Customizable Analysis and Visualization Tool for COVID Cases

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Goal and Motivation

- Goal:
  - A website that shows COVID case data
  - Can do customizable analyses/visualization of results
  - Allows users to add additional pieces of data related to COVID
- Motivation:
  - Many COVID dashboards available
  - Analyses are pre-determined
  - Develop a dashboard where analyses are not predetermined
  - User has the ability to customize results and visualizations

Features (1-4)

- Users can select variables and perform custom operations
  - Ranking, average, etc
  - Allows for comparing across many different categories
- Users make variable comparisons according to some standard
  - Number of cases per *n* number of people
- Users can plot results from variable operations
- Users can save custom visualizations to their unique workspace

Features (5-8)

- Users can layer plots for custom visualizations
- Users can add additional types of datasets
  - Airline travel data, school data, etc
  - Could allow for analyzing infection rates in schools with face-to-face classes versus schools with online education
- Users can add/analyze multiple datasets, deleting existing datasets, and current datasets automatically updated daily
- Users can submit an application to make private datasets public

Novel Features

- Users being able to create/save custom plots is not available on other dashboards
  - Most plots are pre-set
- Users being able to layer plots shows relationships between data plotted on a shared x-axis
- Users being able to add additional types of datasets is not possible in other dashboards
  - Similar to pre-set plots

Technical Challenges

- Using Django or AWS
- Learning various Javascript frameworks and integration with Django/AWS
- Understanding GIS (Geographic Information System) and Spatial Database Relations
- Rest APIs and file formats for reading data (JSON, CSV, etc)

Milestone 1

- Find Tools for:
  - Web Frontend and Backend
  - Database
  - GIS and Graphing Libraries
- Demo:
  - Import data from API
  - Basic operations on data sets
  - Generating and displaying graphs
  - Display and edit GIS data

Milestone 2

- Select variable and perform custom operations
- Make proportional comparisons between areas
- Create custom graphs
- Saving custom graphs/statistics to a user library

Milestone 3

- Ability to layer plots
- Importing new, user submitted data sets
- Auto-update for datasets with API endpoints
- Application to make user data set public and admin review/approval tool

Questions?