

Expansion Recommendations for Star House



Team 10

Agenda

- Understanding perspective
- Goals of Star House
- Setting a working metric
- Finding feature importance
- Creating solutions

Understanding perspective

When working with the non-profit, Star House, understanding perspective is crucial to identifying the purpose and goals of what is looking to be solved.

In Star House's case, we see that fostering a comfortable community for homeless youth to fall back on is a priority, as a safe space and social support group is what truly solves homelessness along youth.



Goals of Star House

Star House is looking to expand its presence to target the most in need populations.

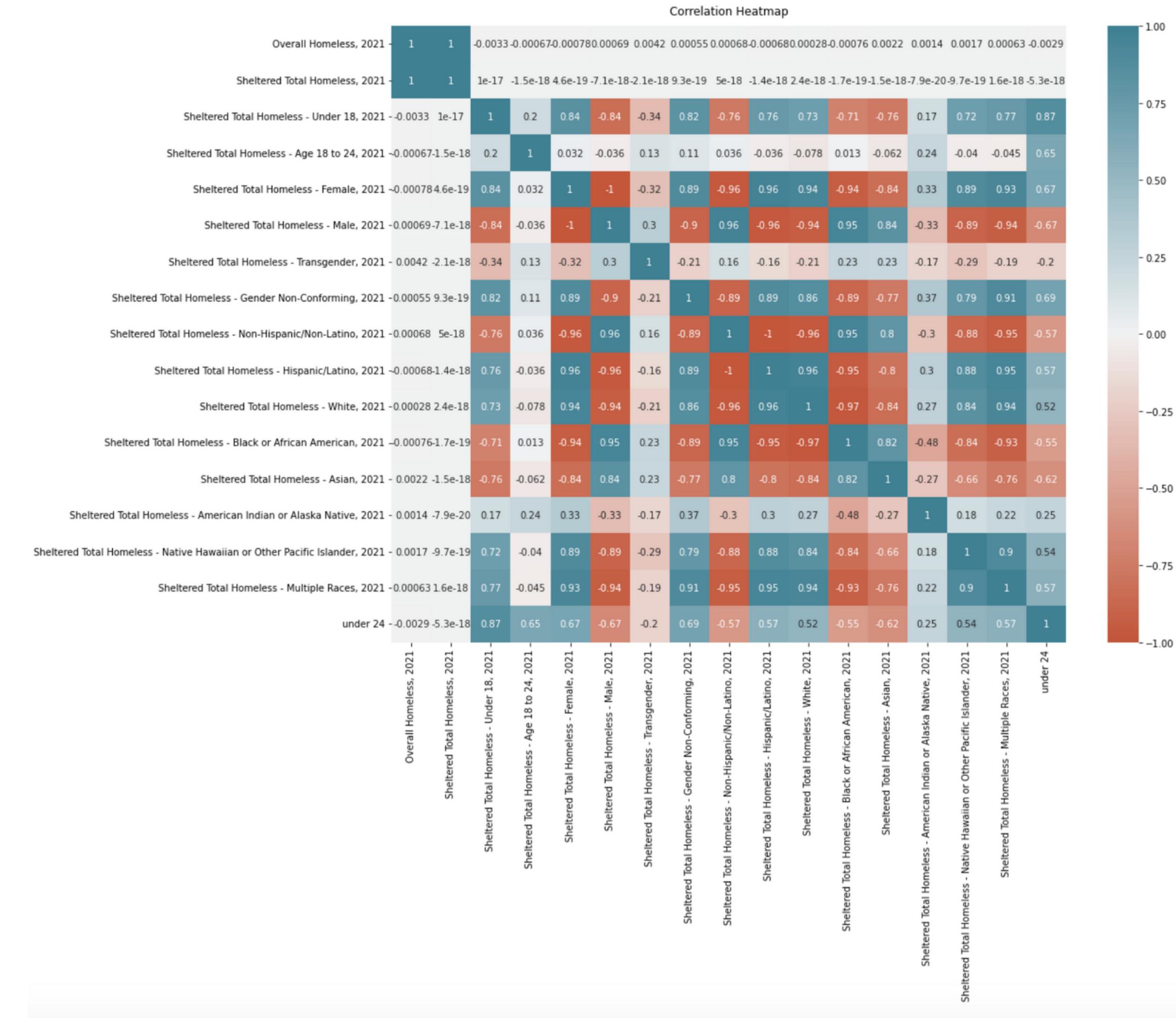
Objective: Find the most in-need areas for Star House to expand to.



Star House

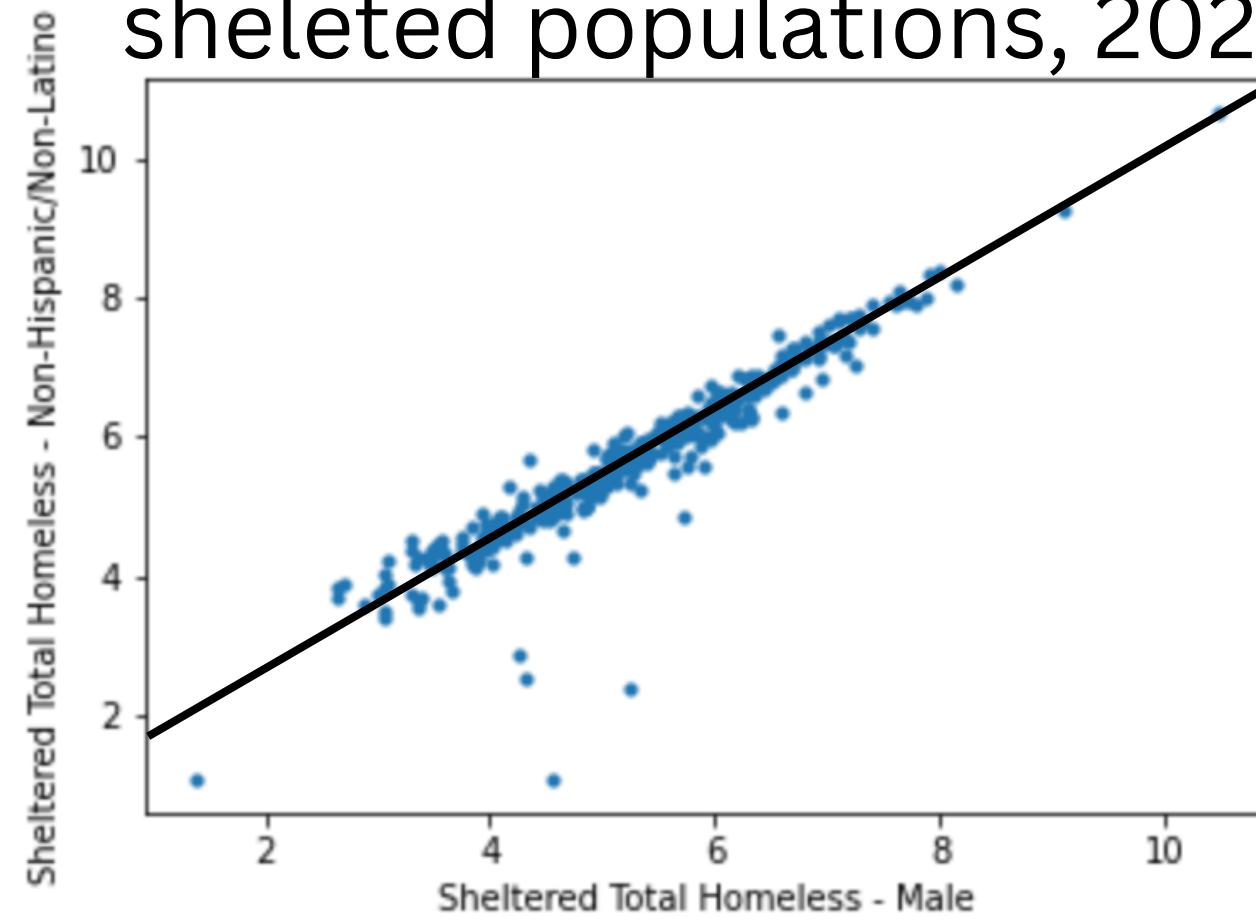
Demographic Correlation Matrix

- This matrix shows how closely related two demographics are
- A deeper blue indicates a stronger relationship and a darker red indicates a weaker relationship

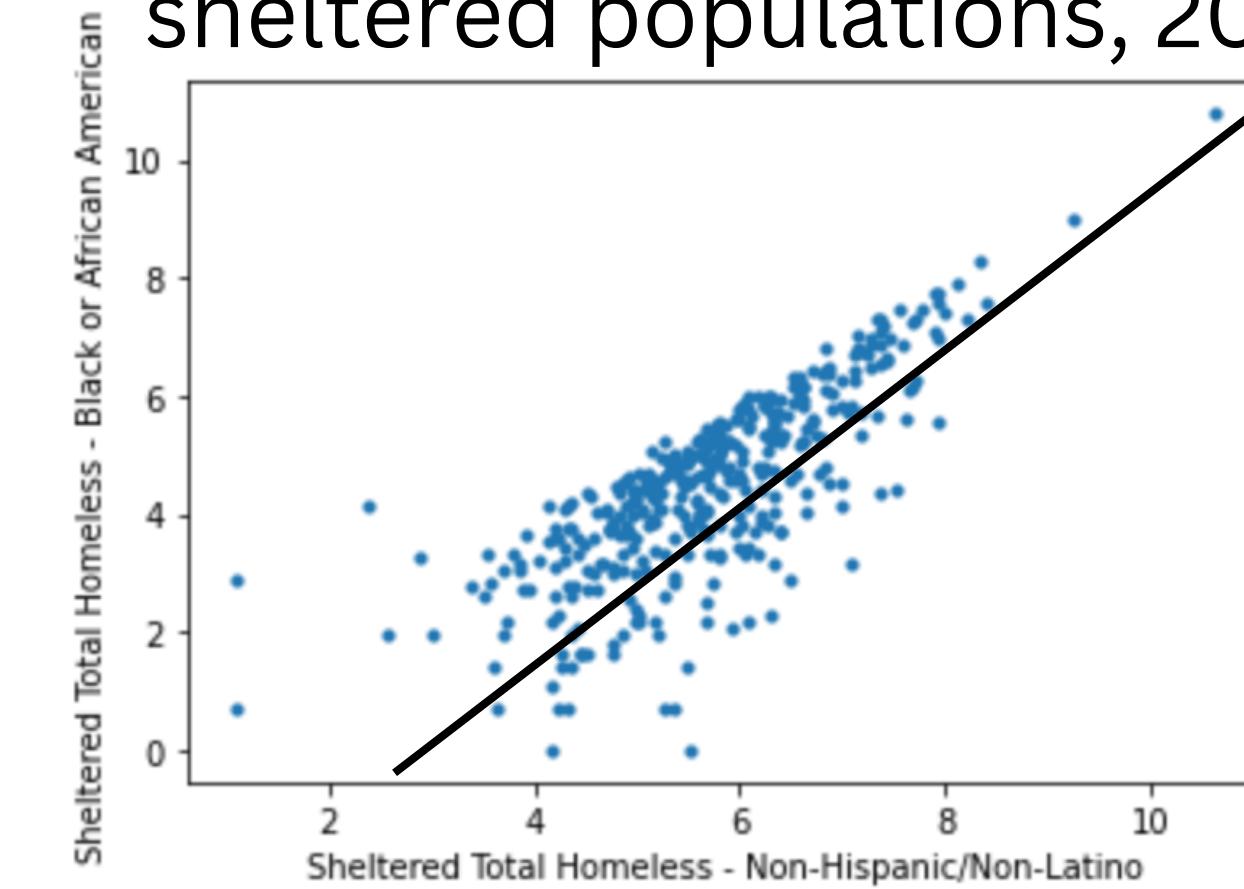


Demographic Correlation Visualized

Male vs Non-Hispanic
sheltered populations, 2021



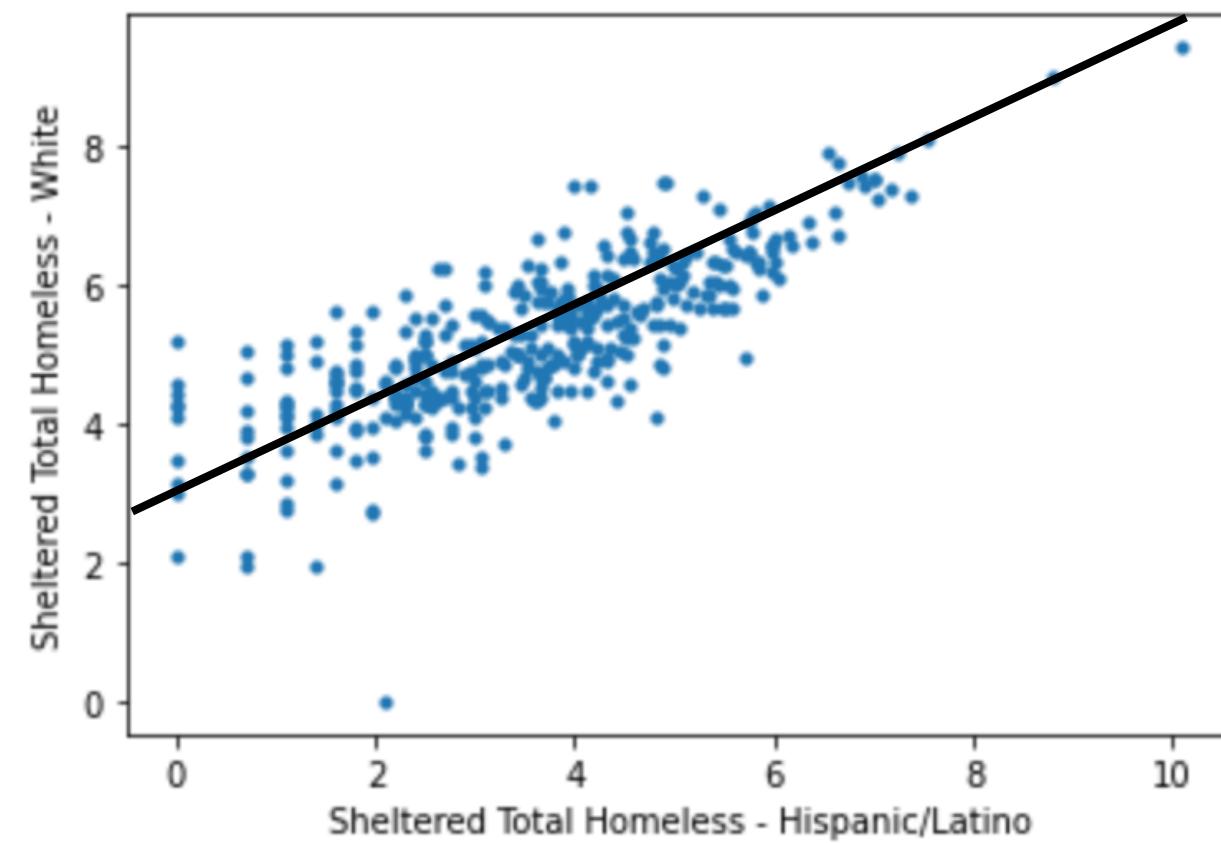
Non-Hispanic vs Black
sheltered populations, 2021



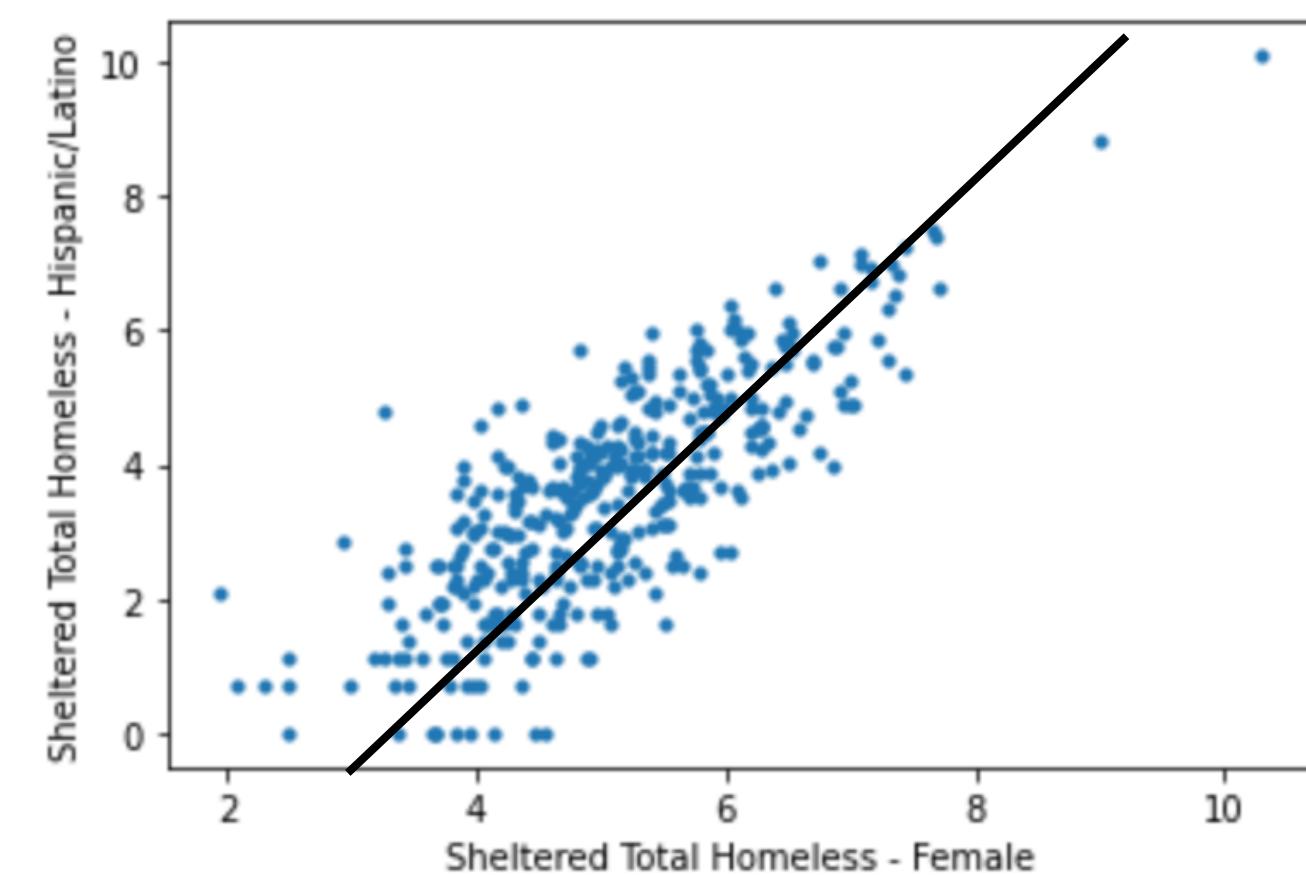
For all features with positive correlations such as these,
there is a strong positive correlation

Demographic Correlation Visualized

Hispanic vs White
sheltered populations



Female vs Hispanic
sheltered populations



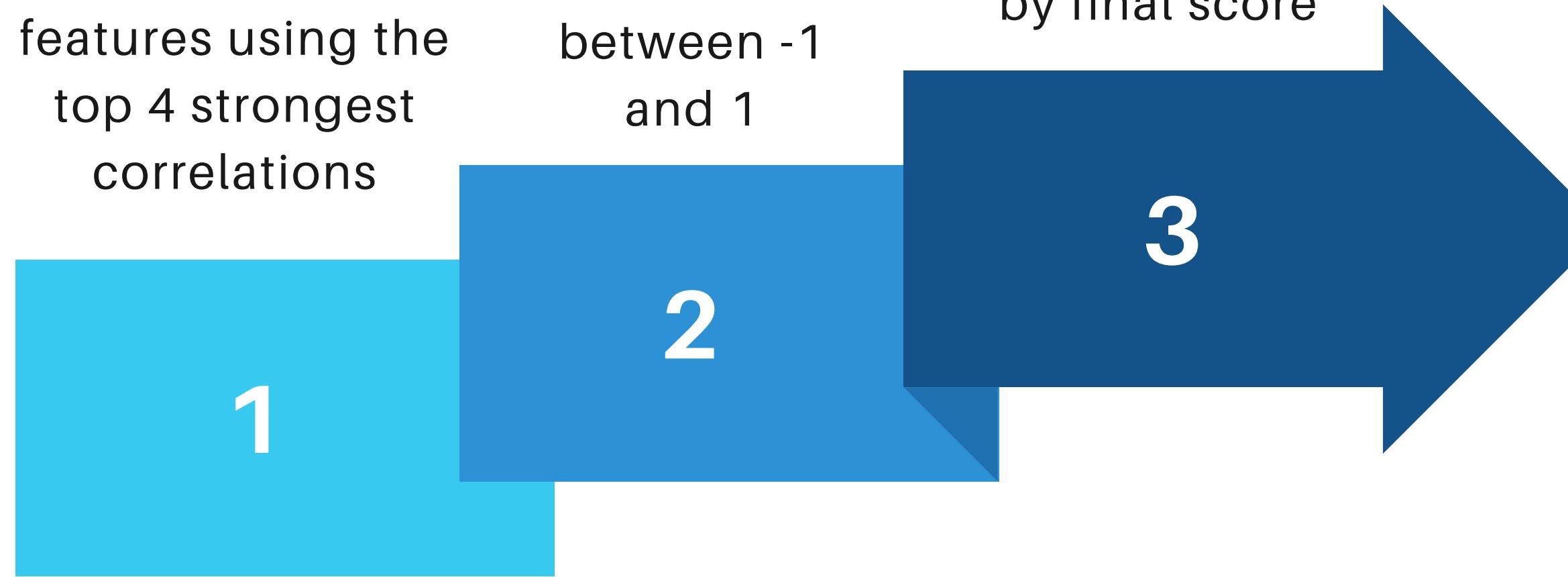
For all features with positive correlations such as these,
there is a strong positive correlation

Feature Score Calculation

Select the most important demographic features using the top 4 strongest correlations

Scale each column to a number between -1 and 1

Sum up metrics in each row to obtain the final score and sort by final score



Final Recommendations

CoC Number	CoC Name
NM-501	New Mexico Balance of State CoC
CO-500	Colorado Balance of State CoC
OH-500	Cincinnati/Hamilton County CoC
CA-510	Turlock, Modesto/Stanislaus County CoC
FL-510	Jacksonville-Duval, Clay Counties CoC



Albuquerque, NM

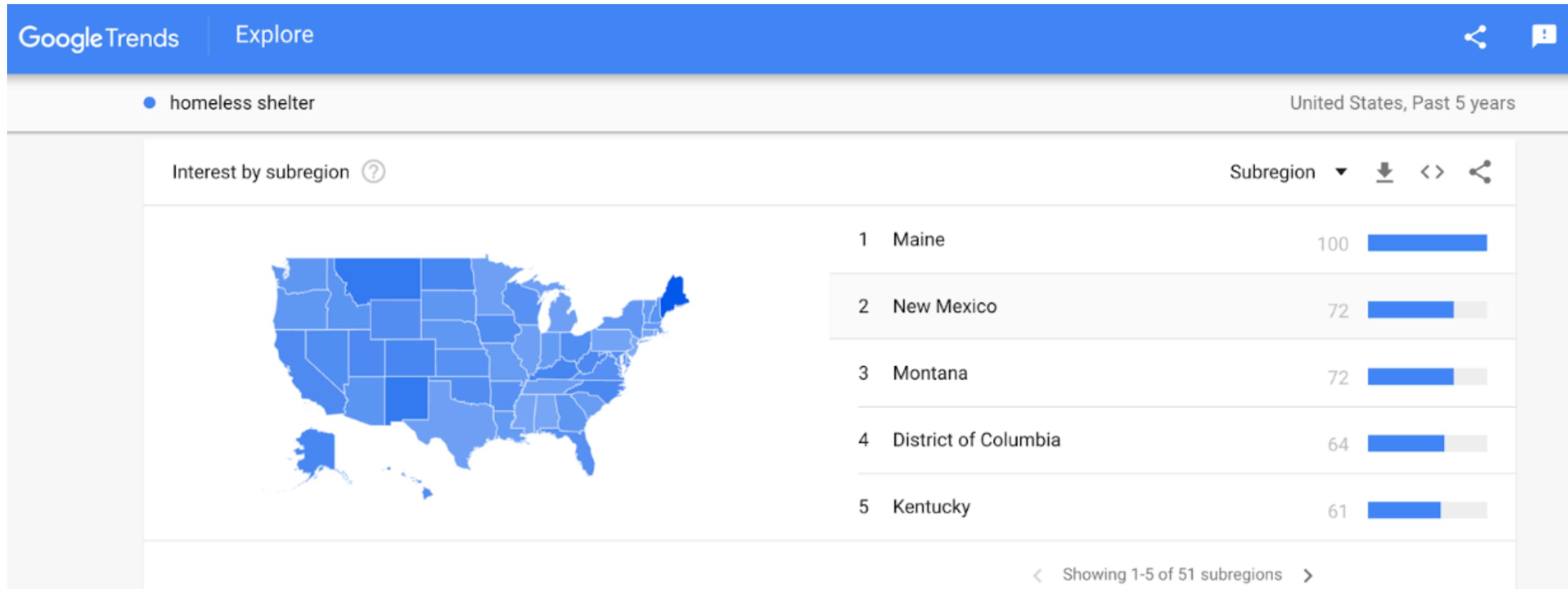


Grand Junction, CO



Cincinnati, OH

Final Recommendations cont.



"homeless shelter" is second most commonly searched in New Mexico

Finding feature importance

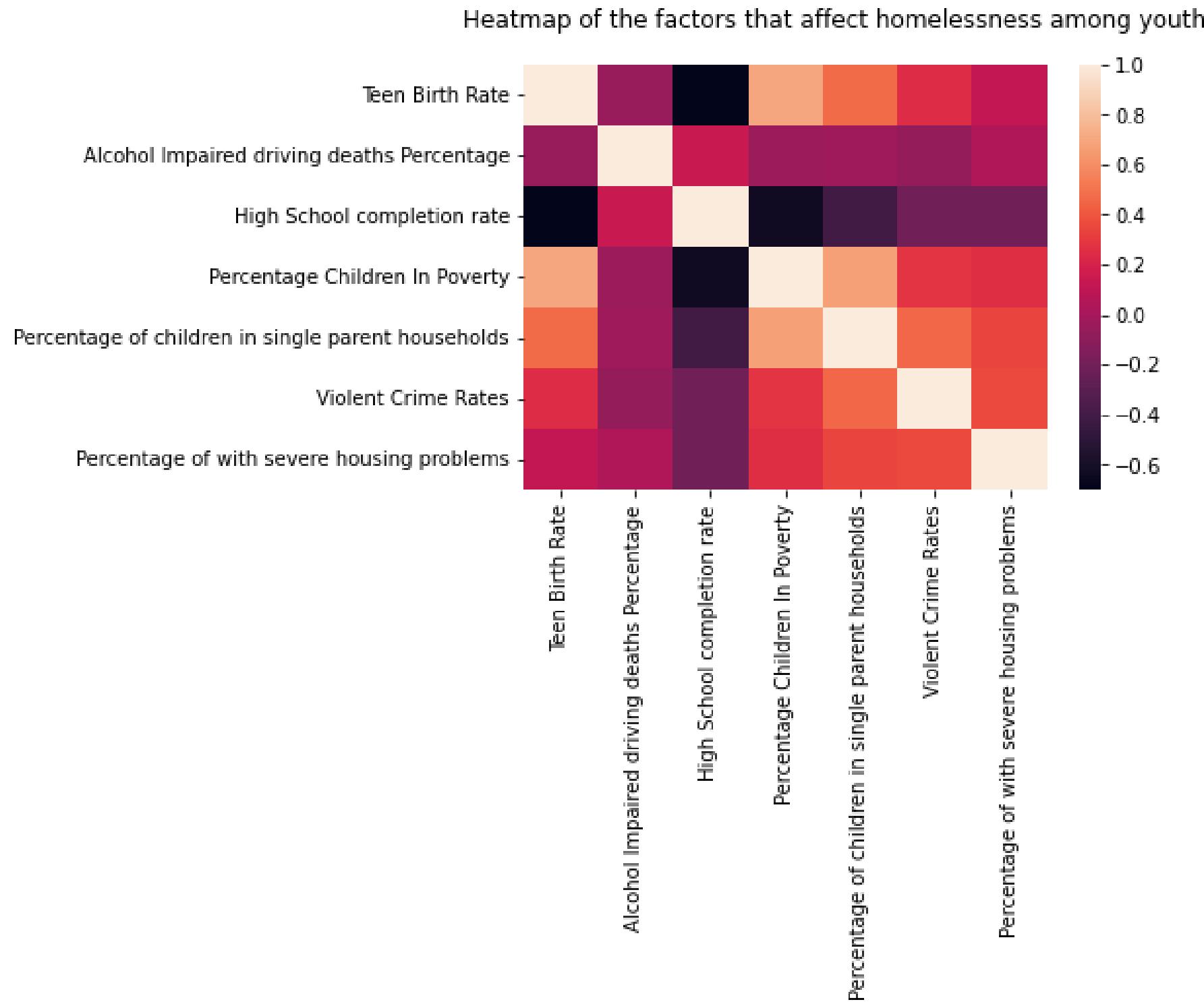
According to the NCSL, these are the primary factors contributing to youth homelessness:

- Identified family conflict and family dynamics
- A youth's sexual orientation
- Sexual activity
- School problems
- Pregnancy
- Substance

We focused on these factors, examined their correlation to each other, and where they were most prevalent in the country last year.

Finding feature importance

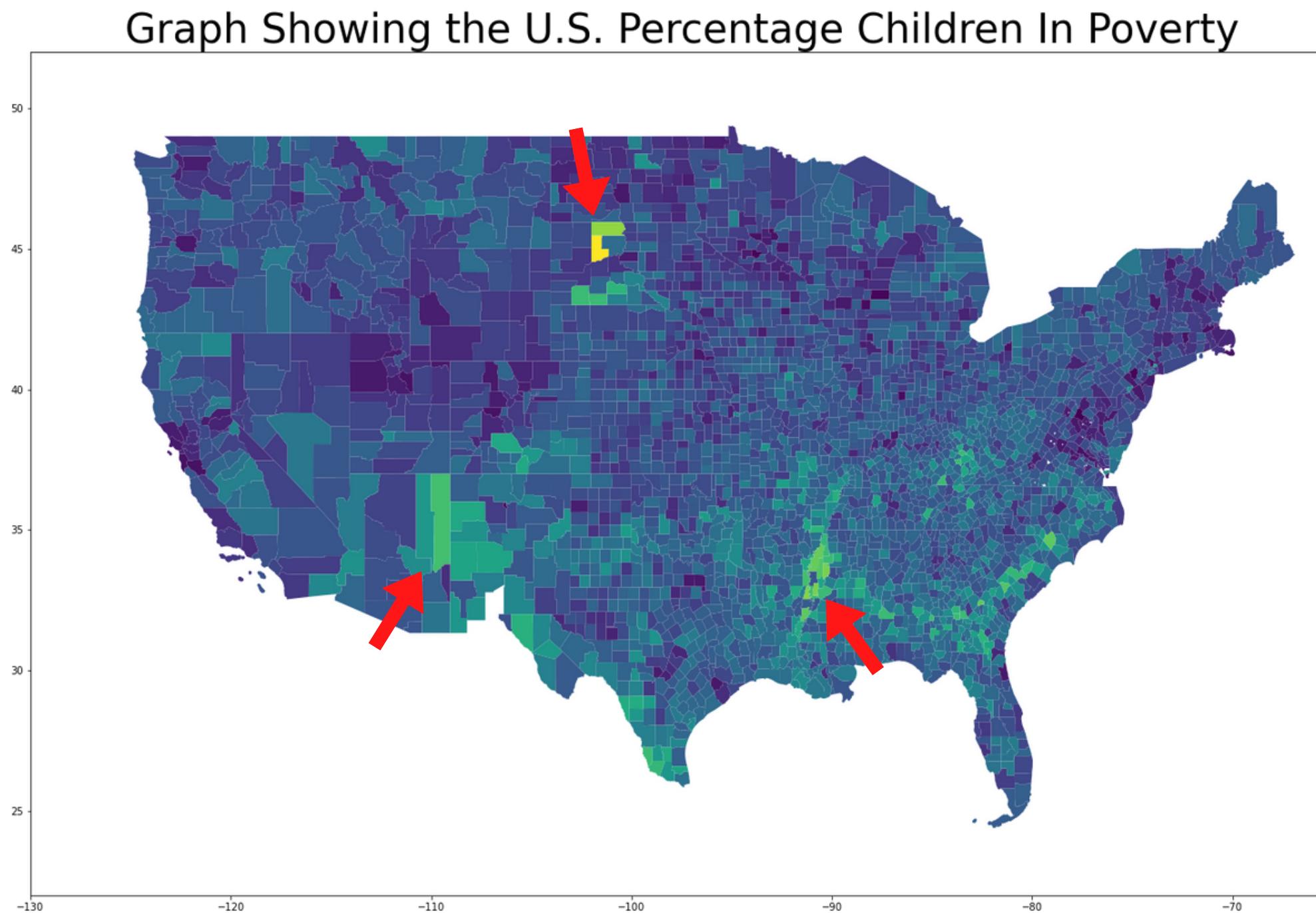
Factors contributing to youth homeless



1. Teen Birth rates and High school completion rates are extremely negatively correlated
2. Children in Poverty and high school completion rate are negatively correlated
3. High school completion rate and Alcohol-impaired driving deaths percentage rate have little correlation

Finding feature importance

Geospatial analysis of child poverty, 2021

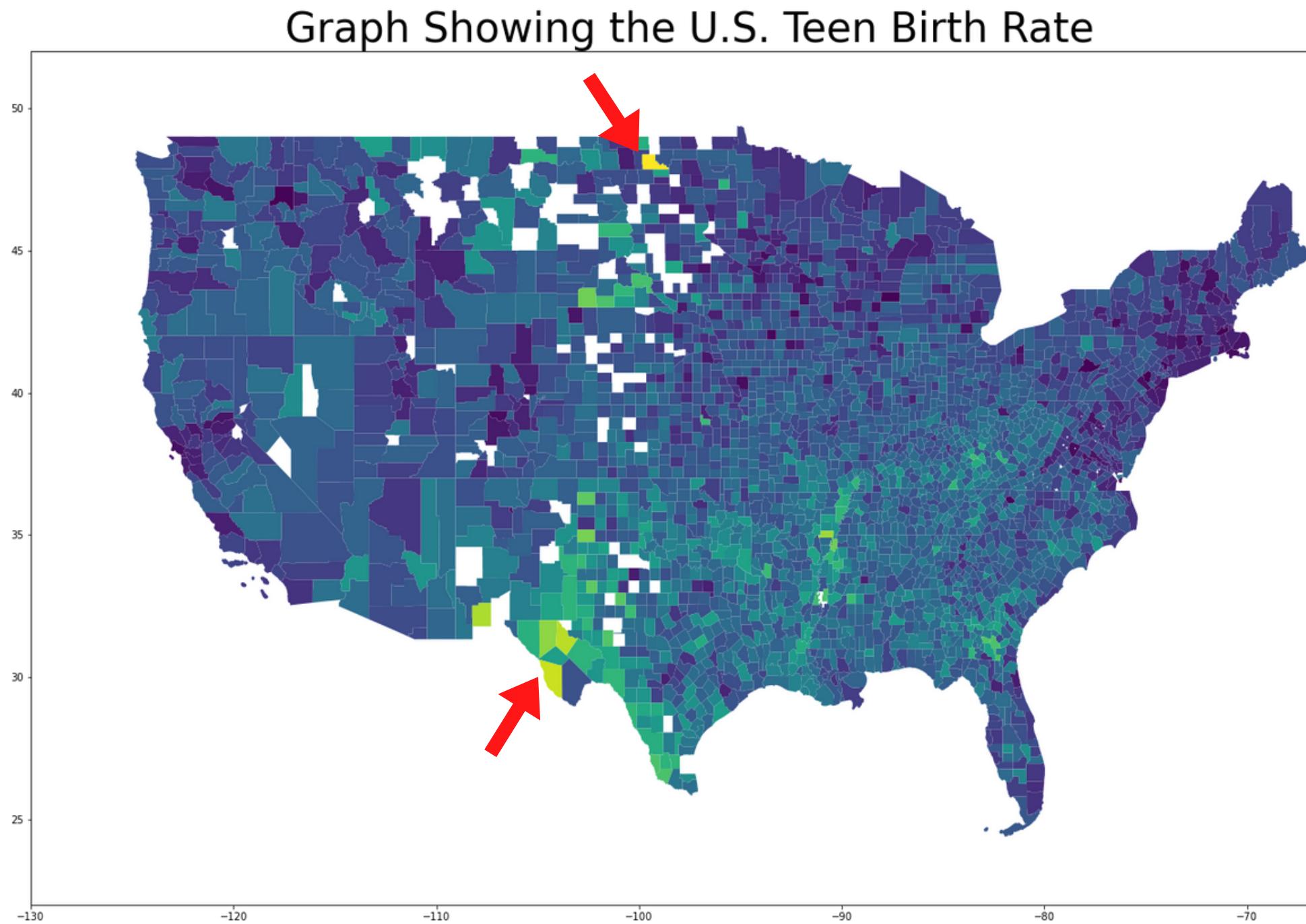


This graph shows the U.S. percentage of children in poverty broken down by county.

Notice that certain areas seem to follow a trend of higher child poverty.

Finding feature importance

Geospatial analysis of U.S. Teen Birth, 2021

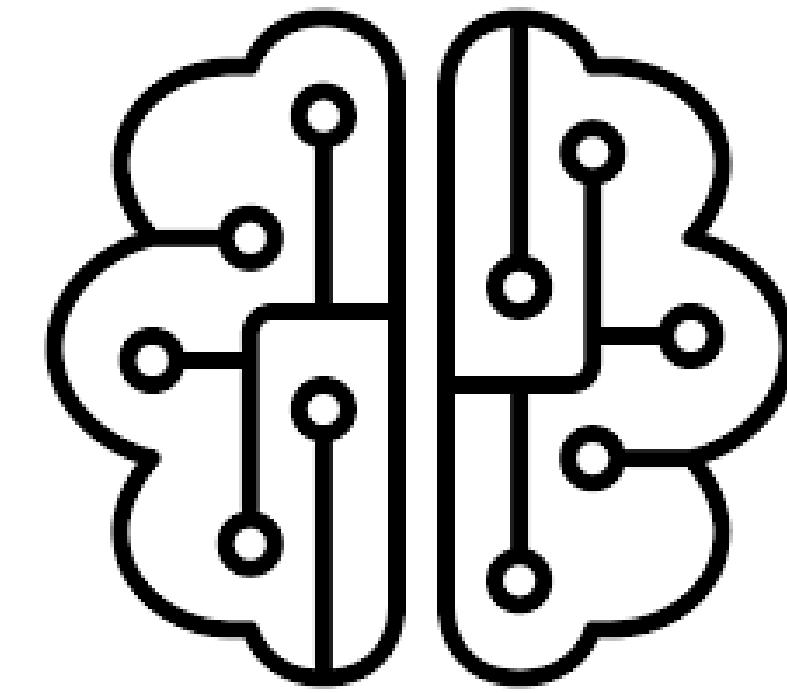


This graph shows the U.S. Teen Birth Rate broken down by county.

Certain areas are higher. Especially the New Mexico Area.

Next Steps

1. Implement a Machine Learning model to:
 - a. Predict our current features for the next year
 - b. Incorporate non-demographic features at the CoC level
2. Access to more reliable data across time to then predict the future movement of the various factors that contribute to youth homelessness

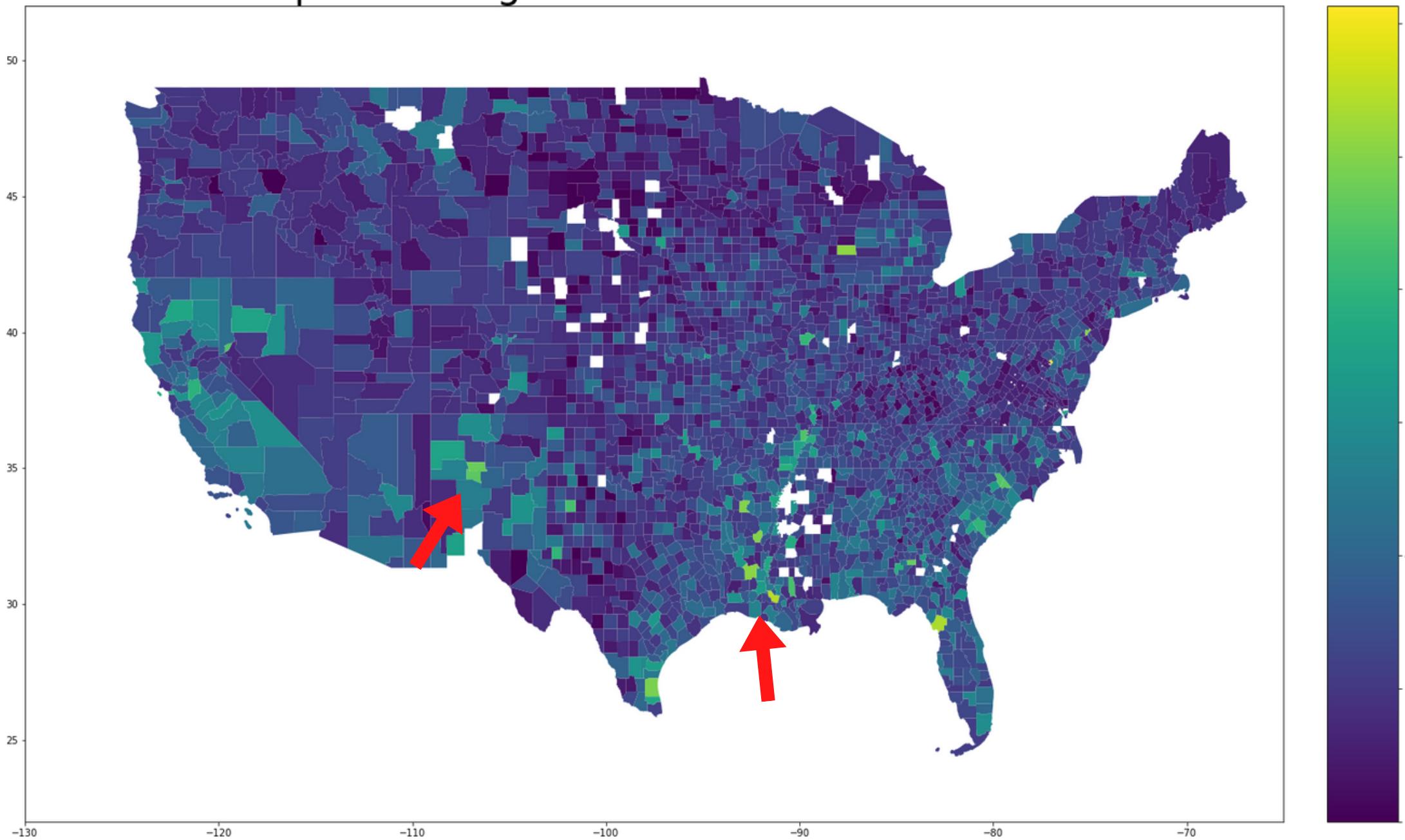


Appendix

Finding feature importance

Geospatial analysis of U.S. Violent Crime, 2021

Graph Showing the U.S. Violent Crime Rates

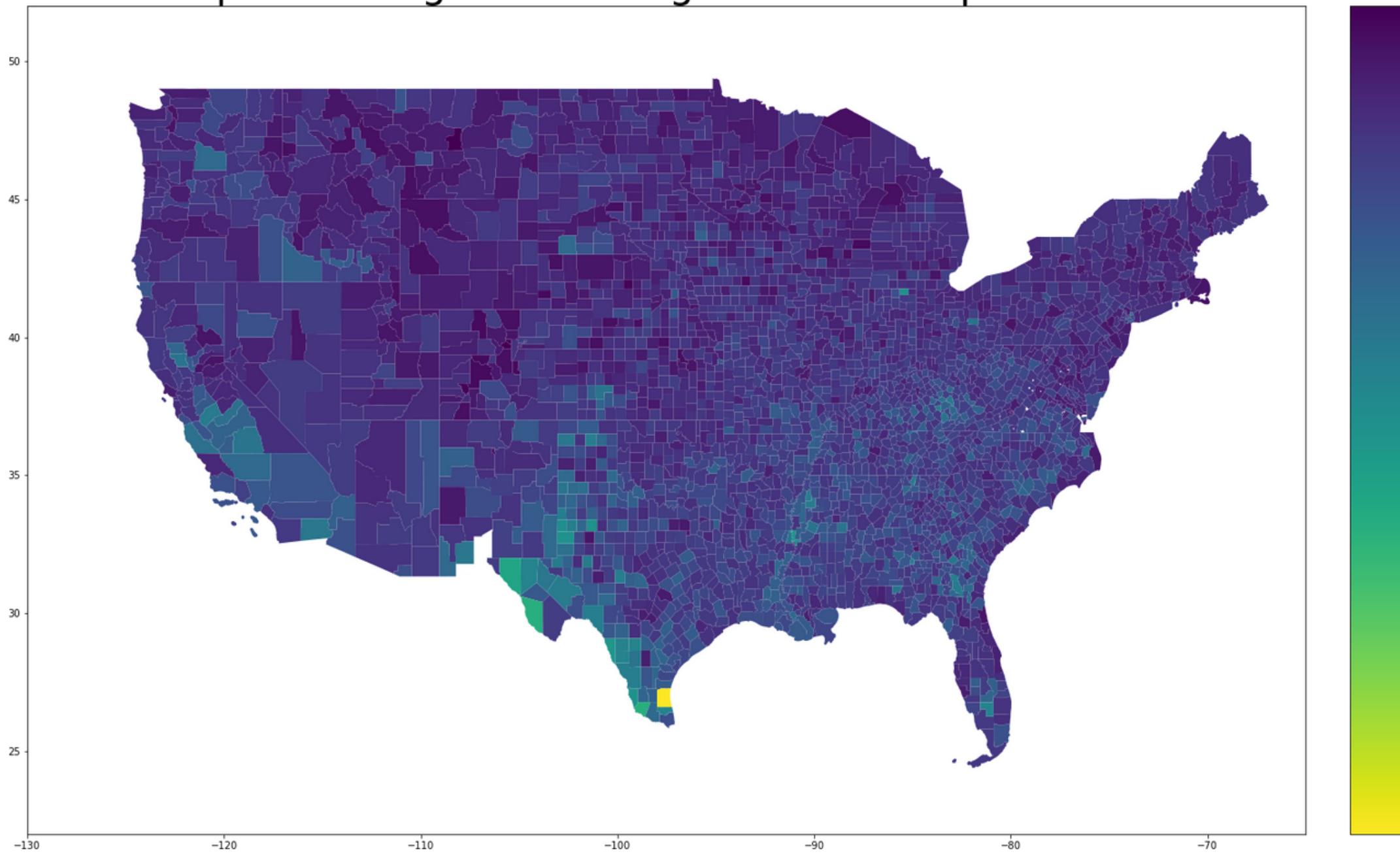


Source: <https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation>

Finding feature importance

Geospatial analysis of U.S. High School Completion Rates, 2021

Graph Showing the U.S. High School completion rate



Source: <https://www.countyhealthrankings.org/explore-health-rankings/rankings-data-documentation>