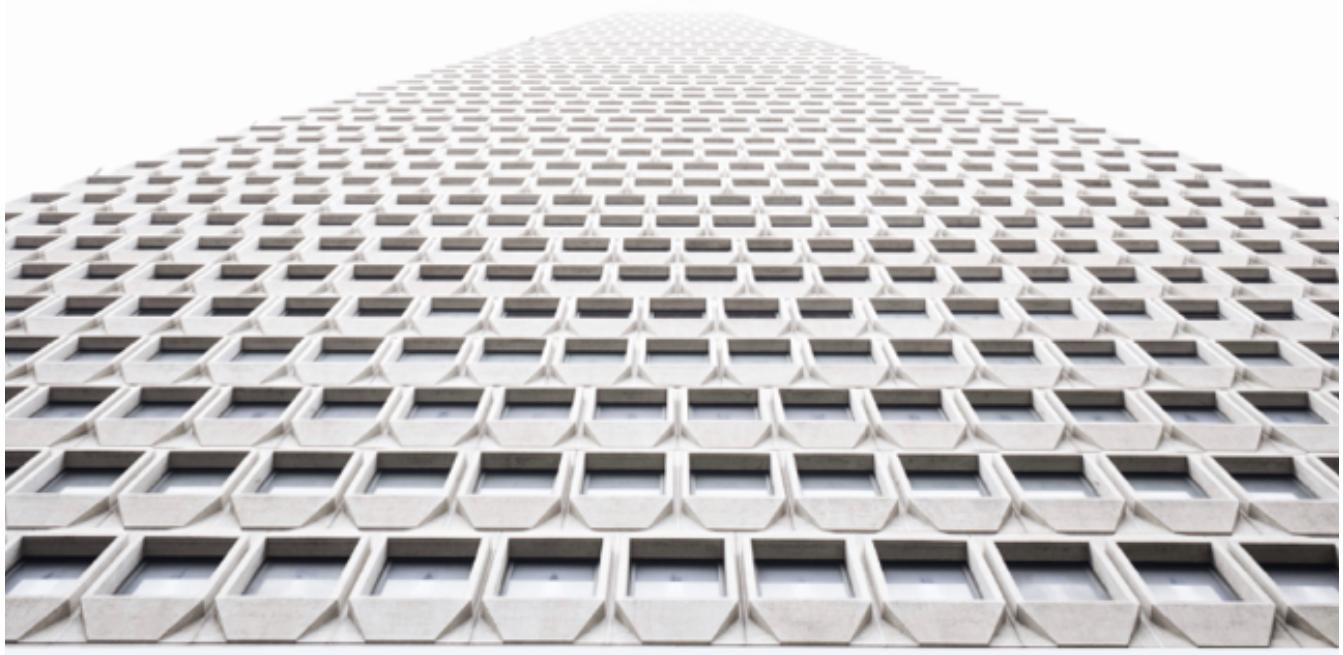


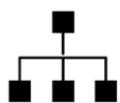
# REDESIGN PROJECT REPORT

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# Change in the US population from 2010 to 2019



## Original graph

Bad pie chart from  
wikimedia which  
looks crooked.



## new dataset

Modified the data set  
with additional  
attributes



## Conclusion

Conclusion of the  
redesign project with  
explanation of new  
infographic

## Original infographic

Figure 1 is the original graph we choose for this project. Figure 1 is a pie chart which is representing the population in the United States of America in 2019. We found the graph to be very unclear and made difficult to understand at one edge. It is understandable to use various colors to differentiate the each states into one pie chart but it looks too messy. There can be noticed a couple of overlaps with the text and the pie looks very clumsy on the top and the data has been generalized by using “other”. The designer’s primary intention was to show the population of each

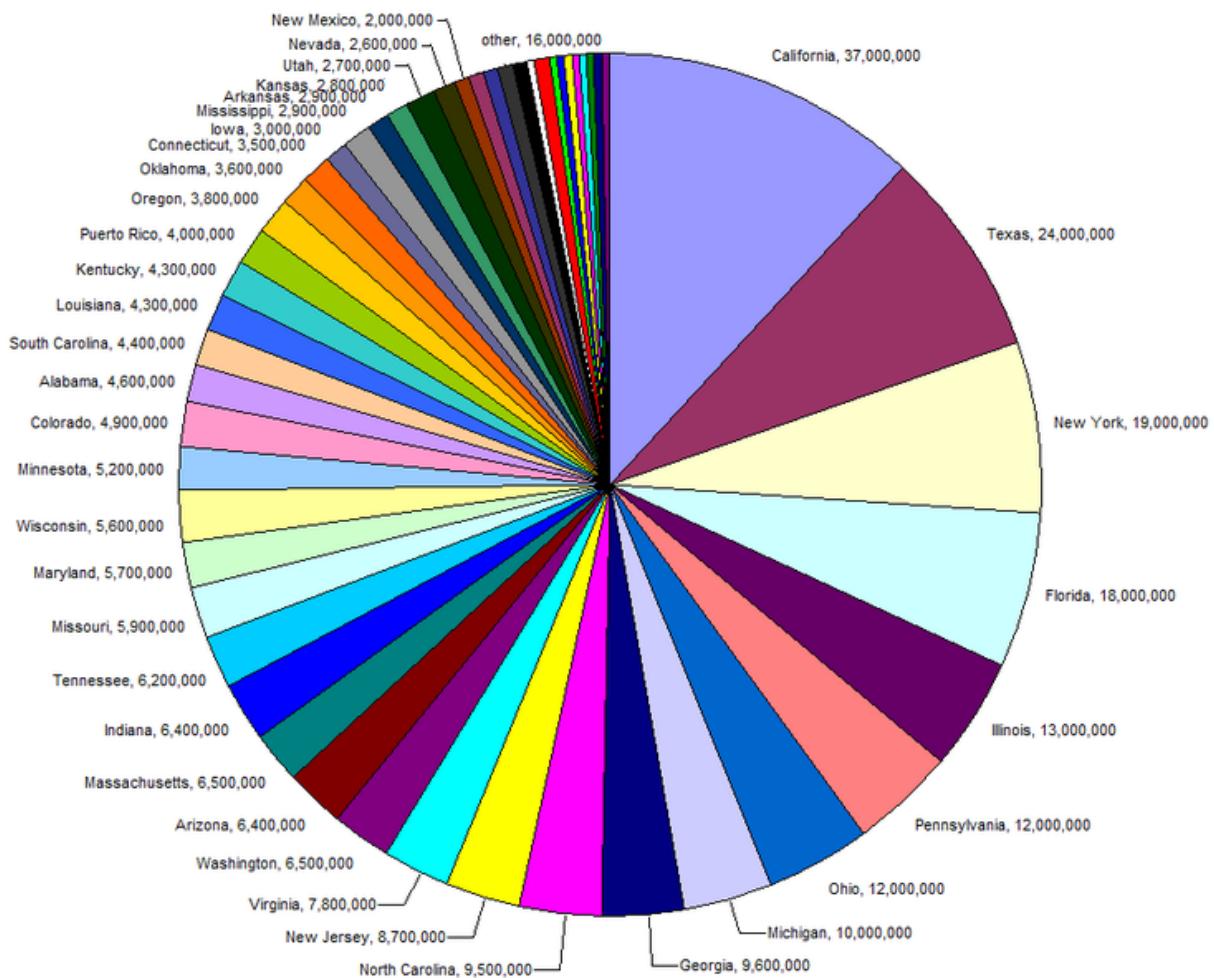


Figure 1 Pie chart of U.S. population by state (Häggström, 2009)

state in the US which failed to meet the expectations. Also, the designer might wanted to show the proportion of each state's population to indicate the size of the states. Figure 1 was published in the year 2009 on the 20th day of November with the population data from National and State Population Estimates by the United States Census Bureau in the year of 2008.

Though Figure 1 is understandable if a lot of concentration is put, we have decided to use this data with few more attributes with the micromapST package in R for which the output infographics give an even more clear understanding of how the population in the US is like state wise. This graph is not completely demonstrating the data set. It is just using the attribute "population in 2009" from the table. We have decided to use the micromaps ST package using which we can give the audience even more clear picture by representing the statistics on the United states map. The primary purpose of this pie chart is to show the proportion of population in each state which is not clear in the above chart.

## Dataset

The data collected from the United States Census Bureau is in the Excel .csv format and gives us multiple attributes such as population estimate, births, deaths, natural increase, international migration, domestic migration, net migration, residual, birth rates, death rate, natural increment rate, rate of international migration, rate of domestic migration, rate of net migration, change in population (compared to last year) for every year from 2010-2019. We can say that it is reliable data since the data is collected pretty recently, passed only one year, from U.S. public institution.

We have filtered this dataset by just focusing on the states and territories, the population in the years 2010 and 2019 and by showing the change in population change, proportion of population in US with respect to the states and territories to obtain the necessary data for the improvement of the original figure. Table 1 shows the characteristics of attribute we chose to utilize for the redesign.

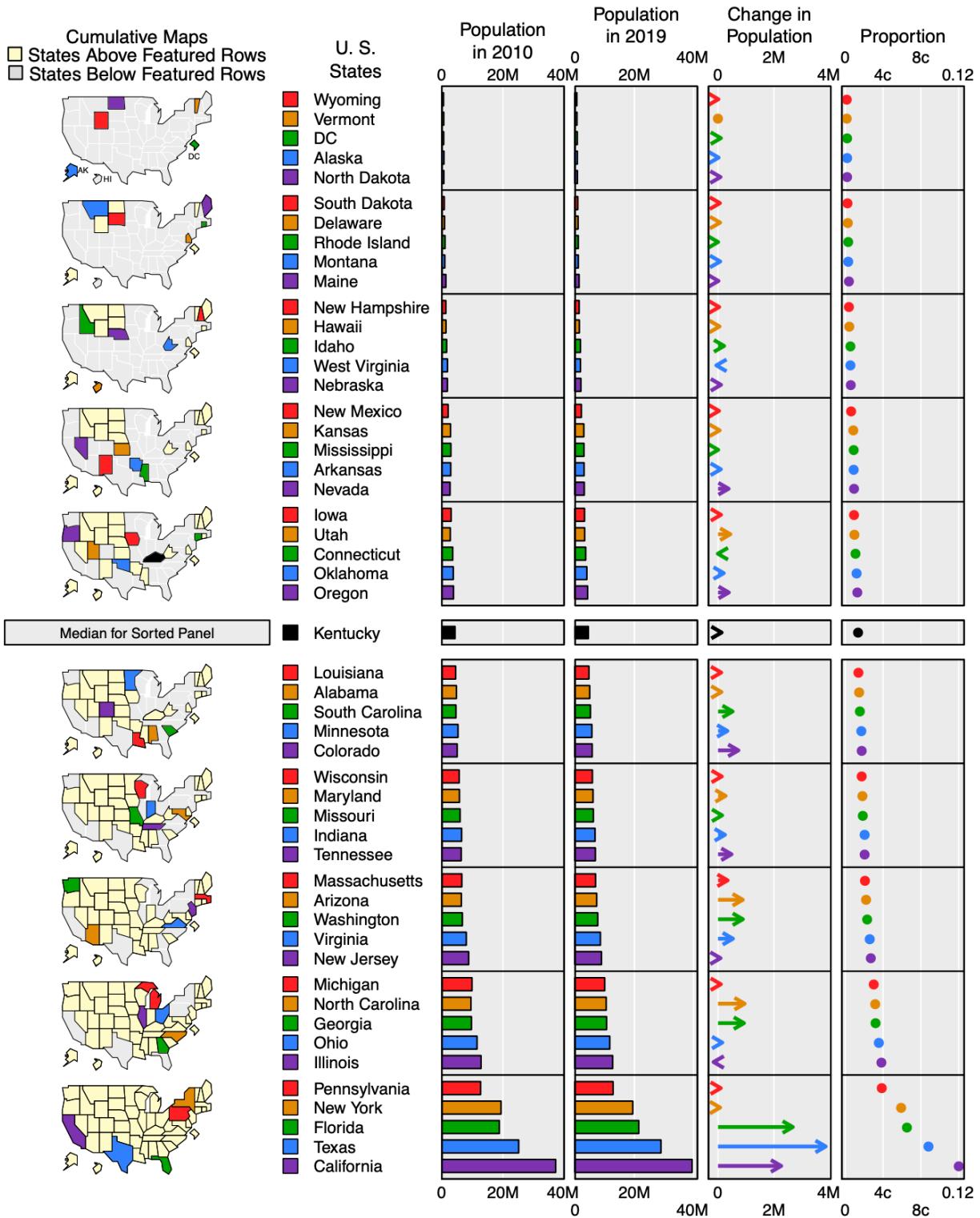
Name	The name attribute contains the names of the 50 states and District of Columbia (51 areas), regions in the United States (Northeast, Midwest, South, West).
CENSUS2010POP	This attribute focuses on conveying the total count of the population in each state and region in the year 2010.
POPESTIMATE2019	This attribute reveals the data count of population in each state and region in the year 2019
POPESTIMATE2019 – CENSUS2010POP (Population difference)	This attribute shows us the difference between the POPESTIMATE2019 and CENSUS2010POP by subtracting population in 2010 from the population in 2019 with respect to each state.
PROPORTION	This attribute discloses the rate at which each state stands in the occupancy.

**Table 1: (National Population Totals and Components of Change: 2010-2019, 2019)**

## **Updated Infographic & Analysis**

As mentioned above, we chose to use MicromapST package to display multiple attribute s and data in one graph. And the MicromapST package supports the United States map and it

## U.S. Population and Changes in 2010–2019



**Figure 2 U.S. Population and Changes in 2010-2019**

automatically matches the string we designate for the states variable, with ‘USStatesBG’ border group. We also wanted to keep the original infographic’s purpose that Figure 1 wanted to show the proportion of each states, by creating the proportion variable (POPESTIMATE2019 / Overall United States Population) by oneself. With referencing the cord format from Carr & Pickle (2010), we constructed the panel description and micromapST template to generate the graph.

Figure 2 is the output that has been generated by using the dataset with ascending order based on the population in 2019. This output shows us the population in 2010 and 2019 in horizontal bar plots and the change in population between 2010 and 2019 is calculated by subtracting the population in 2010 from population in 2019 and it has been represented in the last column in the output in the form of arrows which represent the count increased, decreased and neutrality. The proportion is represented by using the dot plot which shows us how much proportion of the United States is each state and region occupying. To detect the trend or change in the map, we put ‘mapcum’ on panel description. The cumulative maps are used to avoid confusion to the viewer while reading the outcome. It is to show that all the states have been covered. To abbreviate the digit, we put axisScale to ‘sn’ to make the graph more readable.

For the analysis, we found an interesting trend from the graph as we put the order in ascending order of the population in 2019. We could detect that Figure 2 pictorially represents that the population has been increasing gradually when the analysis is moving towards the coastal states from 2010-2019, which was not explained in the original infographic.

## Conclusion

In conclusion, we made many changes to the original graphic by using more attributes to existing data and made the newly generated graphic interactive with the viewer by using the

micromapST package which not only just solves the main purpose of the pie chart but also gives an additional information to the viewer by conveying the statistics on how much was the change of population in each state from year from 2010 to 2019 by using different kinds of plotting techniques. The biggest outcome we've obtained was that we found a United State population trend.

For further study, we'd like to see how it would work if we decrease the group to 4 in one panel with 1 median district which might help perceptual visibility. Furthermore, it would be interesting to use the other R packages that might improve the MicromapST's limitation.

## Works Cited

Daniel B. Carr and Linda Williams Pickle (2010), Visualizing Data Patterns with Micromaps

Häggström, M. (2009, November 20). *File:Pie chart of US population by state.png*. Retrieved from Wikimedia commons :

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