What does a Web Application do?

➢ Access certain URL

➢ Serve data from the database

➢ Manage website security

➢ Interacting with the web host

➢ and so on...

What is Web Framework?

➢ It's a collection of tools and modules that is needed to do standard tasks across every web application.

➢ Web frameworks consists of standards that are required to build web applications.

➢ Web frameworks take care of repetitive tasks.

Django

➢ Django is the most popular web framework for Python developers.

➢ Django is also referred to as "**batteries included**" framework.

➢ For example, things like website security, url routing, user authentication, interacting with database are all taken care for developers working with Django.

History of Django

➢ Django was designed by Lawrence Journal in 2003.

➢ This started as an internal project and was released in July 2005 under BSD license.

➢ As of today, there have been several improvements since the initial release.

➢ The current version of Django is very mature and has tons of features.

➢ As of today, Django is open source with contributors across the globe.

Who uses Django

➢ Pinterest

➢ Instagram

➢ Udemy

➢ Accenture

➢ Doordash

➢ Mozilla

➢ And more

Benefits of Django

➤ Python based

➤ Open source

➤ Rapid development

➤ Scalable

➤ Admin interface

What are Virtual Environments?

➢ A virtual environment is a tool that helps us create special isolated environments where we can install packages with specific versions that are required by a particular application.

➢ These are self-contained and independent environments having their own set of packages that can be used and consumed by the application.

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Why virtual environment?

➤ Managing requirements for different versions

➤ Isolated self contained environment

➤ Easy to manage

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```
PS C:\Users\FAISAL\Desktop\Django> mkdir jobapp


    Directory: C:\Users\FAISAL\Desktop\Django


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----         6/5/2022   2:12 PM                jobapp


PS C:\Users\FAISAL\Desktop\Django> cd .\jobapp\
PS C:\Users\FAISAL\Desktop\Django\jobapp> python3 -m venv env
PS C:\Users\FAISAL\Desktop\Django\jobapp>
```

On Windows, run:
env\Scripts\activate

On Unix or macOS, run:
source env/bin/activate

Possible error on Windows

```
env\Scripts\Activate.ps1 : File D:\code\Django\env\Scripts\Activate.ps1 cannot be loaded because runn
env\Scripts\Activate.ps1 : File D:\code\Django\env\Scripts\Activate.ps1 cannot be loaded because runn
ing scripts is disabled on this
system. For more information, see about_Execution_Policies at https:/go.microsoft.com/fwlink/?LinkID=
135170.
```

Set-ExecutionPolicy -ExecutionPolicy RemoteSigned -Scope CurrentUse

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```
Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        6/5/2022    2:14 PM                 env


PS C:\Users\FAISAL\Desktop\Django\jobapp> env\Scripts\activate
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> deactivate
PS C:\Users\FAISAL\Desktop\Django\jobapp> env\Scripts\activate
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> pip3 --version
pip 22.0.4 from C:\Users\FAISAL\Desktop\Django\jobapp\env\lib\site-packages\pip (python
 3.10)
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> pip3 list
Package    Version
---------- -------
pip        22.0.4
setuptools 58.1.0
WARNING: You are using pip version 22.0.4; however, version 22.1.2 is available.
You should consider upgrading via the 'C:\Users\FAISAL\Desktop\Django\jobapp\env\Script
s\python.exe -m pip install --upgrade pip' command.
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp>
```

```
        Successfully uninstalled pip-22.0.4
Successfully installed pip-22.1.2
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> pip3 list
Package    Version
---------- -------
pip        22.1.2
setuptools 58.1.0
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> python3 --version
Python 3.10.4
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin --version
django-admin : The term 'django-admin' is not recognized as the name of a cmdlet,
function, script file, or operable program. Check the spelling of the name, or if a
path was included, verify that the path is correct and try again.
At line:1 char:1
+ django-admin --version
+ ~~~~~~~~~~~~
    + CategoryInfo          : ObjectNotFound: (django-admin:String) [], CommandNotFou
  ndException
    + FullyQualifiedErrorId : CommandNotFoundException


(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> pip3 install django
```

```
Collecting tzdata
  Using cached tzdata-2022.1-py2.py3-none-any.whl (339 kB)
Collecting asgiref<4,>=3.4.1
  Using cached asgiref-3.5.2-py3-none-any.whl (22 kB)
Collecting sqlparse>=0.2.2
  Using cached sqlparse-0.4.2-py3-none-any.whl (42 kB)
Installing collected packages: tzdata, sqlparse, asgiref, django
Successfully installed asgiref-3.5.2 django-4.0.5 sqlparse-0.4.2 tzdata-2022.1
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> pip3 list
Package    Version
---------- -------
asgiref    3.5.2
Django     4.0.5
pip        22.1.2
setuptools 58.1.0
sqlparse   0.4.2
tzdata     2022.1
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin --version
4.0.5
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin startproject jobapp
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp>
```

```
Windows PowerShell

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   Using cached tzdata-2022.1-py2.py3-none-any.whl (339 kB)
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   Using cached sqlparse-0.4.2-py3-none-any.whl (42 kB)
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Package     Version
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setuptools  58.1.0
sqlparse    0.4.2
tzdata      2022.1
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin --version
4.0.5
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin startproject jobapp
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin startproject jobapp .
```

> TIMELINE
⊗ 0 ⚠ 0

```
setuptools 58.1.0
sqlparse   0.4.2
tzdata     2022.1
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin --version
4.0.5
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin startproject jobapp
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> django-admin startproject jobapp .
(env) PS C:\Users\FAISAL\Desktop\Django\jobapp> python 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.
June 05, 2022 - 14:47:59
Django version 4.0.5, using settings 'jobapp.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CTRL-BREAK.
```
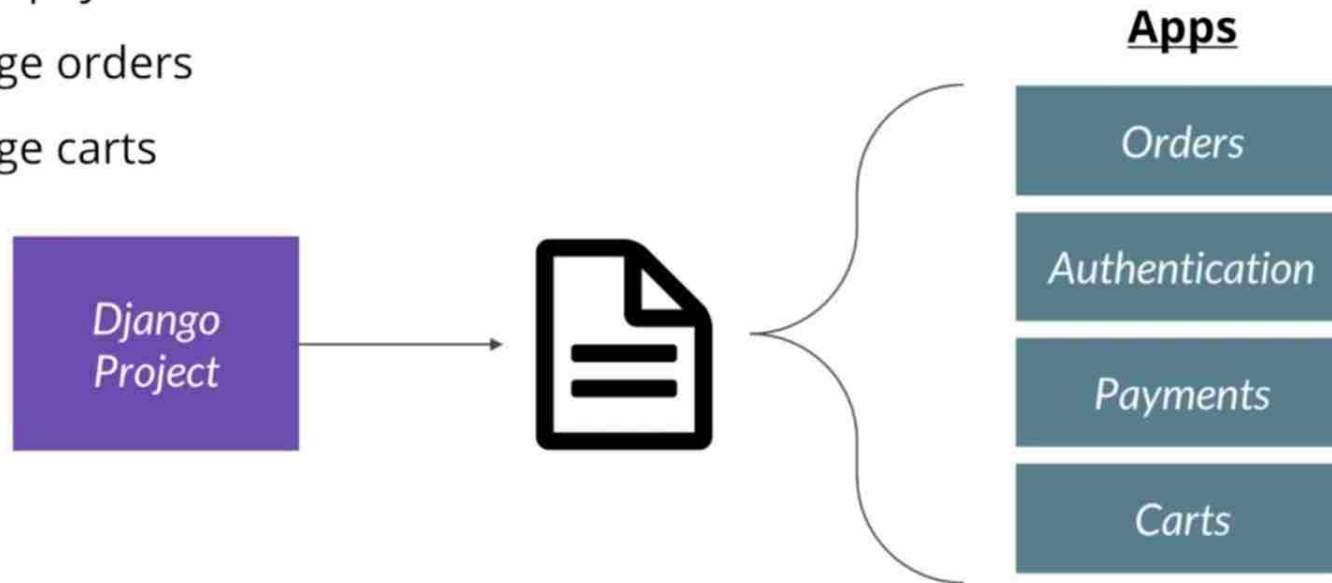
Apps and Projects in Django

A project in Django is collection of apps and configuration files

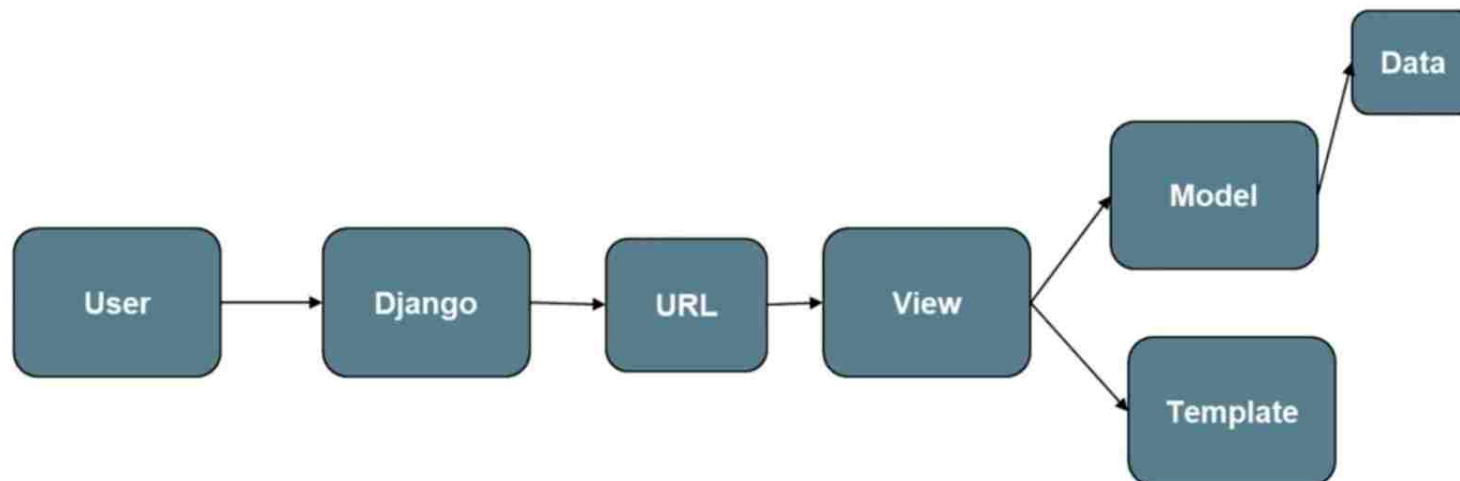An app is a web application that is designed to do a specific thing

Our ecommerce app

➢ Authenticate users

➢ Accept payments

➢ Manage orders

➢ Manage carts

Apps

Django Project → 📄

Orders

Authentication

Payments

Carts

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How does Django work?

➢ Django is an MVT based framework, where "M" stand for Model "V" stands for View & "T" stands for Template.

➢ Model: The Model is the logical data structure behind the entire application.

➢ View: View contains business logic.

➢ Template: The template is the part that is used for the representation of HTML pages on the web browser.

How does Django work?

Django project set up

➢Create a folder on Desktop: Django/jobapp folder

➢New virtual environment within the jobapp folder
  python -m venv env

➢Activate the virtual environment and installed django using
  pip install django

➢Create a project in same directory using django-admin command
  django-admin startproject jobapp

Django project set up

jobapp → root directory

manage.py → command line utility

Following files within jobapp folder

init.py
settings.py
urls.py
wsgi.py
asgi.py

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Important commands

Start django server
python manage.py runserver

Start django server on different port
python manage.py runserver 8001

Create a new project
django-admin startproject jobapp

Create a new project in same directory
django-admin startproject jobapp .

Create a new app
python manage.py startapp app