



Introduction to Database Systems: CS312

Django: The “Hello World” App!

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Exam1: Wednesday 28th during lab (2:30pm)

By Honor code: you must be in Alden hall to take the exam

Virtual
Environment

Steps

Creating an
App

mysite/urls

hello/urls

hello/views

Create Super
User

Some of what to know

- Queries and code
- Given an output and table, determine the query code
- Given a table and a query, determine an output
- Code to perform updates
- Python's sqlite3 library
 - Querying a database using Python
 - Concepts
- Django basics and concepts.

Online Tool: "Python Anywhere"

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- If you were to create an online database site, there are hosting sites to help
- *Host, run, and code Python in the cloud!*
- <https://www.pythonanywhere.com/>
- An account to code (develop Django) from a browser window
- Free accounts (Although, they choose the name of your domain...)

Today's Task

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- Yesterday: Introduction to what Django does, and for whom
- Today: We create a simple webserver to run a “Hello World” page
- Tomorrow: We add a simple Sqlite3 database to our site to contain website data

Your Machine: Virt. Env. For Development

You might want this for development on your own machine ...

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For use on your own machine, lab machines seem not to require an environment.

Setting up the virtual environment (called, "myvenv")

- `python3 -m venv myvenv`

Activate the virtual environment

- `myvenv/Scripts/activate` # windows
- `. myvenv/bin/activate` # on mac
- `. myvenv/bin/activate` # Ubuntu

Prepare somewhere to place your project

- `mkdir djangoWorking`
- `cd djangoWorking`

Steps to Begin a Project

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Check the version of Django

- `python3 -m django --version`

Build the project

- `django-admin startproject mysite`

Start up the local server (directory having `manage.py`)

- `cd mysite`
- `python3 manage.py runserver`

Test the local web server from browser

- `http://127.0.0.1:8000/`

Some of New Files Created

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```
find . -not -path '*/\.*'
```

```
-----  
./mysite  
./mysite/__init__.py  
./mysite/__pycache__  
./mysite/__pycache__/settings.cpython-36.pyc  
./mysite/__pycache__/wsgi.cpython-36.pyc  
./mysite/__pycache__/__init__.cpython-36.pyc  
./mysite/__pycache__/urls.cpython-36.pyc  
./mysite/settings.py  
./mysite/urls.py  
./mysite/wsgi.py  
./db.sqlite3  
./manage.py
```

Add Some Functionality to *mysite*

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- We will now add an App to make the web site do something useful
- We will add a database component later
- Our app will print, "Hello World"
- Isn't that useful?!
- When you add apps, the procedure is often very similar for every project

Create The Hello App

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- Change into the *mysite* directory to locate the file `manage.py`, if you are not already there.

```
python3 manage.py startapp hello
```

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find . -not -path '*/\.*'
```

```
-----  
./hello  
./hello/migrations  
./hello/migrations/__init__.py  
./hello/models.py  
./hello/__init__.py  
./hello/__pycache__  
./hello/apps.py  
./hello/admin.py  
./hello/tests.py  
./hello/urls.py  
./hello/views.py
```

Notable Files

- **apps.py**: The main file for the *hello* App
- **models.py**: A blueprint for how data will be used in the site
- **tests.py**: For adding tests for bug checking the *hello* part of the project
- **views.py**: A request-handler for connecting the URL to the displayed website
- **mysite/mysite/urls.py**: Requests for apps are all directed using this file.
- **mysite/hello/urls.py**: Requests for the *hello* apps are all directed using this file.

- When the user enters a URL address, the website needs to know what pages to display.
- The `hello/urls.py` file and the `mysite/mysite/urls.py` files are used to hold this URL-to-webpage connection information.
- We have to create the `mysite/hello/urls.py` file for to connect the `hello` app's urls to those of the entire website.

```
from django.conf.urls import url, include
from django.contrib import admin
# pull the local views.py file from local dir
# The below is sometimes used
# for different vers of Django
#from . import views
urlpatterns = [
    url(r'', admin.site.urls),
    url(r'^admin/', admin.site.urls),
    url(r'^hello/', include('hello.urls'))
]
```

- Be sure to use the correct quotation marks and add include to the top import statement.

```
from django.conf.urls import include, url
# pull the local views.py file from local dir
from . import views
urlpatterns = [
    url(r'^$', views.index, name = 'index'),
]
```

- Be sure to use the correct quotation marks and add include to the top import statement.



```
from django.shortcuts import render
from django.http import HttpResponse
def index(request):
    return HttpResponse("<h1>
        This is the hello App homepage </h1>")
#Write the return string on a single line.
```

- The file, *hello/views.py* pushes a an html page to the browser

A Working Website?

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- Restart the server: `python manage.py runserver`
- Enter the local URL in your browser:
`http://127.0.0.1:8000`

Try these URLs

- `http://127.0.0.1:8000/hello`
- `http://127.0.0.1:8000/admin`

Create a Super User to View Database

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- Need to make a user for the site.

```
python3 manage.py migrate  
python3 manage.py createsuperuser
```

- Migrate is to connect a database to the project to hold user (admin) data
- Username (leave blank to use 'user'): admin
- Email address: studentID@allegheny.edu
- Password: *"pass1234"*
- Password (again): *"pass1234"*
- Superuser created successfully.
- Now, look around the admin page,
<http://127.0.0.1:8000/admin>