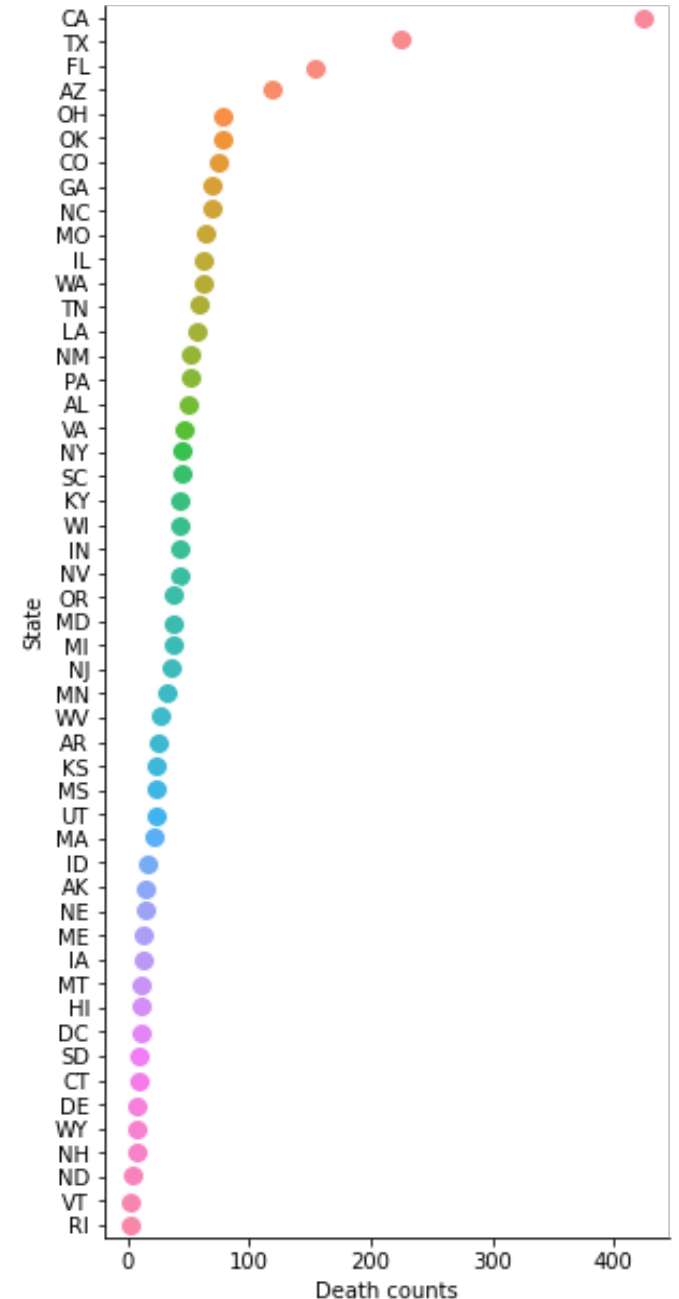


Final Capstone:

Where are the safest cities to live in the United States?

By Daniel Kim

Definitely not California, Texas, or Florida



Road map

1. The Data
2. Who is this for?
3. My hypothesis'
4. Methods
5. Analysis
6. Conclusion
7. Next steps

The Data: Fatal police shootings in the US

Kaggle.com (2015-2017)

- Deaths by police
 - (14 col, **2535** rows)
- Median household income
 - (3 col, 29322 rows)
- Poverty percentage
 - (3 col, 29329 rows)
- High school grad rate
 - (3 col, 29329 rows)
- Race percentage distribution
 - (7 col, 29268 rows)

• Useful features

- State and city for joins
- 'race', 'share_asian', 'percent_completed_hs', 'Median Income', 'poverty_rate'

Other Data

- US Census Bureau
 - For population percentage data
- usnews.com
 - For income class division information

Who is this for?

Who is this for?

- People looking to relocate to a different city

Where's the value?

- Use the analysis as a another perspective to determine whether to live in that city or not

My Hypothesis'

1. Greater asian populations result in less police shootings.
2. Less deaths in cities with a higher percentage of high school graduates.
3. More deaths in cities with lower median household income and greater poverty levels.
4. Black people are more likely to be shot than white people.

Methods

Sample t tests

Find p-value to determine there is statistical significance

Seaborn graphs (displot, barplot)

Visualize how the data behaves

Greater asian
populations result in
less police shootings?

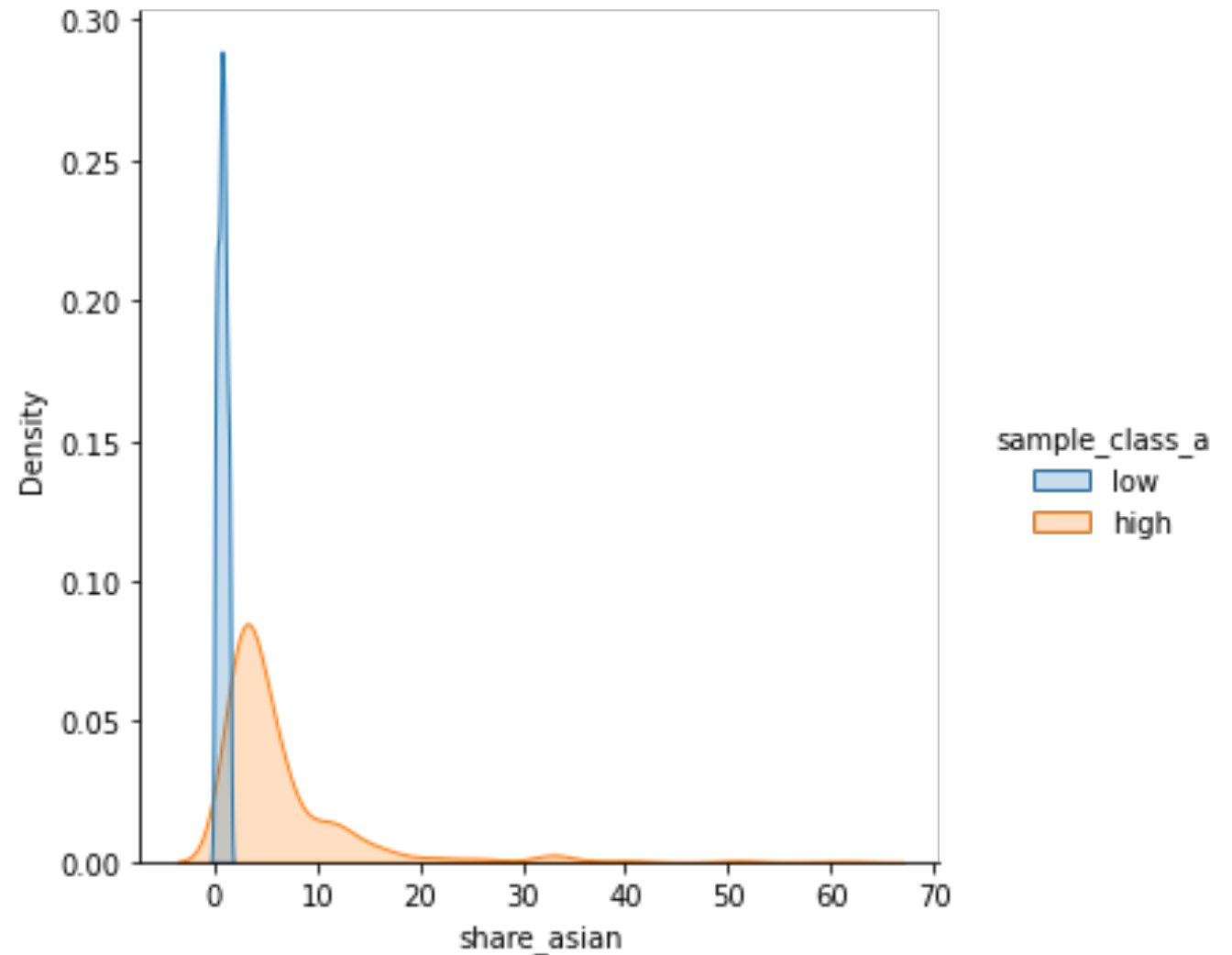
H₀: No significant difference in number
of deaths in high or low asian
populations.

H_a: Significant difference in number of
deaths in high or low asian populations.

Population mean percentage: 1.54

t-test results: $t=22.209$

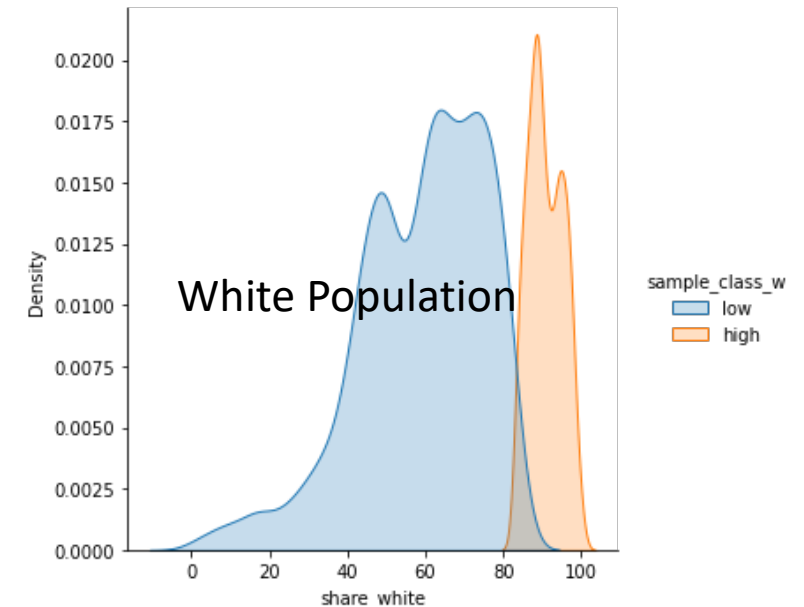
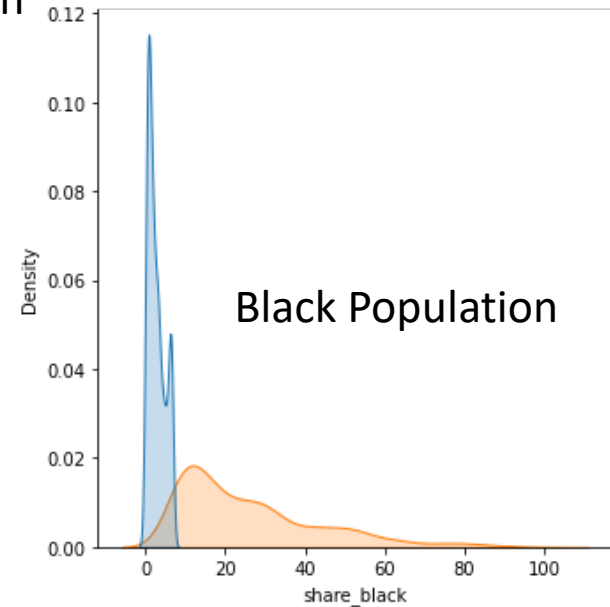
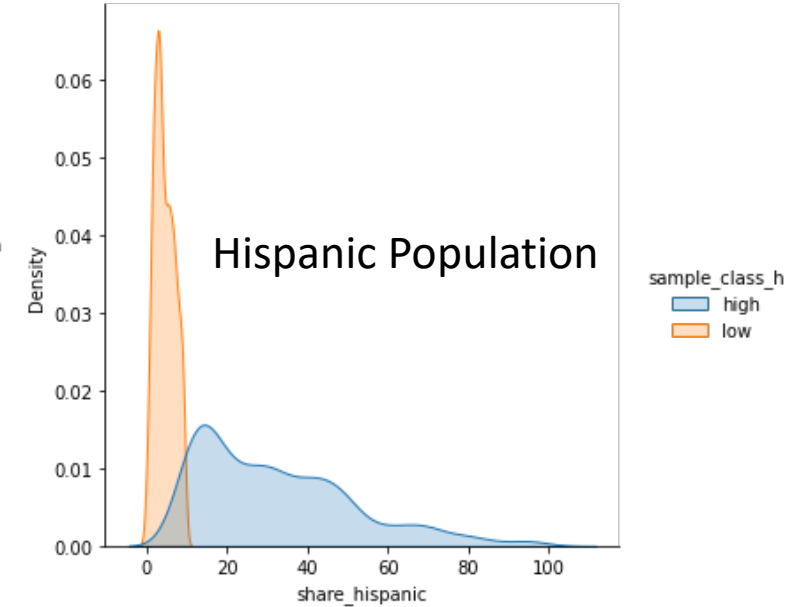
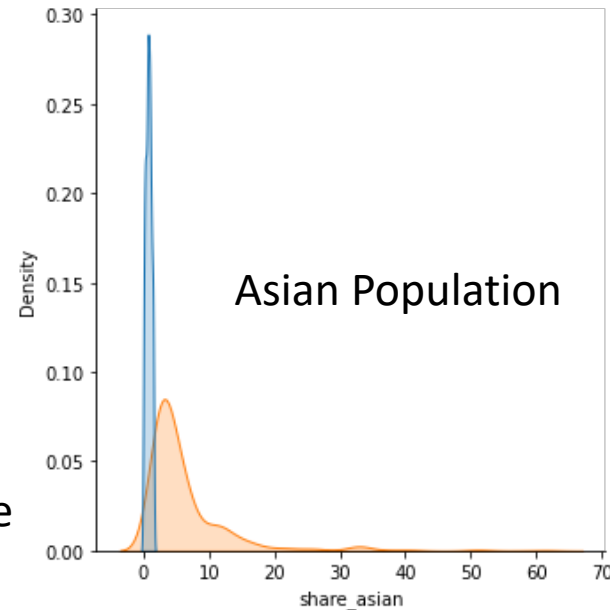
P-value results: $p=0.000$



Findings are not reliable

Why?

- Same results appeared in all but the white population
- Data not balanced, population mean low for all but white population
- Most cities are mostly white



Less deaths in cities with a higher percentage of high school graduates?

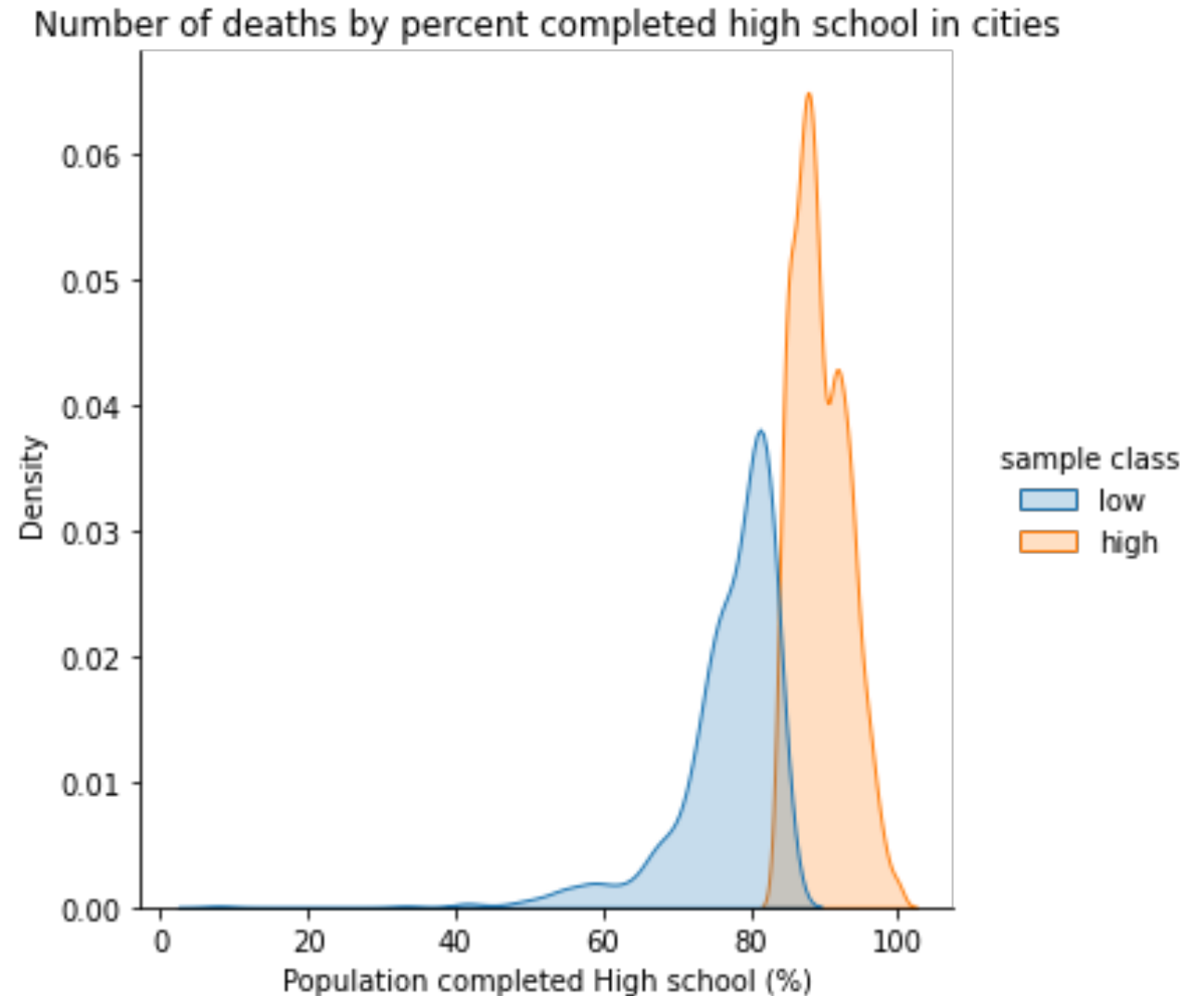
H₀: No significant difference in number of deaths in cities with higher or lower percentage of high school graduates.

H_a: Significant difference in number of deaths in cities with higher or lower percentage of high school graduates.

Population mean: 84.085164

t-test results: $t = 54.236$

P-value results: $p = 0.000$



More deaths in cities with lower median household income and greater poverty levels?

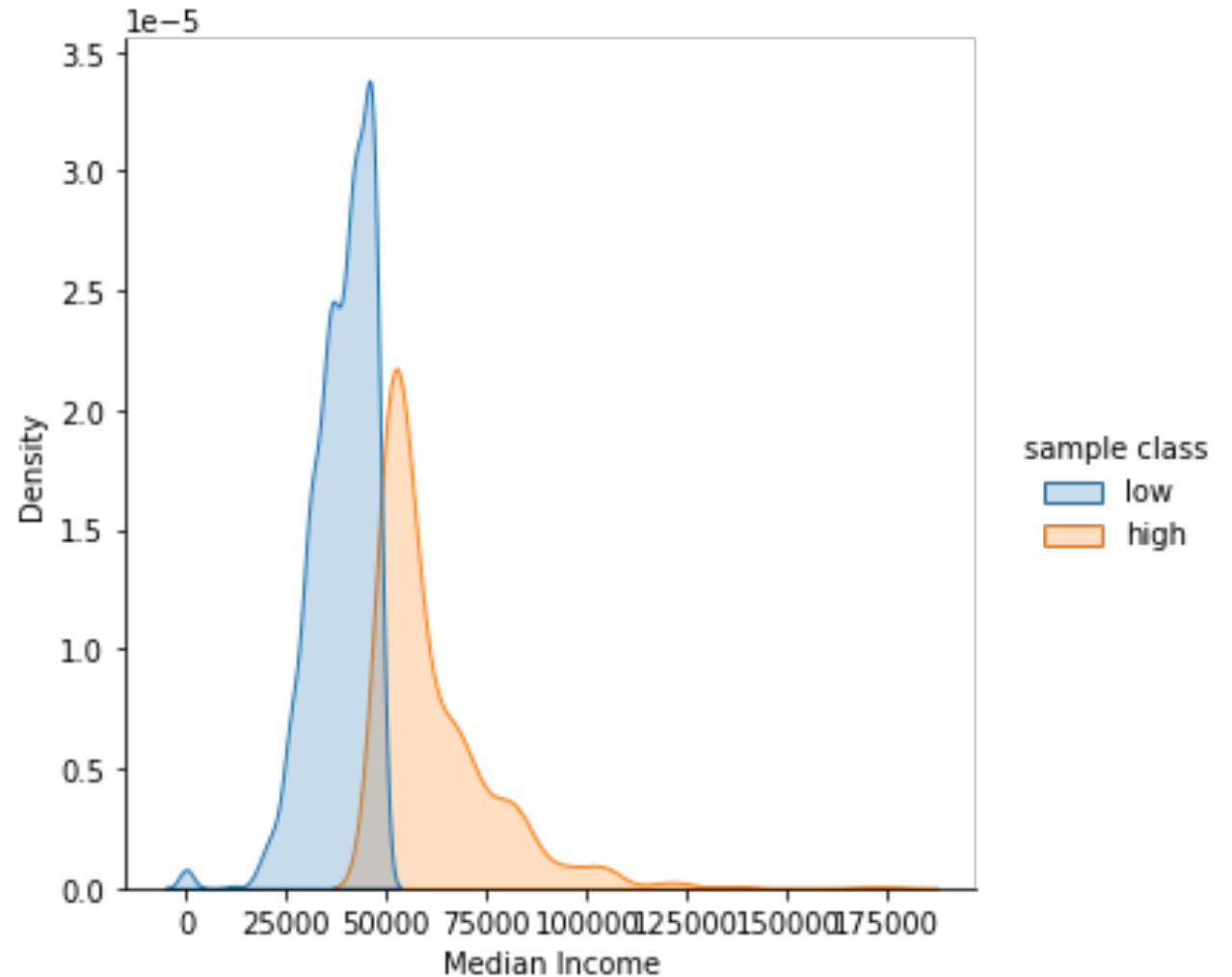
H₀: No significant difference in number of deaths in cities with high or low median household income.

H_a: Significant difference in number of deaths in cities with high or low median household income.

Population mean: 48002.63

t-test results: $t=-47.433$

P-value results: $p=0.000$



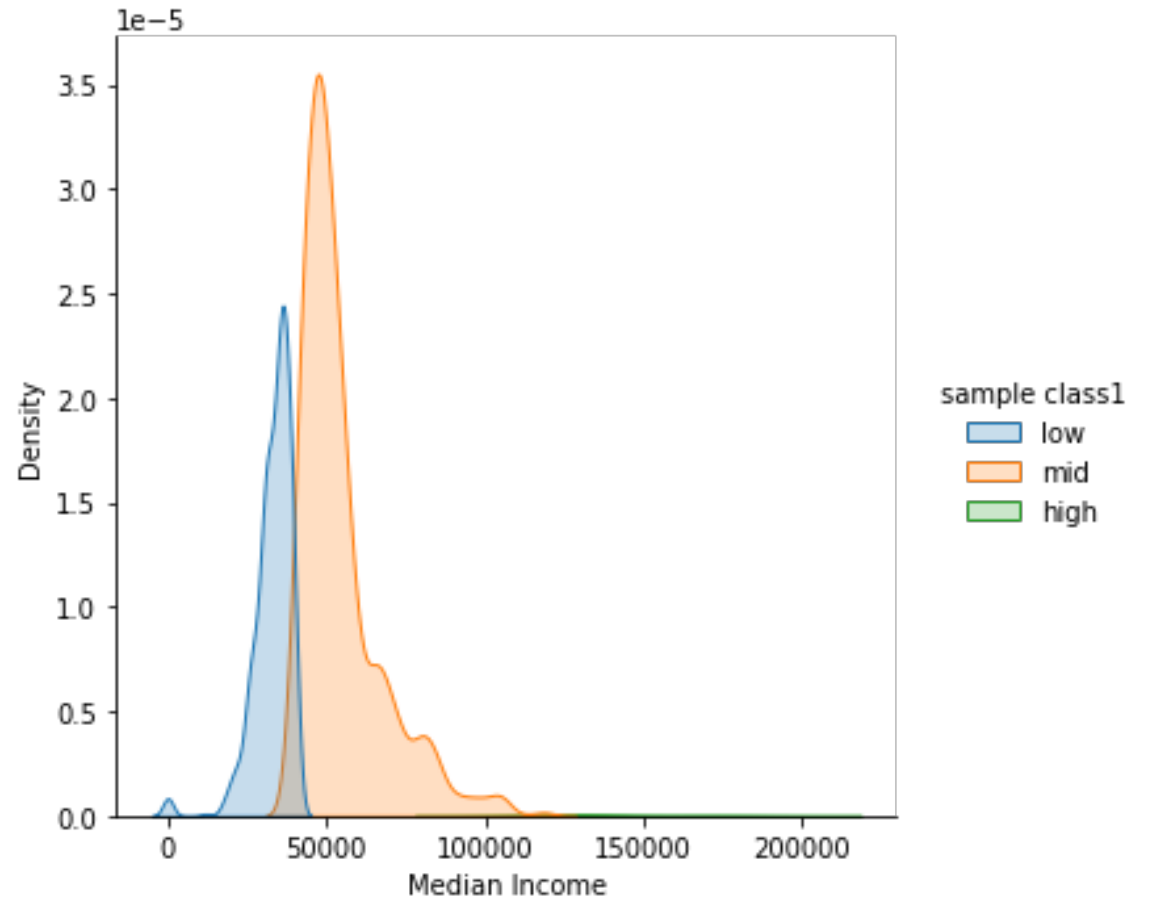
What about by
Income class?

Low class: \$0 - \$40,100

Middle class: \$40,100 - \$120,400

Upper class: \$120,400+

More deaths in Lower middle class
or upper lower class areas.



INCOME GROUP	INCOME
Low income	Less than \$40,100
Middle income	\$41,000 - \$120,400
Upper income	More than \$120,400

More deaths in cities
with lower median
household income and
greater poverty levels?

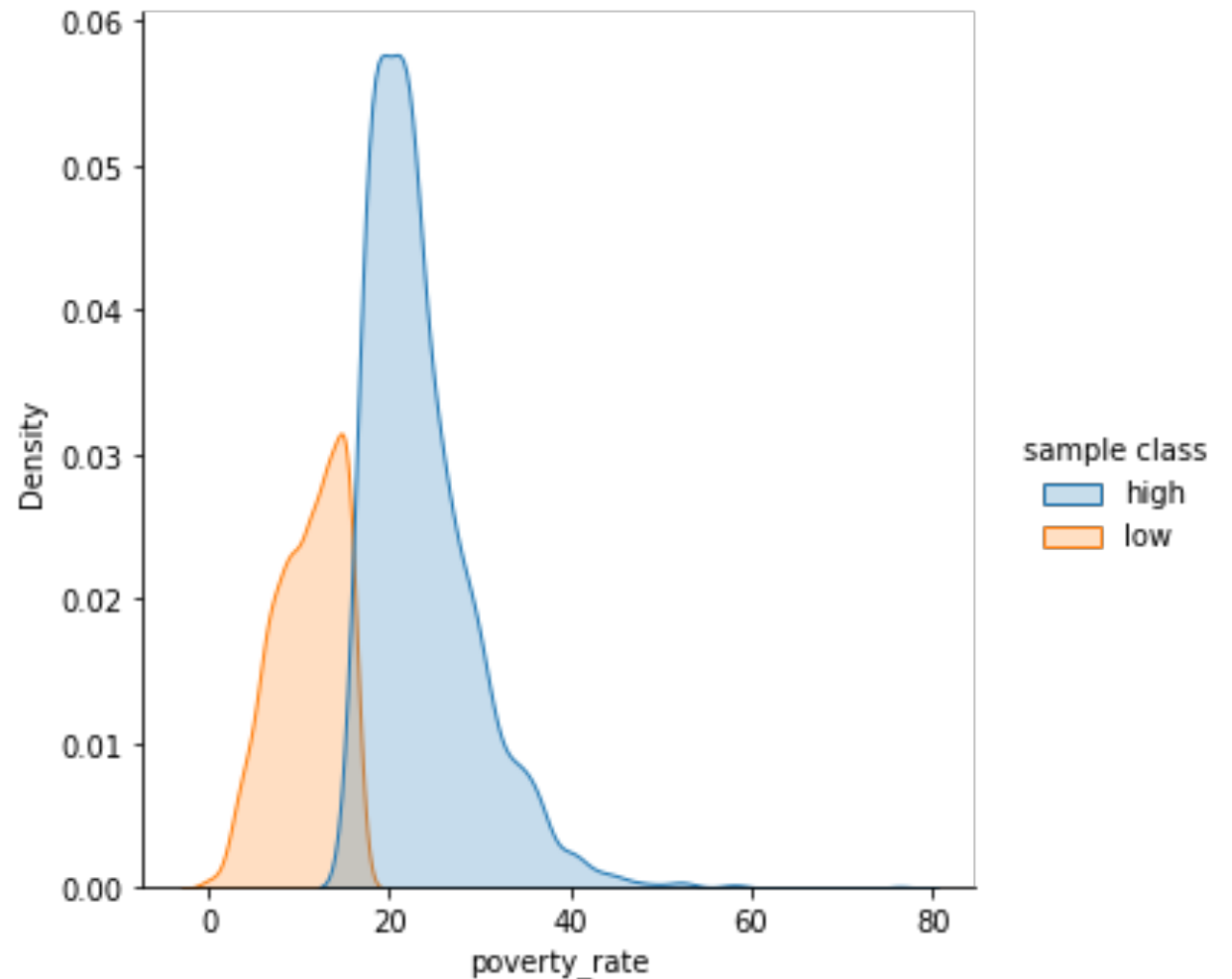
H₀: No significant difference in number of deaths in cities where the poverty rate is higher or lower.

H_a: Significant difference in number of deaths in cities where the poverty rate is higher or lower.

Population percent mean: 16.331287

t-test results: $t = -51.689$

P-value results: $p = 0.000$

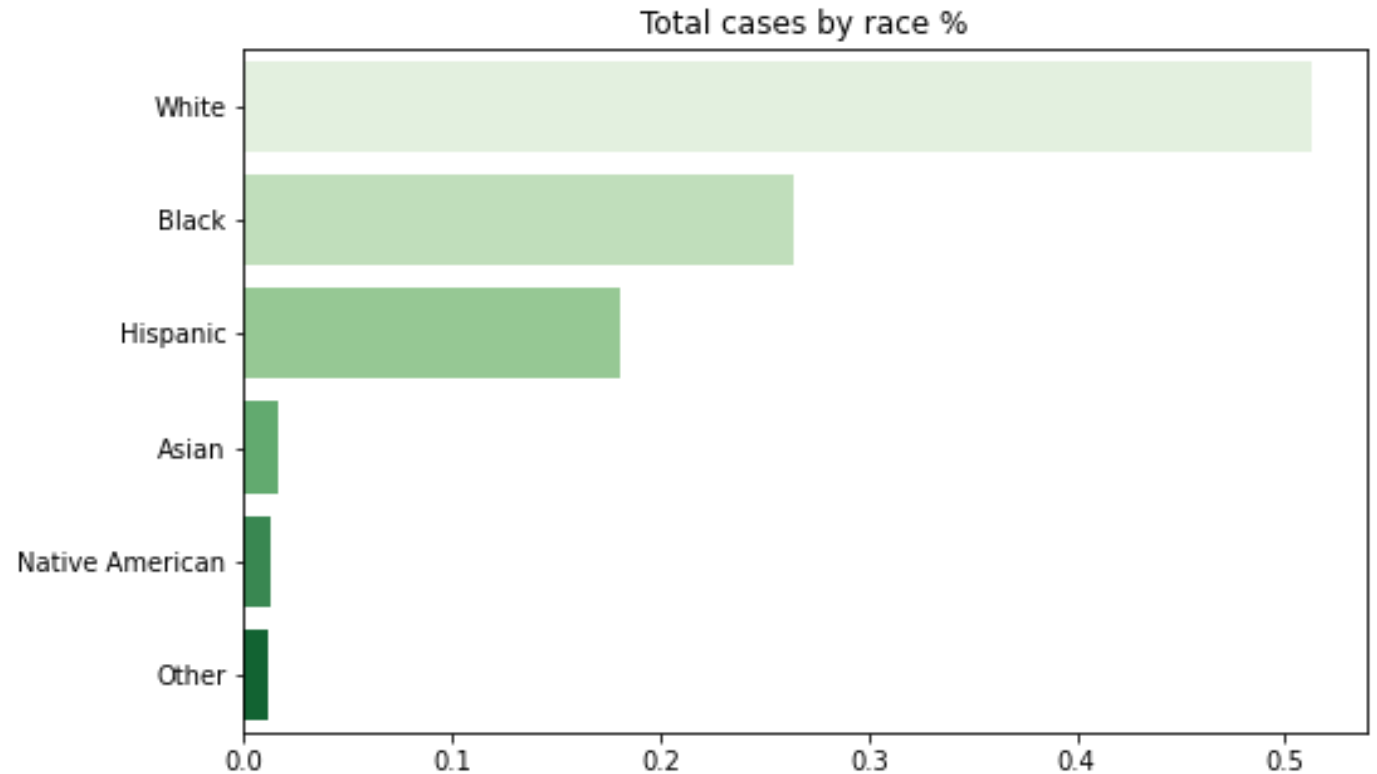


Black people are more likely to be shot than white people?

More white people die by the police.

But the US does not have a balanced number of people from every ethnicity.

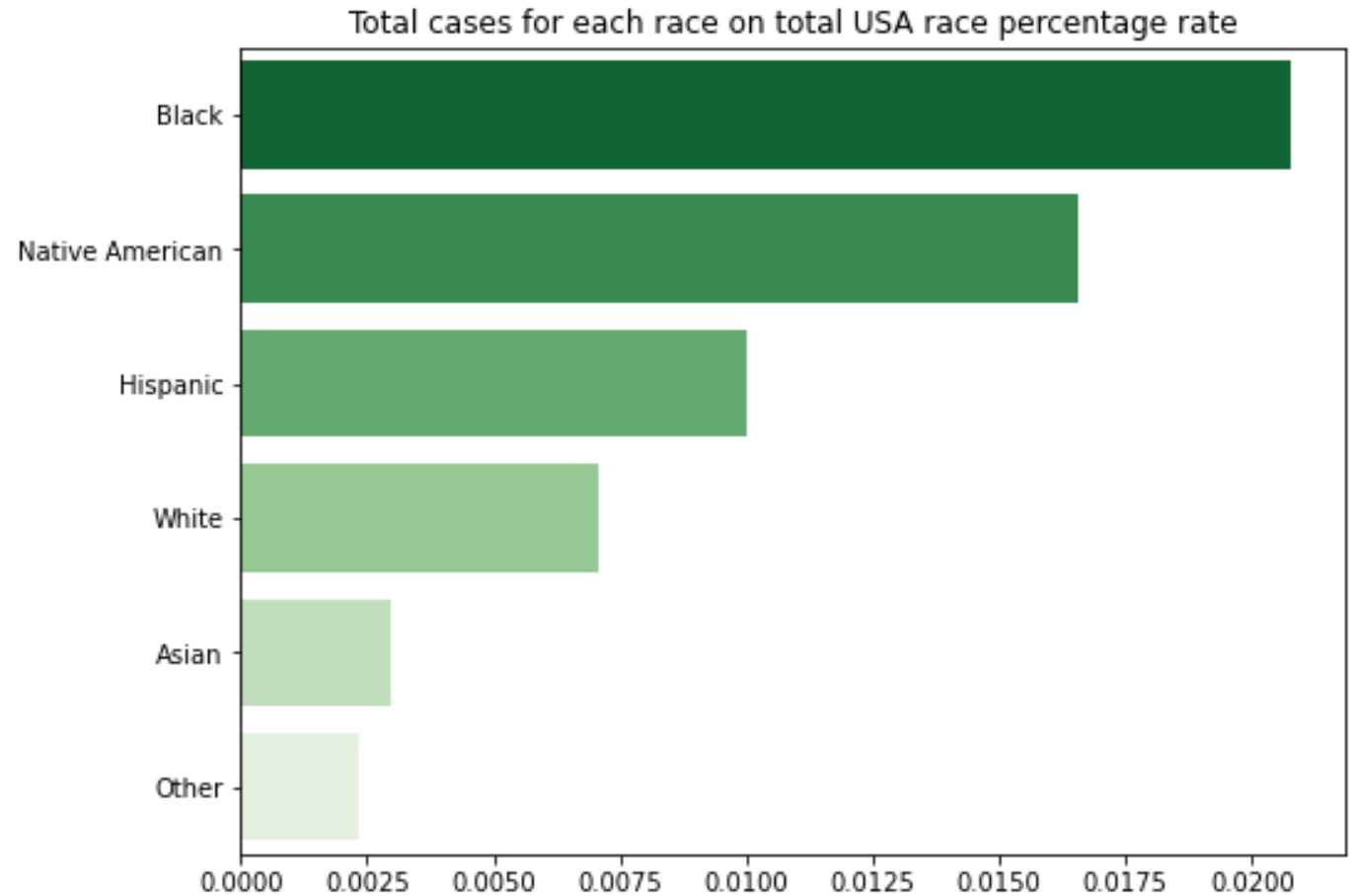
Must look at the data in a different way.



Black people are more likely to be shot than white people?

Divided the number of people who died from the police by the US census Bureau's population percentage data.

More white people die by the police, but when we examine the data proportionate to the population of each race in the US. More black people die by the police.



Conclusion

H1: Greater asian populations result in less police shootings.

Answer: Not enough data.

H3: Cities with lower median household income and greater poverty levels have more police shootings.

Answer: True.

H2: Cities with a higher percentage of people who have completed high school are less likely to have fatal police shootings.

Answer: False.

H4: Black people are more likely to be shot than white people.

Answer: Proportionately, yes.

What to keep in mind?

- Less than 84% of the population graduated high school
- Median household income is at least greater than \$48,002
- Poverty rate is less than than 16.3%
- If you are black, you are more likely to die by the police than any other race.
- Avoid California, Texas and Florida.

Next steps

- Analyze with an updated dataset and look into specific cities within each state
- Look into which cities where the black populations disproportionately die from police and which cities are generally safer and why.

A black and white photograph of a chalkboard. The chalkboard has a dark, textured surface with visible chalk marks and smudges. The words "Any Questions" are written in a white, cursive script. "Any" is on the top line, and "Questions" is on the bottom line, starting under the 'A' of "Any".

Any
Questions