info msg="API listen on /run/docker.sock"
Apr 23 00:06:48 k8s-instance-13 systemd[1]: Started docker.service - Docker Application Container Engine.
Apr 23 00:07:49 k8s-instance-13 dockerd[118023]: time="2025-04-23T00:07:49.715540641-04:00" level=info msg="ignoring event" container=1eda51faaf8c436bcad55300a3271c975935c10a42d56afd7e45

```

2. Stop the Docker daemon

```

ubuntu@k8s-instance-13:~$ sudo systemctl stop docker

```

```

ubuntu@k8s-instance-13:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: inactive (dead) since Wed 2025-04-23 00:55:27 -04; 14s ago
     Duration: 2min 30.740s
   TriggeredBy: ● docker.socket
   Docs: https://docs.docker.com
   Process: 119363 ExecStart=/usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock (code=exited, status=0/SUCCESS)
  Main PID: 119363 (code=exited, status=0/SUCCESS)
     CPU: 782ms

Apr 23 00:52:56 k8s-instance-13 dockerd[119363]: time="2025-04-23T00:52:56.628197274-04:00" level=info msg="Daemon has completed initialization"
Apr 23 00:52:56 k8s-instance-13 dockerd[119363]: time="2025-04-23T00:52:56.628295654-04:00" level=info msg="API listen on /run/docker.sock"
Apr 23 00:52:56 k8s-instance-13 systemd[1]: Started docker.service - Docker Application Container Engine.
Apr 23 00:52:57 k8s-instance-13 dockerd[119363]: time="2025-04-23T00:52:57.073239171-04:00" level=info msg="ignoring event" container=af5b74fc17614b2443a897803f085b4374d0ea7e0ffa43738b83fb
Apr 23 00:55:27 k8s-instance-13 systemd[1]: Stopping docker.service - Docker Application Container Engine...
Apr 23 00:55:27 k8s-instance-13 dockerd[119363]: time="2025-04-23T00:55:27.369754081-04:00" level=info msg="Processing signal 'terminated'"
Apr 23 00:55:27 k8s-instance-13 dockerd[119363]: time="2025-04-23T00:55:27.371868088-04:00" level=info msg="stopping event stream following graceful shutdown" error="<nil>" module=libcont
Apr 23 00:55:27 k8s-instance-13 dockerd[119363]: time="2025-04-23T00:55:27.372576646-04:00" level=info msg="Daemon shutdown complete"
Apr 23 00:55:27 k8s-instance-13 systemd[1]: docker.service: Deactivated successfully.
Apr 23 00:55:27 k8s-instance-13 systemd[1]: Stopped docker.service - Docker Application Container Engine.

```

3. Run a container while it's stopped.

```

ubuntu@k8s-instance-13:~$ docker run hello-world
docker: Cannot connect to the Docker daemon at unix:///var/run/docker.sock. Is the docker daemon running?
Run 'docker run --help' for more information

```

4. Restart the Docker daemon and run a container again.

```
ubuntu@k8s-instance-13:~$ sudo systemctl start docker
```

```
ubuntu@k8s-instance-13:~$ docker run hello-world
```

Hello from Docker!

This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:

1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub. (amd64)
3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.
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To try something more ambitious, you can run an Ubuntu container with:

```
$ docker run -it ubuntu bash
```

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Exercise 4

1. Run an Ubuntu container interactively.

```
ubuntu@k8s-instance-13:~$ docker run -it --name ubuntu_container ubuntu bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
2726e237d1a3: Pull complete
Digest: sha256:1e622c5f073b4f6bfad6632f2616c7f59ef256e96fe78bf6a595d1dc4376ac02
Status: Downloaded newer image for ubuntu:latest
root@d15933aef7c3:/#
```

2. Use apt update && apt install curl inside the container.

```

root@d15933aef7c3:/# apt update && apt install -y curl
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [1178 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://archive.ubuntu.com/ubuntu noble/restricted amd64 Packages [117 kB]
Get:7 http://archive.ubuntu.com/ubuntu noble/main amd64 Packages [1808 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [984 kB]
Get:9 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1076 kB]
Get:10 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [21.9 kB]
Get:11 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [19.3 MB]
Get:12 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [331 kB]
Get:13 http://archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [26.4 kB]
Get:14 http://archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1372 kB]
Get:15 http://archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [1222 kB]
Get:16 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1302 kB]
Get:17 http://archive.ubuntu.com/ubuntu noble-backports/main amd64 Packages [48.0 kB]
Get:18 http://archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [31.8 kB]
Fetched 29.5 MB in 7s (4186 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
1 package can be upgraded. Run 'apt list --upgradable' to see it.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  ca-certificates krb5-locales libbrotli1 libcurl4t64 libgssapi-krb5-2 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-common libldap2 libnghttp2-14 libpsl5t64 librtmp1
  libsasl2-2 libsasl2-modules libsasl2-modules-db libssh-4 openssl publicsuffix
Suggested packages:
  krb5-doc krb5-user libsasl2-modules-gssapi-mit | libsasl2-modules-gssapi-heimdal libsasl2-modules-ldap libsasl2-modules-otp libsasl2-modules-sql
The following NEW packages will be installed:
  ca-certificates curl krb5-locales libbrotli1 libcurl4t64 libgssapi-krb5-2 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-common libldap2 libnghttp2-14 libpsl5t64 librtmp1
  libsasl2-2 libsasl2-modules libsasl2-modules-db libssh-4 openssl publicsuffix
0 upgraded, 21 newly installed, 0 to remove and 1 not upgraded.
Need to get 3566 kB of archives.

```

3. Exit the container.

```

done.
root@d15933aef7c3:/# exit
exit
ubuntu@k8s-instance-13:~$

```

Exercise 5

1. List running containers → (imagen conjunta)
2. List all containers (including exited)

```

ubuntu@k8s-instance-13:~$ docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS          NAMES
ubuntu@k8s-instance-13:~$ docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PORTS          NAMES
d15933aef7c3   ubuntu   "bash"                  8 minutes ago    Exited (0)      About a minute ago    ubuntu_container
aae060224c21   hello-world "/hello"              14 minutes ago    Exited (0)      14 minutes ago      hardcore_saha
af5b74fc1761   hello-world "/hello"              21 minutes ago    Exited (0)      21 minutes ago      keen_black
04981dc26ed6   nginx    "/docker-entrypoint. ..." 31 minutes ago    Exited (0)      23 minutes ago      nginx-container
1eda51f1aaf8   hello-world "/hello"              About an hour ago Exited (0)      About an hour ago    suspicious_brattain

```

Exercise 6

1. Run a container in the background → (imagen conjunta)
2. Then Pause it → (imagen conjunta)
3. Unpause it → (imagen conjunta)
4. Stop it → (imagen conjunta)
5. Restart it → (imagen conjunta)
6. Kill it → (imagen conjunta)

```

ubuntu@k8s-instance-13:~$ docker run -d --name lifecycle alpine sleep 300
34370185abf9e6c0f2ba5dddb74842955044450720f704ac6fb7989e09f027a
ubuntu@k8s-instance-13:~$ docker pause lifecycle
lifecycle
ubuntu@k8s-instance-13:~$ docker unpause lifecycle
lifecycle
ubuntu@k8s-instance-13:~$ docker stop lifecycle
lifecycle
ubuntu@k8s-instance-13:~$ docker restart lifecycle
lifecycle
ubuntu@k8s-instance-13:~$ docker kill lifecycle
lifecycle
ubuntu@k8s-instance-13:~$

```

```

docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
lifecycle      Up 2 seconds
ubuntu@k8s-instance-13:~$ docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
lifecycle      Up 21 seconds (Paused)
ubuntu@k8s-instance-13:~$ docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
lifecycle      Up 36 seconds
ubuntu@k8s-instance-13:~$ docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
lifecycle      Exited (137) 2 seconds ago
ubuntu@k8s-instance-13:~$ docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
lifecycle      Up 7 seconds
ubuntu@k8s-instance-13:~$ docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
lifecycle      Exited (137) 3 seconds ago

```


Exercise 7

1. Remove a running container.

```
ubuntu@k8s-instance-13:~$ docker rm -f lifecycle
lifecycle
ubuntu@k8s-instance-13:~$ docker ps -a --filter "name=lifecycle" --format "table {{.Names}}\t{{.Status}}"
NAMES      STATUS
```

Exercise 8

1. Pull the alpine and ubuntu images.

```
ubuntu@k8s-instance-13:~$ docker pull alpine
docker pull ubuntu
Using default tag: latest
latest: Pulling from library/alpine
Digest: sha256:a8560b36e8b8210634f77d9f7f9efd7ffa463e380b75e2e74aff4511df3ef88c
Status: Image is up to date for alpine:latest
docker.io/library/alpine:latest
Using default tag: latest
latest: Pulling from library/ubuntu
Digest: sha256:1e622c5f073b4f6bfad6632f2616c7f59ef256e96fe78bf6a595d1dc4376ac02
Status: Image is up to date for ubuntu:latest
docker.io/library/ubuntu:latest
```

2. List all the container images in your Docker Host.

```
ubuntu@k8s-instance-13:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
nginx	latest	4e1b6bae1e48	6 days ago	192MB
ubuntu	latest	602eb6fb314b	2 weeks ago	78.1MB
alpine	latest	aded1e1a5b37	2 months ago	7.83MB
hello-world	latest	74cc54e27dc4	3 months ago	10.1kB

Exercise 9

1. Run alpine and execute echo "hello from alpine"

```
ubuntu@k8s-instance-13:~$ docker run --name alpine_hello alpine echo "hello from alpine"
hello from alpine
ubuntu@k8s-instance-13:~$
```

2. Run busybox and execute uname -a

```
ubuntu@k8s-instance-13:~$ docker run --rm busybox uname -a
Unable to find image 'busybox:latest' locally
latest: Pulling from library/busybox
97e70d161e81: Pull complete
Digest: sha256:37f7b378a29ceb4c551b1b5582e27747b855bbfaa73fa11914fe0df028dc581f
Status: Downloaded newer image for busybox:latest
Linux c8cbb3572ce0 6.8.0-52-generic #53-Ubuntu SMP PREEMPT_DYNAMIC Sat Jan 11 00:06:25 UTC 2025 x86_64 GNU/Linux
```

3. List all the container.

```
ubuntu@k8s-instance-13:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
7a7f92307bd5	alpine	"echo 'hello from al..."	2 minutes ago	Exited (0) 2 minutes ago		alpine_hello
d15933aef7c3	ubuntu	"bash"	45 minutes ago	Exited (0) 39 minutes ago		ubuntu_container
aae060224c21	hello-world	"/hello"	52 minutes ago	Exited (0) 52 minutes ago		hardcore_saha
af5b74fc1761	hello-world	"/hello"	59 minutes ago	Exited (0) 59 minutes ago		keen_black
04981dc26ed6	nginx	"/docker-entrypoint..."	About an hour ago	Exited (0) About an hour ago		nginx-container
1eda51f1aaf8	hello-world	"/hello"	2 hours ago	Exited (0) 2 hours ago		suspicious_brattain

Exercise 10

1. Remove all stopped containers.

```
ubuntu@k8s-instance-13:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS
7a7f92307bd5	alpine	"echo 'hello from al..."	8 minutes ago	Exited (0) 8 minutes ago
d15933aef7c3	ubuntu	"bash"	52 minutes ago	Up 42 seconds
aae060224c21	hello-world	"/hello"	58 minutes ago	Exited (0) 58 minutes ago
af5b74fc1761	hello-world	"/hello"	About an hour ago	Exited (0) About an hour ago
04981dc26ed6	nginx	"/docker-entrypoint..."	About an hour ago	Up 34 seconds
1eda51f1aaf8	hello-world	"/hello"	2 hours ago	Exited (0) 2 hours ago

```
ubuntu@k8s-instance-13:~$ docker container prune
WARNING! This will remove all stopped containers.
Are you sure you want to continue? [Y/N] y
Deleted Containers:
7a7f92307bd59e4c0b4f233d2e6a583b2a831e94f63f1e300f009012b8e2c5a1
aae060224c21b0e9c9db87226ce7344f0295071ba8feabe098c3399d1330b48f
af5b74fc17614b2443a897803f085b4374d0ea7e0ff43738b83fb65ede49f008
1eda51f1aaf8c436bcd55300a3271c975935c10a42d56afd7e452aa63d79032

Total reclaimed space: 0B
ubuntu@k8s-instance-13:~$ docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
d15933aef7c3	ubuntu	"bash"	53 minutes ago	Up 2 minutes		ubuntu_container
04981dc26ed6	nginx	"/docker-entrypoint..."	About an hour ago	Up 2 minutes	0.0.0.0:8080→80/tcp, [::]:8080→80/tcp	nginx-container

2. Remove unused images.

```
ubuntu@k8s-instance-13:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
nginx	latest	4e1b6bae1e48	6 days ago	192MB
ubuntu	latest	602eb6fb314b	2 weeks ago	78.1MB
alpine	latest	aded1e1a5b37	2 months ago	7.83MB
hello-world	latest	74cc54e27dc4	3 months ago	10.1kB
busybox	latest	ff7a7936e930	6 months ago	4.28MB

```
ubuntu@k8s-instance-13:~$ docker image prune -a
WARNING! This will remove all images without at least one container associated to them.
Are you sure you want to continue? [y/N] y
Deleted Images:
untagged: hello-world:latest
untagged: hello-world@sha256:c41088499908a59aae84b0a49c70e86f4731e588a737f1637e73c8c09d995654
deleted: sha256:74cc54e27dc41bb10dc4b2226072d469509f2f22f1a3ce74f4a59661a1d44602
deleted: sha256:63a41026379f4391a306242eb0b9f26dc3550d863b7fdbb97d899f6eb89efe72
untagged: alpine:latest
untagged: alpine@sha256:a8560b36e8b8210634f77d9f7f9efd7ffa463e380b75e2e74aff4511df3ef88c
deleted: sha256:aded1e1a5b3705116fa0a92ba074a5e0b0031647d9c315983ccb2ee5428ec8b
deleted: sha256:08000c18d16dadf9553d747a58cf44023423a9ab010aab96cf263d2216b8b350
untagged: busybox:latest
untagged: busybox@sha256:37f7b378a29ceb4c551b1b5582e27747b855bbfaa73fa11914fe0df028dc581f
deleted: sha256:ff7a7936e9306ce4a789cf5523922da5e585dc1216e400efb3b6872a5137ee6b
deleted: sha256:068f50152bbcb6e10c9d223150c9fbd30d11bcfd7789c432152aa0a99703bd03a

Total reclaimed space: 12.12MB
ubuntu@k8s-instance-13:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
nginx	latest	4e1b6bae1e48	6 days ago	192MB
ubuntu	latest	602eb6fb314b	2 weeks ago	78.1MB

3. Inspect Docker disk usage.


```
ubuntu@k8s-instance-13:~$ docker system df
```

TYPE	TOTAL	ACTIVE	SIZE	RECLAIMABLE
Images	2	2	270.6MB	0B (0%)
Containers	2	2	56.84MB	0B (0%)
Local Volumes	0	0	0B	0B
Build Cache	0	0	0B	0B

```
ubuntu@k8s-instance-13:~$
```