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DATA VISUALIZATION USING D3.JS AND FLASK

Charmyne Mamador & Luis Caezar Ian Panganiban

ABOUT US

Licensed Geodetic Engineers
Tidal Current Energy Integrated Resource Assessment and
Spatial Planning (Current)

- WebGIS Component - Django and D3 JS

Hackathons

- Readysaster: Hack for Resilience

- KabantayNgBayan: The Procurement Hack

Web Developers - PERSYA Philippines
We Speak - English, Filipino, HTML, CSS, Javascript, Java,
Python...
2nd FOSS4G

WHO ARE YOU?

Researchers?

LGU?

Academe?

Students?

Spatial Scientists?

Non Developers?

OUTLINE

Introduction

Dev Machine

Flask Development

D3 Javascript Library

Go Beyond

introduction

WHAT IS DATA?

- a set of values (qualitative or quantitative)
- CSV, PDF, SHP, GEOTIFF, LiDAR, API, Raw Paper, ETC.
- Closed vs Open
- Data vs Information

WHY DO WE NEED TO VISUALIZE DATA?

Readable

Appreciation

Understanding

DATA VISUALIZATION
Paper or Digital
2D or 3D
Web/Mobile or Desktop

"The coolest thing to do with your data will be thought of by someone else"

Dr. Rufus Pollock

Flask + D3 = Data Viz

WHAT IS FLASK?

- Python Web Framework
- Single File Development
- Fast Implementation

D3 JS (DATA DRIVEN DOCUMENTS)

- Javascript Library
- Data Visualization
- Dynamic

DEVELOPMENT MACHINE

SETUP AND REQUIREMENTS

1. python version 2.7

   python -v

2. Installing Python Package Manager

   [sudo] apt-get install python-pip

3. Installing Virtual Environment

   [sudo] pip install --proxy http://proxy:port virtualenv

4. Creating and Activating Virtual Environment

   virtualenv foss4gEnv
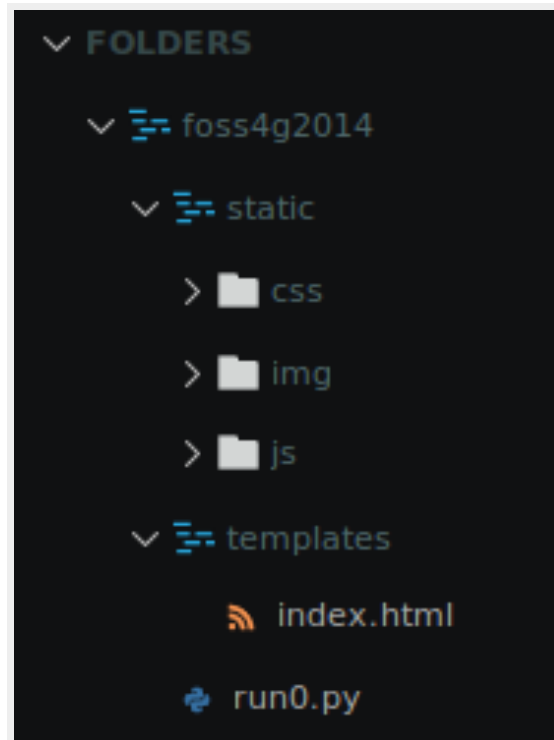
   source foss4gEnv/bin/activate

5. Installing Flask

   (foss4gEnv)pip install --proxy http://proxy:port flask

FLASK DEVELOPMENT

PROJECT IMPLEMENTATION

- Singe File
- Multiple Files

DIRECTORY STRUCTURE

FIRST FLASK APPLICATION

```
#run.py
    from flask import Flask
    app = Flask(__name__)

    @app.route("/")
    def home():
        return "Hello World!"

    if __name__ == "__main__":
        app.debug = True
        app.run()
```

terminal: *python run.py*

RENDERING PAGES

```
#run.py
    from flask import Flask, render_template
    app = Flask(__name__)

    @app.route("/")
    def home():
        return render_template("index.html")

    if __name__ == "__main__":
        app.debug = True
        app.run()
```

RENDERING PAGES - FINAL NOTES

- put all the html files in the templates folder
- put all the css files in the css folder
- put all the js files in the js folder

Data Driven Documents

D3 OVERVIEW

JavaScript library for manipulating documents based on data

Stanford University's Stanford Visualization Group

Protovis

Mike Bostock

_____ + D3 = Data Viz

Examples

FORCE-DIRECTED GRAPH

(http://bl.ocks.org/mbostock/raw/4062045 /8781145235fb469685c9147648423ca5e6f1342f/)

BULLET CHARTS

(http://bl.ocks.org/mbostock/raw/4061961/)

SEQUENCES SUNBURST

(http://bl.ocks.org/kerryrodden/raw/7090426/)

Maps

MAPS

MAPS

TODAY'S
mini
PROJECT

PEAK! (ConstructionMap.html)

bit by bit

Theme & Data

Map - with regional boundaries

Circle markers

Percentage Value

Events

LET'S DO
SOME CARDIO
(for the fingers)

GO BEYOND...

- Web Development - HTML, CSS, Javascript
- Try working with dynamic data
- 3D Web Rendering
- Application Deployment (Cloud)

"Don't just buy a new video game — make one, Don't just download the latest app — help design it. Don't just play on your phone — program it."

US Pres. Barack Obama