

Complete Django Project Guide - From Scratch to Running

This guide will walk you through creating a Django project from scratch and getting it running in your browser, following the exact steps we performed in class.

Prerequisites

- **Python 3:** Verify with `python3 --version`
- **Terminal/Command Prompt:** Basic navigation skills
- **VS Code:** Code editor for development
- **Web Browser:** To view your Django application

Step-by-Step Guide

Step 1: Navigate to Your Development Directory

Open your terminal and navigate to your development folder:

```
bash
```

```
cd /path/to/your/development/folder
```

If you have a Django directory:

```
bash
```

```
cd Django/
```

Step 2: Create Virtual Environment

Create an isolated Python environment:

```
bash
```

```
python3 -m venv env
```

Step 3: Activate Virtual Environment

macOS/Linux:

```
bash
```

```
source env/bin/activate
```

Windows (Command Prompt):

```
cmd
```

```
env\Scripts\activate
```

Windows (PowerShell):

```
powershell
```

```
.\env\Scripts\Activate.ps1
```

Confirmation: You should see `(env)` at the beginning of your terminal prompt.

Step 4: Install Django

Install Django with pip:

```
bash
```

```
pip install django
```

Step 5: Create Django Project

Create a new Django project:

```
bash
```

```
django-admin startproject todo_project
```

Step 6: Navigate to Project Directory

Move into your project folder:

```
bash
```

```
cd todo_project/
```

Step 7: Create Django App

Create a new app within your project:

```
bash
```

```
python3 manage.py startapp tasks
```

Step 8: Apply Initial Migrations

Set up the database with Django's built-in tables:

```
bash
```

```
python3 manage.py migrate
```

Step 9: Create Superuser

Create an admin user for the Django admin interface:

```
bash
```

```
python3 manage.py createsuperuser
```

Enter the following when prompted:

- **Username:** (press Enter for default or type your preferred username)
- **Email:** (optional, can be left blank)
- **Password:** (type a secure password)
- **Password confirmation:** (retype the same password)

Step 10: Start the Development Server

Run the Django development server:

```
bash
```

```
python3 manage.py runserver
```

You should see output like:

Watching for file changes with StatReloader

Performing system checks...

System check identified no issues (0 silenced).

January 06, 2025 - 10:30:45

Django version 4.2.x, using settings 'todo_project.settings'

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

Quit the server with CONTROL-C.

Step 11: Open in Browser

Open your web browser and visit:

Main Django Welcome Page:

`http://127.0.0.1:8000/`

or

`http://localhost:8000/`

You should see the Django welcome page with a rocket ship!

Django Admin Interface:

`http://127.0.0.1:8000/admin/`

Log in with the superuser credentials you created in Step 9.

Complete Command Summary

Here's the complete sequence of commands to copy and paste:

```
bash
```

```
# Navigate to your development directory
```

```
cd /path/to/your/development/folder
```

```
# Create virtual environment
```

```
python3 -m venv env
```

```
# Activate virtual environment
```

```
source env/bin/activate # macOS/Linux
```

```
# OR
```

```
env\Scripts\activate # Windows
```

```
# Install Django
```

```
pip install django
```

```
# Create Django project
```

```
django-admin startproject todo_project
```

```
# Navigate to project directory
```

```
cd todo_project/
```

```
# Create Django app
```

```
python3 manage.py startapp tasks
```

```
# Apply initial migrations
```

```
python3 manage.py migrate
```

```
# Create superuser
```

```
python3 manage.py createsuperuser
```

```
# Start development server
```

```
python3 manage.py runserver
```

Project Structure

After completing these steps, your project structure will look like:

your-development-folder/

```
|— env/          # Virtual environment
└— todo_project/ # Django project directory
    |— manage.py # Django's command-line utility
    |— todo_project/ # Main project package
    |   |— __init__.py
    |   |— settings.py # Project settings
    |   |— urls.py      # URL configuration
    |   |— wsgi.py      # WSGI configuration
    |   └— asgi.py      # ASGI configuration
    |— tasks/          # Django app directory
    |   |— __init__.py
    |   |— admin.py     # Admin interface configuration
    |   |— apps.py       # App configuration
    |   |— models.py     # Database models
    |   |— tests.py      # Test cases
    |   |— views.py      # View functions
    |   └— migrations/  # Database migrations
    └— db.sqlite3       # SQLite database file
```

Server Management

Starting the Server

```
bash
```

```
python3 manage.py runserver
```

Starting on Different Port

```
bash
```

```
python3 manage.py runserver 8080
```

Stopping the Server

Press `Ctrl + C` in the terminal where the server is running.

Restarting the Server

1. Stop with `Ctrl + C`
2. Run `python3 manage.py runserver` again

Browser Access Points

Once your server is running, you can access:

| URL | Description |
|---|---------------------------|
| <code>http://127.0.0.1:8000/</code> | Main Django welcome page |
| <code>http://localhost:8000/</code> | Alternative main page URL |
| <code>http://127.0.0.1:8000/admin/</code> | Django admin interface |

Important Notes

1. **Keep Terminal Open:** The server runs in your terminal, so keep it open while developing
2. **Virtual Environment:** Always activate your virtual environment before working on the project
3. **File Changes:** Django automatically reloads when you make changes to your code
4. **Database:** The SQLite database file (`db.sqlite3`) is created automatically

Next Session Setup

When you return to work on your project:

1. Navigate to project directory:

```
bash
```

```
cd /path/to/your/todo_project
```

2. Activate virtual environment:

```
bash
```

```
source ../env/bin/activate
```

3. Start server:

```
bash
```

```
python3 manage.py runserver
```

4. Open browser to:

```
http://127.0.0.1:8000/
```

Troubleshooting

Common Issues

Server won't start:

- Check if virtual environment is activated `((env))`
- Ensure you're in the correct directory (where `manage.py` is located)
- Try a different port: `python3 manage.py runserver 8080`

Can't access in browser:

- Verify the server is running (check terminal output)
- Try both `127.0.0.1:8000` and `localhost:8000`
- Check if your firewall is blocking the connection

Virtual environment issues:

- Make sure you created it: `python3 -m venv env`
- Activate it properly: `source env/bin/activate`
- Check for `((env))` in your terminal prompt

You now have a complete Django project running locally! 💡