Anticipating the Storm:

Applying Trulia Real Estate Data to Disaster Preparation and Response

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Problem Statement & Task at Hand

- During a disaster, it is important to model and estimate the potential or forecasted effect of the event, including the projected/forecasted damage.

- Using one or more real estate website (Trulia), gather market data on houses in order to estimate collateral damage of disasters based on Zip Code.

Why Estimate Disaster Damage

- 9/11 and Hurricane Sandy are the most prominent disasters in NYC's collective consciousness in 21st century
- Hurricane Sandy had higher overall economic damage at well over $50 billion
- 2018 Wildfires in west coast USA & Australia, flooding throughout Asia, Earthquakes
- Given this, natural disaster preparation & response is KEY.

Process

- Data Gathering - BeautifulSoup & Requests
- Trulia.com - Legal Terms and Conditions
- Data Cleaning - NLP for Text Processing
- Function Design - Encapsulation
- Input Validation
- Automation

Cleaning the Data

	qualities
0	1bd1ba
1	Studio1ba
2	2bd2ba101221 sqft
3	2bd2ba1465 sqft
4	1bd1ba19440 sqft

	bath	bed	sqft
0	1.0	1.0	NaN
1	1.0	1.0	NaN
2	2.0	2.0	101221.0
3	2.0	2.0	1465.0
4	1.0	1.0	19440.0

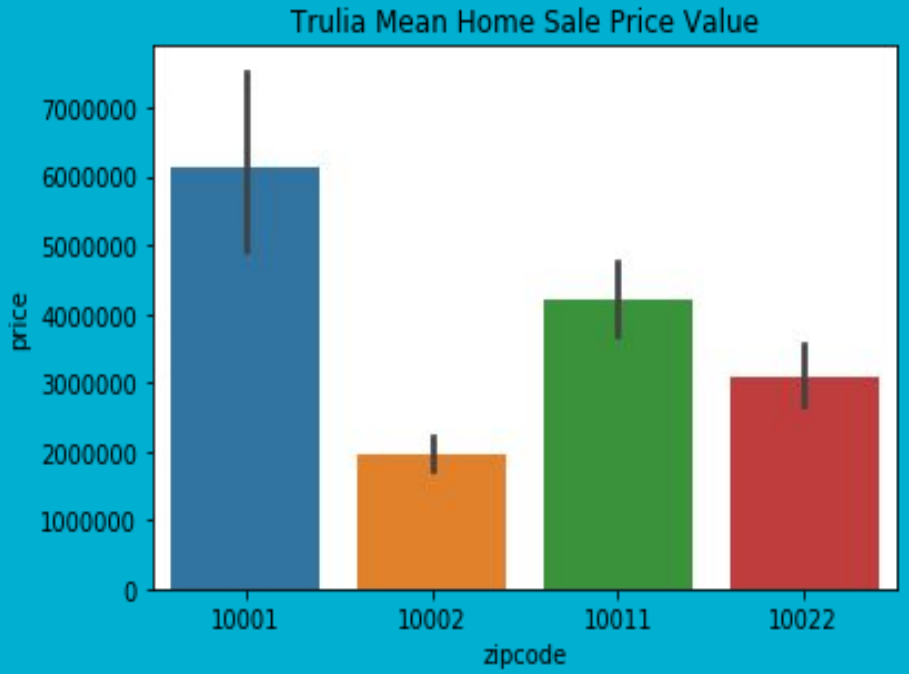
Encapsulation & Automation

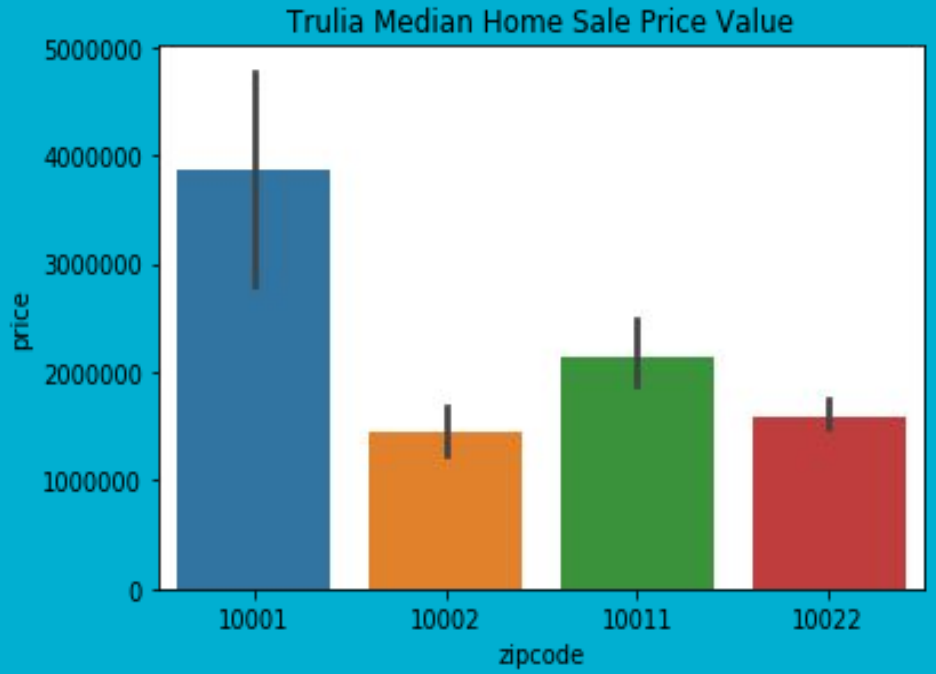
- Get user input - list of Zip Codes
- Gather data from first Trulia results page
- Process Data
- Update Trulia page URL
- Repeat for all Zip Codes from user input
- Generate aggregate statistical summary results
- Save statistics to Pandas dataframe
- Display results

Example Usage

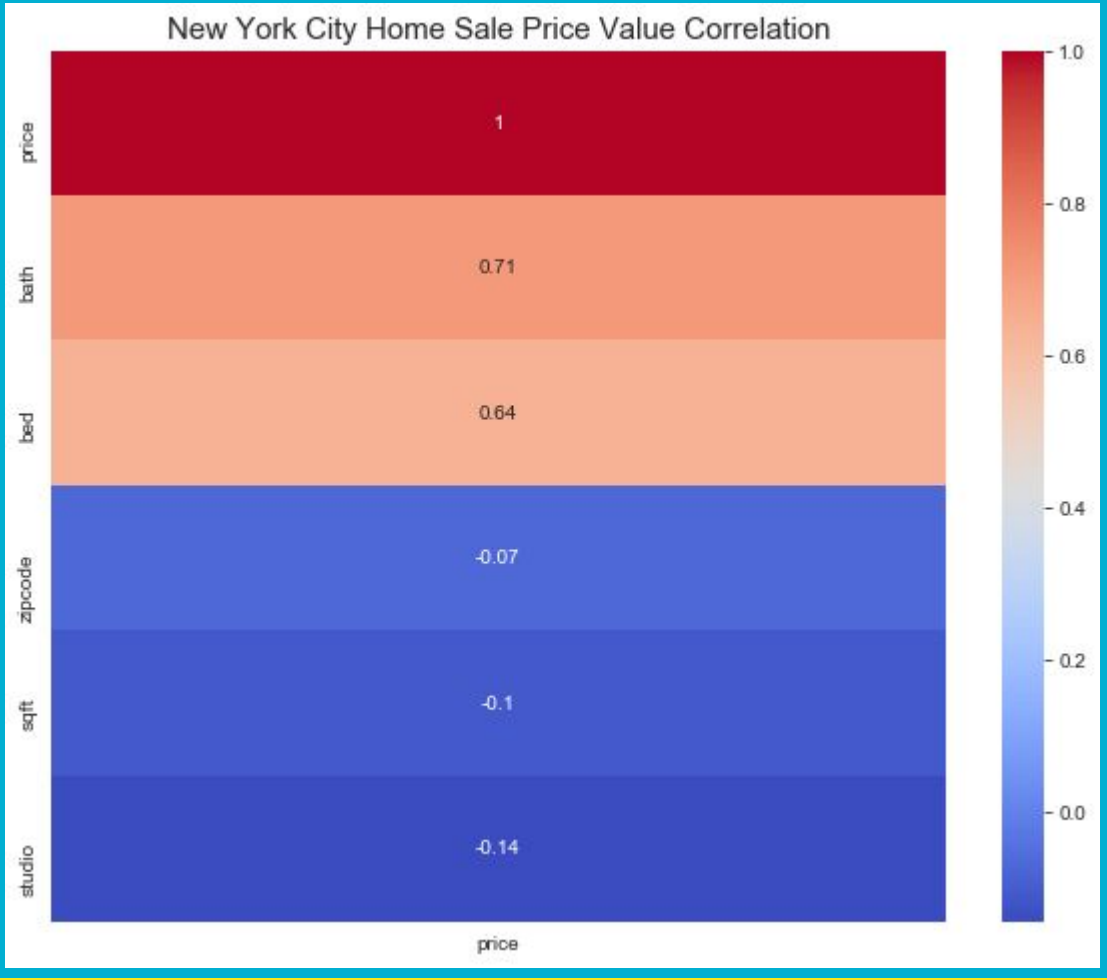
```
Enter a zipcode or press enter to get your summary statistics:
--->10011
Enter a zipcode or press enter to get your summary statistics:
--->10002
Enter a zipcode or press enter to get your summary statistics:
--->10022
Enter a zipcode or press enter to get your summary statistics:
--->10001
Enter a zipcode or press enter to get your summary statistics:
--->10001
Enter a zipcode or press enter to get your summary statistics:
--->1000a
Value error. Please try again.
Enter a zipcode or press enter to get your summary statistics:
--->10002
Enter a zipcode or press enter to get your summary statistics:
--->
Estimated Damage Summary Statistics Zipcode Areas :  [10001, 10002, 10011, 10022]

          max       mean     median      min   name          sum
0 67000000.00 3578427.53 1800000.00 62900.00  price 5002641689.00
1       10.00       2.32       2.00     1.00   bath       3238.00
2        9.00       2.10       2.00     1.00    bed       2919.00
3   967300.00   32824.73    1509.50   250.00   sqft   39389679.00
```

Adding Visuals to Search Function





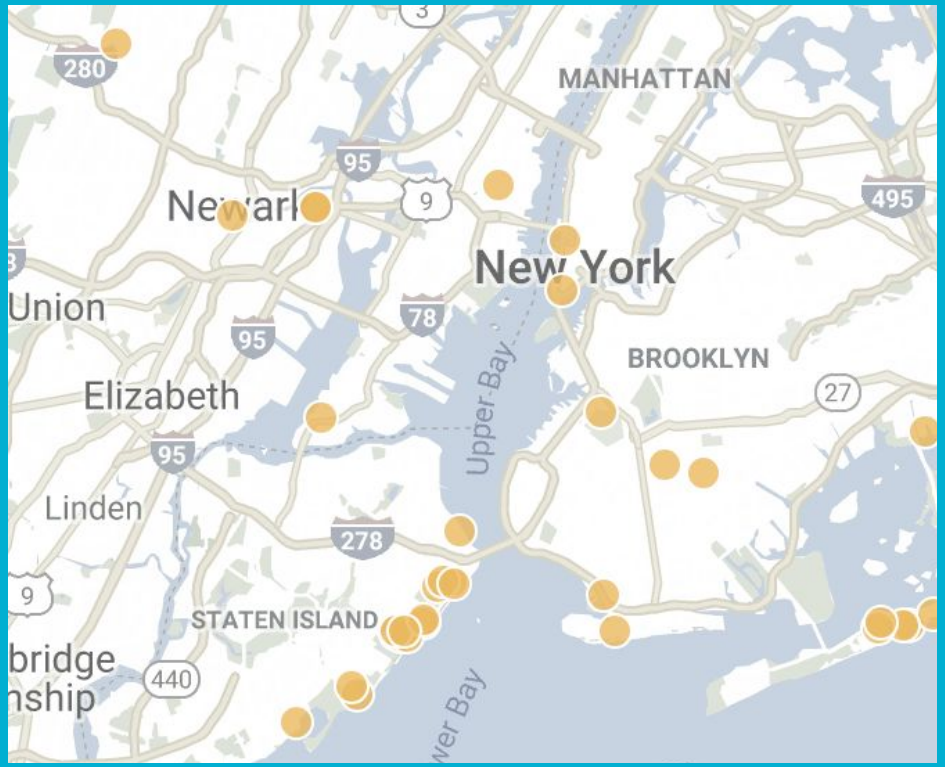
Correlations

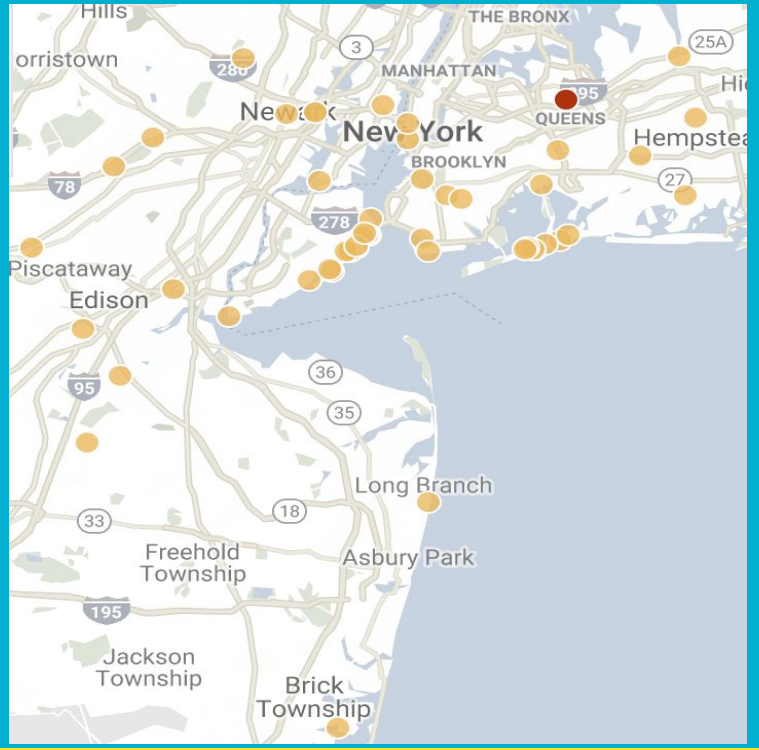


Conclusions & Future Improvements

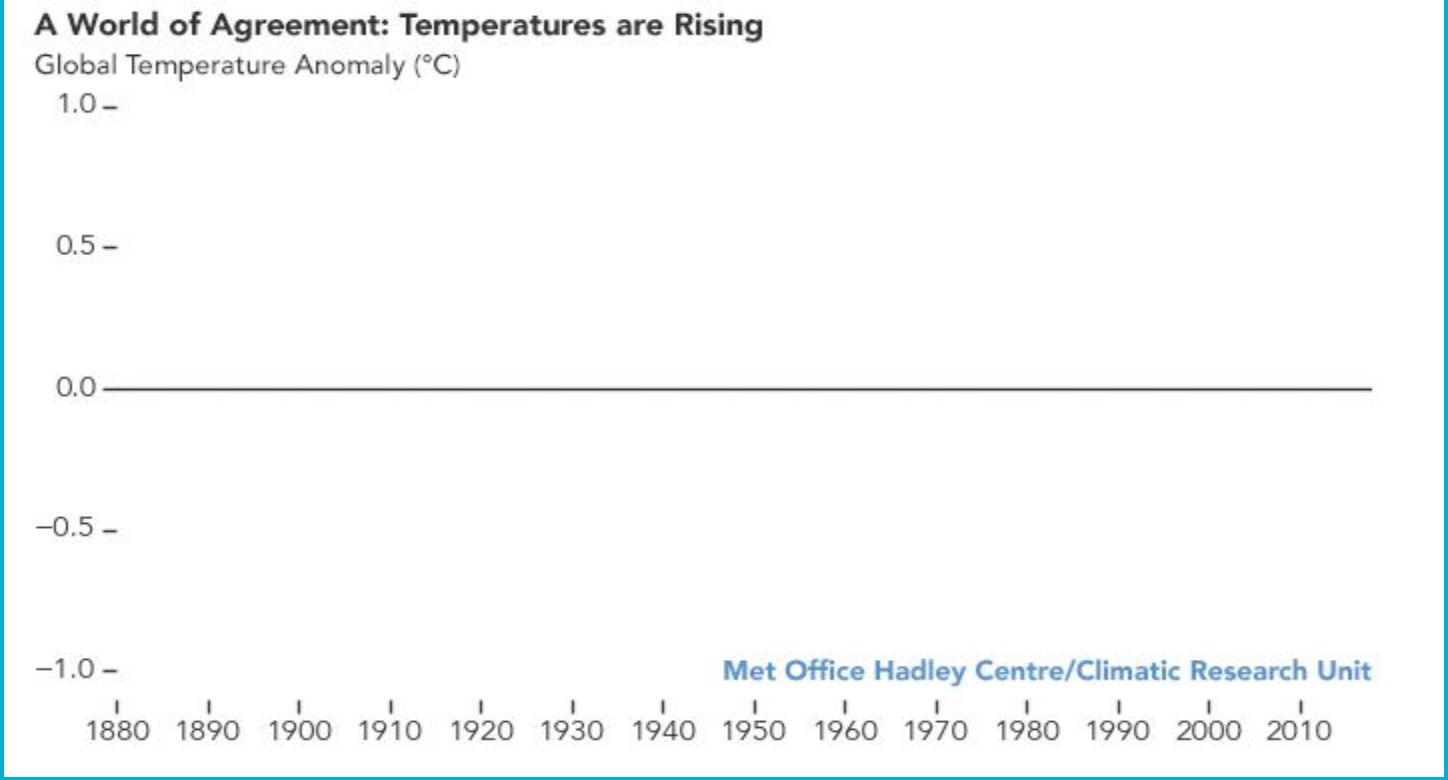
- 2010 US Census Bureau Data - Out of Date
- Including More Real Estate Website Data
- Usability of Statistics
- Shift of Societal Priorities

Deaths and Damage Concentration on Coasts



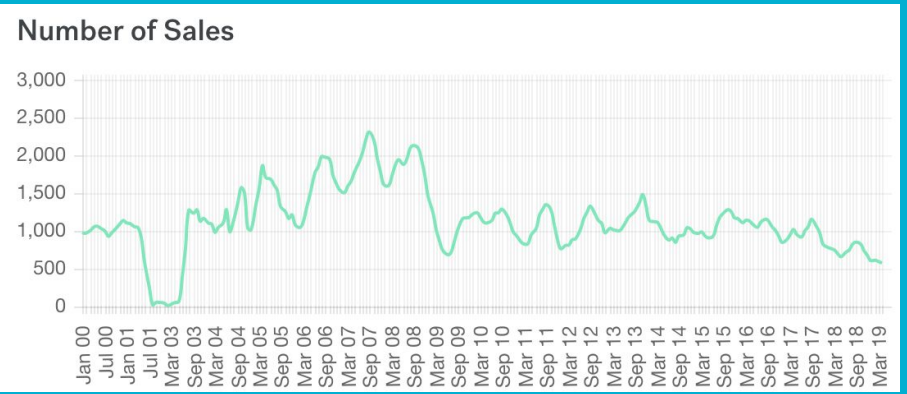


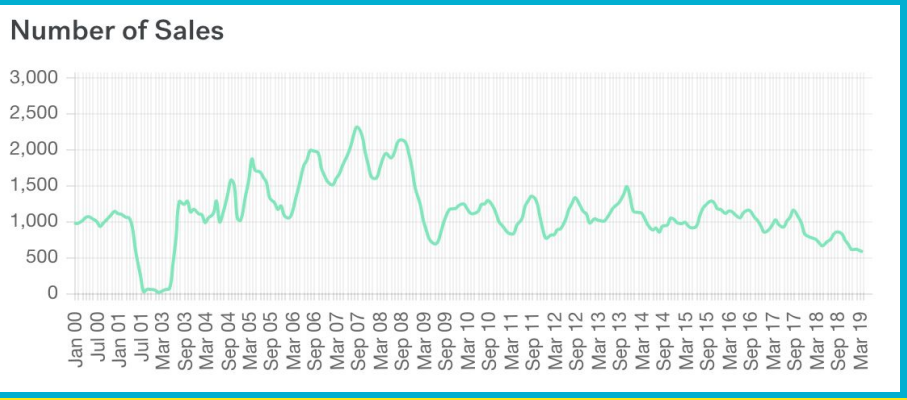
Several Agencies share consensus on shifting temperatures



https://climate.nasa.gov/scientific-consensus/

Why Historical Analysis is Complicated in NYC





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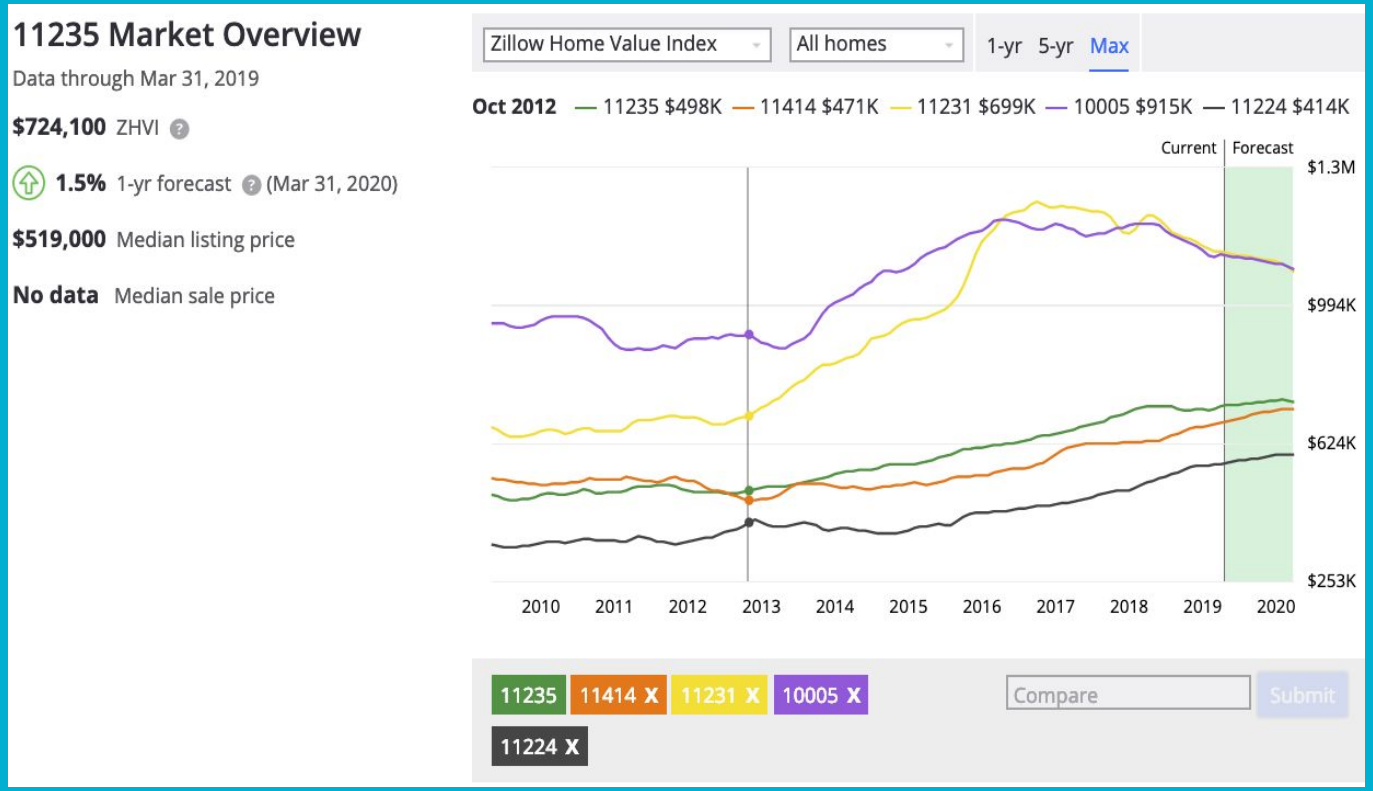

Brighton Beach

Coney Island

Red Hook

Financial District

Rockaway Beach

Questions?