

## Project Proposal

1. Title: Home values across the US  
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Link: [https://github.com/rakshithvenkatachalapathy/DataVisualization\\_FinalProject](https://github.com/rakshithvenkatachalapathy/DataVisualization_FinalProject)
2. Background and motivation:  
I came across Zillow research data and Zillow Home Value Index (ZHVI): A smoothed, seasonally adjusted measure of the typical home value and market changes across a given region and housing type for homes across the US.  
  
My goal was to take this large data set present its findings using visualization techniques that we learnt in this class. Since I moved to the US, I've always wondered what it costs to live in the US and how much people invest in real estate. By visualizing this dataset, I am hoping that the above questions would be answered through simple visualization.
3. Project Objectives:
  - Primary objective would be to visualize the Median sale price across the all counties in the US. The user will be able to visualize how the median sale price varies from county to county and across different states.
  - Hovering over the county would display the county details.
  - Objective no.2 would be to display the top 5 popular states and display the top 3 cities in each state which would give the user an understanding about the sale price in popular states and their respective counties.
  - Objective no.3 would be to provide a slider which would display the sale details for a particular year and loop through a list of years from 1996-2020.
  - Objective no.4 would be to hover over a particular county to display a line graph for the median sale price of particular county.
  - Objective no.5 would be to select a particular county and display the median sale price for 3 neighboring countries.
4. Data:  
Collecting my data from Zillow research data. The link for the same is <https://www.zillow.com/research/data/>  
I am planning to use the median sale price data from the Inventory and sales section in the above link.
5. Data Processing:  
The research data contains monthly data and for processing I am planning to use aggregate functions in d3.js to collect the data for a particular year. This aggregation can also be done with the help of Tableau.
6. Visualization Design:  
To display the data, I had 3 primary ideas. They are mentioned below.

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- Display Choropleth map (county level) for the mean sale price. This would be accompanied by a bar chart to display the popular states and its corresponding counties.
- Aggregate the county level data and display a proportional symbol map with circles for a particular state. This would be accompanied by a pie chart to display the popular states and its corresponding counties.
- Display a spike symbol map with spikes at county level. This would be accompanied by a bar chart to display the popular states and its corresponding counties.

After careful consideration, I decided to implement a choropleth map along with the details given in first idea.

The 3 visualization designs for the same at the end of the document.

### 7. Must-Have Features:

Choropleth map for county level with a bar graph displaying the top 5 states and its corresponding top 3 counties.

Also, a slider to animate the sale prices over the years.

### 8. Optional Features:

- hover over a particular county to display a line graph for the median sale price of particular county.
- select a particular county and display the median sale price for 3 neighboring countries.

### 9. Project Schedule:

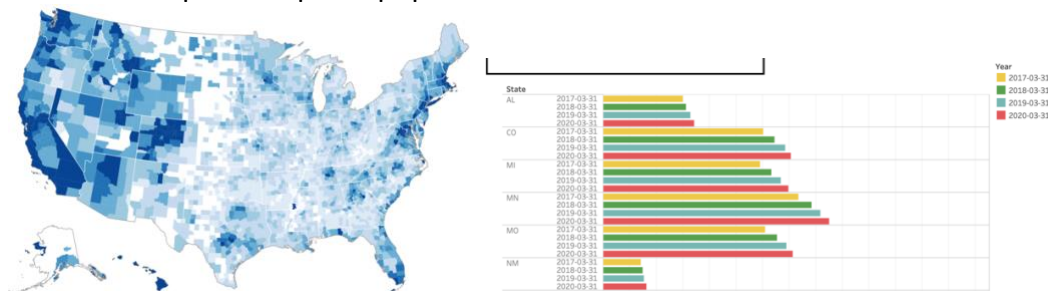
Week 1 : Choropleth map for county level. Also provide Hover functionality.

Week 2: Display the top 5 popular states and display the top 3 cities in each state

Week 3: Slider which would display the sale details for a particular year

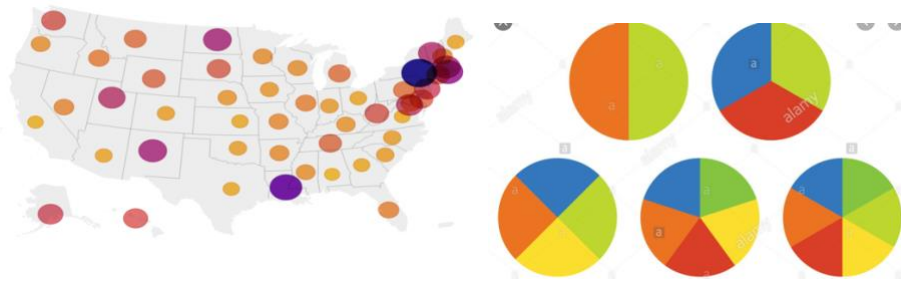
Week 4 : Objective no 4 or 5 as mentioned above.

### Idea 1: Choropleth map and popular 5 state details

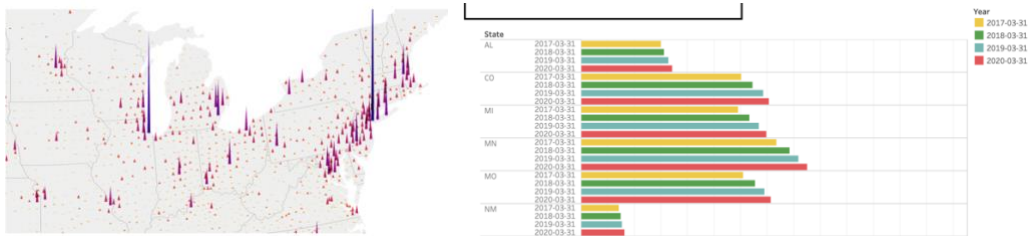


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Idea 2: proportional symbol map for the states and a pie chart for the popular 5 states



Idea 3: spike symbol map for county level and bar chart for the popular 5 states



After careful consideration, I decided to implement a choropleth map along with the details given in first idea.

I am planning to host the visualizations on [github.io](https://github.io)