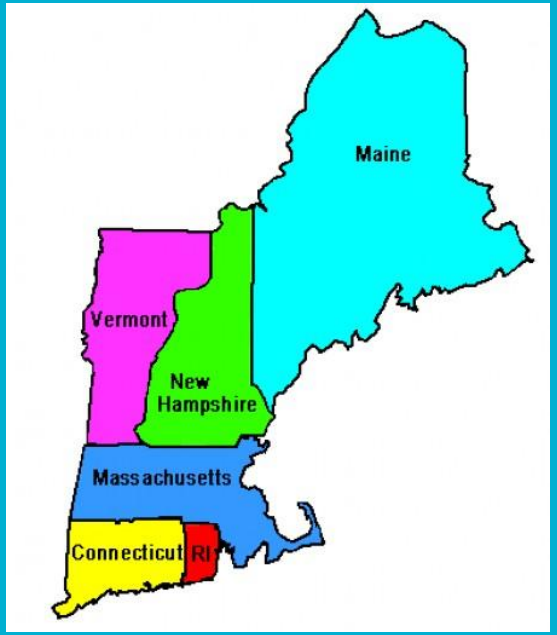
The Zillow Zipcode Time-Series Project



A Time Series predictor for zip codes of New England villages

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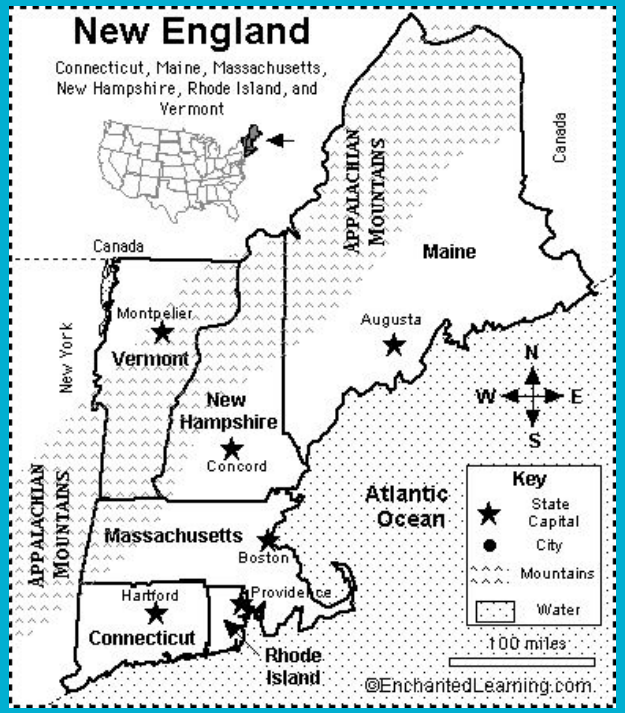
A Flatiron School Project
May 2020

Project Focus



What zip codes in New England's villages will bring the best five year future return?

- Zillow data (1996-2018)
- Six New England States
- Based on:
  - Size, Population, Location
- Five Year Return

Test Methodology

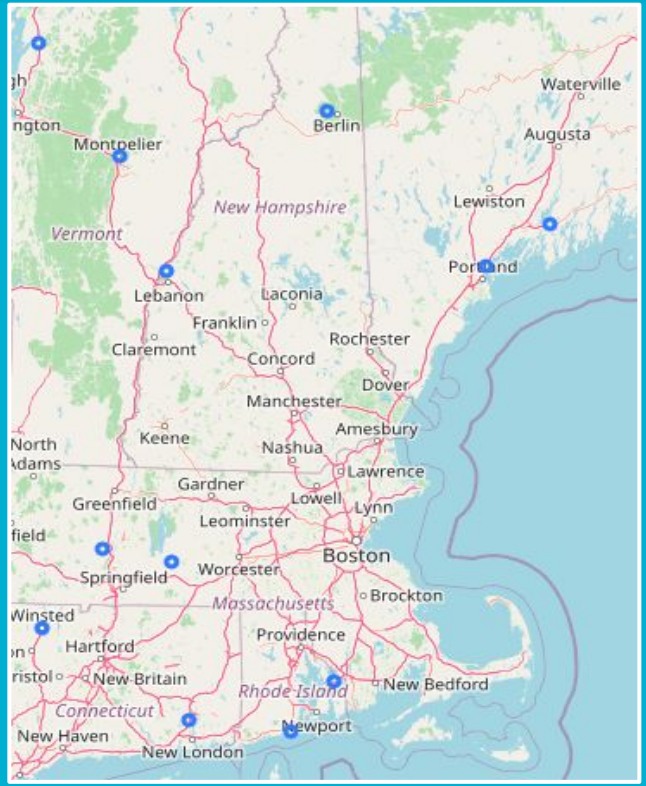
A non-technical description of how tests were performed and results were determined.

- Collected necessary datasets
- Completed an Exploratory Data Analysis
- Filtered and Cleaned data
- Applied a ‘Time Series’ Model Prediction
- Analyzed Results
- Determined Conclusions

Reduction

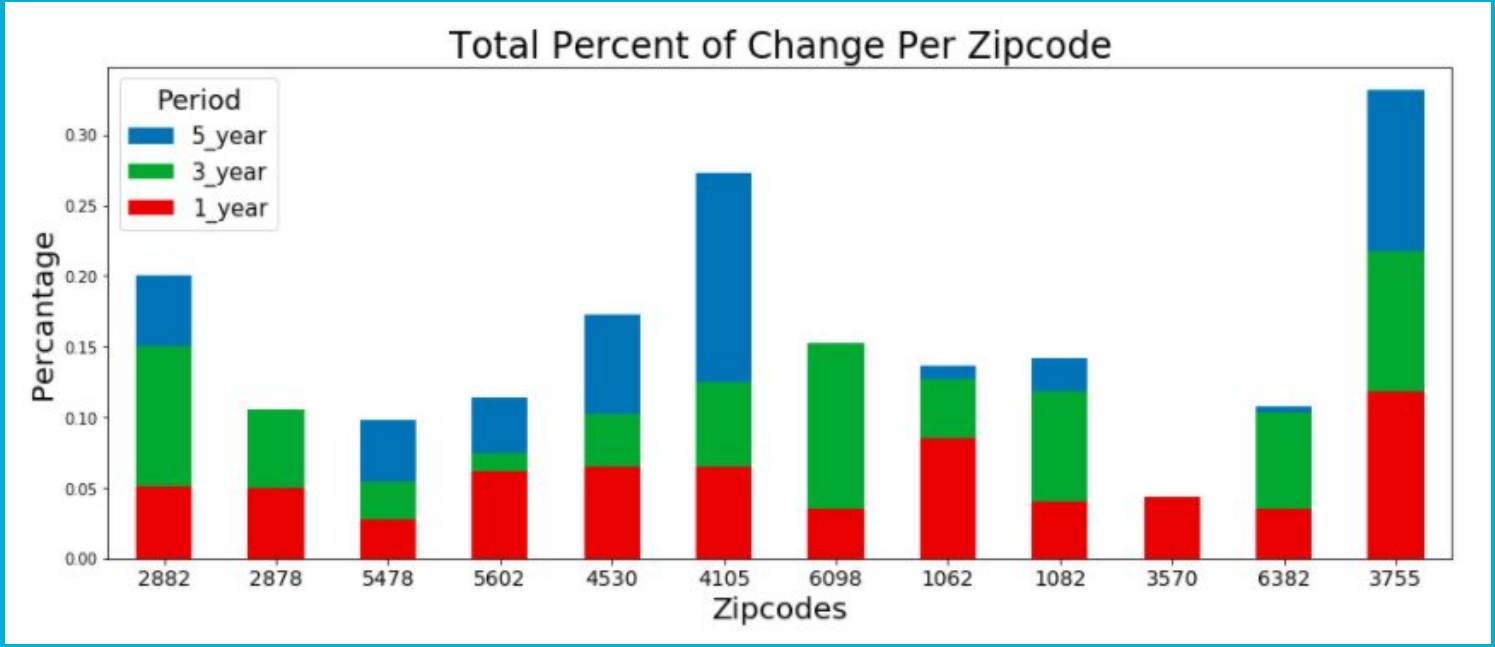
Narrowing 14,700 zipcodes to 12

- Used only New England Zip codes
- Focused on villages
  - (population 10-15 thousand)
- No sprawling suburbs or large cities
- Nothing too rural or too small
- Two from each NE state



Past Value Change

Final twelve zip codes and recent short-term percent of change

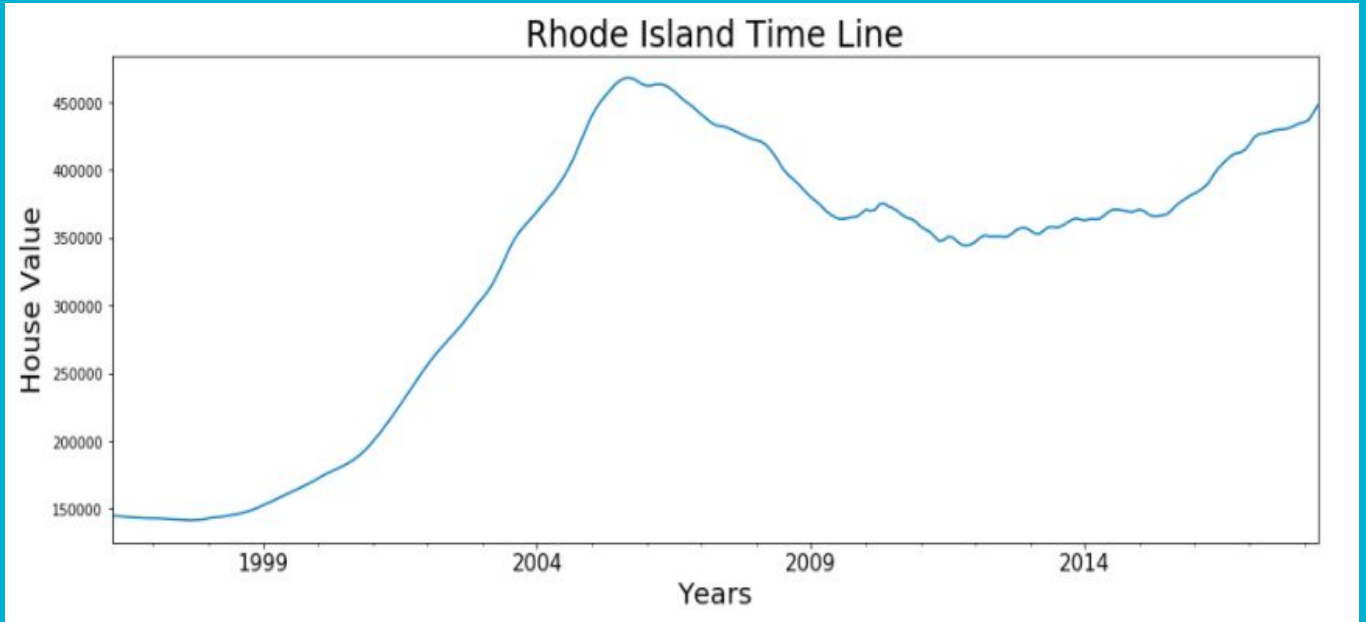


House Value Timeline

Zip code 02882 - Rhode Island Housing Values (1996-2018)

<u>Similar trends</u>

- Late 90's Growth
- 2008 Dip
- Growth



Conclusion

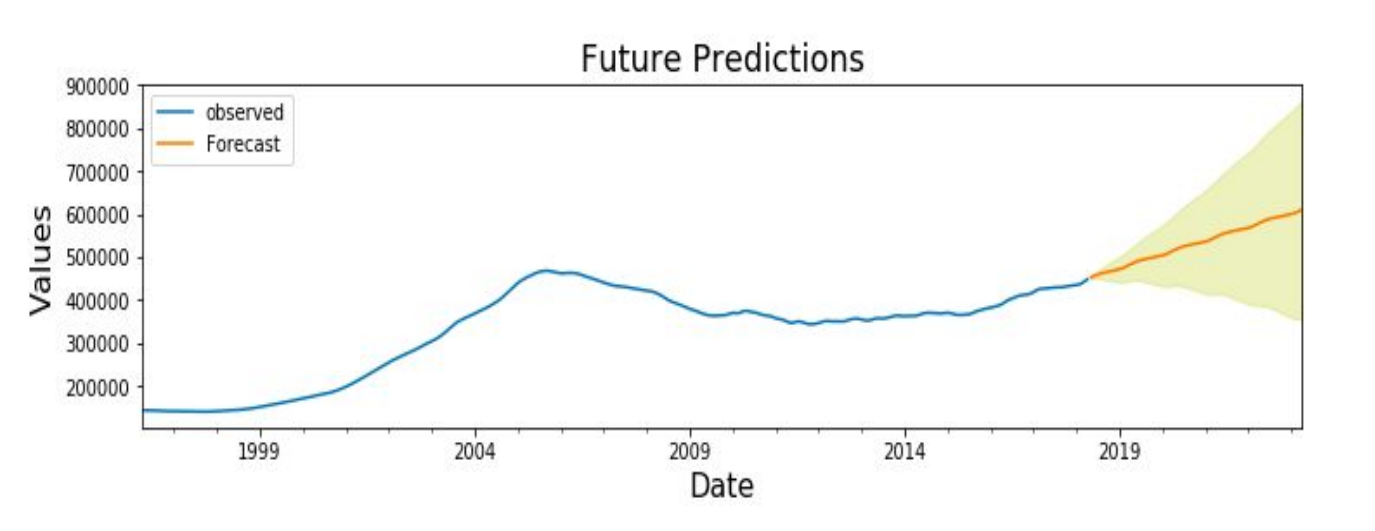
Which zip codes showed the greatest change?

- Rhode Island and Maine zip codes increased the most (and both are coastal towns)
- New Hampshire showed a decrease (housing market is already very expensive)

Zipcode	Current Value (April 2023)	Predicted Value	Percent Change
1082	183800	208667	13.36%
2882	447900	610684	34.93%
3755	655900	639320	-2.26%
4105	472500	583388	23.88%
5602	243500	250466	3.37%
6382	183700	203705	11.11%

Future Predictions

The Rhode Island zip code 02882 showed the greatest possibility of increase and had the model with best results



April 2023

Upper value
$865,678

Predicted value
$610, 684

Lower value
$355,691

Summary

Zip codes that showed the best five year growth

- Rhode Island Zip Code 02882 had the best predicted house value in five years
- With the possibility of an average of 34% price growth
- Of New England villages
- With Populations around 10,000

Future Work

- Apply model to rural towns or large cities
- Focus on zip code demographics
  - Population Density
  - Use towns or villages instead of zip code
  - Schools/Employment/Tourism
- Look at regions outside of New England

Thank you for your time.

Questions or Comments?

Sources:

- Zillow Dataset
- Kaggle Population Dataset
- United States Zip codes Lat/Lon
- Flatiron Academy, Python Pandas, Jupyter Notebook, GitHub, Matplotlib, Statsmodels Libraries

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https://newengland.com/

https://tools.usps.com/zip-code-lookup.htm?citybyzipcode

https://www.unitedstateszipcodes.org/zip-code-database/

https://www.kaggle.com/census/us-population-by-zip-code#population_by_zip_2010.csv

https://www.towncharts.com/Massachusetts/Housing/2360-Zipcode-MA-Housing-data.html

Zillow

Zillow, is an American online real estate database company that was founded in 2006.