UCSD Data Science Bootcamp Project 2 Visualization Proposal, 3/25/20

2020 COVID-19 Pandemic Data Visualization

Team Members:

- Grant Thompson
- Arundhati Chakraborty
- Alexis Perumal

Assignment

Project Description

01 Your task is to **tell a story** through data visualizations.

02 Focus on providing users an **interactive means** to explore data themselves.

03 Prepare a **10-minute presentation** that lays out your theme, coding approach, data munging techniques, and final visualization.

04 You may choose a project of any theme, but we encourage you to **think broadly**.

05 You will have **ample time in class** to work with your group, but expect to put in **hours outside of class** as well.

1. Your visualization must include a Python Flask–powered RESTful API, HTML/CSS, JavaScript, and at least one database (SQL, MongoDB, SQLite, etc.).
2. Your project should fall into one of the below four tracks:
    - A custom “creative” D3.js project (i.e., a nonstandard graph or chart)
    - A combination of web scraping and Leaflet or Plotly
    - A dashboard page with multiple charts that update from the same data
    - A “thick” server that performs multiple manipulations on data in a database prior to visualization (**must be approved**)
3. Your project should include at least one JS library that we did not cover.
4. Your project must be powered by a data set with at least 100 records.
5. Your project must include some level of user-driven interaction (e.g., menus, dropdowns, textboxes).
6. Your final visualization should ideally include at least three views.

Project Objective

- Visualize current COVID-19 outbreak timeseries data, at the country, state and county level (if possible) to understand the spread of the pandemic.

Project Description/Outline

- The user will see a web dashboard with multiple views and a selector. (See below.)
    - A selector will be available so the user can pick the country of interest, or WW (all countries).
        - Metadata for the selected country will be shown in a simple table.
        - A time series line chart (or area) for the selected country will show a cases curve and a death curve.
    - We will build an animated horizontal bar chart that can show growth over time.
    - World map showing cases and/or deaths. Time permitting we'll add an animation illustrating change over time, perhaps a regional heat map.
    - We may enable a way to view and compare a few multi-selected countries.
    - Time permitting, we will show drill down below country level: state, and possibly counties where supported by the dataset.
- Technologies:
    - Backend: Python Flask, Mongo DB
    - New JS library: TBD
    - Data Retrieval: Use the Johns Hopkins dataset from a REST endpoint if possible, but we will likely need to pull it from the Johns Hopkins github repo and pull it into our MongoDB. No web scraping needed for this project.
        - Time permitting: We'll automate the data retrieval with a scheduler.
    - Front End: JavaScript, D3, Leaflet.js

Rough Breakdown of Tasks

- Get the JH Dataset with its new schema (just released this week), study it and determine what we will use, and how we will retrieve it. - Alexis
- Design how we will store the dataset in Flask / MongoDB database. – Arun
- Create a top level index.html, css, and JavaScript files. - Grant
- Build the Visualizations, controls, etc. – All
- Setup automated scheduling. – TBD
- Publish the Dashboard
- Using the dashboard, do data exploration, analysis and build a story of the pandemic, key insights and findings, and predictions.
- Build a presentation for the class, **Wed., 4/8/20**
- Marketing: Distribute the link to our page in Social Media to drive hits.
- Final Submittal in github/BCS, **Fri., 4/10/20**

Figure: Wireframe of UI

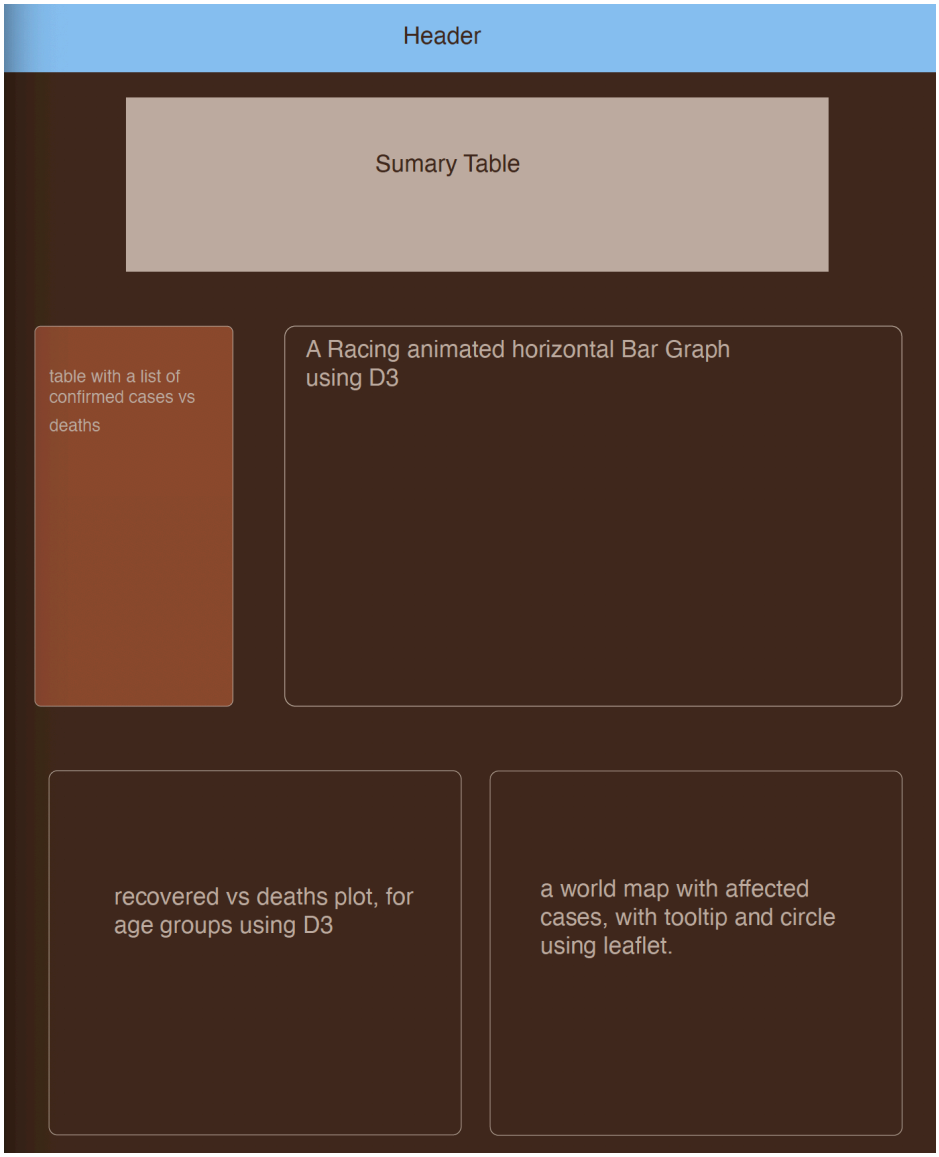

Figure: Style Guide