Tutorial 01

TO DO IN CLASS- REMEMBER TO UPLOAD THE REPO LINK TO TEAMS

FIRST COMPLETE THE ENTIRE TUTORIAL (IGNORE THE ACTIVITES) – AT THE END, COMPLETE THE PROPOSED ACTIVITIES

- **Before starting (create a new Django project):**

  Open your Terminal, and in a location of your choice (it's recommended to create a folder for each django project in this course), execute the following:

Execute in Terminal

```
cd djangocourse
mkdir && cd helloworld
```

Execute in Terminal

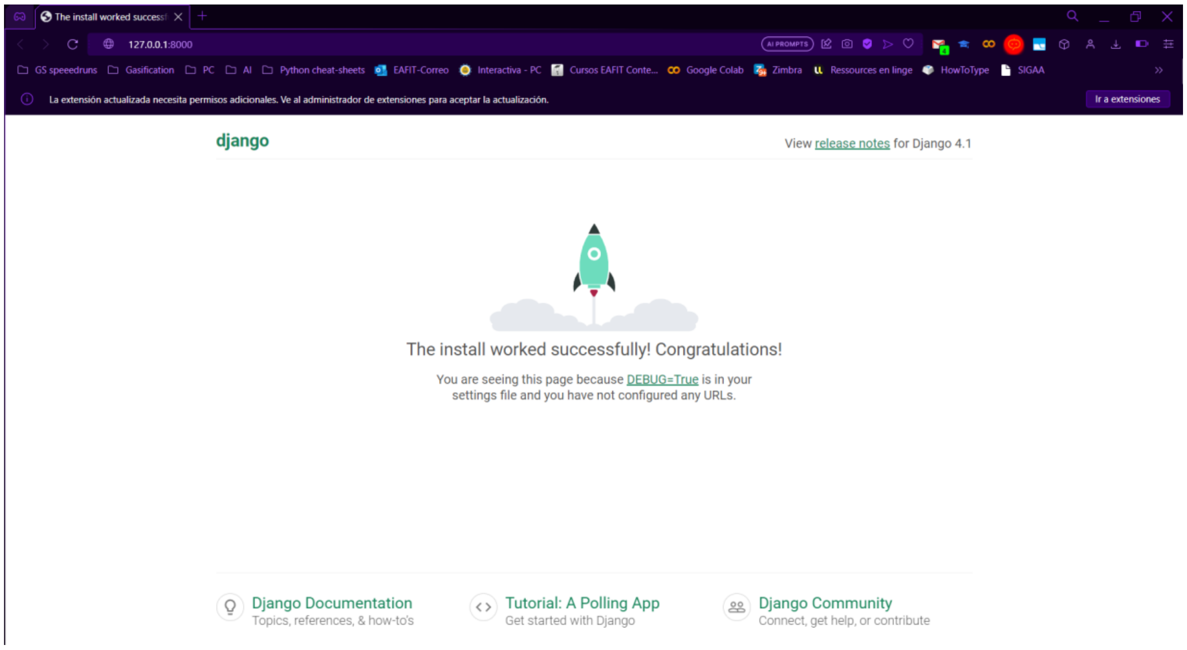
```
django-admin startproject helloworld_project .
```

Note: the dot (.) at the end of this command tells django to create the project in the current folder.
The previous command creates a new django project inside the *djangolcourse/helloworld* folder. Next, in your Terminal, and run the application with the following:

Execute in Terminal

```
python manage.py runserver
```

If the installation and setup were successful, you could open the django development server link in your browser (http://127.0.0.1:8000/). You should see your django application (in django 4).



La extensión actualizada necesita permisos adicionales. Ve al administrador de extensiones para aceptar la actualización.

View release notes for Django 4.1

The install worked successfully! Congratulations!

You are seeing this page because DEBUG=True is in your settings file and you have not configured any URLs.

Django 4 default page.

You can press CTRL+C (on Windows, CMD+C on Mac) on your Terminal to stop running the server, as we are not going to run it from here in the future.

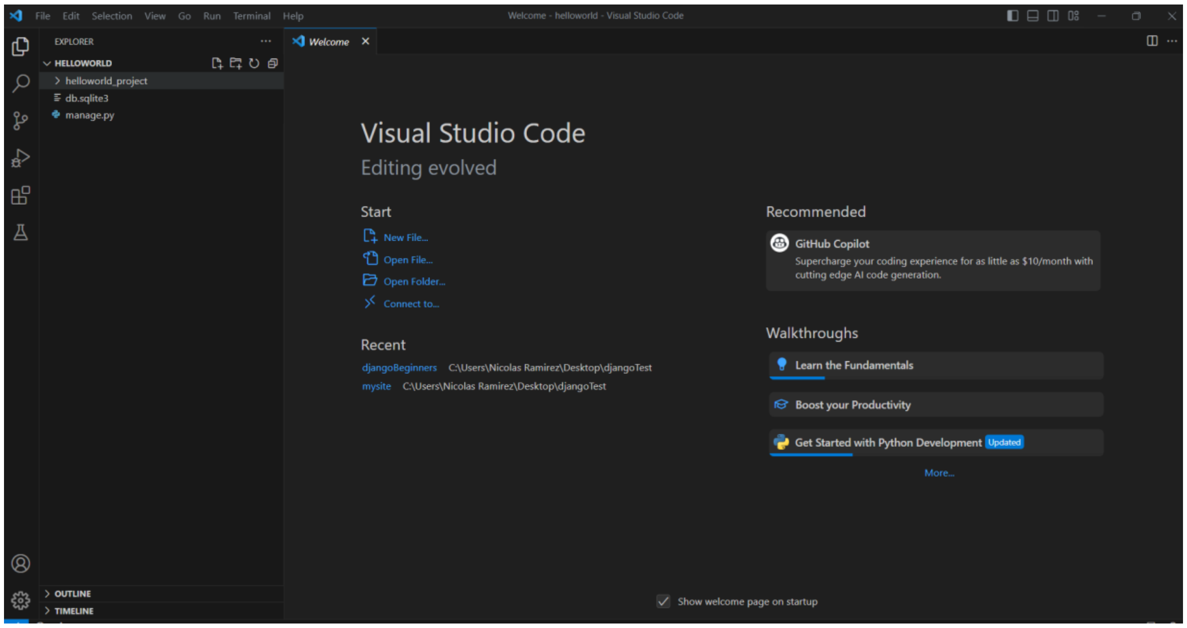
A. “Clean” hello world version

- In your Terminal run the following command:

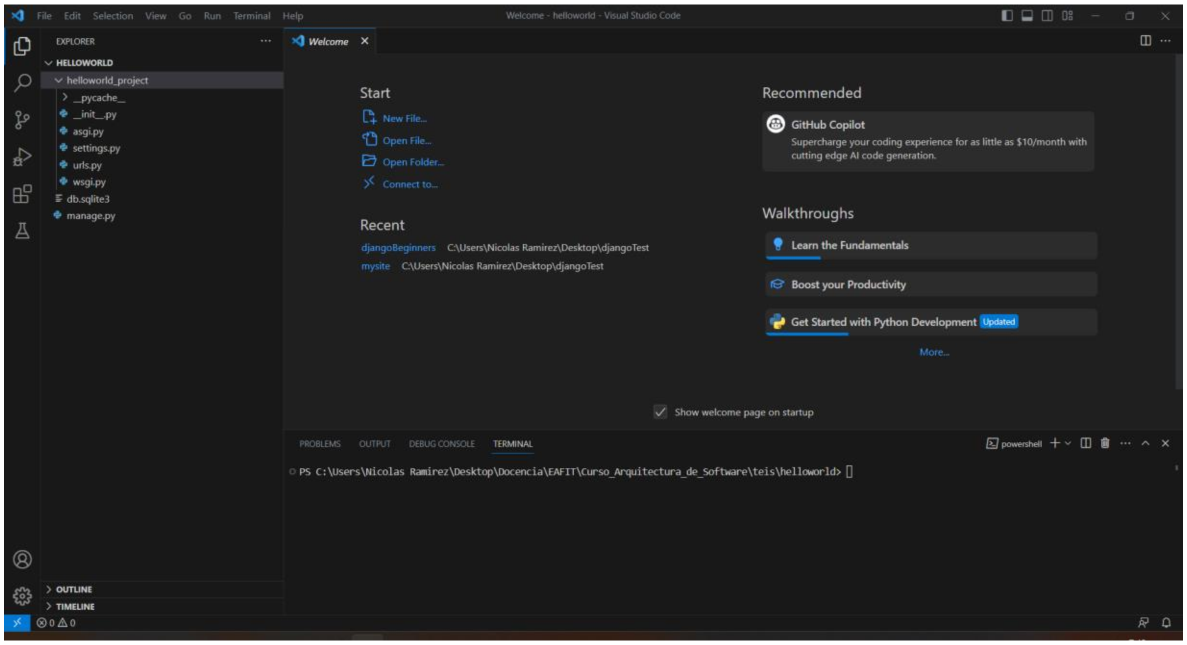
Execute in Terminal

```
code
```

This command should open the VS Code editor with your project in the Explorer tab. If not, you can go to File->Open Folder -> select the helloworld folder.


File Edit Selection View Go Run Terminal Help
Welcome - helloworld - Visual Studio Code
EXPLORER
HELLOWORLD
helloworld_project
db.sqlite3
manage.py
Welcome
Visual Studio Code
Editing evolved
Start
New File...
Open File...
Open Folder...
Connect to...
Recent
djangoBeginners C:\Users\Nicolas Ramirez\Desktop\djangoTest
mysite C:\Users\Nicolas Ramirez\Desktop\djangoTest
Recommended
GitHub Copilot
Supercharge your coding experience for as little as $10/month with cutting edge AI code generation.
Walkthroughs
Learn the Fundamentals
Boost your Productivity
Get Started with Python Development Updated
More...
Show welcome page on startup
OUTLINE
TIMELINE

Additionally, in the Terminal tab, click on New Terminal to open a Terminal in VS Code from which we will run terminal commands for this project.


Welcome - helloworld - Visual Studio Code
EXPLORER
HELLOWORLD
helloworld_project
__pycache__
__init__.py
asgi.py
settings.py
urls.py
wsgi.py
db.sqlite3
manage.py
Start
New File...
Open File...
Open Folder...
Connect to...
Recent
djangoBeginners C:\Users\Nicolas Ramirez\Desktop\djangoTest
mysite C:\Users\Nicolas Ramirez\Desktop\djangoTest
Recommended
GitHub Copilot
Supercharge your coding experience for as little as $10/month with cutting edge AI code generation.
Walkthroughs
Learn the Fundamentals
Boost your Productivity
Get Started with Python Development
More...
Show welcome page on startup
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
OUTLINE
TIMELINE

```
PS C:\Users\Nicolas Ramirez\Desktop\Docencia\EAFIT\Curso_Arquitectura_de_Software\teis\helloworld>
```

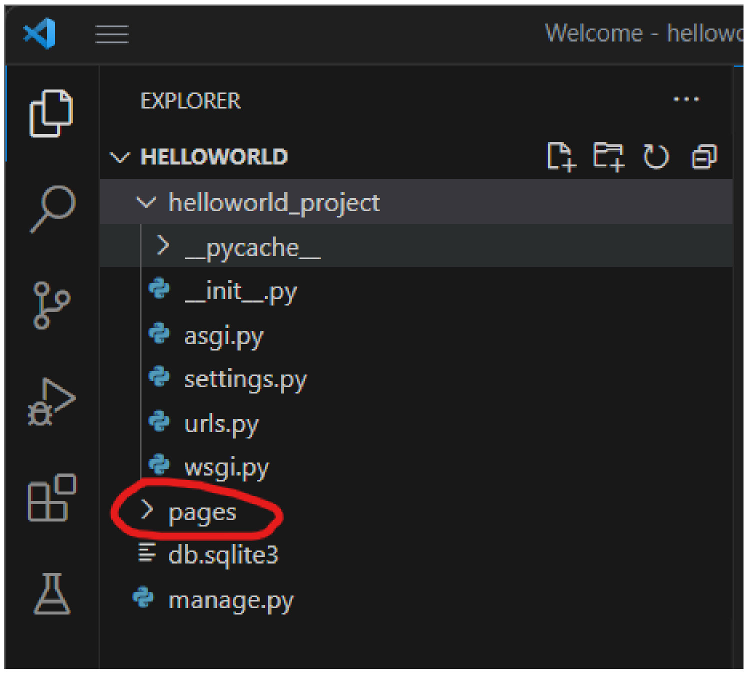
Create your first app

In your VS code Terminal run the following command:

Execute in VS Terminal

```
python manage.py startapp pages
```

The previous command should add a new directory named *pages* in your project:



Go to *helloworld_project/settings.py* and add the following code in the INSTALLED_APPS list:

Add Bold Code

```
# Application definition

INSTALLED_APPS = [
    'django.contrib.admin', # here by default
    'django.contrib.auth', # here by default
    'django.contrib.contenttypes', # here by default
    'django.contrib.sessions', # here by default
    'django.contrib.messages', # here by default
    'django.contrib.staticfiles', # here by default
    'pages.apps.PagesConfig',  # new
]
```

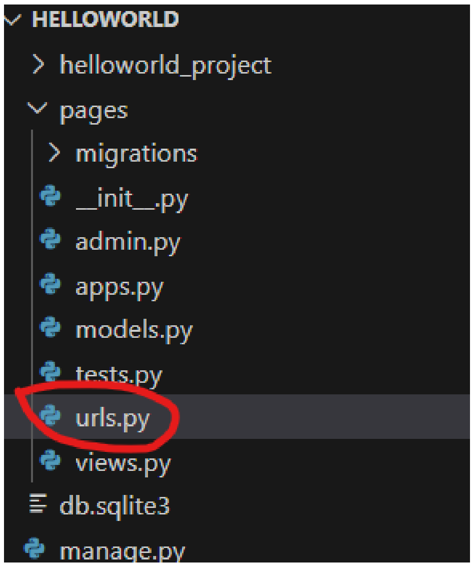
Controller/View

- Go to *pages/views.py* and add the following content to it (do not remove any content already there):

Add Bold Code

```
from django.shortcuts import render # here by default
from django.http import HttpResponse # new


# Create your views here.
def homePageView(request): # new
    return HttpResponse('Hello World!') # new
```

- Create a urls.py file in *pages*



- Go to *pages/urls.py* and add the following content to it:

Add Entire Code

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


urlpatterns = [
    path(“”, homePageView, name='home')
]
```

- Go to *helloworld_project/urls.py* and add the following content to it:

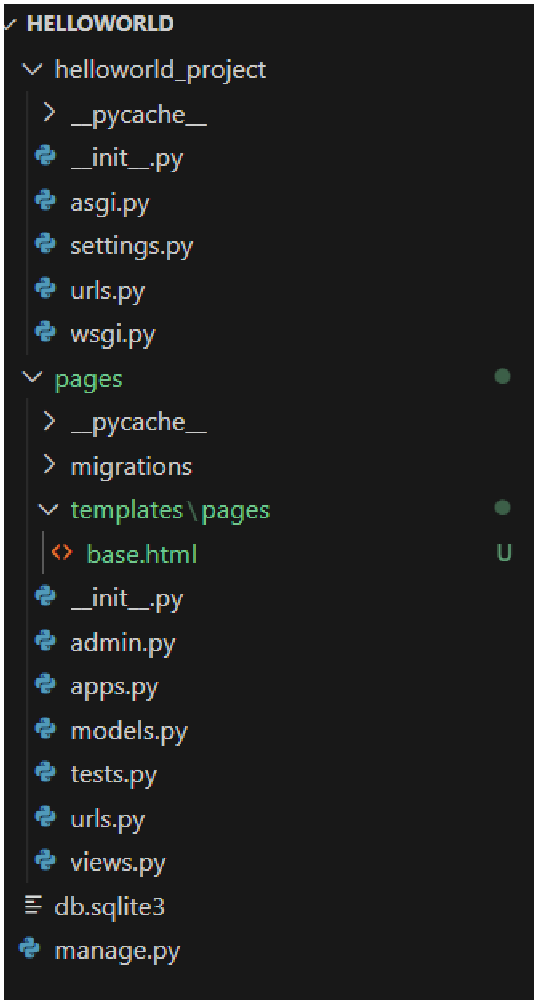
Add Bold Code

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

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

- **Note:** it is recommended that you create a Github repository for your projects and push changes as you make them.

Template/view

- Go to *pages* and create a *templates* directory; then, inside this new directory create a *pages* directory inside, then create a *base.html* file. The layout should look like this:


```
HELLOWORLD
  helloworld_project
    __pycache__
    __init__.py
    asgi.py
    settings.py
    urls.py
    wsgi.py
  pages
    __pycache__
    migrations
    templates\pages
      base.html                U
    __init__.py
    admin.py
    apps.py
    models.py
    tests.py
    urls.py
    views.py
  db.sqlite3
  manage.py
```

- Go to *pages/templates/pages/base.html* with the following content:

Add Entire Code

```
{% load static %}
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1" />
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/css/bootstrap.min.css" rel="stylesheet"
crossorigin="anonymous" />
  <link href="{% static 'pages/app.css' %}" rel="stylesheet" />
  <title>{% block title %}'Online Store'{% endblock %}</title>
</head>
<body>
  <!-- header -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-secondary py-4">
    <div class="container">
      <a class="navbar-brand" href="#">Online Store</a>
      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarNavAltMarkup"
        aria-controls="navbarNavAltMarkup" aria-expanded="false" aria-label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarNavAltMarkup">
        <div class="navbar-nav ms-auto">
          <a class="nav-link active" href="#">Home</a>
          <a class="nav-link active" href="#">About</a>
        </div>
      </div>
    </div>
  </nav>

  <header class="masthead bg-primary text-white text-center py-4">
    <div class="container d-flex align-items-center flex-column">
      <h2>{% block header_title %}'A Laravel EAFIT App'{% endblock %}</h2>
    </div>
  </header>
  <!-- header -->

  <div class="container my-4">
    {% block content %}
    {% endblock %}
  </div>

<!-- footer -->
  {% block footer %}
  <div class="copyright py-4 text-center text-white">
    <div class="container">
      <small>
        Copyright - <a class="text-reset fw-bold text-decoration-none" target="_blank"
          href="https://twitter.com/danielgarax">
          Daniel Correa
        </a>
      </small>
    </div>
  </div>
  <!-- footer -->
  {% endblock %}

  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/js/bootstrap.bundle.min.js"
crossorigin="anonymous">
  </script>
</body>
</html>
```

- Go to *templates/pages/home.html* file with the following content:

Add Entire Code

```
@extends('layouts.app')
{% extends 'pages/base.html' %}
{%  block title %}'Home Page - Online Store'{% endblock %}
{% block content %}
<div class="text-center">
  Welcome to the application
</div>
{% endblock %}
```

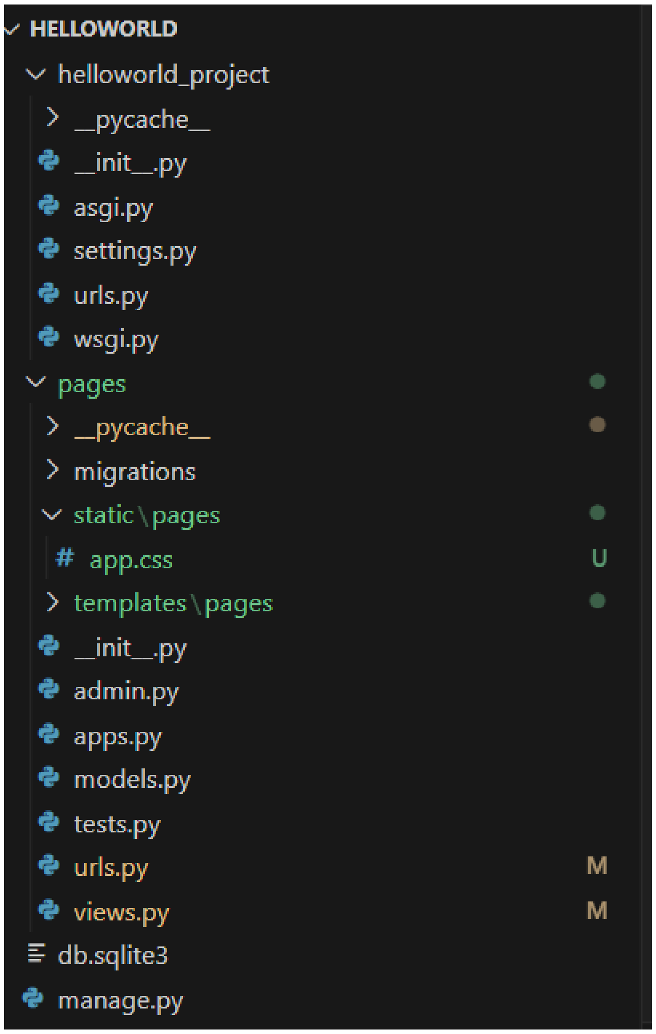
CSS

- Create a new directory *pages/static/pages*
- Go to *static/pages* and create a file *app.css* with the following content:

Add Entire Code

```
.bg-secondary {
  background-color: #2c3e50 !important;
}

.copyright {
  background-color: #1a252f;
}

.bg-primary {
  background-color: #1abc9c !important;
}

nav{
  font-weight: 700;
}

.img-card{
  height: 18vw;
  object-fit: cover;
}
```

- The layout should look like this:



```
HELLOWORLD
  helloworld_project
    __pycache__
    __init__.py
    asgi.py
    settings.py
    urls.py
    wsgi.py
  pages
    __pycache__
    migrations
    static\pages
      # app.css                U
    templates\pages
    __init__.py
    admin.py
    apps.py
    models.py
    tests.py
    urls.py                    M
    views.py                   M
  db.sqlite3
  manage.py
```

Update View

Note: in future projects you can create your Views here first rather than creating a function.

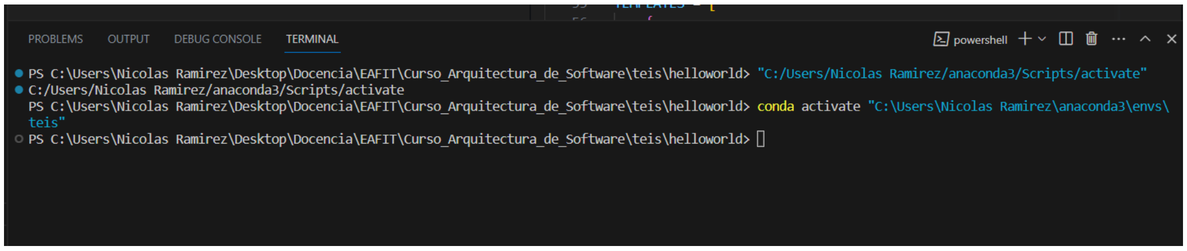
- In *pages/views.py*, make the following changes in **bold**.

Modify Bold Code

```
from django.shortcuts import render # here by default
~~**from django.http import HttpResponse # new**~~
**from django.views.generic import TemplateView**


# Create your views here.
~~**def homePageView(request): # new**~~
~~**    return HttpResponse('Hello World!') # new**~~
**class HomePageView(TemplateView):**
**    template_name = 'home.html**
```

Run the application

- Open a VS Terminal by going to the *Terminal* tab and clicking *New Terminal.* The new Terminal should appear below your code :



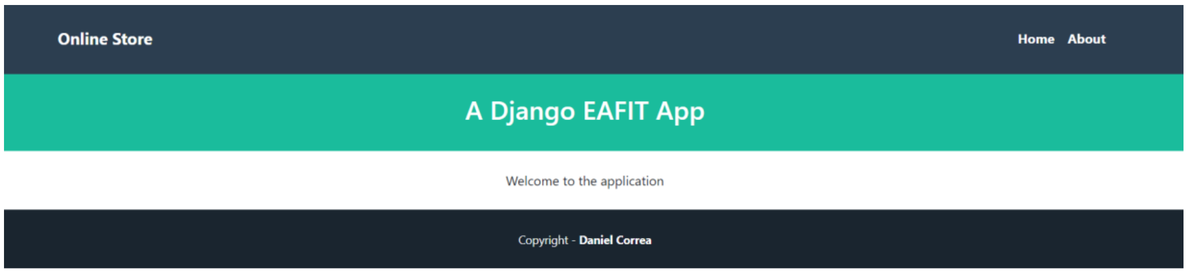
```
PS C:\Users\Nicolas Ramirez\Desktop\Docencia\EAFIT\Curso_Arquitectura_de_Software\teis\helloworld> "C:/Users/Nicolas Ramirez/anaconda3/Scripts/activate"
C:/Users/Nicolas Ramirez/anaconda3/Scripts/activate
PS C:\Users\Nicolas Ramirez\Desktop\Docencia\EAFIT\Curso_Arquitectura_de_Software\teis\helloworld> conda activate "C:\Users\Nicolas Ramirez\anaconda3\envs\
teis"
PS C:\Users\Nicolas Ramirez\Desktop\Docencia\EAFIT\Curso_Arquitectura_de_Software\teis\helloworld> 
```

-

Execute in Terminal

```
python manage.py runserver
```

You should see the application running.



B. An About page

Views

- Go to *pages/templates/pages* and create a file *about.html* with the following content:

Add Entire Code

```
{% extends 'pages/base.html' %}

{% block title %} {{title}} {% endblock %}
{% block header_title %} {{subtitle}} {% endblock %}

{% block content %}
<div class="container">
  <div class="row">
    <div class="col-lg-4 ms-auto">
      <p class="lead">{{description}}</p>
    </div>
    <div class="col-lg-4 me-auto">
      <p class="lead">{{author}}</p>
    </div>
  </div>
</div>
{% endblock %}
```

Updating links in Header

- Now that we have the proper routes, controller, and views, let's include the links in the header. In *templates/pages/base.html*, make the following changes in **bold**.

Modify Bold Code

```
<!doctype html>
...
<body>
  <!-- header -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-secondary py-4">
    <div class="container">
      <a class="navbar-brand" href="{% url 'home' %}">Online Store</a>
      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-target="#navbarNavAltMarkup"
        aria-controls="navbarNavAltMarkup" aria-expanded="false" aria-label="Toggle navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarNavAltMarkup">
        <div class="navbar-nav ms-auto">
          <a class="nav-link active" href="{% url 'home' %}">Home</a>
          <a class="nav-link active" href="{% url 'about' %}">About</a>
        </div>
      </div>
    </div>
  </nav>...
```

Routes

- In *pages/views.py*, make the following changes in **bold**.

Modify Bold Code

```
…
from django.shortcuts import render
from django.http import HttpResponse
from django.views.generic import TemplateView

# Create your views here.
class HomePageView(TemplateView):
    template_name = 'pages/home.html'



class AboutPageView(TemplateView):
    template_name = 'pages/about.html'


    def get_context_data(self, **kwargs):
        context = super().get_context_data(**kwargs)
        context.update({
            "title": "About us - Online Store",
            "subtitle": "About us",
            "description": "This is an about page ...",
            "author": "Developed by: Your Name",
        })

        return context
```

- Go to *pages/urls.py* and make the following changes in **bold**

Modify Bold Code

```
…
from django.urls import path
from .views import HomePageView, AboutPageView


urlpatterns = [
    path('', HomePageView.as_view(), name='home'),
    path('about/', AboutPageView.as_view(), name='about')
]
```

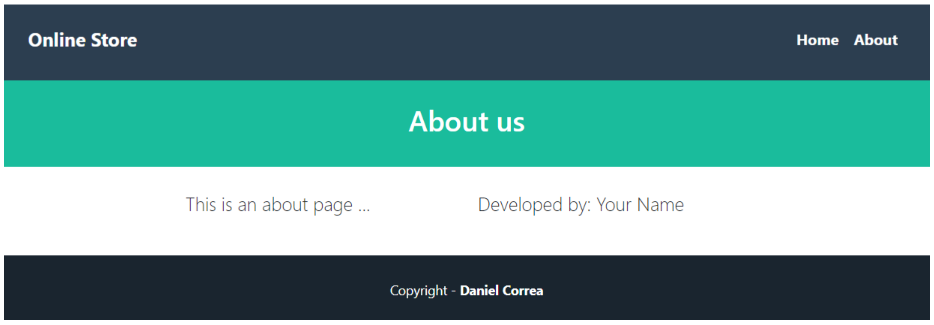
Run the application

- In the Terminal, execute the following:

Execute in Terminal

```
python manage.py runserver
```

Click the “about link” in the header, and you should see the application running.



About us

This is an about page ...

Developed by: Your Name

Copyright - **Daniel Correa**

Activity 1

- Create a “/contact” section in which you display the application email, address, and phone number. Use fake information.

C. Show products

View

- Go to *pages/views.py* and add the following content:

Add Entire Code

```
from django.views import View

class Product:
    products = [
        {"id":"1", "name":"TV", "description":"Best TV"},
        {"id":"2", "name":"iPhone", "description":"Best iPhone"},
        {"id":"3", "name":"Chromecast", "description":"Best Chromecast"},
        {"id":"4", "name":"Glasses", "description":"Best Glasses"}
    ]

class ProductIndexView(View):
    template_name = 'products/index.html'

    def get(self, request):
        viewData = {}
        viewData["title"] = "Products - Online Store"
        viewData["subtitle"] =  "List of products"
        viewData["products"] = Product.products

        return render(request, self.template_name, viewData)

class ProductShowView(View):
    template_name = 'products/show.html'


    def get(self, request, id):
        viewData = {}
        product = Product.products[int(id)-1]
        viewData["title"] = product["name"] + " - Online Store"
        viewData["subtitle"] =  product["name"] + " - Product information"
        viewData["product"] = product

        return render(request, self.template_name, viewData)}
```

Product index template

In *pages/templates*, create a subfolder *products*. Then, in *apges/templates/products*, create a new file *index.html* and fill it with the following code.

Add Entire Code

```
@extends('layouts.app')
{% extends 'pages/base.html' %}
{% block title %} {{title}} {% endblock %}
{% block header_title %} {{subtitle}} {% endblock %}
{% block content %}
<div class="row">
  {% for product in products %}
  <div class="col-md-4 col-lg-3 mb-2">
    <div class="card">
      <img src="https://static.djangoproject.com/img/logos/django-logo-positive.svg" class="card-img-top img-card">
      <div class="card-body text-center">
        <a href="{% url 'show' id=product.id %}"
          class="btn bg-primary text-white">{{product.name}}</a>
      </div>
    </div>
  </div>
  {% endfor %}
</div>
{% endblock %}
```

Product show view

In *pages/templates/products*, create a new file *show.html* and fill it with the following code.

Add Entire Code

```
{% extends 'pages/base.html' %}
{% block title %} {{title}} {% endblock %}
{% block header_title %} {{subtitle}} {% endblock %}

{% block content %}
<div class="card mb-3">
  <div class="row g-0">
    <div class="col-md-4">
      <img src="https://static.djangoproject.com/img/logos/django-logo-positive.svg" class="img-fluid rounded-start">
    </div>
    <div class="col-md-8">
      <div class="card-body">
        <h5 class="card-title">
          {{product.name}}
        </h5>
        <p class="card-text">{{product.description}}</p>
      </div>
    </div>
  </div>
</div>
{% endblock %}
```

Modifying routes

In *pages/urls.py*, add the following changes in **bold**.

Modify Bold Code

```
…
urlpatterns = [
    path('', HomePageView.as_view(), name='home'),
    path('about/', AboutPageView.as_view(), name='about'),
    path('products/', ProductIndexView.as_view(), name='index'),
    path('products/<str:id>', ProductShowView.as_view(), name='show'),
]
```

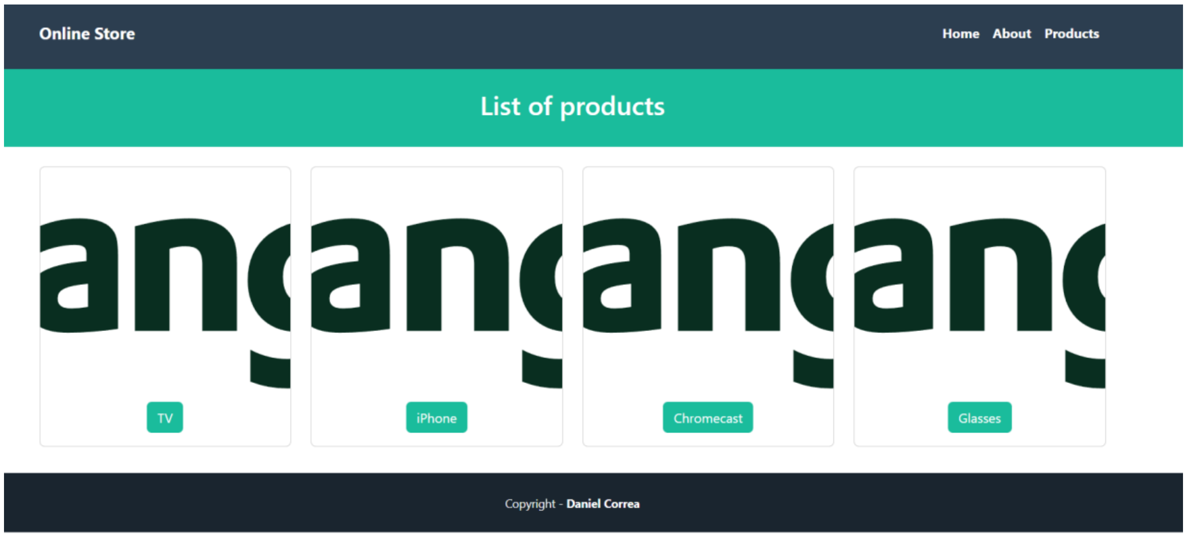
Run the application

In the Terminal execute the following:

Execute in Terminal

```
python manage.py runserver
```

Go to the ("/products") route and you should see the application running.



You can also click a specific product to see its information.

Activity 2

- Add the ("/products") route as a new menu option (in the header navbar).

Activity 3

- Add prices for each product and display the information in the product.show view.

Activity 4

- Modify the show method. If the product number entered by the URL is not valid, redirect the user to the home page ("home") route: https://docs.djangoproject.com/en/4.2/intro/tutorial04/ . Be careful, you should include this in the method response: *HttpResponseRedirect;*

Activity 5

- Add a conditional in the "show" template. If the price of a product is greater than 100, display the product name in red https://docs.djangoproject.com/en/4.2/ref/templates/builtins/

D. Product creation (simulation)

Views

- In *pages/views.py*, add the following content.

Modify Bold Code

```
…

  from django import forms
  from django.shortcuts import render, redirect

class ProductForm(forms.Form):
  name = forms.CharField(required=True)
  price = forms.FloatField(required=True)


class ProductCreateView(View):
  template_name = 'products/create.html'

  def get(self, request):
    form = ProductForm()
    viewData = {}
    viewData["title"] = "Create product"
    viewData["form"] = form
    return render(request, self.template_name, viewData)

  def post(self, request):
    form = ProductForm(request.POST)
    if form.is_valid():

      return redirect(form)
    else:
      viewData = {}
      viewData["title"] = "Create product"
      viewData["form"] = form
      return render(request, self.template_name, viewData)}
```

Routes

- In *pages/urls.py*, make the following changes in **bold**. (check the route order, it matters).

Modify Bold Code

```
…
from django.urls import path
from .views import HomePageView, AboutPageView, ProductIndexView, ProductShowView, ProductCreateView


urlpatterns = [
   path('', HomePageView.as_view(), name='home'),
   path('about/', AboutPageView.as_view(), name='about'),
   path('products/', ProductIndexView.as_view(), name='index'),
   path('products/create', ProductCreateView.as_view(), name='form'),
   path('products/<str:id>', ProductShowView.as_view(), name='show'),
```

]
Templates

- Go to *templates/products*, create a file *create.html* with the next content:

Add Entire Code

```
{% extends 'pages/base.html' %}
{% block title %} {{title}} {% endblock %}

{% block content %}
<div class="container">
  <div class="row justify-content-center">
    <div class="col-md-8">
      <div class="card">
        <div class="card-header">Create product</div>
          <div class="card-body">
            {% if form.errors %}
                <ul id="errors" class="alert alert-danger list-unstyled">
                {% for field, errors in form.errors.items %}
                    {% for error in errors %}
                        <li>{{ error }}</li>
                    {% endfor %}
                {% endfor %}
                </ul>
            {% endif %}

            <form method="POST" action="{% url 'form' %}">
              {% csrf_token %}
              <input type="text" class="form-control mb-2" placeholder="Enter name" name="name" value="{{form.data.name
}}" />
              <input type="text" class="form-control mb-2" placeholder="Enter price" name="price" value="{{form.data.price }}"
/>
              <input type="submit" class="btn btn-primary" value="Send" />
            </form>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>
{% endblock %}
```

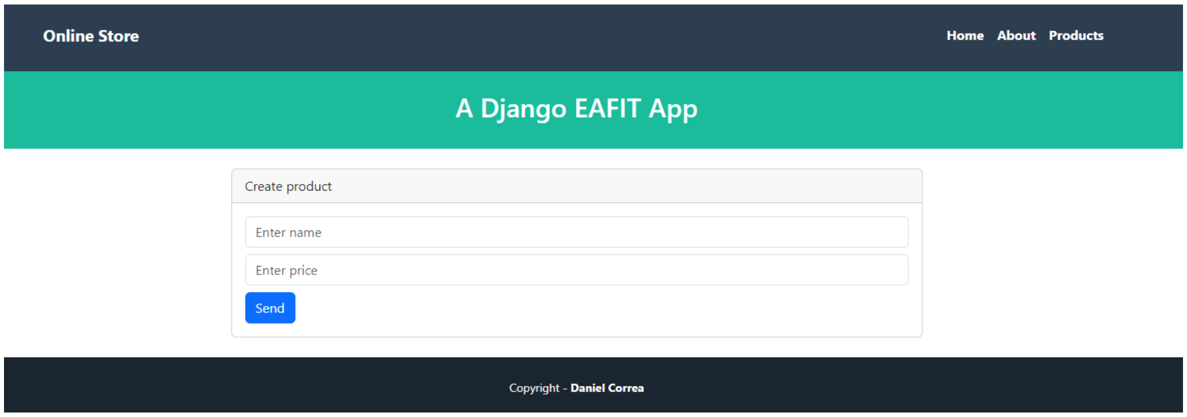
Run the application

In the Terminal, go to the project directory, and execute the following:

Execute in Terminal

```
python manage.py runserver
```

Go to the ("/products/create") route and you should see the application running.



Activity 6

- Try to understand the previous code. Add a new product but leave the name empty (and click send). Then, leave the price empty. Then, enter the two fields.

Activity 7

- Modify the previous code to only allow numbers greater than zero for the prices. https://docs.djangoproject.com/en/4.2/ref/forms/validation/ HINT: use clean_<field_name> methods.

Activity 8

- If the info entered by the form is valid. Then display a message saying, “Product created”. **Note:** create a new template (which uses the lbase template).

Activity 9

- Add a new menu option in the header (base.html), that links to the “/products/create” page.

Activity 10

- Create a Github repo with all this code (called DjangoTutorials) and upload the repo link to the corresponding Teams Assigment.