
Django Learning Report

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Topic : Django –Virtual environment concept

Virtual Environment in Django

What is a Virtual Environment?

A **virtual environment** is a **separate, isolated place** where we install Python packages for **one specific project only**.

It prevents different projects from **mixing or conflicting** with each other's libraries.

Why Do We Need a Virtual Environment?

Imagine this situation:

- Project A needs **Django 3.2**
- Project B needs **Django 4.2**

If both are installed globally:

- One project may break
- Versions will conflict
- messy package and modules management

👉 **Virtual environment solves this problem** by keeping everything separate.

Real-Life Example

Think of a virtual environment like:

- **One notebook per subject**
- Instead of writing everything in one notebook

Each Django project gets:

- Its own Django version
- Its own libraries
- Its own settings

What Happens Without a Virtual Environment?

- All packages install globally
- One project can affect another
- Difficult to manage versions
- Risk of errors during deployment

What Happens With a Virtual Environment?

- **Using Virtual Environment (Project-Specific Folder)**

A **virtual environment** creates a **separate folder** for each Django project.

- Each project has its **own packages**
- Only required libraries are installed
- No effect on other projects

How Virtual Environment Works

When you create a virtual environment:

- Python creates a **separate folder**
- All packages are installed **inside that folder**
- Django uses packages **only from that environment**

code:
create a folder to your project:
-----mkdir my_django_project

-----cd my_django_project

create the virtual environment:
-----python -m venv venv

Acitvate it on: windows:

-----venv\Scripts\activate

Activate it on macos and linux:

-----source venv/bin/activate

note:
example : all the packages for django projects are installed in c drive of your computer ..so that all projects are depend upon c drive of your device .. whenever you share the project with others the project might not run since all the packages required for the project are not shared instead they are only available on your computer only..

While sharing the project, **only code is transferred**, but:

- Required packages may be missing
- Project may not run on another computer
- Errors like **ModuleNotFoundError**