



Looking for ideas



INSPIRATION  
FOR  
FRESH  
FOOD & AIR

HOMELESS ... BROKE...  
-AND-  
HUNGRY ...  
ANY KINDNESS HELPS  
MY DOG COMES FIRST  
GOD BLESS!!!



# Data-Driven Assistance to Homeless People in NYC

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Team Masala Noodles

# Serious Problem

SECTIONS

HOME

SEARCH

The New York Times

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## Homelessness

News about Homelessness, including commentary and archival articles published in The New York Times.

Latest

Search

April 18, 2016

### Man Arrested in Fatal Stabbing at Manhattan Homeless Shelter

After a three-day search, the police found William Smith, 53, who is suspected of killing a man in a shelter on Friday and slashing a cabdriver the next day.

April 18, 2016

### Among Travelers and Commuters, the Homeless Stop In and Stay

People live for years in New York City's train, bus and airport hubs, creating an ad hoc shelter system that has endured for decades.

By COREY KILGANNON



April 16, 2016

### Man Sought in Homeless Shelter Death May Have Slashed Cabdriver, Police Say

The police said they were seeking William Smith, 53, in the death of a man at a homeless shelter in Manhattan and in the attempted robbery of a cabdriver in Queens.

April 15, 2016

### 2 Sought by Police After Man Is Found Dead at a Manhattan Homeless Shelter



#### RECENT VIDEOS



De Blasio's Plan for the Homeless  
NOV. 18, 2015



Lullaby  
OCT. 14, 2015

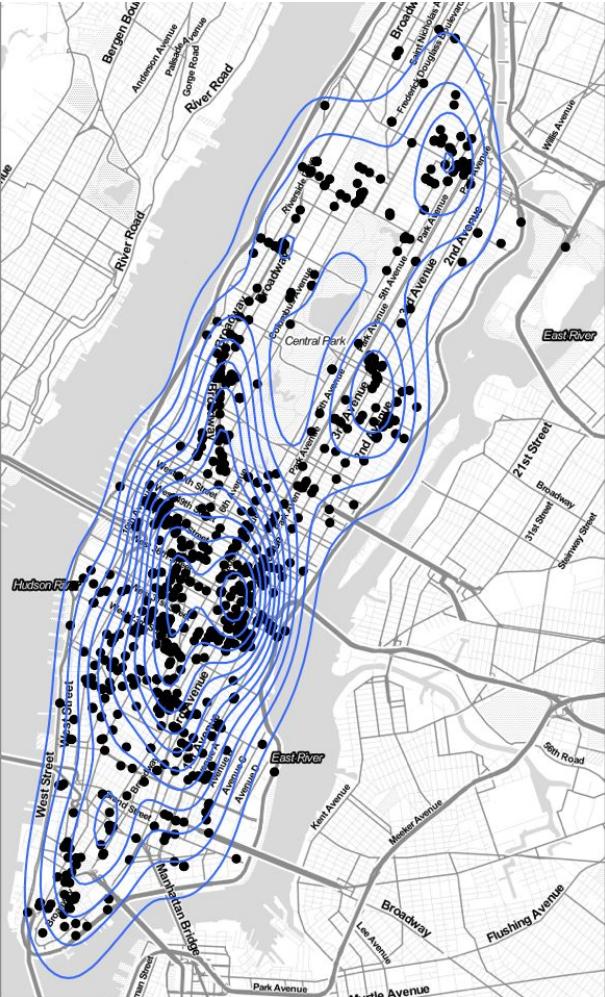


Pope Francis at St. Patrick's Church  
SEPT. 24, 2015

# Outline

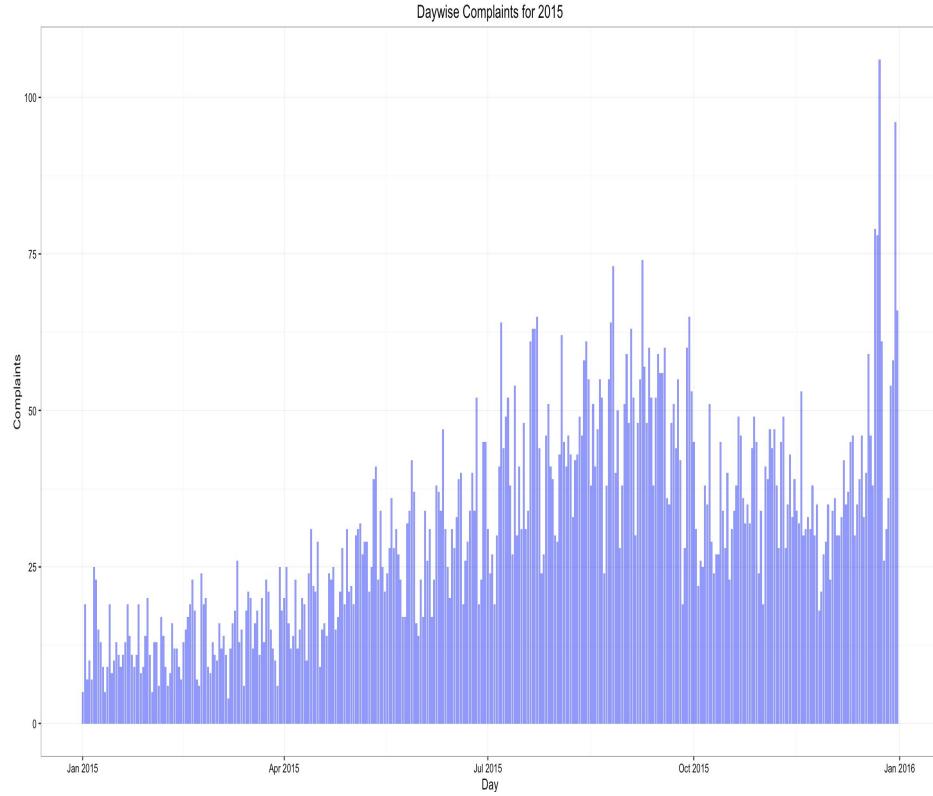
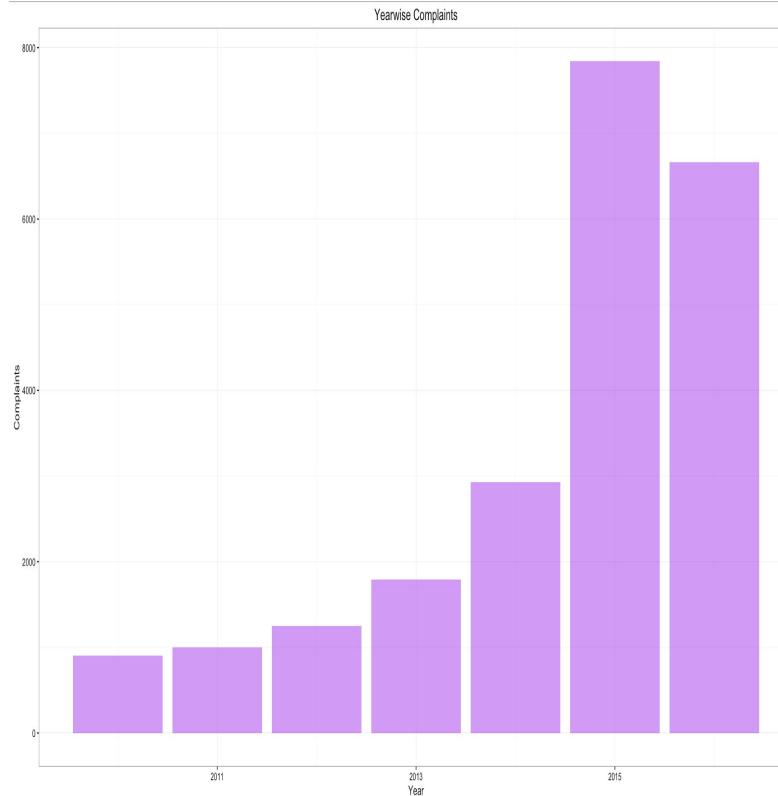
- Analysis (80% done)
  - Distribution - over time, geographical distribution, and city condition
  - Analysis - Health conditions of the neighborhood, other complaint types on the day, resolution time...
- Predictions (30% done)
  - Suggest ideal places for Homeless center location
  - Predict expected number of homeless complaints
- Data:
  - NYC 311
  - NYC MTA Turnstile Data
  - 2010 Census
  - NYC Health
  - Zillow
  - NYC Police Station Locations
  - NYC MTA Subway Locations

# Analysis of homeless complaints



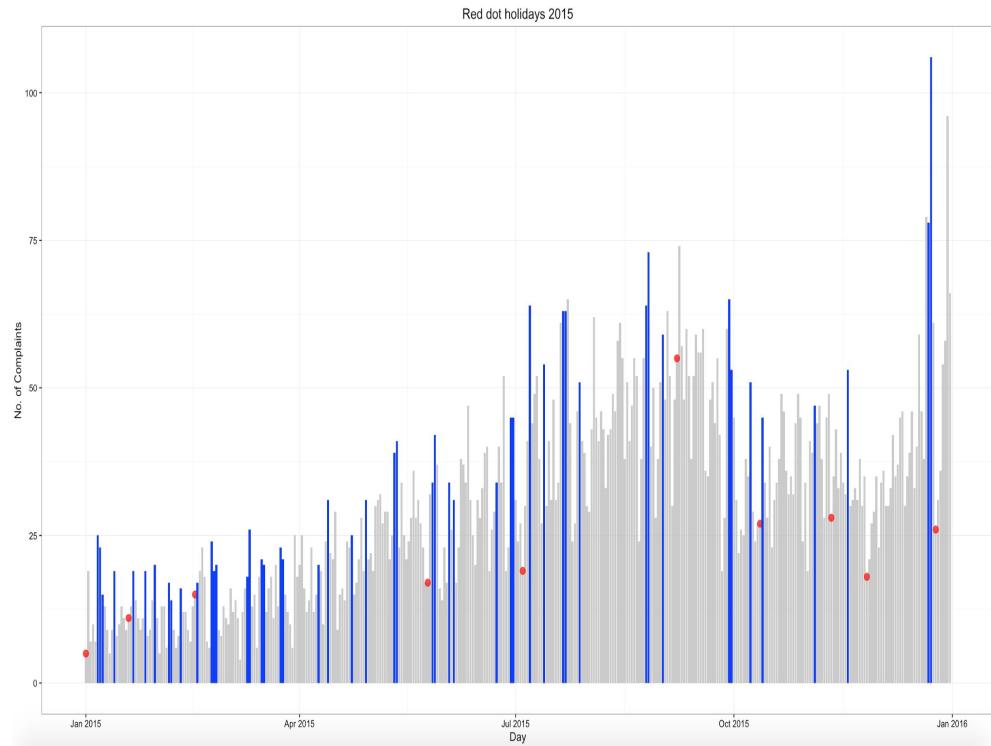
Distributions, Densities, Correlations.....

# Distribution (Years / Days [2015])



# Festivities, Holidays and Complaints

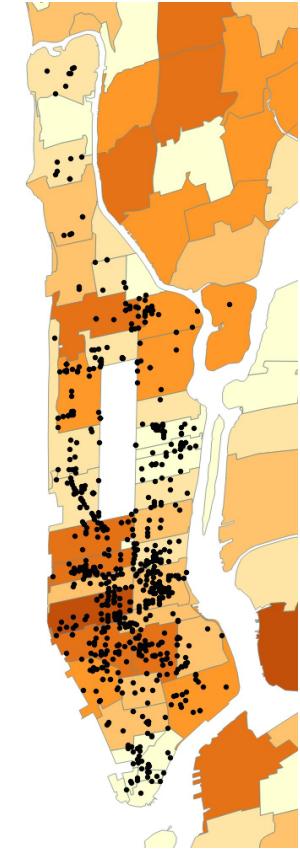
- 70% change in the number of complaints closer to the holidays.



Jan 2015



Aug 2015



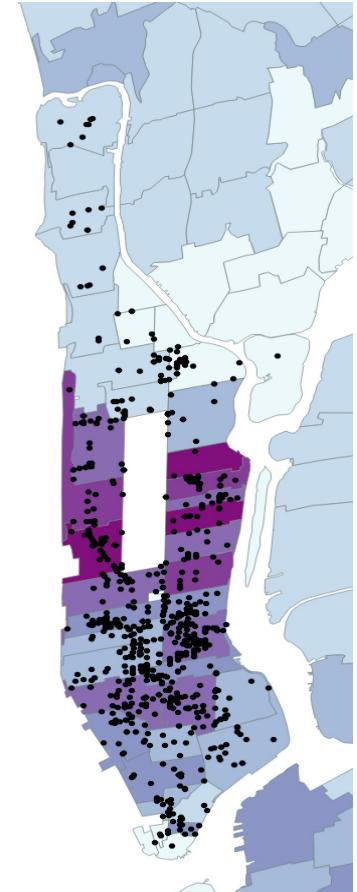
## Complaints and Crime Rate

- Correlation in Manhattan
- Feature for predictions

Jan 2015



Aug 2015



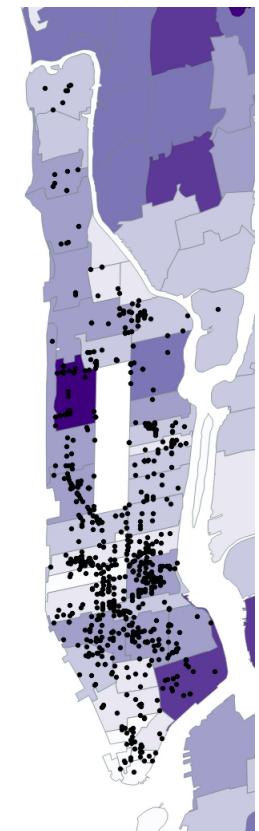
## Complaints and Income

- No direct correlation
- Will be used in prediction analysis

Jan 2015



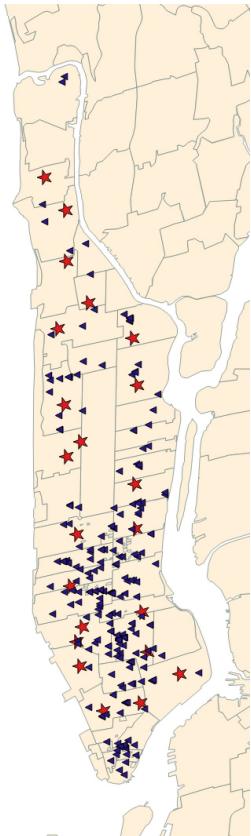
Aug 2015



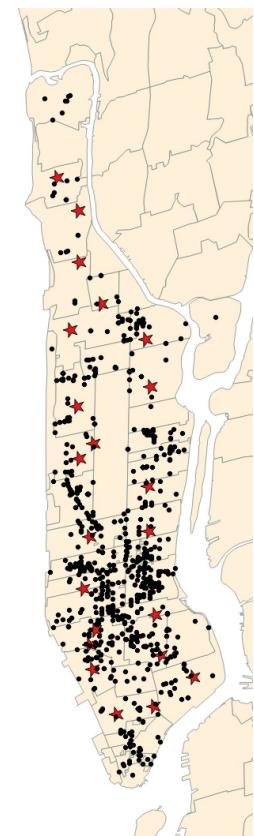
## Complaints and Population

- No direct correlation
- Will be using it in Predictions

Jan 2015



Aug 2015

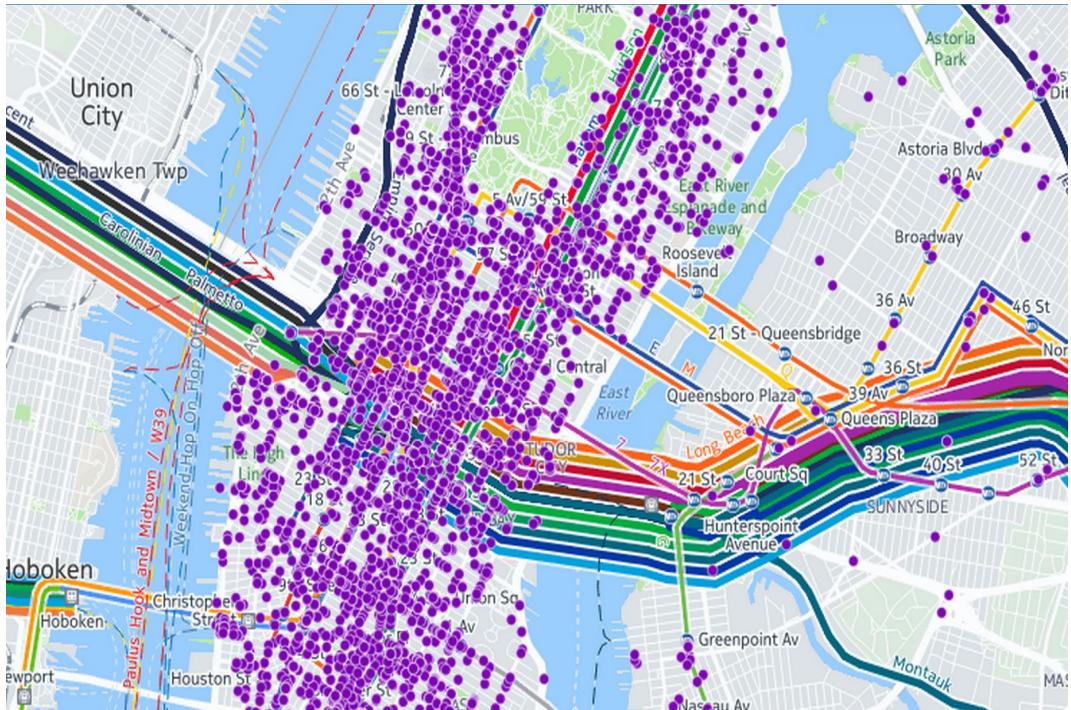


## Complaints and Police Stations

- Distance to police station might help

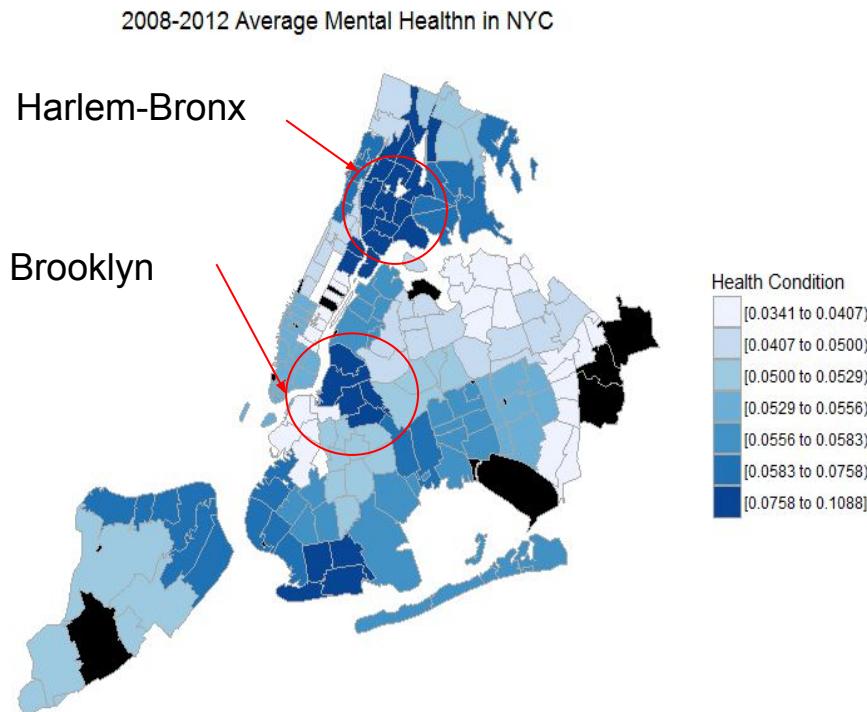
# Subway lines and complaints...

- Intuition:
  - More homeless complaints at subway station exits
- Reasons:
  - More travellers => more alms
- Progress:
  - Seems like a trend
  - More analysis using turnstyle data to analyze the veracity of the claim



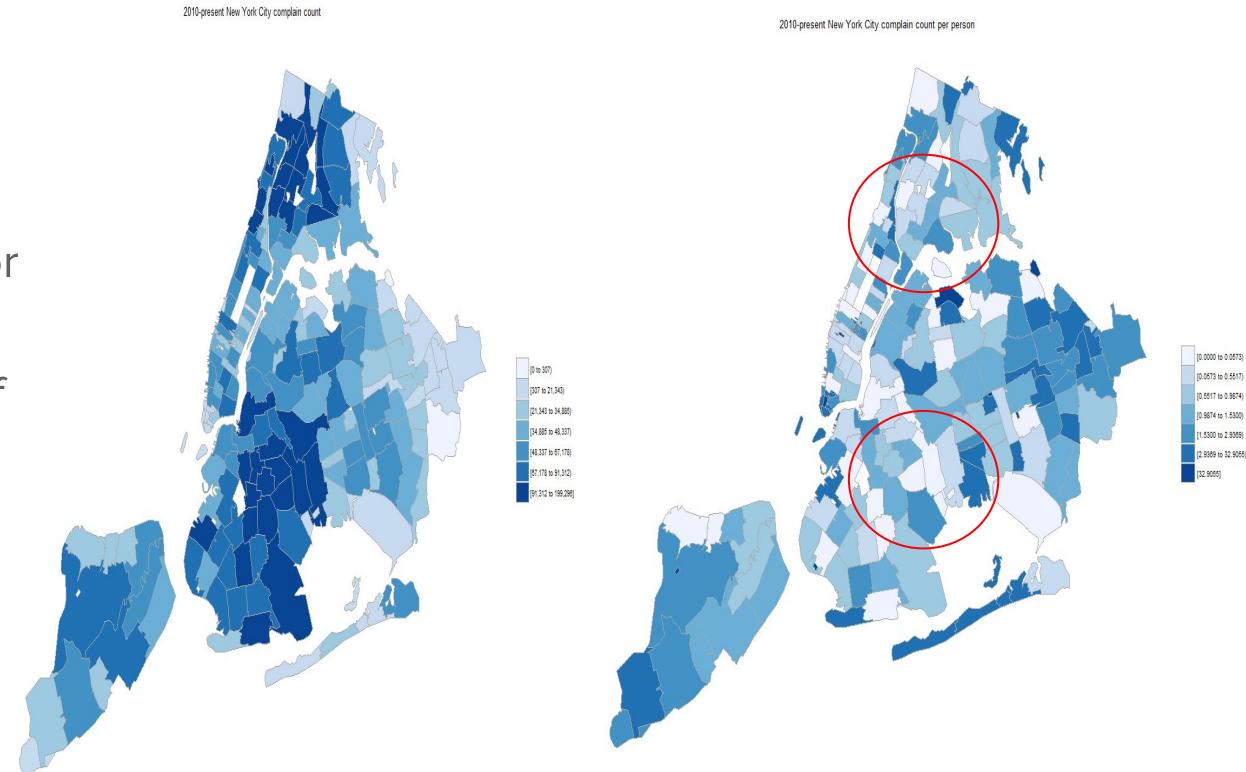
# Complaints vs Health ?

- Analyze if health is helpful indicator for number of homeless complaints.
- Found interesting patterns.
- Work-in-progress



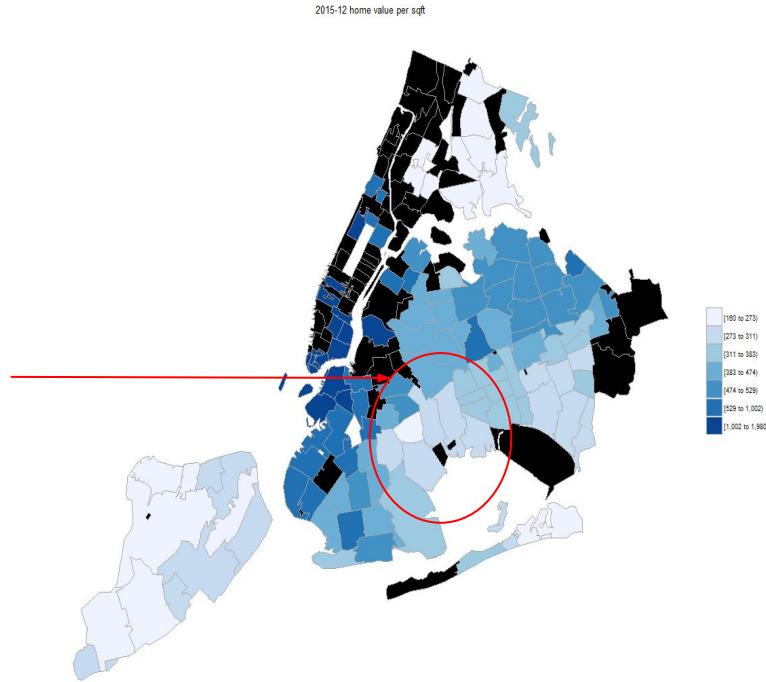
# Complaints vs population?

Different distributions for complaints averaged across the population of the zone



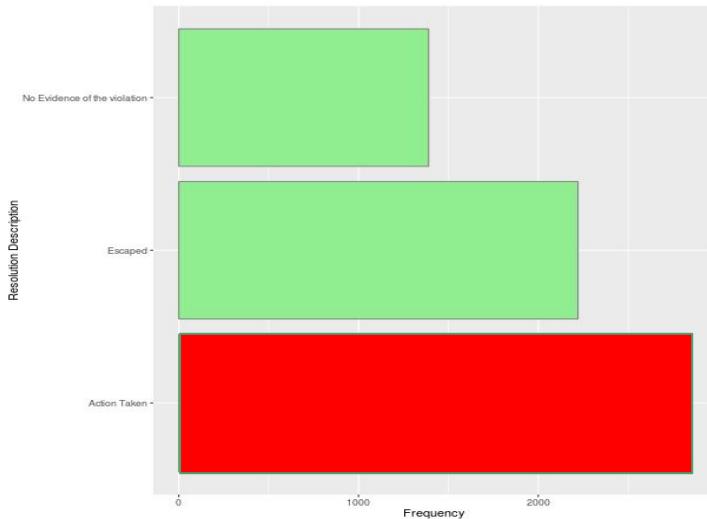
# Economic viability

- Preliminary analysis of economic zones.
- Identified locations that are not very costly based on home value estimates.



# Complaints Resolution Times (Least 25)

- Homeless complaints are resolved very quickly!
- Tasks:
  - Fake? Not ideal resolution? (inhumane perhaps)



Complaint.Type	days
Misc. Comments	-5.203676e+02
Compliment	-2.121691e+02
Senior Center Complaint	-1.140061e+02
Advocate-Commercial Exemptions	0.000000e+00
Advocate - Other	0.000000e+00
Advocate-Personal Exemptions	0.000000e+00
Advocate-Prop Class Incorrect	0.000000e+00
Advocate - RPIE	0.000000e+00
Advocate-SCRIE/DRIE	0.000000e+00
City Vehicle Placard Complaint	0.000000e+00
Forensic Engineering	0.000000e+00
For Hire Vehicle Report	0.000000e+00
Squeegee	0.000000e+00
Taxpayer Advocate Inquiry	0.000000e+00
Homeless Person Assistance	1.550628e-04
Benefit Card Replacement	2.675943e-04
Derelict Vehicles	8.995661e-04
Taxi Report	1.242236e-03
Urinating in Public	1.236307e-01
Traffic	1.475347e-01
Homeless Encampment	1.489012e-01
Disorderly Youth	1.968254e-01
Illegal Fireworks	2.500000e-01
Vending	2.706983e-01
Animal Abuse	3.194260e-01

# Summarizing...

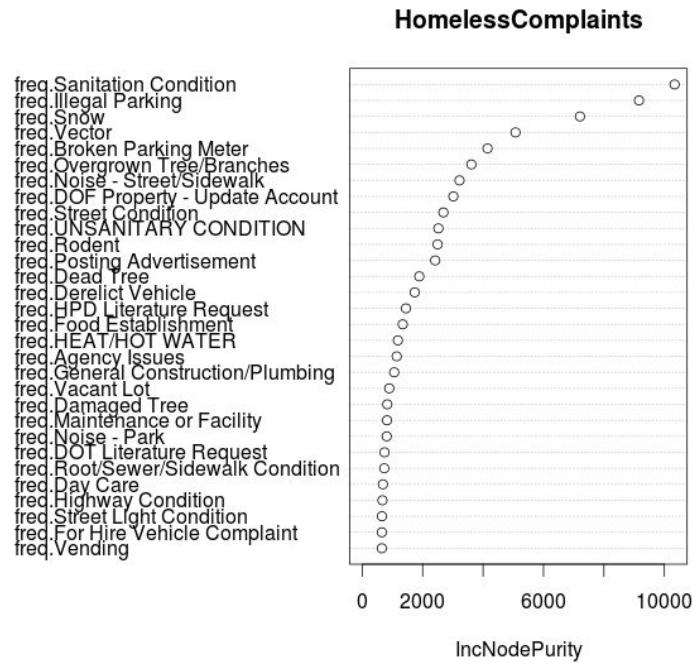
- Complaints are closed very quickly as well as fake complaints
  - **Predict** fake vs original
- Complaints can be clustered which can be explained by different predictors
  - Some **clusters** with income, some with population, some with subways, some with health
  - Use it to **predict** possible locations for complaints.
- Wide economic conditions
  - Can be used to **recommend** a suitable place

# Predictions

Clusters, Complaints, Suggestions..

# Correlation with complaint types...

- Correlation of number of homeless complaints with other complaint types
- Interesting patterns observed.
- Regressing on the variables could explain (70%) of the variance.
- Variable importance from Random Forest regression.
- More experiments in order...
  - With number of complaints on the previous day...
  - External factors into the model...



# Plan

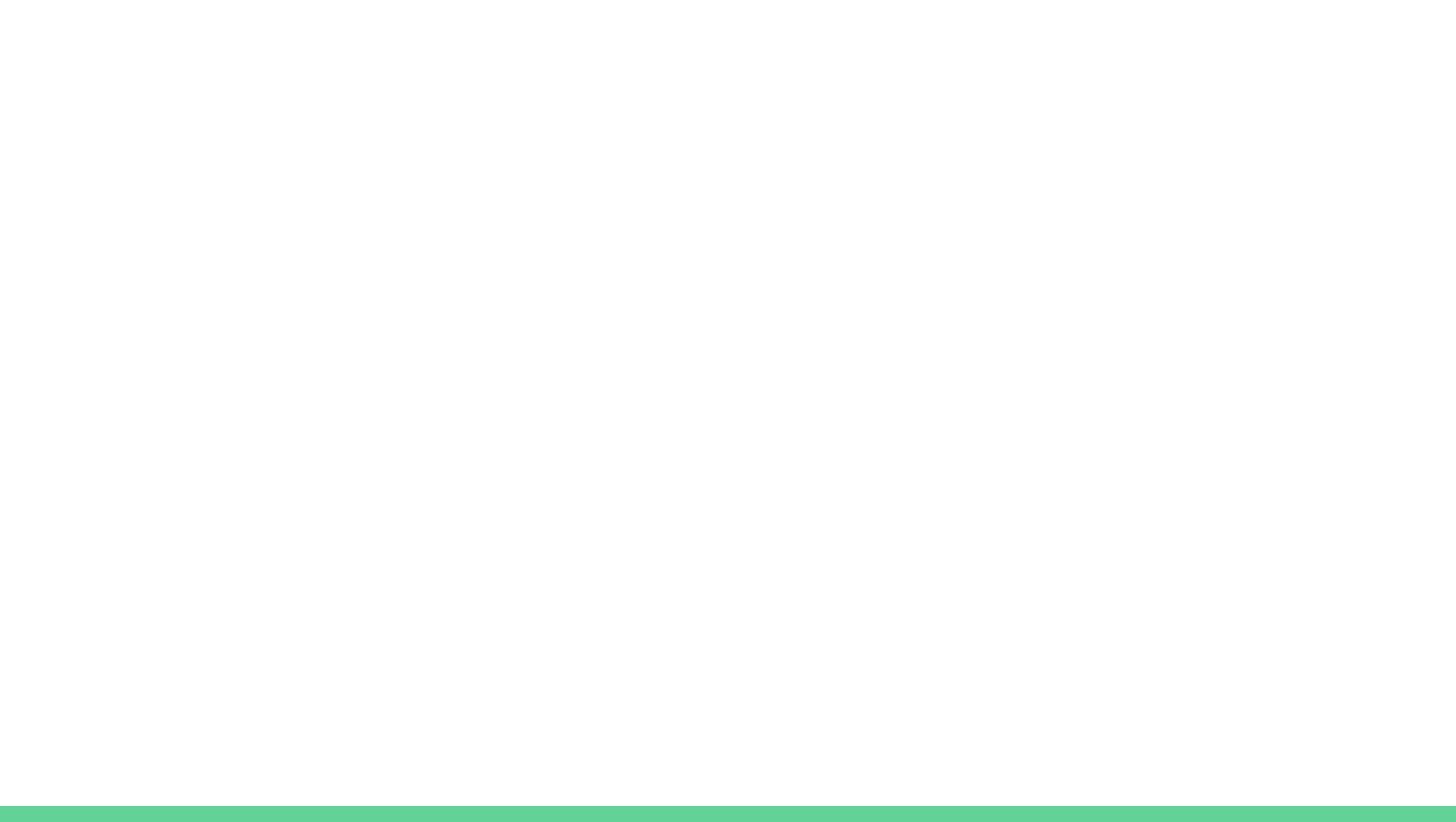
- Collaboration:
  - Github, Small taskforce teams for analysis of each factor, WhatsApp....
- Analysis (80 - 20):
  - Current status:
    - Distributed across entire team
  - Future:
    - Arushi (Subway stations), Shenghan (Health), Xuyan (Economic value), Jeffery( Jobs)
- Prediction (30 - 70):
  - Current status:
    - Preliminary analysis
  - Future:
    - With other complaint types (Rohit), With weather and other factors (Vishal), Resolution Times (Rohit & Jeffery), Ideal homeless care centers (Xuyan & team).

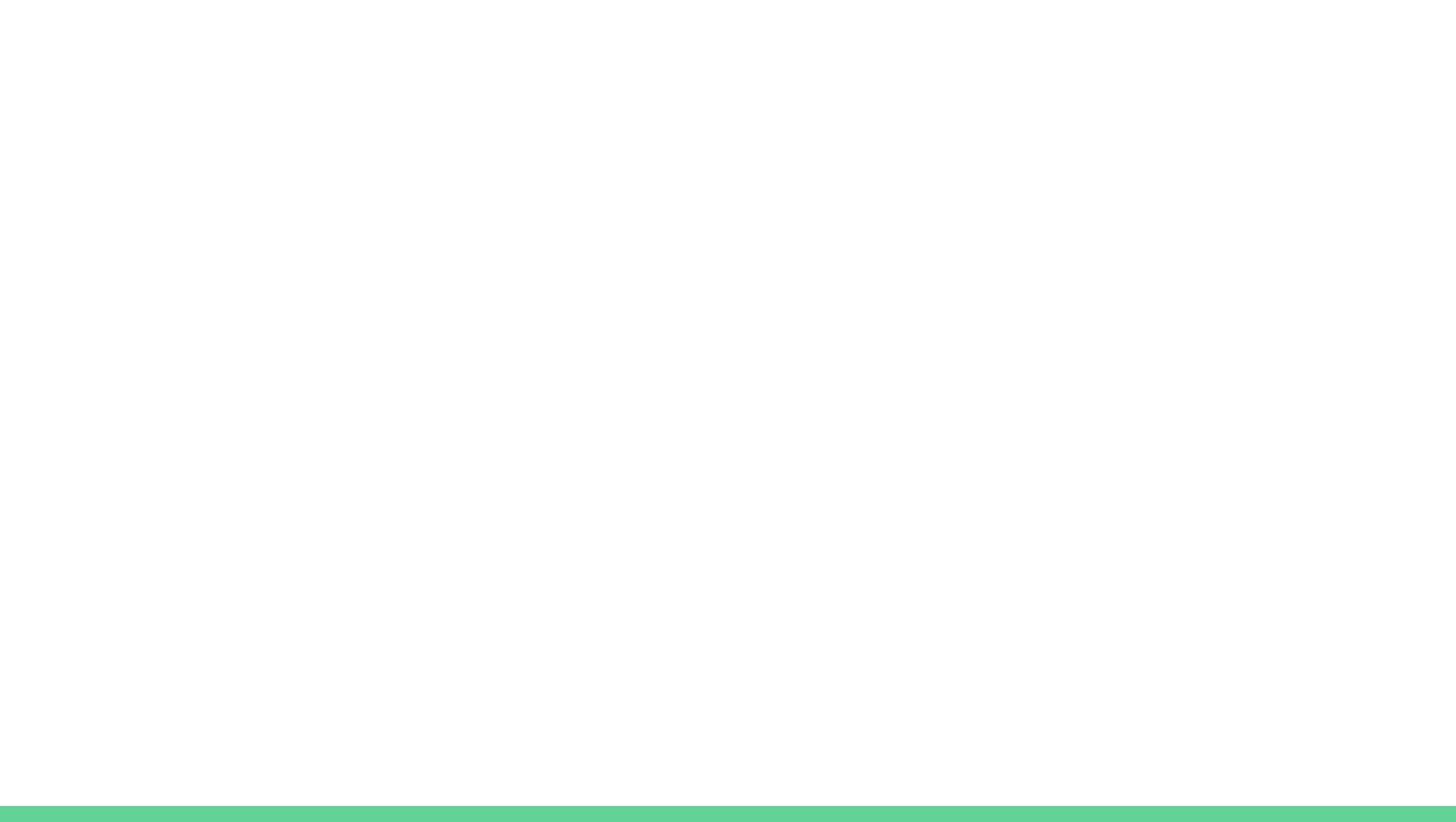


Inputs?

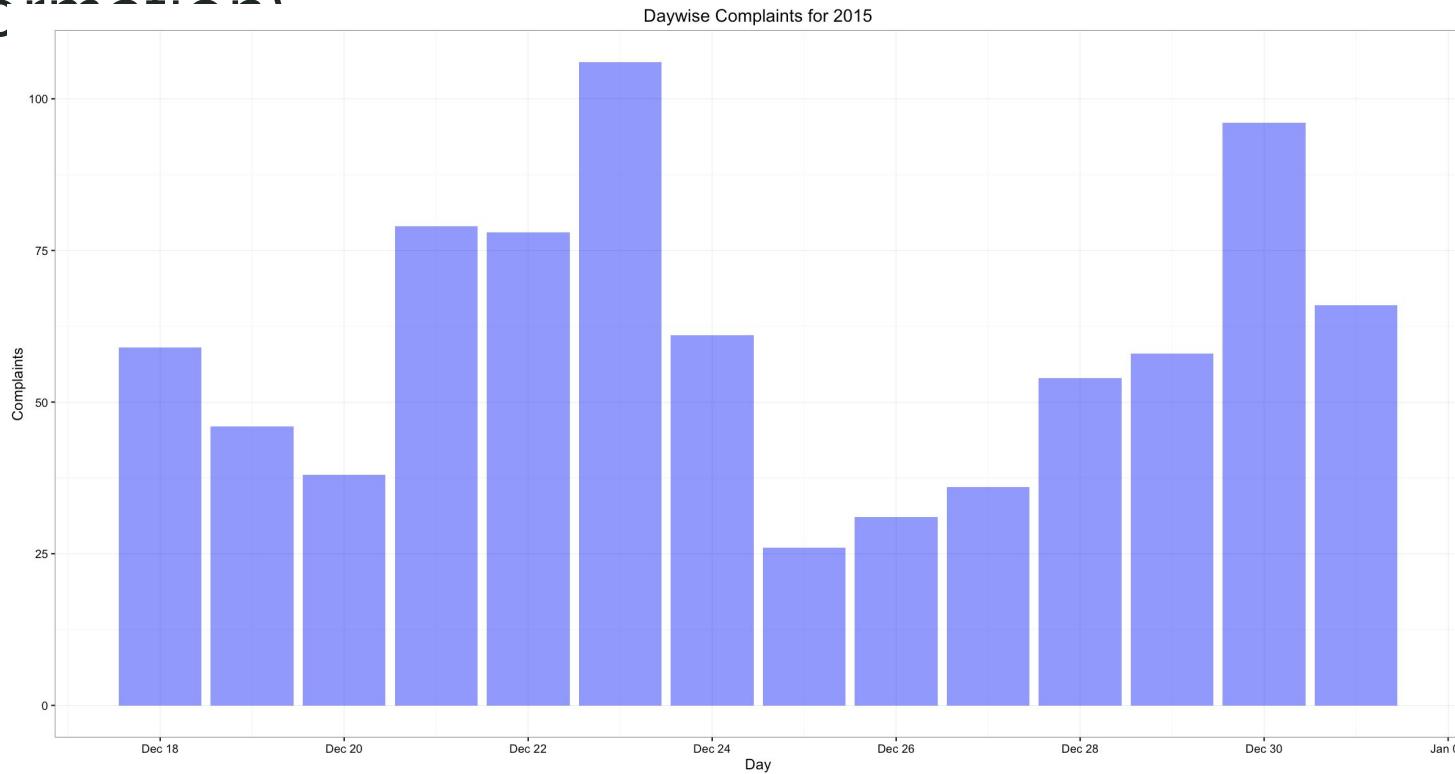
Questions?

Thank you!

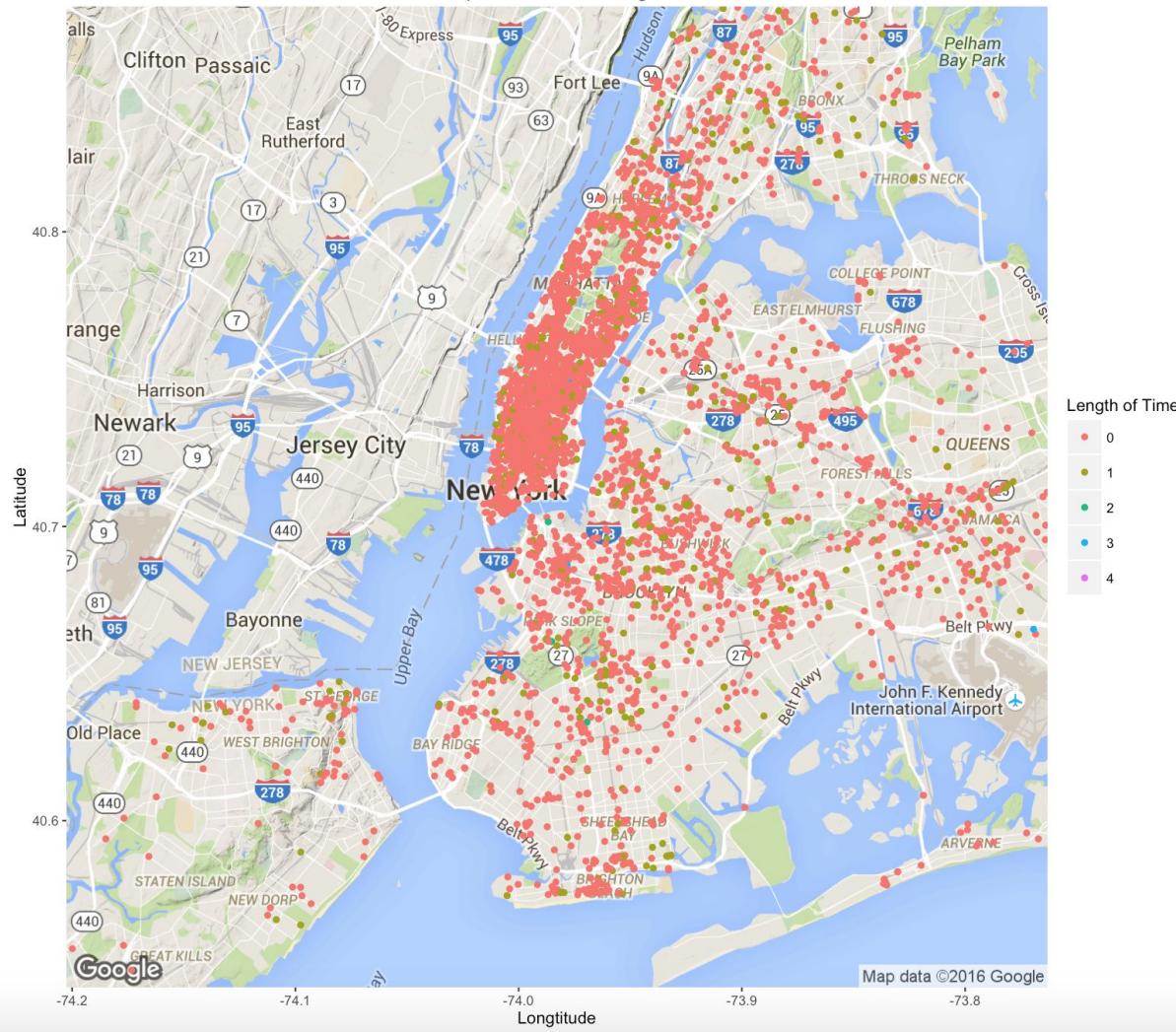




# Daywise Distribution in 12/2015 (Redundant info)



### Homeless Encampment Issue Solving Time Distribution



# Future Plan

Team :

Masala Noodles

Due Date :

5/8/2016

## Part

Topic	Due date	Member	Complete	Progress	Comments
Time Distribution	4/26/2016	Vishal	75%	<div style="width: 75%;"></div>	
Geographical Distribution	4/26/2016	Arushi	60%	<div style="width: 60%;"></div>	
Resolution Time	4/26/2016	Rohit and Jeffery	40%	<div style="width: 40%;"></div>	
Health Condition	4/26/2016	Shenghan	70%	<div style="width: 70%;"></div>	
Housing Price	4/26/2016	Xuyan	30%	<div style="width: 30%;"></div>	
Homeless Prediction	4/26/2016	Vishal	20%	<div style="width: 20%;"></div>	
Job Opportunities	5/1/2016	Jeffery and Xuyan	10%	<div style="width: 10%;"></div>	
Presentation	4/19/2016	All	✓ 100%	<div style="width: 100%;"></div>	
Writeup	5/4/2016	All	0%	<div style="width: 0%;"></div>	After Presentation
Graph Enhancement	5/7/2016	All	0%	<div style="width: 0%;"></div>	After Presentation
Submit	5/7/2016	All	0%	<div style="width: 0%;"></div>	