

SOLVING LA'S BIGGEST CRISIS: HOMELESSNESS

MOTIVATION

53,195

PEOPLE IN LOS ANGELES ARE EXPERIENCING HOMELESSNESS

HOMELESSNESS IN LOS ANGELES IS A CRISIS THAT CAN'T BE IGNORED

WE WANT TO GIVE A FULL FLEDGED SOLUTION THAT:

- 1) PREVENTS HOMELESSNESS
- 2) PROVIDES A FACILITATION TO THE CURRENT HOMELESSNESS SITUATION

MORE PEOPLE ARE FALLING INTO HOMELESSNESS FOR THE FIRST TIME :
6 OUT OF 10 PEOPLE EXPERIENCING HOMELESSNESS ARE NOW WITHOUT HOUSING FOR THE FIRST TIME

3 OUT OF 4 PEOPLE EXPERIENCING HOMELESSNESS REMAIN UNSHELTERED

94% OF VOTERS VIEWING HOMELESSNESS AS A SERIOUS OR VERY SERIOUS PROBLEM.



GOALS

1. PREVENTION

EXAMINE MACRO-LEVEL
FACTORS THAT CONTRIBUTE
TO HOMELESSNESS

IDENTIFYING INDIVIDUALS AT
RISK OF CHRONIC
HOMELESSNESS

2. FACILITATION

MAPPING UNSHELTERED
POPULATION TO NEAREST
SHELTERS AND HOSPITALS

IDENTIFYING RESOURCE
LACKING NEIGHBORHOODS
THAT REQUIRE IMMEDIATE
ATTENTION



**TECHNICAL
SOLUTION**



GOAL : PREVENTION

70k data points

Dataset
LA Homeless
Management
Information
System
(multiyear)

Features

Age
Gender
Chronic condition
Stint duration
Drug abuse
Mental illness
Sexual abuse
and more ...

INSIGHTS

Features with a high correlation
with "Chronic"

Physical Disability

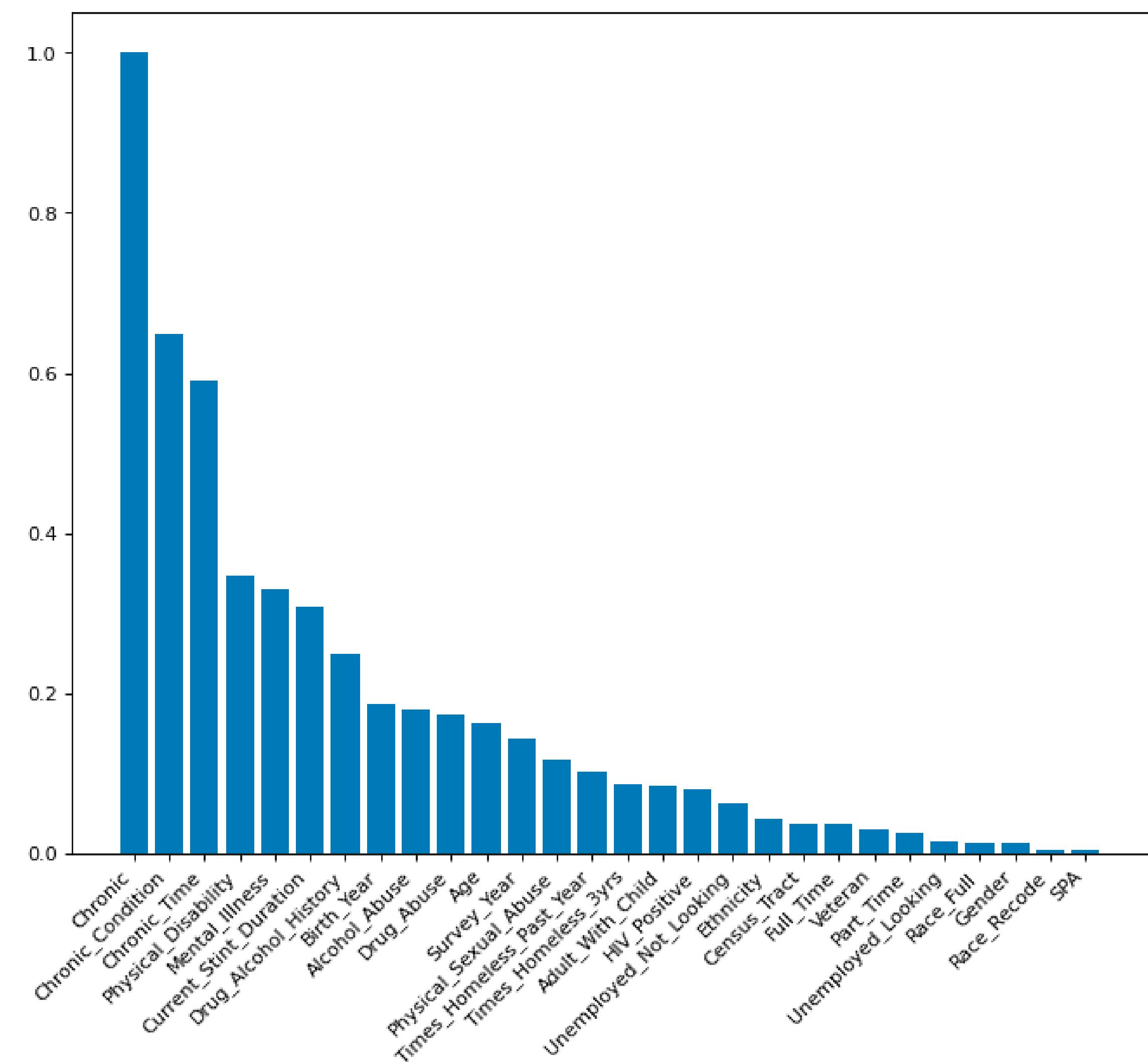
Mental Illness

Stint Duration

Drug Alcohol History

Physical sexual abuse

Unemployed



PREPROCESSING

- Filled NaN with mode
- Dropped columns with null count > threshold
- One-hot encoded categorical data
- Balanced the dataset
- Feature Selection

MODELS

Model	Accuracy
Neural Network	79.03%
RandomForest	78.7%
SVM	76.3%

IDENTIFYING INDIVIDUALS AT RISK OF CHRONIC HOMELESSNESS

GOAL : FACILITATION

LA GEOHUB :
Latitude and
longitude of
hospitals, metro
stations

DATASETS

LA County GIS Data
(datadesk)
Homeless shelter locations
neighborhood homelessness
count
neighborhood boundaries
park boundaries

DATA AGGREGATION & FEATURE GENERATION

Used geo data to cluster and map the number of

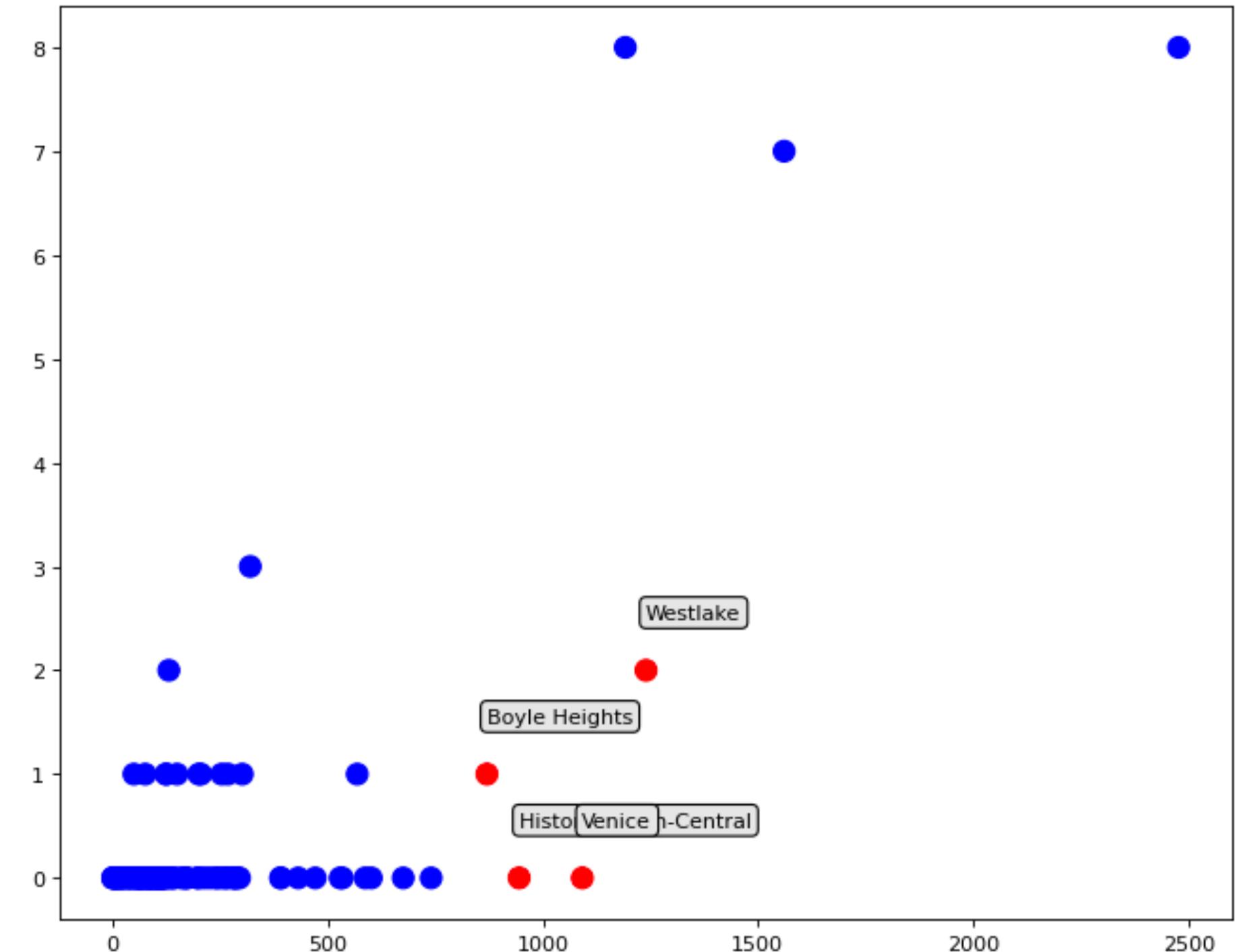
- 1. shelters
- 2. nearby shelters
- 3. parks
- 4. hospitals
- 5. metro stations

in each neighborhood

INSIGHTS

Unsheltered VS Number of shelters
for all the tracts in LA

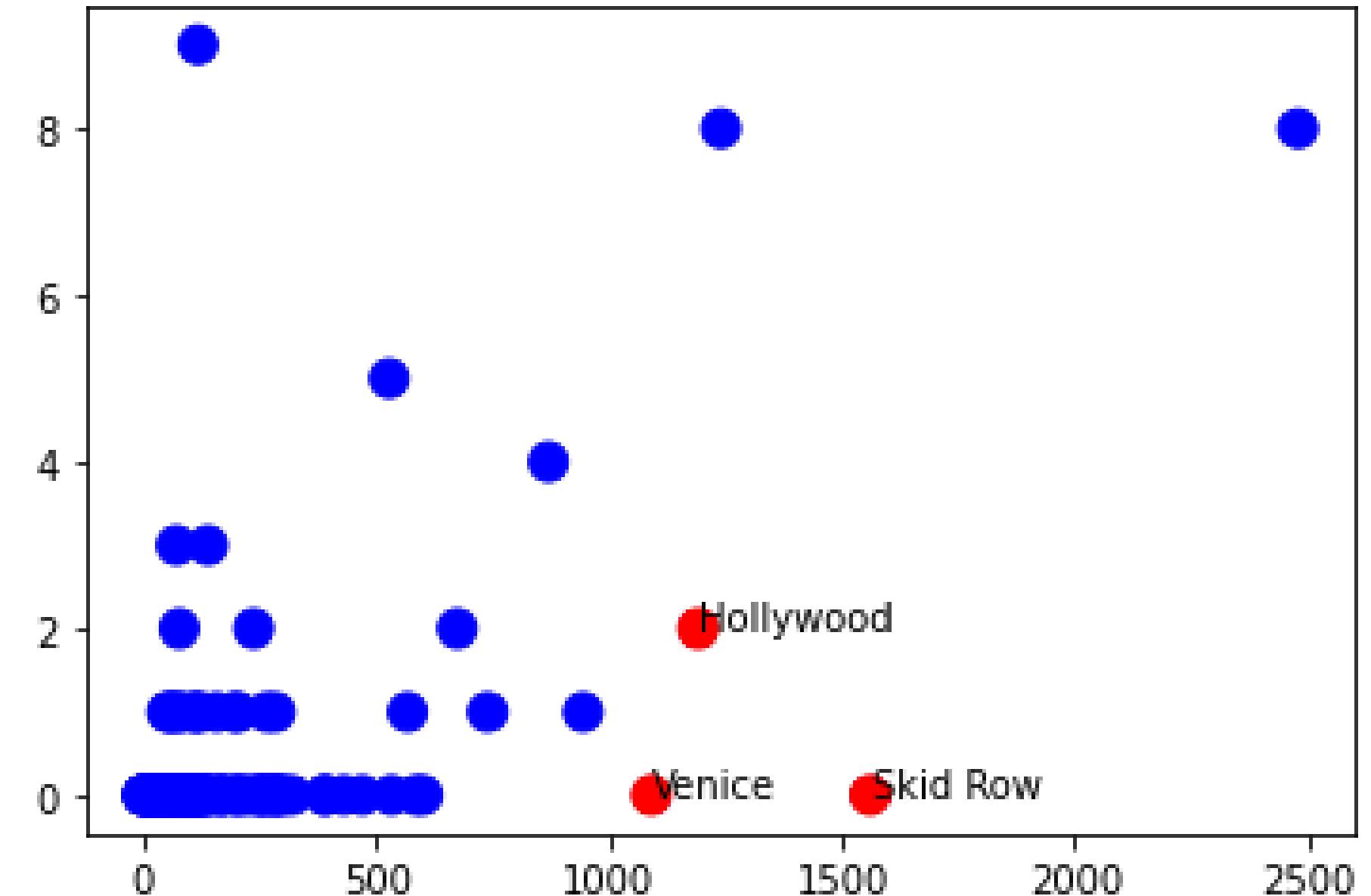
Areas in red are high risk locations:
high unsheltered population but less
shelters



INSIGHTS

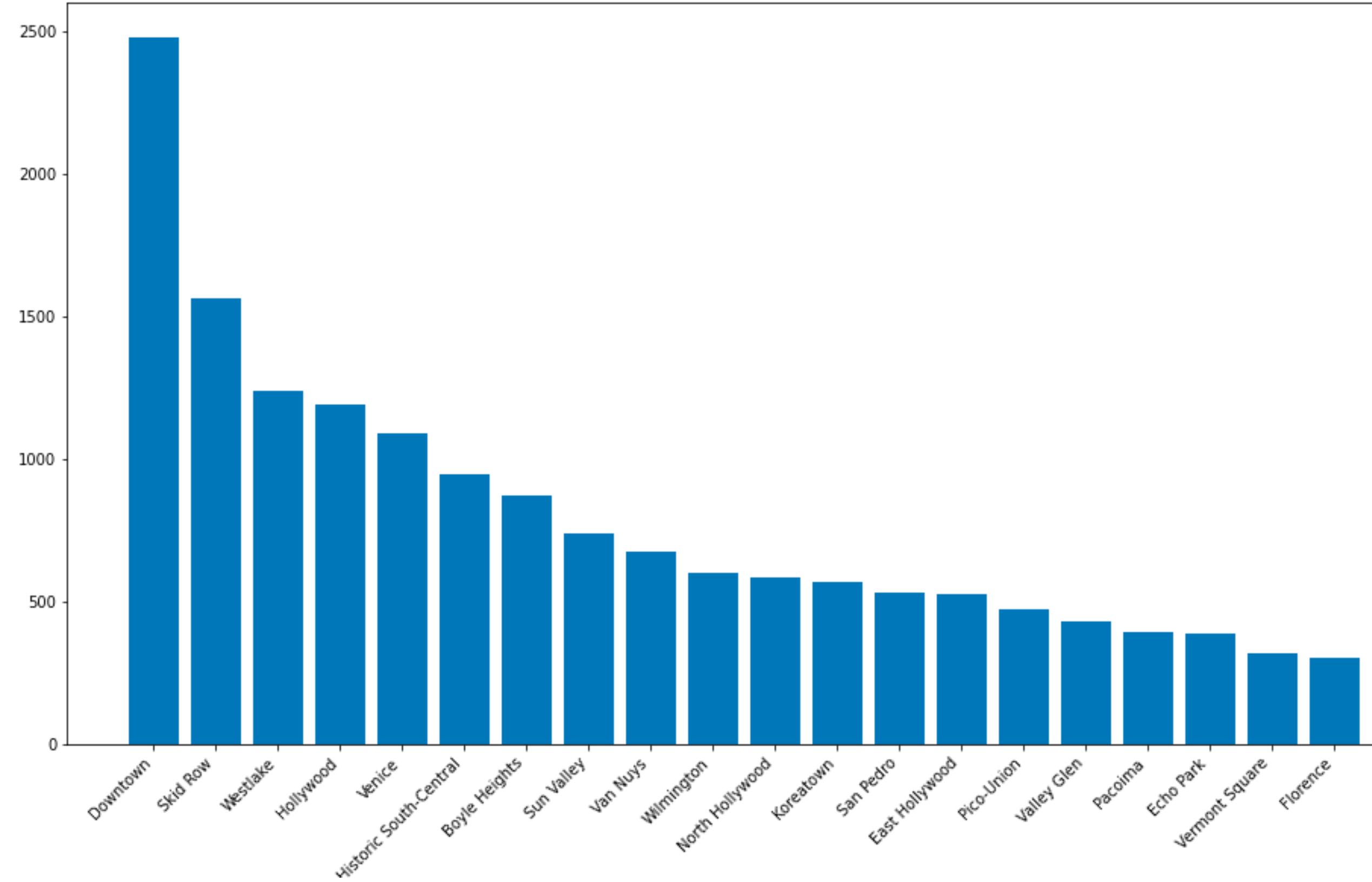
Unsheltered VS Number of hospitals
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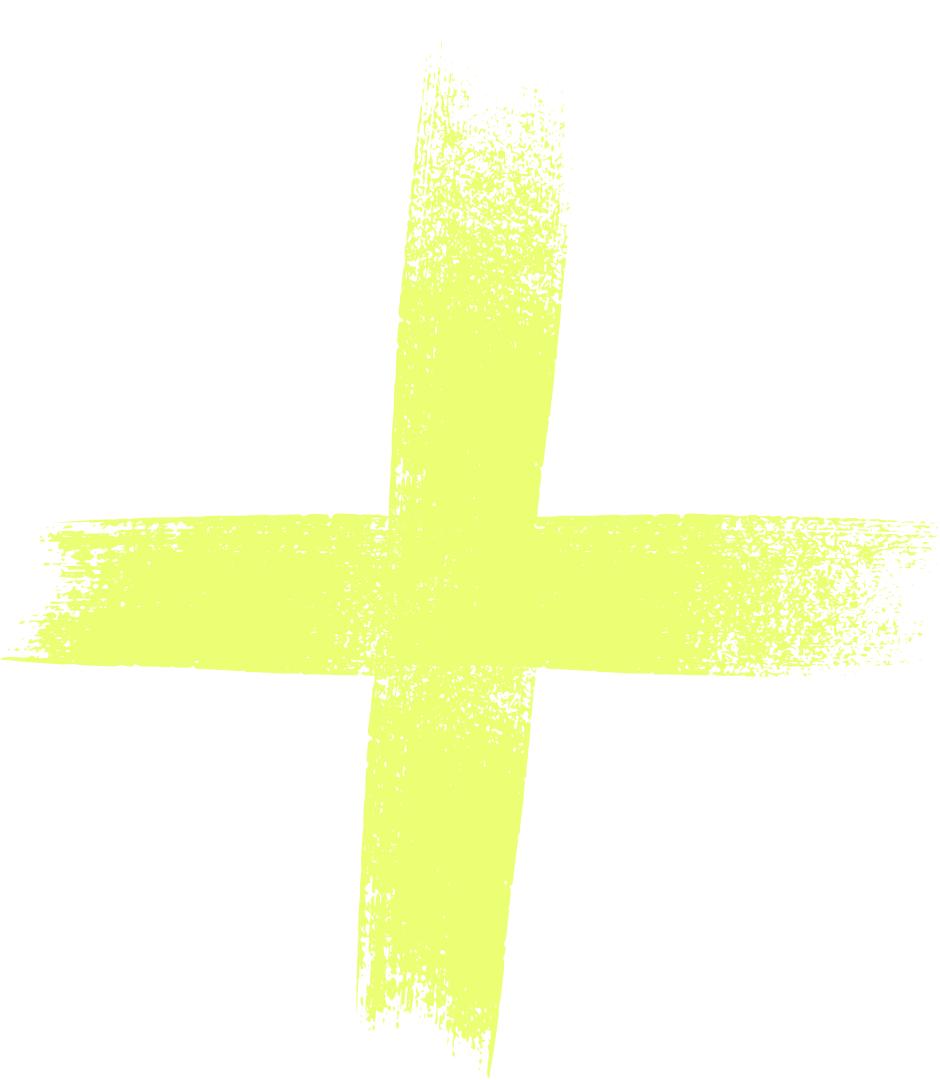
Areas in red are high-risk locations:
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INSIGHTS

Areas sorted on unsheltered population:
Downtown,
Skid Row,
Westlake,
Hollywood,
Venice
have some of the highest unsheltered population





MODELS

Linear Regressor

Lasso Regressor



Ridge Regressor

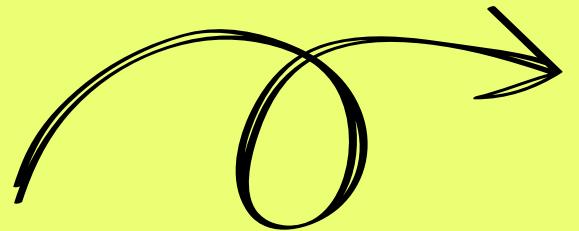
PREDICTING NEIGHBORHOOD'S TOTAL UNSHELTERED POPULATION

SOCIAL IMPACT, FEASIBILITY AND SCALABILITY

This model adds the benefit of enabling the reduction of unintended bias and increased **transparency** in government deployed automated decision systems

This interpretable strategy enables the utilization of ML approaches to mathematical modeling and prediction in future homeless **prevention** and **facilitation**

The application of our approach can be easily **replicated** in any municipal jurisdiction and also provides service usage for over a dozen shelters and related homeless services



FUTURE WORK

- 1) Can be extrapolated to other states in the US and also globally.
- 2) Can decipher employment information based on this work.
- 3) Can be developed into an app to view and locate nearest shelters and healthcare

**THANK
YOU**

