1. Utiliza los comandos para ver las imágenes y contenedores que tienes en Docker

```
C:\Users\DAW>docker image ls
REPOSITORY       TAG       IMAGE ID       CREATED        SIZE
postgres         latest    75b7bff7c3ad   2 weeks ago    433MB
dpage/pgadmin4   latest    76a6f9095825   2 weeks ago    510MB
```

```
C:\Users\DAW>docker ps -a
CONTAINER ID   IMAGE                  COMMAND      CREATED      STATUS    PORTS      NAMES
1845b69f1757   dpage/pgadmin4:latest  ""           7 days ago   Created   80/tcp     pgadmin4_container
a43e5ecd26a3   postgres:latest        "postgres"   7 days ago   Created   5432/tcp   pg_container

C:\Users\DAW>
```

2. Despliega en Docker un contenedor Ubuntu con un terminal interactivo y prueba algunos comandos Linux.

```
C:\Users\DAW>docker run -d -P --name=ubuntu ubuntu
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
29202e855b20: Extracting [==================>                                ]  10.16MB/29.55MB
```

3. Usa los comandos para inspeccionar la configuración de los contenedores.

```
C:\Users\DAW>docker inspect ubuntu
[
    {
        "Id": "792776d57cf749c28fb7332a0c382af008731d7ca7009266e93fd49e5a32be0e",
        "Created": "2024-01-23T10:42:03.916274968Z",
        "Path": "/bin/bash",
        "Args": [],
        "State": {
            "Status": "exited",
            "Running": false,
            "Paused": false,
            "Restarting": false,
            "OOMKilled": false,
            "Dead": false,
            "Pid": 0,
            "ExitCode": 0,
            "Error": "",
            "StartedAt": "2024-01-23T10:42:04.800241676Z",
            "FinishedAt": "2024-01-23T10:42:04.82592017Z"
        },
        "Image": "sha256:e34e831650c1bb0be9b6f61c6755749cb8ea2053ba91c6cda27fded9e089811f",
        "ResolvConfPath": "/var/lib/docker/containers/792776d57cf749c28fb7332a0c382af008731d7ca7009266e93fd49e5a3
```

4. Indica el comando para descargar la imagen más reciente de Apache

```
C:\Users\DAW>docker pull bitnami/apache
Using default tag: latest
latest: Pulling from bitnami/apache
ee7d53e52aef: Extracting [======================================>              ]  44.56MB/59
```

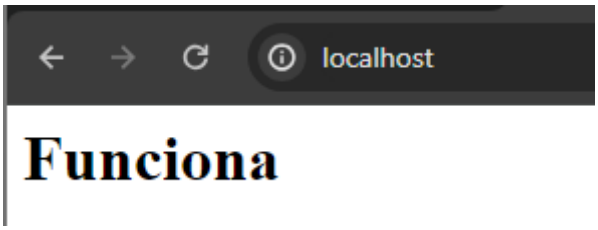
5. Crea el contenedor Apache a partir de la imagen bitnami/apache con mapeo de puertos manual y comprueba que los puertos se han mapeado correctamente

```
C:\Users\DAW>docker run -d -p 80:8080 -p 443:8443 --name=apache-examen bitnami/apache
416566fd80a1da770ab0875ef98bfa4e764b9e539676596a8accf2beaacc2d7d
```

```
C:\Users\DAW>docker ps -a
CONTAINER ID   IMAGE           COMMAND                  CREATED          STATUS                  PORTS
NAMES
416566fd80a1   bitnami/apache  "/opt/bitnami/script…"   12 minutes ago   Up 12 minutes           0.0.0.0:80->8080/tcp, 0.0.0.0:443->8443/tcp
apache-examen
```

6. Modifica la página inicial del contenedor para que muestre una página propia. Comprueba que se ha modificado correctamente

```
nano index.html
```




```
  GNU nano 5.4
<html><body><h1>Funciona</h1></body></html>
```

7. Copia un fichero index.html al contenedor

```
C:\Users\DAW\Documents>docker cp index.html apache-examen:/opt/bitnami/apache/htdocs/index.html
Successfully copied 2.05kB to apache-examen:/opt/bitnami/apache/htdocs/index.html
```

8. Crea otro contenedor Apache con la opción necesaria para incluirlo en un volumen y comprueba que se ha creado el volumen. Accede al contenido del volumen y, finalmente, bórralo, borrando además el contenedor asociado (Recuerda que los volúmenes tienen que estar enlazados)

```
C:\Users\DAW\Documents>docker run -d -P --name=apache-examen2 --mount type=volume,source=examen,target=/app bitnami/apache
c9aa5e81766aa27f43b651c639815b2a98dc3c6f990dd5fe5c536e87fea2b513
```

9. Comprueba los volúmenes que has definido y, posteriormente, bórralos

```
C:\Users\DAW\Documents>docker volume ls
DRIVER    VOLUME NAME
local     examen
```

```
C:\Users\DAW\Documents>docker volume rm examen
Error response from daemon: remove examen: volume is in use - [c9aa5e81766aa27f43b651c639815b2a98dc3c6f990dd5fe5c536e87fea2b513]
```

```
C:\Users\DAW\Documents>docker stop apache-examen2
apache-examen2

C:\Users\DAW\Documents>docker rm apache-examen2
apache-examen2

C:\Users\DAW\Documents>docker volume rm examen
examen
```

10. Comprueba las redes que hay definidas

```
C:\Users\DAW\Documents>docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
7ecafcf90105   bridge    bridge    local
5ac3a348d596   host      host      local
5a586902dd44   none      null      local

C:\Users\DAW\Documents>
```

11. Conecta el contenedor de Apache a la red del equipo

```
C:\Users\DAW\Documents>docker run -d --name server --network host -p 8080:8080 bitnami/apache
WARNING: Published ports are discarded when using host network mode
da4cc032bb56d1477276b23cf113a034b58ff9f78fc12640f1db44acddc681ac
```

12. Crea una nueva red en modo puente, observa sus características y crea un contenedor dentro de ella

```
C:\Users\DAW\Documents>docker network create mired
335c445dfaa90718d52d3a5c65a21b7bb99676f2dab8ed5cee5e7d232f02654f

C:\Users\DAW\Documents>docker network inspect mired
[
    {
```

```
C:\Users\DAW\Documents>docker network inspect mired
[
    {
        "Name": "mired",
        "Id": "335c445dfaa90718d52d3a5c65a21b7bb99676f2dab8ed5cee5e7d232f02654f",
        "Created": "2024-01-23T11:28:15.785741123Z",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
```

```
C:\Users\DAW\Documents>docker run -d --name server-examen2 --network mired -p 80:80 bitnami/apache
5840a255c2e5c5ab8e4e5750c68cf7e246bb48ff0349d724cd24fed6e56f0ecb

C:\Users\DAW\Documents>
```

13. Mira las características de la red


```
},
"ConfigOnly": false,
"Containers": {
    "5840a255c2e5c5ab8e4e5750c68cf7e246bb48ff0349d724cd24fed6e56f0ecb": {
        "Name": "server-examen2",
        "EndpointID": "083485e0f417304b607503fd9e93fa6382233de92c16fcbb25727c7a92d4e5be",
        "MacAddress": "02:42:ac:12:00:02",
        "IPv4Address": "172.18.0.2/16",
        "IPv6Address": ""
    }
```


14. Crea un contenedor en la red que creaste en el apartado 12

```
C:\Users\DAW\Documents>docker run -d --name server-examen3 --network mired -p 8123:8123 bitnami/apache
9cb01341fecb9f3d52013dc2e44a021aba10c6b9a40f509628a1c4c2920fbb15
```


```
'Containers": {
   "5840a255c2e5c5ab8e4e5750c68cf7e246bb48ff0349d724cd24fed6e56f0ecb": {
       "Name": "server-examen2",
       "EndpointID": "083485e0f417304b607503fd9e93fa6382233de92c16fcbb25727c7a92d4e5be",
       "MacAddress": "02:42:ac:12:00:02",
       "IPv4Address": "172.18.0.2/16",
       "IPv6Address": ""
   },
   "9cb01341fecb9f3d52013dc2e44a021aba10c6b9a40f509628a1c4c2920fbb15": {
       "Name": "server-examen3",
       "EndpointID": "9fb96150b2fccc625553132ab8d14ed261a37227aab4d4405828177b5a7f0763",
       "MacAddress": "02:42:ac:12:00:03",
       "IPv4Address": "172.18.0.3/16",
```