Universidad Nacional de San Agustin de Arequipa
Facultad de Ingenieria de Produccion y Servicios
Departamento de Ingenieria de Sistemas e Informatica
Escuela Profesional de Ingenieria de Sistemas
Programacion Web

Laboratorio 01
Tema: Docker

CURSO:	Programación Web 2				
TÍTULO DE LA PRÁCTICA:	Docker				
NRO DE PRÁCTICA:	1	AÑO:	2024-A	SEMESTRE:	III Semestre
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Resolución de la Práctica

1. Actividades Realizadas

1.1. Instalacion de Docker y resolucion de ejercicios pedidos en la practica

apt-get update
apt-get install apache2
/etc/init.d/apache2 start

```
root@de35c0aed6ae:/# 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
  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
0 upgraded, 57 newly installed, 0 to remove and 0 not upgraded.
Need to get 24.1 MB of archives.
After this operation, 117 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

apt-get install vim

```
root@de35c0aed6ae:/# 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]
```

apt-get install libapache2-mod-php7.4

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```
root@de35c0aed6ae:/# 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
```

apt-cache search php7.4

```
root@de35c0aed6ae:/# apt-cache search php7.4
libapache2-mod-php7.4 - server-side, HTML-embedded scripting language (Apache 2 module)
php7.4 - server-side, HTML-embedded scripting language (metapackage)
php7.4-cgi - server-side, HTML-embedded scripting language (CGI binary)
php7.4-cli - command-line interpreter for the PHP scripting language
php7.4-common - documentation, examples and common module for PHP
php7.4-curl - CURL module for PHP
php7.4-dev - Files for PHP7.4 module development
php7.4-gd - GD module for PHP
php7.4-gmp - GMP module for PHP
php7.4-json - JSON module for PHP
php7.4-ldap - LDAP module for PHP
php7.4-mysql - MySQL module for PHP
php7.4-odbc - ODBC module for PHP
php7.4-opcache - Zend OpCache module for PHP
php7.4-pgsql - PostgreSQL module for PHP
php7.4-pspell - pspell module for PHP
php7.4-readline - readline module for PHP
php7.4-snmp - SNMP module for PHP
php7.4-sqlite3 - SQLite3 module for PHP
php7.4-tidy - tidy module for PHP
php7.4-xml - DOM, SimpleXML, XML, and XSL module for PHP
php7.4-xmlrpc - XMLRPC-EPI module for PHP
libphp7.4-embed - HTML-embedded scripting language (Embedded SAPI library)
```

apt-get install openssh-server

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```
root@de35c0aed6ae:/# apt-get install openssh-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  dbus distro-info-data dmsetup gir1.2-glib-2.0 libapparmor1 libcap2 libcbor0.6 libcryptsetup12 libdbus-1-3
  libdevmapper1.02.1 libfido2-1 libgirepository-1.0-1 libglib2.0-0 libglib2.0-data libip4tc2 libjson-c4 libkmod2
  libnss-systemd libpam-systemd libpython3-stdlib libwrap0 libx11-6 libx11-data libxau6 libxcb1 libxdmcp6 libxext6
  libxmuu1 lsb-release ncurses-term networkd-dispatcher openssh-client openssh-sftp-server python3 python3-certifi
  python3-chardet python3-dbus python3-distro python3-gi python3-idna python3-minimal python3-pkg-resources
  python3-requests python3-six python3-urllib3 python3.8 python3.8-minimal shared-mime-info ssh-import-id systemd
  systemd-sysv systemd-timesyncd wget xauth xdg-user-dirs
Suggested packages:
  default-dbus-session-bus | dbus-session-bus iw | wireless-tools keychain libpam-ssh monkeysphere ssh-askpass
  molly-guard ufw python3-doc python3-tk python3-venv python-dbus-doc python3-dbus-dbg python3-setuptools
  python3-cryptography python3-openssl python3-socks python3.8-venv python3.8-doc binutils binfmt-support
  systemd-container policykit-1
The following NEW packages will be installed:
  dbus distro-info-data dmsetup gir1.2-glib-2.0 libapparmor1 libcap2 libcbor0.6 libcryptsetup12 libdbus-1-3
  libdevmapper1.02.1 libfido2-1 libgirepository-1.0-1 libglib2.0-0 libglib2.0-data libip4tc2 libjson-c4 libkmod2
  libnss-systemd libpam-systemd libpython3-stdlib libwrap0 libx11-6 libx11-data libxau6 libxcb1 libxdmcp6 libxext6
  libxmuu1 lsb-release ncurses-term networkd-dispatcher openssh-client openssh-server openssh-sftp-server python3
  python3-certifi python3-chardet python3-dbus python3-distro python3-gi python3-idna python3-minimal
  python3-pkg-resources python3-six python3-requests python3-urllib3 python3.8 python3.8-minimal shared-mime-info
  ssh-import-id systemd systemd-sysv systemd-timesyncd wget xauth xdg-user-dirs
0 upgraded, 56 newly installed, 0 to remove and 0 not upgraded.
Need to get 12.8 MB of archives.
After this operation, 53.8 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

adduser pw2
chown -R pw2:www-data /var/www/html/

```
root@de35c0aed6ae:/# adduser pw2
Adding user `pw2' ...
Adding new group `pw2' (1000) ...
Adding new user `pw2' (1000) with group `pw2' ...
Creating home directory `/home/pw2' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for pw2
Enter the new value, or press ENTER for the default
        Full Name []: pw2
        Room Number []: 2
        Work Phone []: 0
        Home Phone []: 0
        Other []: 0
Is the information correct? [Y/n] Y
root@de35c0aed6ae:/# chown -R pw2:www-data /var/www/html/
root@de35c0aed6ae:/#
```

apt-get install mariadb-server

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```
root@de35c0aed6ae:/# 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-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 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
The following NEW packages will be installed:
  galera-3 gawk iproute2 libaio1 libatm1 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 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, 43 newly installed, 0 to remove and 0 not upgraded.
Need to get 23.9 MB of archives.
After this operation, 183 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

mysql¿CREATE USER pw2@localhost IDENTIFIED BY '12345678';
myslq¿GRANT ALL PRIVILEGES ON menagerie.* TO pw2@localhost;
mysql¿FLUSH PRIVILEGES;
mysql -u pw2 -p
password:12345678
mysql¿SHOW DATABASES;

```
root@de35c0aed6ae:/# /etc/init.d/mysql start
 * Starting MariaDB database server mysqld
root@de35c0aed6ae:/# mysql -e "CREATE USER 'pw2'@'localhost' IDENTIFIED BY '12345678';"
root@de35c0aed6ae:/# mysql -e "GRANT ALL PRIVILEGES ON menagerie.* TO 'pw2'@'localhost';"
root@de35c0aed6ae:/# mysql -e "FLUSH PRIVILEGES;"
root@de35c0aed6ae:/# mysql -u pw2 -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 41
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)]> SHOW DATABASES;
+--------------------+
| Database           |
+--------------------+
| information_schema |
+--------------------+
1 row in set (0.000 sec)

MariaDB [(none)]>
```

apt-get install perl

```
root@de35c0aed6ae:/# apt-get install perl
Reading package lists... Done
Building dependency tree
Reading state information... Done
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.
```

apt-get install libapache2-mod-fcgid

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```
root@de35c0aed6ae:/# 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 1s (88.5 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package libapache2-mod-fcgid.
(Reading database ... 18722 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.
```

docker cp ./wiki pw2lab01:/var/www/html/

```
D:\PROGRAMACION\prueba-dockerfile> docker cp ./wiki pw2_lab01:/var/www/html/
Successfully copied 20.5kB to pw2_lab01:/var/www/html/
```

1.2. Subiendo el proyecto a Docker Hub

docker build t drn25/pw2textunderscorelab01:latest
docker push drn25/pw2textunderscorelab01:latest

```
D:\PROGRAMACION\prueba-dockerfile>docker build -t drn25/pw2_lab01:latest .
[+] Building 5.0s (11/11) FINISHED                                                    docker:default
 => [internal] load build definition from Dockerfile                                          1.4s
 => => transferring dockerfile: 1.93kB                                                        1.2s
 => [internal] load metadata for docker.io/library/ubuntu:20.04                               0.0s
 => [internal] load .dockerignore                                                             0.3s
 => => transferring context: 2B                                                               0.0s
 => [1/6] FROM docker.io/library/ubuntu:20.04                                                 0.0s
 => [internal] load build context                                                             0.3s
 => => transferring context: 484B                                                             0.0s
 => CACHED [2/6] RUN apt-get update    && apt-get install -y apache2    && apt-get install -y vim    && apt-ge  0.0s
 => CACHED [3/6] RUN a2enmod cgi    && a2enmod fcgid    && echo '<Directory "/var/www/html/wiki">' > /etc/apach  0.0s
 => CACHED [4/6] COPY wiki /var/www/html/wiki                                                  0.0s
 => CACHED [5/6] RUN service mysql start    && mysql -e "CREATE DATABASE my_database;"    && mysql -e "CREATE U  0.0s
 => CACHED [6/6] RUN adduser pw2    && chown -R pw2:www-data /var/www/html/    && chown -R pw2:www-data /usr/li  0.0s
 => exporting to image                                                                        0.5s
 => => exporting layers                                                                       0.0s
 => => writing image sha256:e9040e55e67b9406f8e0c3cfeff86f5bead60be5faab984e174d75b3ab5baf48   0.1s
 => => naming to docker.io/drn25/pw2_lab01:latest                                             0.1s
```

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1.3. Link del video de Docker:

https://youtu.be/YOG8sYRPASM

1.4. Link del repositorio a Docker Hub

https://hub.docker.com/layers/drn25/pw2_lab01/latest/images/sha256-575aeaece
9a2c6f3077c77f3783b1acacc45da6954030966c66a9c9abbad4a7c?context=repo

1.5. Link del repositorio a Git Hub

https://github.com/DrN25/pw2_24a.git