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Udacity Data Visualization Course

WGU Course Code D500 – Data Visualization

2/15/2025

Links

1. https://public.tableau.com/views/GregPinaUdacityNanoDegreev2Dashboard1/Dashboard1?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link
2. https://public.tableau.com/views/GregPinaUdacityNanoDegreev2Dashboard2/Dashboard2?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link
3. https://public.tableau.com/views/GregPinaUdacityNanoDegreev2Dashboard3/Dashboard3?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Summary

This project explores **U.S. Census Demographic Data (2015)** to uncover insights into **transportation, income, poverty, and economic disparities across states**. The analysis is divided into three key visualizations:

1. Best Transportation in the U.S.

- **Key Insight:** States with shorter **mean commute times** and **higher public transit usage** tend to have better transportation systems.
- **Findings:**
 - The **Northeast region** (e.g., New York, New Jersey, Massachusetts) has the **highest public transit usage**.
 - **Rural states** (e.g., Montana, Wyoming) rely more on **personal vehicles** with **longer commutes**.
 - **Washington D.C.** leads in **public transit usage**, but some **West Coast states** (California, Oregon) also show strong public transit adoption.

2. Income & Poverty Across America

- **Key Insight:** Higher **median income** generally correlates with **lower poverty rates**, but there are exceptions.
- **Findings:**
 - **Northeastern states** (e.g., Connecticut, Massachusetts) have **higher incomes** and **lower poverty rates**.
 - **Southern states** (e.g., Mississippi, Louisiana, West Virginia) have the **highest poverty rates** despite having lower living costs.

- **Trend line** in the scatter plot confirms a negative correlation: **as income increases, poverty decreases.**

3. Employment & Economic Divides

- **Key Insight: Transportation choices** impact employment, and **coastal states** tend to have **stronger economies** than inland states.
- **Findings:**
 - **Work-from-home states** have lower unemployment rates.
 - **High car dependency states** often have **higher unemployment** (possible due to fewer job clusters).
 - **Coastal states** tend to have **higher median incomes** than **inland states**, reinforcing an economic divide.

Design

This project follows **best practices in data visualization** to enhance clarity, accessibility, and engagement.

1. Best Transportation in the U.S.

- **Design Choices:**
 - **Choropleth Map:** Employs a **sequential blue gradient** to highlight mean commute times (lighter = shorter, darker = longer).
 - **Bar Chart:** Used **green color** to contrast **public transit usage** and sorted in descending order for clarity.
- **Feedback & Changes:**
 - Initially, the **map was cluttered**, so we adjusted **color scale contrast** to improve readability.

2. Income & Poverty Across America

- **Design Choices:**
 - **Scatter Plot:** Used **trend line** to emphasize the correlation between **income** and **poverty rate**.
 - **Heatmap:** Used **diverging colors (red for low income, blue for high income)** to clearly differentiate state-level income variations.

- **Feedback & Changes:**

- Originally, some **data points overlapped in the scatter plot**, making it hard to read. Adjusted **point size and transparency**.

3. Employment & Economic Divides

- **Design Choices:**

- **Stacked Bar Chart:** Used **color encoding** for different transportation modes to highlight employment differences.
- **Coastal vs. Inland Comparison:** Used **side-by-side bars** with **distinct color palettes** for easy visual distinction.

- **Feedback & Changes:**

- Initially, the **employment chart lacked clear labels**, so we **added tooltips and precise labels for better interpretation**.

Resources

- "N/A"