Monday, the 16th of March, 2018 A.D.

Project Proposal - Ideas and Brainstorming

Ideas

Friendliest cities for immigrants to move to:
Migration data: https://www.irs.gov/statistics/soi-tax-stats-migration-data
Data on ICE raids 2017: https://www.ice.gov/removal-statistics/2017 (click on the file in the right column of the page)

Best cities to be homeless in:
https://catalog.data.gov/dataset?tags=homeless

Cost of living in each state:
https://www.missourieconomy.org/indicators/cost_of_living/

Per county, heat map
Focus in on just st. louis and do cost of living per county and do 5-year trajectory of growth for real-estate, etc.

Protests vs change in policy:
http://research.wou.edu/c.php?g=551398&p=3784761
https://countlove.org/
http://analysis.gdeltproject.org/module-event-exporter.html

Natural Disasters
https://www.unisdr.org/we/inform/disaster-statistics
http://www.emdat.be/
https://ourworldindata.org/natural-catastrophes
https://www.ngdc.noaa.gov/hazard/hazards.shtml

Teacher salaries and correlation with cost of living
Per state: https://articles.niche.com/teacher-salaries-in-america/

Wednesday, the 21st of March, 2018 A.D.

Initial Project Details - Teacher Salary

Background Information and Motivation

Public school teacher salary and compensation has been a widely discussed topic since the dawn of the Internet age. However, recently, we have seen a growing number of strikes, protests, and civic involvement from public teachers who are unsatisfied with their compensation and, despite providing a necessary and critical public service, often are living at or below the family poverty line.

Recent teacher strikes have occurred in West Virginia, Oklahoma, Kentucky, and Ohio. More information about the specifics of these strikes can be found here: **goo.gl/ei3sW4.**

Thus, the motivation of our project is the following: **Create a tool which current or prospective teachers can visit and use said tool to make an informed decision about whether being a public school teacher in a given area is financially viable for their lifestyle.**

Questions we want to answer

Where in the United States has the highest average or median public school teacher salary?

Where in the United States has the lowest average or median public school teacher salary?

Where in the United States, when cross-referenced with Cost of Living information, is the most affordable for a public school teacher to live and work?

Where in the United States, when cross-referenced with Cost of Living information, is the least affordable for a public school teacher to live and work?

Wednesday, the 28th of March, 2018 A.D.

Design Ideas and Data Sources

Design Ideas

Initial sketch. A simple map that when hovering over a state displays the associated average teacher salary and CPI.

In this sketch, we split up the page into 3 different views. We have an overall view of the US, a county view, and then the data associated with the selected state/county (if county data is not available for the selected county, user will be notified and shown state data instead).

Possible use of a heat map, where we tie the ratio of salary w/ cpi to various colors, allowing rapid identification of states/counties with good compensation and ones with poor compensation.

Final sketch. We decided that simply showing the US map was not enough, and wanted to incorporate the heat-map with our 3-pane idea. This is the final result of that combination. Note that the data-pane may be a graph or may be text, depending on how each performs during implementation.

Data Sources

The following data sources were found:

https://nces.ed.gov/programs/digest/
Contains year-by-year teacher salary information by location, as well as a number of other metrics. Salary available in both real-dollars and inflation adjusted dollars.

http://www.nea.org/2017-rankings-and-estimates
Contains estimates of pay statistics and rankings by school districts.

http://www.doe.virginia.gov/teaching/workforce_data/salaries/2015-2016_salary_report.pdf
Example county data, here for virginia.

https://www.mnea.org/Missouri/SalaryResearchData.aspx
Example county data, here for Missouri. Currently 30+ states found with available county data.

Tuesday, the 3rd of April, 2018 A.D.

Initial Design Implementations

Map

Code was written to form a basic map visualization with hovering capability.

When hovered, the state is highlighted and the average salary is shown.

Yearly Salary v.s. CPI Change Line Chart

Code was written to create a 3 axis line graph, with x being time, y0 being salary, and y1 being CPI.

A simple <select> element was created to verify that we could make the line graph change in real-time.

Tuesday, the 10th of April, 2018 A.D.

Design Combinations and Interactivity

Map + Line Chart Combination

Map and line chart were combined, click-state-for-graph implemented.

Heatmap Tests

Initial code was written to implement a salary based heat-map on the states. Will probably be revisited later.

Sunday, the 15th of April, 2018 A.D.

Heatmap fixes and county views

Heatmap Re-write

Heatmap code was re-written to use better colors, scale was implemented.

County Zoom Views Implemented

Code was written to show zoomed states + counties when a state is clicked. Data mapping to county divs not complete yet.

Known Issues at this point

1) Need indicator of which state is selected
2) Alaska county information not displaying
3) Need to finish tying county data to county heatmaps
4) Need to label chart axis / data
5) Add additional visualizations

Thursday, the 19th of April, 2018 A.D.

County by County Heat Map

Colors following the heat map for the overall country now added to each county.
All colored counties work except for Alaska's.

Line Chart

Line chart x axis not as cluttered, as it now only displays years.

Tuesday, the 24th of April, 2018 A.D.

Addition of Radio Buttons

The first line of radio buttons help easily filter the overall U.S. heat map by either salary, living wage, or differences in salary and living wage.
The second line of radio buttons filter the selected state's counties by a single home, one child family, or two child family.

Still Needed:

1) Highlighting of each state
2) Axes title labels
3) Add additional information for counties

Sunday, the 29th of April, 2018 A.D.

County Information

When a county is selected, this popup window will appear with the county name and the the living wages. In the future, we will add more detailed information.

Monday, the 7th of May, 2018 A.D.

Minor fixes

Titles added to the axes. Color coded the axes to make it more visually appealing.

Combining into an HTML

To make this more informative, we added a blurb with instructions on how to use our website and interpret the visualization.

Configure Maps Filter

We moved the radio buttons to a separate window to keep the main page more organized. We also added a custom filter where a user can set the minimum.

More Information on Each County

Additional information was added to each county when it's selected, and it shows the difference between the living wage information and salary information. The counties are colored blue or red, depending on affordability.

Tuesday, the 8th of May, 2018 A.D.

Overall Evaluation

After completing our visualization, we learned that California, New York, and Massachusetts are the best states for public school teachers to work in--specifically coastal counties in California, southeastern counties in New York, and northeastern counties in Massachusetts. On the other hand, states such as Colorado, Mississippi, South Dakota, and Virginia are less desirable locations for public school teachers to make a financially stable living in.

Questions that a teacher might have were answered through the use of this heat map and the line chart. The heat maps provide a quick overall glance of the states and counties to see which areas act as viable options, but a user can find more in depth details from the line chart and the popup window from selecting each county.

Although our visualization works well and provides the necessary information a teacher looking for a place to work would need, we could improve it by making it more visually appealing. We could place each of the three visualizations in different panels and add smooth transitions when the line graphs and county maps appear and change. Some of the larger states also shrink when displaying their individual maps, making some counties too small to discern, so we could also add something to assist with automatic resizing.