Revised proposal doc: Rakshith Venkatachalapathy

Primary Objectives:

The idea is to create an interactive dashboard with 4 different panes. All these panes are synchronized and allow synchronized interactions.

P1 – Zoomable choropleth at county level.

- One of the panes will have a zoomable choropleth map at the county level.
- Clicking on a particular county would zoom into the map. This zooming will be helpful as you can compare neighboring counties and get an idea about the price details in the neighboring counties.

  Why chose this visualization?
  Choropleth maps are used to represent data through various shading patterns or symbols on geographic areas and they are good at utilizing data to easily represent variability of the desired measurement, across a region. In our case a choropleth map can be used to easily distinguish between the prices at a particular county and hence I chose this visualization.

P2 – Bar graph for the selected county

- Selecting one of the counties would display a bar graph for the price details of the particular county. This will be displayed in the other pane.
- Brushing will allow to compare prices for that particular county across different years.

  Why chose this visualization?
  Bar graphs are used to compare things between different groups. Also, bar graphs are best when the changes are larger. This is preferred over a line chart as it is easy to compare changes differ significantly from one and another.

P3 – Horizontal bar graph to display the median sale price for 3 neighboring countries

- Selecting one of the counties would display a bar graph for the median sale price for 3 neighboring counties. This will be displayed in the other pane.
- The width of the bar will be thicker than the bar graph mentioned above.

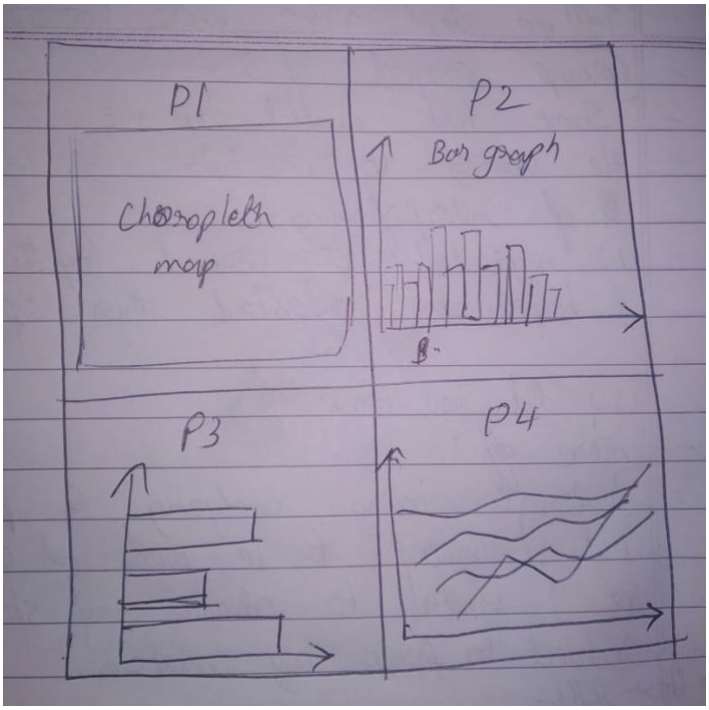
  Why chose this visualization?
  Bar graphs are used to compare things between different groups. Also, bar graphs are best when the changes are larger. This is preferred over a line chart as it is easy to compare changes differ significantly from one and another.

P4 – Line graph for top 5 popular counties across the country

- The fourth pane would be a static pane which would display a line graph of the median sale price of popular counties across the county for different years.
- This would be displayed in the 4^{th} pane.

Why chose this visualization?
A line graph is used to display change over time as a series of data points connected by straight line segments. The line graph helps to determine the relationship between two sets of values, with one data set always being dependent on the other set. Hence displaying the median sale price for popular counties/cities with the help of a line graph will be helpful to compare the prices.

Overall, with the 4 panes, the data presented will be very helpful to determine the price changes over different counties. The synchronization will give better understanding of the research data that is available over time. I have attached a screenshot of the dash board with P1- P4 below.



Project Schedule:

Week 1: for P1

- Set up the architecture for the 4 panes
- Set up the 4 panes
- Implement the choropleth map
- Implement the zoomable feature for county level

Week 2: for P2

- Implement the bar graph
- Implement the interactions for the bar graph based on the selection of the particular county
- Implement brushing for the bar graph

Week 3: for P3

- Get the county data from the other pane and select the 3 neighboring counties
- Implement the horizontal bar graph

Week 4: for P4

- Get the data for the popular cities/counties in the country.
- Implement the line graph

Related work:
I found a lot of interesting papers and projects done by other people. The links for the same are given below.

https://www.researchgate.net/publication/336543783_Geospatial_Dashboards_for_Monitoring_Smart_City_Performance

https://www.kyubit.com/geo-data-analysis

https://medium.com/datalab-log/how-to-build-a-dashboard-prototype-using-leaflet-d3-js-and-python-1cfda38efbb5

https://doc.arcgis.com/en/dashboards/get-started/what-is-a-dashboard.htm

https://www.fgdc.gov/grants/2009CAP/InterimFinalReports/104-09-2-MA-FinalReport.pdf

https://d3-dashboard.cube.dev/adding-interactivity

https://www.kdnuggets.com/2015/07/story-boarding-d3js-dashboard-introjs.html

https://anmolkoul.wordpress.com/2015/07/24/story-boarding-in-a-d3-js-dashboard-using-intro-js/

http://adilmoujahid.com/posts/2016/08/interactive-data-visualization-geospatial-d3-dc-leaflet-python/

Website:
Hosted the same on github.io

The link for the same is:

https://rakshithvenkatachalapathy.github.io/