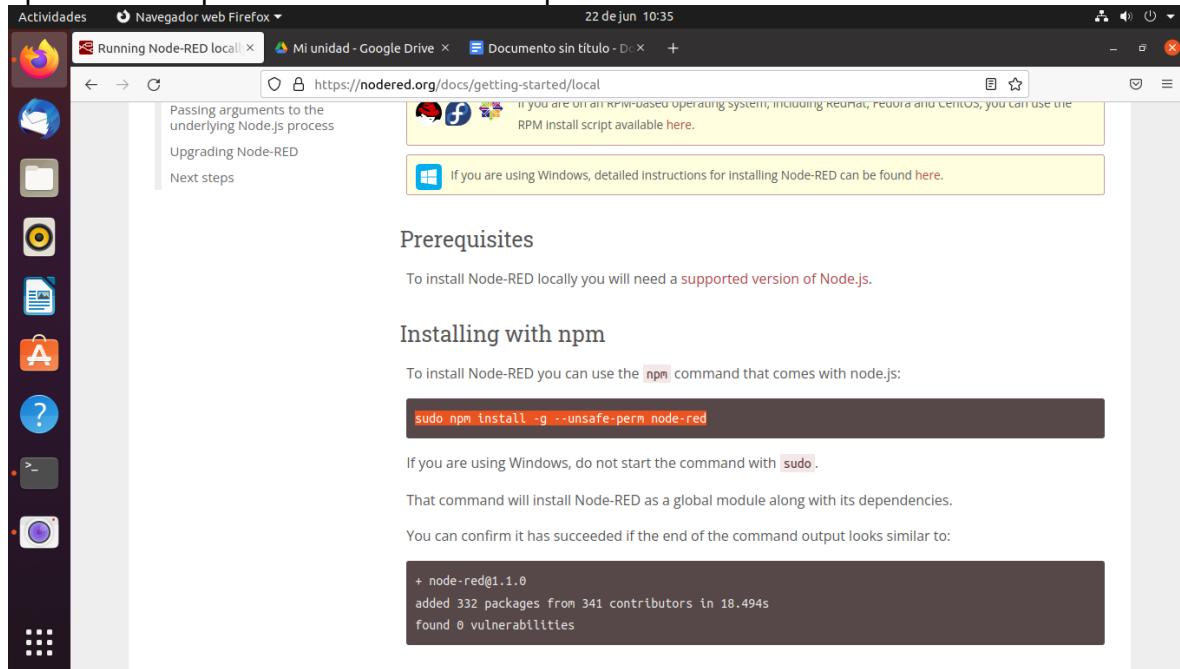


primero utilizamos el comando  
node –version y nos dara el comando para instalar node  
sudo apt install node  
despues pondremos  
npm –version para verificr si tenemos npm instalado



esta pagina es para iniciar el node js  
usaremos los comandos que nos marca  
<https://nodered.org/docs/getting-started/local>

1- pondremos el primer comando para iniciar node js  
sudo npm install -g --unsafe-perm node-red

The screenshot displays two terminal windows on a Linux desktop. Both windows are titled "Running Node-RED local".

**Top Terminal Window:**

```
nestor@NestorB:~$ npm --version
No se ha encontrado la orden «npm», pero se puede instalar con:
sudo apt install npm

nestor@NestorB:~$ sudo apt install npm
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias
Leyendo la información de estado... Hecho
Los paquetes indicados a continuación se instalaron de forma automática y ya no son necesarios.
  docker-ce-rootless-extras docker-scan-plugin slirp4netns
Utilice «sudo apt autoremove» para eliminarlos.
Se instalarán los siguientes paquetes adicionalmente:
  gyp javascript-common libjs-inherits libjs-ts-typedarray libjs-psl
  libjs-typedarray-to-buffer libnode-dev libpython2.7-stdlib libssl1-dev libuv1-dev
  node-abbrev node-ajv node-ansi node-ansi-align node-ansi-regex
  node-ansi-styles node-ansi-styles node-aproba node-archy
  node-are-we-there-yet node-asap node-asn1 node-assert-plus node-asynckit
  node-aws-sign2 node-aws4 node-balanced-match node-bcrypt-pbkdf node-bl
  node-bluebird node-boxen node-brace-expansion node-builtins-modules
  node-builtins node-cacache node-call-limits node-camelcase node-caseless
That command will install Node-RED as a global module along with its dependencies.

You can confirm it has succeeded if the end of the command output looks similar to:
```

```
+ node-red@1.1.0
added 332 packages from 341 contributors in 18.494s
found 0 vulnerabilities
```

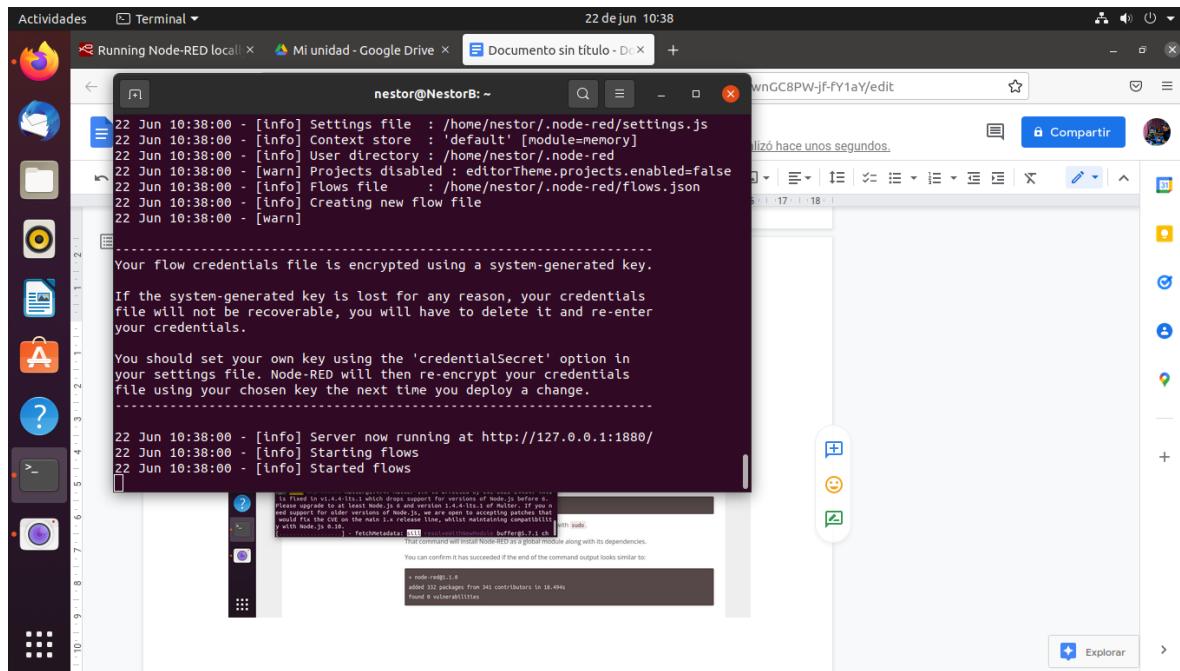
**Bottom Terminal Window:**

```
nestor@NestorB:~$ sudo npm install -g --unsafe-perm node-red
Configurando node-gauge (2.7.4-1) ...
Configurando node-normalize-package-data (2.5.0-1) ...
Configurando node-configstore (5.0.1-1) ...
Configurando node-boxen (4.2.0-2) ...
Configurando node-npmlog (4.1.2-2) ...
Configurando node-yargs (15.3.0-1) ...
Configurando node-cacache (11.3.3-2) ...
Configurando node-read-package-json (2.1.1-1) ...
Configurando node-gyp (6.1.0-3) ...
Configurando node-libnpx (10.2.1-2) ...
Configurando npm (6.14.4+ds-1ubuntu2) ...
Procesando disparadores para man-db (2.9.1-1) ...
Procesando disparadores para desktop-file-utils (0.24-1ubuntu3) ...
Procesando disparadores para mime-support (3.64ubuntu1) ...
Procesando disparadores para gnome-menus (3.36.0-1ubuntu1) ...
Procesando disparadores para libc-bin (2.31-0ubuntu9.9) ...
nestor@NestorB:~$ sudo npm install -g --unsafe-perm node-red
npm WARN deprecated multer@1.4.4: Multer 1.x is affected by CVE-2022-2434. This is fixed in v1.4.4-lts.1 which drops support for versions of Node.js before 6. Please upgrade to at least Node.js 6 and version 1.4.4-lts.1 of Multer. If you need support for older versions of Node.js, we are open to accepting patches that would fix the CVE on the main 1.x release line, whilst maintaining compatibility with Node.js 0.10.
[ ... ] - fetchMetadata: sill resolveWithNewModule buffer@5.7.1 ch
That command will install Node-RED as a global module along with its dependencies.

You can confirm it has succeeded if the end of the command output looks similar to:
```

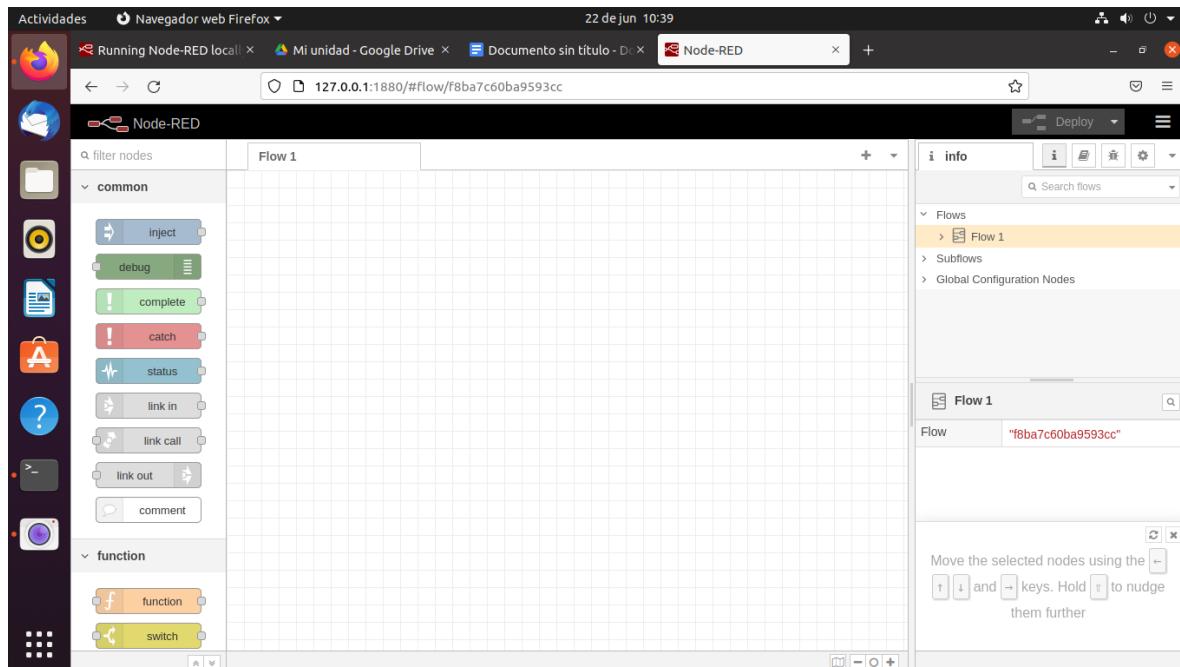
```
+ node-red@1.1.0
added 332 packages from 341 contributors in 18.494s
found 0 vulnerabilities
```

damos clic con control al la dirección que nos muestra

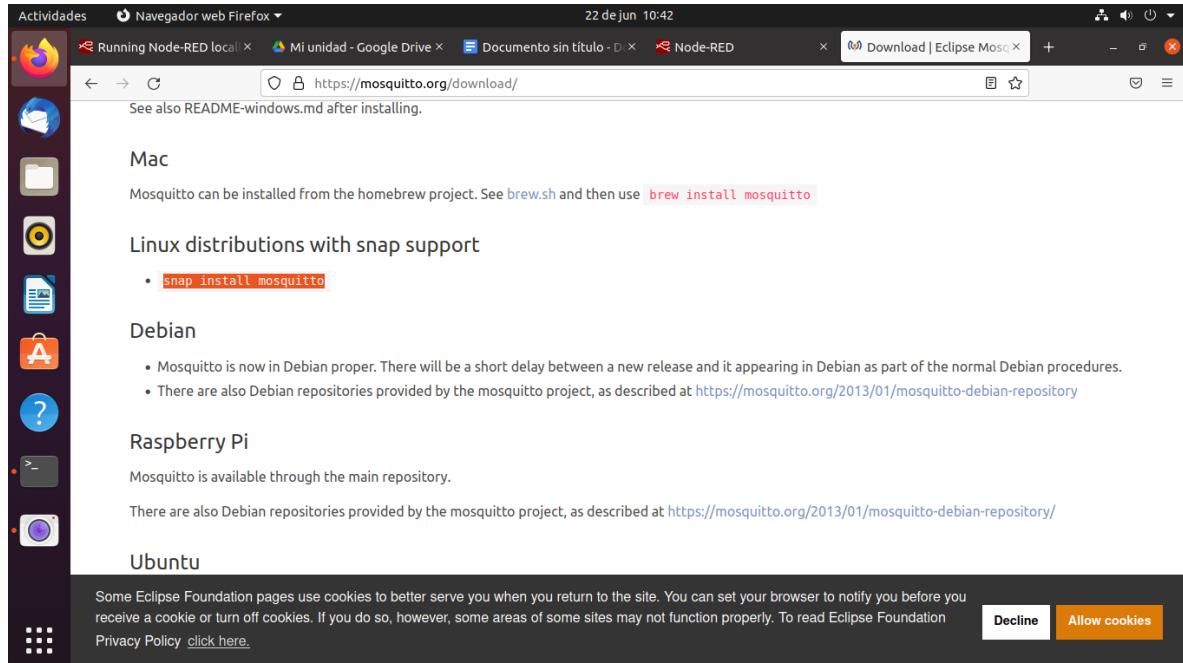


nos habrira la interface de node

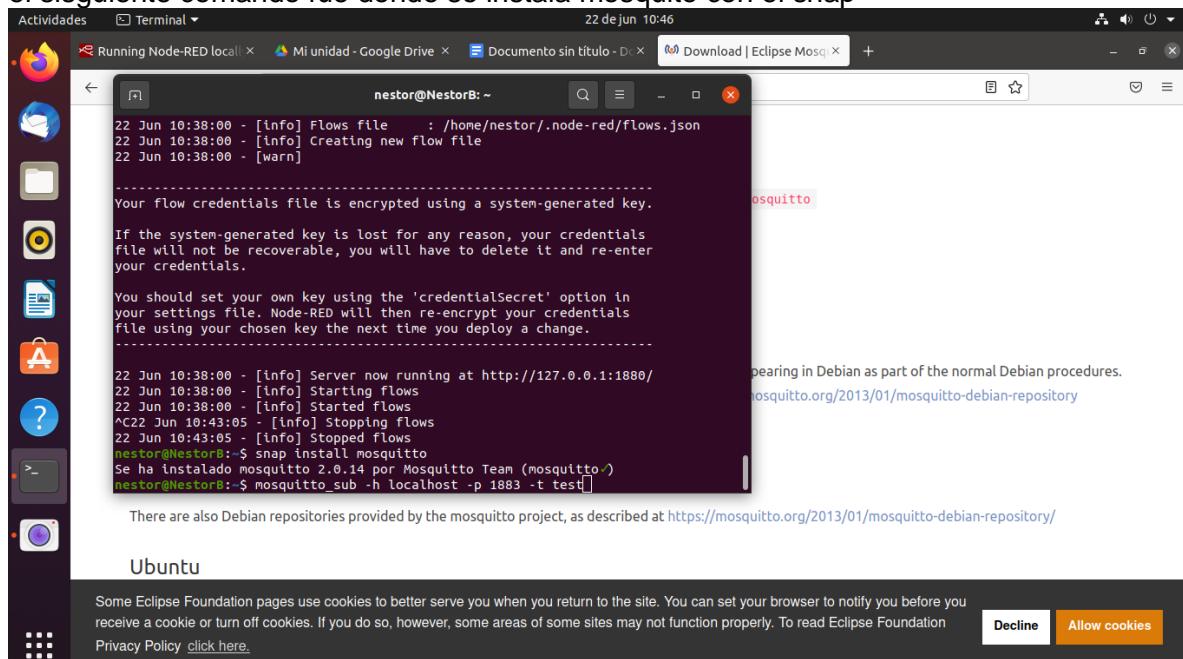
## ACTUALIZAMOS NUESTRO EQUIPO Y EACCEDEMOS A SUPER USUARIO



esta pagina nos muestra como como instalar mosquito  
<https://mosquitto.org/download/>

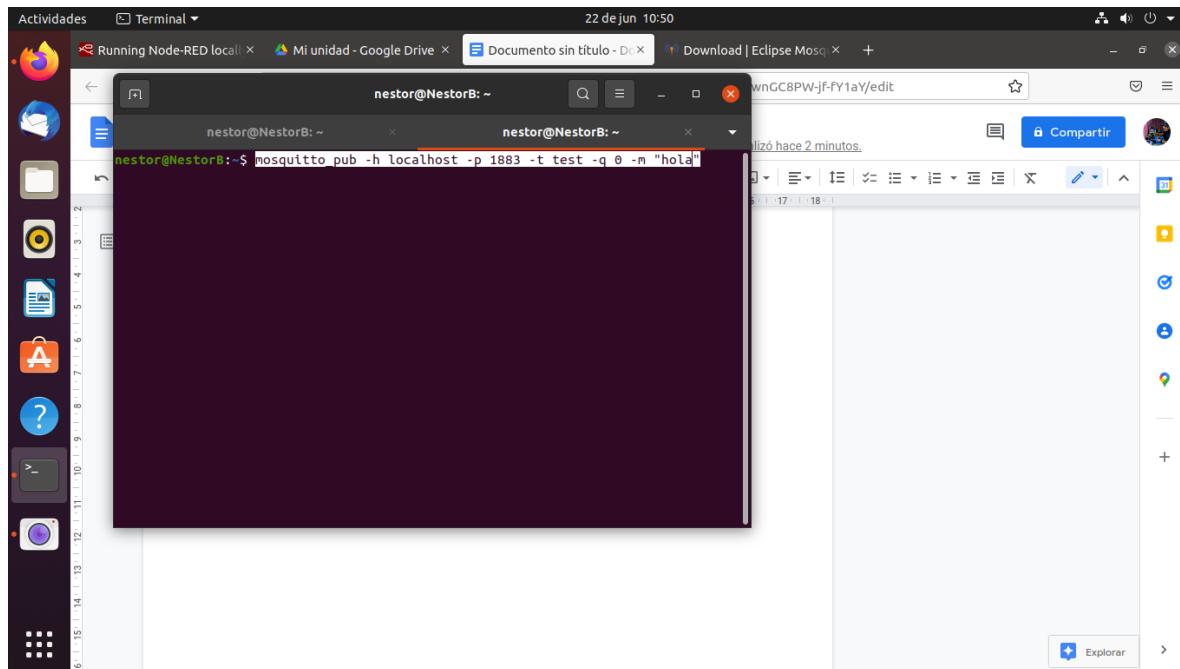


el siguiente comando fue donde se instala mosquito con el snap



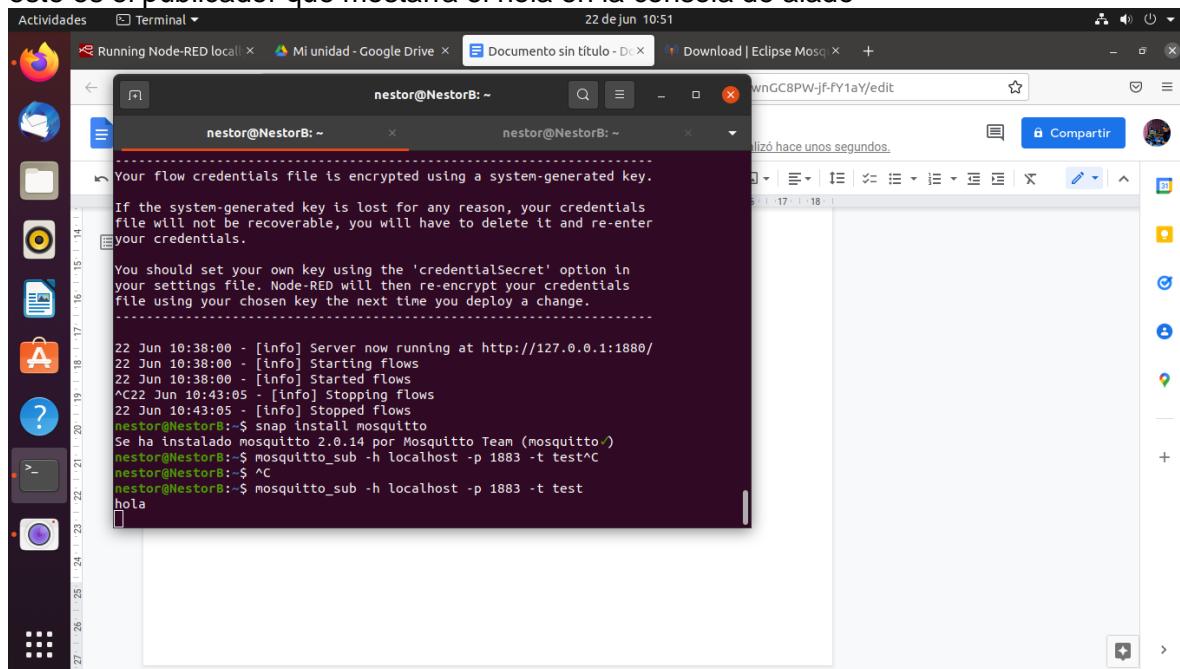
`mosquitto_sub -h localhost -p 1883 -t test`  
mosquito suscriptor es la parte o programa que se usa en el puerto 1883

Néstor Emmanuel Briones Ramírez  
1220100321 GDS0351 Desarrollo de software multi plataforma.



```
nestor@NestorB: ~$ mosquitto_pub -h localhost -p 1883 -t test -q 0 -m "hola"
```

mosquitto\_pub -h localhost -p 1883 -t test -q 0 -m "hola"  
este es el publicador que mostará el hola en la consola de alado

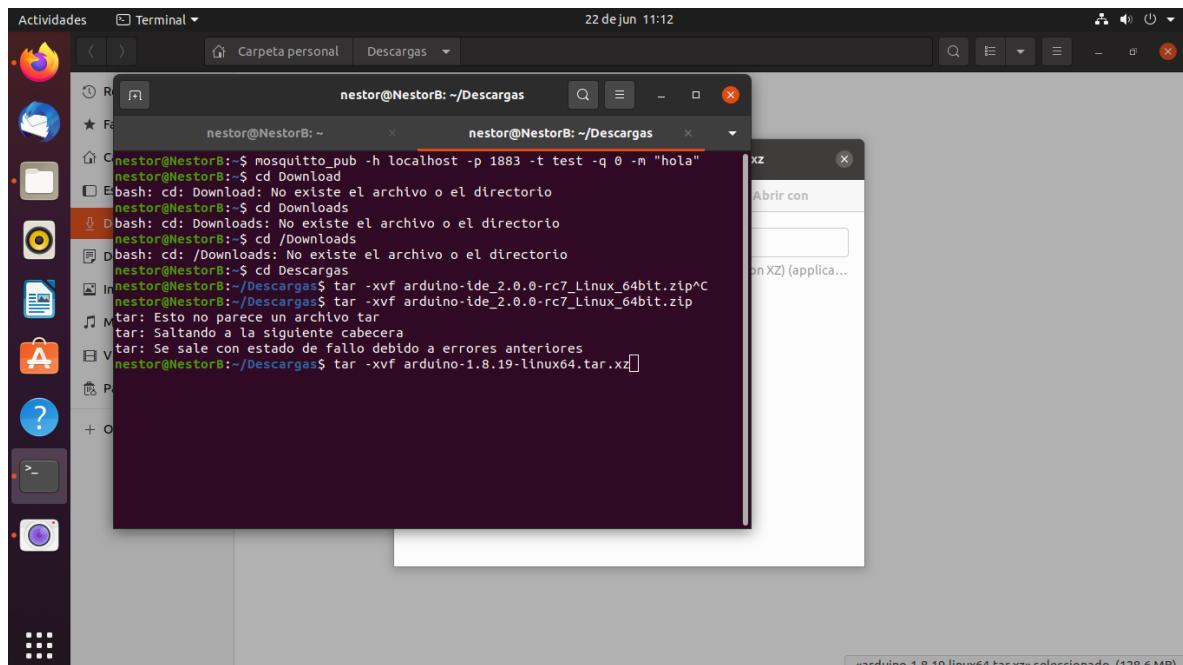
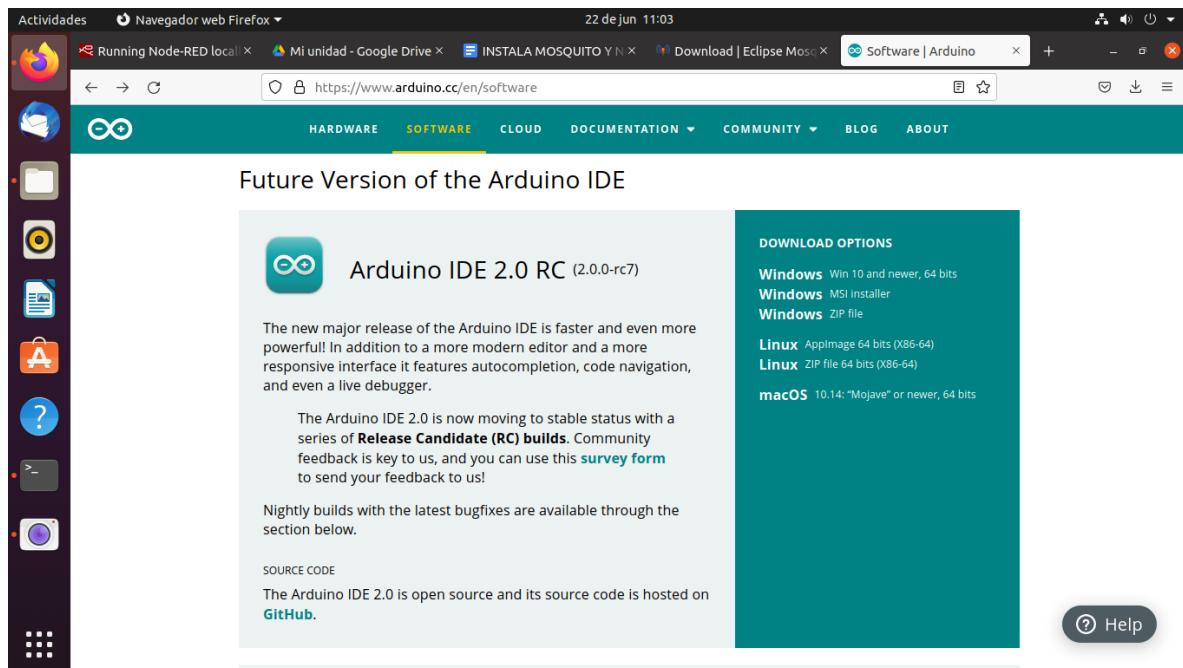


```
Your flow credentials file is encrypted using a system-generated key.  
If the system-generated key is lost for any reason, your credentials  
file will not be recoverable, you will have to delete it and re-enter  
your credentials.  
-----  
You should set your own key using the 'credentialSecret' option in  
your settings file. Node-RED will then re-encrypt your credentials  
file using your chosen key the next time you deploy a change.  
-----  
22 Jun 10:38:00 - [info] Server now running at http://127.0.0.1:1880/  
22 Jun 10:38:00 - [info] Starting flows  
22 Jun 10:38:00 - [info] Started flows  
^C22 Jun 10:43:05 - [info] Stopping flows  
22 Jun 10:43:05 - [info] Stopped flows  
nestor@NestorB: ~$ snap install mosquitto  
Se ha instalado mosquitto 2.0.14 por Mosquitto Team (mosquitto)  
nestor@NestorB: ~$ mosquitto_sub -h localhost -p 1883 -t test  
nestor@NestorB: ~$ ^C  
nestor@NestorB: ~$ mosquitto_sub -h localhost -p 1883 -t test  
hola
```

aquí nos dio la respuesta en la otra terminal

2- vamos a checar el ip, estos son los comandos a usar  
sudo apt install net-tools  
ifconfig

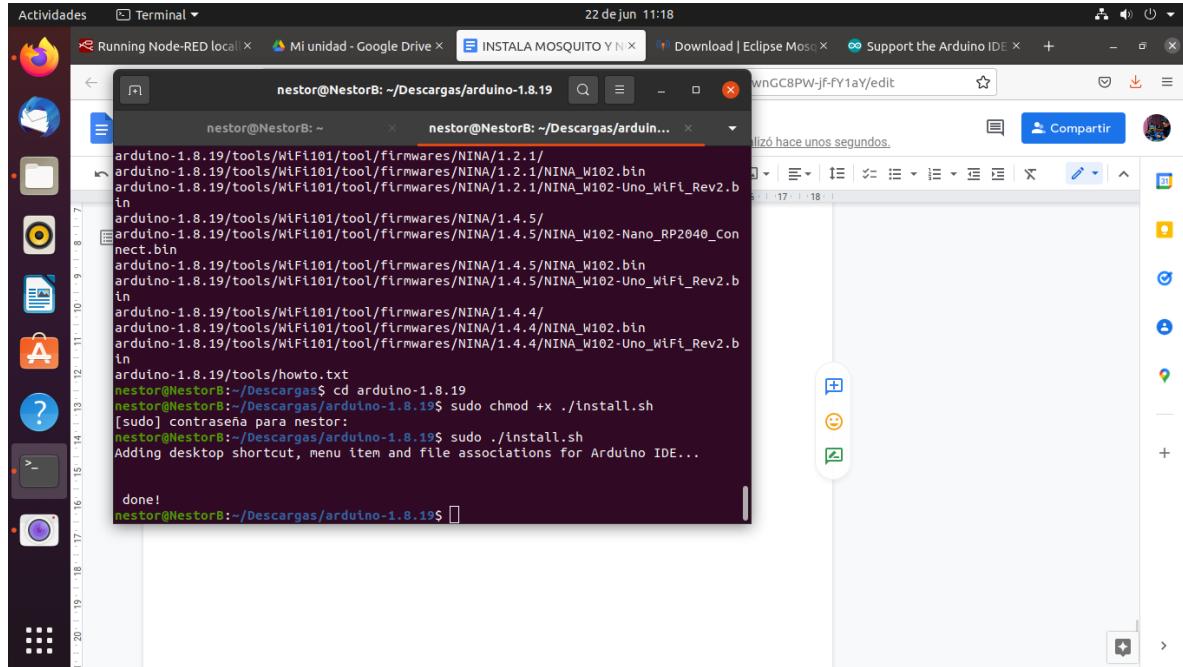
3- Descargaremos arduino para linux  
usamos la pagina: <https://www.arduino.cc/en/software>



4- descomprimimos el zip con el siguiente comando  
tar -xvf arduino-1.8.19-linux64.tar.xz

5- nos adentramos a la carpeta que se descomprimio  
y pondremos el siguiente comando  
dando permisos con  
sudo chmod +x ./install.sh

intalamos con: sudo ./install.sh

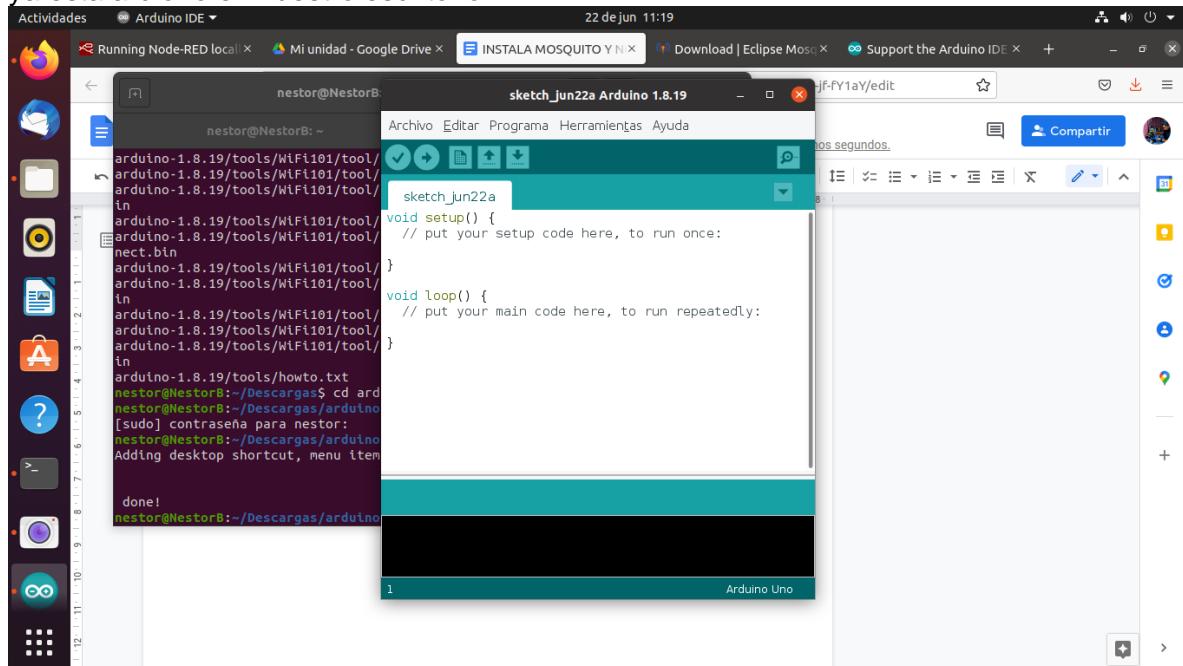


The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "nestor@NestorB: ~/Descargas/arduino-1.8.19". The terminal content shows the user navigating to the Arduino tools directory, changing to the 1.8.19 version, running a sudo command to execute the ./install.sh script, and finally running the script again with sudo to add desktop shortcut, menu item and file associations for the Arduino IDE. The terminal concludes with "done!"

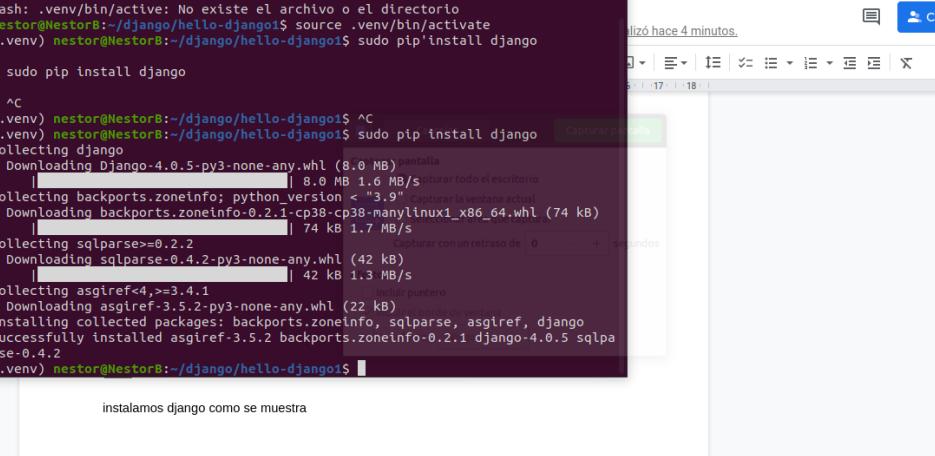
```
nestor@NestorB: ~ nestor@NestorB: ~/Descargas/arduino-1.8.19
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.2.1/
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.2.1/NINA_W102.bin
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.2.1/NINA_W102-Ubo_WiFi_Rev2.b
ln
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.5/
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.5/NINA_W102-Nano_RP2040_Con
nect.bin
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.5/NINA_W102
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.5/NINA_W102-Ubo_WiFi_Rev2.b
ln
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.4/
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.4/NINA_W102.bin
arduino-1.8.19/tools/WiFi101/tool/firmwares/NINA/1.4.4/NINA_W102-Ubo_WiFi_Rev2.b
ln
arduino-1.8.19/tools/howto.txt
nestor@NestorB:~/Descargas$ cd arduino-1.8.19
nestor@NestorB:~/Descargas/arduino-1.8.19$ sudo chmod +x ./install.sh
[sudo] contraseña para nestor:
nestor@NestorB:~/Descargas/arduino-1.8.19$ sudo ./install.sh
Adding desktop shortcut, menu item and file associations for Arduino IDE...

done!
nestor@NestorB:~/Descargas/arduino-1.8.19$
```

ya esta ardiono en nuestro escritorio



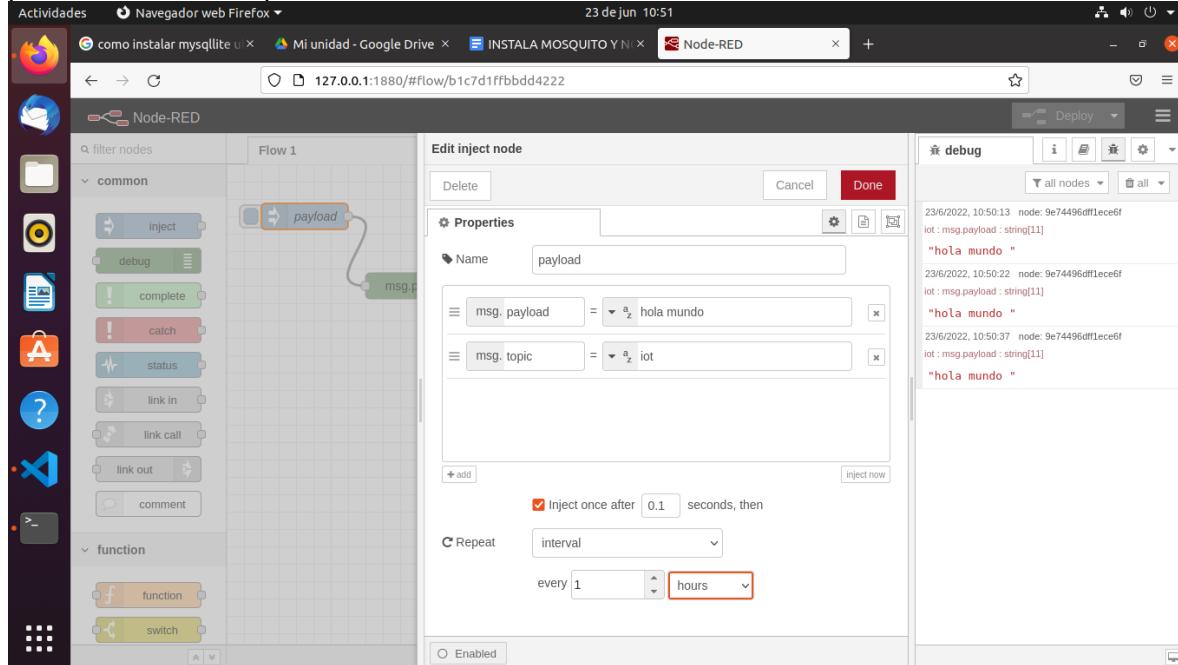
instalamos django como se muestra



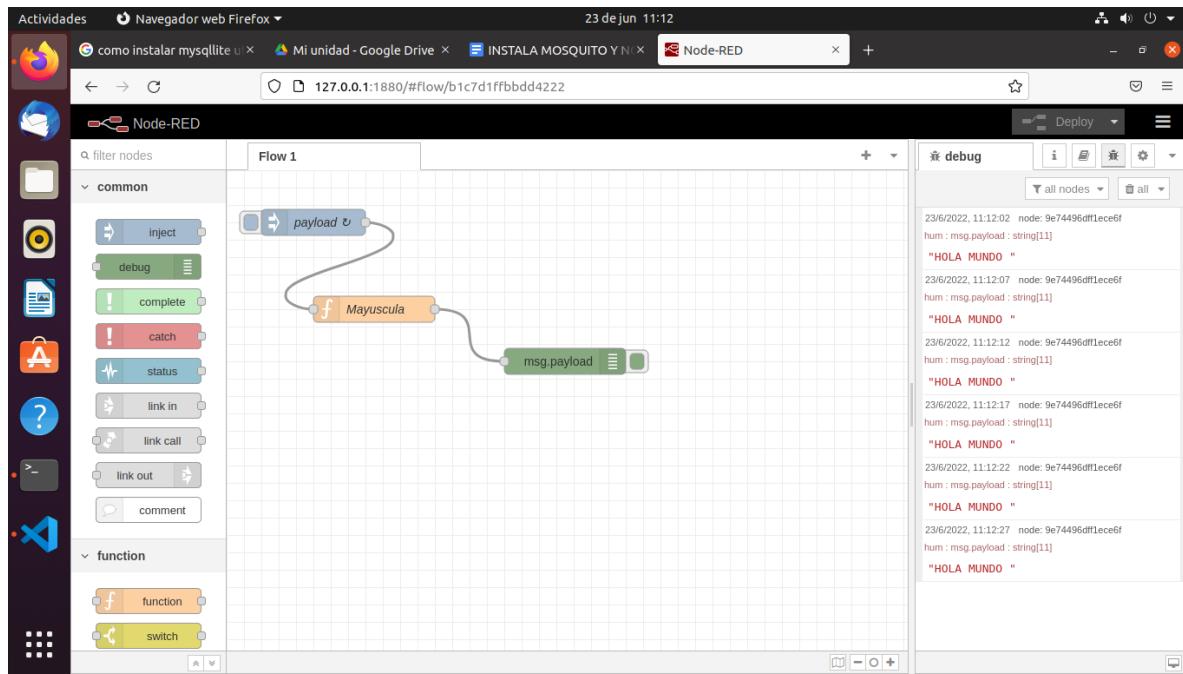
nestor@NestorB:~/django/hello-django\$ sudo pip install django

```
nestor@NestorB:~/django/hello-django$ source .venv/bin/activate
(.venv) nestor@NestorB:~/django/hello-django$ sudo pip install django
Collecting django
  Downloading Django-4.0.5-py3-none-any.whl (8.0 MB)
    100% |████████████████████████████████| 8.0 MB 1.6 MB/s
Collecting backports.zoneinfo; python_version < "3.9"
  Downloading backports.zoneinfo-0.2.1-cp38-cp38-manylinux1_x86_64.whl (74 kB)
    100% |████████████████████████████████| 74 kB 1.7 MB/s
Collecting sqlparse==0.2.2
  Downloading sqlparse-0.4.2-py3-none-any.whl (42 kB)
    100% |████████████████████████████████| 42 kB 1.3 MB/s
Collecting asgiref<4,>=3.4.1
  Downloading asgiref-3.5.2-py3-none-any.whl (22 kB)
Installing collected packages: backports.zoneinfo, sqlparse, asgiref, django
Successfully installed asgiref-3.5.2 backports.zoneinfo-0.2.1 django-4.0.5 sqlparse-0.4.2
(.venv) nestor@NestorB:~/django/hello-django$
```

para usar node red pondremos



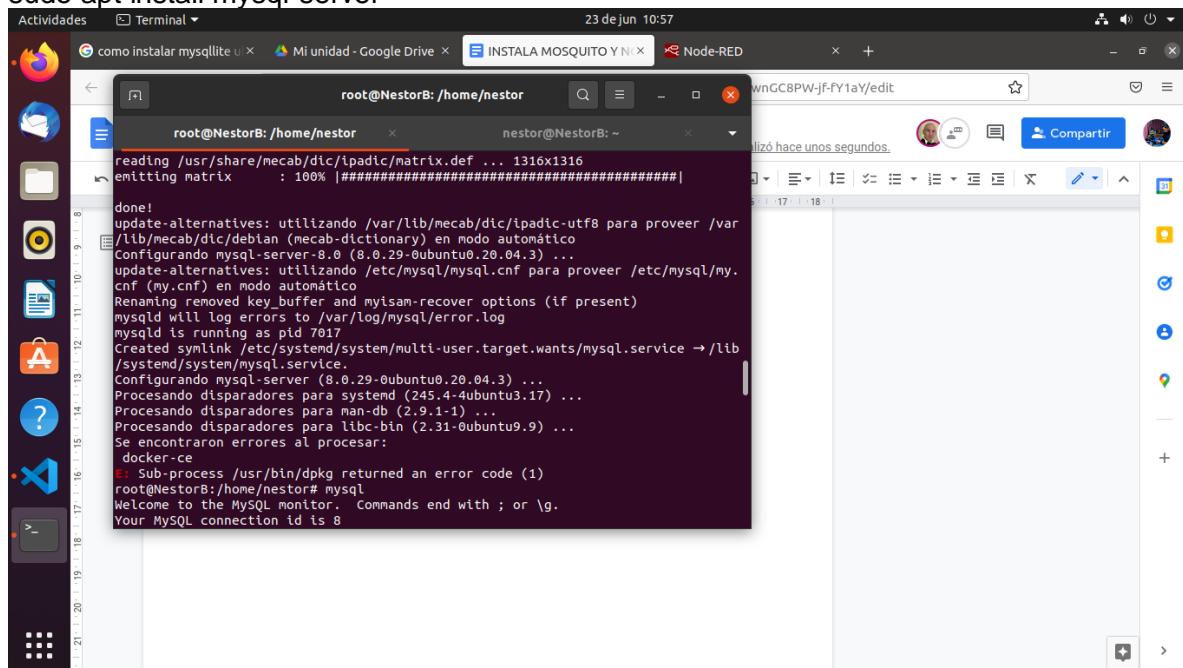
tenemos todas las configuraciones de todos los sensores o partes del programa que queramos usar



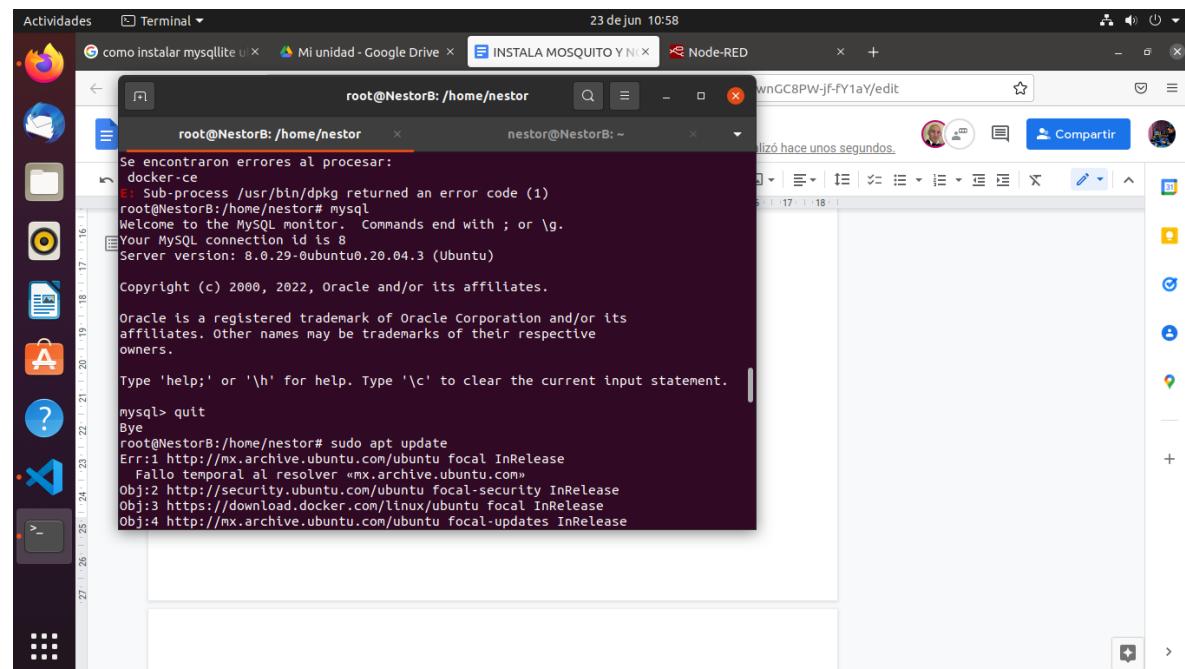
pay load guarda el mensaje que queramos poner  
la función nos dice que hacer o en esta caso cambiar de minusculas a mayusculas  
y el último es las veces que se repetirá el mensaje.

## NECESITAREMOS SQL Y SQLITE APSRA ESTO UTILIZAREMOS LOS SIGUIENTES COMANDOS

```
sudo apt update  
sudo apt upgrade  
sudo apt install mysql-server
```



abrimos el programa con\_ mysql



## TUTORIAL DJANGO

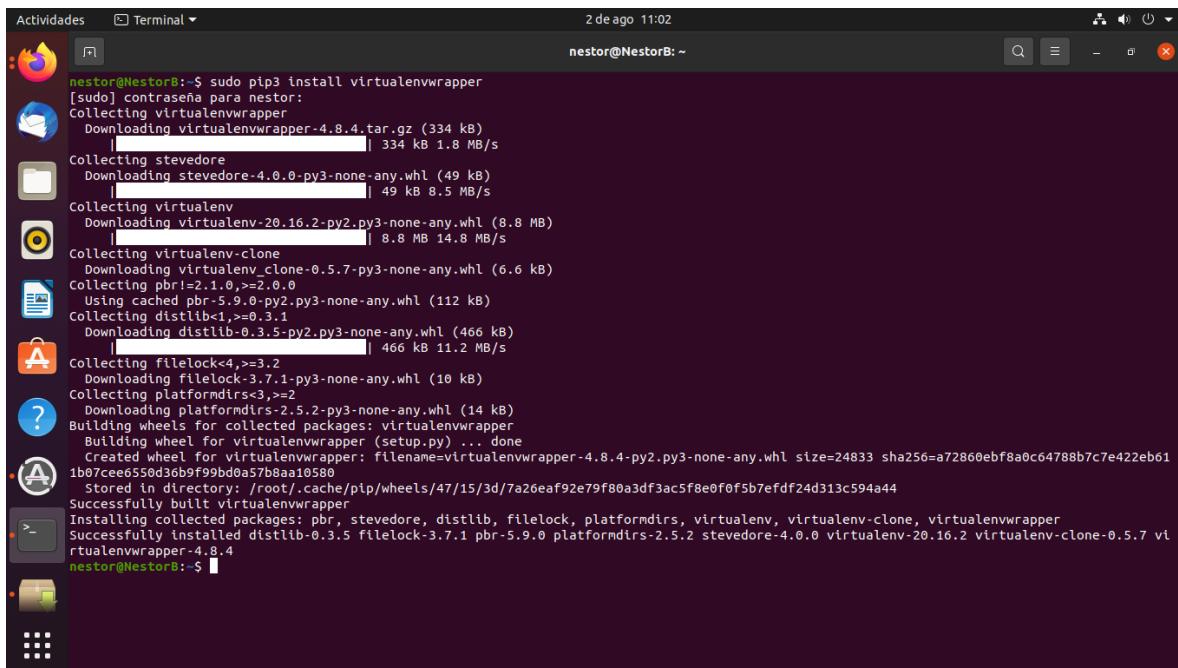
### Creación de entorno virtual

- Conocer la versión de Python.

```
python3 -v
```

- Abrir una terminal

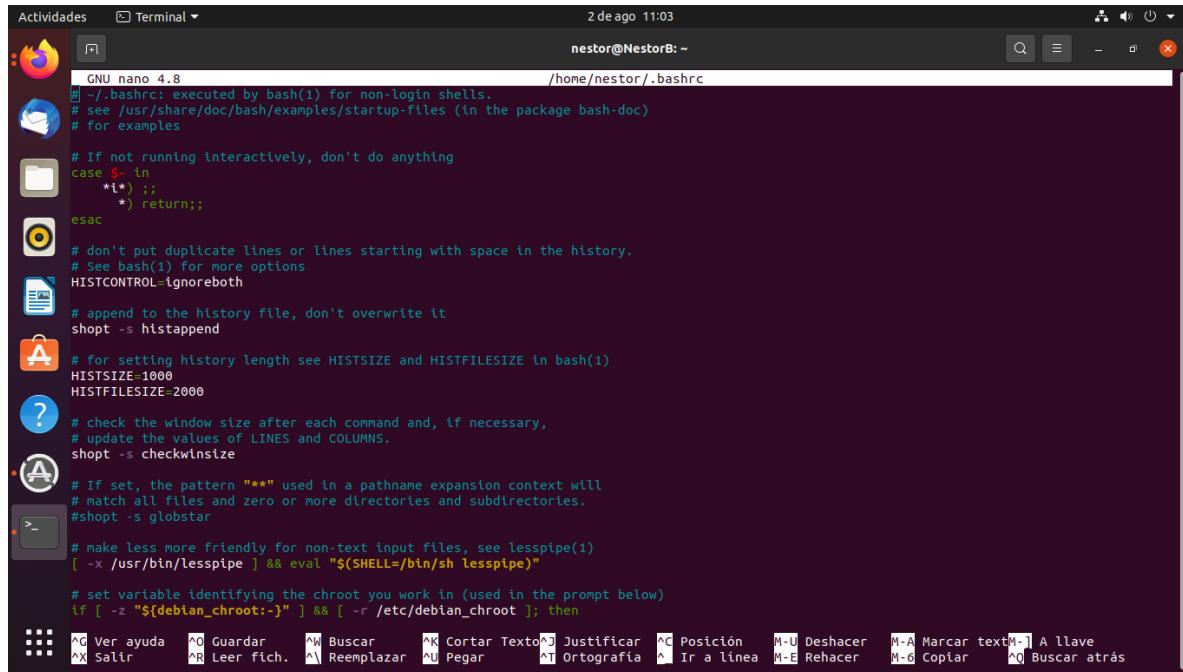
```
sudo pip3 install virtualenvwrapper
```



```
nestor@NestorB: ~$ sudo pip3 install virtualenvwrapper
[sudo] contraseña para nestor:
Collecting virtualenvwrapper
  Downloading virtualenvwrapper-4.8.4.tar.gz (334 kB)
    ||██████████| 334 kB 1.8 MB/s
Collecting stevedore
  Downloading stevedore-4.0.0-py3-none-any.whl (49 kB)
    ||██████████| 49 kB 8.5 MB/s
Collecting virtualenv
  Downloading virtualenv-20.16.2-py2.py3-none-any.whl (8.8 MB)
    ||██████████| 8.8 MB 14.8 MB/s
Collecting virtualenv-clone
  Downloading virtualenv_clone-0.5.7-py3-none-any.whl (6.6 kB)
Collecting pbr!=2.1.0,>=2.0.0
  Using cached pbr-5.9.0-py2.py3-none-any.whl (112 kB)
Collecting distlib<1,>=0.3.1
  Downloading distlib-0.3.5-py2.py3-none-any.whl (466 kB)
    ||██████████| 466 kB 11.2 MB/s
Collecting filelock<4,>=3.2
  Downloading filelock-3.7.1-py3-none-any.whl (10 kB)
Collecting platformdirs<3,>=2
  Downloading platformdirs-2.5.2-py3-none-any.whl (14 kB)
Building wheels for collected packages: virtualenvwrapper
  Building wheel for virtualenvwrapper (setup.py) ... done
  Created wheel for virtualenvwrapper: filename=virtualenvwrapper-4.8.4-py2.py3-none-any.whl size=24833 sha256=a72860ebf8a0c64788b7c7e422eb61
  1b07ce6550d36b9f99bd0a57b8aa10580
  Stored in directory: /root/.cache/pip/wheels/47/15/3d/7a26eaf92e79f80a3df3ac5f8e0f0f5b7efdf24d313c594a44
Successfully built virtualenvwrapper
Installing collected packages: pbr, stevedore, distlib, filelock, platformdirs, virtualenv, virtualenv-clone, virtualenvwrapper
Successfully installed distlib-0.3.5 filelock-3.7.1 pbr-5.9.0 platformdirs-2.5.2 stevedore-4.0.0 virtualenv-20.16.2 virtualenv-clone-0.5.7 virtualenvwrapper-4.8.4
nestor@NestorB: ~$
```

- Modificar el archivo ~/.bashrc

```
sudo nano ~/.bashrc
```



The screenshot shows a terminal window titled "Actividades" with the command "Terminal". The window title bar also displays "nestor@NestorB: ~" and the date and time "2 de ago 11:03". The terminal content is the .bashrc file, showing various configuration settings for the bash shell. The bottom of the terminal window shows a series of keyboard shortcuts for nano editor commands.

```
GNU nano 4.8 /home/nestor/.bashrc
# ~/.bashrc: executed by bash(1) for non-login shells.
# see /usr/share/doc/bash/examples/startup-files (in the package bash-doc)
# for examples

# If not running interactively, don't do anything
case $- in
    *i*) ;;
    *) return;;
esac

# don't put duplicate lines or lines starting with space in the history.
# See bash(1) for more options
HISTCONTROL=ignoreboth

# append to the history file, don't overwrite it
shopt -s histappend

# for setting history length see HISTSIZE and HISTFILESIZE in bash(1)
HISTSIZE=1000
HISTFILESIZE=2000

# check the window size after each command and, if necessary,
# update the values of LINES and COLUMNS.
shopt -s checkwinsize

# If set, the pattern "**" used in a pathname expansion context will
# match all files and zero or more directories and subdirectories.
#shopt -s globstar

# make less more friendly for non-text input files, see lesspipe(1)
[ -x /usr/bin/lesspipe ] && eval "$(_SHELL=/bin/sh lesspipe)"

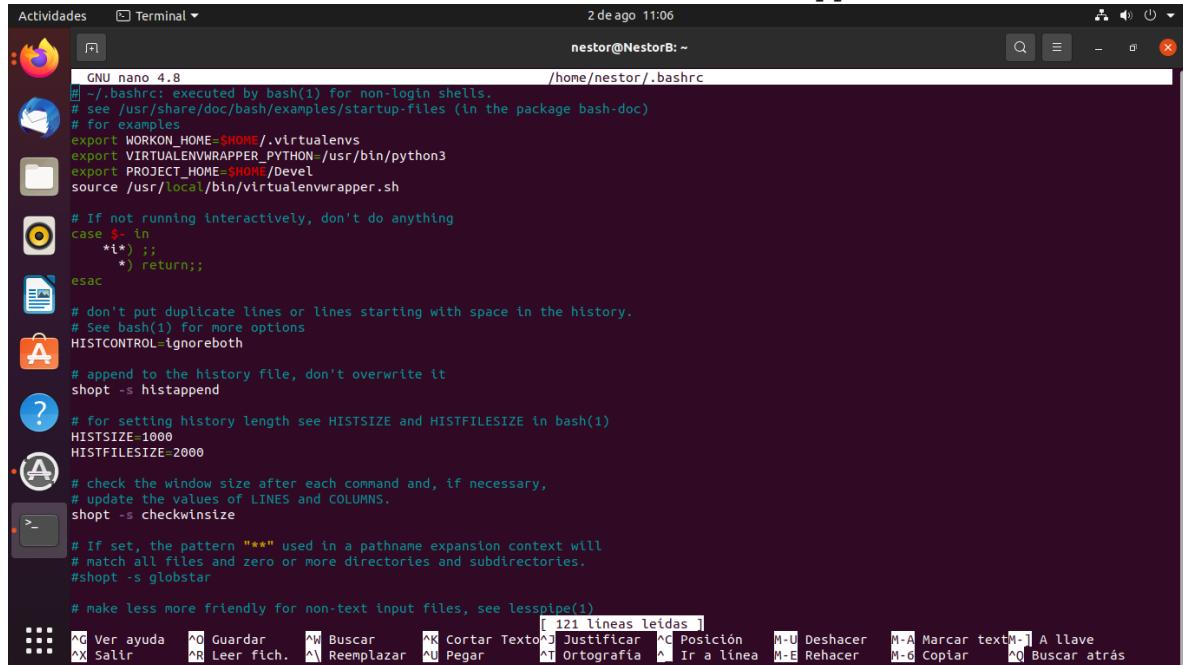
# set variable identifying the chroot you work in (used in the prompt below)
if [ -z "${debian_chroot:-}" ] && [ -r /etc/debian_chroot ]; then
    debian_chroot=$(cat /etc/debian_chroot)
fi

# Add customizations here

# Set up virtualenvwrapper
export WORKON_HOME=$HOME/.virtualenvs
export VIRTUALENVWRAPPER_PYTHON=/usr/bin/python3
export PROJECT_HOME=$HOME/Devel
source /usr/local/bin/virtualenvwrapper.sh
```

Agregar las siguientes líneas

```
export WORKON_HOME=$HOME/.virtualenvs
export VIRTUALENVWRAPPER_PYTHON=/usr/bin/python3
export PROJECT_HOME=$HOME/Devel
source /usr/local/bin/virtualenvwrapper.sh
```



The screenshot shows the same terminal window after the changes have been made. The .bashrc file now includes the additional lines added in the previous step. The bottom of the terminal window shows a series of keyboard shortcuts for nano editor commands.

```
GNU nano 4.8 /home/nestor/.bashrc
# ~/.bashrc: executed by bash(1) for non-login shells.
# see /usr/share/doc/bash/examples/startup-files (in the package bash-doc)
# for examples

export WORKON_HOME=$HOME/.virtualenvs
export VIRTUALENVWRAPPER_PYTHON=/usr/bin/python3
export PROJECT_HOME=$HOME/Devel
source /usr/local/bin/virtualenvwrapper.sh

# If not running interactively, don't do anything
case $- in
    *i*) ;;
    *) return;;
esac

# don't put duplicate lines or lines starting with space in the history.
# See bash(1) for more options
HISTCONTROL=ignoreboth

# append to the history file, don't overwrite it
shopt -s histappend

# for setting history length see HISTSIZE and HISTFILESIZE in bash(1)
HISTSIZE=1000
HISTFILESIZE=2000

# check the window size after each command and, if necessary,
# update the values of LINES and COLUMNS.
shopt -s checkwinsize

# If set, the pattern "**" used in a pathname expansion context will
# match all files and zero or more directories and subdirectories.
#shopt -s globstar

# make less more friendly for non-text input files, see lesspipe(1)
[ -x /usr/bin/lesspipe ] && eval "$(_SHELL=/bin/sh lesspipe)"

# Set up virtualenvwrapper
export WORKON_HOME=$HOME/.virtualenvs
export VIRTUALENVWRAPPER_PYTHON=/usr/bin/python3
export PROJECT_HOME=$HOME/Devel
source /usr/local/bin/virtualenvwrapper.sh
```

- volver a cargar

```
source ~/.bashrc
Actividades Terminal 2 de ago 11:07
nestor@NestorB: ~
Collecting virtualenv-clone
  Downloading virtualenv_clone-0.5.7-py3-none-any.whl (6.6 kB)
Collecting pbr!=2.1.0,>=2.0.0
  Using cached pbr-5.9.0-py2.py3-none-any.whl (112 kB)
Collecting distlib>1,>=0.3.1
  Downloading distlib-0.3.5-py2.py3-none-any.whl (466 kB)
    |
    |██████████| 466 kB 11.2 MB/s
Collecting filelock<4,>=3.2
  Downloading filelock-3.7.1-py3-none-any.whl (10 kB)
Collecting platformdirs<3,>=2
  Downloading platformdirs-2.5.2-py3-none-any.whl (14 kB)
Building wheels for collected packages: virtualenvwrapper
  Building wheel for virtualenvwrapper (setup.py) ... done
    Created wheel for virtualenvwrapper: filename=virtualenvwrapper-4.8.4-py2.py3-none-any.whl size=24833 sha256=a72860ebf8a0c64788b7c7e422eb61
  Stored in directory: /root/.cache/pip/wheels/47/15/3d/7a26eaf92e79f80a3df3ac5f8e0f0f5b7efdf24d313c594a44
Successfully built virtualenvwrapper
Installing collected packages: pbr, stevedore, distlib, filelock, platformdirs, virtualenv, virtualenv-clone, virtualenvwrapper
Successfully installed distlib-0.3.5 filelock-3.7.1 pbr-5.9.0 platformdirs-2.5.2 stevedore-4.0.0 virtualenv-20.16.2 virtualenv-clone-0.5.7 virtualenvwrapper-4.8.4
nestor@NestorB: $ sudo nano ~/.bashrc
nestor@NestorB: $ sudo nano ~/.bashrc
nestor@NestorB: $ volver a cargar
volver: no se encontró la orden
nestor@NestorB: $ source ~/.bashrc
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/premkproject
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postmkproject
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/initialize
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/premkvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postmkvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/prermvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postrmvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/predeactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postdeactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/preactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/get_env_details
nestor@NestorB: $
```

- Crear una directorio de trabajo
- En la terminal ejecutar el siguiente comando:

```
mkvirtualenv apliweb_virtualenv
```

```
Actividades Terminal 2 de ago 11:13
nestor@NestorB: ~/ProyectoParedVerde
Collecting virtualenv-clone
  Downloading virtualenv_clone-0.5.7-py3-none-any.whl (6.6 kB)
Collecting pbr!=2.1.0,>=2.0.0
  Using cached pbr-5.9.0-py2.py3-none-any.whl (112 kB)
Collecting distlib>1,>=0.3.1
  Downloading distlib-0.3.5-py2.py3-none-any.whl (466 kB)
    |
    |██████████| 466 kB 11.2 MB/s
Collecting filelock<4,>=3.2
  Downloading filelock-3.7.1-py3-none-any.whl (10 kB)
Collecting platformdirs<3,>=2
  Downloading platformdirs-2.5.2-py3-none-any.whl (14 kB)
Building wheels for collected packages: virtualenvwrapper
  Building wheel for virtualenvwrapper (setup.py) ... done
    Created wheel for virtualenvwrapper: filename=virtualenvwrapper-4.8.4-py2.py3-none-any.whl size=24833 sha256=a72860ebf8a0c64788b7c7e422eb61
  Stored in directory: /root/.cache/pip/wheels/47/15/3d/7a26eaf92e79f80a3df3ac5f8e0f0f5b7efdf24d313c594a44
Successfully built virtualenvwrapper
Installing collected packages: pbr, stevedore, distlib, filelock, platformdirs, virtualenv, virtualenv-clone, virtualenvwrapper
Successfully installed distlib-0.3.5 filelock-3.7.1 pbr-5.9.0 platformdirs-2.5.2 stevedore-4.0.0 virtualenv-20.16.2 virtualenv-clone-0.5.7 virtualenvwrapper-4.8.4
nestor@NestorB: $ sudo nano ~/.bashrc
nestor@NestorB: $ sudo nano ~/.bashrc
nestor@NestorB: $ volver a cargar
volver: no se encontró la orden
nestor@NestorB: $ source ~/.bashrc
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/premkproject
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postmkproject
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/initialize
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/premkvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postmkvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/prermvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postrmvirtualenv
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/predeactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postdeactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/preactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/postactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/get_env_details
nestor@NestorB: $ cd ProyectoParedVerde
nestor@NestorB:~/ProyectoParedVerde$ mkvirtualenv apliweb_virtualenv
created virtual environment CPython3.8.10.final.0-64 in 1487ms
  creator CPython3Posix(dest=/home/nestor/.virtualenvs/apliweb_virtualenv, clear=False, no_vcs_ignore=False, global=False)
  seeders FromAppData(download=False, pip=bundle, setuptools=bundle, wheel=bundle, via=copy, app_data_dir=/home/nestor/.local/share/virtualenv)
  added seed packages: pip==22.2.1, setuptools==63.2.0, wheel==0.37.1
  activators BashActivator,CShellActivator,FishActivator,NushellActivator,PowerShellActivator,PythonActivator
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/apliweb_virtualenv/bin/predeactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/apliweb_virtualenv/bin/postdeactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/apliweb_virtualenv/bin/preactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/apliweb_virtualenv/bin/postactivate
virtualenvwrapper.user_scripts creating /home/nestor/.virtualenvs/apliweb_virtualenv/bin/get_env_details
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$ ^C
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$
```

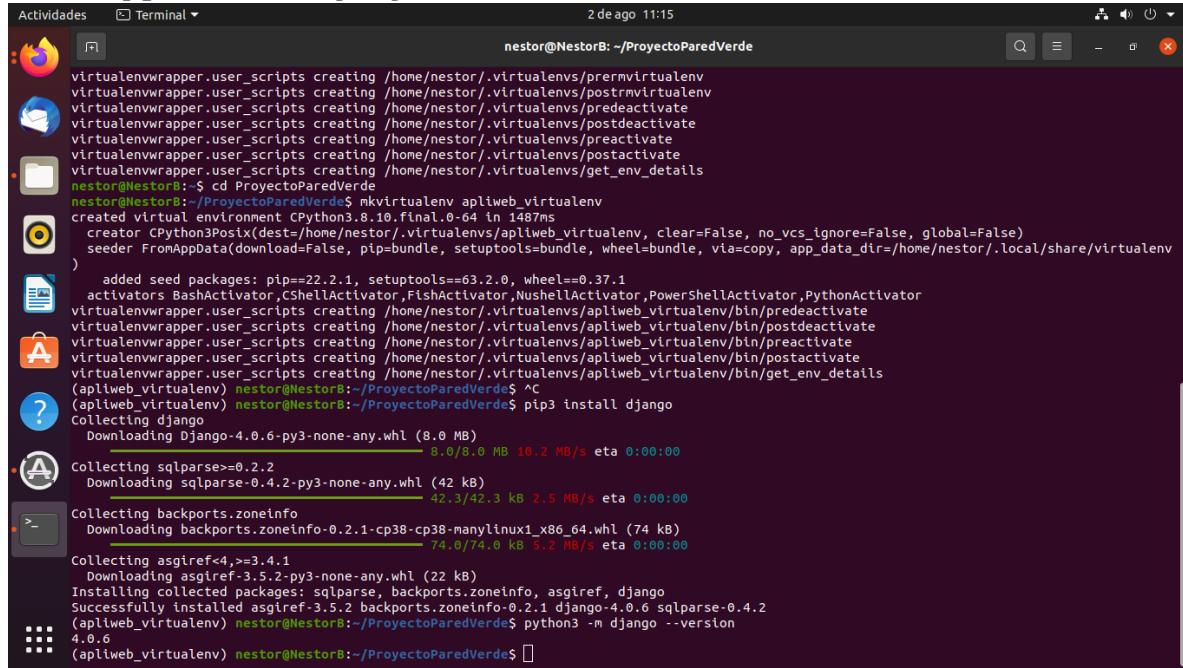
## Creando Proyecto Django

- Instalar mòdulo DJango

```
pip3 install django
```

- verificar de instalación de módulo Django

```
python3 -m django --version
```



```
nestor@NestorB:~/ProyectoParedVerde$ pip3 install django
Collecting django
  Downloading Django-4.0.6-py3-none-any.whl (8.0 MB)
    8.0/8.0 MB 10.2 MB/s eta 0:00:00
Collecting sqlparse>=0.2.2
  Downloading sqlparse-0.4.2-py3-none-any.whl (42 kB)
Collecting backports.zoneinfo
  Downloading backports.zoneinfo-0.2.1-cp38-cp38-manylinux1_x86_64.whl (74 kB)
Collecting asgiref<4,>=3.4.1
  Downloading asgiref-3.5.2-py3-none-any.whl (22 kB)
Installing collected packages: sqlparse, backports.zoneinfo, asgiref, django
Successfully installed asgiref-3.5.2 backports.zoneinfo-0.2.1 django-4.0.6 sqlparse-0.4.2
(aptiweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$ python3 -m django --version
4.0.6
(aptiweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$
```

El proceso es sencillo:

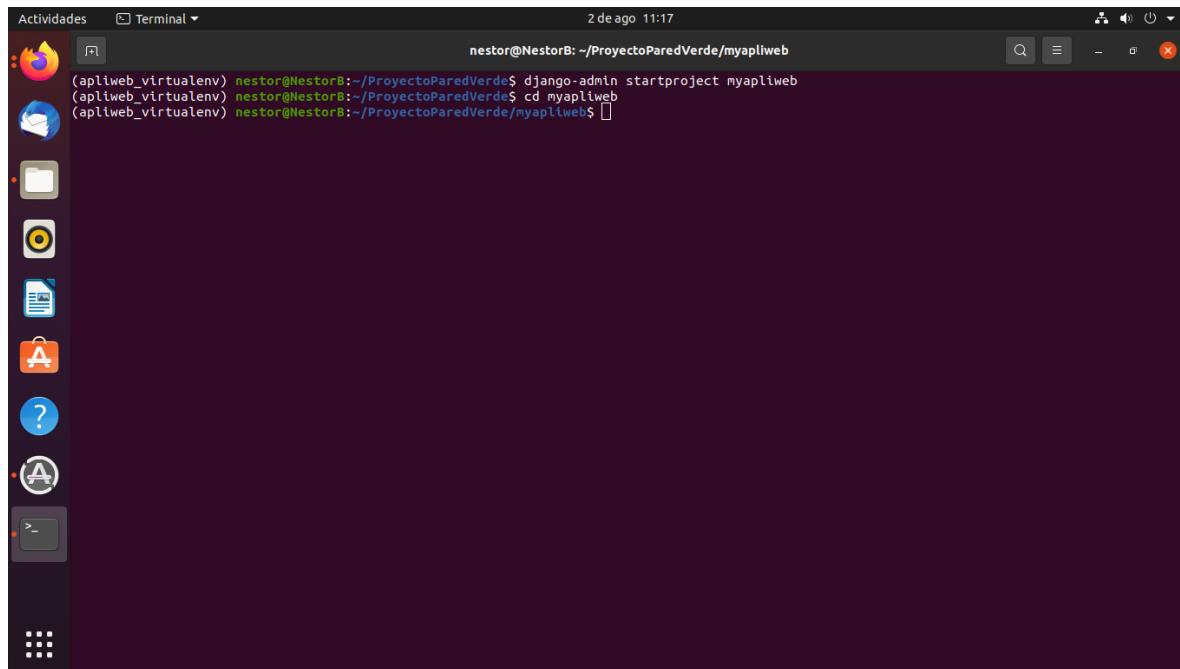
- Usar la herramienta **django-admin** para crear la carpeta del proyecto, los ficheros de plantillas básicos y el script de gestión del proyecto (**manage.py**).
- Usar **manage.py** para crear una o más *aplicaciones*.
- Registrar las nuevas aplicaciones para incluirlas en el proyecto.
- Conectar el mapeador url de cada aplicación.

### Crear el esqueleto del proyecto

Abrir una terminal y ejecutar los siguientes comandos

```
django-admin startproject myapiweb
cd myapiweb
```

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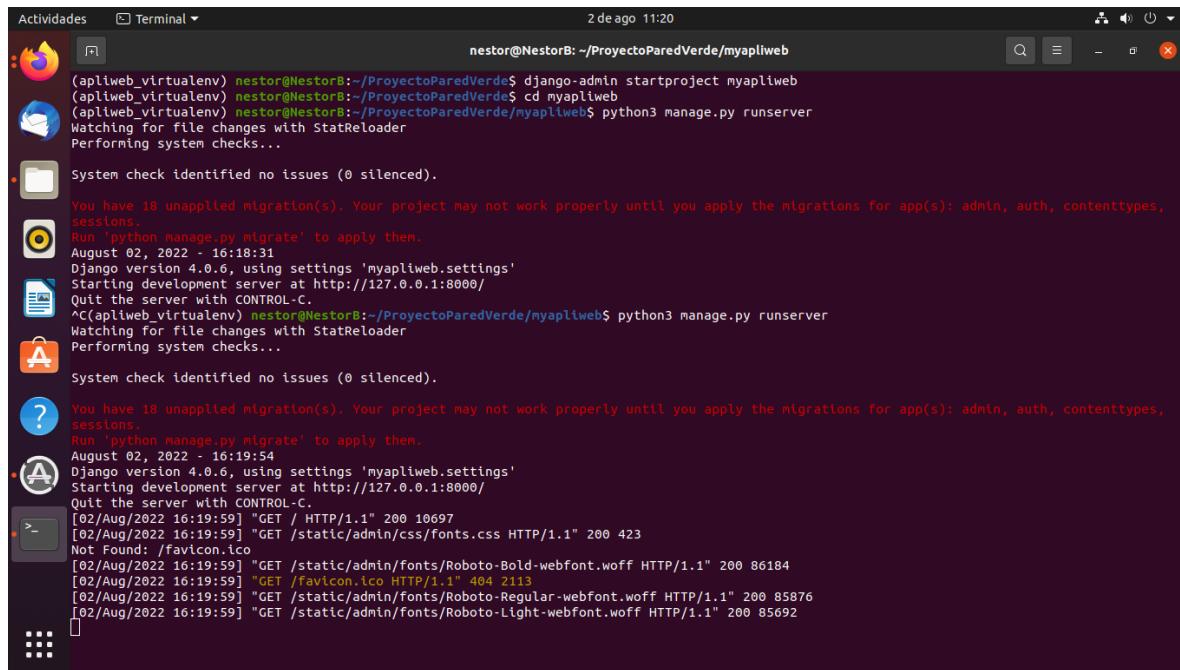
A screenshot of a Linux desktop environment. On the left is a dock with various icons. In the center is a terminal window titled 'Actividades Terminal'. The terminal shows the following command sequence:

```
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ django-admin startproject myapiweb
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$ cd myapiweb
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$
```

Ejecutar orden para levantar el servidor

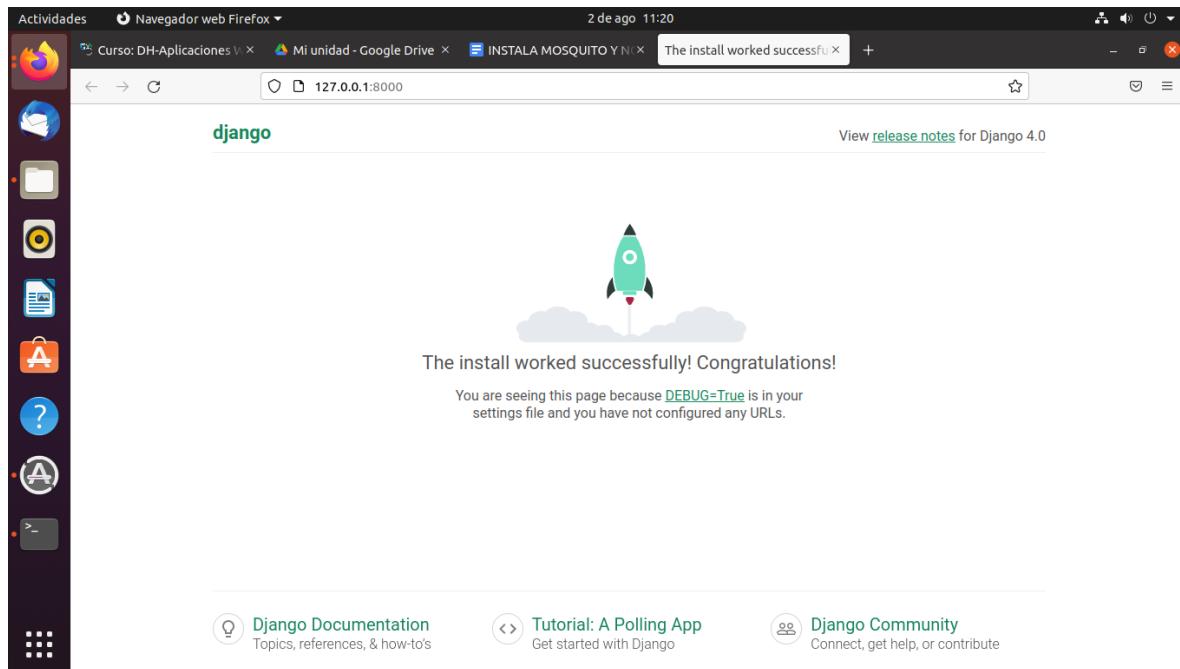
```
python3 manage.py runserver
```

Ingresar a la URL <http://127.0.0.1/8000>



A screenshot of a Linux desktop environment. On the left is a dock with various icons. In the center is a terminal window titled 'Actividades Terminal'. The terminal shows the following command sequence and application logs:

```
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ django-admin startproject myapiweb
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$ cd myapiweb
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ python3 manage.py runserver
Performing system checks...
System check identified no issues (0 silenced).
You have 18 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
August 02, 2022 - 16:18:31
Django version 4.0.6, using settings 'myapiweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
^C(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ python3 manage.py runserver
Watching for file changes with StatReloader
Performing system checks...
System check identified no issues (0 silenced).
You have 18 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
August 02, 2022 - 16:19:54
Django version 4.0.6, using settings 'myapiweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
[02/Aug/2022 16:19:59] "GET / HTTP/1.1" 200 10697
[02/Aug/2022 16:19:59] "GET /static/admin/css/fonts.css HTTP/1.1" 200 423
Not Found: /favicon.ico
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Bold-webfont.woff HTTP/1.1" 200 86184
[02/Aug/2022 16:19:59] "GET /favicon.ico HTTP/1.1" 404 2113
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Regular-webfont.woff HTTP/1.1" 200 85876
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Light-webfont.woff HTTP/1.1" 200 85692
```



## Creación de la aplicación student

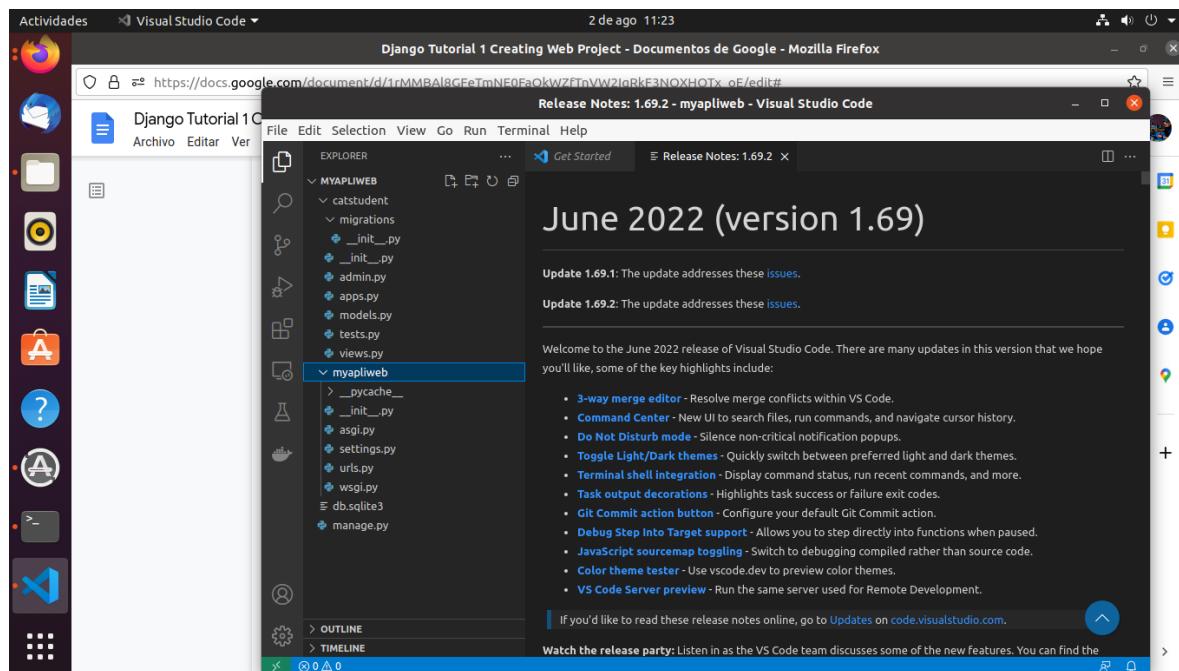
Ejecutar la instrucción en la terminal

```
python3 manage.py startapp catstudent
```

The terminal window shows the command `python3 manage.py startapp catstudent` being run. The output indicates that the application 'catstudent' was successfully created within the project 'myapliweb'. It also shows migration status and server startup information.

```
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ django-admin startproject myapliweb
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde$ cd myapliweb
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ python3 manage.py runserver
Watching for file changes with StatReloader
Performing system checks...
System check identified no issues (0 silenced).
You have 18 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
August 02, 2022 - 16:18:31
Django version 4.0.6, using settings 'myapliweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
^C(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ python3 manage.py runserver
Watching for file changes with StatReloader
Performing system checks...
System check identified no issues (0 silenced).
You have 18 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
August 02, 2022 - 16:19:54
Django version 4.0.6, using settings 'myapliweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
[02/Aug/2022 16:19:59] "GET / HTTP/1.1" 200 10697
[02/Aug/2022 16:19:59] "GET /static/admin/css/fonts.css HTTP/1.1" 200 423
Not Found: /favicon.ico
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Bold-webfont.woff HTTP/1.1" 200 86184
[02/Aug/2022 16:19:59] "GET /favicon.ico HTTP/1.1" 404 2113
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Regular-webfont.woff HTTP/1.1" 200 85876
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Light-webfont.woff HTTP/1.1" 200 85692
^C(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ python3 manage.py startapp catstudent
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$
```

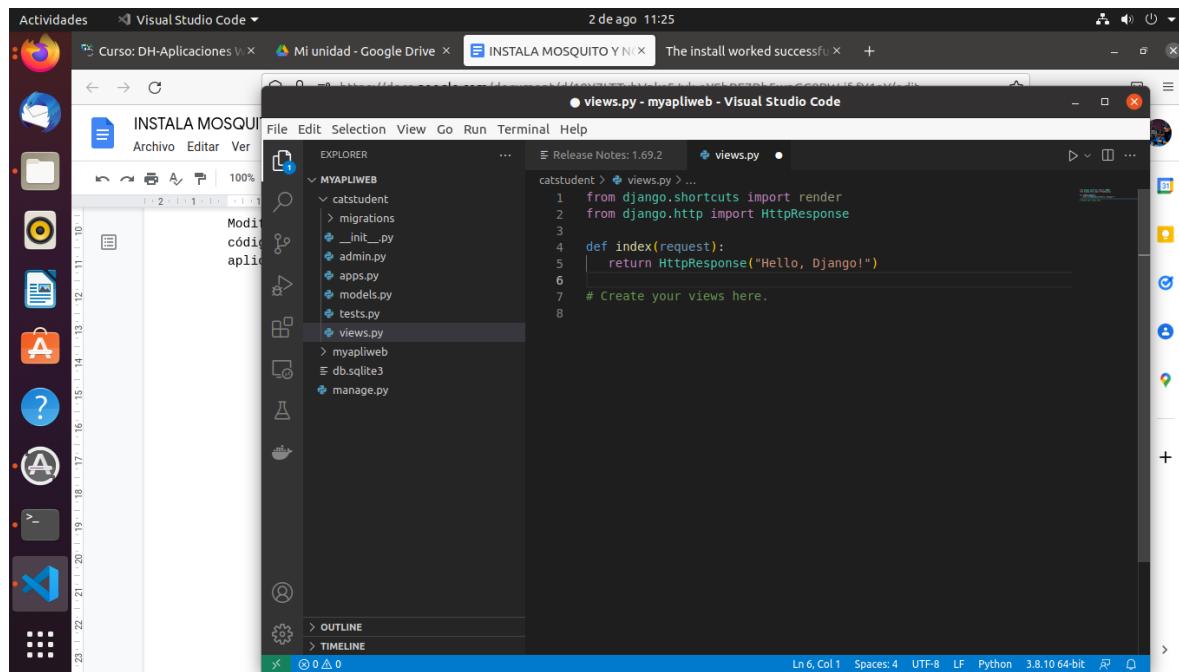
ponemos despues el comando code . y abrirá visual studio code



Modifique `catstudent/views.py` para que coincida con el siguiente código, crea una vista única para la página de inicio de la aplicación:

```
from django.http import HttpResponse

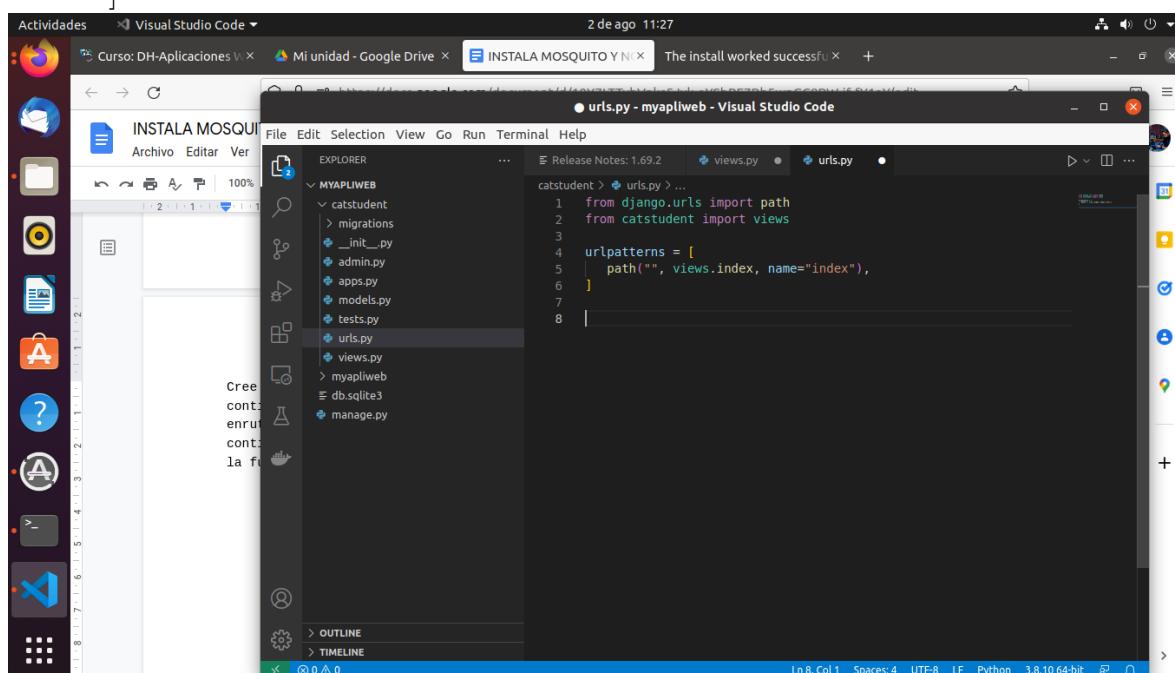
def index(request):
    return HttpResponse("Hello, Django!")
```



Cree un archivo, `catstudent/urls.py`, con el contenido a continuación. El archivo `urls.py` es donde especifica patrones para enrutar diferentes URL a sus vistas apropiadas. El siguiente código contiene una ruta para asignar la URL raíz de la aplicación `("")` a la función `views.index` que acaba de agregar a `catstudent/views.py`:

```
from django.urls import path
from catstudent import views

urlpatterns = [
    path("", views.index, name="index"),
]
```

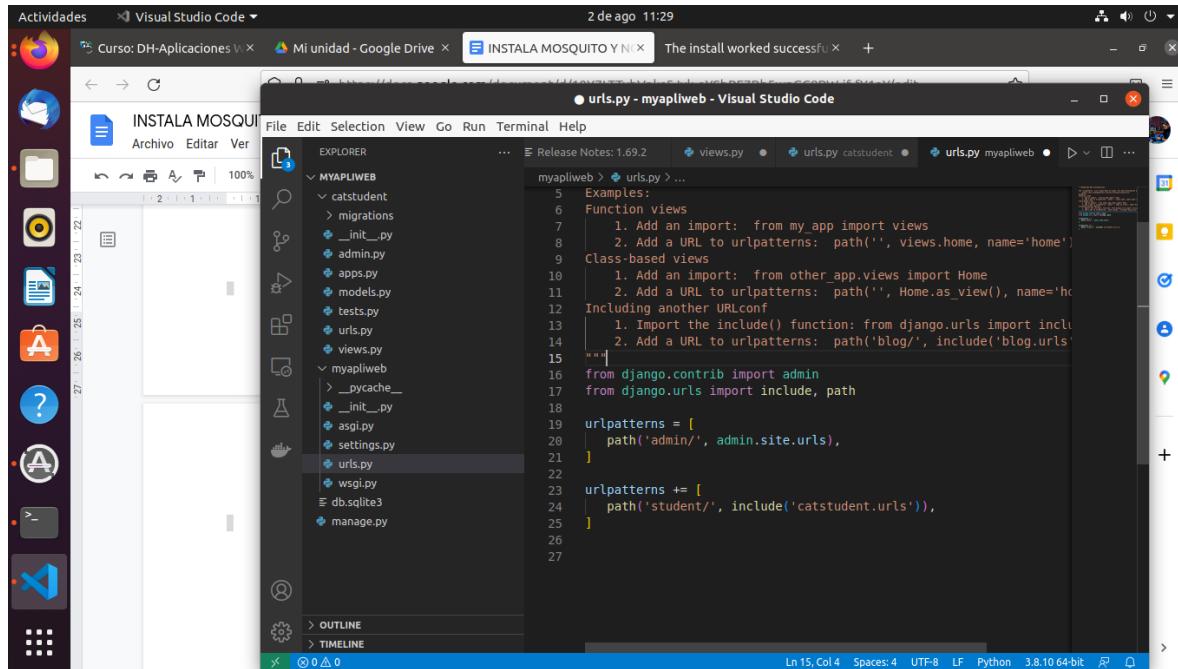


La carpeta `myapliweb` también contiene un archivo `urls.py`, que es donde realmente se maneja el enrutamiento de URL. Abra `myapliweb/urls.py` y modificalo para que coincida con el siguiente código. Este código extrae `catstudent/urls.py` de la aplicación usando `django.urls.include`, que mantiene las rutas de la aplicación contenidas dentro de la aplicación. Esta separación es útil cuando un proyecto contiene varias aplicaciones.

```
from django.contrib import admin
from django.urls import include, path

urlpatterns = [
    path('admin/', admin.site.urls),
]

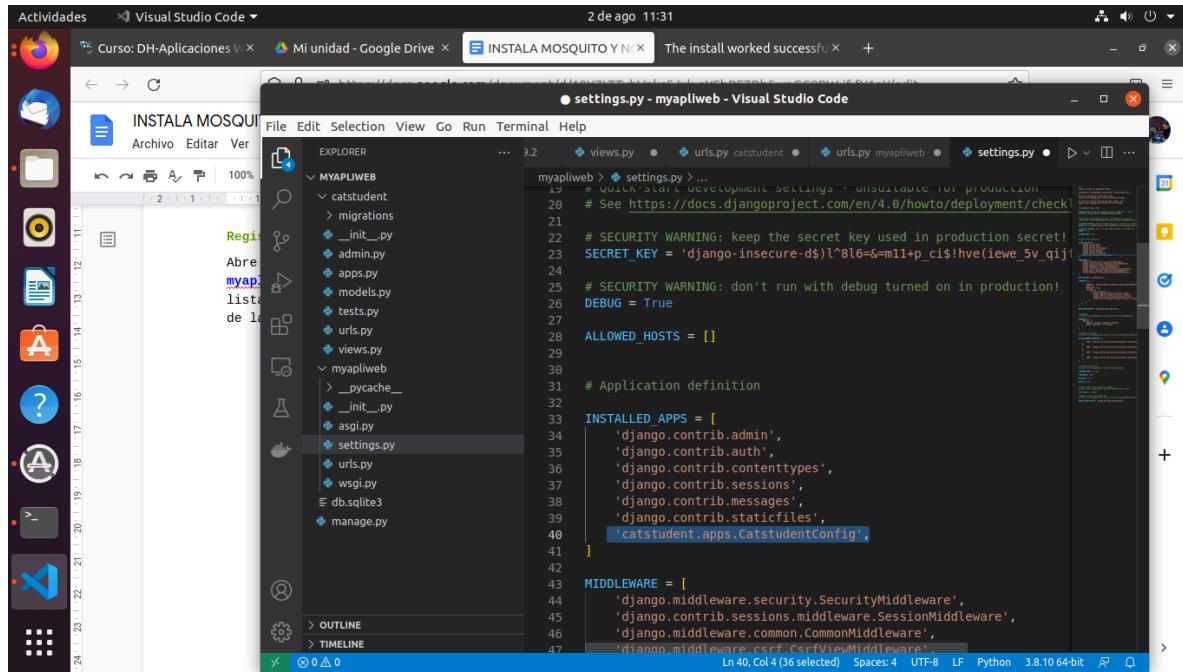
urlpatterns += [
    path('student/', include('catstudent.urls')),
]
```



### Registrar la aplicación

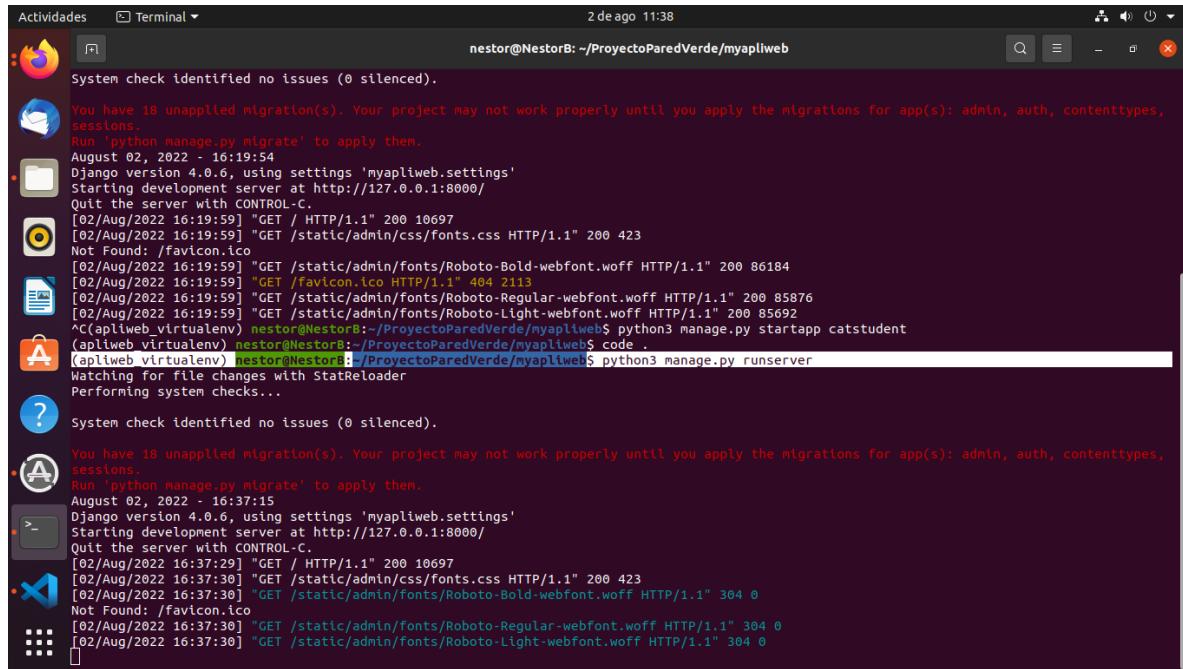
Abre el fichero de ajustes del proyecto **myapliweb/myapliweb/settings.py** y encuentra la definición de la lista `INSTALLED_APPS`. Añade a continuación una nueva línea al final de la lista, como se muestra en negrilla abajo.

```
INSTALLED_APPS = [  
    'django.contrib.admin',  
    'django.contrib.auth',  
    'django.contrib.contenttypes',  
    'django.contrib.sessions',  
    'django.contrib.messages',  
    'django.contrib.staticfiles',  
    ''catstudent.apps.CatstudentConfig',  
]
```



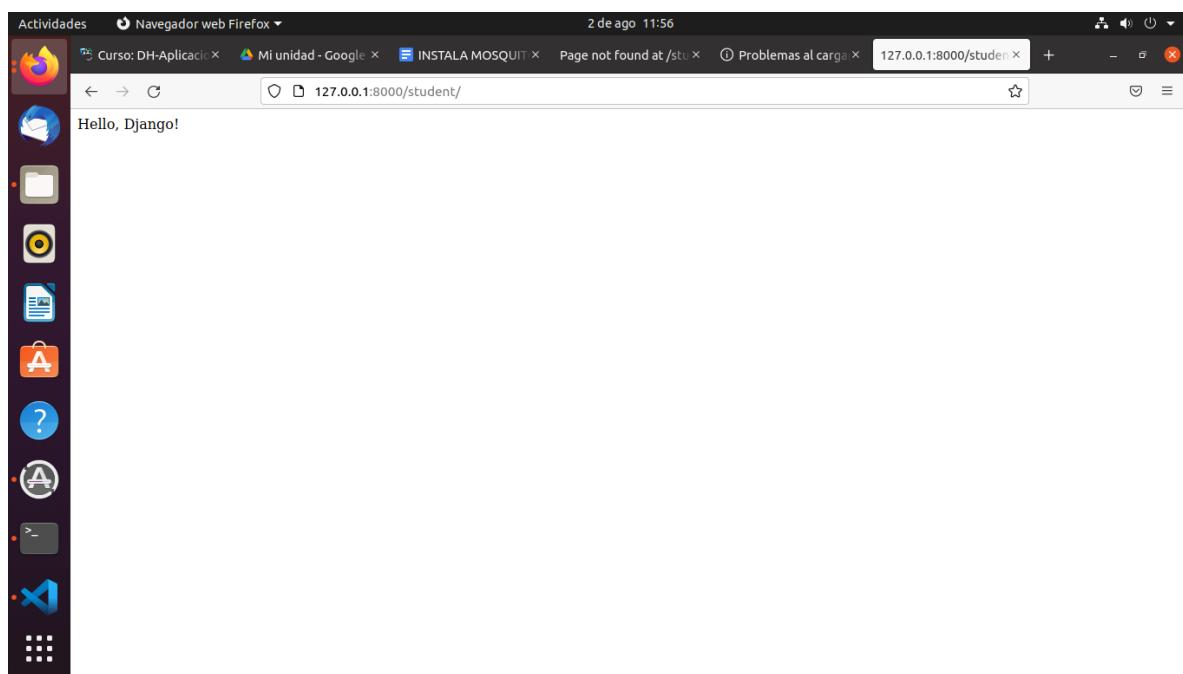
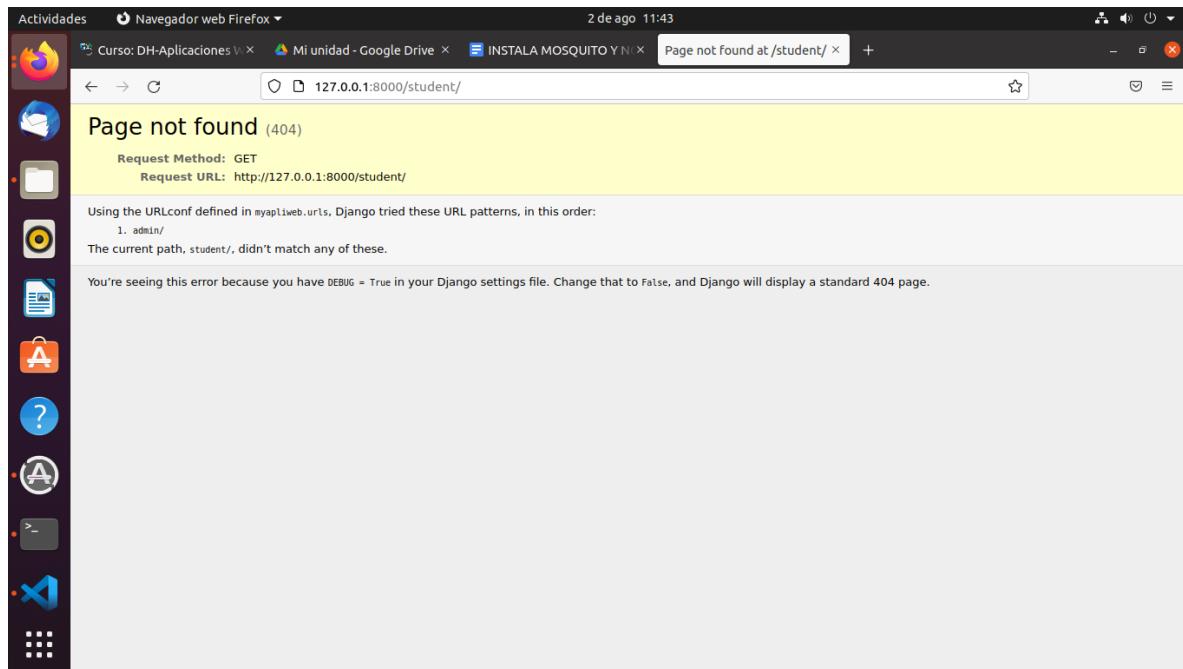
```
myapiweb > settings.py ...
19 # QUICK-start development settings - unsuitable for production
20 # See https://docs.djangoproject.com/en/4.0/howto/deployment/check/
21
22 # SECURITY WARNING: keep the secret key used in production secret!
23 SECRET_KEY = 'django-insecure-d$!l8l6=g=m1+p_ci$!hve(ewe_5v_gj'
24
25 # SECURITY WARNING: don't run with debug turned on in production!
26 DEBUG = True
27
28 ALLOWED_HOSTS = []
29
30
31 # Application definition
32
33 INSTALLED_APPS = [
34     'django.contrib.admin',
35     'django.contrib.auth',
36     'django.contrib.contenttypes',
37     'django.contrib.sessions',
38     'django.contrib.messages',
39     'django.contrib.staticfiles',
40     'catstudent.apps.CatstudentConfig',
41 ]
42
43 MIDDLEWARE = [
44     'django.middleware.security.SecurityMiddleware',
45     'django.contrib.sessions.middleware.SessionMiddleware',
46     'django.middleware.common.CommonMiddleware',
47     'django.middleware.csrf.CsrfViewMiddleware',
]
Ln 40, Col 4 (36 selected) Spaces:4 UTF-8 LF Python 3.8.10 64-bit
```

guardamos todo nuestro proyecto con control+s  
levantamos el servidor ### python3 manage.py runserver ###



```
nestor@NestorB: ~/ProyectoParedVerde/myapiweb
System check identified no issues (0 silenced).
You have 18 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
August 02, 2022 - 16:19:54
Django version 4.0.6, using settings 'myapiweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
[02/Aug/2022 16:19:59] "GET / HTTP/1.1" 200 10697
[02/Aug/2022 16:19:59] "GET /static/admin/css/fonts.css HTTP/1.1" 200 423
Not Found: /favicon.ico
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Bold-webfont.woff HTTP/1.1" 200 86184
[02/Aug/2022 16:19:59] "GET /favicon.ico HTTP/1.1" 404 213
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Regular-webfont.woff HTTP/1.1" 200 85876
[02/Aug/2022 16:19:59] "GET /static/admin/fonts/Roboto-Light-webfont.woff HTTP/1.1" 200 85692
^C(apliweb virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ python3 manage.py startapp catstudent
(apliweb virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ code .
Watching for file changes with StatReloader
Performing system checks...
System check identified no issues (0 silenced).
You have 18 unapplied migration(s). Your project may not work properly until you apply the migrations for app(s): admin, auth, contenttypes, sessions.
Run 'python manage.py migrate' to apply them.
August 02, 2022 - 16:37:15
Django version 4.0.6, using settings 'myapiweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
[02/Aug/2022 16:37:29] "GET / HTTP/1.1" 200 10697
[02/Aug/2022 16:37:30] "GET /static/admin/css/fonts.css HTTP/1.1" 200 423
[02/Aug/2022 16:37:30] "GET /static/admin/fonts/Roboto-Bold-webfont.woff HTTP/1.1" 304 0
Not Found: /favicon.ico
[02/Aug/2022 16:37:30] "GET /static/admin/fonts/Roboto-Regular-webfont.woff HTTP/1.1" 304 0
[02/Aug/2022 16:37:30] "GET /static/admin/fonts/Roboto-Light-webfont.woff HTTP/1.1" 304 0
```

Ingresá la URL <http://127.0.0.1:8000/> y después agregamos a la url  
<http://127.0.0.1:8000/student/>



## Base de Datos

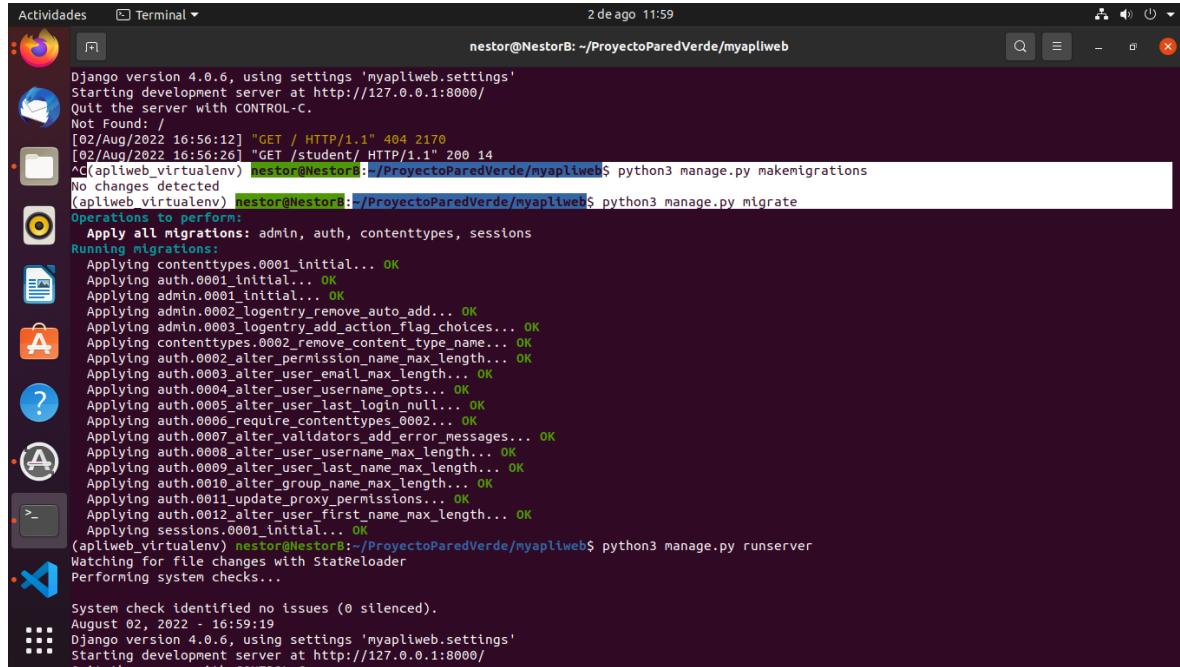
Django usa un Object-Relational-Mapper (ORM) para mapear las definiciones de Modelos en el código Django con la estructura de datos utilizada por la base de datos subyacente. A medida que cambiamos nuestras definiciones de modelos, Django sigue la pista a los cambios y puede crear scripts de migración de la base de datos (en [/myapliweb/catstudent/migrations/](#)) para migrar

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automáticamente la estructura de datos subyacente en la base de datos para igualarse al modelo.

Ejecuta los siguientes comandos

```
python3 manage.py makemigrations  
python3 manage.py migrate
```

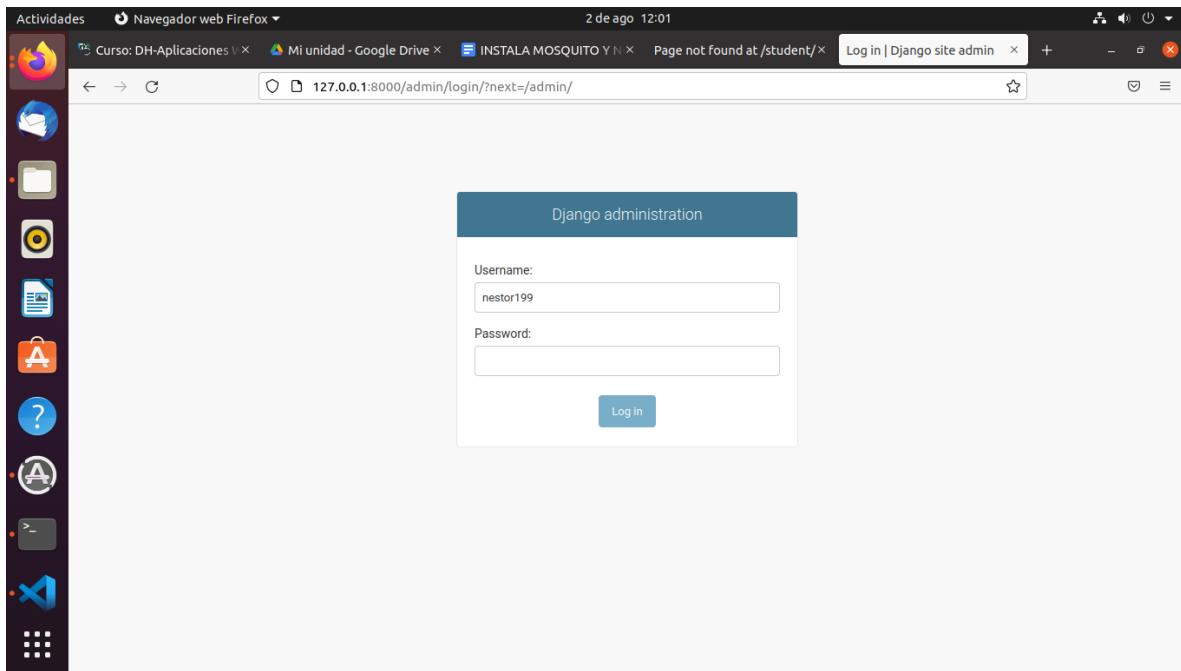


```
Django version 4.0.6, using settings 'myapliweb.settings'  
Starting development server at http://127.0.0.1:8000/  
Quit the server with CONTROL-C.  
Not Found: /  
[02/Aug/2022 16:56:12] "GET / HTTP/1.1" 404 2170  
[02/Aug/2022 16:56:26] "GET /student/ HTTP/1.1" 200 14  
^C(apliweb virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ python3 manage.py makemigrations  
No changes detected  
(apliweb virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ python3 manage.py migrate  
Operations to perform:  
  Apply all migrations: admin, auth, contenttypes, sessions  
Running migrations:  
  Applying contenttypes.0001_initial... OK  
  Applying auth.0001_initial... OK  
  Applying admin.0002_logentry_remove_auto_add... OK  
  Applying admin.0003_logentry_add_action_flag_choices... OK  
  Applying contenttypes.0002_remove_content_type_name... OK  
  Applying auth.0002_alter_permission_name_max_length... OK  
  Applying auth.0003_alter_user_email_max_length... OK  
  Applying auth.0004_alter_user_username_opts... OK  
  Applying auth.0005_alter_user_last_login_null... OK  
  Applying auth.0006_require_contenttypes_0002... OK  
  Applying auth.0007_alter_validators_add_error_messages... OK  
  Applying auth.0008_alter_user_username_max_length... OK  
  Applying auth.0009_alter_user_last_name_max_length... OK  
  Applying auth.0010_alter_group_name_max_length... OK  
  Applying auth.0011_update_proxy_permissions... OK  
  Applying auth.0012_alter_user_first_name_max_length... OK  
  Applying sessions.0001_initial... OK  
(apliweb virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapliweb$ python3 manage.py runserver  
Watching for file changes with StatReloader  
Performing system checks...  
  
System check identified no issues (0 silenced).  
August 02, 2022 16:59:19  
Django version 4.0.6, using settings 'myapliweb.settings'  
Starting development server at http://127.0.0.1:8000/  
Quit the server with CONTROL-C.
```

Salvar los archivos y ejecutar la aplicación

```
python3 manage.py runserver
```

Ingresá la url <http://127.0.0.1:8000/admin/>



## Crear un usuario

Una vez hecha la migración ejecutar el siguiente comando para crear un nuevo usuario

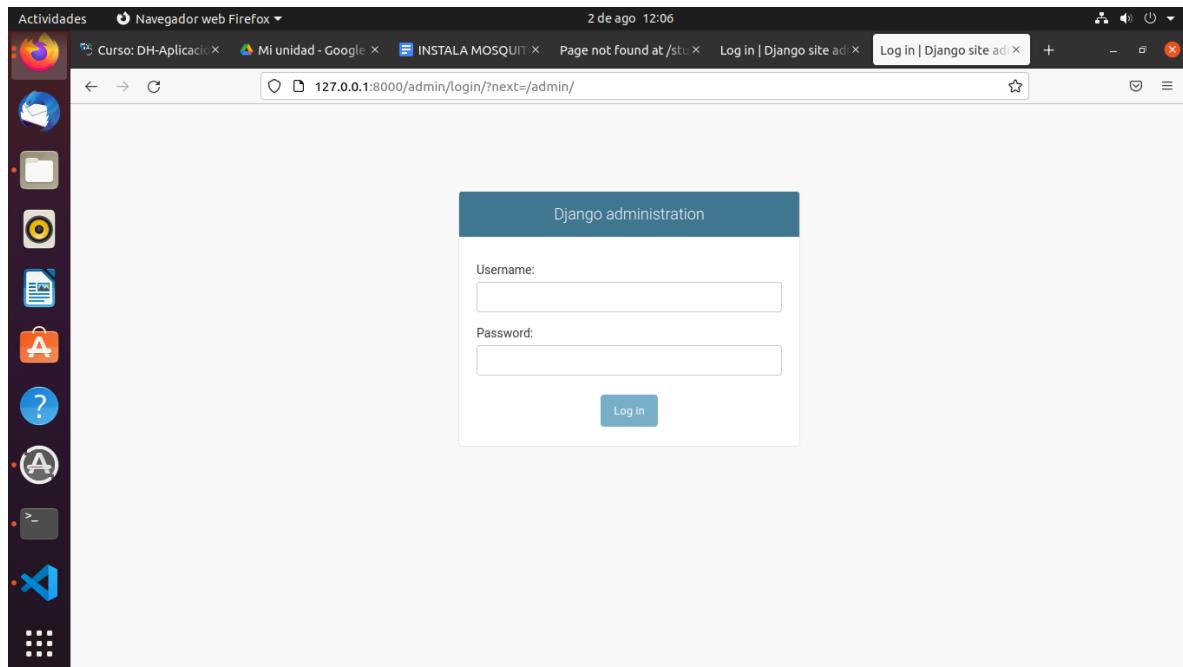
```
python3 manage.py createsuperuser
```

Ingresá la siguiente información:

```
username: student
email: student@gmail.com
password: student@01
Aceptas los cambios
Bypass password validation and create user anyway?
[y/N]: y
Superuser created successfully.
```

Ingresas a la URL <http://127.0.0.1:8000/admin/login/?next=/admin/>

```
Actividades Terminal 2 de ago 12:05
nestor@NestorB:~/ProyectoParedVerde/myapiweb
Performing system checks...
System check identified no issues (0 silenced).
August 02, 2022 - 16:59:19
Django version 4.0.6, using settings 'myapiweb.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
Not Found: /
[02/Aug/2022 16:59:22] "GET / HTTP/1.1" 404 2170
[02/Aug/2022 17:00:46] "GET /admin/ HTTP/1.1" 302 0
[02/Aug/2022 17:00:46] "GET /admin/login/?next=/admin/ HTTP/1.1" 200 2215
[02/Aug/2022 17:00:47] "GET /static/admin/css/base.css HTTP/1.1" 200 19513
[02/Aug/2022 17:00:47] "GET /static/admin/css/nav_sidebar.css HTTP/1.1" 200 2616
[02/Aug/2022 17:00:47] "GET /static/admin/js/nav_sidebar.js HTTP/1.1" 200 3763
[02/Aug/2022 17:00:47] "GET /static/admin/css/login.css HTTP/1.1" 200 954
[02/Aug/2022 17:00:47] "GET /static/admin/css/responsive.css HTTP/1.1" 200 18575
[02/Aug/2022 17:00:47] "GET /static/admin/css/fonts.css HTTP/1.1" 304 0
[02/Aug/2022 17:00:47] "GET /static/admin/Fonths/Roboto-Regular-webfont.woff HTTP/1.1" 304 0
[02/Aug/2022 17:00:47] "GET /static/admin/Fonths/Roboto-Light-webfont.woff HTTP/1.1" 304 0
^XCC(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ (apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ python3 manage.py makemigrations
bash: error sintáctico cerca del elemento inesperado `nestor@NestorB:~/ProyectoParedVerde/myapiweb$` (apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ No changes detected
No: no se encontró la orden
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ (apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ python3 manage.py migrate
bash: error sintáctico cerca del elemento inesperado `nestor@NestorB:~/ProyectoParedVerde/myapiweb$` (apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$ python3 manage.py createsuperuser
Username (leave blank to use 'nestor'): student
Email address: student@gmail.com
Password:
Password (again):
This password is too short. It must contain at least 8 characters.
This password is too common.
This password is entirely numeric.
Bypass password validation and create user anyway? [y/N]: y
Superuser created successfully.
(apliweb_virtualenv) nestor@NestorB:~/ProyectoParedVerde/myapiweb$
```



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The screenshot shows the Django administration interface. The title bar says "Django administration". On the left, there's a sidebar with various icons for managing different parts of the site. The main content area is titled "AUTHENTICATION AND AUTHORIZATION" and contains two sections: "Groups" and "Users". Each section has a "+ Add" button and a "Change" link. To the right, there's a "Recent actions" panel which is currently empty, showing "None available". At the top right of the screen, there are links for "WELCOME, STUDENT", "VIEW SITE / CHANGE PASSWORD", and "LOG OUT".

The screenshot shows the "Users" page under "AUTHENTICATION AND AUTHORIZATION". The title bar says "Django administration". The left sidebar has an "Authentication and Authorization" section with "Groups" and "Users" listed. The main content area is titled "Select user to change". It shows a search bar with a placeholder "Start typing to filter..." and a "Search" button. Below it, a table lists one user: "student" with email "student@gmail.com". The table has columns: "USERNAME", "EMAIL ADDRESS", "FIRST NAME", "LAST NAME", and "STAFF STATUS". The "STAFF STATUS" column for "student" has a green checkmark. On the far right of the table, there's an "ADD USER" button. To the right of the table, there's a "FILTER" sidebar with three sections: "By staff status" (All, Yes, No), "By superuser status" (All, Yes, No), and "By active" (All, Yes, No).