CM3035 Advanced Web Development

Lesson 1

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Module Requirements to Pass

Minimum 35% in each element of summative assessment

Overall weighted average of 40%

Assessment

Coursework 1 - 50%

Coursework 2 - 50%

Operating Systems

Mac Os

Or

Windows / Ubuntu (Dual Boot)

https://www.ionos.com/digitalguide/server/configuration/dual-boot-windows-10-and-ubuntu/

Django

What is Django?

Django is a back-end server side web framework

Django makes it easier to build web pages using Python

Django emphasizes reusability of components - DRY (Don't Repeat Yourself)

How does Django Work?

Django follows the MVT design pattern

(Model View Template).

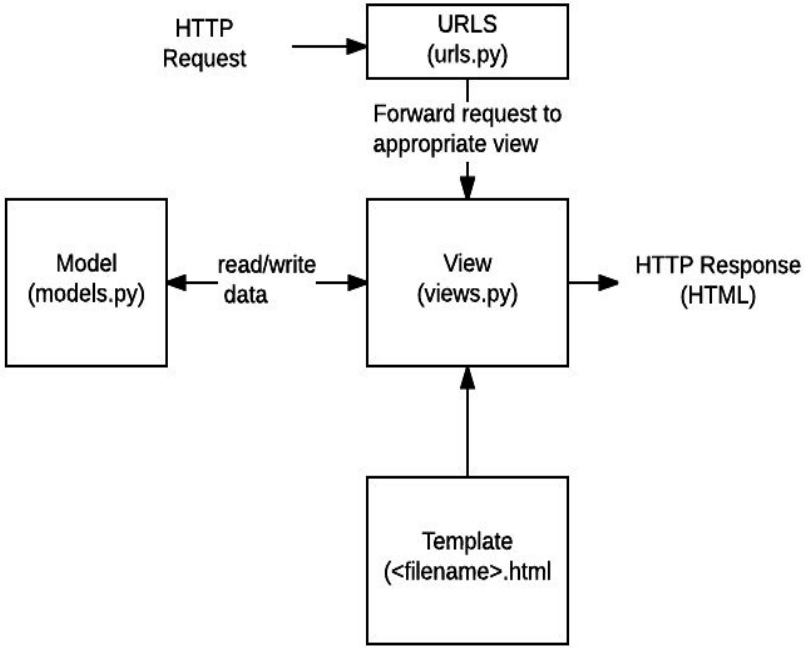
Model View Template(MVT)

Model - The data you want to present, usually data from a database.

View - A request handler that returns the relevant template and content - based on the request from the user.

Template - A text file (like an HTML file) containing the layout of the web page, with logic on how to display the data.

Django Framework?



Model

Model:
The model provides data from the database

Data is delivered as an Object Relational Mapping (ORM)

Database is SQL

The models are usually located in a file called models.py

Views

Views:

A view is a function or method that takes http requests as arguments, imports the relevant model(s), and finds out what data to send to the template, and returns the final result.

The views are usually located in a file called views.py

Template

Template:
A template is a file where you describe how the result should be represented.

Templates are often .html files, with HTML code.

Example:

```
<h1>My Homepage</h1>

<p>My name is {{ firstname }}.</p>
```

URLs

URLs:

Django also provide a way to navigate around the different pages in a website.
When a user requests a URL, Django decides which view it will send it to.
This is done in a file called urls.py.

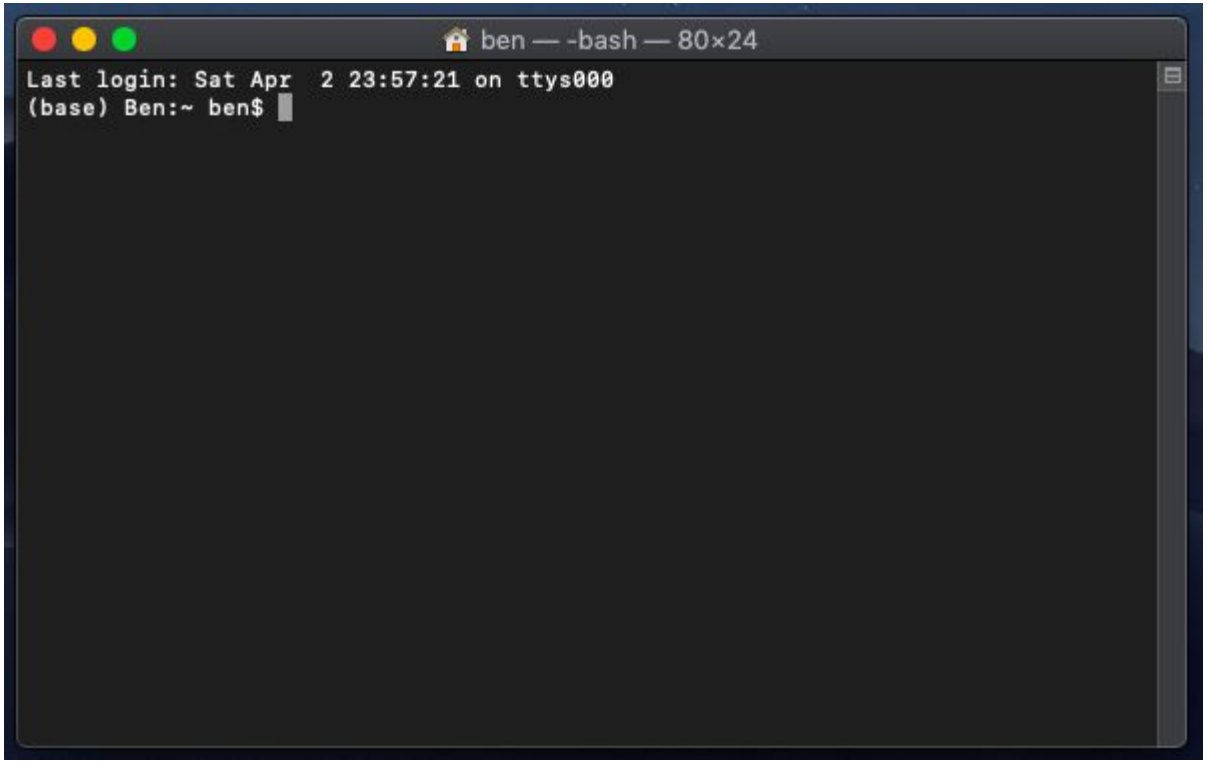
Process:

After you have created your first Django web application, and the browser requests the URL, this is basically what happens:

1. Django receives the URL, checks the urls.py file, and calls the view that matches the URL.
2. The view, located in views.py, checks for relevant models.
3. The models are imported from the modals.py file.
4. The view then sends the data to a specified template in the template folder.
5. The template contains HTML and Django tags, and with the data it returns finished HTML content back to the browser.

Let’s Begin Coding

Open terminal



Test your Global Environment

Let’s test the application for python3 and pip3 in the Global Environment

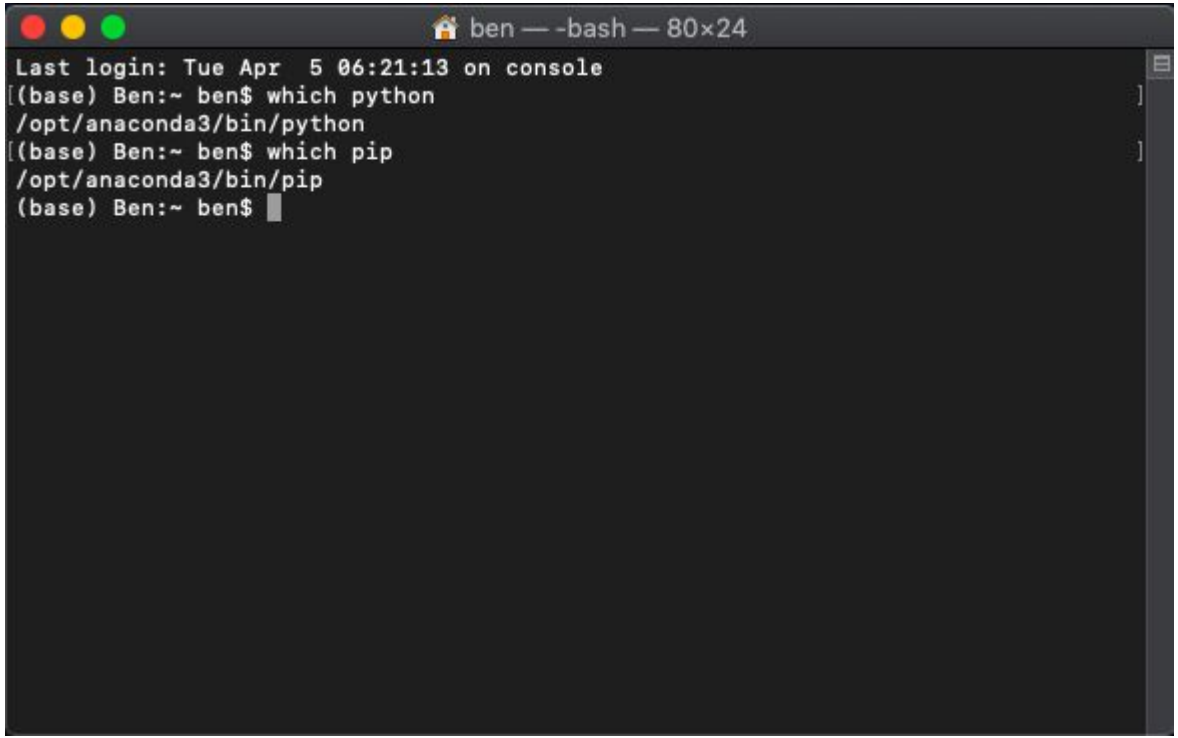
Check where python3 is installed >>> which python3

(Optional) >>> python --version

Check where pip3 is installed >>> which pip3

Use Virtual Environment instead because you want to achieve full control.

Test your Global Environment



Create Virtual environment

Create a New folder on desktop >>>mkdir **djangoVenv**

(Optional)To Delete folder >>>rmdir

Go to folder djangoVenv >>>cd **djangoVenv**

Look at content inside **djangoVenv** folder >>> ls

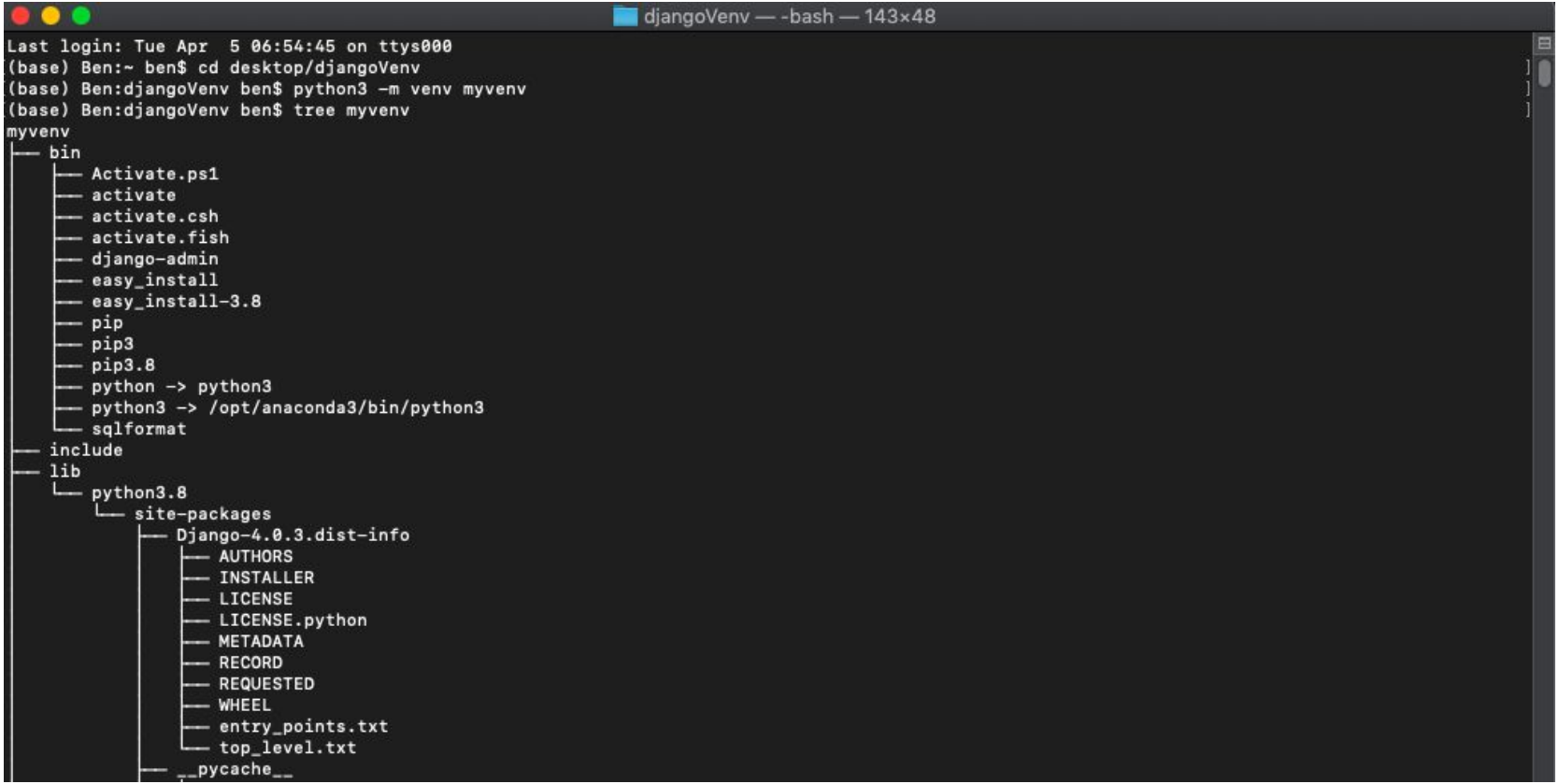
(Optional) go back to parent folder >>>cd ..

(Optional) install tree for mac user >>> brew install tree

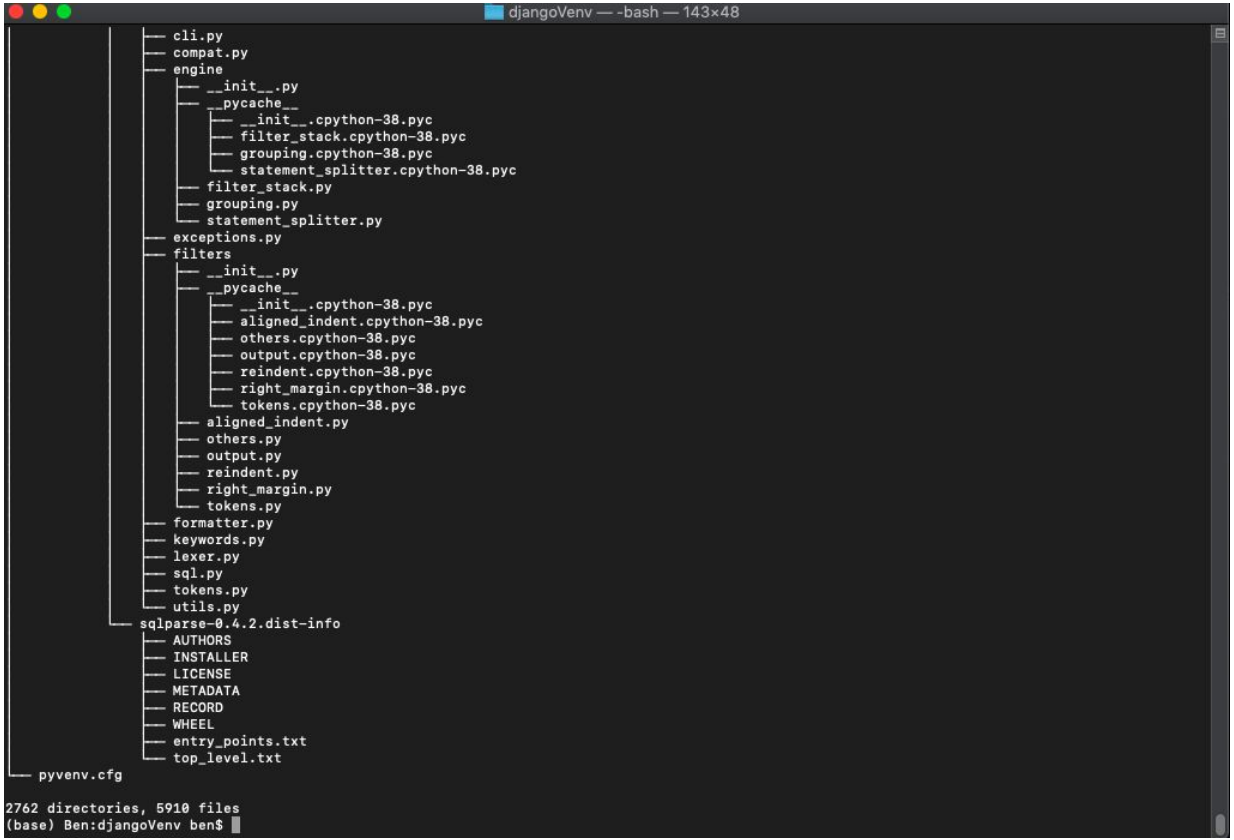
Create virtual environment >>>python3 -m venv **myvenv**

view content in myvenv folder >>> tree **myvenv**

Create Virtual environment



Create Virtual environment



Activate Virtual Environment

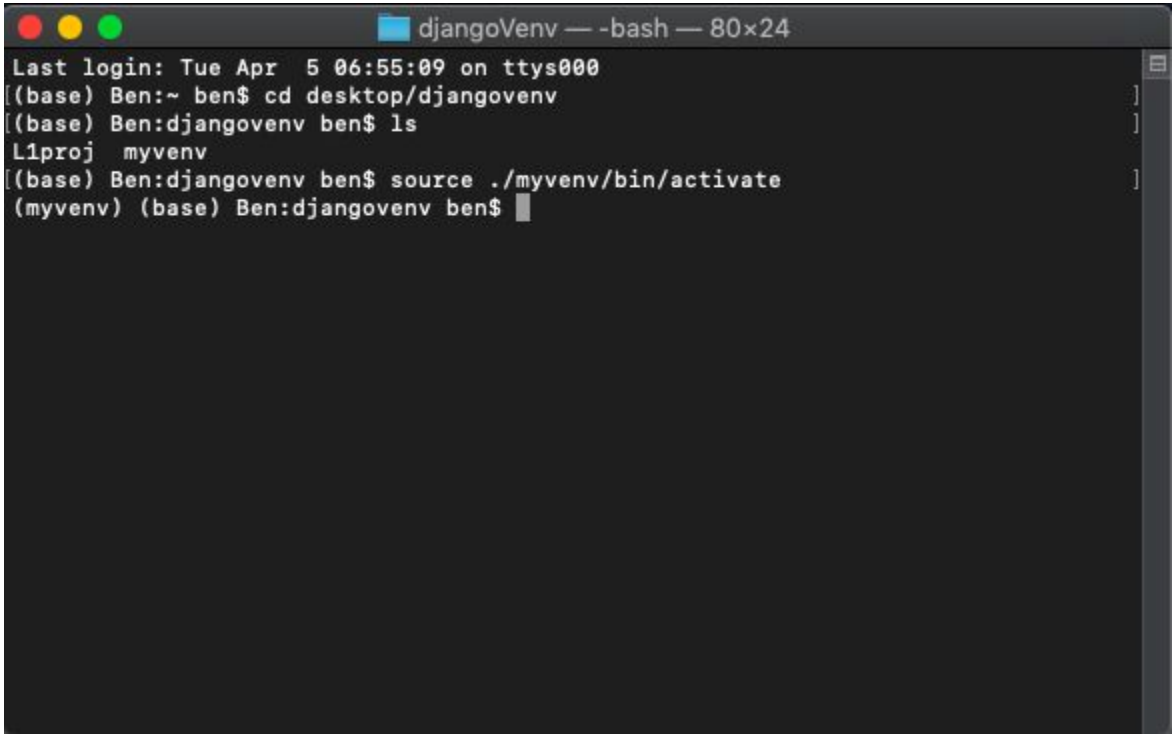
To **activate** virtual environment >>>source ./**myvenv**/bin/activate

Notice **(myvenv)** appears, means virtual environment is running

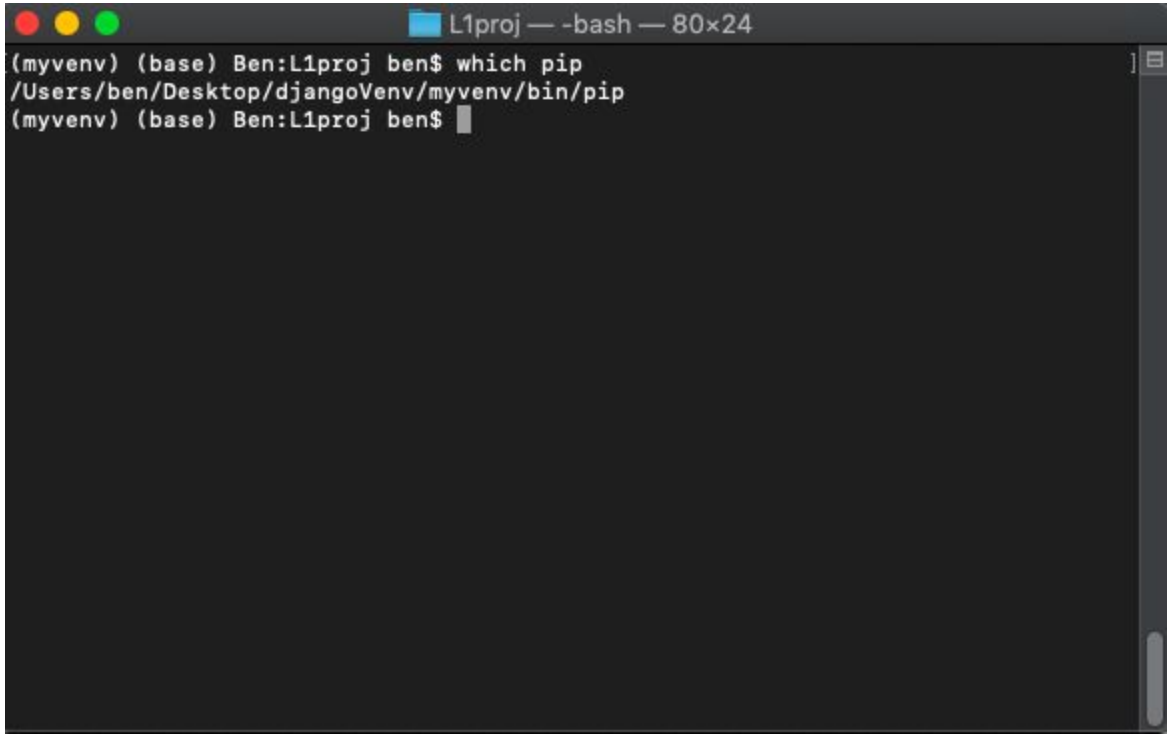
Check pip running in virtual environment >>>which pip

if pip folder is found inside **myvenv** subfolder means virtual environment is set up successfully!!!

Activate Virtual Environment



Test Activated Virtual Environment



What’s in Virtual Environment

View applications installed in virtual Environment >>>pip3 list

Try install a new application >>> pip3 install schedule

To View newly installed application >>> pip3 list

(Optional) upgrade pip3 >>> python3 -m pip install --upgrade pip

Install django >>> pip3 install django ‘or’ python3 -m pip install django

What's in Virtual Environment

Deactivate Virtual Environment

To **deactivate** virtual environment >>> deactivate

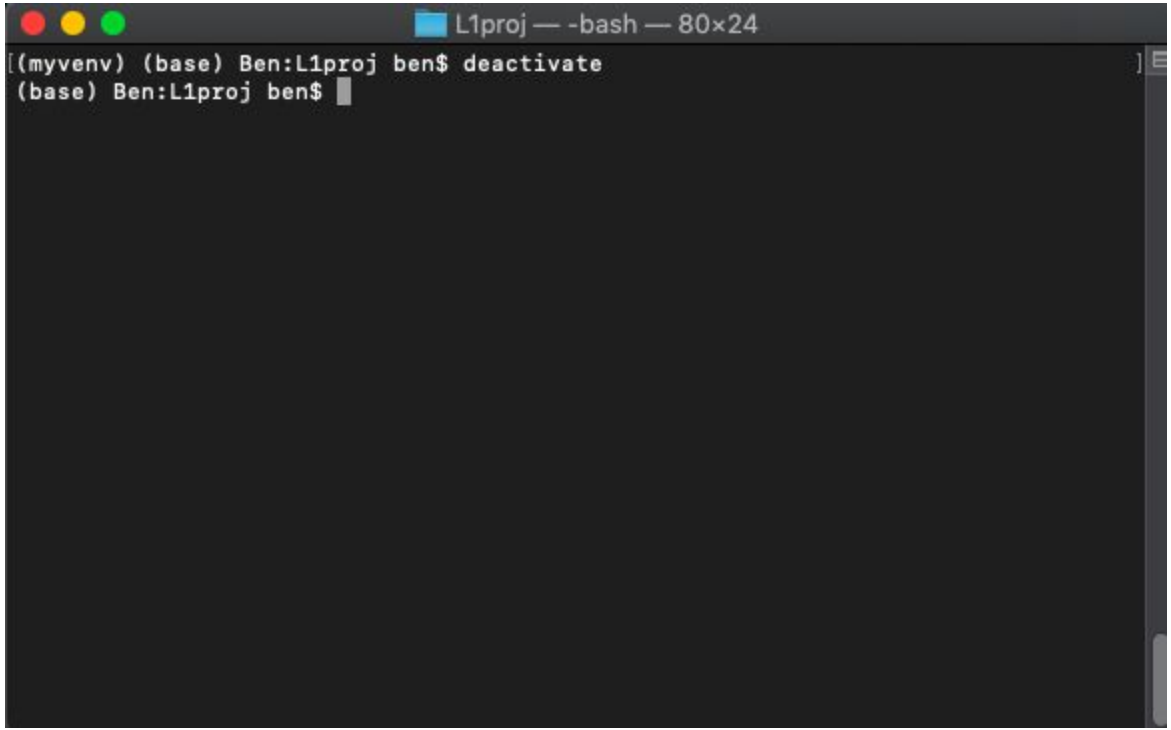
(myvenv) **disappears**

Let’s Activate Virtual Environment Again!!!

Let’sActivate Virtual Environment Again!!!

Let’sActivate Virtual Environment Again!!!

Deactivate Virtual Environment



Create Django Project

Go to folder djangoVenv and **create** a new **django project**

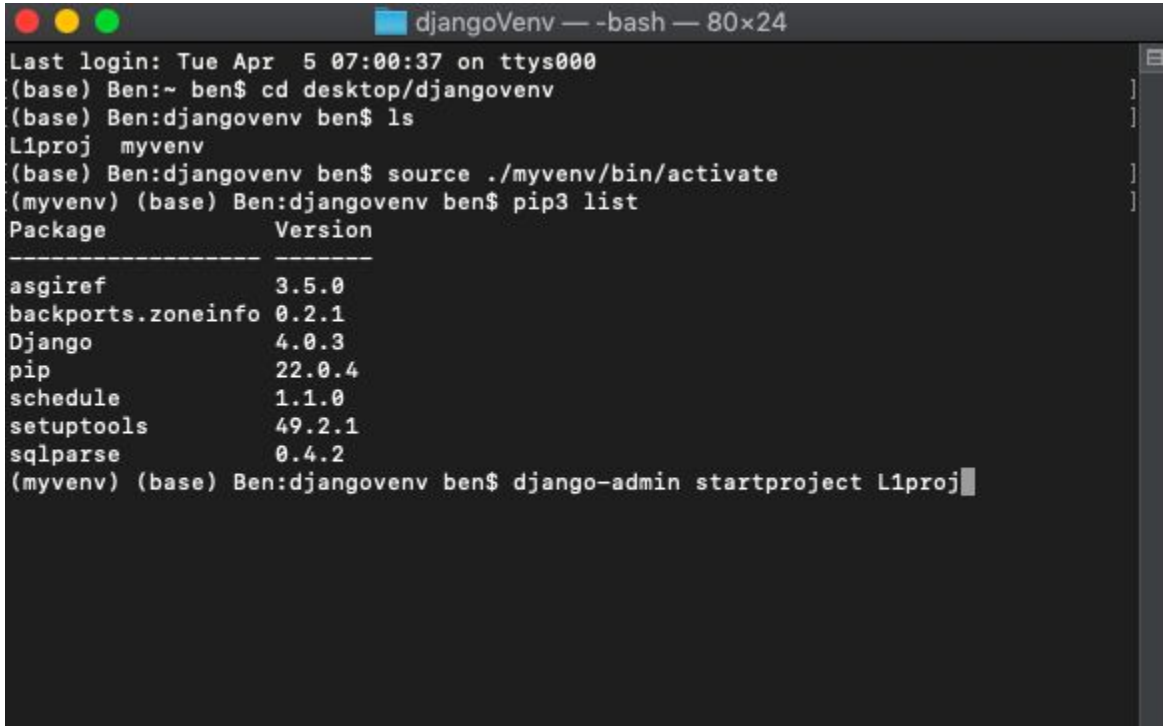
>>>django-admin startproject **L1proj**

Run the server >>> python3 manage.py runserver

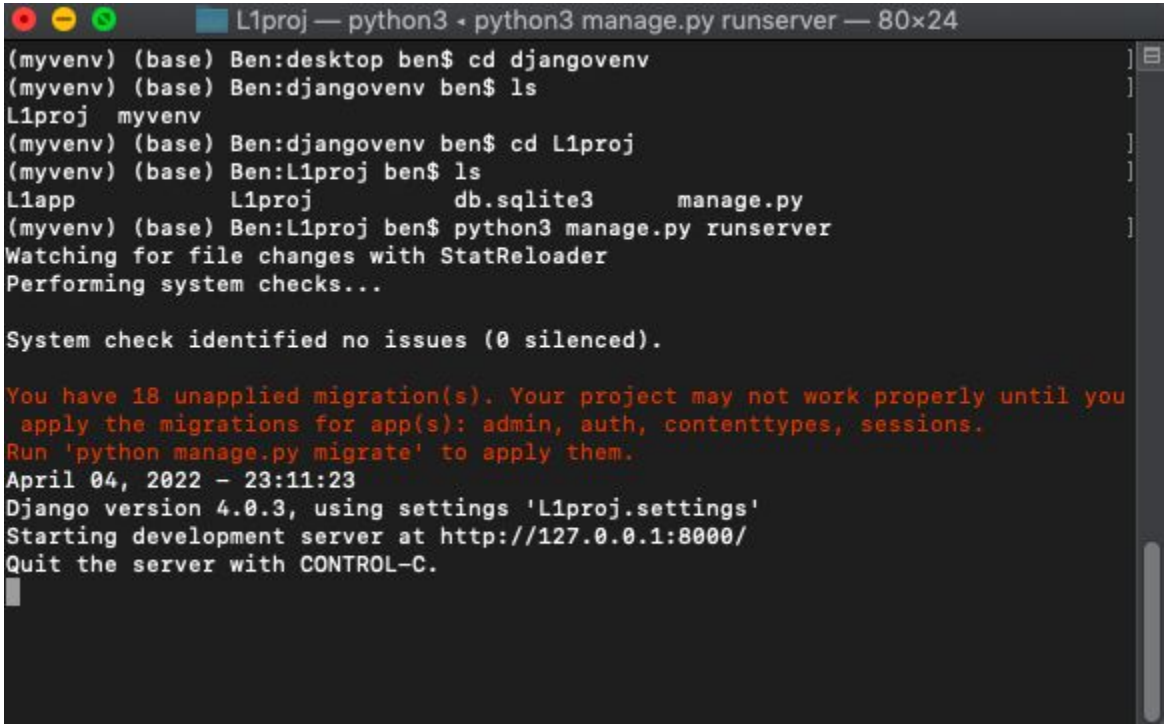
To test if server is working, open browser to view **website** created by django >>>http://localhost:8000/

To **stop** server --> CONTROL C

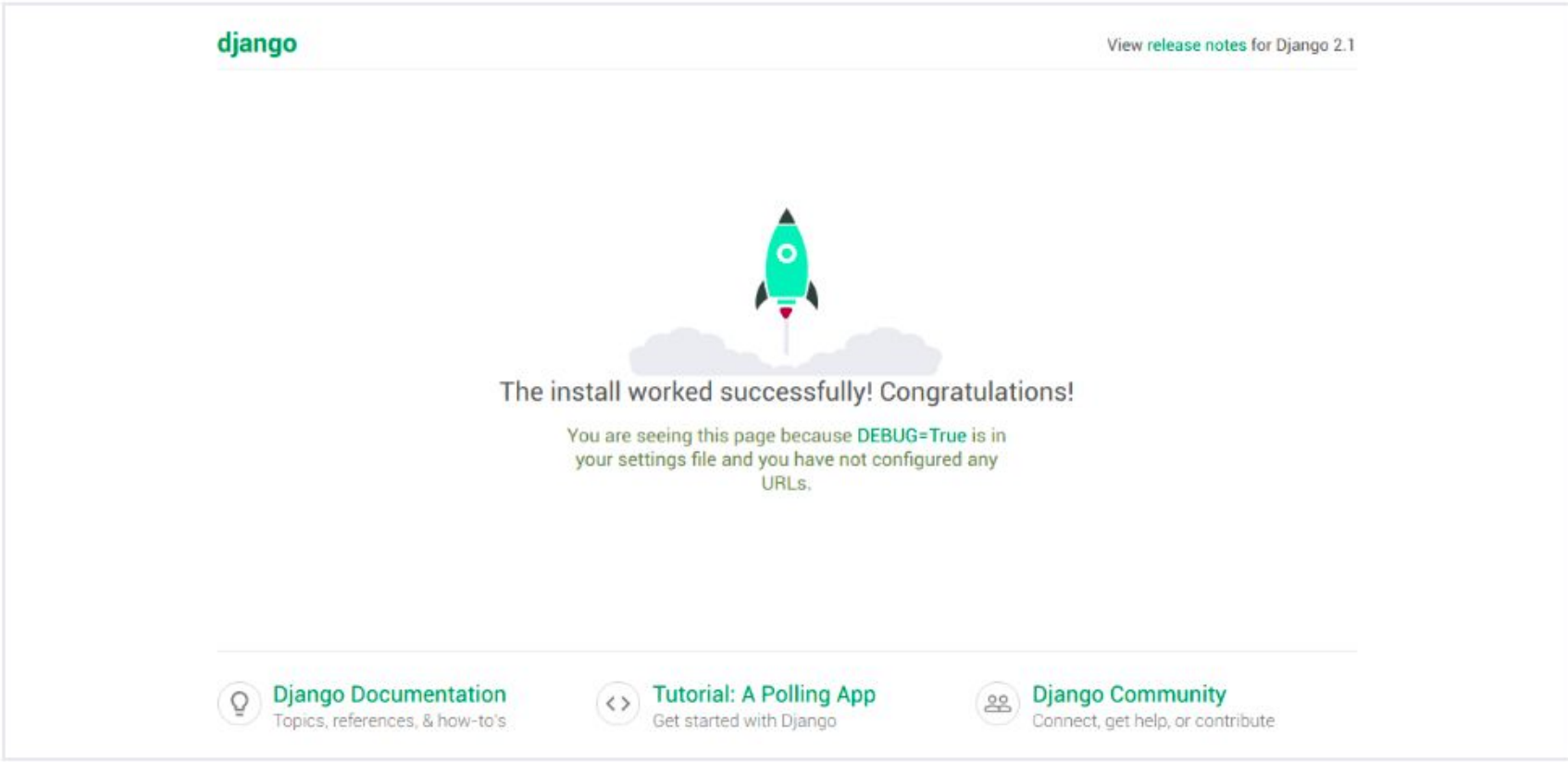
Create Django Project



Create Django Project



Create Django Project

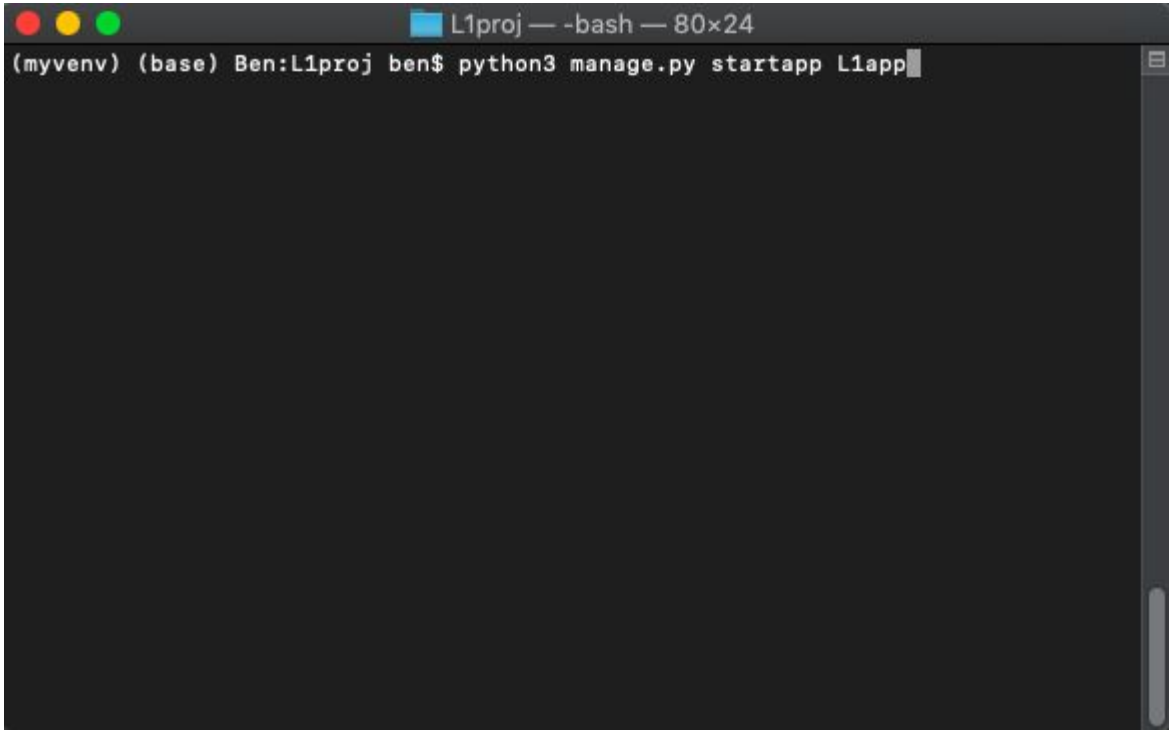


Create First Django App

Location : Root folder > virtual environment folder > Django project folder > application

To create new application >>> python3 manage.py startapp **L1app**

Create First Django App



Display Hello world on browser

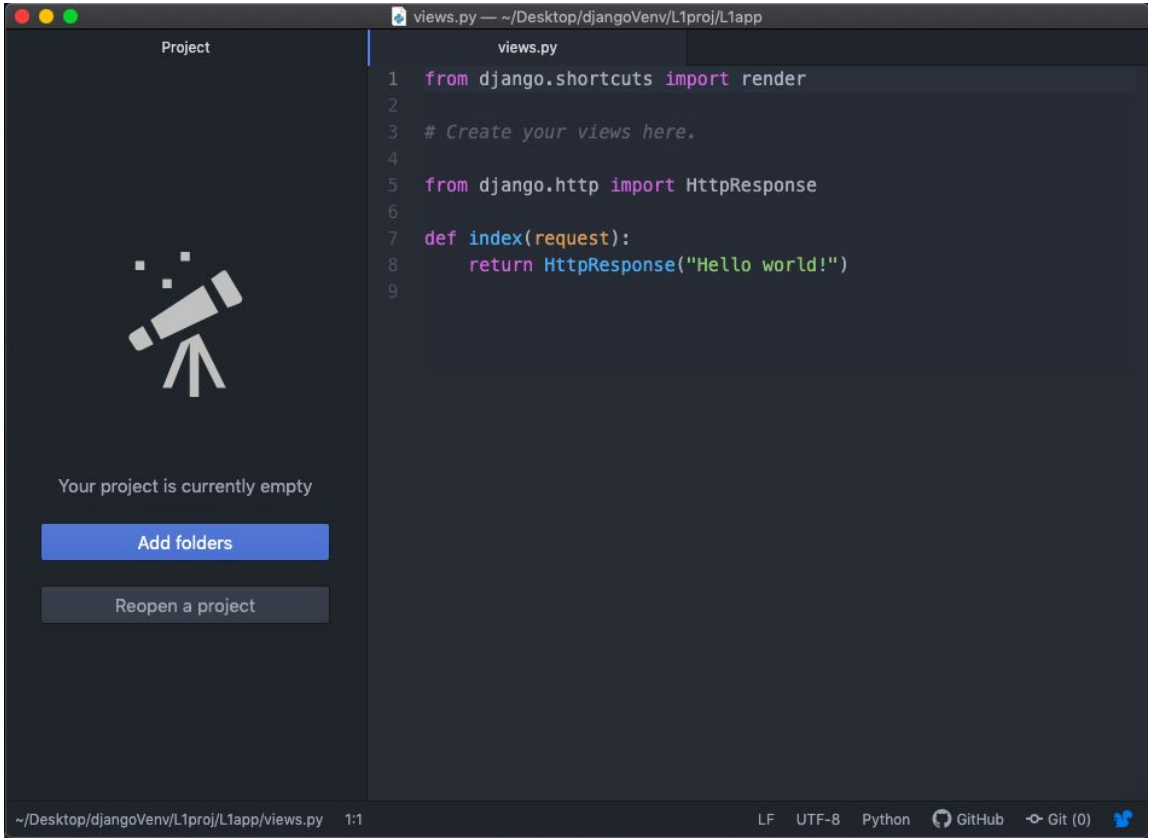
1. Respond Hello World to browser

Location : **L1app/views.py**

```
from django.shortcuts import render
from django.http import HttpResponse


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

Display Hello world on browser



Establish URL for index function

2. Create a file named **urls.py**

Location : **L1app/urls.py**

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

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

Establish URL in project folder

3. Set url in project folder to include L1app urls

Location : **L1proj/urls.py**

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


urlpatterns = [
    path('L1app/', include('L1app.urls')),
     path('admin/', admin.site.urls),
]
```

View Hello World on Browser

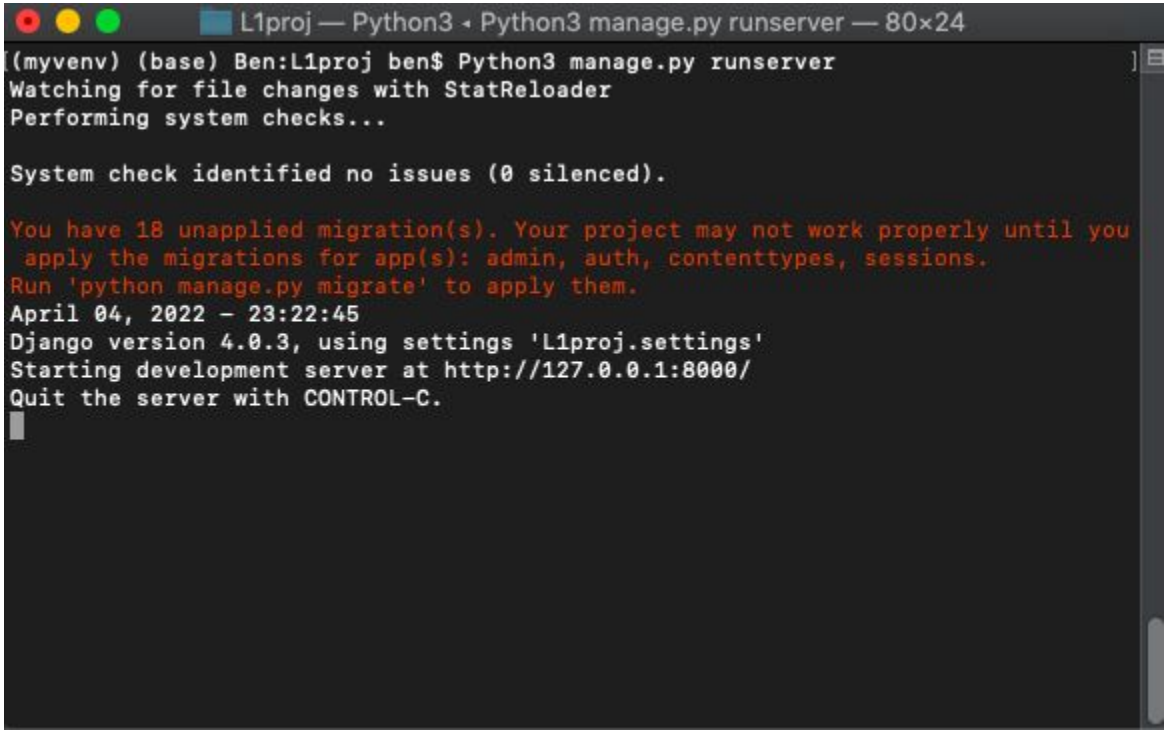
4. Python3 manage.py runserver

Open browser

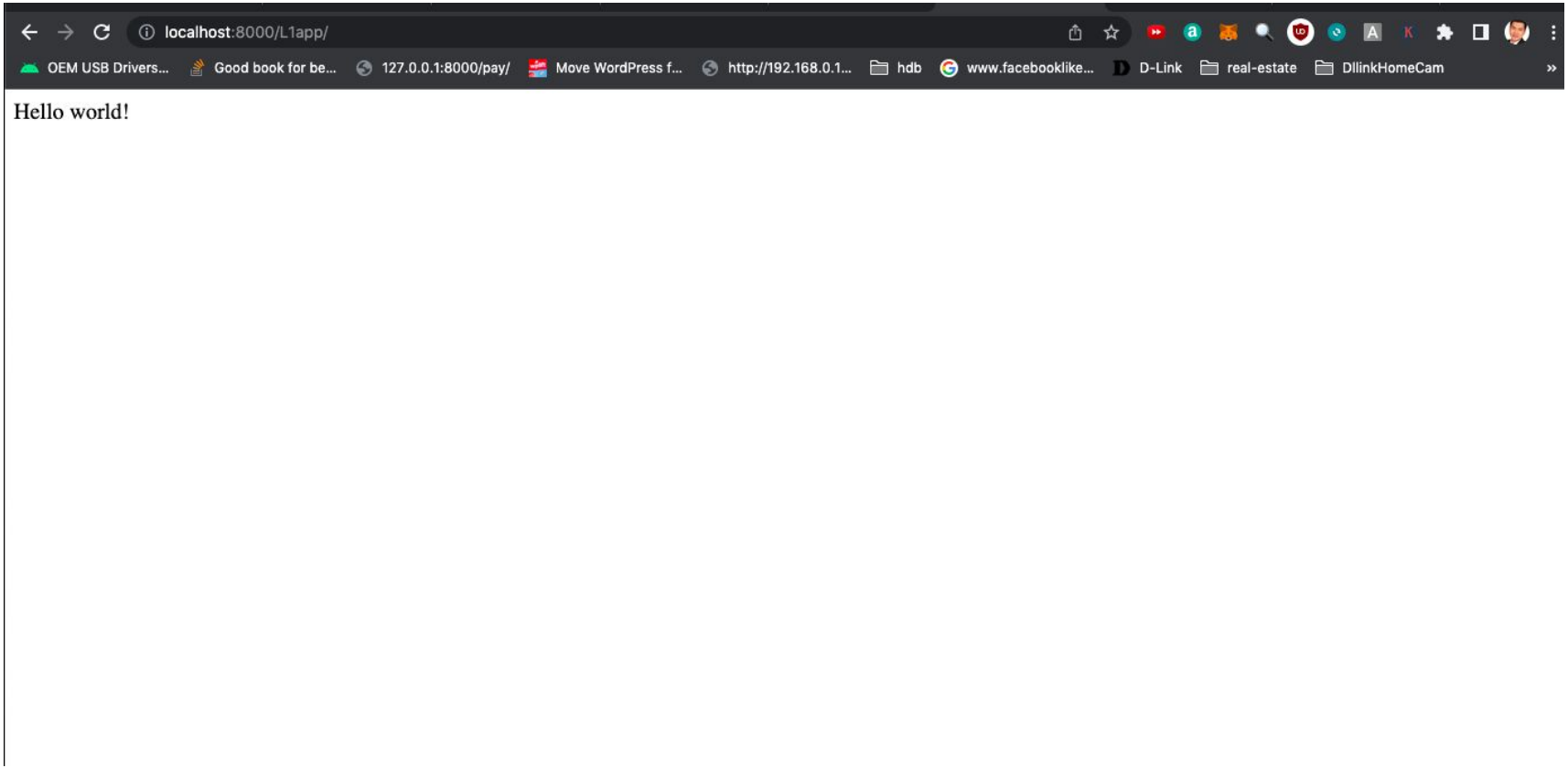
http://localhost:8000/L1app

You should see **Hello World!** First Django App **successful!**

View Hello World on Browser



View Hello World on Browser



End of Lesson 1