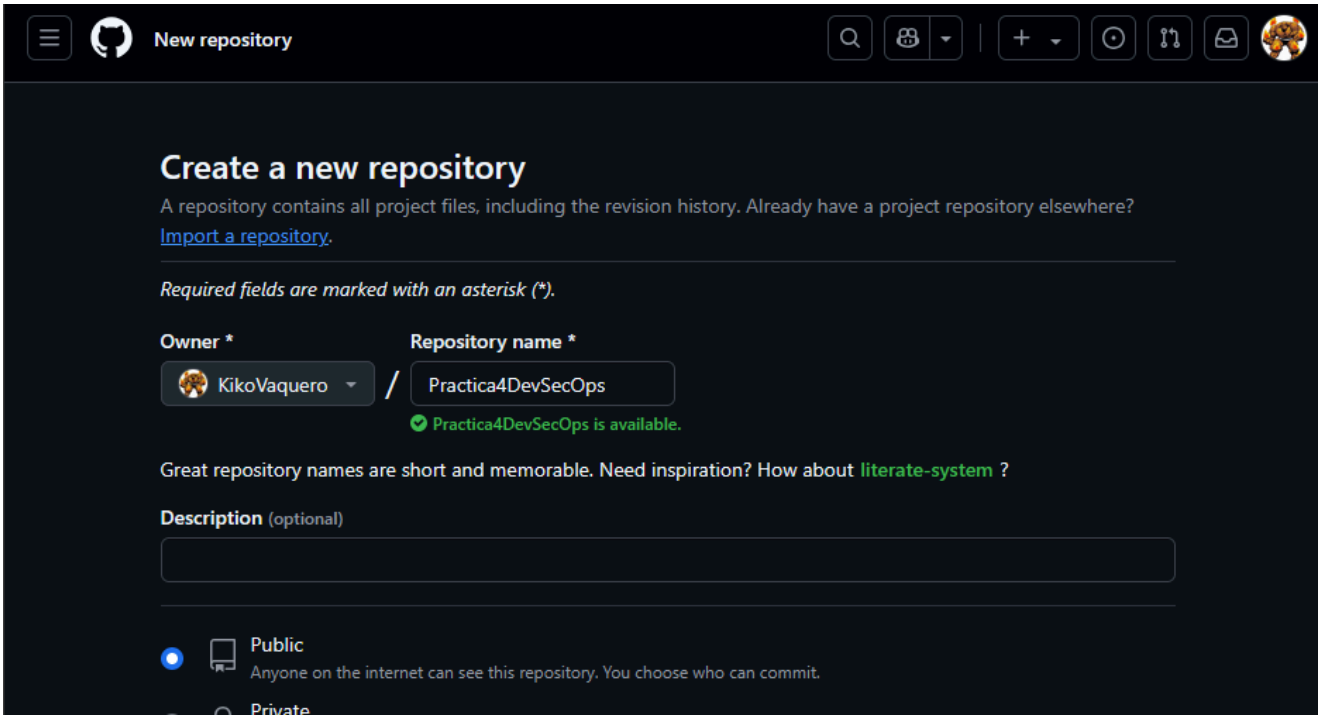
DevSecOps

GIT

Creación del repositorio

Creamos un nuevo repositorio en github:

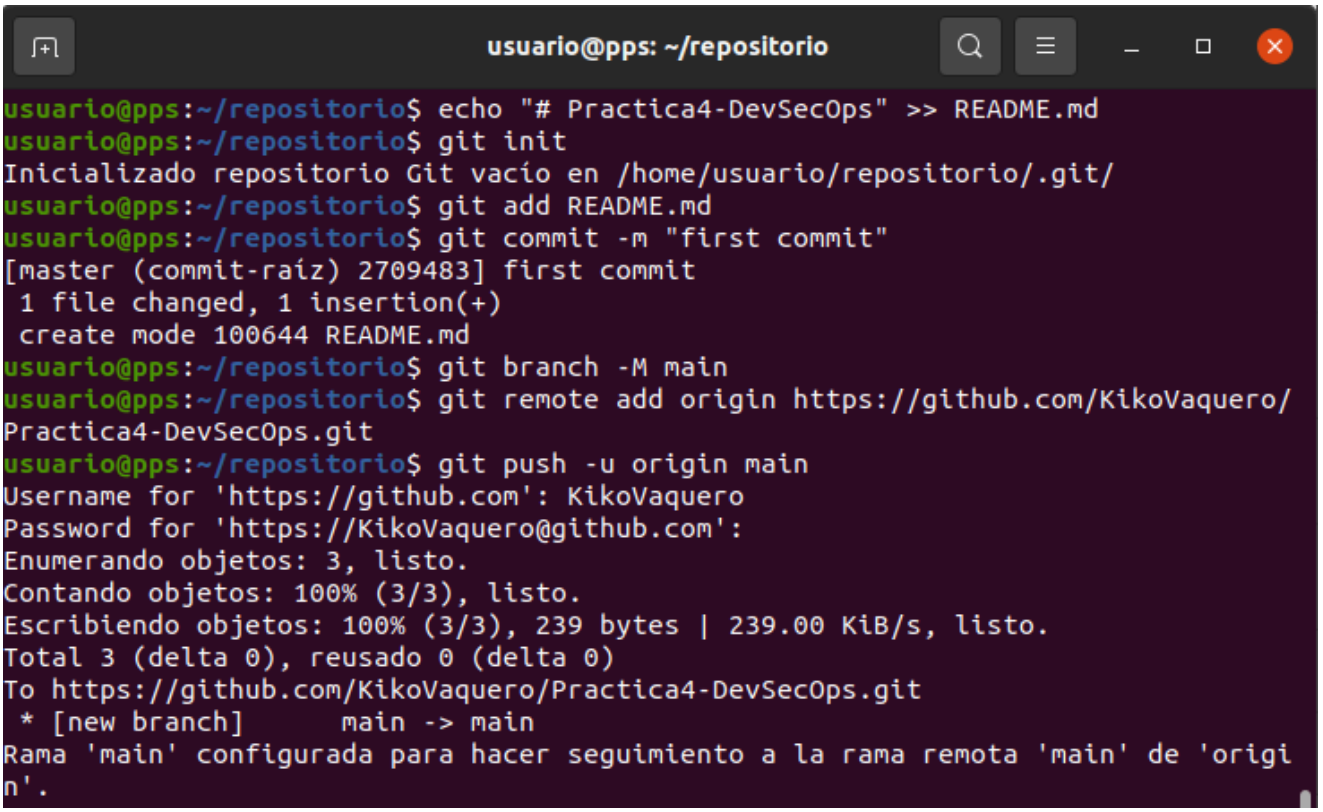


Ejecutamos lo siguiente en el directorio que elijamos:

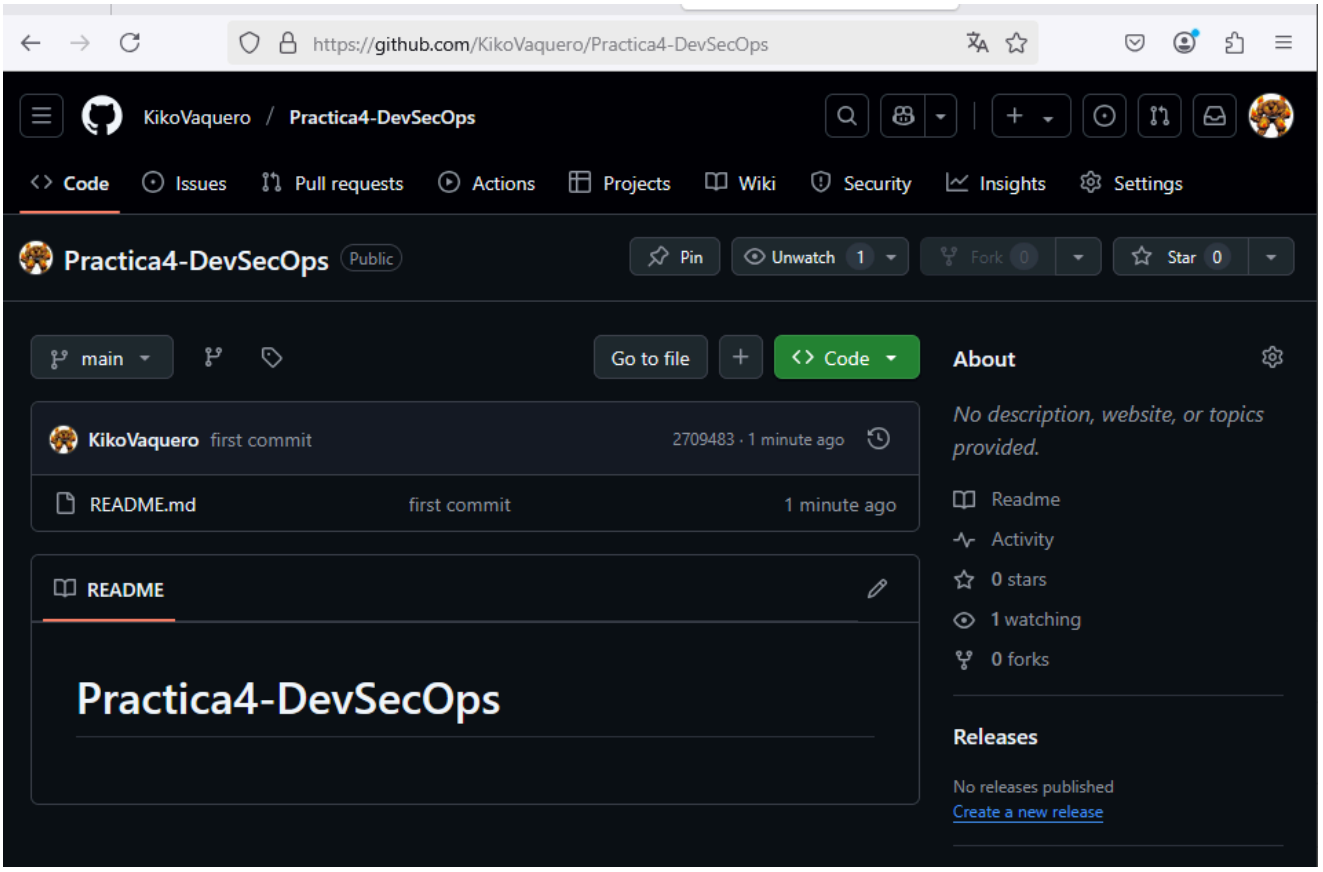
```
echo "# Practica4-DevSecOps" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
```

```
git remote add origin https://github.com/KikoVaquero/Practica4-
DevSecOps.git
git push -u origin main
```

En este caso lo hago sobre el directorio vacío `repositorio`.



Y con esto ya tenemos el archivo README.md en github y listo para subir archivos.



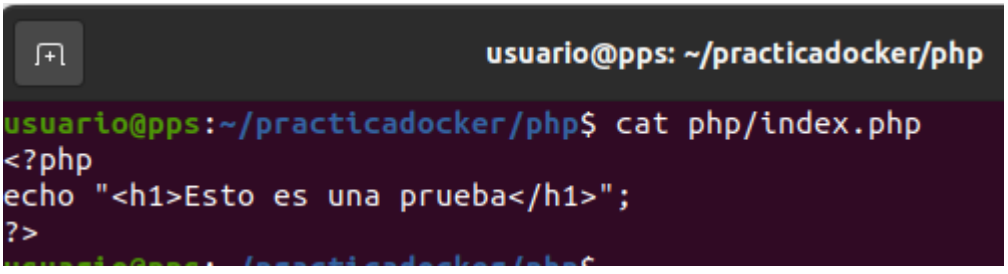
Docker

Imagen PHP

Creación y ejecución del docker

Primeramente creo la página básica de php:

```php
<?php
echo "<h1>Esto es una prueba</h1>";
?>
```



Si buscamos en docker hub como lanzar una aplicación en php encontramos:

```
FROM php:8.2-cli
WORKDIR /usr/src/myapp
COPY . /usr/src/myapp
CMD [ "php", "-S", "0.0.0.0:80" ]
```

```
usuario@pps:~/practicadocker/php$ cat php/Dockerfile
FROM php:8.2-cli
WORKDIR /usr/src/myapp
COPY . /usr/src/myapp
CMD [ "php", "-S", "0.0.0.0:80" ]
```

Creamos la imagen:

```
docker build -t aplicacionphp .
```

Y lanzamos la aplicación:

```
docker run -d --name php1 -p 80:80 aplicacionphp
```

```
usuario@pps:~/practicadocker/php$ docker build -t aplicacionphp .
[+] Building 1.6s (8/8) FINISHED
 => [internal] load build definition from Dockerfile
 => => transferring dockerfile: 133B
 => [internal] load metadata for docker.io/library/php:8.2-cli
 => [internal] load .dockerignore
 => => transferring context: 2B
 => [1/3] FROM docker.io/library/php:8.2-cli@sha256:ed4385b854a7ef4aeee1108c75333443d64c937faaf7c7d28bf63a436df06428
 => [internal] load build context
 => => transferring context: 161B
 => CACHED [2/3] WORKDIR /usr/src/myapp
 => [3/3] COPY . /usr/src/myapp
 => exporting to image
 => => exporting layers
 => => writing image sha256:b85d4ffc3cb488f2bcbde407f14ceda54f35b438cc9c818e5c2342cd9e1a755f
 => => naming to docker.io/library/aplicacionphp
usuario@pps:~/practicadocker/php$ docker run -d --name php1 -p 80:80 aplicacionphp
dc75d726d3a15ae0eb12b98713f6e3203c3e0b2f60e06b63aada6ac4028ffd6b
```

Y si ahora accedemos al localhost:

Si queremos parar el contenedor:

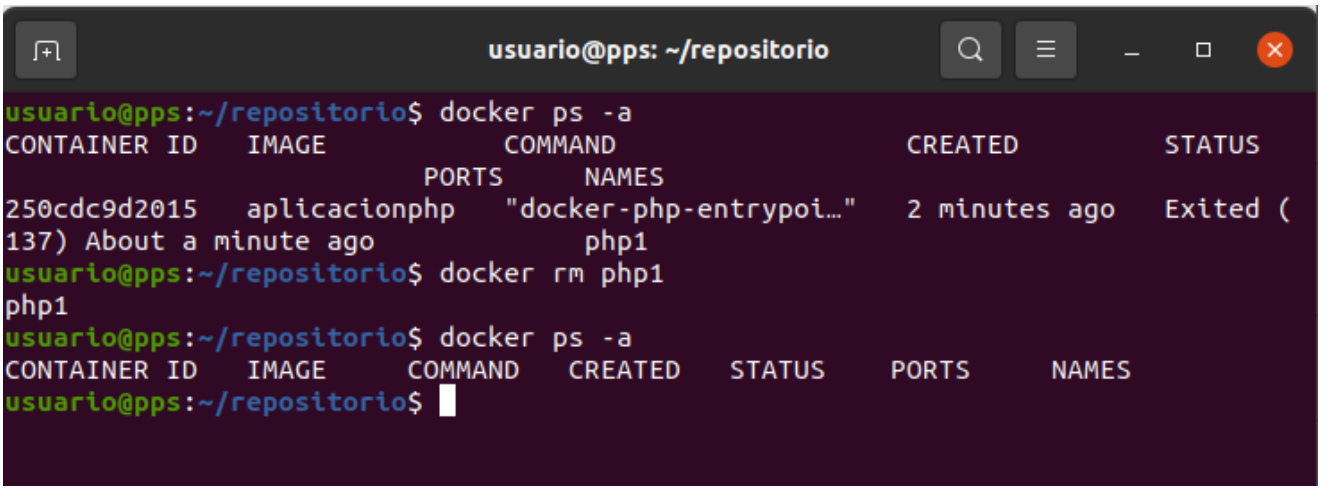
```
docker stop 250cdc9d2015
```

O por el nombre del contenedor:

```
docker stop php1
```

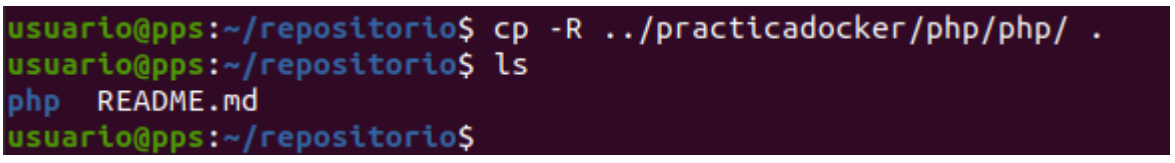
Para eliminarlo igual, con el id o el nombre del contenedor:

```
docker rm php1
```



Subida a git

Para subirlo a git voy a copiar el directorio con el `Dockerfile` al repositorio:



Una vez tenemos los cambios:

```
git add *
git commit -m "Dockerfile php"
git push origin main
```

```
usuario@pps:~/repositorio$ git add *
usuario@pps:~/repositorio$ git commit -m "Dockerfile php"
[main 8b7fb5e] Dockerfile php
 2 files changed, 7 insertions(+)
 create mode 100644 php/Dockerfile
 create mode 100644 php/index.php
usuario@pps:~/repositorio$ git push origin main
Username for 'https://github.com': KikoVaquero
Password for 'https://KikoVaquero@github.com':
Enumerando objetos: 6, listo.
Contando objetos: 100% (6/6), listo.
Compresión delta usando hasta 2 hilos
Comprimiendo objetos: 100% (4/4), listo.
Escribiendo objetos: 100% (5/5), 488 bytes | 488.00 KiB/s, listo.
Total 5 (delta 0), reusado 0 (delta 0)
To https://github.com/KikoVaquero/Practica4-DevSecOps.git
   2709483..8b7fb5e  main -> main
usuario@pps:~/repositorio$
```

Y ya tendríamos los archivos en el repositorio de github.

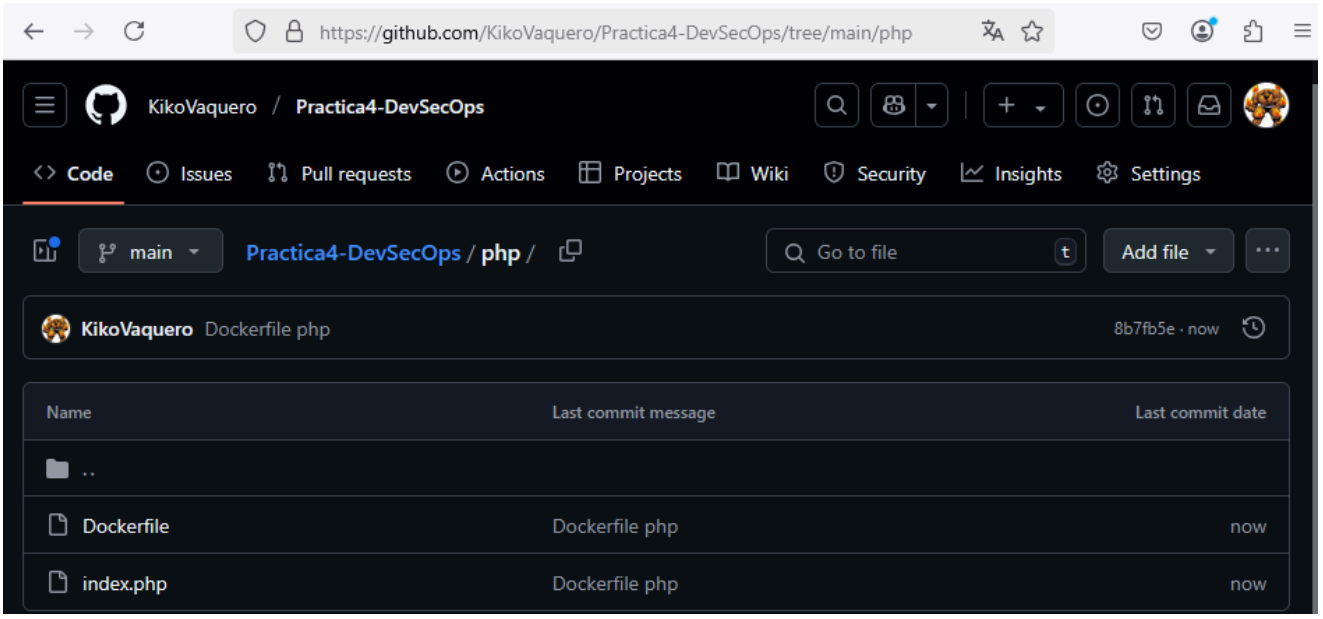


Imagen Apache

Creación y ejecución del contenedor

Lo aplicación que va a lanzar en este caso apache va a ser la que creamos en el anterior apartado, es decir voy a hacer un `git clone` de mi propio repositorio:

```
FROM ubuntu:20.04
ENV DEBIAN_FRONTEND=noninteractive
RUN apt update
RUN apt install -y apache2
RUN apt install -y apache2-utils
RUN apt install -y git php
RUN apt clean
```

```
WORKDIR /var/www/html
RUN mkdir app
WORKDIR /var/www/html/app
RUN git clone https://github.com/KikoVaquero/Practica4-DevSecOps/ .
EXPOSE 80
CMD ["apachectl", "-D", "FOREGROUND"]
```

```
usuario@pps:~/practicadocker/php$ cat apache/Dockerfile
FROM ubuntu:20.04
ENV DEBIAN_FRONTEND=noninteractive
RUN apt update
RUN apt install -y apache2
RUN apt install -y apache2-utils
RUN apt install -y git php
RUN apt clean
WORKDIR /var/www/html
RUN mkdir app
WORKDIR /var/www/html/app
RUN git clone https://github.com/KikoVaquero/Practica4-DevSecOps/ .
EXPOSE 80
CMD ["apachectl", "-D", "FOREGROUND"]
```

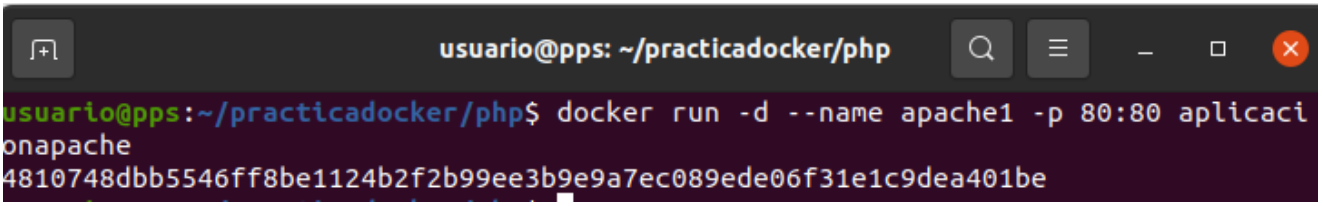
Para crear la imagen vamos a ejecutar:

```
docker build -t aplicacionapache apache/.
```

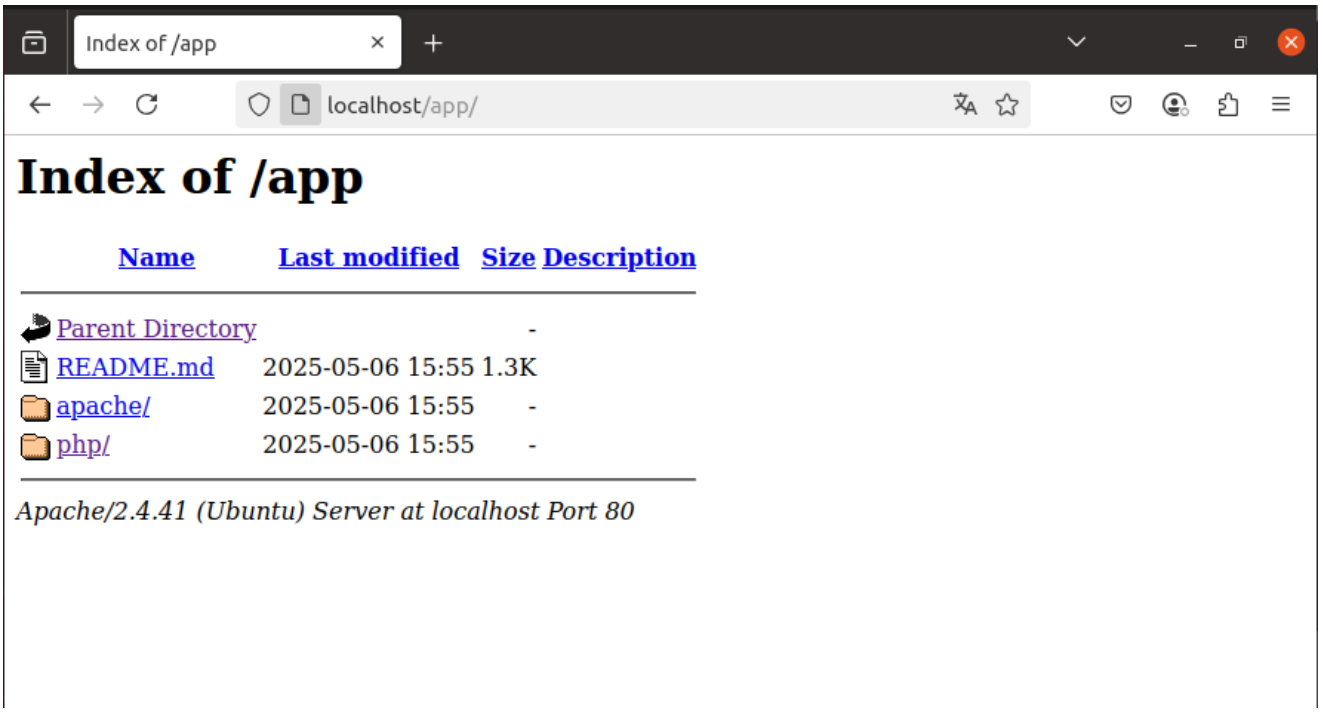
```
usuario@pps: ~/practicadocker/php
usuario@pps:~/practicadocker/php$ docker build -t aplicacionapache apache/.
[+] Building 1.9s (14/14) FINISHED                                docker:default
 => [internal] load build definition from Dockerfile                       0.0s
 => => transferring dockerfile: 390B                                       0.0s
 => [internal] load metadata for docker.io/library/ubuntu:20.04            1.8s
 => [internal] load .dockerignore                                          0.0s
 => => transferring context: 2B                                            0.0s
 => [ 1/10] FROM docker.io/library/ubuntu:20.04@sha256:8feb4d8ca5354def3d   0.0s
 => CACHED [ 2/10] RUN apt update                                          0.0s
 => CACHED [ 3/10] RUN apt install -y apache2                              0.0s
 => CACHED [ 4/10] RUN apt install -y apache2-utils                        0.0s
 => CACHED [ 5/10] RUN apt install -y git php                              0.0s
 => CACHED [ 6/10] RUN apt clean                                           0.0s
 => CACHED [ 7/10] WORKDIR /var/www/html                                   0.0s
 => CACHED [ 8/10] RUN mkdir app                                           0.0s
 => CACHED [ 9/10] WORKDIR /var/www/html/app                               0.0s
 => CACHED [10/10] RUN git clone https://github.com/KikoVaquero/Practica4  0.0s
 => exporting to image                                                     0.0s
 => => exporting layers                                                    0.0s
 => => writing image sha256:3007613679f3a33983fd09ff5c6217f26e2030daecba4  0.0s
 => => naming to docker.io/library/aplicacionapache                        0.0s
usuario@pps:~/practicadocker/php$
```

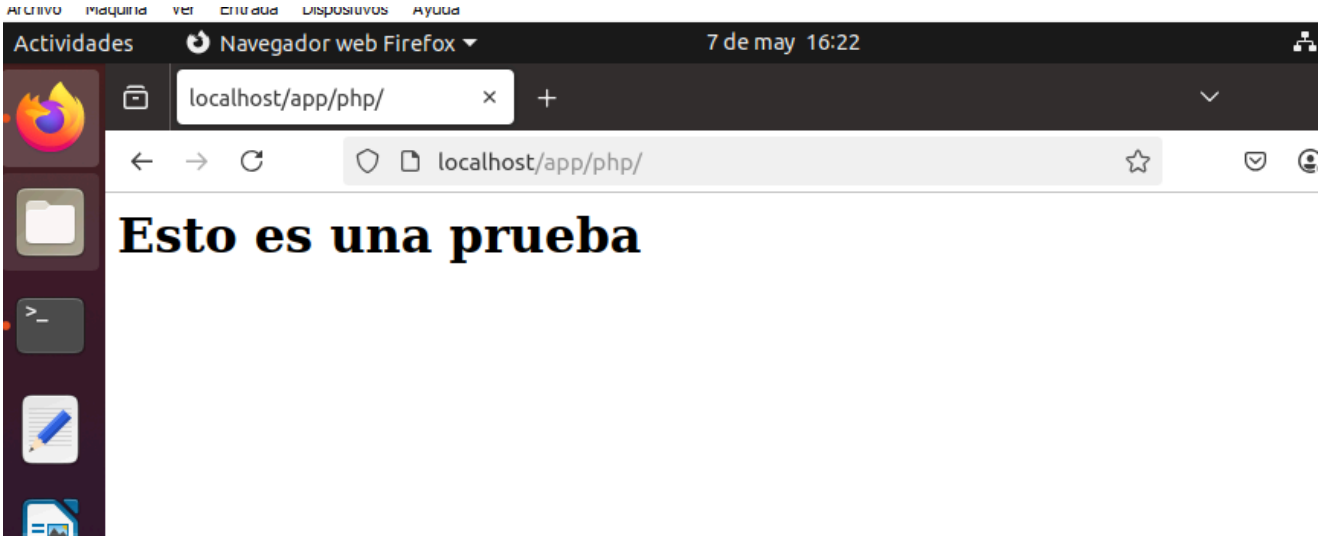
Para crear el contenedor y ejecutarlo:

```
docker run -d --name apache1 -p 80:80 aplicacionapache
```



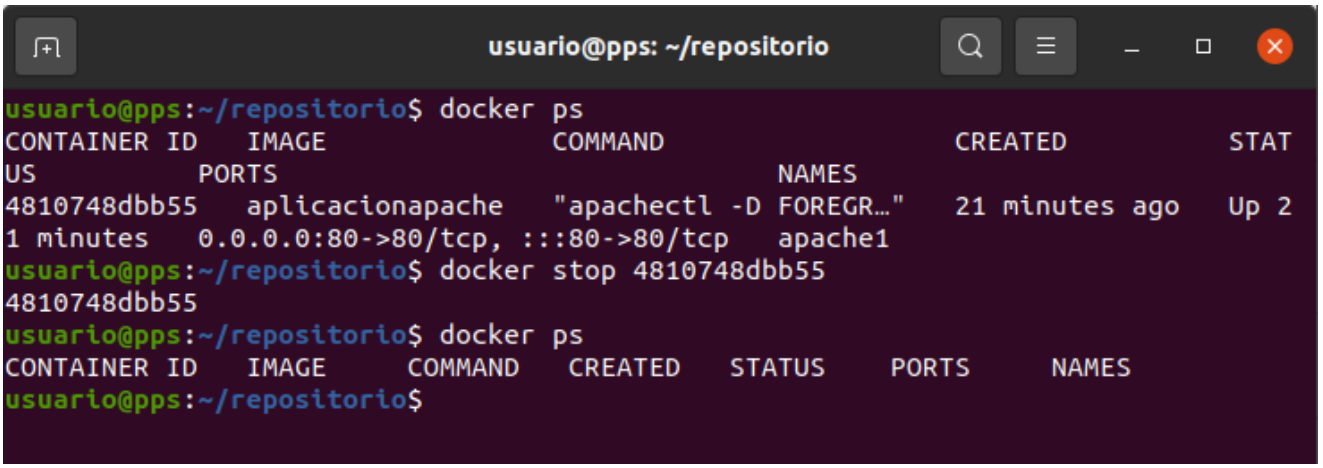
Y ya podríamos acceder a la página creada en el puerto 80:





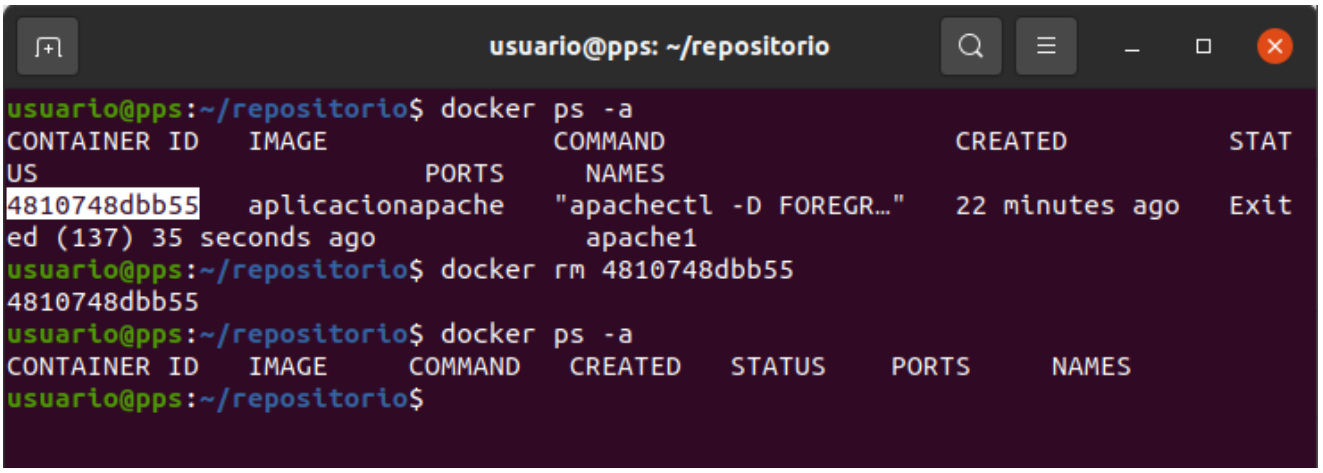
Para parar el contenedor podemos utilizar:

```
docker stop 4810748dbb55
```



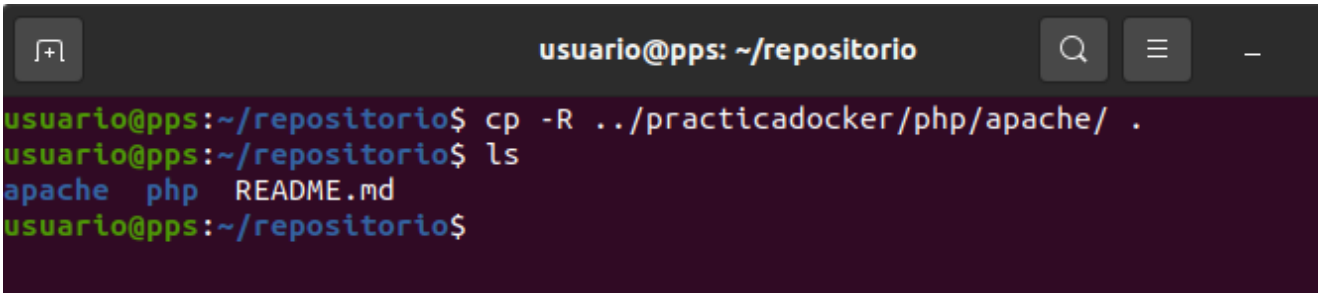
Para borrarlo:

```
docker rm 4810748dbb55
```



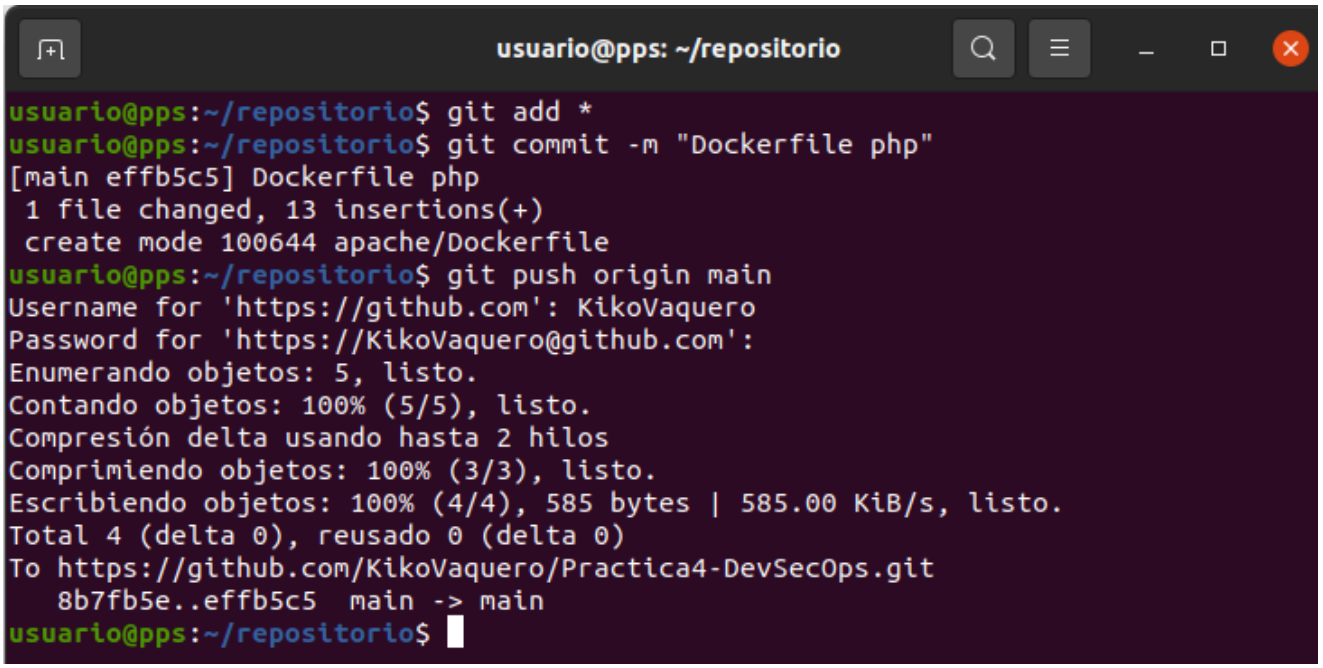
Subida a git

Copiamos los archivos al repositorio:

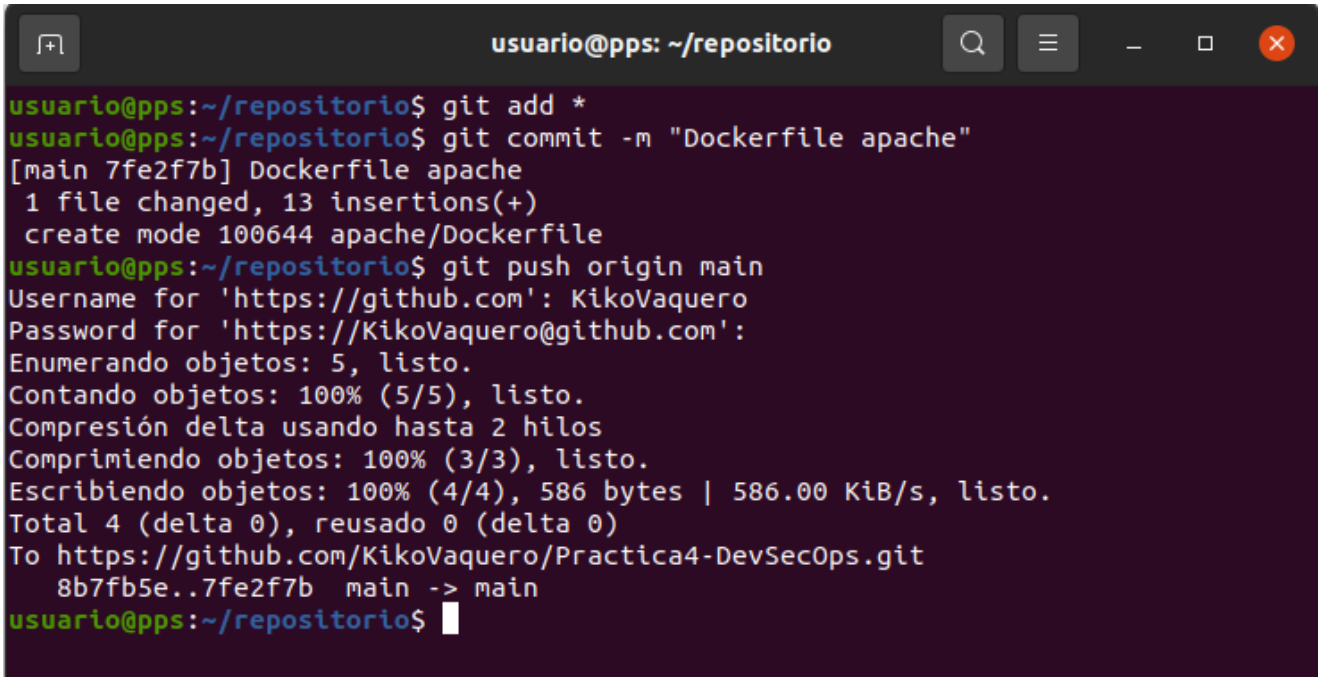


Los subimos al repositorio ejecutando:

```
git add *
git commit -m "Dockerfile php"
git push origin main
```



Y los cambios ya se ven en el repositorio:



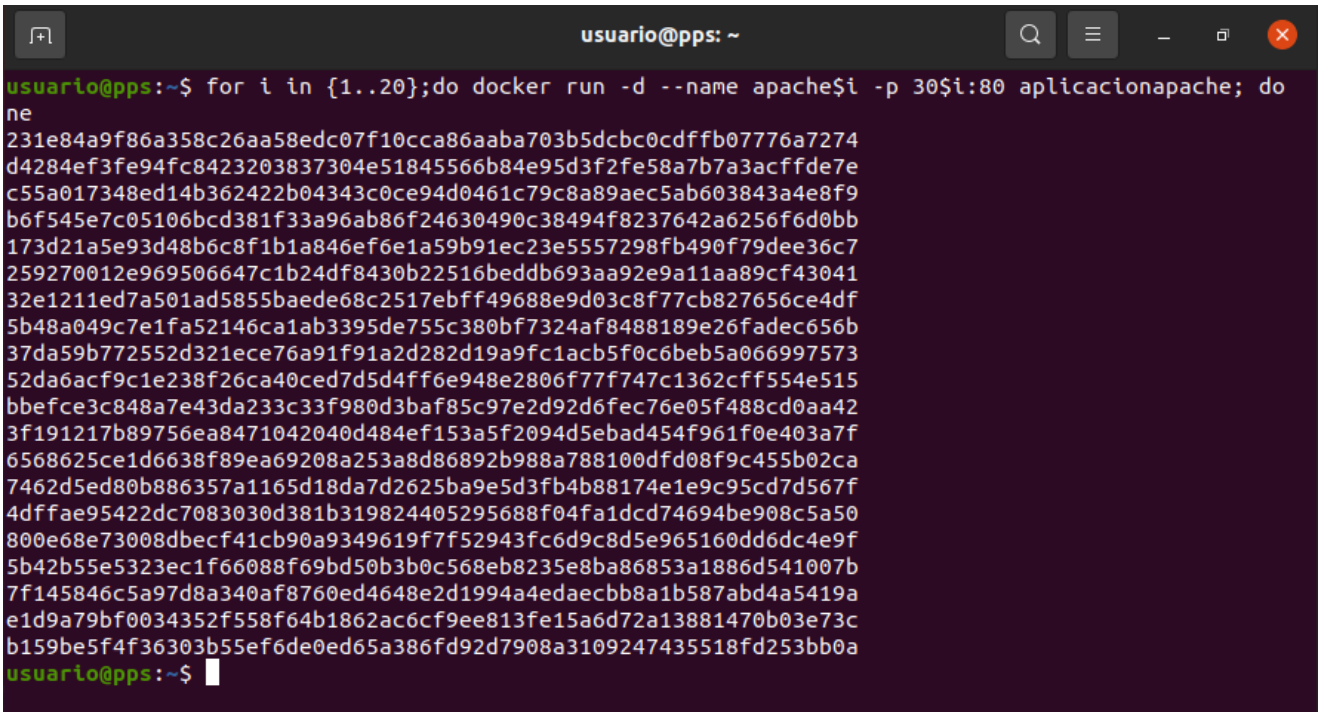
En el caso de que queramos deshacer el push que acabamos de hacer:

```
git reset --hard HEAD~1
git push --force          # fuerza el cambio en el remoto
```

20 contenedores a través de un comando

El comando utilizado es:

```
for i in {1..20};do docker run -d --name apache$i -p 30$i:80
aplicacionapache; done
```



Para ver que los contenedores están corriendo:

```
docker ps
```

```
usuario@pps: ~
usuario@pps:~$ docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED          STATUS          PORT
S                                       NAMES
b159be5f4f36   aplicacionapache     "apachectl -D FOREGR…"   51 seconds ago   Up 50 seconds   0.0.
0.0:3020->80/tcp, [::]:3020->80/tcp     apache20
e1d9a79bf003   aplicacionapache     "apachectl -D FOREGR…"   51 seconds ago   Up 50 seconds   0.0.
0.0:3019->80/tcp, [::]:3019->80/tcp     apache19
7f145846c5a9   aplicacionapache     "apachectl -D FOREGR…"   51 seconds ago   Up 50 seconds   0.0.
0.0:3018->80/tcp, [::]:3018->80/tcp     apache18
5b42b55e5323   aplicacionapache     "apachectl -D FOREGR…"   51 seconds ago   Up 51 seconds   0.0.
0.0:3017->80/tcp, [::]:3017->80/tcp     apache17
800e68e73008   aplicacionapache     "apachectl -D FOREGR…"   51 seconds ago   Up 51 seconds   0.0.
0.0:3016->80/tcp, [::]:3016->80/tcp     apache16
4dffae95422d   aplicacionapache     "apachectl -D FOREGR…"   52 seconds ago   Up 51 seconds   0.0.
0.0:3015->80/tcp, [::]:3015->80/tcp     apache15
7462d5ed80b8   aplicacionapache     "apachectl -D FOREGR…"   52 seconds ago   Up 51 seconds   0.0.
0.0:3014->80/tcp, [::]:3014->80/tcp     apache14
6568625ce1d6   aplicacionapache     "apachectl -D FOREGR…"   52 seconds ago   Up 51 seconds   0.0.
0.0:3013->80/tcp, [::]:3013->80/tcp     apache13
3f191217b897   aplicacionapache     "apachectl -D FOREGR…"   52 seconds ago   Up 52 seconds   0.0.
0.0:3012->80/tcp, [::]:3012->80/tcp     apache12
bbefce3c848a   aplicacionapache     "apachectl -D FOREGR…"   52 seconds ago   Up 52 seconds   0.0.
0.0:3011->80/tcp, [::]:3011->80/tcp     apache11
52da6acf9c1e   aplicacionapache     "apachectl -D FOREGR…"   52 seconds ago   Up 52 seconds   0.0.
0.0:3010->80/tcp, [::]:3010->80/tcp     apache10
37da59b77255   aplicacionapache     "apachectl -D FOREGR…"   53 seconds ago   Up 52 seconds   0.0.
0.0:309->80/tcp, [::]:309->80/tcp       apache9
5b48a049c7e1   aplicacionapache     "apachectl -D FOREGR…"   53 seconds ago   Up 52 seconds   0.0.
0.0:308->80/tcp, [::]:308->80/tcp       apache8
32e1211ed7a5   aplicacionapache     "apachectl -D FOREGR…"   53 seconds ago   Up 52 seconds   0.0.
0.0:307->80/tcp, [::]:307->80/tcp       apache7
259270012e96   aplicacionapache     "apachectl -D FOREGR…"   53 seconds ago   Up 53 seconds   0.0.
0.0:306->80/tcp, [::]:306->80/tcp       apache6
173d21a5e93d   aplicacionapache     "apachectl -D FOREGR…"   53 seconds ago   Up 53 seconds   0.0.
0.0:305->80/tcp, [::]:305->80/tcp       apache5
b6f545e7c051   aplicacionapache     "apachectl -D FOREGR…"   54 seconds ago   Up 53 seconds   0.0.
0.0:304->80/tcp, [::]:304->80/tcp       apache4
c55a017348ed   aplicacionapache     "apachectl -D FOREGR…"   54 seconds ago   Up 53 seconds   0.0.
0.0:303->80/tcp, [::]:303->80/tcp       apache3
d4284ef3fe94   aplicacionapache     "apachectl -D FOREGR…"   54 seconds ago   Up 53 seconds   0.0.
0.0:302->80/tcp, [::]:302->80/tcp       apache2
231e84a9f86a   aplicacionapache     "apachectl -D FOREGR…"   54 seconds ago   Up 53 seconds   0.0.
0.0:301->80/tcp, [::]:301->80/tcp       apache1
usuario@pps:~$
```

SI ahora por ejemplo accedemos a `http://localhost:309/app/php`

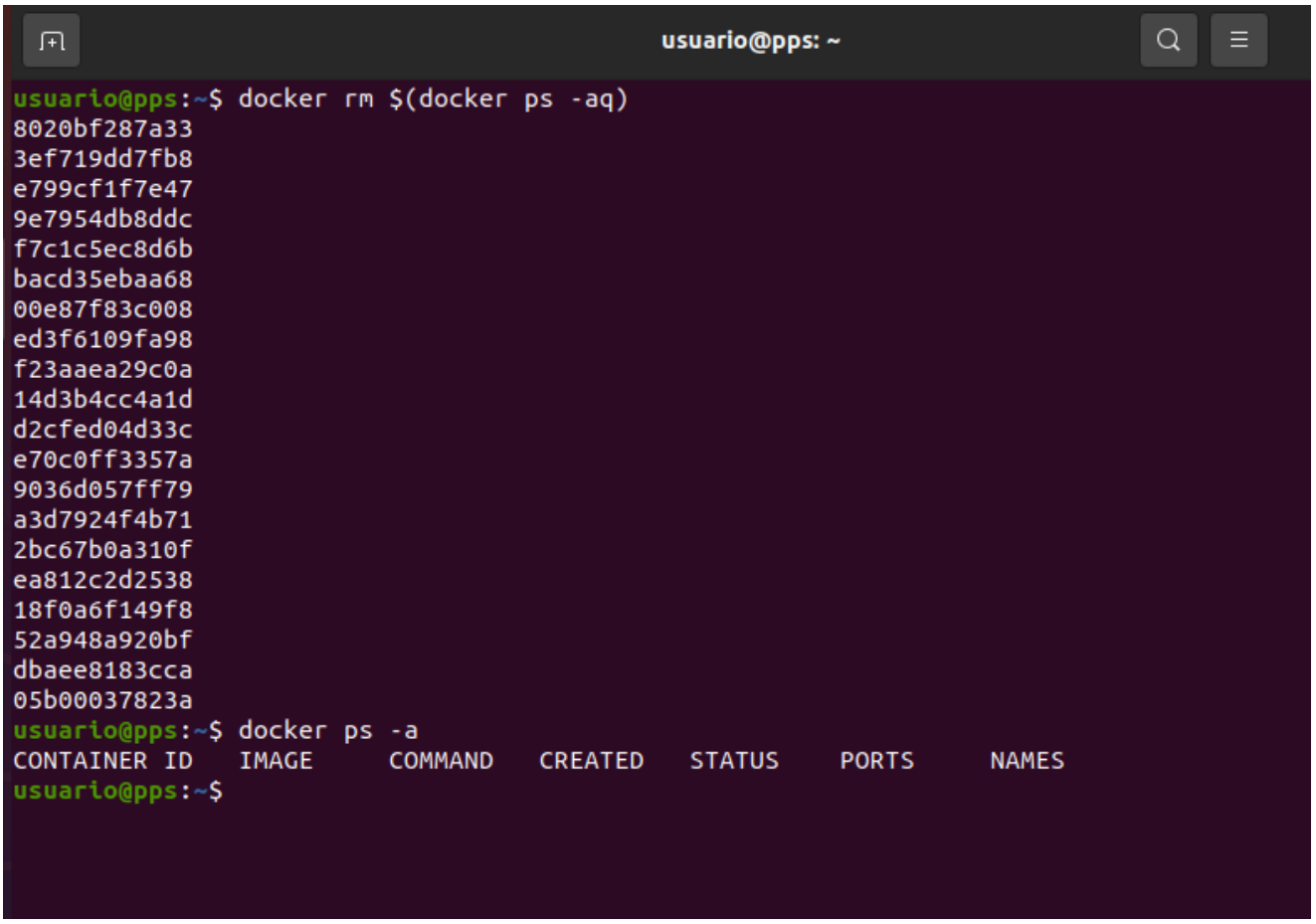
Para parar todos los contenedores a la vez:

```
docker stop $(docker ps -aq)
```

```
usuario@pps:~$ docker stop $(docker ps -aq)
8020bf287a33
3ef719dd7fb8
e799cf1f7e47
9e7954db8ddc
f7c1c5ec8d6b
bacd35ebaa68
00e87f83c008
ed3f6109fa98
f23aaea29c0a
14d3b4cc4a1d
d2cfed04d33c
e70c0ff3357a
9036d057ff79
a3d7924f4b71
2bc67b0a310f
ea812c2d2538
18f0a6f149f8
52a948a920bf
dbaee8183cca
05b00037823a
usuario@pps:~$ docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
usuario@pps:~$
```

Para borrar todos a la vez:

```
docker rm $(docker ps -aq)
```


usuario@pps: ~
usuario@pps:~$ docker rm $(docker ps -aq)
8020bf287a33
3ef719dd7fb8
e799cf1f7e47
9e7954db8ddc
f7c1c5ec8d6b
bacd35ebaa68
00e87f83c008
ed3f6109fa98
f23aaea29c0a
14d3b4cc4a1d
d2cfed04d33c
e70c0ff3357a
9036d057ff79
a3d7924f4b71
2bc67b0a310f
ea812c2d2538
18f0a6f149f8
52a948a920bf
dbaee8183cca
05b00037823a
usuario@pps:~$ docker ps -a
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
usuario@pps:~$