INFORME DE LABORATORIO

(formato estudiante)

INFORMACIÓN BÁSICA					
ASIGNATURA:	*Programación Web 2*				
TÍTULO DE LA PRÁCTICA:	*Docker*				
NÚMERO DE PRÁCTICA:	*1*	**AÑO LECTIVO:**	*Segundo*	**NRO. SEMESTRE:**	*III*
FECHA DE PRESENTACIÓN	*15/05/2024*	**HORA DE PRESENTACIÓN**	*11:30 p. m.*		
INTEGRANTE (s) *Donny Moises Mara Mamani*				**NOTA (0-20)**	*Nota colocada por el docente*
DOCENTE(s): *LINO JOSE PINTO OPPE*					

RESULTADOS Y PRUEBAS

I. CUESTIONARIO:

1. En primer lugar creamos el contenedor, se abren tres puertos en total, haciendo un copia local de la imagen de Ubuntu.
   Podremos utilizar el mismo contenedor e instalar las dependencias de nuestro proyecto para un funcionamiento local, lo que permitirá que observemos nuestro proyecto del segundo semestre

```
C:\Users\HP>docker run --name pw2_lab01 -p 8084:80 -p 8085:3306 -p 8086:22 -it ubuntu:20.04 /bin/bash
root@40cd175ac59f:/#
```

```
Unable to find image 'ubuntu:20.04' locally
20.04: Pulling from library/ubuntu
d4c3c94e5e10: Pull complete
Digest: sha256:874aca52f79ae5f8258faff03e10ce99ae836f6e7d2df6ecd3da5c1cad3a912b
Status: Downloaded newer image for ubuntu:20.04
```

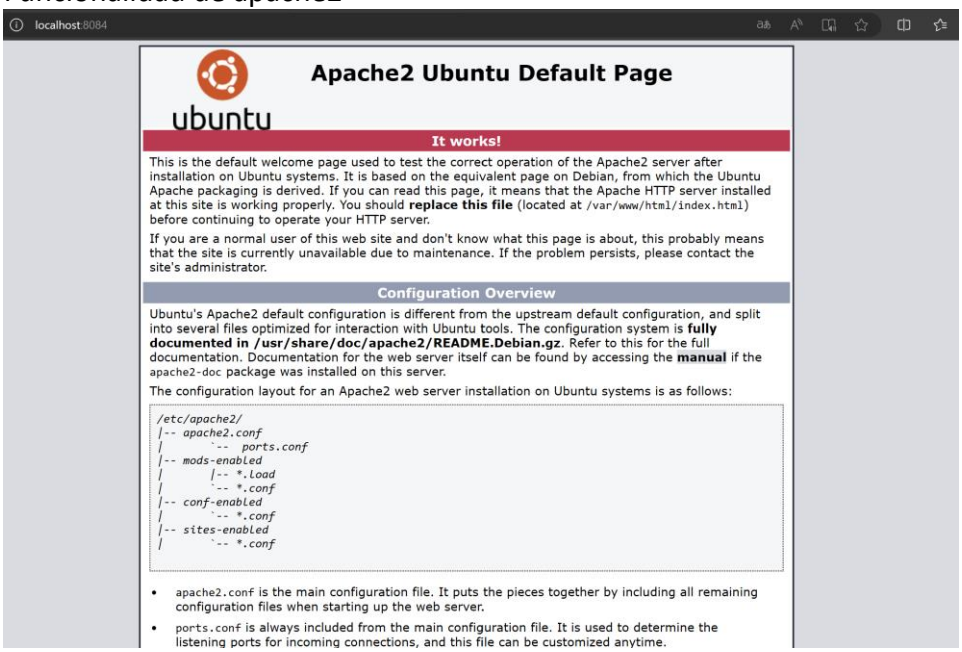
2. A continuación, utilizamos el comando “apt-get update” para preparar el sistema y poder ejecutar los comandos

```
C:\Users\HP>docker run --name pw2_lab01 -p 8084:80 -p 8085:3306 -p 8086:22 -it ubuntu:20.04 /bin/bash
root@40cd175ac59f:/# apt-get update
Get:1 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:4 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [29.8 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:6 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [3669 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [177 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/main amd64 Packages [1275 kB]
Get:9 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [1205 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [3608 kB]
Get:11 http://archive.ubuntu.com/ubuntu focal/restricted amd64 Packages [33.4 kB]
Get:12 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [11.3 MB]
Get:13 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [32.5 kB]
Get:14 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [3758 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [4143 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1502 kB]
Get:17 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [55.2 kB]
Get:18 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [28.6 kB]
Fetched 31.5 MB in 37s (842 kB/s)
Reading package lists... Done
```

3. Ahora ingresamos el comando “apt-get install apache2” para instalar “Apache2”

```
root@40cd175ac59f:/# apt-get install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils ca-certificates file krb5-locales libapr1 libaprutil1 libaprutil1-dbd-sqlite3
  libaprutil1-ldap libasn1-8-heimdal libbrotli1 libcurl4 libexpat1 libgdbm-compat4 libgdbm6 libgssapi-krb5-2
  libgssapi3-heimdal libhcrypto4-heimdal libheimbase1-heimdal libheimntlm0-heimdal libhx509-5-heimdal libicu66
  libjansson4 libk5crypto3 libkeyutils1 libkrb5-26-heimdal libkrb5-3 libkrb5support0 libldap-2.4-2 libldap-common
  liblua5.2-0 libmagic-mgc libmagic1 libnghttp2-14 libperl5.30 libpsl5 libroken18-heimdal librtmp1 libsasl2-2
  libsasl2-modules libsasl2-modules-db libsqlite3-0 libssh-4 libssl1.1 libwind0-heimdal libxml2 mime-support netbase
  openssl perl perl-modules-5.30 publicsuffix ssl-cert tzdata xz-utils
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser ufw gdbm-l10n krb5-doc krb5-user
  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 libb-debug-perl
  liblocale-codes-perl openssl-blacklist
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils ca-certificates file krb5-locales libapr1 libaprutil1
```

4. Funcionalidad de apache2



5. Ahora ingresamos el comando para instalar vim

```
root@40cd175ac59f:/# apt-get install vim
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  alsa-topology-conf alsa-ucm-conf libasound2 libasound2-data libcanberra0 libgpm2 libltdl7 libmpdec2 libogg0
  libpython3.8 libpython3.8-minimal libpython3.8-stdlib libreadline8 libtdb1 libvorbis0a libvorbisfile3
  readline-common sound-theme-freedesktop vim-common vim-runtime xxd
Suggested packages:
  libasound2-plugins alsa-utils libcanberra-gtk0 libcanberra-pulse gpm readline-doc ctags vim-doc vim-scripts
The following NEW packages will be installed:
  alsa-topology-conf alsa-ucm-conf libasound2 libasound2-data libcanberra0 libgpm2 libltdl7 libmpdec2 libogg0
  libpython3.8 libpython3.8-minimal libpython3.8-stdlib libreadline8 libtdb1 libvorbis0a libvorbisfile3
  readline-common sound-theme-freedesktop vim vim-common vim-runtime xxd
0 upgraded, 22 newly installed, 0 to remove and 0 not upgraded.
Need to get 12.6 MB of archives.
After this operation, 58.1 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

6. Ingresamos el comando “apt-get install libapache2-mod-php7.4” para instalar el módulo PHP 7.4 para el servidor web Apache en sistemas basados en Debian, como Ubuntu.

```
root@40cd175ac59f:/# apt-get install libapache2-mod-php7.4
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libargon2-1 libbsd0 libedit2 libsodium23 php-common php7.4-cli php7.4-common php7.4-json php7.4-opcache
  php7.4-readline psmisc ucf
Suggested packages:
  php-pear
The following NEW packages will be installed:
  libapache2-mod-php7.4 libargon2-1 libbsd0 libedit2 libsodium23 php-common php7.4-cli php7.4-common php7.4-json
  php7.4-opcache php7.4-readline psmisc ucf
0 upgraded, 13 newly installed, 0 to remove and 0 not upgraded.
Need to get 4429 kB of archives.
After this operation, 19.3 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

7. Seguidamente, ingresamos el comando “” para instalar MariDB, esto para poder gestionar nuestra base de fatos de nuestro proyecto.

```
root@40cd175ac59f:/# apt-get install mariadb-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  galera-3 gawk iproute2 libaio1 libatm1 libcap2 libcap2-bin libcgi-fast-perl libcgi-pm-perl libconfig-inifiles-perl
  libdbd-mysql-perl libdbi-perl libelf1 libencode-locale-perl libfcgi-perl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmnl0 libmpfr6
  libmysqlclient21 libpam-cap libpopt0 libreadline5 libsigsegv2 libsnappy1v5 libterm-readkey-perl libtimedate-perl
  liburi-perl libwrap0 libxtables12 lsof mariadb-client-10.3 mariadb-client-core-10.3 mariadb-common
  mariadb-server-10.3 mariadb-server-core-10.3 mysql-common rsync socat
Suggested packages:
  gawk-doc iproute2-doc libclone-perl libmldbm-perl libnet-daemon-perl libsql-statement-perl libdata-dump-perl
  libipc-sharedcache-perl libwww-perl mailx mariadb-test netcat-openbsd tinyca openssh-client openssh-server
The following NEW packages will be installed:
  galera-3 gawk iproute2 libaio1 libatm1 libcap2 libcap2-bin libcgi-fast-perl libcgi-pm-perl libconfig-inifiles-perl
  libdbd-mysql-perl libdbi-perl libelf1 libencode-locale-perl libfcgi-perl libhtml-parser-perl libhtml-tagset-perl
  libhtml-template-perl libhttp-date-perl libhttp-message-perl libio-html-perl liblwp-mediatypes-perl libmnl0 libmpfr6
  libmysqlclient21 libpam-cap libpopt0 libreadline5 libsigsegv2 libsnappy1v5 libterm-readkey-perl libtimedate-perl
  liburi-perl libwrap0 libxtables12 lsof mariadb-client-10.3 mariadb-client-core-10.3 mariadb-common mariadb-server
  mariadb-server-10.3 mariadb-server-core-10.3 mysql-common rsync socat
0 upgraded, 45 newly installed, 0 to remove and 0 not upgraded.
Need to get 24.0 MB of archives.
After this operation, 183 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

8. Configuramos perl dentro de nuestro servidor local para la funcionalidad de nuestros scrips cgi de nuestro proyecto.

```
root@40cd175ac59f:/# apt-get install perl apache2 -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
apache2 is already the newest version (2.4.41-4ubuntu3.17).
perl is already the newest version (5.30.0-9ubuntu0.5).
perl set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
root@40cd175ac59f:/#
```

9. Finalmente, instalamos Git para poder clonar directamente nuestro repositorio del proyecto en el servidor que estamos utilizando. Esto nos permite copiar todo el código y los archivos del proyecto desde el repositorio remoto a nuestro servidor, facilitando así la gestión y actualización del código.

```
root@40cd175ac59f:/# apt-get install git
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  git-man less libcbor0.6 libcurl3-gnutls liberror-perl libfido2-1 libx11-6 libx11-data libxau6 libxcb1 libxdmcp6
  libxext6 libxmuu1 openssh-client patch xauth
Suggested packages:
  gettext-base git-daemon-run | git-daemon-sysvinit git-doc git-el git-email git-gui gitk gitweb git-cvs git-mediawiki
  git-svn keychain libpam-ssh monkeysphere ssh-askpass ed diffutils-doc
The following NEW packages will be installed:
  git git-man less libcbor0.6 libcurl3-gnutls liberror-perl libfido2-1 libx11-6 libx11-data libxau6 libxcb1 libxdmcp6
  libxext6 libxmuu1 openssh-client patch xauth
0 upgraded, 17 newly installed, 0 to remove and 0 not upgraded.
Need to get 7535 kB of archives.
After this operation, 47.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

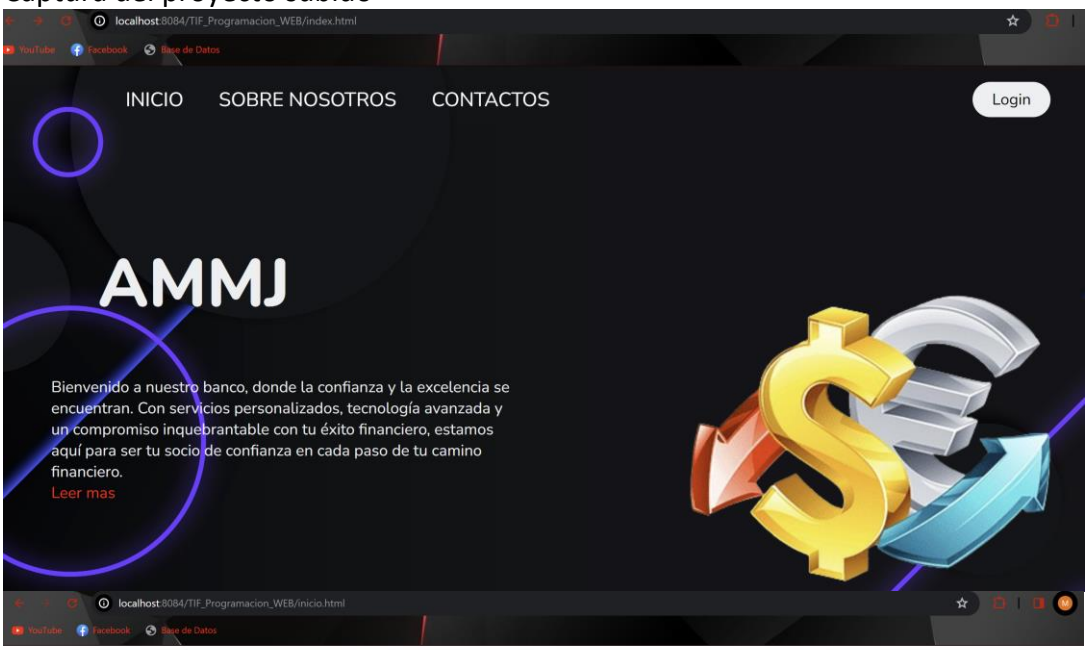
10. buscamos la ubicación del directorio HTML y nos movemos allí. Este será el lugar donde clonaremos nuestro repositorio para ver nuestro proyecto anterior. Luego, usamos el comando "git clone (URL del repositorio de nuestro proyecto)" en esa misma ubicación para clonar el proyecto.

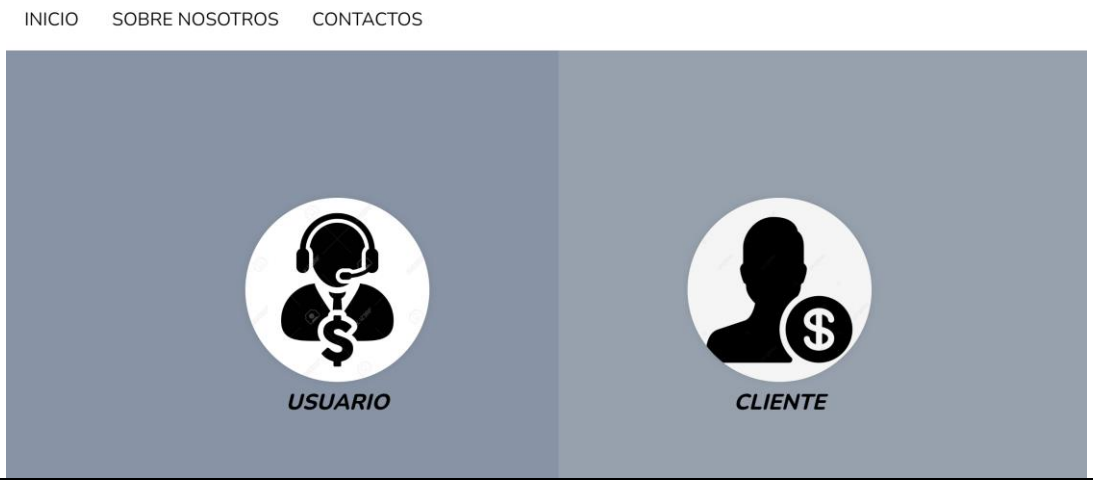
```
root@40cd175ac59f:/# cd ~/../var/www/html/
root@40cd175ac59f:/var/www/html# git clone https://github.com/JuanSergioZeballos/TIF_Programacion_WEB.git
Cloning into 'TIF_Programacion_WEB'...
remote: Enumerating objects: 369, done.
remote: Counting objects: 100% (130/130), done.
remote: Compressing objects: 100% (98/98), done.
remote: Total 369 (delta 71), reused 88 (delta 32), pack-reused 239
Receiving objects: 100% (369/369), 7.89 MiB | 641.00 KiB/s, done.
Resolving deltas: 100% (201/201), done.
root@40cd175ac59f:/var/www/html#
```

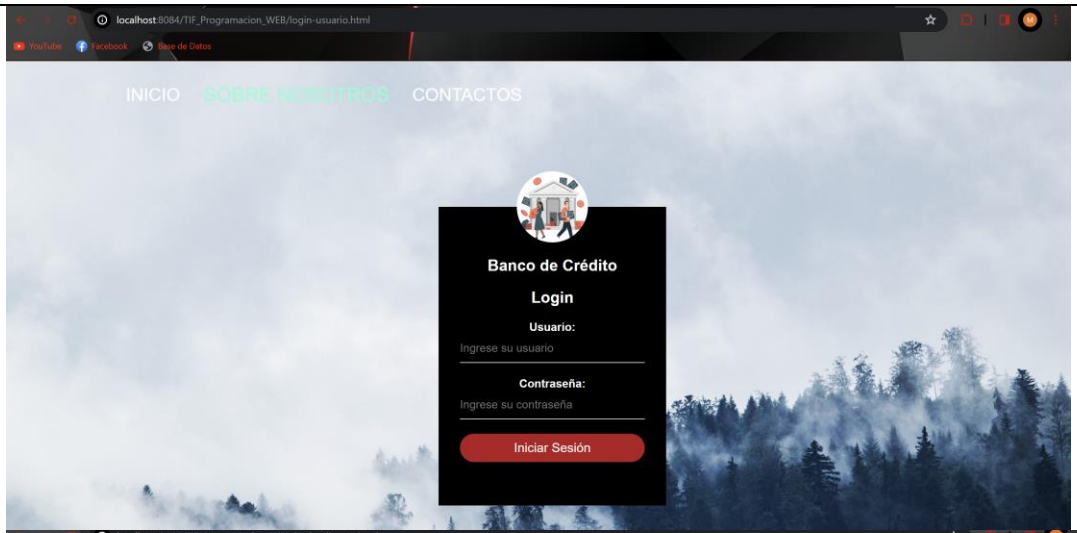
11. Es todo lo necesario para ejecutar nuestro proyecto dentro de Docker. Para visualizarlo, simplemente observamos los puertos que se utilizan en nuestro escritorio. En este caso, usamos el puerto 8084 para ver nuestro proyecto. Así que, teniendo esto en cuenta, podremos acceder fácilmente.

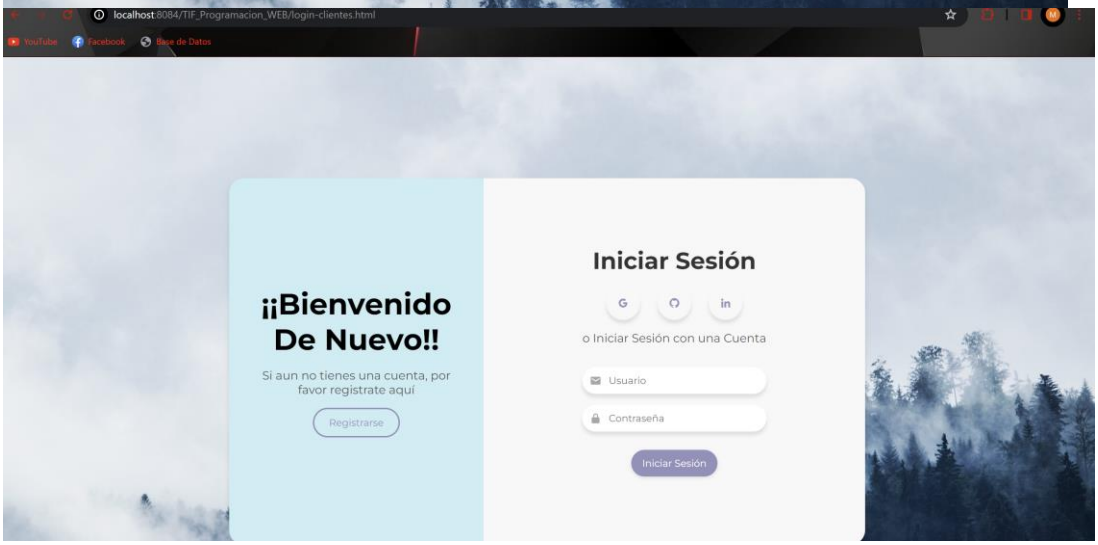
```
C:\Users\HP>docker ps -a
CONTAINER ID   IMAGE          COMMAND       CREATED       STATUS       PORTS
                  NAMES
40cd175ac59f   ubuntu:20.04   "/bin/bash"   5 hours ago   Up 2 hours   0.0.0.0:8086->22/tcp, 0.0.0.0:8084->80/tcp, 0.0.0
.0:8085->3306/tcp   pw2_lab01
```

12. Captura del proyecto subido









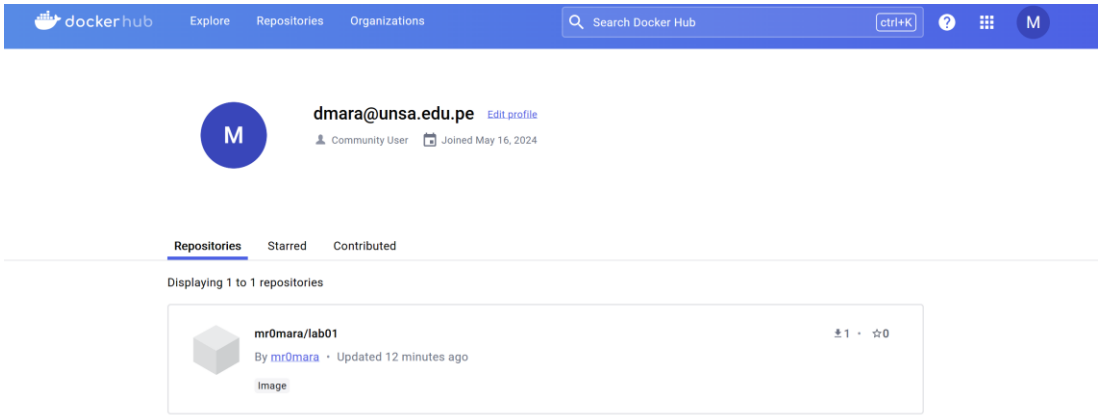
Subiendo al Docker hub:

```
C:\Users\HP>docker tag ubuntu:20.04 mr0mara/lab01:v1.01

C:\Users\HP>docker push mr0mara/lab01:v1.01
The push refers to repository [docker.io/mr0mara/lab01]
4a1518ebc26e: Mounted from library/ubuntu
v1.01: digest: sha256:63025fe8acfcd6541373e6306ce8b0d548071959a02d09d0f2dcbfd4e8fef4e3 size: 529

C:\Users\HP>
```

Link video: https://www.youtube.com/watch?v=YLH6I2FtBU

Link Docker Hub: mr0mara/lab01 - Docker Image | Docker Hub

Comando de descarga: docker pull mr0mara/lab01



REFERENCIAS Y BIBLIOGRAFÍA

Docker: Accelerated Container Application Development