

Guía Final de Tercer Corte

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Apartado 1: Docker

Verificar la instalación de Docker

```
docker --version
```

```
C:\Users\carlo>docker --version
Docker version 20.10.14, build a224086

C:\Users\carlo>
```

Instalar imágenes necesarias

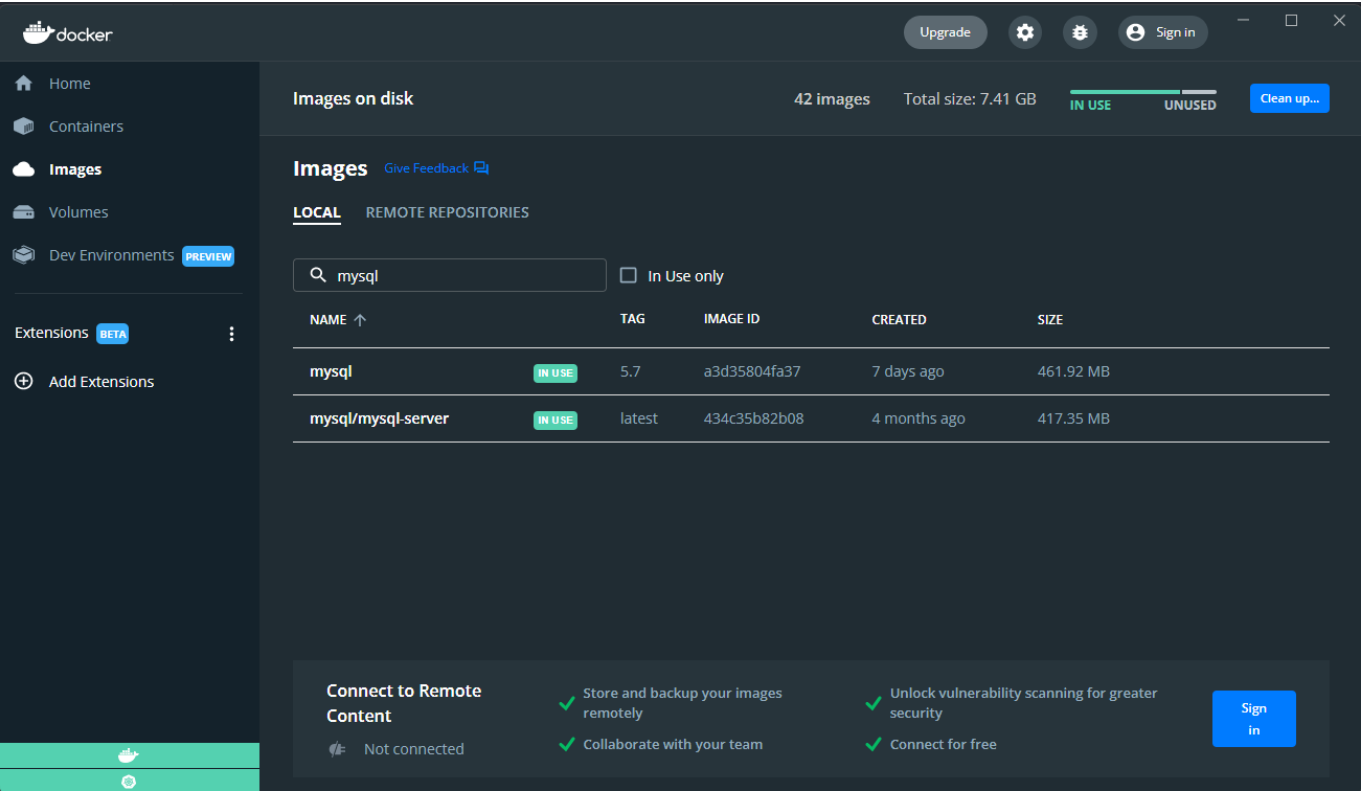
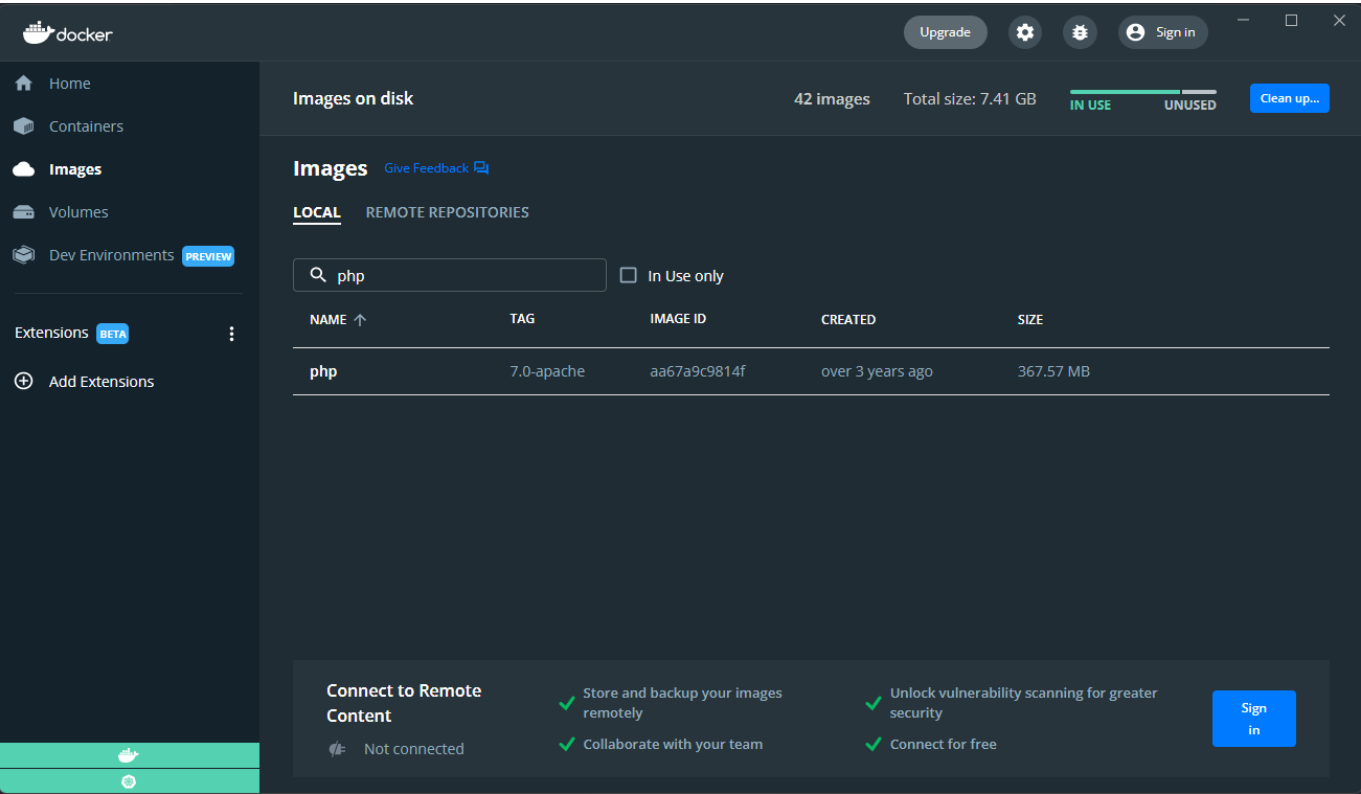
Instalar las imágenes de MySQL 5.7 y PHP 7.0 junto Apache.

```
docker pull mysql:5.7 & docker pull php:7.0-apache
```

```
C:\Users\carlo>docker pull mysql:5.7 & docker pull php:7.0-apache
5.7: Pulling from library/mysql
Digest: sha256:16e159331007eccc069822f7b731272043ed572a79a196a05ffa2ea127caaf67
Status: Image is up to date for mysql:5.7
docker.io/library/mysql:5.7
7.0-apache: Pulling from library/php
177e7ef0df69: Pull complete
9bf89f2eda24: Pull complete
350207dcf1b7: Pull complete
a8a33d96b4e7: Pull complete
c0421d5b63d6: Pull complete
f76e300f7be72: Pull complete
af9ff1b9ce5b: Pull complete
d9f072d61771: Pull complete
37007e292198: Pull complete
8ba923990f24: Pull complete
98af8902979a: Pull complete
f1548c2cd376: Pull complete
e1062fd0605a: Pull complete
Digest: sha256:1d34b2e491a02ba7a8d26478132015e197a5ffea37f0a93b42621d11cfe042cc
Status: Downloaded newer image for php:7.0-apache
docker.io/library/php:7.0-apache

C:\Users\carlo>
```

Verificar las imágenes instaladas



```
docker images
```

```

C:\Users\carlo>docker images
REPOSITORY
mysql
hubproxy.docker.internal:5000/docker/desktop-kubernetes
k8s.gcr.io/kube-apiserver
k8s.gcr.io/kube-proxy
k8s.gcr.io/kube-scheduler
k8s.gcr.io/kube-controller-manager
k8s.gcr.io/etcd
p2t1_node_mongo_web
<none>
<none>
<none>
<none>
<none>
hellonode
mongo
hubproxy.docker.internal:5000/docker/desktop-kubernetes
dpape/pgadmin4
k8s.gcr.io/pause
postgres
gcr.io/k8s-minikube/kicbase
B
mysql/mysql-server
hubproxy.docker.internal:5000/docker/desktop-kubernetes-apiserver
k8s.gcr.io/kube-apiserver
hubproxy.docker.internal:5000/docker/desktop-kubernetes-proxy
k8s.gcr.io/kube-proxy
hubproxy.docker.internal:5000/docker/desktop-kubernetes-scheduler
B
k8s.gcr.io/kube-scheduler
B
hubproxy.docker.internal:5000/docker/desktop-kubernetes-controller-manager
k8s.gcr.io/kube-controller-manager
k8s.gcr.io/coredns/coredns
B
hubproxy.docker.internal:5000/docker/desktop-kubernetes-etcd
k8s.gcr.io/etcd
hubproxy.docker.internal:5000/docker/desktop-kubernetes-coredns
B
k8s.gcr.io/coredns/coredns
B
mariadb/server
hubproxy.docker.internal:5000/docker/desktop-vpnkit-controller
docker/desktop-vpnkit-controller
docker/desktop-storage-provisioner
B
hubproxy.docker.internal:5000/docker/desktop-storage-provisioner
B
hubproxy.docker.internal:5000/docker/desktop-kubernetes-pause
k8s.gcr.io/pause
php
C:\Users\carlo>

```

Correr imagen de MySQL

Vamos a ejecutar diferentes banderas al momento de correr la imagen de MySQL:

- **-p:** Indica el puerto por el cual escuchará la aplicación y el puerto del contenedor.

- **--name**: Indica el nombre del proceso o contenedor que se iniciará.
- **-v**: Indica que se creará un volumen, el cual permite almacenar datos de la DB en una carpeta con el fin de salvarlos en caso de que el contenedor se apague o se caiga. La primera ruta hace referencia a la carpeta que se creará en nuestro equipo, la segunda hace referencia a la dirección del contenedor por defecto.
- **-e**: Indica la contraseña
- **-d**, para que MySQL corra en segundo plano.

```
docker run -p 3307:3306 --name database -v
C:/Users/carlo/.../P3T1_Guia_Final:/var/lib/mysql -e MYSQL_ROOT_PASSWORD=password
-d mysql:5.7
```

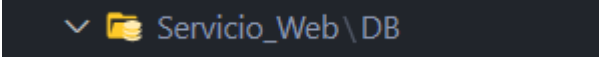
```
C:\Users\carlo>docker run -p 3307:3306 --name database -v C:/Users/carlo/Documents/Noveno_Semestre/DevOps/Tercer_Corte/P3T1_Guia_Final:/var/lib/mysql -e MYSQL_ROOT_PASSWORD=password -d mysql:5.7
12ce148769567463f54d1af81fdb23d959d5f10f0c886f141a7ecb9288fd8d5a
```

Verificamos que este corriendo nuestro contenedor:

```
docker ps
```

```
C:\Users\carlo>docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
428ddaf9b4f0   mysql:5.7     "docker-entrypoint.s..." 43 seconds ago Up 42 seconds 33060/tcp, 0.0.0.0:3307->3306/tcp database
cc96093816f3   p2t1_node_mongo_web "docker-entrypoint.s..." 6 weeks ago   Up 2 hours    0.0.0.0:5000->3000/tcp exampleapp
21b2aad70c24   postgres     "docker-entrypoint.s..." 2 months ago   Up 2 hours    0.0.0.0:5432->5432/tcp src_postgres_1
```

Dentro del directorio que hemos escogido, creamos una carpeta para almacenar una página web, y dentro de este directorio, añadimos un nuevo folder para la base de datos.



Correr la imagen de PHP

Vamos a correr la imagen de PHP con las siguientes banderas:

- **-p**: Indicar el puerto
- **--name**: Indicar el nombre del proceso o contenedor
- **-v**: Indicar la creación de un volumen en el que almacenaremos los archivos de nuestro proyecto.
- **-d**: Correr en segundo plano
- **--link**: Comunicar entre el contenedor de PHP y la base de datos.

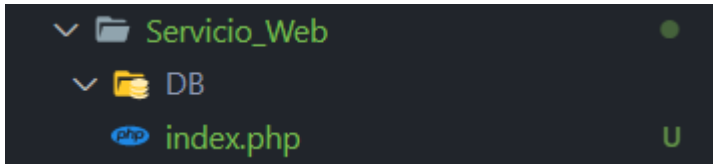
```
docker run -p 1000:80 -v
C:/Users/carlo/.../P3T1_Guia_Final/Servicio_Web:/var/www/html --name servidorphp -d
--link database php:7.0-apache
```

```
C:\Users\carlo>docker run -p 1000:80 -v C:/Users/carlo/.../P3T1_Guia_Final/Servicio_Web:/var/www/html --name servidorphp -d --link database php:7.0-apache
695a031207378fb71baecb4bb39d5c632b205e2e549a93d65a225eb1ee6693cf
```

```
docker ps
```

```
C:\Users\carlo>docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
5a67bfeac60c   php:7.0-apache "docker-php-entrypoi..." About a minute Up About a minute   0.0.0.0:1000->80/tcp               servidorphp
428ddaf9b4f0   mysql:5.7      "docker-entrypoint.s..." 4 minutes ago Up 4 minutes       33060/tcp, 0.0.0.0:3307->3306/tcp   database
cc96093816f3   p2tl_node_mongo_web "docker-entrypoint.s..." 6 weeks ago   Up 2 hours       0.0.0.0:5000->3000/tcp             exampleapp
21b2aad70c24   postgres       "docker-entrypoint.s..." 2 months ago  Up 2 hours       0.0.0.0:5432->5432/tcp             src_postgres_1
```

Creamos un archivo llamado `index.php` dentro de la carpeta de `Servicio_Web`:



Dentro de nuestro nuevo archivo, escribimos lo siguiente:

```
<?php
phpinfo();
?>
```

Luego, en el navegador ingresamos la siguiente ruta: `http://localhost:1000` y debemos obtener lo siguiente:

PHP Version 7.0.33	
System	Linux 695a03120737 5.10.102.1-microsoft-standard-WSL2 #1 SMP Wed Mar 2 00:30:59 UTC 2022 x86_64
Build Date	Dec 29 2018 06:50:15
Configure Command	./configure '--build=x86_64-linux-gnu' '--with-config-file-path=/usr/local/etc/php' '--with-config-file-scan-dir=/usr/local/etc/php/conf.d' '--enable-option-checking=fatal' '--with-mhash' '--enable-ftp' '--enable-mbstring' '--enable-mysqlnd' '--with-curl' '--with-ibmdd' '--with-openssl' '--with-zlib' '--with-ibmddir=/usr/lib64-linux-gnu' '--with-apxs2' '--disable-cgi' 'build_alias=x86_64-linux-gnu'
Server API	Apache 2.0 Handler
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/usr/local/etc/php
Loaded Configuration File	(none)
Scan this dir for additional .ini files	/usr/local/etc/php/conf.d
Additional .ini files parsed	(none)
PHP API	20151012
PHP Extension	20151012
Zend Extension	320151012
Zend Extension Build	API320151012.NTS
PHP Extension Build	API20151012.NTS
Debug Build	no
Thread Safety	disabled
Zend Signal Handling	disabled
Zend Memory Manager	enabled
Zend Multibyte Support	provided by mbstring
IPv6 Support	enabled
DTrace Support	disabled
Registered PHP Streams	https, ftps, compress.zlib, php, file, glob, data, http, ftp, phar
Registered Stream Socket Transports	tcp, udp, unix, udg, ssl, sslv2, fips, tlsv1.0, tlsv1.1, tlsv1.2
Registered Stream Filters	zlib.*, convert.iconv.*, string.rot13, string.toupper, string.tolower, string.strip_tags, convert.*, consumed, dechunk

This program makes use of the Zend Scripting Language Engine:
Zend Engine v3.0.0, Copyright (c) 1998-2017 Zend Technologies

Configuration
apache2handler

Apache Version	Apache/2.4.25 (Debian)
Apache API Version	20120211
Server Administrator	webmaster@localhost

Comprobar que el servidor MySQL funciona

Entrar a la consola interactiva del contenedor de mysql:

```
docker exec -i -t database bash
```

```
C:\Users\carlo>docker exec -i -t database bash
root@e2749101e305:/#
```

Ejecutar MySQL:

```
mysql -u root -p
```

```
root@e2749101e305:/# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.7.38 MySQL Community Server (GPL)

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affiliates. Other names may be trademarks of their respective
owners.

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

Listar las bases de datos:

```
show databases;
```

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.00 sec)
```

Crear base de datos de usuarios:

```
create database usuarios;
```

```
mysql> create database usuarios;
Query OK, 1 row affected (0.01 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| usuarios |
+-----+
5 rows in set (0.00 sec)
```

Usar la base de datos recién creada:

```
use usuarios;
```

```
mysql> use usuarios;
Database changed
mysql>
```

Crear tabla de clientes:

```
create table clientes(username varchar(20) primary key not null, nombre
varchar(30), correo varchar(50), contra varchar(20));
```

```
mysql> create table clientes(username varchar(20) primary key not null, nombre varchar(30), correo varchar(50), contra varchar(20));
Query OK, 0 rows affected (0.05 sec)

mysql> show tables;
+-----+
| Tables_in_usuarios |
+-----+
| clientes |
+-----+
1 row in set (0.00 sec)
```

Insertar datos dentro de la tabla:

```
insert into clientes values ('neo', 'neo', 'neo@gmail.com', 'neo_password');
```

```
mysql> insert into clientes values ('neo', 'neo', 'neo@gmail.com', 'neo_password');
Query OK, 1 row affected (0.01 sec)

mysql> select * from clientes;
+-----+-----+-----+-----+
| username | nombre | correo | contra |
+-----+-----+-----+-----+
| neo | neo | neo@gmail.com | neo_password |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

Conectar PHP con la base de datos

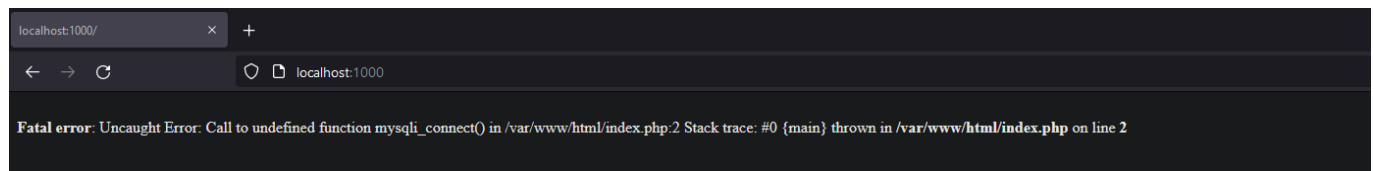
Dentro del archivo `index.php` añadimos las siguientes líneas:

```
<?php
$conn = mysqli_connect("database:3306", "root", "password", "usuarios");

if (!$conn) {
    die("Connection failed: " . mysqli_connect_error());
}

echo "Connected successfully";
?>
```

Cuando regresamos a la ruta dentro del navegador, vamos a observar el siguiente error:



Esto se debe a que la función `mysqli_connection()` no se encuentra definida, puesto que el servidor que tenemos instalado de php no tiene la extensión para conectarse a mysql. Para solucionar dicho error debemos seguir estos pasos:

- Abrir el contenedor de PHP por medio del siguiente comando:

```
docker exec -i -t servidorphp /bin/bash
```

```
C:\Users\carlo>docker exec -i -t servidorphp /bin/bash
root@6dbce79d46e1:/var/www/html#
```

- Ir al directorio `/` y listar los archivos y directorios:

```
root@6dbce79d46e1:/var/www/html# cd /
root@6dbce79d46e1:/# ls
bin boot dev etc home lib lib64 media mnt opt proc root run sbin srv sys tmp usr var
root@6dbce79d46e1:/#
```

- Usamos el siguiente comando para instalar la extensión necesaria:

```
docker-php-ext-install mysqli
```



```

root@6dbce79d46e1:/# docker-php-ext-install mysqli
Configuring for:
PHP Api Version:      20151012
Zend Module Api No:   20151012
Zend Extension Api No: 320151012
checking for grep that handles long lines and -e... /bin/grep
checking for egrep... /bin/grep -E
checking for a sed that does not truncate output... /bin/sed
checking for cc... cc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether cc accepts -g... yes
checking for cc option to accept ISO C89... none needed
checking how to run the C preprocessor... cc -E
checking for icc... no
checking for suncc... no
checking whether cc understands -c and -o together... yes
checking for system library directory... lib
checking if compiler supports -R... no
checking if compiler supports -Wl,-rpath,... yes
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking target system type... x86_64-pc-linux-gnu
checking for PHP prefix... /usr/local
checking for PHP includes... -I/usr/local/include/php -I/usr/local/include/php/main -I/usr/local/include/php/TSRM -I/usr/local/include/php/Zend -I/usr/local/include/php/ext -I/usr/local/include/php/ext/date/lib
checking for PHP extension directory... /usr/local/lib/php/extensions/no-debug-non-zts-20151012
checking for PHP installed headers prefix... /usr/local/include/php
checking if debug is enabled... no
checking if zts is enabled... no
checking for re2c... re2c
checking for re2c version... 0.16 (ok)
checking for gawk... no
checking for nawk... nawk
checking if nawk is broken... no
checking for MySQLi support... yes, shared
checking whether to enable embedded MySQLi support... no
checking for specified location of the MySQL UNIX socket... no
checking for MySQL UNIX socket location... no
checking for ld used by cc... /usr/bin/ld
checking if the linker (/usr/bin/ld) is GNU ld... yes
checking for /usr/bin/ld option to reload object files... -r
checking for BSD-compatible nm... /usr/bin/nm -B
checking whether ln -s works... yes
checking how to recognize dependent libraries... pass_all
checking for ANSI C header files... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes

```

Debemos copiar la ruta que aparece en la sección de **Installing shared extensions** al momento de terminar la instalación de la extensión. (`/usr/local/lib/php/extensions/no-debug-non-zts-20151012/`)

```

Build complete.
Don't forget to run 'make test'.

Installing shared extensions:      /usr/local/lib/php/extensions/no-debug-non-zts-20151012/
Installing header files:          /usr/local/include/php/
find . -name \*.gcno -o -name \*.gcda | xargs rm -f
find . -name \*.lo -o -name \*.o | xargs rm -f
find . -name \*.la -o -name \*.a | xargs rm -f
find . -name \*.so | xargs rm -f
find . -name *.libs -a -type d|xargs rm -rf
rm -f libphp.la      modules/* libs/*

```

- Nos ubicamos dentro de la ruta `/usr/local/etc/php/` y listamos los archivos que se encuentran dentro de dicho directorio

```

root@6dbce79d46e1:/# cd /usr/local/etc/php/
root@6dbce79d46e1:/usr/local/etc/php# ls
conf.d  php.ini-development  php.ini-production
root@6dbce79d46e1:/usr/local/etc/php#

```

- Instalamos nano con los siguientes comandos:

```
apt-get update
```

```
apt-get install nano
```

```

root@6dbce79d46e1:/usr/local/lib/php# apt-get update
Hit:1 http://security.debian.org/debian-security stretch/updates InRelease
Hit:2 http://deb.debian.org/debian stretch InRelease
Hit:3 http://deb.debian.org/debian stretch-updates InRelease
Hit:4 http://deb.debian.org/debian stretch Release
Reading package lists... Done
root@6dbce79d46e1:/usr/local/lib/php# apt-get install nano
Reading package lists... Done
Building dependency tree
Reading state information... Done
Suggested packages:
  spell
The following NEW packages will be installed:
  nano
0 upgraded, 1 newly installed, 0 to remove and 64 not upgraded.
Need to get 485 kB of archives.
After this operation, 2092 kB of additional disk space will be used.
Get:1 http://deb.debian.org/debian stretch/main amd64 nano amd64 2.7.4-1 [485 kB]
Fetched 485 kB in 0s (1093 kB/s)
debconf: unable to initialize frontend: Dialog
debconf: (No usable dialog-like program is installed, so the dialog based frontend cannot be used. at /usr/share/perl5/Debconf/FrontEnd/Dialog.pm line 76, <> line 1.)
debconf: falling back to frontend: Readline
Selecting previously unselected package nano.
(Reading database ... 18637 files and directories currently installed.)
Preparing to unpack .../nano_2.7.4-1_amd64.deb ...
Unpacking nano (2.7.4-1) ...
Setting up nano (2.7.4-1) ...
update-alternatives: using /bin/nano to provide /usr/bin/editor (editor) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/editor.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group editor) doesn't exist
update-alternatives: using /bin/nano to provide /usr/bin/pico (pico) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/pico.1.gz because associated file /usr/share/man/man1/nano.1.gz (of link group pico) doesn't exist
root@6dbce79d46e1:/usr/local/lib/php#

```

- Abrimos el archivo **php.ini-development** mediante el siguiente comando:

```
nano php.ini-development
```

```

[PHP]
#####
About php.ini
#####
; PHP's initialization file, generally called php.ini, is responsible for
; configuring many of the aspects of PHP's behavior.
;
; PHP attempts to find and load this configuration from a number of locations.
; The following is a summary of its search order:
; 1. SAPI module specific location.
; 2. The PHPRC environment variable. (As of PHP 5.2.0)
; 3. A number of predefined registry keys on Windows (As of PHP 5.2.0)
; 4. Current working directory (except CLI)
; 5. The web server's directory (for SAPI modules), or directory of PHP
;    (otherwise in Windows)
; 6. The directory from the --with-config-file-path compile time option, or the
;    Windows directory (C:\windows or C:\winnt)
; See the PHP docs for more specific information.
; http://php.net/configuration.file
;
; The syntax of the file is extremely simple. Whitespace and lines
; beginning with a semicolon are silently ignored (as you probably guessed).
; Section headers (e.g. [foo]) are also silently ignored, even though
; they might mean something in the future.
;
; Directives following the section heading [PATH=/www/mysite] only
; apply to PHP files in the /www/mysite directory. Directives
; following the section heading [HOST=www.example.com] only apply to
; PHP files served from www.example.com. Directives set in these
; special sections cannot be overridden by user-defined INI files or
; at runtime. Currently, [PATH=] and [HOST=] sections only work under
; CGI/FastCGI.
; http://php.net/ini.sections
;
; Directives are specified using the following syntax:
; directive = value
; Directive names are "case sensitive" - foo=bar is different from FOO=bar.
; Directives are variables used to configure PHP or PHP extensions.
; There is no name validation. If PHP can't find an expected
; directive because it is not set or is mistyped, a default value will be used.
;
; The value can be a string, a number, a PHP constant (e.g. E_ALL or M_PI), one
; of the INI constants (On, Off, True, False, Yes, No and None) or an expression
; (e.g. E_ALL & ~E_NOTICE), a quoted string ("bar"), or a reference to a
; previously set variable or directive (e.g. ${foo}).
;
; Expressions in the INI file are limited to bitwise operators and parentheses:
; | bitwise OR
; ^ bitwise XOR
; & bitwise AND

```

Luego, buscamos el apartado de rutas dinámicas y añadimos la ruta que teníamos copiada, y salimos del editor con **Ctrl + X**, y **Enter**:

```

; Dynamic Extensions ;
; If you wish to have an extension loaded automatically, use the following
; syntax:
;
; extension=modulename.extension
;
; For example, on Windows:
;
; extension=msql.dll
;
; ... or under UNIX:
;
; extension=msql.so
;
; ... or with a path:
;
; extension=/path/to/extension/msql.so
;
/usr/local/lib/php/extensions/no-debug-non-zts-20151012/

```

- Aplicamos el mismo procedimiento para el archivo de `php.ini-production`:

```

root@6dbce79d46e1:/usr/local/etc/php# nano php.ini-development
root@6dbce79d46e1:/usr/local/etc/php# nano php.ini-production
root@6dbce79d46e1:/usr/local/etc/php#

```

- Reiniciamos el contenedor de PHP con el siguiente comando:

```
docker restart servidorphp
```

```

C:\Users\carlo>docker restart servidorphp
servidorphp

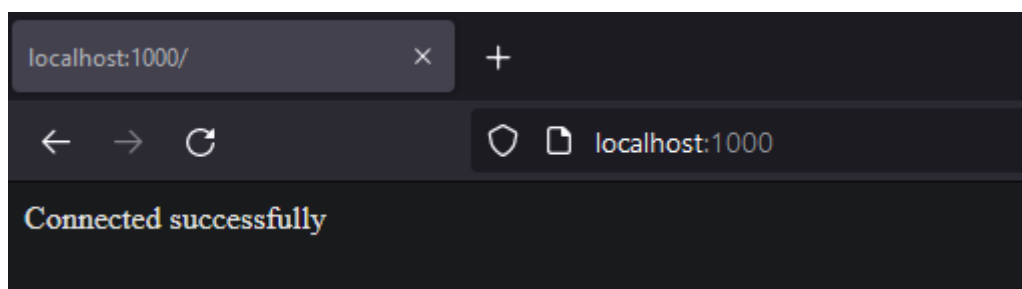
```

```

C:\Users\carlo>docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
6dbce79d46e1   php:7.0-apache "docker-php-entrypoi..." 15 hours ago   Up 39 seconds 0.0.0.0:1000->80/tcp               servidorphp
e2749101e305   mysql:5.7      "docker-entrypoint.s..." 15 hours ago   Up 4 hours    33060/tcp, 0.0.0.0:3307->3306/tcp   database

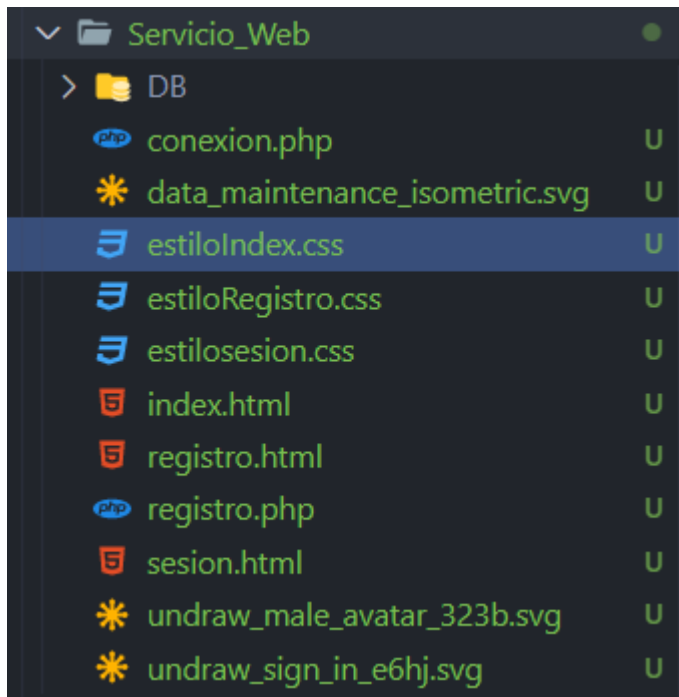
```

- Recargamos el navegador, y esto será lo que debe aparecer:



Página Web

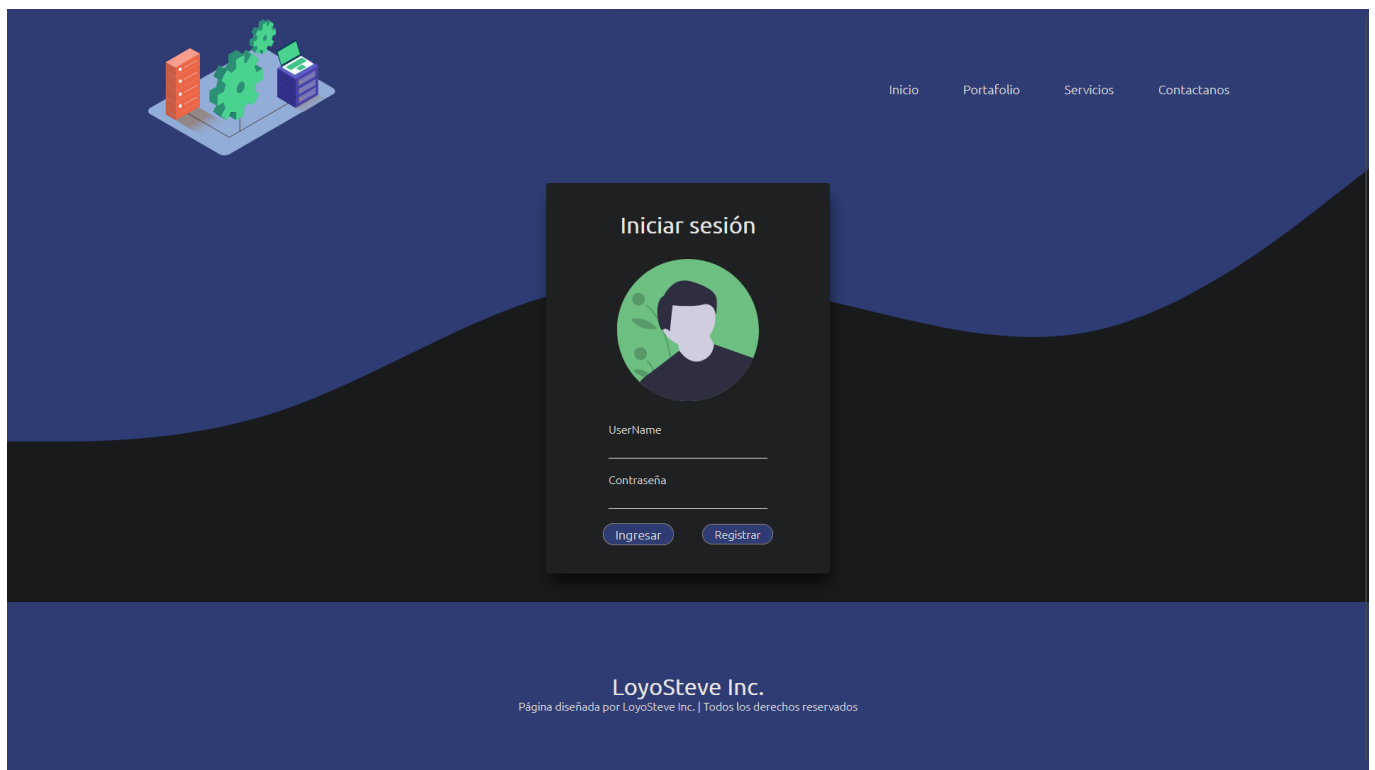
Para efectos del taller vamos a añadir algunos archivos a nuestro directorio `Servicio_Web`:

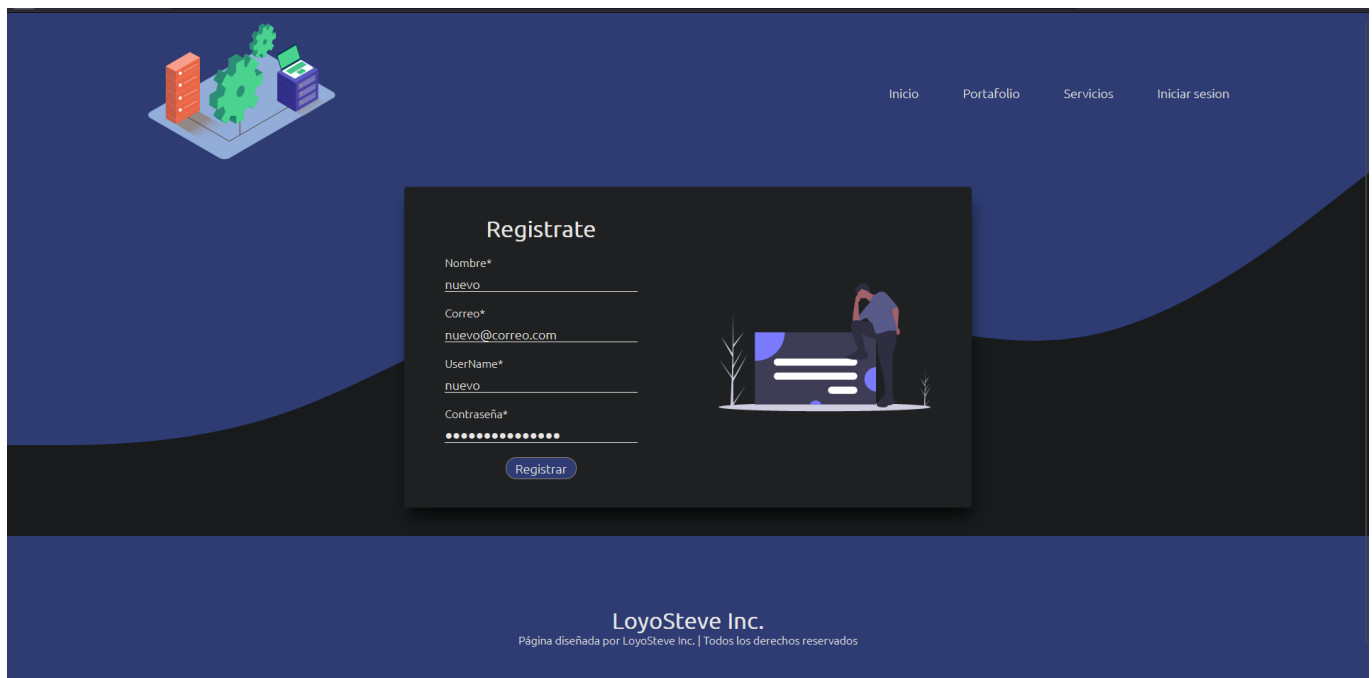
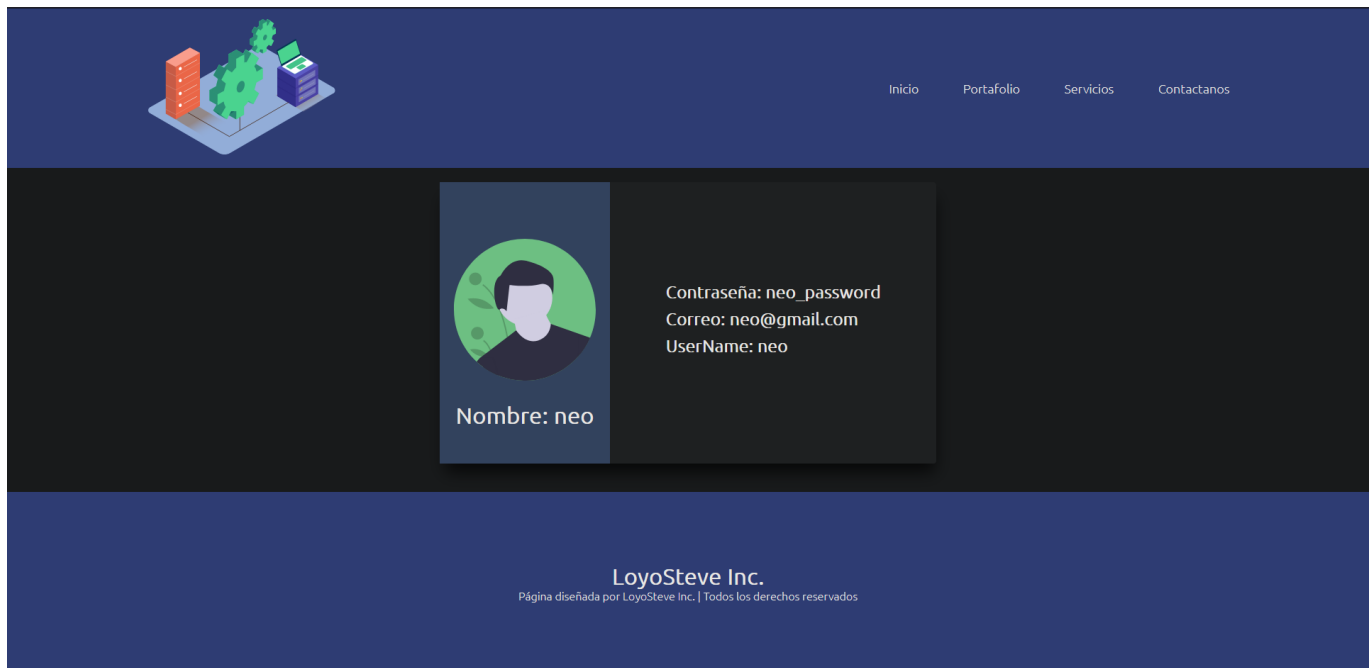


Dentro del archivo `conexion.php` y `registro.php` hacemos los siguientes cambios en la variable de conexión a la base de datos:

```
$con = mysqli_connect("database:3306","root","password","usuarios");
```

Si volvemos al navegador en la dirección `http://localhost:1000`, vamos a observar lo siguiente:





Si vamos al contenedor de la base de datos, podemos verificar que se ha registrado el usuario:

```
docker exec -i -t database bash
```

```
mysql -u root -p
```

```
use usuarios;
```

```
select * from clientes;
```

```
C:\Users\carlo>docker exec -i -t database bash
root@e2749101e305:/# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.38 MySQL Community Server (GPL)

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> use usuarios;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> select * from clientes;
+-----+-----+-----+-----+
| username | nombre | correo          | contra          |
+-----+-----+-----+-----+
| neo      | neo    | neo@gmail.com   | neo_password    |
| nuevo    | nuevo  | nuevo@correo.com | xFEPjtGgs9WKJpq |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

Docker-Compose

Dentro del directorio `Servicio_Web` creamos el archivo `docker-compose.yml`, dentro del cual tendremos la siguiente información:

```
version: '3'

services:
  mysql:
    image: mysql:5.7
    container_name: docker-mysql
    environment:
      MYSQL_DATABASE: usuarios
      MYSQL_ROOT_USER: user_docker
      MYSQL_USER: user_docker
```

```
MYSQL_PASSWORD: password
MYSQL_ROOT_PASSWORD: password
ports:
  - "3307:3306"
restart: always

web:
  image: php:7.0-apache
  container_name: docker-php
  ports:
    - "1000:80"
  volumes:
    - ./www:/var/www/html
  links:
    - mysql
```

Vamos a bajar nuestro contenedores:

```
docker stop database & docker stop servidorphp
```

```
C:\Users\carlo>docker stop database & docker stop servidorphp
database
servidorphp
```

Y ahora usamos el siguiente comando dentro del directorio **Servicio_Web**:

```
docker compose-up
```

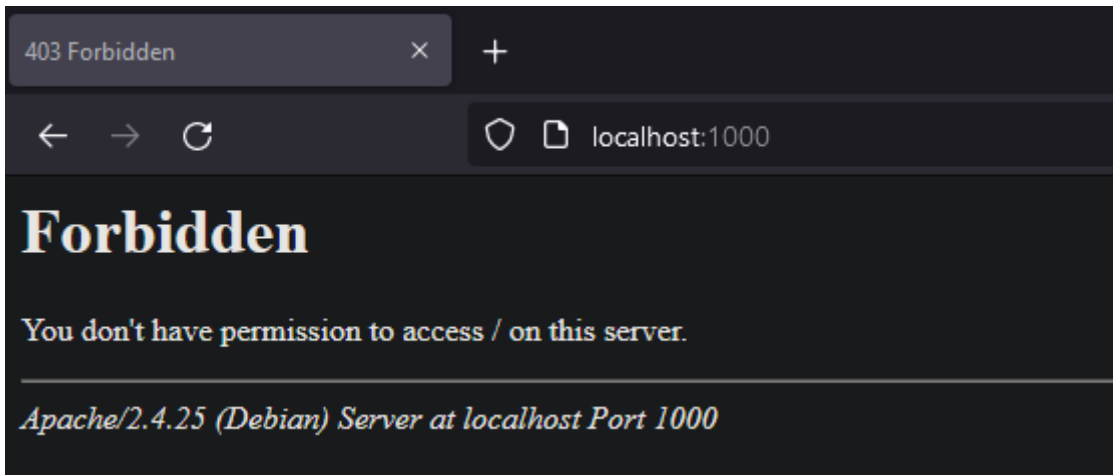
```
C:\Users\carlo\Documents\Noveno_Semestre\DevOps\Tercer_Corte\P3T1_Guia_Final\Servicio_Web>docker-compose up
Recreating docker-mysql ... done
Recreating docker-php ... done
Attaching to docker-mysql, docker-php
docker-mysql | 2022-05-18 18:57:41+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.38-1debian10 started.
docker-mysql | 2022-05-18 18:57:41+00:00 [Note] [Entrypoint]: Switching to dedicated user 'mysql'
docker-mysql | 2022-05-18 18:57:41+00:00 [Note] [Entrypoint]: Entrypoint script for MySQL Server 5.7.38-1debian10 started.
docker-mysql | 2022-05-18 18:57:41+00:00 [Note] [Entrypoint]: Initializing database files
docker-mysql | 2022-05-18 18:57:41.044473Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see documentation for
more details).
docker-mysql | 2022-05-18 18:57:42.051006Z 0 [Warning] InnoDB: New log files created, LSN=45790
docker-mysql | 2022-05-18 18:57:42.096368Z 0 [Warning] InnoDB: Creating foreign key constraint system tables.
docker-mysql | 2022-05-18 18:57:42.108565Z 0 [Warning] No existing UUID has been found, so we assume that this is the first time that this server has been started. Generating a new UUID: 653
6e74e-d6dc-11ec-8771-0242ac130902
docker-mysql | 2022-05-18 18:57:42.110121Z 0 [Warning] Gtid table is not ready to be used. Table 'mysql.gtid_executed' cannot be opened.
docker-mysql | 2022-05-18 18:57:42.365370Z 0 [Warning] A deprecated TLS version TLSv1 is enabled. Please use TLSv1.2 or higher.
docker-mysql | 2022-05-18 18:57:42.365421Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
docker-mysql | 2022-05-18 18:57:42.366532Z 0 [Warning] CA certificate ca.pem is self signed.
docker-mysql | 2022-05-18 18:57:42.422085Z 1 [Warning] root@localhost is created with an empty password ! Please consider switching off the --initialize-insecure option.
docker-php | AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.19.0.3. Set the 'ServerName' directive globally to suppress this message
docker-php | AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 172.19.0.3. Set the 'ServerName' directive globally to suppress this message
docker-php | [Wed May 18 18:57:42.561691 2022] [mpm_prefork:notice] [pid 1] AH00163: Apache/2.4.25 (Debian) PHP/7.0.33 configured -- resuming normal operations
docker-php | [Wed May 18 18:57:42.561936 2022] [core:notice] [pid 1] AH00094: Command line: 'apache2 -D FOREGROUND'
docker-mysql | 2022-05-18 18:57:44+00:00 [Note] [Entrypoint]: Database files initialized
docker-mysql | 2022-05-18 18:57:44+00:00 [Note] [Entrypoint]: Starting temporary server
docker-mysql | 2022-05-18 18:57:44+00:00 [Note] [Entrypoint]: Waiting for server startup
docker-mysql | 2022-05-18 18:57:44.940735Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see documentation for
more details).
docker-mysql | 2022-05-18 18:57:44.942082Z 0 [Note] mysqld (mysqld 5.7.38) starting as process 78 ...
docker-mysql | 2022-05-18 18:57:44.944538Z 0 [Note] InnoDB: PUNCH HOLE support available
docker-mysql | 2022-05-18 18:57:44.944584Z 0 [Note] InnoDB: Mutexes and rw_locks use GCC atomic builtins
docker-mysql | 2022-05-18 18:57:44.944589Z 0 [Note] InnoDB: Uses event mutexes
docker-mysql | 2022-05-18 18:57:44.944592Z 0 [Note] InnoDB: GCC builtin __atomic_thread_fence() is used for memory barrier
docker-mysql | 2022-05-18 18:57:44.944593Z 0 [Note] InnoDB: Compressed tables use zlib 1.2.11
docker-mysql | 2022-05-18 18:57:44.944595Z 0 [Note] InnoDB: Using Linux native AIO
docker-mysql | 2022-05-18 18:57:44.944884Z 0 [Note] InnoDB: Number of pools: 1
docker-mysql | 2022-05-18 18:57:44.945020Z 0 [Note] InnoDB: Using CPU crc32 instructions
docker-mysql | 2022-05-18 18:57:44.945332Z 0 [Note] InnoDB: Initializing shared tablespace for temporary tables
docker-mysql | 2022-05-18 18:57:44.953148Z 0 [Note] InnoDB: Completed initialization of buffer pool
docker-mysql | 2022-05-18 18:57:44.955465Z 0 [Note] InnoDB: If the mysqld execution user is authorized, page cleaner thread priority can be changed. See the man page of setpriority().
docker-mysql | 2022-05-18 18:57:44.967290Z 0 [Note] InnoDB: Highest supported file format is Barracuda.
docker-mysql | 2022-05-18 18:57:44.975298Z 0 [Note] InnoDB: Creating shared tablespace for temporary tables
docker-mysql | 2022-05-18 18:57:44.975392Z 0 [Note] InnoDB: Setting file './ibtmp1' size to 12 MB. Physically writing the file full; Please wait ...
docker-mysql | 2022-05-18 18:57:44.980764Z 0 [Note] InnoDB: File './ibtmp1' size is now 12 MB.
docker-mysql | 2022-05-18 18:57:44.989313Z 0 [Note] InnoDB: 96 redo rollback segment(s) found. 96 redo rollback segment(s) are active.
docker-mysql | 2022-05-18 18:57:44.989347Z 0 [Note] InnoDB: 32 non-redo rollback segment(s) are active.
docker-mysql | 2022-05-18 18:57:44.990280Z 0 [Note] InnoDB: 5.7.38 started; log sequence number 2749976
docker-mysql | 2022-05-18 18:57:44.990436Z 0 [Note] InnoDB: Loading buffer pool(s) from /var/lib/mysql/ib_buffer_pool
docker-mysql | 2022-05-18 18:57:44.991048Z 0 [Note] Plugin 'FEDERATED' is disabled.
docker-mysql | 2022-05-18 18:57:44.991752Z 0 [Note] InnoDB: Buffer pool(s) load completed at 220518 18:57:44
docker-mysql | 2022-05-18 18:57:44.996290Z 0 [Note] Found ca.pem, server-cert.pem and server-key.pem in data directory. Trying to enable SSL support using them.
docker-mysql | 2022-05-18 18:57:44.996331Z 0 [Note] Skipping generation of SSL certificates as certificate files are present in data directory.
docker-mysql | 2022-05-18 18:57:44.996336Z 0 [Warning] A deprecated TLS version TLSv1 is enabled. Please use TLSv1.2 or higher.
docker-mysql | 2022-05-18 18:57:44.996338Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
docker-mysql | 2022-05-18 18:57:44.996871Z 0 [Warning] CA certificate ca.pem is self signed.
```

```

docker-mysql | 2022-05-18T18:57:48.954423Z 0 [Note] Shutting down plugin 'mysql_native_password'
docker-mysql | 2022-05-18T18:57:48.954542Z 0 [Note] Shutting down plugin 'binlog'
docker-mysql | 2022-05-18T18:57:48.955099Z 0 [Note] mysqld: Shutdown complete
docker-mysql |
docker-mysql | 2022-05-18 18:57:49+00:00 [Note] [Entrypoint]: Temporary server stopped
docker-mysql |
docker-mysql | 2022-05-18 18:57:49+00:00 [Note] [Entrypoint]: MySQL init process done. Ready for start up.
docker-mysql |
docker-mysql | 2022-05-18T18:57:49.899023Z 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit_defaults_for_timestamp server option (see documentation for
more details).
docker-mysql | 2022-05-18T18:57:49.900161Z 0 [Note] mysqld (mysqld 5.7.38) starting as process 1 ...
docker-mysql | 2022-05-18T18:57:49.902644Z 0 [Note] InnoDB: PUNCH HOLE support available
docker-mysql | 2022-05-18T18:57:49.902736Z 0 [Note] InnoDB: Mutexes and rw_locks use GCC atomic builtins
docker-mysql | 2022-05-18T18:57:49.902744Z 0 [Note] InnoDB: Uses event mutexes
docker-mysql | 2022-05-18T18:57:49.902748Z 0 [Note] InnoDB: GCC builtin __atomic_thread_fence() is used for memory barrier
docker-mysql | 2022-05-18T18:57:49.902750Z 0 [Note] InnoDB: Compressed tables use zlib 1.2.11
docker-mysql | 2022-05-18T18:57:49.902753Z 0 [Note] InnoDB: Using Linux native AIO
docker-mysql | 2022-05-18T18:57:49.903118Z 0 [Note] InnoDB: Number of pools: 1
docker-mysql | 2022-05-18T18:57:49.903592Z 0 [Note] InnoDB: Using CPU crc32 instructions
docker-mysql | 2022-05-18T18:57:49.905519Z 0 [Note] InnoDB: Initializing buffer pool, total size = 128M, instances = 1, chunk size = 128M
docker-mysql | 2022-05-18T18:57:49.912005Z 0 [Note] InnoDB: Completed initialization of buffer pool
docker-mysql | 2022-05-18T18:57:49.913980Z 0 [Note] InnoDB: If the mysqld execution user is authorized, page cleaner thread priority can be changed. See the man page of setpriority().
docker-mysql | 2022-05-18T18:57:49.923393Z 0 [Note] InnoDB: Highest supported file format is Barracuda.
docker-mysql | 2022-05-18T18:57:49.932500Z 0 [Note] InnoDB: Setting file './ibtmp1' size to 12 MB. Physically writing the file full; Please wait ...
docker-mysql | 2022-05-18T18:57:49.945966Z 0 [Note] InnoDB: File './ibtmp1' size is now 12 MB.
docker-mysql | 2022-05-18T18:57:49.946485Z 0 [Note] InnoDB: 96 redo rollback segment(s) found. 96 redo rollback segment(s) are active.
docker-mysql | 2022-05-18T18:57:49.946517Z 0 [Note] InnoDB: 32 non-redo rollback segment(s) are active.
docker-mysql | 2022-05-18T18:57:49.947246Z 0 [Note] InnoDB: 5.7.38 started; log sequence number 12660054
docker-mysql | 2022-05-18T18:57:49.947505Z 0 [Note] InnoDB: Loading buffer pool(s) from /var/lib/mysql/ib_buffer_pool
docker-mysql | 2022-05-18T18:57:49.947831Z 0 [Note] Plugin 'FEDERATED' is disabled.
docker-mysql | 2022-05-18T18:57:49.950253Z 0 [Note] InnoDB: Buffer pool(s) load completed at 220518 18:57:49
docker-mysql | 2022-05-18T18:57:49.952455Z 0 [Note] Found ca.pem, server-cert.pem and server-key.pem in data directory. Trying to enable SSL support using them.
docker-mysql | 2022-05-18T18:57:49.952500Z 0 [Note] Skipping generation of SSL certificates as certificate files are present in data directory.
docker-mysql | 2022-05-18T18:57:49.952506Z 0 [Warning] A deprecated TLS version TLSv1 is enabled. Please use TLSv1.2 or higher.
docker-mysql | 2022-05-18T18:57:49.952508Z 0 [Warning] A deprecated TLS version TLSv1.1 is enabled. Please use TLSv1.2 or higher.
docker-mysql | 2022-05-18T18:57:49.953008Z 0 [Warning] CA certificate ca.pem is self signed.
docker-mysql | 2022-05-18T18:57:49.953056Z 0 [Note] Skipping generation of RSA key pair as key files are present in data directory.
docker-mysql | 2022-05-18T18:57:49.953499Z 0 [Note] Server hostname (bind-address): '*', port: 3306
docker-mysql | 2022-05-18T18:57:49.953586Z 0 [Note] IPv6 is available.
docker-mysql | 2022-05-18T18:57:49.953743Z 0 [Note] - '::' resolves to '::';
docker-mysql | 2022-05-18T18:57:49.953777Z 0 [Note] Server socket created on IP: '::'.
docker-mysql | 2022-05-18T18:57:49.955691Z 0 [Warning] Insecure configuration for --pid-file: Location '/var/run/mysqld' in the path is accessible to all OS users. Consider choosing a differ
ent directory.
docker-mysql | 2022-05-18T18:57:49.964403Z 0 [Note] Event Scheduler: Loaded 0 events
docker-mysql | 2022-05-18T18:57:49.964717Z 0 [Note] mysqld: ready for connections.
docker-mysql | Version: '5.7.38' socket: '/var/run/mysqld/mysqld.sock' port: 3306 MySQL Community Server (GPL)

```

Volvemos a intentar correr nuestra aplicación dentro del navegador, y recibiremos el siguiente mensaje debido a que no se configuro los directorio indices ([index.php](#), [index.html](#)).



```

docker-mysql | 2022-05-18T18:57:49.964403Z 0 [Note] Event Scheduler: Loaded 0 events
docker-mysql | 2022-05-18T18:57:49.964717Z 0 [Note] mysqld: ready for connections.
docker-mysql | Version: '5.7.38' socket: '/var/run/mysqld/mysqld.sock' port: 3306 MySQL Community Server (GPL)
docker-php | 172.19.0.1 -- [18/May/2022:18:59:36 +0000] "GET /estiloIndex.css HTTP/1.1" 404 507 "http://localhost:1000/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"
docker-php | [Wed May 18 18:59:54.788676 2022] [error] [pid 18] [client 172.19.0.1:54742] script '/var/www/html/conexion.php' not found or unable to stat, referer: http://localhost:1000/
docker-php | 172.19.0.1 -- [18/May/2022:18:59:54 +0000] "POST /conexion.php HTTP/1.1" 404 504 "http://localhost:1000/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"
docker-php | [Wed May 18 19:00:17.721398 2022] [error] [pid 19] [client 172.19.0.1:54744] script '/var/www/html/registro.php' not found or unable to stat, referer: http://localhost:1000/registro.html
docker-php | 172.19.0.1 -- [18/May/2022:19:00:17 +0000] "POST /registro.php HTTP/1.1" 404 504 "http://localhost:1000/registro.html" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"
docker-php | 172.19.0.1 -- [18/May/2022:19:00:25 +0000] "GET /registro.html HTTP/1.1" 404 505 "http://localhost:1000/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"
docker-php | 172.19.0.1 -- [18/May/2022:19:00:26 +0000] "GET /registro.html HTTP/1.1" 404 504 "http://localhost:1000/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"
docker-php | 172.19.0.1 -- [18/May/2022:19:00:29 +0000] "GET / HTTP/1.1" 403 502 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"
docker-php | [Wed May 18 19:00:29.395629 2022] [autoindex:error] [pid 20] [client 172.19.0.1:54746] AH01276: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.php,index.html) found, and server-generated directory index forbidden by Options directive
docker-php | [Wed May 18 19:01:21.925245 2022] [autoindex:error] [pid 21] [client 172.19.0.1:54748] AH01276: Cannot serve directory /var/www/html/: No matching DirectoryIndex (index.php,index.html) found, and server-generated directory index forbidden by Options directive
docker-php | 172.19.0.1 -- [18/May/2022:19:01:21 +0000] "GET / HTTP/1.1" 403 503 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:101.0) Gecko/20100101 Firefox/101.0"

```