Gentrification Analysis and Prediction

In Association with AI for Good

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Overview

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High Level Goals

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What is Gentrification?

gentrification noun

gen·tri·fi·ca·tion | \ˌjen-trə-fə-ˈkā-shən\

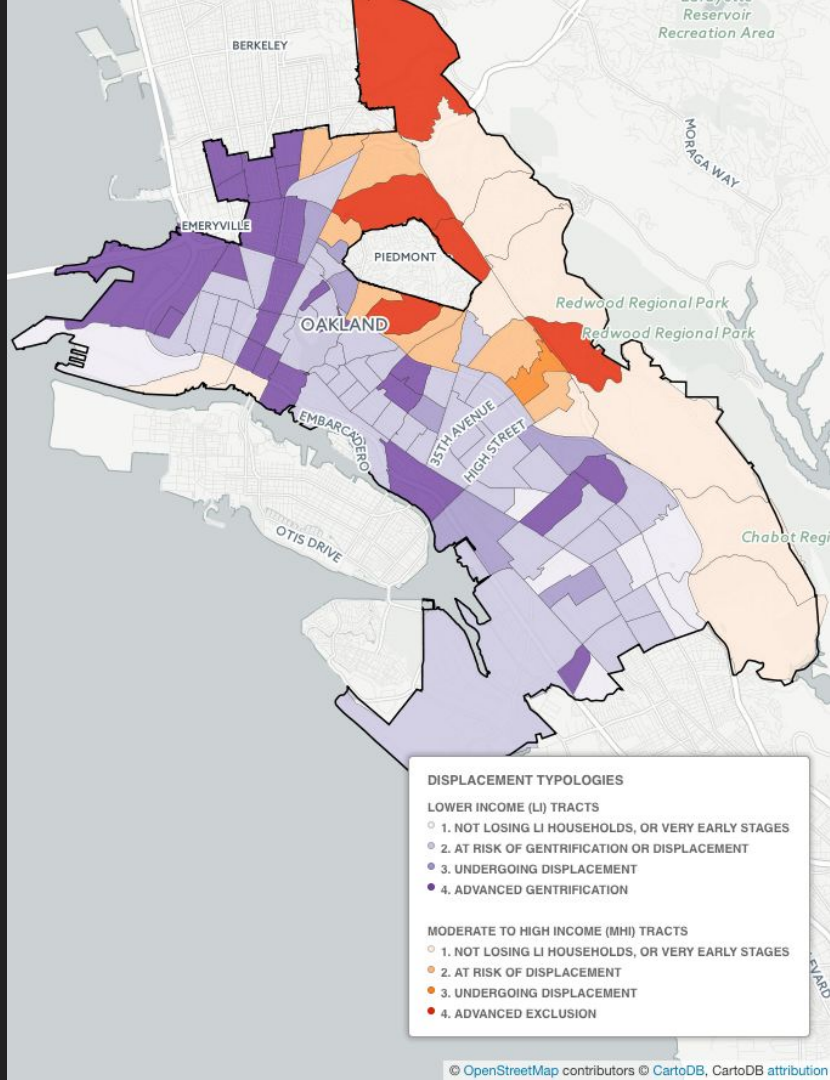
Definition of *gentrification*

: the process of repairing and rebuilding homes and businesses in a deteriorating area (such as an urban neighborhood) accompanied by an influx of middle-class or affluent people and that often results in the displacement of earlier, usually poorer residents

Problem Statement

- Policy makers frequently have inaccurate understandings of relevant factors that impact gentrification.

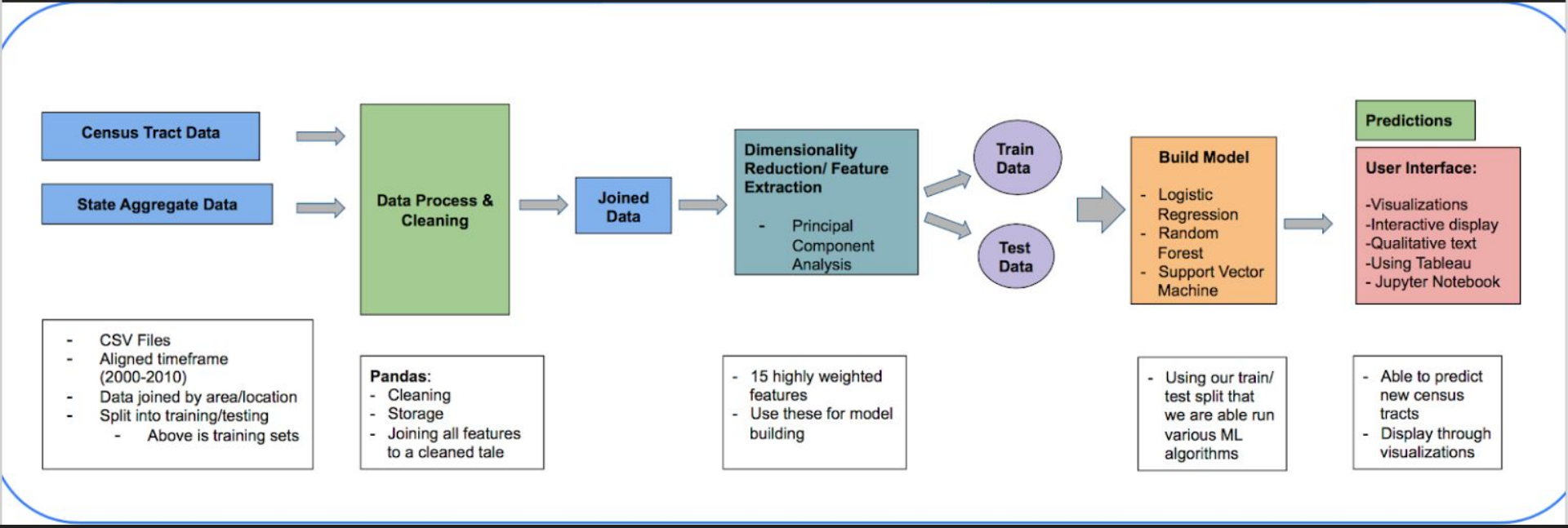
- Result:
  - Forced displacement
  - Discriminatory behavior
  - Exclusion of:
    - low-income communities
    - people of color



High Level - Goals

- **Research** - Identifying the appropriate data source and methods
- **Data Collection** - Areas both gentrified and non-gentrified
- **Feature Selection** - Extracting the significant variables for models
- **Modelling** - Build model to predict the percent change of Y-Labels

Solution Architecture



Learning Path - *An Iterative Process*

Obstacles:

- Predict gentrification using binary classification
- “Correlation is not causation”
- Focus on Midwest Region
- Granularity at county level

Pivot necessary! Needed to nail down our features

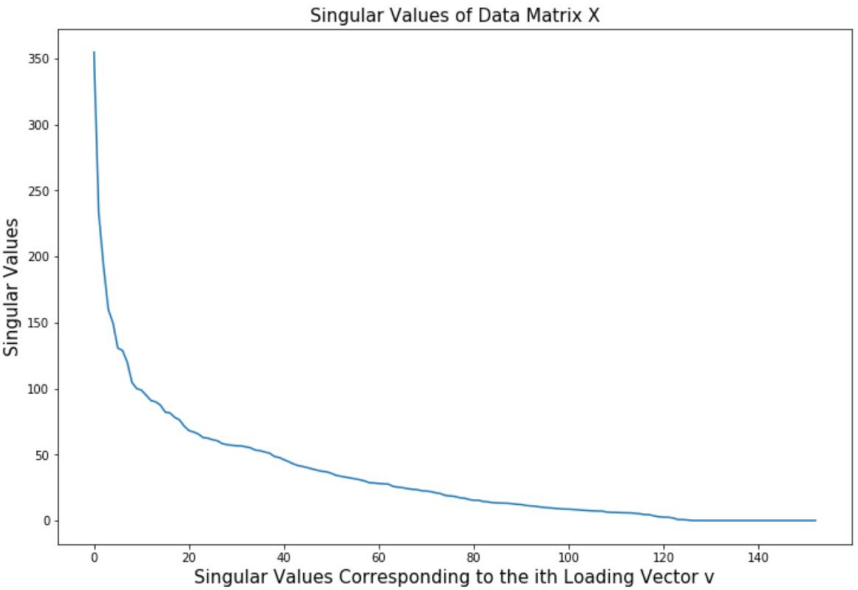
Response:

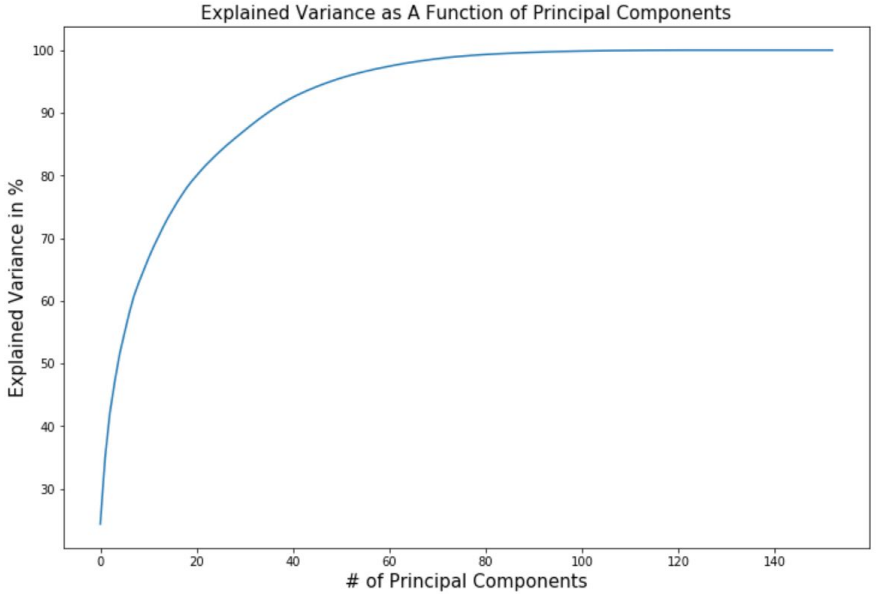
- Comprehensively define how we measure gentrification
- Select areas of isolated change
- Assumption of Midwest unsupported claim
- Found data at a city/ zip-code level
- Found data at census tract level

Final Solution

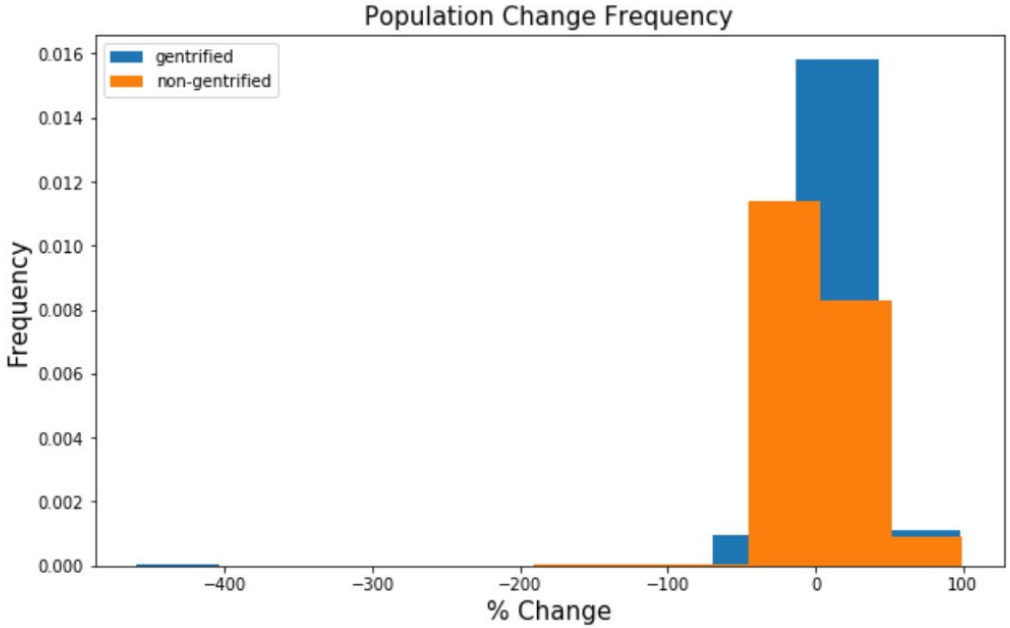
- **Collected data (census tract) for a feature set of 2000 and 2010**
  - Metros chosen from academic research papers
- **Labels are percent change of**
  - Renter occupied units
  - Population density
  - Minorities population (Hispanic/Black)
- **Ran Principal Component Analysis (PCA):**
  - Determine most relevant a subset of features
- **Model Tuning - Train/Test Accuracy:**
  - Built a model that predicts changes in our labels

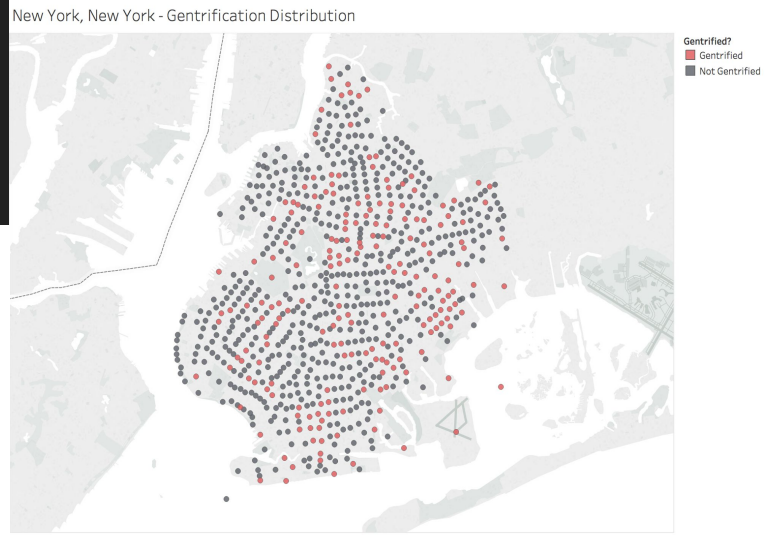
Feature Selection Techniques

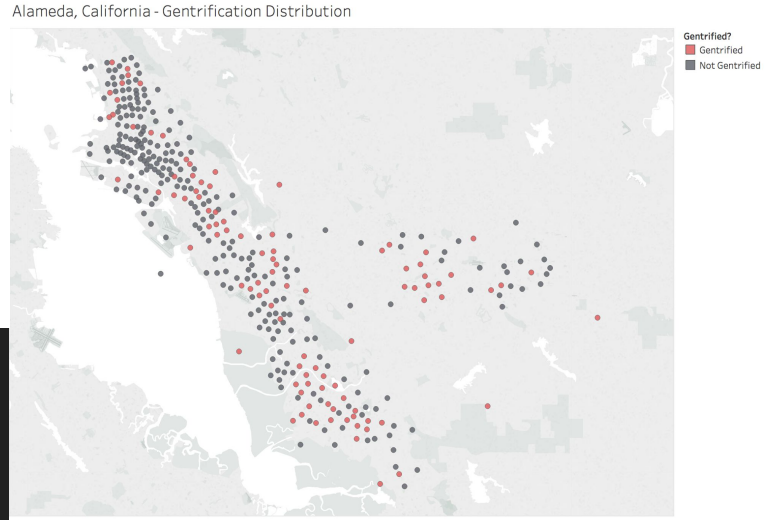




Findings and Visualizations

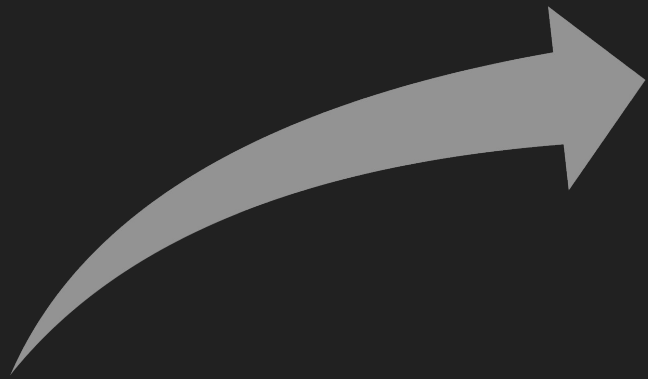




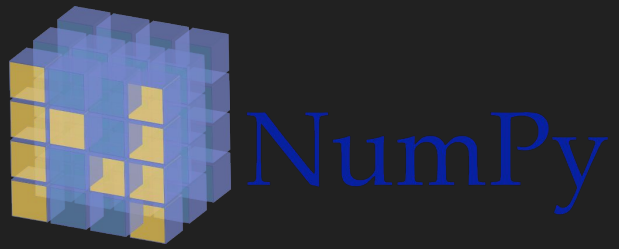


Use Cases/ Next Steps

- Create UI for an interactive model
  - Public Education
  - Scale to community
- Crucial in policy decisions making
- Better prepare for imminent gentrification
- Building block using Machine Learning
  - Collect/train on more data
  - 2000-2010 => current day



Technologies Used



Slide References

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