

# Django

10 April 2022 22:46

- Framework is a combination of some components and packages, if we want to build any web application we need some components readymade because if we do it from scratch it is time consuming, so we utilize frameworks for this process. One of the web framework is Django.
- Generally we use HTML (for marking up), CSS(for designing), JavaScript(For background logic) in our websites. We use HTML, CSS, JavaScript as the frontend part. At the backend part now a days we are using Django instead of servlets, JavaScript,PHP, asp. Django is based on python. In java we are having model view container (MVC), but in Django we are having model view template (MVT). Because Django is Template approach.
- Django helps us to build the application fast, and Django provides additional components like database connectivity automatically. Sometimes this may be the greater disadvantage because it can cause the overhead. Django ensures the security and scalability. Scalability in the sense it provides extension or broader space for the new users to access Django application.
- Django is a web framework for python.
- To check whether python, pip and Django are being installed or not on our system. If those are installed, we would have similar to this command line output.

```
Microsoft Windows [Version 10.0.19043.1586]
(c) Microsoft Corporation. All rights reserved.

C:\Users\91918>python --version
Python 3.10.4

C:\Users\91918>pip --version
pip 22.0.4 from C:\Users\91918\AppData\Local\Programs\Python\Python310\lib\site-packages\pip (python 3.10)

C:\Users\91918>django-admin --version
4.0.3

C:\Users\91918>SS
```

- After getting python and Django installed, we need to start our first project of django.

```
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2$ ls
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2$ django-admin startproject firstProject
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2$ ls
firstProject
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2$ cd firstProject
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ ls
firstProject manage.py
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ cd firstProject
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject/firstProject$ ls
__init__.py asgi.py settings.py urls.py wsgi.py
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject/firstProject$
```

- We already created a folder for containing projects under Django Projects under Project2 we want to create our first project of Django named firstProject. For starting the Django project named firstProject we need to use "Django-admin startproject nameOfTheProject", in our case it is django-admin startproject firstProject. We can see if the following command executed then all the following files are created automatically.
- We got all the basic files to run an application, but as we need a server to execute them on, Django provide a default server to execute.
- We need to run the manage.py under our project on the server, for that do the following.
- If we run the manage.py on the server, we get a local host address as the following. It tells us that webpage hosted on following local host address.

```
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ ls
firstProject manage.py
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ 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.

April 10, 2022 - 12:37:49

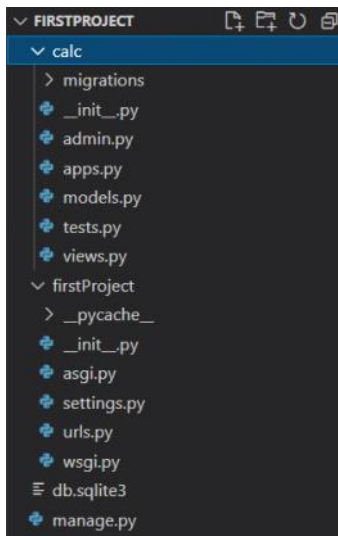
Django version 4.0.3, using settings 'firstProject.settings'

Starting development server at http://127.0.0.1:8000/

Quit the server with CONTROL-C.

- To quit the server use CTRL C
- To develop dynamic pages web use applications like Django. Dynamic mean each user finds a different interface according to his information.
- Now if we want to create a new django app, we need to create by following commands.
- The settings for the app is different from the original project settings, so we are having two folders. i.e., calc and firstProject.

```
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ ls
db.sqlite3 firstProject manage.py
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ python3 manage.py startapp calc
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$ ls
calc db.sqlite3 firstProject manage.py
jeevan@DESKTOP-H122ONI:/mnt/f/DjangoProjects/Project2/firstProject$
```



- Now when we type localhost:8000 on the browser , we would get some page as the front page . Because we are mapping the page that we want to present under urls.py of project's section (but not under app section)

Django views are a key component of applications built with the framework. At their simplest they are a Python function or class that takes a web request and return a web response.

Views are used **to do things like fetch objects from the database, modify those objects if needed, render forms, return HTML, and much more.**

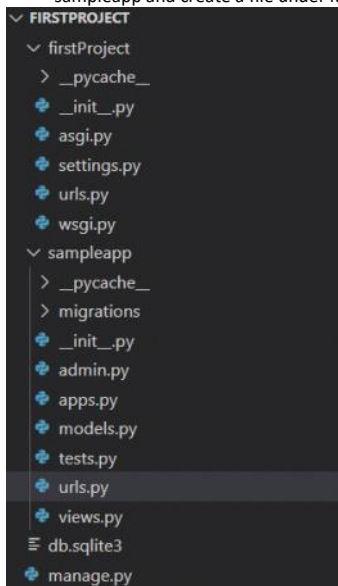
**Django runs through each URL pattern, in order, and stops at the first one that matches the requested URL, matching against path\_info .** Once one of the URL patterns matches, Django imports and calls the given view, which is a Python function (or a class-based view).

In url.py, the most important thing is the "urlpatterns" tuple. It's **where you define the mapping between URLs and views**. A mapping is a tuple in URL patterns like – from django. conf. urls import patterns, include, url from django.

It is just that **django gives you the option to name your views in case you need to refer to them from your code, or your templates**. This is useful and good practice because you avoid hardcoding urls on your code or inside your templates. 10-Oct-2012

This **tells Django to search for URL patterns in the file books/urls.py** . For example, A URL request to /books/crime/ will match with the second URL pattern. As a result, Django will call the function views. 19-Jul-2019

- As we are getting error if we use app name as calc , we are creating another app named as sampleapp and create a file under it named as "urls.py".



Now as we created new app named as sampleapp, we need to create content for it. To display on the main page. These apps are similar to the templates of angular.

- For this template, have urls.py as the following.
- Urls.py is used for URL mapping

```

sampleapp > urls.py > ...
1  from django.urls import path
2  from . import views
3  #urls.py is used to handle the mapping
4  #for example if we call the home page then views.home function
5  # #will be called automatically as declared in the urlpatterns
6  #name is used to name the pattern , so we can use that pattern using the name rather than whole URL.
7  urlpatterns = [
8      |   path('',views.home,name='home')
9      |   ]

```

And this home path is mapped through views home function and name that path as home.

```

sampleapp > views.py > home
1  from django.http import HttpResponse
2  from django.shortcuts import render
3
4  # Create your views here.
5  def home(request):
6      |   return HttpResponse("Hello World")

```

- The above urls.py is sample app 's app but we also need to declare it under main project urls.py.

```

firstProject > urls.py > ...
1  """firstProject URL Configuration
2
3  The `urlpatterns` list routes URLs to views. For more information please see
4  |   https://docs.djangoproject.com/en/4.0/topics/http/urls/
5  Examples:
6  Function views
7  |   1. Add an import: from my_app import views
8  |   2. Add a URL to urlpatterns: path('', views.home, name='home')
9  Class-based views
10 |   1. Add an import: from other_app.views import Home
11 |   2. Add a URL to urlpatterns: path('', Home.as_view(), name='home')
12 Including another URLconf
13 |   1. Import the include() function: from django.urls import include, path
14 |   2. Add a URL to urlpatterns: path('blog/', include('blog.urls'))
15 """
16 from django.contrib import admin
17 from django.urls import path, include
18
19 urlpatterns = [
20     |   path('',include('sampleapp.urls')),
21     |   path('admin/', admin.site.urls),
22 ]

```

- In the main url file we are declaring the path mapping for home to the sample app's URL file. So the following app's file that we declared will be executed further.
- We get the following page on the localhost:8000

localhost:8000

Hello World