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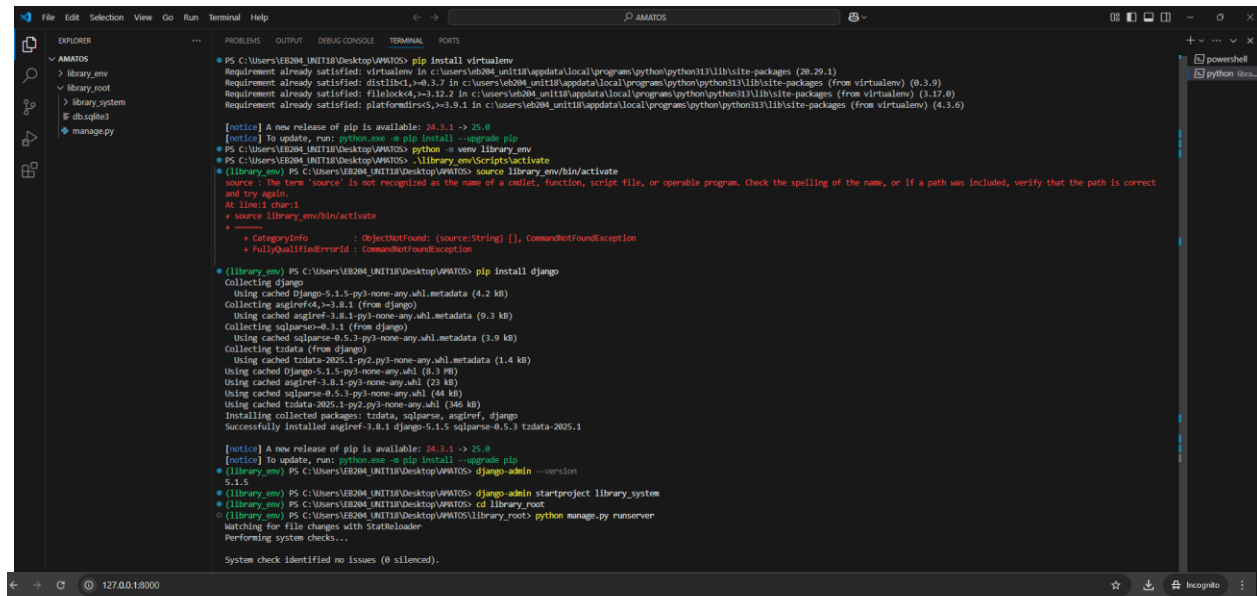
BSCPE

Laboratory Activity No. 1:

Topic: Introduction to Software Design, History, and Overview

Title: Setting Up the Development Environment for Django Project

Results: (print screen the result and provide the github link of your work)



```
PS C:\Users\ER004\Unit18\Desktop\WPA105> pip install virtualenv
Requirement already satisfied: virtualenv in c:\users\er004\unit18\appdata\local\programs\python\python11\lib\site-packages (20.20.1)
Requirement already satisfied: distlib<1.0, >=0.3.1 in c:\users\er004\unit18\appdata\local\programs\python\python11\lib\site-packages (from virtualenv) (0.3.9)
Requirement already satisfied: filelock<4, >=3.12.2 in c:\users\er004\unit18\appdata\local\programs\python\python11\lib\site-packages (from virtualenv) (3.17.0)
Requirement already satisfied: platformdirs<5, >=3.9.1 in c:\users\er004\unit18\appdata\local\programs\python\python11\lib\site-packages (from virtualenv) (4.3.6)

[notice] A new release of pip is available: 24.3.1 -> 25.0
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\Users\ER004\Unit18\Desktop\WPA105> python -m venv library_env
PS C:\Users\ER004\Unit18\Desktop\WPA105> .\library_env\Scripts\activate
(library_env) PS C:\Users\ER004\Unit18\Desktop\WPA105> source library_env/bin/activate
source: the new 'source' 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
+ source library_env/bin/activate
+ ~~~~~
+ CategoryInfo          : (ObjectNotFound: (source:String) [], CommandNotFoundException)
+ FullyQualifiedErrorId : CommandNotFoundException

(library_env) PS C:\Users\ER004\Unit18\Desktop\WPA105> pip install django
Collecting django
  Using cached django-5.1.5-py3-none-any.whl.metadata (4.2 kB)
  Using cached asgiref-3.8.1-py3-none-any.whl.metadata (9.3 kB)
  Collecting sqlparse-0.3.1 (from django)
  Using cached sqlparse-0.5.3-py3-none-any.whl.metadata (3.9 kB)
  Collecting tzdata (from django)
  Using cached tzdata-2025.1-py2.py3-none-any.whl.metadata (1.4 kB)
  Using cached django-5.1.5-py3-none-any.whl (91.3 kB)
  Using cached asgiref-3.8.1-py3-none-any.whl (23 kB)
  Using cached sqlparse-0.5.3-py3-none-any.whl (44 kB)
  Using cached tzdata-2025.1-py2.py3-none-any.whl (346 kB)
  Installing collected packages: tzdata, sqlparse, asgiref, django
  Successfully installed asgiref-3.8.1 django-5.1.5 sqlparse-0.5.3 tzdata-2025.1

[notice] A new release of pip is available: 24.3.1 -> 25.0
[notice] To update, run: python.exe -m pip install --upgrade pip
(library_env) PS C:\Users\ER004\Unit18\Desktop\WPA105> django-admin --version
5.1.5
(library_env) PS C:\Users\ER004\Unit18\Desktop\WPA105> django-admin startproject library_system
(library_env) PS C:\Users\ER004\Unit18\Desktop\WPA105> cd library_root
(library_env) PS C:\Users\ER004\Unit18\Desktop\WPA105\library_root> python manage.py runserver
Matching for file changes with StatReloader
Performing system checks...

System check identified no issues (0 silenced).
```



The install worked successfully! Congratulations!

[View release notes](#) for Django 5.1

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

**django**

 **Django Documentation**  
Topics, references, & how-tos

 **Tutorial: A Polling App**  
Get started with Django

 **Django Community**  
Connect, get help, or contribute

2. What are the advantages of using Django for web development over other frameworks?

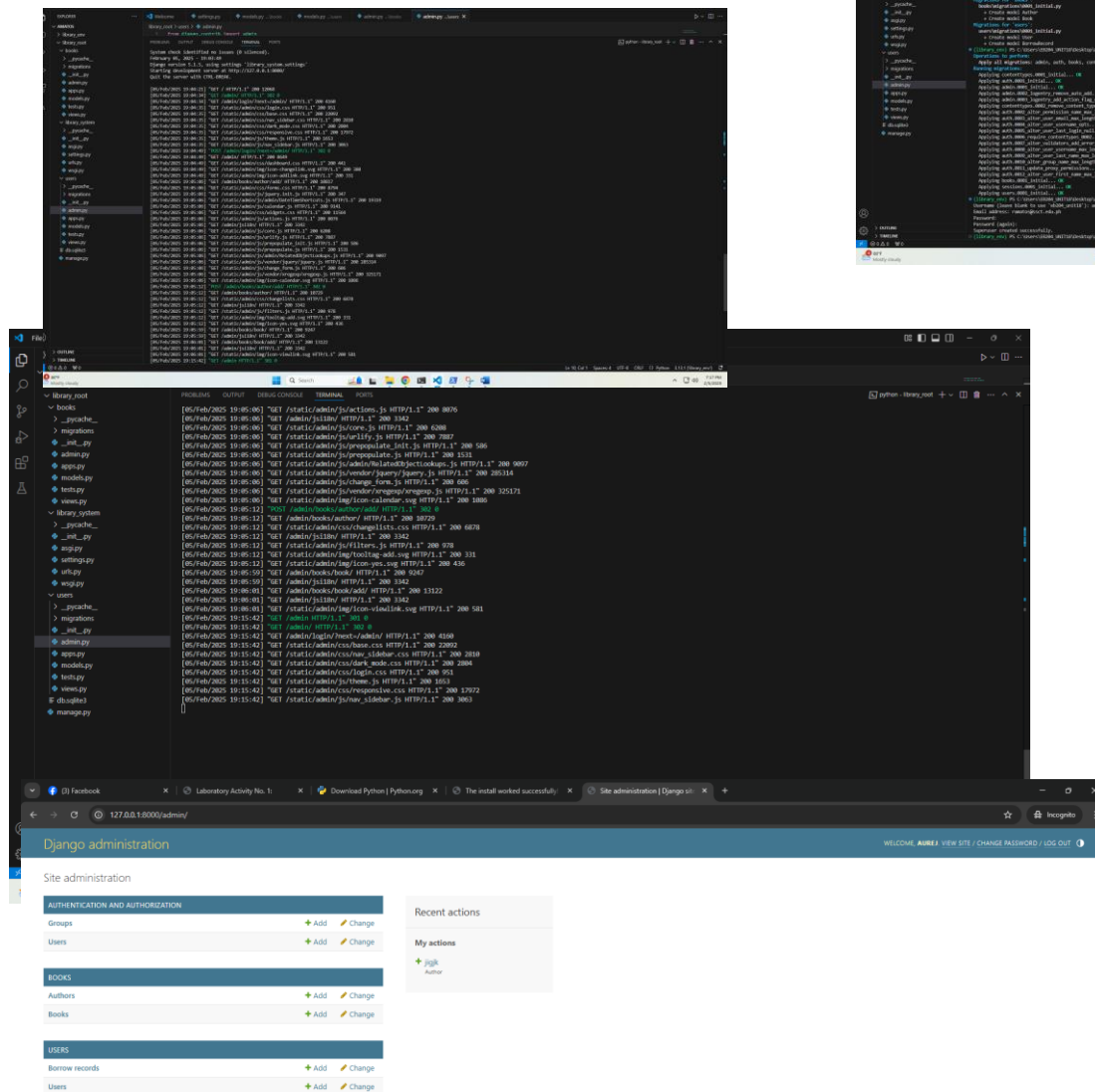
- Django offers rapid development, scalability, strong security, built-in features, and excellent documentation, making it a powerful and efficient web framework.

**Findings:** Django is a robust web framework known for its rapid development, scalability, strong security, and built-in features. Its "batteries-included" approach simplifies development, while extensive documentation and community support enhance its usability.

**Summary:** A virtual environment in Django development isolates project dependencies, ensuring consistency and preventing conflicts between different projects. Django itself is a powerful web framework offering rapid development, scalability, strong security, built-in features, and excellent documentation, making it an efficient choice for web development.

**Conclusion:** In conclusion, using a virtual environment in Django development ensures dependency management and project isolation, leading to a stable development setup. Django's advantages, including rapid development, scalability, security, and built-in features, make it a preferred framework for efficient and secure web application development.

## Laboratory Activity No. 2:



... database schema  
using Django models, created the corresponding database tables, and registered the models in the  
admin panel. (print screen the result and provide the github link of your work)

### Follow-Up Questions:

1. What is the purpose of using ForeignKey in Django models?

The purpose of using **ForeignKey** in Django models is to establish a **one-to-many** relationship between two database tables. It links one model to another, allowing related data to be efficiently retrieved and managed.

2. How does Django's ORM simplify database interaction?

Django's Object-Relational Mapper (ORM) simplifies database interaction by allowing developers to work with databases using Python objects instead of raw SQL queries.

Findings: Django's **ForeignKey** establishes a **one-to-many** relationship between models, ensuring data integrity and simplifying related data retrieval. The **ORM** simplifies database interaction by allowing developers to use Python objects for CRUD operations, eliminating the need for raw SQL and enhancing security, efficiency, and portability.

Summary: The **ForeignKey** in Django establishes a **one-to-many** relationship between models, ensuring data integrity and simplifying related data retrieval. Django's **ORM** abstracts database interaction, allowing developers to use Python objects for database queries instead of raw SQL. This simplifies CRUD operations and enhances efficiency in handling relational data.

Conclusion: