Modelo University
Ingeniery school

Engineering in Technology and Software Development
Second Partial
Fundamentals of the Cloud
Teacher: Ing. Alfredo Bolio

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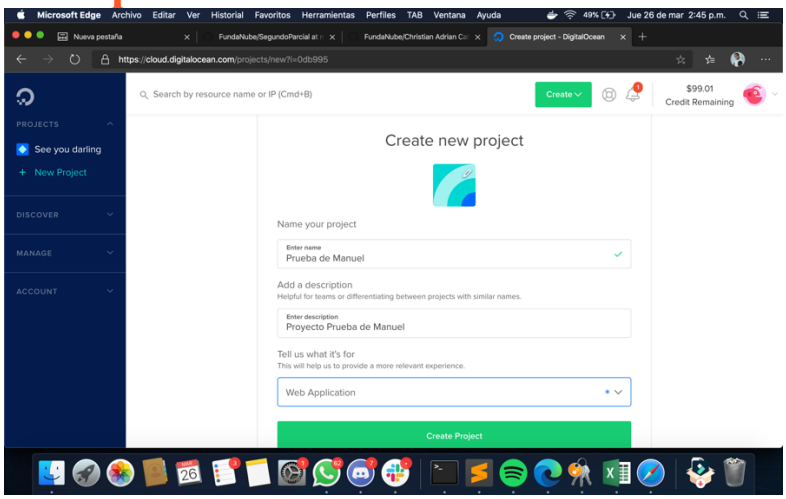
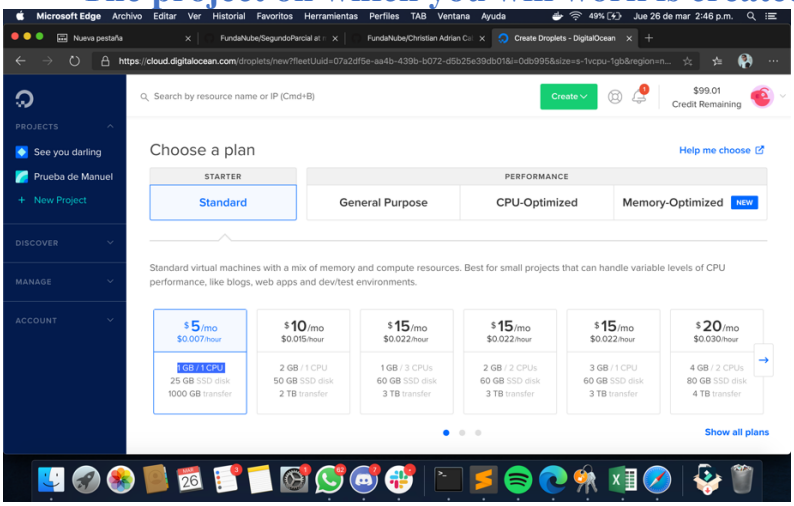
27/03/2020

Create a droplet and lift services with Docker

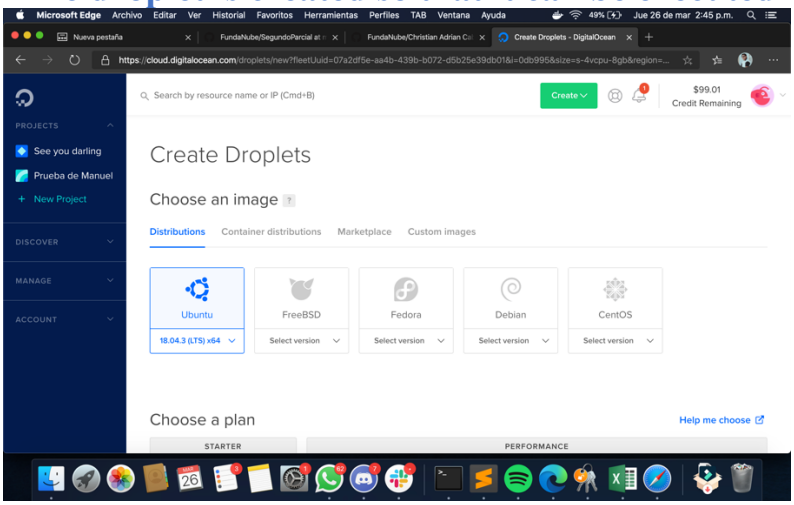
1.- Create Drolpet



The project on which you will work is created



The droplet is created so that it can be executed



It is vitally important that it be ubuntu image

2.- Access via ssh

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
  System information as of Thu Mar 26 20:30:57 UTC 2020

  System load:  0.22              Processes:           82
  Usage of /:   4.0% of 24.06GB   Users logged in:     0
  Memory usage: 11%               IP address for eth0: 104.248.120.143
  Swap usage:   0%

0 packages can be updated.
0 updates are security updates.



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

Changing password for root.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
root@manuel123:~#
```

We connect with the username and password that digital ocean gives us

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

Changing password for root.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
root@manuel123:~# sudo apt-get remove docker docker-engine docker.io containerd
runc
Reading package lists... Done
Building dependency tree
Reading state information... Done

No apt package "docker", but there is a snap with that name.
Try "snap install docker"

E: Unable to locate package docker
E: Unable to locate package docker-engine
E: Unable to locate package docker.io
E: Couldn't find any package by glob 'docker.io'
E: Couldn't find any package by regex 'docker.io'
E: Unable to locate package containerd
E: Unable to locate package runc
root@manuel123:~#
```

3.- Install Docker and run docker ps

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
runc
Reading package lists... Done
Building dependency tree
Reading state information... Done

No apt package "docker", but there is a snap with that name.
Try "snap install docker"

E: Unable to locate package docker
E: Unable to locate package docker-engine
E: Unable to locate package docker.io
E: Couldn't find any package by glob 'docker.io'
E: Couldn't find any package by regex 'docker.io'
E: Unable to locate package containerd
E: Unable to locate package runc
root@manuel123:~# sudo apt-get update
Get:1 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]
Get:2 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease [74.6 kB
]
Get:4 http://mirrors.digitalocean.com/ubuntu bionic/universe amd64 Packages [857
0 kB]
Get:5 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:6 http://mirrors.digitalocean.com/ubuntu bionic/universe Translation-en [494
```

Run this command to update all linux system libraries

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Get:21 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [67
0 kB]
Get:22 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [21
6 kB]
Get:23 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packag
es [27.1 kB]
Get:24 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-
en [7260 B]
Get:25 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages
 [652 kB]
Get:26 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en
 [216 kB]
Get:27 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packag
es [6968 B]
Get:28 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-
en [2732 B]
Fetched 18.7 MB in 4s (5132 kB/s)
Reading package lists... Done
root@manuel123:~# sudo apt-get install \
>     apt-transport-https \
>     ca-certificates \
>     curl \
>     gnupg-agent \
>     software-properties-common
```

Run this command to install all the components that we are going to use.

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Get:3 http://mirrors.digitalocean.com/ubuntu bionic-updates/main amd64 software-
properties-common all 0.96.24.32.12 [10.0 kB]
Get:4 http://mirrors.digitalocean.com/ubuntu bionic-updates/main amd64 python3-s
oftware-properties all 0.96.24.32.12 [23.6 kB]
Fetched 40.2 kB in 0s (436 kB/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 60017 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_1.6.12_all.deb ...
Unpacking apt-transport-https (1.6.12) ...
Selecting previously unselected package gnupg-agent.
Preparing to unpack .../gnupg-agent_2.2.4-1ubuntu1.2_all.deb ...
Unpacking gnupg-agent (2.2.4-1ubuntu1.2) ...
Preparing to unpack .../software-properties-common_0.96.24.32.12_all.deb ...
Unpacking software-properties-common (0.96.24.32.12) over (0.96.24.32.11) ...
Preparing to unpack .../python3-software-properties_0.96.24.32.12_all.deb ...
Unpacking python3-software-properties (0.96.24.32.12) over (0.96.24.32.11) ...
Setting up apt-transport-https (1.6.12) ...
Setting up python3-software-properties (0.96.24.32.12) ...
Setting up gnupg-agent (2.2.4-1ubuntu1.2) ...
Setting up software-properties-common (0.96.24.32.12) ...
Processing triggers for dbus (1.12.2-1ubuntu1.1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
root@manuel123:~# curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo
 apt-key add -
```

Run this command to install docker in our droplet

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Selecting previously unselected package apt-transport-https.
(Reading database ... 60017 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_1.6.12_all.deb ...
Unpacking apt-transport-https (1.6.12) ...
Selecting previously unselected package gnupg-agent.
Preparing to unpack .../gnupg-agent_2.2.4-1ubuntu1.2_all.deb ...
Unpacking gnupg-agent (2.2.4-1ubuntu1.2) ...
Preparing to unpack .../software-properties-common_0.96.24.32.12_all.deb ...
Unpacking software-properties-common (0.96.24.32.12) over (0.96.24.32.11) ...
Preparing to unpack .../python3-software-properties_0.96.24.32.12_all.deb ...
Unpacking python3-software-properties (0.96.24.32.12) over (0.96.24.32.11) ...
Setting up apt-transport-https (1.6.12) ...
Setting up python3-software-properties (0.96.24.32.12) ...
Setting up gnupg-agent (2.2.4-1ubuntu1.2) ...
Setting up software-properties-common (0.96.24.32.12) ...
Processing triggers for dbus (1.12.2-1ubuntu1.1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
root@manuel123:~# curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo
 apt-key add -
OK
root@manuel123:~# sudo add-apt-repository \
>    "deb [arch=amd64] https://download.docker.com/linux/ubuntu \
>    $(lsb_release -cs) \
>    stable"
```

As we are in linux run this so that the docker can continue running in the background

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Unpacking python3-software-properties (0.96.24.32.12) over (0.96.24.32.11) ...
Setting up apt-transport-https (1.6.12) ...
Setting up python3-software-properties (0.96.24.32.12) ...
Setting up gnupg-agent (2.2.4-1ubuntu1.2) ...
Setting up software-properties-common (0.96.24.32.12) ...
Processing triggers for dbus (1.12.2-1ubuntu1.1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
root@manuel123:~# curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo
 apt-key add -
OK
root@manuel123:~# sudo add-apt-repository \
>    "deb [arch=amd64] https://download.docker.com/linux/ubuntu \
>    $(lsb_release -cs) \
>    stable"
Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:2 https://download.docker.com/linux/ubuntu bionic InRelease [64.4 kB]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]
Hit:4 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease
Get:5 https://download.docker.com/linux/ubuntu bionic/stable amd64 Packages [11.
0 kB]
Hit:6 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease
Fetched 318 kB in 0s (681 kB/s)
Reading package lists... Done
root@manuel123:~# sudo apt-get update
```

Refresh all droplet libraries

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
 apt-key add -
OK
root@manuel123:~# sudo add-apt-repository \
>    "deb [arch=amd64] https://download.docker.com/linux/ubuntu \
>    $(lsb_release -cs) \
>    stable"
Hit:1 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:2 https://download.docker.com/linux/ubuntu bionic InRelease [64.4 kB]
Get:3 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]
Hit:4 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease
Get:5 https://download.docker.com/linux/ubuntu bionic/stable amd64 Packages [11.
0 kB]
Hit:6 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease
Fetched 318 kB in 0s (681 kB/s)
Reading package lists... Done
root@manuel123:~# sudo apt-get update
Hit:1 https://download.docker.com/linux/ubuntu bionic InRelease
Get:2 http://mirrors.digitalocean.com/ubuntu bionic InRelease [242 kB]
Hit:3 http://security.ubuntu.com/ubuntu bionic-security InRelease
Hit:4 http://mirrors.digitalocean.com/ubuntu bionic-updates InRelease
Hit:5 http://mirrors.digitalocean.com/ubuntu bionic-backports InRelease
Fetched 242 kB in 1s (467 kB/s)
Reading package lists... Done
root@manuel123:~# sudo apt-get install docker-ce docker-ce-cli containerd.io
```

We install the docker container of our project.

4.- Install docker-compose

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Unpacking docker-ce (5:19.03.8~3-0~ubuntu-bionic) ...
Selecting previously unselected package libltdl7:amd64.
Preparing to unpack .../6-libltdl7_2.4.6-2_amd64.deb ...
Unpacking libltdl7:amd64 (2.4.6-2) ...
Setting up aufs-tools (1:4.9+20170918-1ubuntu1) ...
Setting up containerd.io (1.2.13-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service →
 /lib/systemd/system/containerd.service.
Setting up cgroupfs-mount (1.4) ...
Setting up libltdl7:amd64 (2.4.6-2) ...
Setting up docker-ce-cli (5:19.03.8~3-0~ubuntu-bionic) ...
Setting up pigz (2.4-1) ...
Setting up docker-ce (5:19.03.8~3-0~ubuntu-bionic) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /li
b/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/sy
stemd/system/docker.socket.
Processing triggers for libc-bin (2.27-3ubuntu1) ...
Processing triggers for systemd (237-3ubuntu10.31) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/downl
oad/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-comp
ose
```

Run this command to install the compose docker

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/sy
stemd/system/docker.socket.
Processing triggers for libc-bin (2.27-3ubuntu1) ...
Processing triggers for systemd (237-3ubuntu10.31) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/downl
oad/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-comp
ose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617  100   617    0     0  10457      0 --:--:-- --:--:-- --:--:-- 10457
100 16.3M  100 16.3M    0     0  60.4M      0 --:--:-- --:--:-- --:--:-- 60.4M
root@manuel123:~# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS              PORTS               NAMES
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/downl
oad/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-comp
ose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617  100   617    0     0  10637      0 --:--:-- --:--:-- --:--:-- 10637
100 16.3M  100 16.3M    0     0  59.7M      0 --:--:-- --:--:-- --:--:-- 59.7M
root@manuel123:~# sudo chmod +x /usr/local/bin/docker-compose
```

We give docker permission to write to those linux files

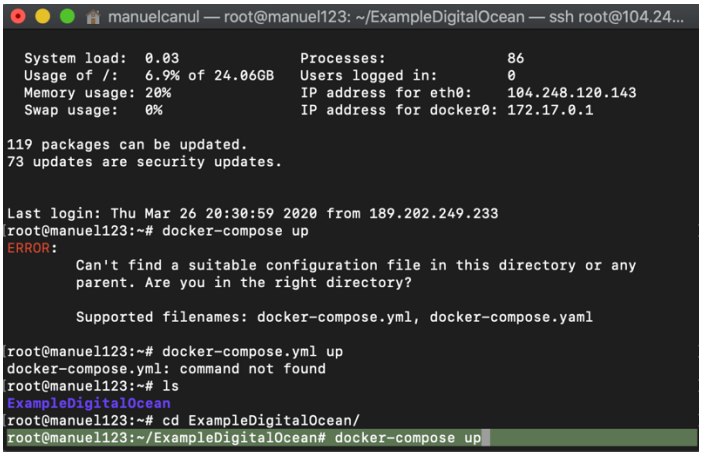
```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
stemd/system/docker.socket.
Processing triggers for libc-bin (2.27-3ubuntu1) ...
Processing triggers for systemd (237-3ubuntu10.31) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/downl
oad/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-comp
ose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617  100   617    0     0  10457      0 --:--:-- --:--:-- --:--:-- 10457
100 16.3M  100 16.3M    0     0  60.4M      0 --:--:-- --:--:-- --:--:-- 60.4M
root@manuel123:~# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS              PORTS               NAMES
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/downl
oad/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-comp
ose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617  100   617    0     0  10637      0 --:--:-- --:--:-- --:--:-- 10637
100 16.3M  100 16.3M    0     0  59.7M      0 --:--:-- --:--:-- --:--:-- 59.7M
root@manuel123:~# sudo chmod +x /usr/local/bin/docker-compose
root@manuel123:~# docker-compose --version
```

Execute this command that indicates that docker is already installed correctly on our computer.

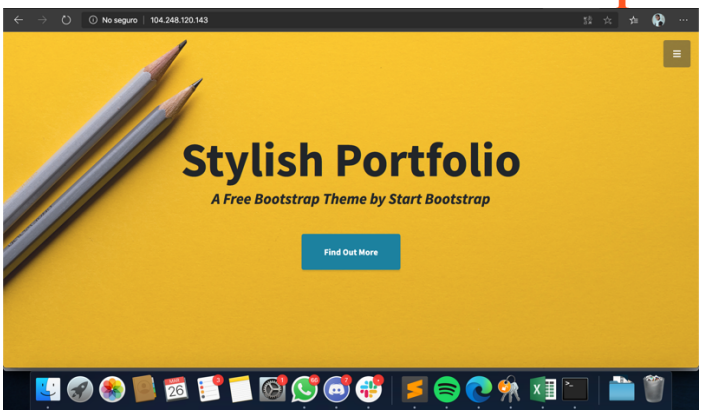
5.- clone Repo

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 165×24
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for libc-bin (2.27-3ubuntu1) ...
Processing triggers for systemd (237-3ubuntu10.31) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/download/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617  100   617    0     0  10457      0 --:--:-- --:--:-- --:--:-- 10457
100 16.3M  100 16.3M    0     0  60.4M      0 --:--:-- --:--:-- --:--:-- 60.4M
root@manuel123:~# docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED             STATUS              PORTS               NAMES
root@manuel123:~# sudo curl -L "https://github.com/docker/compose/releases/download/1.25.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   617  100   617    0     0  10637      0 --:--:-- --:--:-- --:--:-- 10637
100 16.3M  100 16.3M    0     0  59.7M      0 --:--:-- --:--:-- --:--:-- 59.7M
root@manuel123:~# sudo chmod +x /usr/local/bin/docker-compose
root@manuel123:~# docker-compose --version
docker-compose version 1.25.4, build 8d51620a
root@manuel123:~# git clone https://github.com/ManuelCanul109/ExampleDigitalOcean.git
```

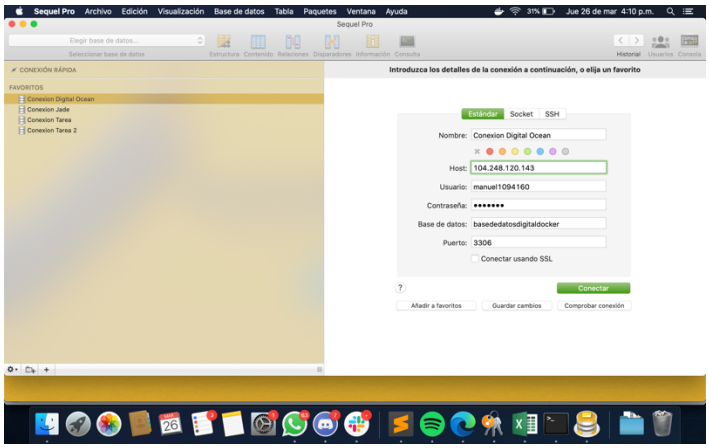
6.- Raise Container



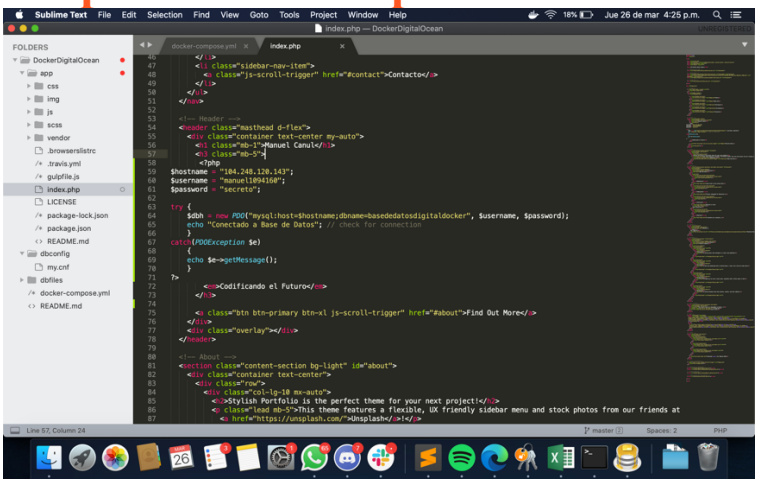
7.- Access our container via an internet explorer

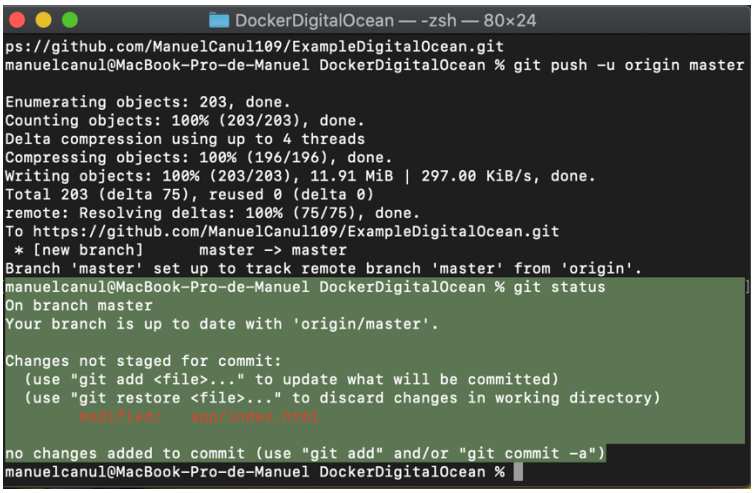


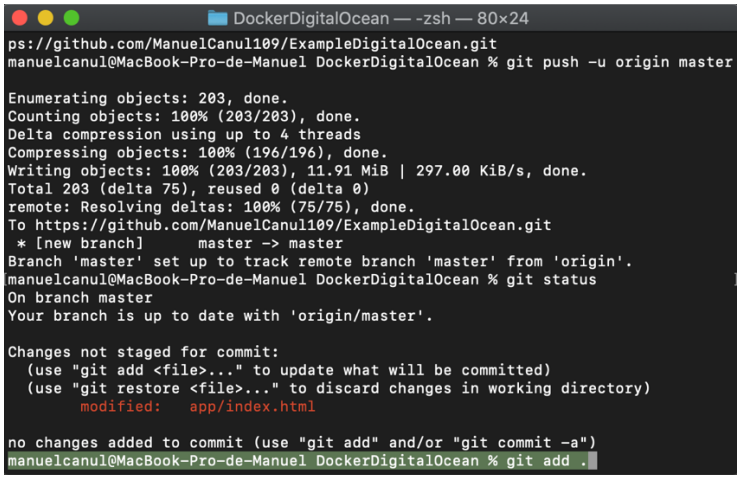
8.- Access our BD via Sequel Pro



9.- Make an Update to the Repo and do a Push







```
DockerDigitalOcean — -zsh — 80×24
    git config --global --edit

After doing this, you may fix the identity used for this commit with:

    git commit --amend --reset-author

 1 file changed, 8 insertions(+), 10 deletions(-)
manuelcanul@MacBook-Pro-de-Manuel DockerDigitalOcean % git push origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 484 bytes | 484.00 KiB/s, done.
Total 4 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 3 local objects.
remote:
remote: GitHub found 1 vulnerability on ManuelCanul109/ExampleDigitalOcean's def
ault branch (1 moderate). To find out more, visit:
remote:      https://github.com/ManuelCanul109/ExampleDigitalOcean/network/alert
s
remote:
To https://github.com/ManuelCanul109/ExampleDigitalOcean.git
   3e3ca7e..27a2ce9  master -> master
manuelcanul@MacBook-Pro-de-Manuel DockerDigitalOcean %
```

10.- Realizar un Deploy

```
manuelcanul — root@manuel123: ~ — ssh root@104.248.120.143 — 80×24
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-66-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Mar 26 21:27:23 UTC 2020

  System load:                    0.0
  Usage of /:                     10.9% of 24.06GB
  Memory usage:                   42%
  Swap usage:                     0%
  Processes:                      102
  Users logged in:                1
  IP address for eth0:            104.248.120.143
  IP address for docker0:         172.17.0.1
  IP address for br-7617194eb2dd: 172.18.0.1

119 packages can be updated.
73 updates are security updates.


Last login: Thu Mar 26 20:59:00 2020 from 189.202.249.233
root@manuel123:~# git pull origin master
```