

UNIDAD TRABAJO 5:

VIRTUALIZACIÓN.

CONTENEDORES. DOCKER.

CONTENEDORES – EJERCICIOS DOCKER

Enlace de la actividad a GITHUB:

https://github.com/murcieta-gva/Tareas/blob/803944523271b70c60bf97d6a865e46c9e874c1e/Murcia-Jose_Francisco_Tarea-5-6.pdf

1. Ejercicios

1. Explorar la web de [dockerhub.com](https://hub.docker.com/) y crear **5 contenedores** en segundo plano con imagenes diferentes según tus intereses.

[Instalación desde la página Docker Hub creación de 5 contenedores]

docker run NombreAplicacion :

Los contenedores seleccionados son nginx,alpine,Python,homeassistant y node.

]

2. **Listar** los contenedores en ejecución.

*[Listamos contenedores en ejecución con **docker ps** y todos los contenedores con **docker ps -a** :*

```
sh-3.2# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
1087630a36de	nginx	"/docker-entrypoint..."	2 days ago	Up 2 days	80/tcp	cool_aryabhata


```
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
3a7c7097292f	homeassistant/amd64-addon-mosquitto	"/init"	4 minutes ago	Exited (1) 4 minutes ago		friendly_hoover
b713aeed476d	node	"docker-entrypoint.s..."	11 hours ago	Exited (0) 11 hours ago		sleepy_austin
4d00d042c8f	alpine:latest	"/bin/sh"	11 hours ago	Exited (0) 11 hours ago		gracious_kare
85633085ced2	my-alpine-python	"pytest"	11 hours ago	Created		quirky_dhawan
254b4565f694	alpine	"/bin/sh"	11 hours ago	Exited (0) 11 hours ago		angry_vaughan
88d01c921078	ubuntu	"/bin/bash"	11 hours ago	Exited (0) 11 hours ago		beautiful_taussig
1087630a36de	nginx	"/docker-entrypoint..."	2 days ago	Exited (0) 19 minutes ago		cool_aryabhata
cf258c3641ca	python	"python3"	2 days ago	Exited (0) 2 days ago		competent_jang
bfe6ed25715c	alpine	"/bin/sh"	2 days ago	Exited (0) 2 days ago		dreamy_lalande
cdc683854b62	my-alpine-python	"pytest"	8 days ago	Created		goofy_shirley
ec2169352329	alpine-python:v1.0	"pytest"	8 days ago	Exited (5) 8 days ago		dazzling_haibt
a636aba0c9dc	alpine	"/bin/sh"	8 days ago	Exited (130) 8 days ago		jfmf-alpine-python

]

3. **Borrar** todos los contenedores (ejecutándose y terminados).

*[Ejecutamos comando **docker stop**, parar contenedores en ejecución borrar todos los contenedores captura:*

```
80ac89d18005 hello-world 7hello
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % docker rm 3a7c7097292f
3a7c7097292f
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % doker rm b713aeed476d
zsh: command not found: doker
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % docker rm b713aeed476d
b713aeed476d
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % docker rm 254b4565f694
254b4565f694
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % docker rm 1087630a36de
1087630a36de
josefranciscmurciafuentes@MacBook-Pro-de-Jose ~ % docker rm 85633085ced2
85633085ced2
```

]

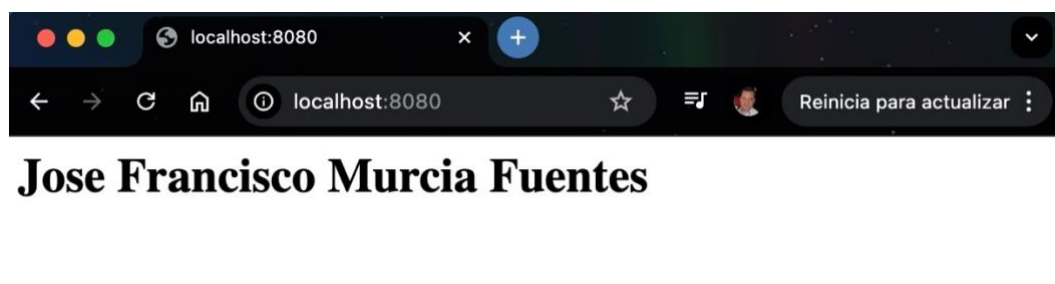
4. Crear un contenedor con la imagen **nginx** que esté ofreciendo una página por defecto personalizada con tu nombre y apellido

[Creamos el contenedor y copiamos el archivo en el directorio del contenedor para servir la página en los puertos 80:8080 con nuestro nombre llamaremos al contenedor miweb:]

docker run -d -p 8080:80 --name miweb nginx

```
josefranciscomurciafuentes@MacBook-Pro-de-Jose ~ % echo "<h1>Jose Francisco Murcia Fuentes</h1>" > index.html
josefranciscomurciafuentes@MacBook-Pro-de-Jose ~ % docker run -d -p 8080:80 --name miweb nginx
784c167668dcf84bc7167cc2e960215a080e2dd46eb1f32b278f27e493a0e9e9
josefranciscomurciafuentes@MacBook-Pro-de-Jose ~ % docker cp index.html 784c167668dcf84bc7167cc2e960215a080e2dd46eb1f32b278f27e493a0e9e9:/usr/share/nginx/html
Successfully copied 2.05kB to 784c167668dcf84bc7167cc2e960215a080e2dd46eb1f32b278f27e493a0e9e9:/usr/share/nginx/html
```

Mostramos el servicio web:



5. Muestra mensajes de **log** del contenedor de **nginx**.

*[**docker logs miweb***

```
josefranciscomurciafuentes@MacBook-Pro-de-Jose ~ % docker logs miweb
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2024/12/20 20:00:54 [notice] 1#1: using the "epoll" event method
2024/12/20 20:00:54 [notice] 1#1: nginx/1.27.3
2024/12/20 20:00:54 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2024/12/20 20:00:54 [notice] 1#1: OS: Linux 6.10.14-linuxkit
2024/12/20 20:00:54 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2024/12/20 20:00:54 [notice] 1#1: start worker processes
2024/12/20 20:00:54 [notice] 1#1: start worker process 28
2024/12/20 20:00:54 [notice] 1#1: start worker process 29
2024/12/20 20:00:54 [notice] 1#1: start worker process 30
2024/12/20 20:00:54 [notice] 1#1: start worker process 31
2024/12/20 20:00:54 [notice] 1#1: start worker process 32
2024/12/20 20:00:54 [notice] 1#1: start worker process 33
2024/12/20 20:00:54 [notice] 1#1: start worker process 34
2024/12/20 20:00:54 [notice] 1#1: start worker process 35
172.17.0.1 - - [20/Dec/2024:20:10:35 +0000] "GET / HTTP/1.1" 200 39 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36" "-"
2024/12/20 20:10:35 [error] 32#32: *3 open() "/usr/share/nginx/html/favicon.ico" failed (2: No such file or directory), client: 172.17.0.1, server: localhost, request: "GET /favicon.ico HTTP/1.1", host: "localhost:8080", referrer: "http://localhost:8080/"
172.17.0.1 - - [20/Dec/2024:20:10:35 +0000] "GET /favicon.ico HTTP/1.1" 404 555 "http://localhost:8080/" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36" "-"
172.17.0.1 - - [20/Dec/2024:20:13:02 +0000] "GET / HTTP/1.1" 200 40 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36" "-"
```

docker logs -n1 miweb

```
josefranciscomurciafuentes@MacBook-Pro-de-Jose ~ % docker logs -n1 miweb
172.17.0.1 - - [20/Dec/2024:20:13:02 +0000] "GET / HTTP/1.1" 200 40 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/131.0.0.0 Safari/537.36" "-"
```

]

6. Crea un contenedor con imagen de Ubuntu. Instala tus paquetes preferidos y crea imagen llamada **MiUbuntu** basada en dicho contenedor.

[-Creación contenedor con terminal interactivo instalamos actualizaciones

```
root@fbf12e8f7c2f:/# apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 207 kB of archives.
After this operation, 1229 kB of additional disk space will be used.
Get:1 http://ports.ubuntu.com/ubuntu-ports noble/main arm64 net-tools arm64 2.10-0.1ubuntu4
Fetched 207 kB in 0s (622 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package net-tools.
(Reading database ... 4374 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4_arm64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4) ...
Setting up net-tools (2.10-0.1ubuntu4) ...
root@fbf12e8f7c2f:/# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 65535
    inet 172.17.0.3 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 02:42:ac:11:00:03 txqueuelen 0 (Ethernet)
    RX packets 1462 bytes 27563387 (27.5 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 818 bytes 59713 (59.7 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

-Instalación del paquete net-tools y creación de la imagen miubuntu:

```
~ — root@fbf12e8f7c2f: / — docker run -it --name ubuntu ubuntu
josefranciscoturciafuentes@MacBook-Pro-de-Jose ~ % docker run -it --name ubuntu ubuntu
root@fbf12e8f7c2f:/# apt update
Get:1 http://ports.ubuntu.com/ubuntu-ports noble InRelease [256 kB]
Get:2 http://ports.ubuntu.com/ubuntu-ports noble-updates InRelease [126 kB]
Get:3 http://ports.ubuntu.com/ubuntu-ports noble-backports InRelease [126 kB]
Get:4 http://ports.ubuntu.com/ubuntu-ports noble-security InRelease [126 kB]
Get:5 http://ports.ubuntu.com/ubuntu-ports noble/multiverse arm64 Packages [274 kB]
Get:6 http://ports.ubuntu.com/ubuntu-ports noble/restricted arm64 Packages [113 kB]
Get:7 http://ports.ubuntu.com/ubuntu-ports noble/universe arm64 Packages [19.0 MB]
Get:8 http://ports.ubuntu.com/ubuntu-ports noble/main arm64 Packages [1776 kB]
Get:9 http://ports.ubuntu.com/ubuntu-ports noble-updates/main arm64 Packages [948 kB]
Get:10 http://ports.ubuntu.com/ubuntu-ports noble-updates/multiverse arm64 Packages [15.1 kB]
Get:11 http://ports.ubuntu.com/ubuntu-ports noble-updates/universe arm64 Packages [1222 kB]
Get:12 http://ports.ubuntu.com/ubuntu-ports noble-updates/restricted arm64 Packages [771 kB]
Get:13 http://ports.ubuntu.com/ubuntu-ports noble-backports/universe arm64 Packages [11.9 kB]
Get:14 http://ports.ubuntu.com/ubuntu-ports noble-security/main arm64 Packages [703 kB]
Get:15 http://ports.ubuntu.com/ubuntu-ports noble-security/multiverse arm64 Packages [13.3 kB]
Get:16 http://ports.ubuntu.com/ubuntu-ports noble-security/restricted arm64 Packages [750 kB]
Get:17 http://ports.ubuntu.com/ubuntu-ports noble-security/universe arm64 Packages [997 kB]
Fetched 27.3 MB in 2s (13.4 MB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
```

```
josefranciscoturciafuentes@MacBook-Pro-de-Jose ~ % docker commit ubuntu miubuntu:latest
sha256:b4a46d8167d6c157ed385e9069da6fc4f47d86e1ae02c628aad5bba24d92808c
josefranciscoturciafuentes@MacBook-Pro-de-Jose ~ % docker run -it miubuntu
root@29d192b21ca6:/# docker images
bash: docker: command not found
root@29d192b21ca6:/# exit
exit
josefranciscoturciafuentes@MacBook-Pro-de-Jose ~ % docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
miubuntu	latest	b4a46d8167d6	About a minute ago	216MB

7. Crea un **Dockerfile** para personalizar una imagen Alpine. Consulta las capas de la nueva imagen.

[Creación de Dockerfile

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 % CAT Dockerfile
FROM alpine
ARG WEB
ENV WEBC=$WEB
CMD ping -c1 $WEBC
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 %
```

y construcción de la imagen:

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % cd Docker
josefranciscumurciafuentes@MacBook-Pro-de-Jose Docker % mkdir Ejer2
josefranciscumurciafuentes@MacBook-Pro-de-Jose Docker % cd Ejer2
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 % nano Dockerfile
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 % ls
Dockerfile      Texto de Terminal.txt
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 % docker build -t mialpine:latest .
[+] Building 8.8s (7/7) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.0s
=> => transferring dockerfile: 72B                               0.0s
=> [internal] load metadata for docker.io/library/alpine:latest 0.0s
=> [internal] load .dockerignore                                 0.0s
=> => transferring context: 2B                                     0.0s
=> CACHED [1/2] FROM docker.io/library/alpine:latest@sha256:21dc6063fd678b478f57c0e13f47560d0ea4eeba26dfc947b2a4 8.4s
=> => resolve docker.io/library/alpine:latest@sha256:21dc6063fd678b478f57c0e13f47560d0ea4eeba26dfc947b2a4f81f686 8.4s
=> [auth] library/alpine:pull token for registry-1.docker.io    0.0s
=> [2/2] RUN echo "Hola Mundo"                                    0.2s
=> exporting to image                                             0.1s
=> => exporting layers                                           0.1s
=> => exporting manifest sha256:5e1fe95442e051a4b7f8e454e103ff4efac06630923115080ca1db1e7ed1799d 0.0s
=> => exporting config sha256:e2264eddee818f75eae20aa8272ec751786780a4b44772da516599e5c22df67 0.0s
=> => exporting attestation manifest sha256:4a6fc438eb8e3fa47e89bf5a49ba14d44eec453de720468a7f4bef0dead8cb5e 0.0s
=> => exporting manifest list sha256:d261f41acd191260e82483175241ff32f0d4feeb0d84a2bf35c9f291db214644 0.0s
=> => naming to docker.io/library/mialpine:latest               0.0s
=> => unpacking to docker.io/library/mialpine:latest             0.0s
View build details: docker-desktop:///dashboard/build/desktop-linux/desktop-linux/iw3w3trvucwx51crdbaoerv63
```

Historial de imágenes:

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 % docker history mialpine:latest
IMAGE          CREATED          CREATED BY                                      SIZE      COMMENT
d261f41acd19   2 minutes ago    RUN /bin/sh -c echo "Hola Mundo" # buildkit    4.1kB     buildkit.dockerfile.v0
<missing>      2 weeks ago     CMD ["/bin/sh"]                                0B        buildkit.dockerfile.v0
<missing>      2 weeks ago     ADD alpine-minirootfs-3.21.0-aarch64.tar.gz ... 8.84MB    buildkit.dockerfile.v0
josefranciscumurciafuentes@MacBook-Pro-de-Jose Ejer2 % docker history alpine
IMAGE          CREATED          CREATED BY                                      SIZE      COMMENT
21dc6063fd67   2 weeks ago     CMD ["/bin/sh"]                                0B        buildkit.dockerfile.v0
<missing>      2 weeks ago     ADD alpine-minirootfs-3.21.0-aarch64.tar.gz ... 8.84MB    buildkit.dockerfile.v0
```

]

8. Utiliza **Dockerfile** y las variables necesarias para que al crear una imagen, los contenedores basados en esa imagen, ejecuten directamente un sólo **ping** (*ping -c 1*) a la web que le introduzca por parámetro al crear la imagen. Ejemplo: *docker run ping:google* se ejecute un sólo ping a google.com.

[Captura del resultado ejecutando contenedor:

```
josefranciscoturciafuentes@MacBook-Pro-de-Jose Ejer2 % docker run ping:google
PING www.google.com (216.58.209.68): 56 data bytes
64 bytes from 216.58.209.68: seq=0 ttl=63 time=15.941 ms

--- www.google.com ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 15.941/15.941/15.941 ms
josefranciscoturciafuentes@MacBook-Pro-de-Jose Ejer2 %
```

]

- Posteriormente, cree otra imagen ejecutando **docker run ping:youtube** se ejecute un *ping* a *youtube.com* (el nombre de la etiqueta no tiene porqué corresponder con el dominio al que se hace *ping*, deste dominio se pasará por una variable cuando se crea la imagen).

[Captura de creación de la imagen y ejecución del contenedor:

```
josefranciscoturciafuentes@MacBook-Pro-de-Jose Ejer2 % docker run ping:youtube
PING www.youtube.com (172.217.168.174): 56 data bytes
64 bytes from 172.217.168.174: seq=0 ttl=63 time=38.177 ms

--- www.youtube.com ping statistics ---
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 38.177/38.177/38.177 ms
josefranciscoturciafuentes@MacBook-Pro-de-Jose Ejer2 %
```

```
1 packets transmitted, 1 packets received, 0% packet loss
round-trip min/avg/max = 15.941/15.941/15.941 ms
josefranciscoturciafuentes@MacBook-Pro-de-Jose Ejer2 % docker build -t ping:youtube --build-arg WEB=www.youtube.com .
[+] Building 1.3s (6/6) FINISHED
=> [internal] load build definition from Dockerfile                                0.0s
=> => transferring dockerfile: 90B                                              0.0s
=> WARN: JSONArgsRecommended: JSON arguments recommended for CMD to prevent unintended behavior related to OS si 0.0s
=> [internal] load metadata for docker.io/library/alpine:latest                 0.0s
=> [internal] load .dockerignore                                                 0.0s
=> => transferring context: 2B                                                  0.0s
=> CACHED [1/1] FROM docker.io/library/alpine:latest@sha256:21dc6063fd678b478f57c0e13f47560d0ea4eeba26dfc947b2a4 1.1s
=> => resolve docker.io/library/alpine:latest@sha256:21dc6063fd678b478f57c0e13f47560d0ea4eeba26dfc947b2a4f81f686 1.1s
=> [auth] library/alpine:pull token for registry-1.docker.io                  0.0s
=> exporting to image                                                            0.1s
=> => exporting layers                                                            0.0s
=> => exporting manifest sha256:38b46f24676dfdbe5113aafba6bb30370f7850bd8a7874f1b213f51a9e68cc68          0.0s
=> => exporting config sha256:1f9658129363e2e6ff71c0b88130b2fad0420814f53e81870b6beb02b6c60441          0.0s
=> => exporting attestation manifest sha256:36ceff5540aa8506160185b629829f10118fb63ffddb2c83f469c2c5e665bd7e 0.0s
=> => exporting manifest list sha256:a254755dd847060f183f4976c754f5e6827f21279b08c6d12548aec80a49b5a2      0.0s
=> => naming to docker.io/library/ping:youtube                                0.0s
=> => unpacking to docker.io/library/ping:youtube                              0.0s
```

View build details: [docker-desktop://dashboard/build/desktop-linux/desktop-linux/3e5u46gdbntb1az2juqp3e7eb](https://dashboard.docker.com/build/desktop-linux/desktop-linux/3e5u46gdbntb1az2juqp3e7eb)

1 warning found (use `docker --debug` to expand):

- JSONArgsRecommended: JSON arguments recommended for CMD to prevent unintended behavior related to OS signals (line 4)

]

1.1. Crear imágenes a partir de contenedores

10. Ejecuta un contenedor de nombre **midebian-<iniciales>** con la imagen de **debian:latest**.

[

```
josefranciscomurciafuentes@MacBook-Pro-de-Jose Ejer2 % docker run --name midebian-jfmf -it debian
Unable to find image 'debian:latest' locally
latest: Pulling from library/debian
Digest: sha256:17122fe3d66916e55c0cbd5bbf54bb3f87b3582f4d86a755a0fd3498d360f91b
Status: Downloaded newer image for debian:latest
```

].

11. Instala **apache2**.

[*instalación de **apt install apache2**:*

```
root@3a4d729c59bd:/# apt install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1 libaprutil1 libaprutil1-dbd-sqlite3
  libaprutil1-ldap libbrotli1 libcurl4 libexpat1 libgdbm-compat4 libgdbm6 libgpm2 libgssapi-krb5-2 libicu72
  libjansson4 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-2.5-0 libldap-common liblua5.3-0
  libncursesw6 libnghttp2-14 libperl5.36 libproc2-0 libpsl5 librtmp1 libsasl2-2 libsasl2-modules libsasl2-modules-db
  libsqlite3-0 libssh2-1 libssl3 libxml2 media-types netbase openssl perl perl-modules-5.36 procps psmisc publicsuffix
  ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser gdbm-l10n gpm krb5-doc krb5-user
  sensible-utils libsasl2-modules-gssapi-mit | libsasl2-modules-gssapi-heimdal libsasl2-modules-ldap
  libsasl2-modules-otp libsasl2-modules-sql perl-doc libterm-readline-gnu-perl | libterm-readline-perl-perl make
  libtap-harness-archive-perl
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils ca-certificates krb5-locales libapr1 libaprutil1
  libaprutil1-dbd-sqlite3 libaprutil1-ldap libbrotli1 libcurl4 libexpat1 libgdbm-compat4 libgdbm6 libgpm2
  libgssapi-krb5-2 libicu72 libjansson4 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-2.5-0
  libldap-common liblua5.3-0 libncursesw6 libnghttp2-14 libperl5.36 libproc2-0 libpsl5 librtmp1 libsasl2-2
  libsasl2-modules libsasl2-modules-db libsqlite3-0 libssh2-1 libssl3 libxml2 media-types netbase openssl perl
  perl-modules-5.36 procps psmisc publicsuffix ssl-cert
0 upgraded, 48 newly installed, 0 to remove and 0 not upgraded.
Need to get 26.8 MB of archives.
After this operation, 127 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://deb.debian.org/debian bookworm/main arm64 perl-modules-5.36 all 5.36.0-7+deb12u1 [2815 kB]
Get:2 http://deb.debian.org/debian bookworm/main arm64 libgdbm6 arm64 1.23-3 [70.9 kB]
```

].

11. Inicialó con el comando **/etc/init.d/apache2 start**.

[*Iniciamos el servicio :*

```
Running hooks in /etc/ca-certificates/update.d...
done.
root@3a4d729c59bd:/# /etc/init.d/apache2 start
Starting Apache httpd web server: apache2AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.3. Set the 'ServerName' directive globally to suppress this message
.
root@3a4d729c59bd:/#
```

].

13. Copia una web estática que muestre tu nombre y apellidos como página por defecto para apache.

[Copiamos el archivo en el directorio de apache mostrar web]

```
[root@3a4d729c59bd:/var/www/html# hostname -I
172.17.0.3
[root@3a4d729c59bd:/var/www/html# chmod -R 755 /var/www/index.html
chmod: cannot access '/var/www/index.html': No such file or directory
[root@3a4d729c59bd:/var/www/html# chmod -R 755 index.html
[root@3a4d729c59bd:/var/www/html# ls -l
total 4
-rwxr-xr-x 1 501 dialout 40 Dec 20 20:12 index.html
```

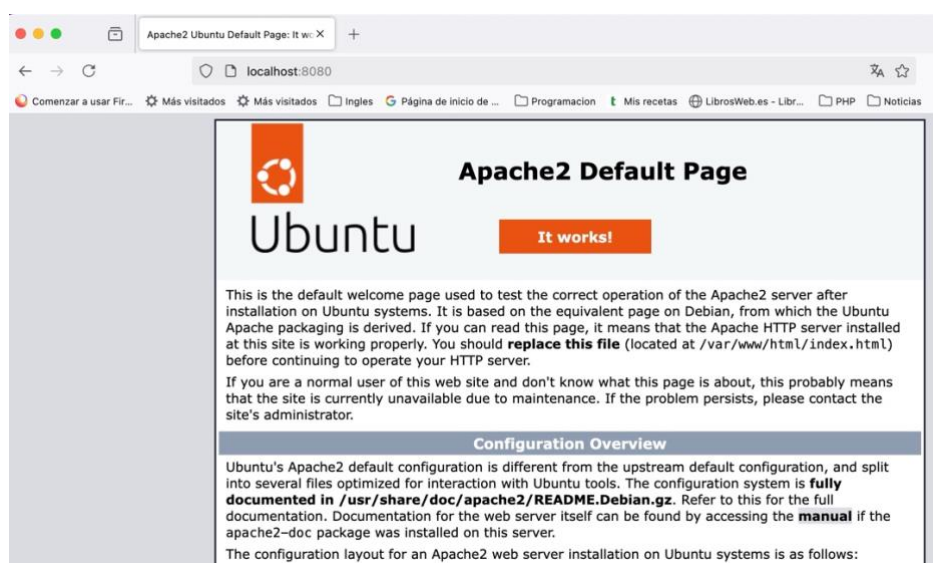
].

14. Comprueba que el servidor web funciona desde el anfitrión accediendo a la IP del contenedor (recuerda que no funcionará con HTTPS).
15. Realiza todos estos pasos de manera que se pueda dejar el Terminal libre para seguir ejecutando comandos desde el anfitrión.

*[Para que funcione desde equipo anfitrión habilitamos redirección del puerto 80 al puerto 8080 cuando creamos el contenedor accedemos a localhost:8080 la ip **Hostname -I** es 172.17.0.3 de nuestro contenedor, la administración del contenedor se ejecuta desde el terminal del equipo anfitrión :*

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
91ac7dae2482   ubuntu:latest  "/bin/bash"             2 hours ago   Up 2 hours   0.0.0.0:8080->80/tcp             debianmiweb-jfmf
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker cp index.html debianmiweb-jfmf:/var/www/html
Successfully copied 2.05kB to debianmiweb-jfmf:/var/www/html
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ %

josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker run --name debianmiweb-jfmf -it -p 8080:80 ubuntu:latest
root@91ac7dae2482:/# apt update
```



Vista de la web `index.html`:



].

16. Crea una imagen llamada **debianmiweb-<iniciales>** a partir del contenedor **midebian<iniciales>**.

[Creamos una imagen a partir del contenedor creado lo he llamado :

debian-apachemiweb-jfmf

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker commit debianmiweb-jfmf debian-apachemiweb-jfmf:latest
sha256:b8aa9d7c1af21607f276c949f13f5387471239c23092aa360128f557b910829c
```

].

17. Elimina el contenedor **midebian-<iniciales>**.

[Paramos y borramos contenedor:

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker commit debianmiweb-jfmf debian-apachemiweb-jfmf:latest
sha256:b8aa9d7c1af21607f276c949f13f5387471239c23092aa360128f557b910829c
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker stop debianmiweb-jfmf
debianmiweb-jfmf
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker rm debianmiweb-jfmf
debianmiweb-jfmf
```

].

18. Lanza otro contenedor para que su web siga estando disponible.

[Lanzamos otro contenedor a partir de la imagen eliminada

```
josefranciscumurciafuentes@MacBook-Pro-de-Jose ~ % docker run -it --name debianmiweb-jfmf -p 80:8080 debian-apachemiweb-jfmf
root@fda3ad71b3a0:/# hostname -I
172.17.0.2
```

].

19. ¿Funciona el servidor web en el nuevo contenedor? [No]. ¿Por qué? [Se deben ejecutar arrancar los servicios de ejecución en memoria que no se guardan cuando instalamos el contenedor solo se guarda la configuración].

20. Realiza lo necesario para que su web siga disponible.

*[Iniciamos el servidor apache: **/etc/init.d/apache2 start***

```
[root@fda3ad71b3a0:/# nmap 172.17.0.2
Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-12-29 11:54 UTC
Nmap scan report for fda3ad71b3a0 (172.17.0.2)
Host is up (0.0000020s latency).
Not shown: 998 closed tcp ports (reset)
PORT      STATE SERVICE
80/tcp    open  http
8080/tcp  open  http-proxy

Nmap done: 1 IP address (1 host up) scanned in 0.09 seconds
[root@fda3ad71b3a0:/# apache2 -v
Server version: Apache/2.4.58 (Ubuntu)
Server built:   2024-10-02T12:40:51
[root@fda3ad71b3a0:/# /etc/init.d/apache2 start
* Starting Apache httpd web server apache2
*
-
].
```

2. Enlaces vídeos

- [📺 Ejercicios Docker: Ejecutar instancias, revisarlas, pararlas | 🧠 Prácticas guiadas y fáciles.](#)
- [📺 Ejercicios Docker: Crear imágenes basadas en un contenedor y uso de Dockerfile .](#)
- [Ejercicios Docker: Crear imágenes a partir de contenedores | 🧠 Entiende este concepto importante](#)

Resultados de Aprendizaje y Criterios de Evaluación

Contenidos:	
5. Implantación de sistemas seguros de despliegado de software: <ul style="list-style-type: none"> • Puesta segura en producción. • Prácticas unificadas para el desarrollo y operación del software (DevOps). • Sistemas de control de versiones. • Sistemas de automatización de construcción (build). • Escalado de servidores. Virtualización. Contenedores. • Gestión automatizada de configuración de sistemas. • Orquestación de contenedores. 	
Resultados de Aprendizaje	Criterios de Evaluación
RA5. Implanta sistemas seguros de despliegado de software, utilizando herramientas para la automatización de la construcción de sus elementos.	<p>a) Se han identificado las características, principios y objetivos de la integración del desarrollo y operación del software.</p> <p>b) Se han implantado sistemas de control de versiones, administrando los roles y permisos solicitados.</p> <p>c) Se han instalado, configurado y verificado sistemas de integración continua, conectándolos con sistemas de control de versiones.</p> <p>d) Se han planificado, implementado y automatizado planes de despliegado de software.</p> <p>e) Se ha evaluado la capacidad del sistema desplegado para reaccionar de forma automática a fallos.</p> <p>f) Se han documentado las tareas realizadas y los procedimientos a seguir para la recuperación ante desastres.</p> <p>g) Se han creado bucles de retroalimentación ágiles entre los miembros del equipo.</p>