Project 3: Build a Data Visualization (US Census Demographics dataset)

Resources Used: https://www.kaggle.com/datasets/muonneutrino/us-census-demographic-data?select=acs2015_county_data.csv

Question 1: *Does the total population influence the unemployment rate? What are the demographics of the top 10 most unemployed states?*
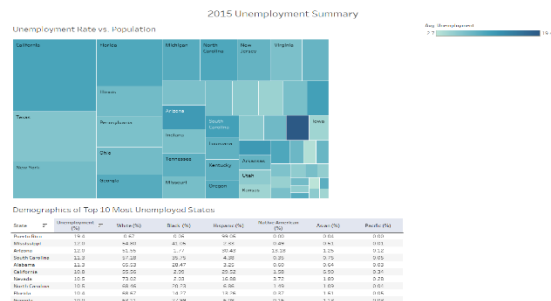
Design:
- To calculate the percentage of unemployed individuals for each state, the average of all counties was calculated for each state.
- To better display the hierarchy of the total population for each state, a treemap diagram was used along with color shading to display the states with high unemployment rates. The lowest unemployment rate area is shaded a light teal and the highest unemployment is shaded as dark blue.
- For the unemployment rate for each state, the average of all Unemployment for each county was calculated.

Link: https://public.tableau.com/views/USDemographicVisualizationProject-2015UnemploymentSummary/2015UnemploymentSummary?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

*Worksheet Link 1: https://public.tableau.com/views/USDemographicVisualizationProject-2015UnemploymentSummary/StatesUnemployment?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link
*Worksheet Link 2: https://public.tableau.com/views/USDemographicVisualizationProject-UnemployedDemographics/Top10UnemployedDemographics?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Thumbnail:

Insight:

California has the largest population with 38,421,464 residents but has an unemployment rate of 10.8%. Though California has the largest population (displayed as the largest block in the treemap), it does not have the highest unemployment rate. Puerto Rico has the highest unemployment rate with 19.4% of its population being unemployed (shaded dark blue). The top 10 most unemployed states data shows that states with a higher Black or Hispanic population tend to have higher unemployment rates.
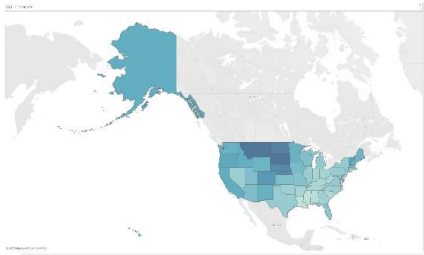
Question 2: *What are the top 3 counties with the highest 'work from home' population?*

Design:

- To calculate the percentage of the population that is working at home, the average of the 'Working at Home' field for all counties was aggregated as an average.
- A calculated field was created that calculates the average 'work at home' percentage for all counties in each state. That average is then divided by 100 to convert the data from a percentage to a decimal. Then, the result is multiplied by the sum of 'Employed' field for all counties to calculate the number of residents that are employed and working from their homes in each state.
  - Formula: (AVG([Work At Home])/100)*sum([Employed])
- Map coloring is changed to show the smallest amount of work at home residents with light teal shading in the state and the highest amount with dark blue shading for visibility.

Link: https://public.tableau.com/views/USDemographicVisualizationProject-WFHStates/WFHStates?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Thumbnail:

Insight:

South Dakota is home to the highest rate of 'work at home' employed residents with 10.4% (44,913) of its population working remotely. Montana follows with 10.2% of its workforce working remotely, making up 49,573 residents. North Dakota holds the third spot with 9.4% of its employed population working at home (36,526 residents).
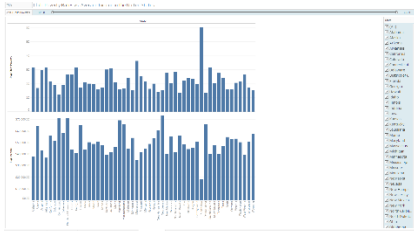
Question 3: *Which state has the highest child poverty rates? Which has the lowest? Does average income impact the child poverty levels?*

Design:

- To calculate the child poverty rates and average income for each state, the average of 'Child Poverty' and 'Income', respectively, for each county was calculated.
- Instead of combining the data in the graph, I decided to use 2 separate bar charts to display the measures as both utilize different data types, decimal number, and currency.

Link: https://public.tableau.com/views/USDemographicVisualizationProject-ChildPoverty/ChildPovertyRates?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Thumbnail:

Insight:

As of 2015, Puerto Rico has the highest child poverty rates at 60.2% with an average income of $17,920. Connecticut has the lowest child poverty rates, 12.2%, and the second highest income for any state in the US, $71,184. There is some correlation between average household income and the rates of child poverty. States with higher average incomes tend to be on the lower end of scale for child poverty levels.