UNDERSTANDING HOW URBAN DIVERSITY AFFECTS HEALTH OUTCOMES RELATED TO LOW BIRTH WEIGHT FOR MINORITIES IN NYC

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COS IW 09: Precision Health
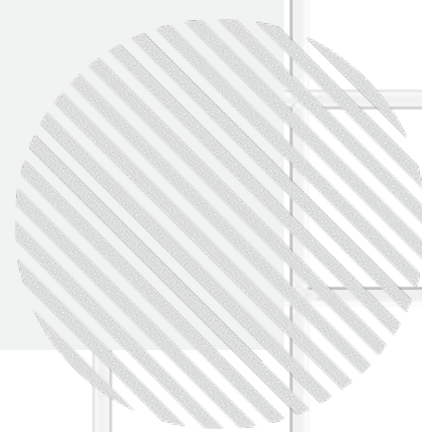
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AGENDA

- Motivation and Goal

- Related Work

- Approach

- Implementation

- Results

- Future Work

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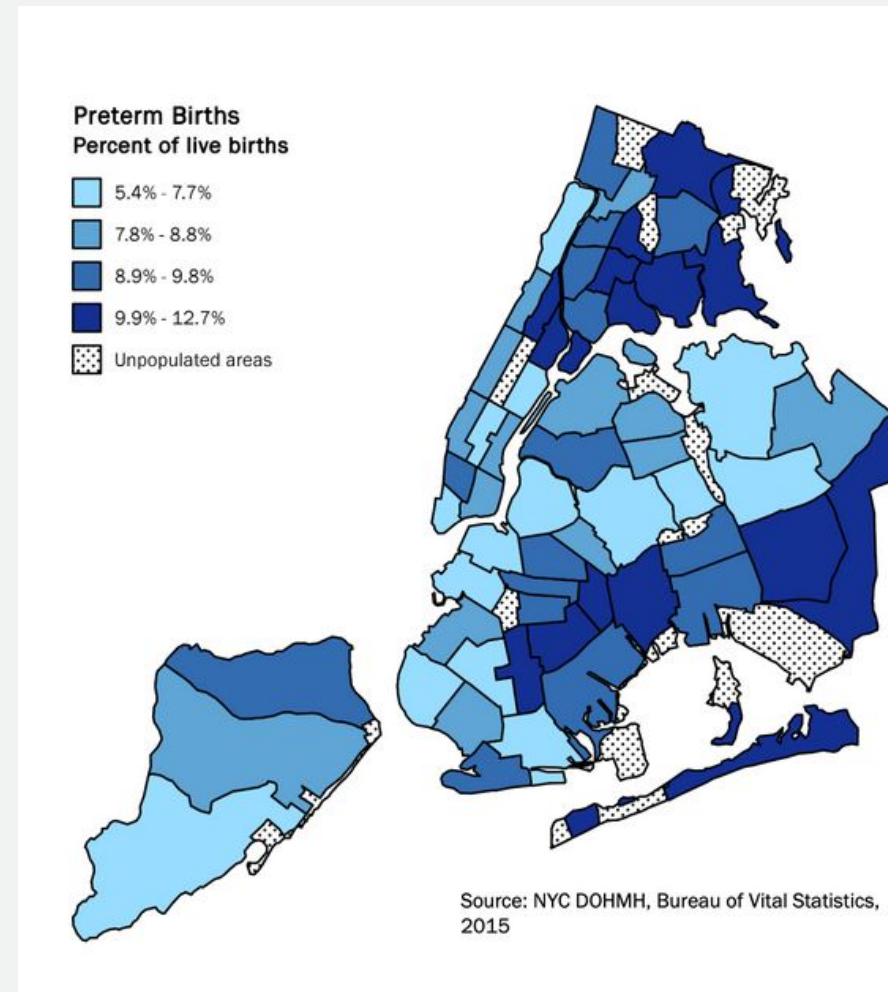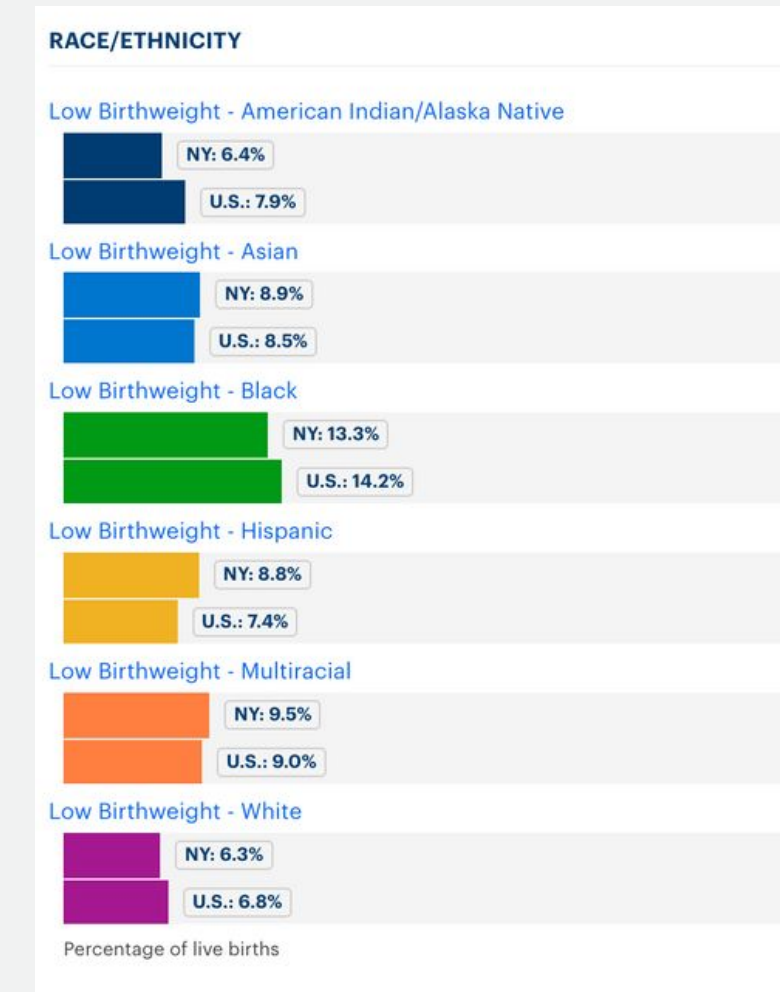
MOTIVATION AND GOAL

- Genetic variability vs environmental variability in health outcomes

- Low birth weight factors

  ○ preterm birth, lack of adequate prenatal care, mother's age, etc

- Effects of low birth weight

  ○ developmental issues, obesity, high blood pressure, etc

- **Show disparities of low birth weight among minority groups in New York City boroughs with a visualization**

  ○ Correlation maps of health outcome and socioeconomic factors (race/ethnicity, healthcare coverage, income, etc)

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RELATED WORK

- Risk factors for low birth weight in New York State counties
  - Number of Medicaid Obstetrical and Maternal Services (MOMS) provided one of strongest predictors
- NYC.gov community health profiles
- America's Health Rankings visualization

NYC.gov

America's Health Rankings

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APPROACH

KEY IDEA

- Demonstrate the correlations between socio-economic factors and low birth weight
- Part of larger group with other health outcomes

PROPOSED SOLUTION

- **Visualization** will show extent of impact of the factors at first glance
- See disparities in quality to better propose policies

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IMPLEMENTATION

DATA CLEANING

- CDC Wonder
- Challenges:
  - Suppressed data (privacy concerns)
- Constants:
  - Single birth
  - Low birth weight = 500-2500g at birth

BUILDING

- Libraries
  - GeoPandas
  - Dash
  - PlotLy
- Different visualizations per year and race
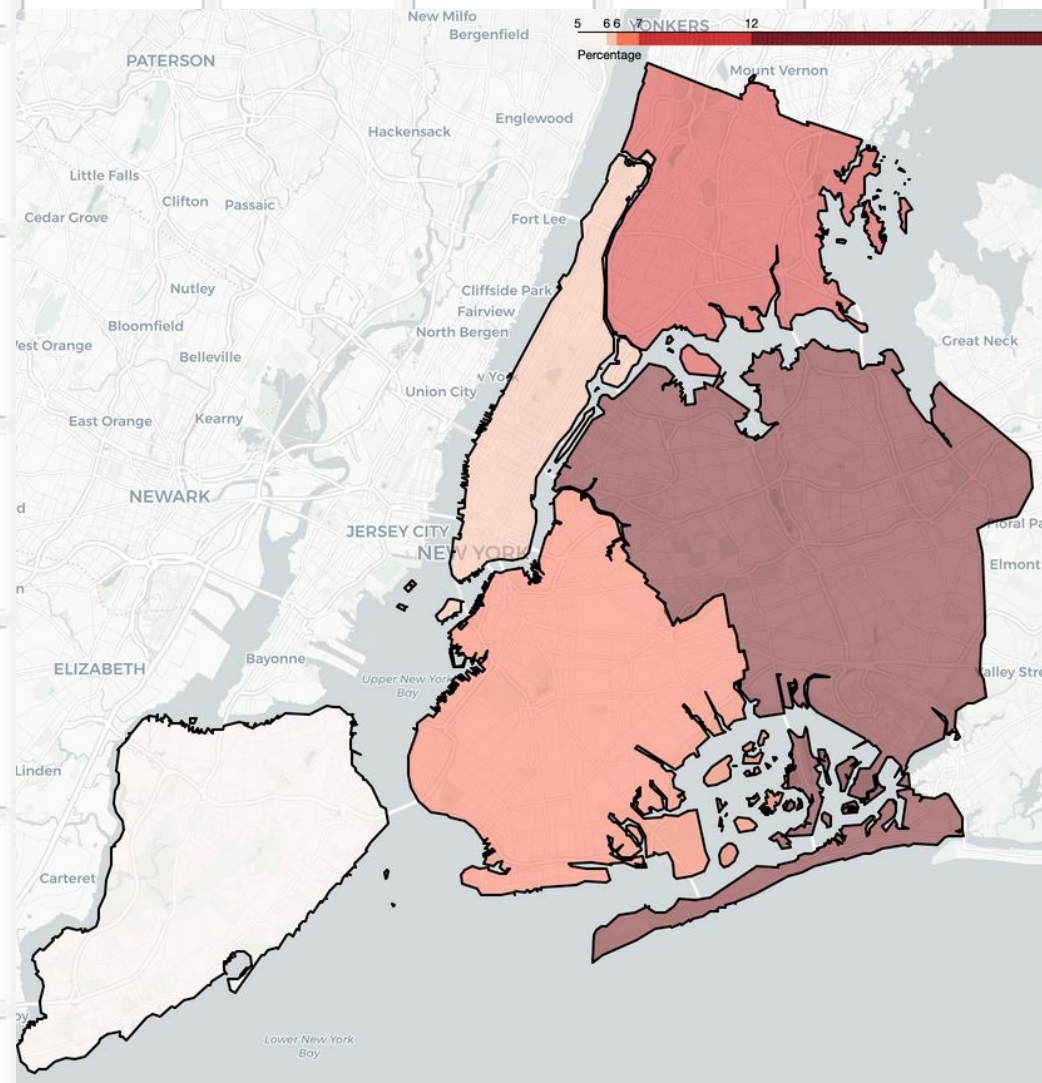 - 2016-2021
  - Asian, White, Black or African American

STILL TO COME

- Interactive feature
  - Toggle between factors
- More factors
  - income
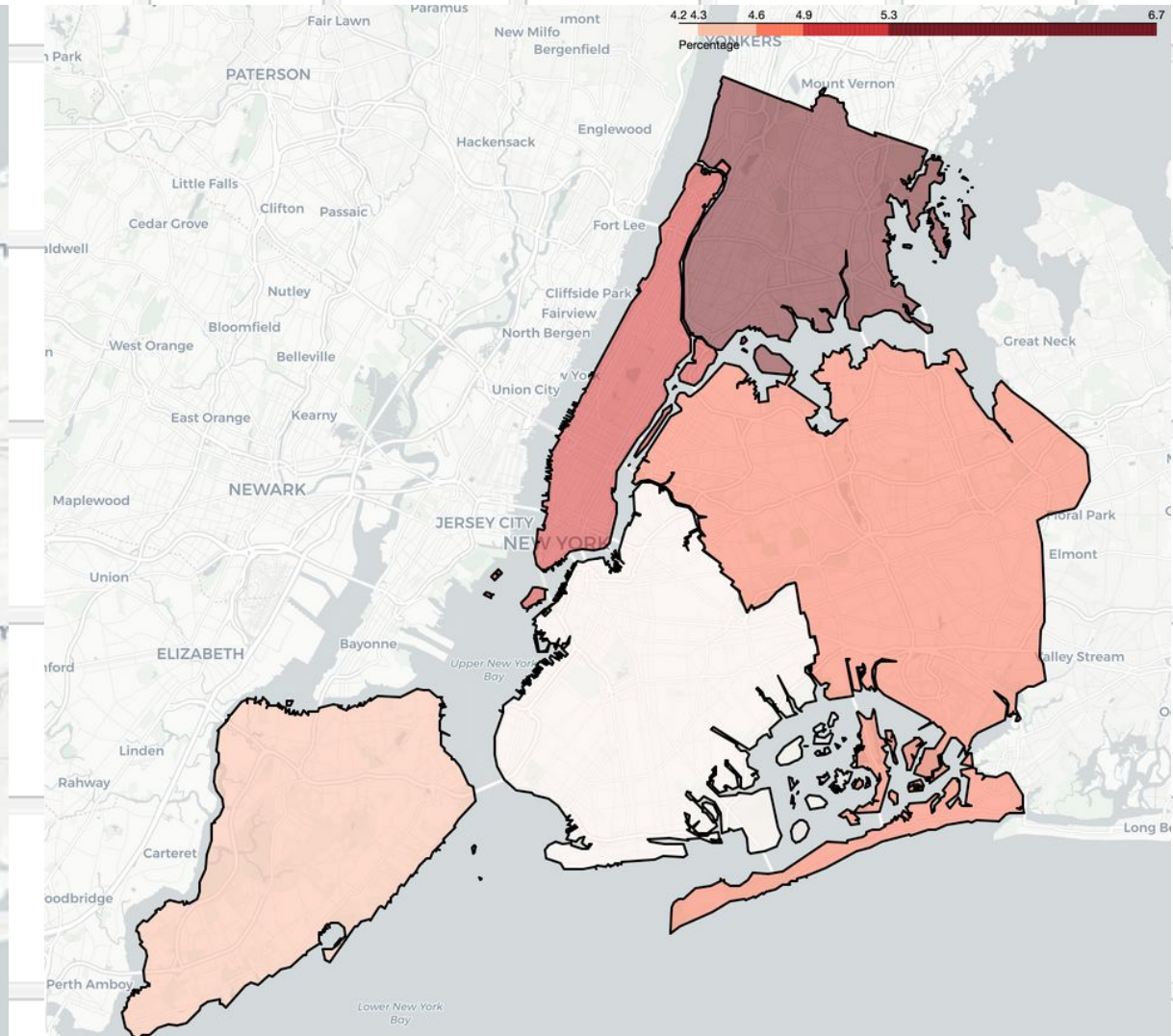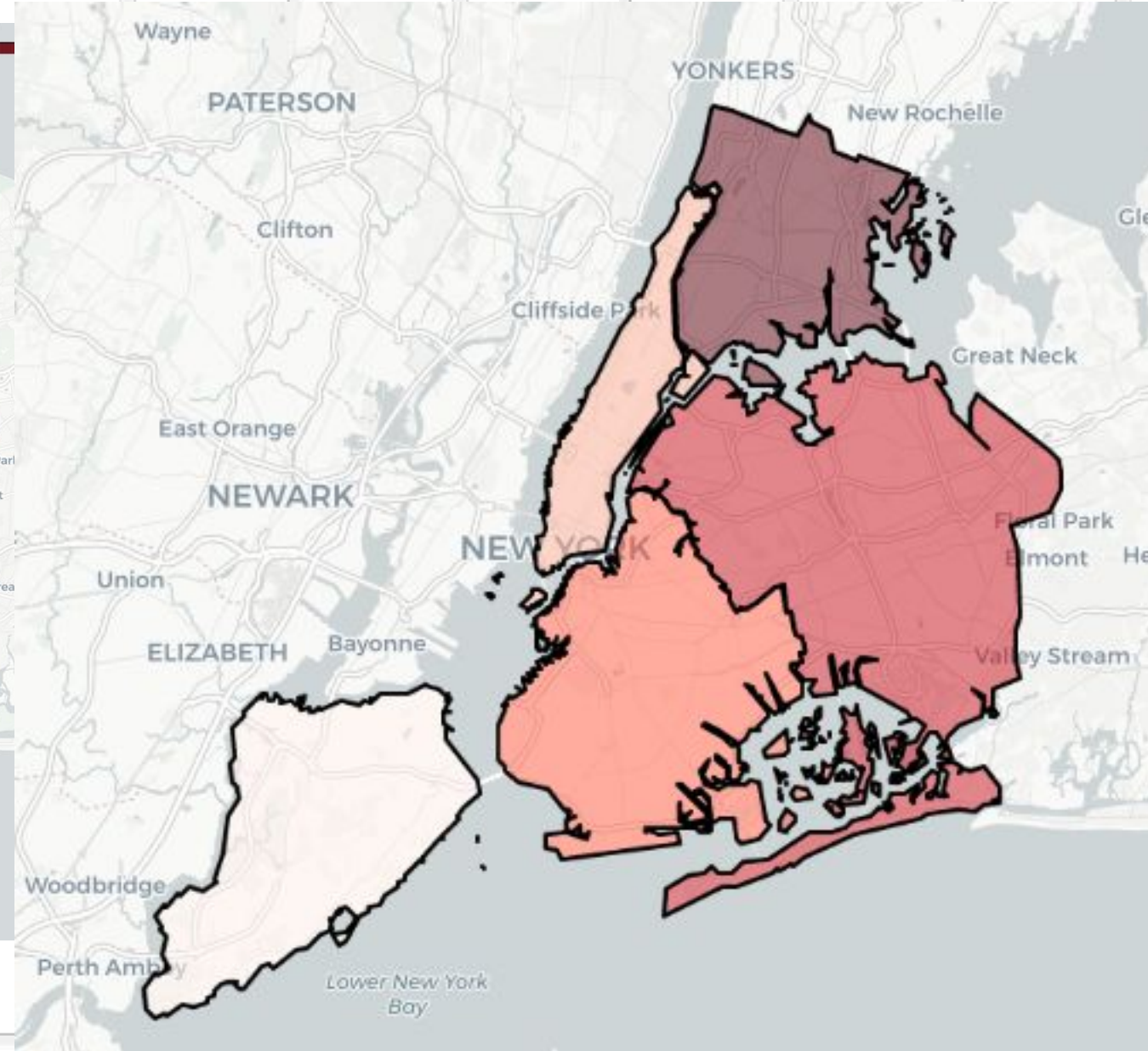 - hospital quality
  - healthcare coverage

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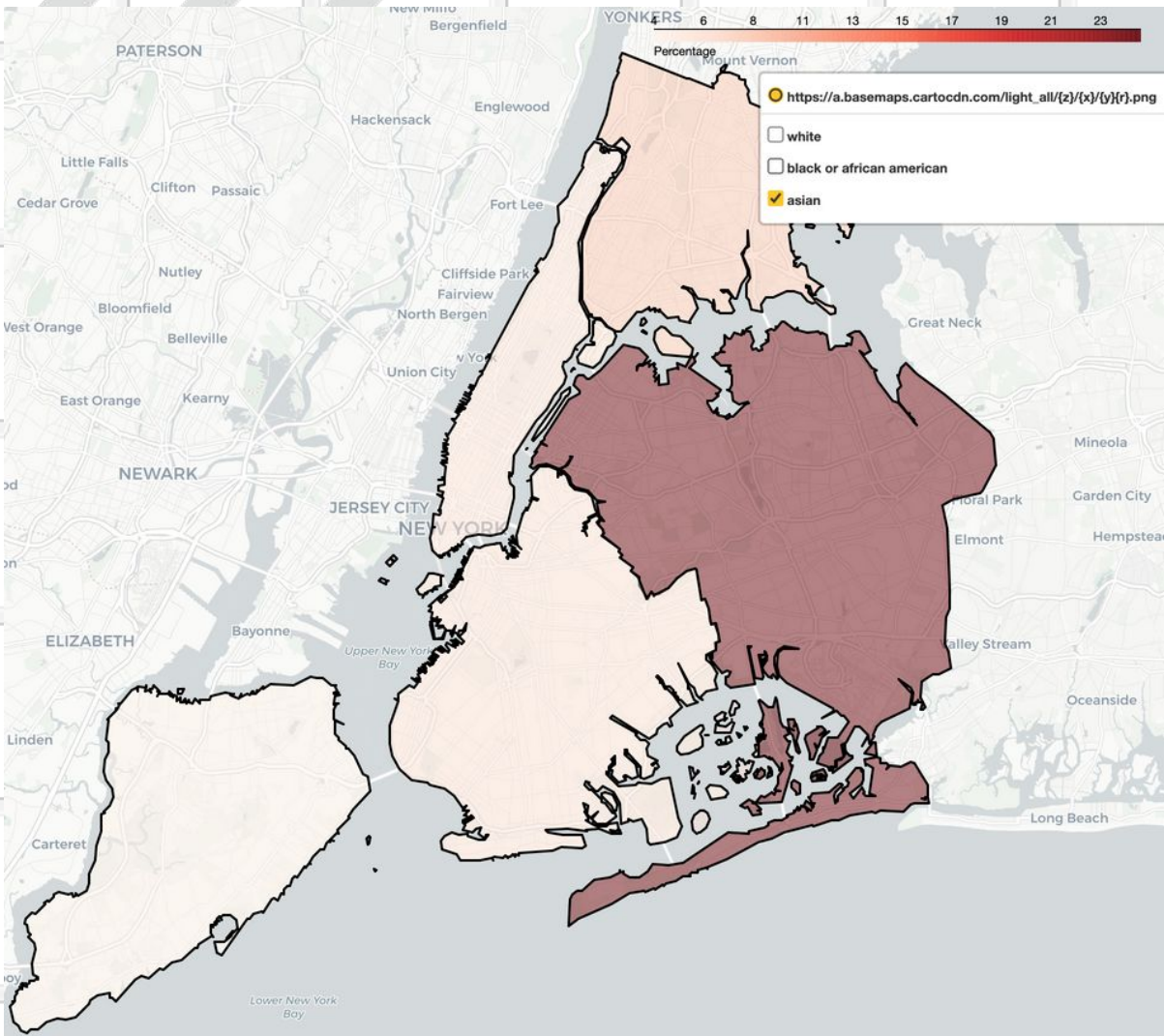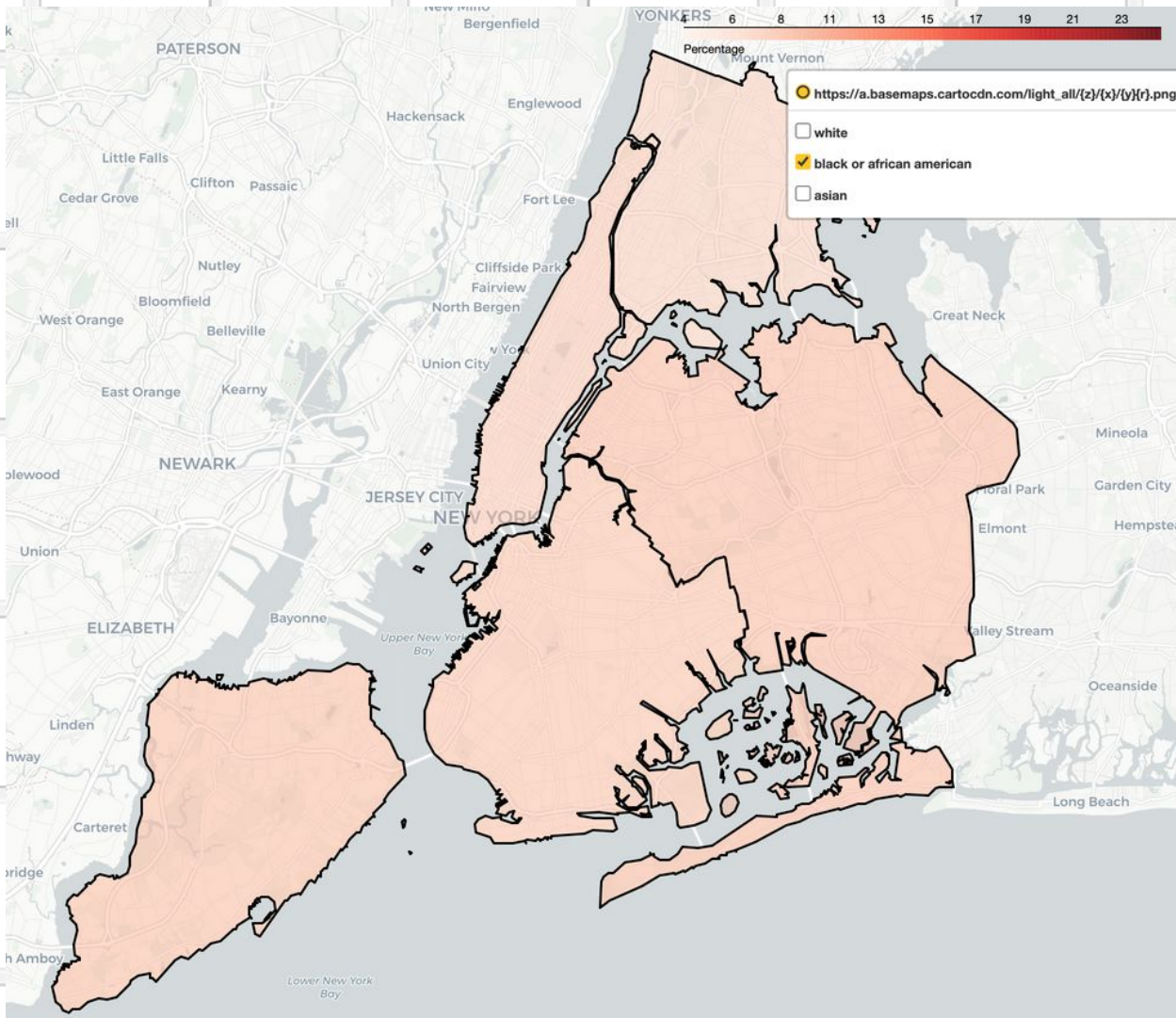
RESULTS

Asian

White

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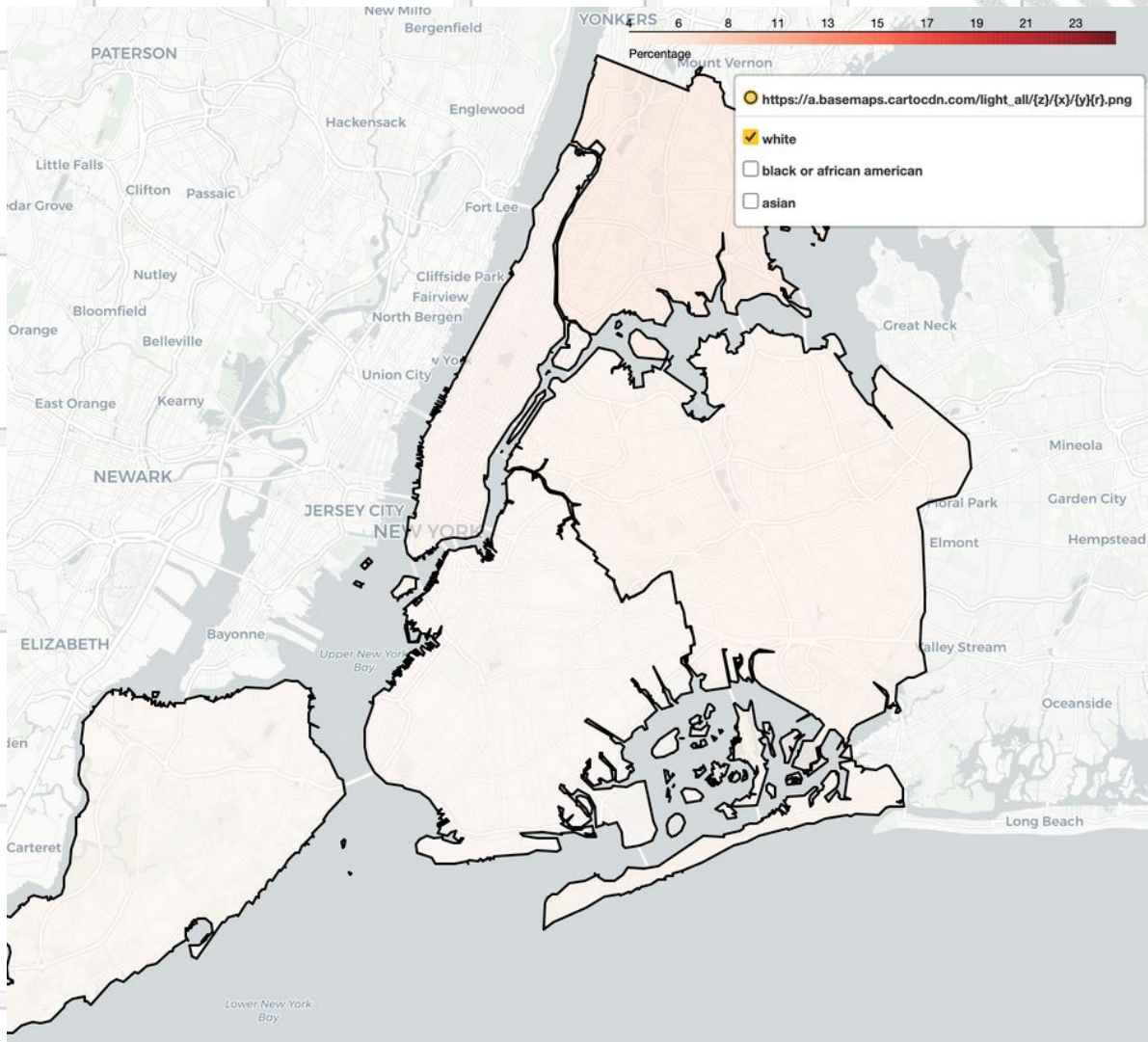
RESULTS CONT.

Asian

Black/African American

White

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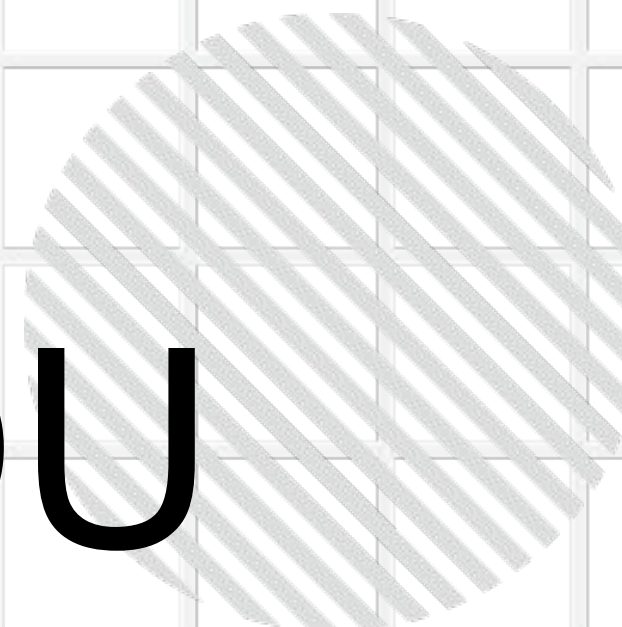
FUTURE WORK

- Underrepresented minority groups
  - Native American/Alaskan Natives
  - Native Hawaiian and Pacific Islanders
- Regression analysis to predict likelihood of these outcomes
  - Data availability
  - More in depth

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THANK YOU

REFERENCES

🔍 NYC.gov

https://www.nyc.gov/assets/doh/downloads/pdf/data/2018-chp-atlas.pdf

🔍 America's Health Ranking

https://www.americashealthrankings.org/explore/annual/measure/birthweight/state/NY

🔍 Risk Factors for Low Birth Weight in New York State Counties

https://journals.sagepub.com/doi/10.1177/1527154412442391?url_ver=Z39.88-2003&rfr_id=or

i:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed#bibr70-1527154412442391

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