UNIVERSIDAD NACIONAL DE SAN AGUSTIN

FACULTAD DE PRODUCCION Y SERVICIOS

E.A.P INGENIERIA DE SISTEMAS

CURSO:

Laboratorio Programación Web 2

TEMA:

Docker

DOCENTE:

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ESTUDIANTE:

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AREQUIPA-PERU

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LABORATORIO 01

Actividad: Crear un contenedor en Docker basado en Ubuntu 20.04:

1. **Procedimiento:**

a. Instale el servidor web Apache HTTP server 2.x
b. Instale cualquiera de estos lenguajes de programación: PHP, Perl, Python.
c. Configure el servidor web para que interprete uno de los lenguajes de programación.
d. Instale cualquiera de los servidores de base de datos: MySQL, MariaDB, PostgreSQL.
e. Instale el servidor Open SSH Server. Envíe archivos al servidor: imágenes, CSS, JS, etc.
f. Cree un usuario pw2 con contraseña: 12345678.
g. Otorgue permisos al usuario para acceder a la aplicación web. (Read/Write)
h. Finalmente implementé el trabajo final del curso de pw1 en ese contenedor.
i. Elabore un informe paso a paso para donde explique funcionalmente el proyecto demostrando que se trata de un contenedor Docker.
j. Adjunte la URL de un video donde muestre que se trata de un contenedor Docker.

Resolución:

```
C:\Users\USER>docker run --name pw2_lab01 -p 8084:80 -p 8085:3306 -p 8086:22 -it ubuntu:20.04 /bin/bash
root@693709a2395e:/# apt-get update
Get:1 http://archive.ubuntu.com/ubuntu focal InRelease [265 kB]
Get:2 http://security.ubuntu.com/ubuntu focal-security InRelease [114 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/restricted amd64 Packages [3536 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/main amd64 Packages [1275 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [177 kB]
Get:9 http://archive.ubuntu.com/ubuntu focal/restricted amd64 Packages [33.4 kB]
Get:10 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [11.3 MB]
Get:11 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [4069 kB]
Get:12 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1497 kB]
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 [3686 kB]
Get:15 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [28.6 kB]
Get:16 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [55.2 kB]
Get:17 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [1201 kB]
Get:18 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [3595 kB]
```

```
root@693709a2395e:/# 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
  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
```

```
root@693709a2395e:/# /etc/init.d/apache2 start
 * Starting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'Serv
erName' directive globally to suppress this message
 *
root@693709a2395e:/# 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
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 libmpdec2 amd64 2.4.2-3 [81.1 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 libpython3.8-minimal amd64 3.8.10-0ubuntu1~20.04.9 [718
```

```
root@693709a2395e:/# 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
Get:1 http://archive.ubuntu.com/ubuntu focal/main amd64 libargon2-1 amd64 0~20171227-0.2 [19.2 kB]
Get:2 http://archive.ubuntu.com/ubuntu focal/main amd64 libbsd0 amd64 0.10.0-1 [45.4 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal/main amd64 libsodium23 amd64 1.0.18-1 [150 kB]
Get:4 http://archive.ubuntu.com/ubuntu focal/main amd64 ucf all 3.0038+nmu1 [51.6 kB]
Get:5 http://archive.ubuntu.com/ubuntu focal/main amd64 libedit2 amd64 3.1-20191231-1 [87.0 kB]
Get:6 http://archive.ubuntu.com/ubuntu focal/main amd64 psmisc amd64 23.3-1 [53.3 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal/main amd64 php-common all 2:75 [11.9 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 php7.4-common amd64 7.4.3-4ubuntu2.22 [984 kB]
```

```
root@693709a2395e:/# /etc/init.d/apache2 restart
 * Restarting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'Serv
erName' directive globally to suppress this message
                                                                                                                    [ OK ]
```

```
root@693709a2395e:/# 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
```

```
root@693709a2395e:/# /etc/init.d/mysql start
 * Starting MariaDB database server mysqld
root@693709a2395e:/# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 38
Server version: 10.3.39-MariaDB-0ubuntu0.20.04.2 Ubuntu 20.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> -- phpMyAdmin SQL Dump
0:14', 1, 1);
```

```
MariaDB [bancafinal]> /*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
Query OK, 0 rows affected (0.000 sec)

MariaDB [bancafinal]> /*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
Query OK, 0 rows affected (0.000 sec)

MariaDB [bancafinal]>
MariaDB [bancafinal]> -- usuarios
MariaDB [bancafinal]> CREATE USER 'query'@'%' IDENTIFIED BY 'YR4AFJUC3nyRmasY';
Query OK, 0 rows affected (0.000 sec)

MariaDB [bancafinal]> GRANT SELECT, INSERT, DELETE ON `bancafinal`.* TO 'query'@'%';
Query OK, 0 rows affected (0.000 sec)

MariaDB [bancafinal]>
MariaDB [bancafinal]> INSERT INTO `operarios` (`id`, `nombre`, `usuario`, `clave`) VALUES (10, 'A', 'ale', '313');
Query OK, 1 row affected (0.002 sec)

MariaDB [bancafinal]> exit
Bye
```

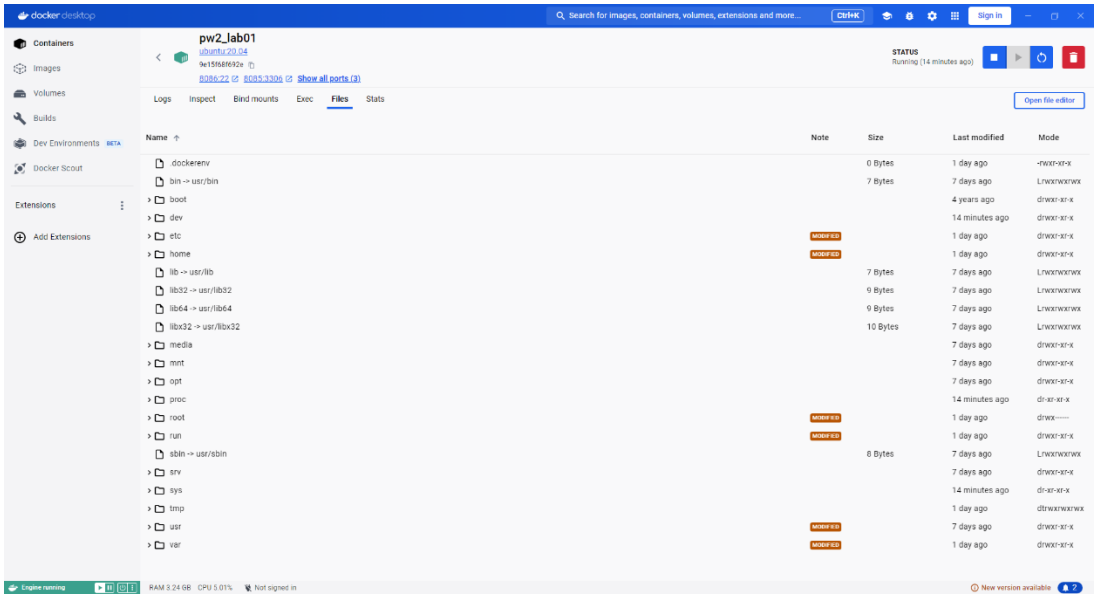
```
root@693709a2395e:/# apt-get update
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:4 http://archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
root@693709a2395e:/# 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.
```

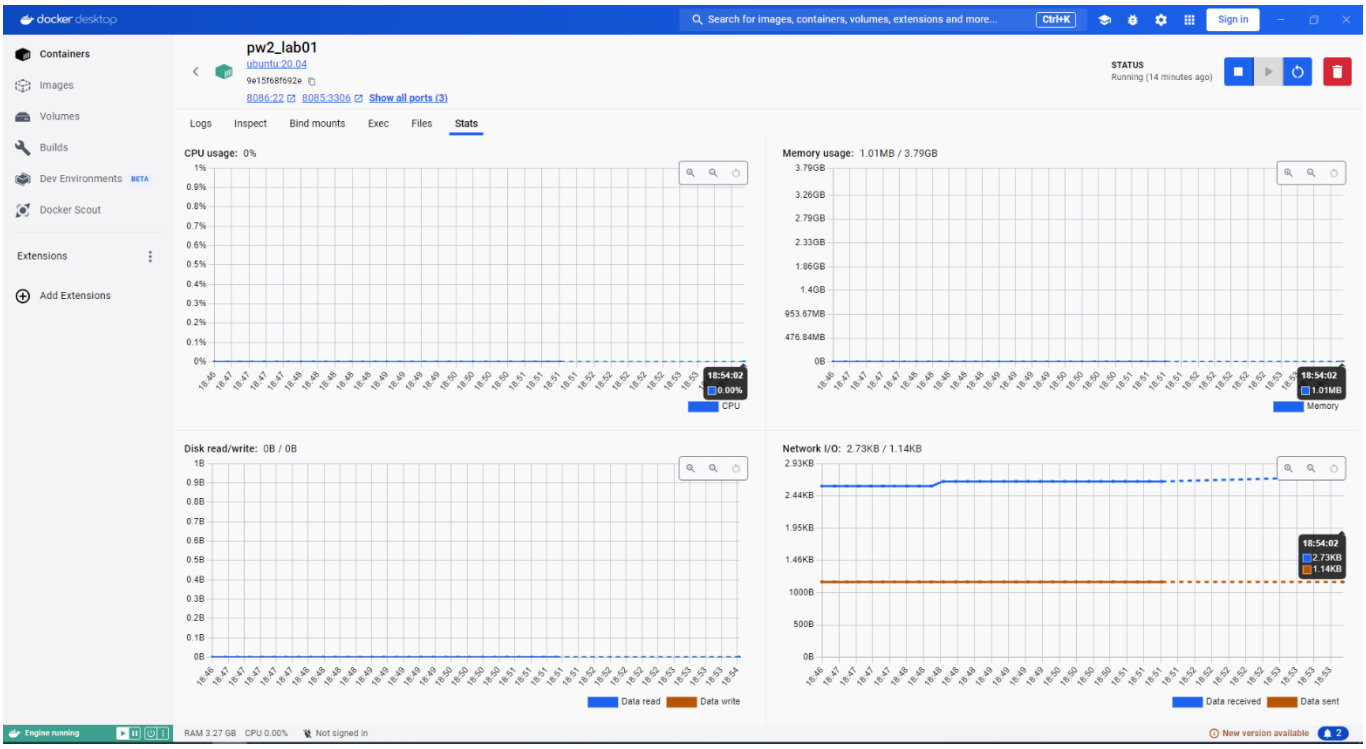
```
root@693709a2395e:/# a2enmod cgid
Enabling module cgid.
To activate the new configuration, you need to run:
  service apache2 restart
root@693709a2395e:/# /etc/init.d/apache2 restart
 * Restarting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'Serv
erName' directive globally to suppress this message
                                                                                                                 [ OK ]
```

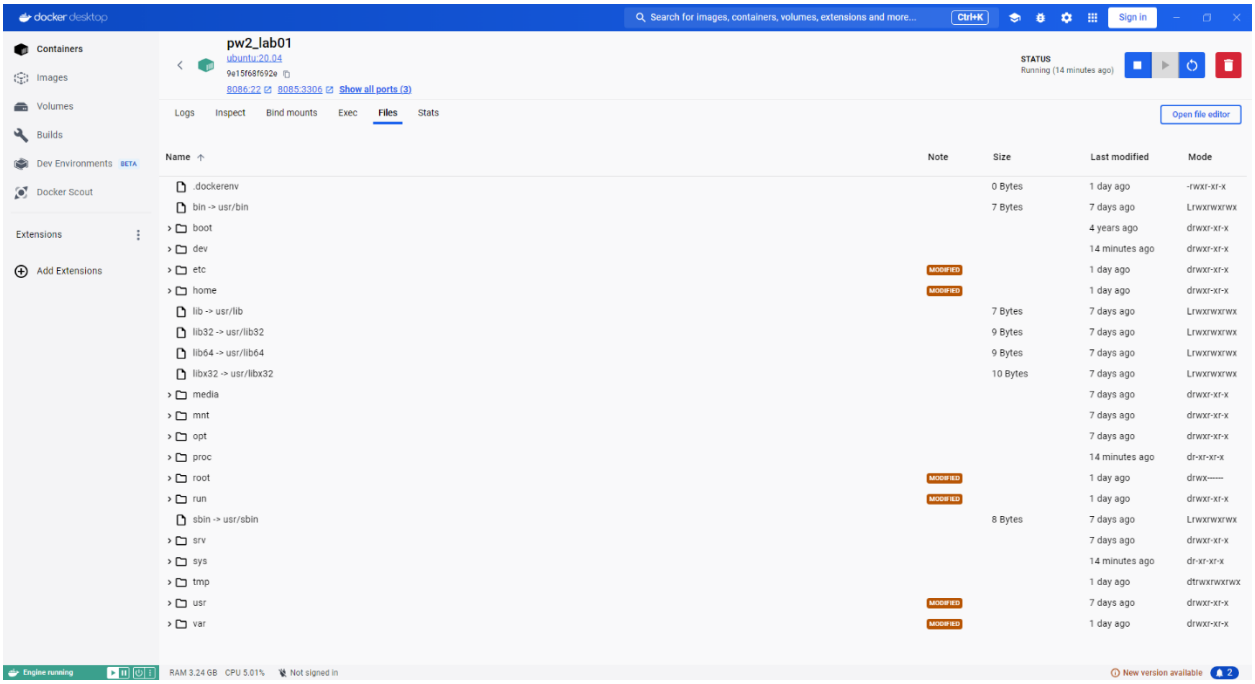
```
root@693709a2395e:/# /etc/init.d/apache2 restart
 * Restarting Apache httpd web server apache2
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.17.0.2. Set the 'Serv
erName' directive globally to suppress this message
                                                                                                                 [ OK ]
```

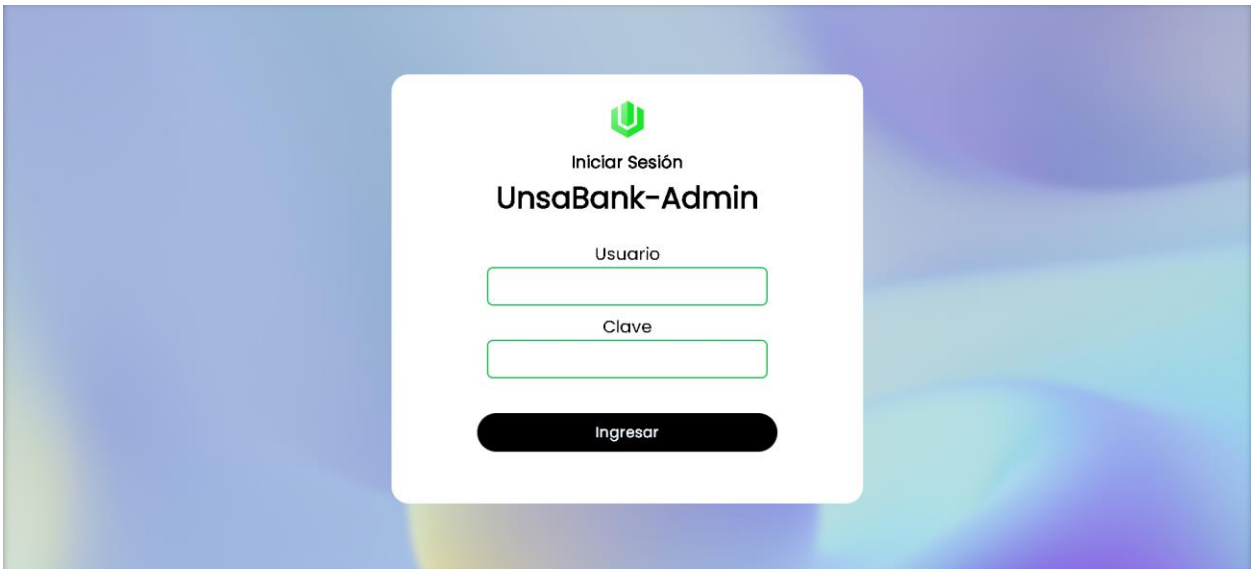
```
root@693709a2395e:/# apt-get install libapache2-mod-fcgid
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  libapache2-mod-fcgid
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 64.9 kB of archives.
After this operation, 242 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 libapache2-mod-fcgid amd64 1:2.3.9-4 [64.9 kB]
Fetched 64.9 kB in 2s (39.6 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libapache2-mod-fcgid.
(Reading database ... 13867 files and directories currently installed.)
Preparing to unpack .../libapache2-mod-fcgid_1%3a2.3.9-4_amd64.deb ...
Unpacking libapache2-mod-fcgid (1:2.3.9-4) ...
Setting up libapache2-mod-fcgid (1:2.3.9-4) ...
apache2_invoke: Enable module fcgid
invoke-rc.d: could not determine current runlevel
invoke-rc.d: policy-rc.d denied execution of restart.
root@693709a2395e:/# apt-get install cpanminus
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  dirmngr gnupg gnupg-l10n gnupg-utils gpg gpg-agent gpg-wks-client gpg-wks-server gpgconf gpgsm libalgorithm-c3-perl
  libany-uri-escape-perl libassuan0 libb-hooks-endofscope-perl libb-hooks-op-check-perl libclass-c3-perl
```

```
root@693709a2395e:/# cpanm install CGI CGI::Session CGI::Cookie DBI DateTime
--> Working on install
Fetching http://www.cpan.org/authors/id/D/DA/DAGOLDEN/install-0.01.tar.gz ... OK
Configuring install-0.01 ... OK
! Can't configure the distribution. You probably need to have 'make'. See /root/.cpanm/work/1714881621.12473/build.log f
or details.
--> Working on CGI
Fetching http://www.cpan.org/authors/id/L/LE/LEEJO/CGI-4.64.tar.gz ... OK
Configuring CGI-4.64 ... OK
==> Found dependencies: Test::Warn, Test::NoWarnings
--> Working on Test::Warn
Fetching http://www.cpan.org/authors/id/B/BI/BIGJ/Test-Warn-0.37.tar.gz ... OK
Configuring Test-Warn-0.37 ... OK
==> Found dependencies: Sub::Uplevel
--> Working on Sub::Uplevel
Fetching http://www.cpan.org/authors/id/D/DA/DAGOLDEN/Sub-Uplevel-0.2800.tar.gz ... OK
Configuring Sub-Uplevel-0.2800 ... OK
! Can't configure the distribution. You probably need to have 'make'. See /root/.cpanm/work/1714881621.12473/build.log f
or details.
! Installing the dependencies failed: Module 'Sub::Uplevel' is not installed
! Bailing out the installation for Test-Warn-0.37.
```




docker desktop
Search for images, containers, volumes, extensions and more...
Ctrl+K
Sign in
Containers
Images
Volumes
Builds
Dev Environments BETA
Docker Scout
Extensions
Add Extensions
pw2_lab01
ubuntu:20.04
9e15f68f692e
8086:22
8085:3306
Show all ports (3)
STATUS
Running (14 minutes ago)
Logs
Inspect
Bind mounts
Exec
Files
Stats
CPU usage: 0%
Memory usage: 1.01MB / 3.79GB
Disk read/write: 0B / 0B
Network I/O: 2.73KB / 1.14KB
Data read
Data write
Data received
Data sent
Engine running
RAM 3.27 GB
CPU 0.00%
Not signed in
New version available


docker desktop
Search for images, containers, volumes, extensions and more...
Ctrl+K
Sign in
Containers
Images
Volumes
Builds
Dev Environments BETA
Docker Scout
Extensions
Add Extensions
pw2_lab01
ubuntu:20.04
9e15f68f692e
8086:22
8085:3306
Show all ports (3)
STATUS
Running (14 minutes ago)
Logs
Inspect
Bind mounts
Exec
Files
Stats
Open file editor
Name
Note
Size
Last modified
Mode
.dockerenv 0 Bytes 1 day ago -rwxr-xr-x
bin -> usr/bin 7 Bytes 7 days ago Lrwxrwxrwx
boot 4 years ago drwxr-xr-x
dev 14 minutes ago drwxr-xr-x
etc MODIFIED 1 day ago drwxr-xr-x
home MODIFIED 1 day ago drwxr-xr-x
lib -> usr/lib 7 Bytes 7 days ago Lrwxrwxrwx
lib32 -> usr/lib32 9 Bytes 7 days ago Lrwxrwxrwx
lib64 -> usr/lib64 9 Bytes 7 days ago Lrwxrwxrwx
libx32 -> usr/libx32 10 Bytes 7 days ago Lrwxrwxrwx
media 7 days ago drwxr-xr-x
mnt 7 days ago drwxr-xr-x
opt 7 days ago drwxr-xr-x
proc 14 minutes ago dr-xr-xr-x
root MODIFIED 1 day ago drwx------
run MODIFIED 1 day ago drwxr-xr-x
sbin -> usr/sbin 8 Bytes 7 days ago Lrwxrwxrwx
srv 7 days ago drwxr-xr-x
sys 14 minutes ago dr-xr-xr-x
tmp 1 day ago dtrwxrwxrwx
usr MODIFIED 7 days ago drwxr-xr-x
var MODIFIED 1 day ago drwxr-xr-x
Engine running
RAM 3.24 GB
CPU 5.01%
Not signed in
New version available



ENLACE VIDEO YOUTUBE

https://youtu.be/hYB1Ub9Pld4