



PHASE IV PROJECT: TIME SERIES MODELLING

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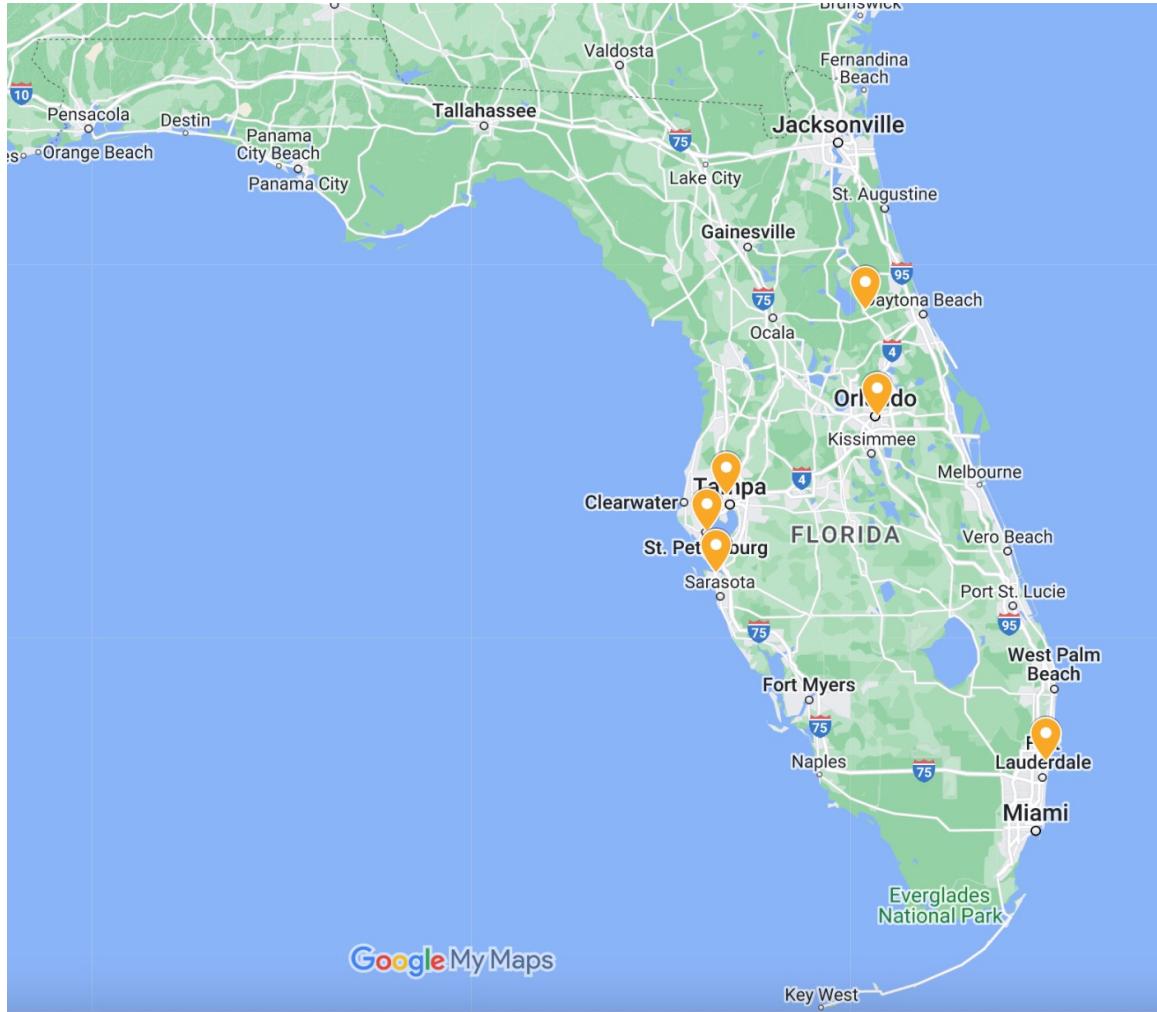
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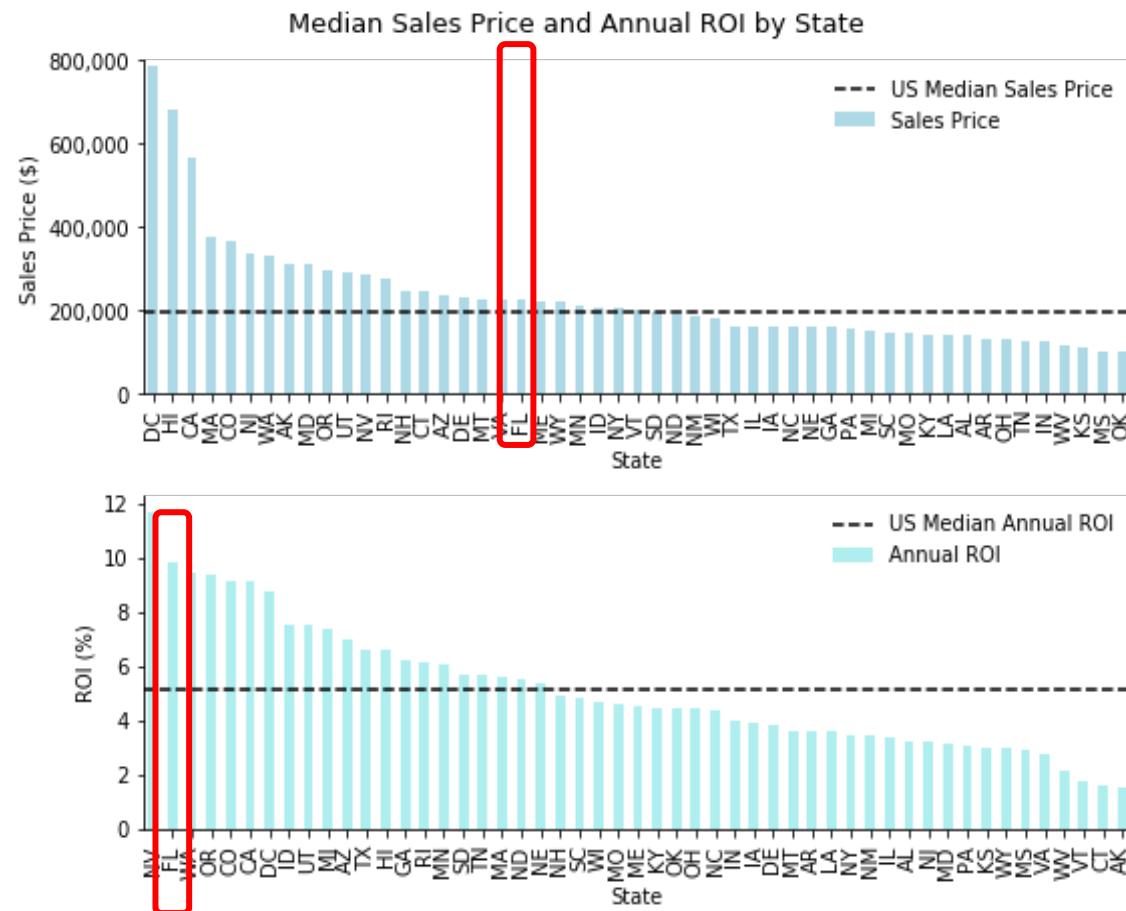
PROBLEM STATEMENT

First-time homeowners are looking to identify the top best zip codes to invest in over 5-year period.



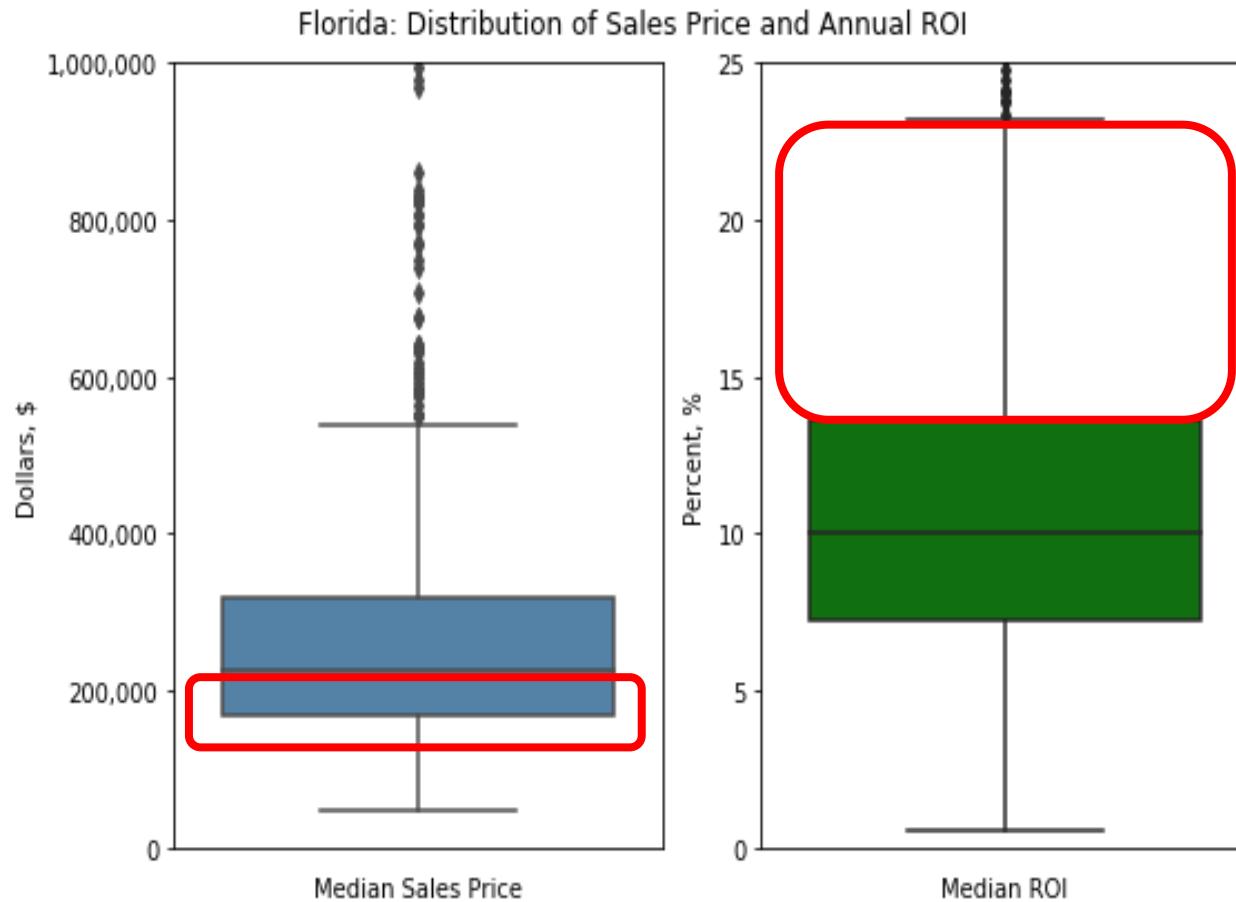
GOAL

Identify highest ROI zipcodes with below-median sales price in state of Florida, which has high percentage of zipcodes that meet this criteria.

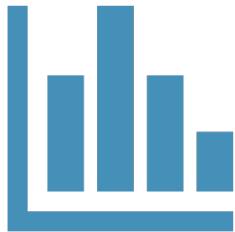


ZIP CODE CRITERIA

Below-median sales price and above-average ROI, excluding outliers



DATA UNDERSTANDING



Data

- Zillow Research Data
- Nearly 15,000 zipcodes
- 270 monthly time series

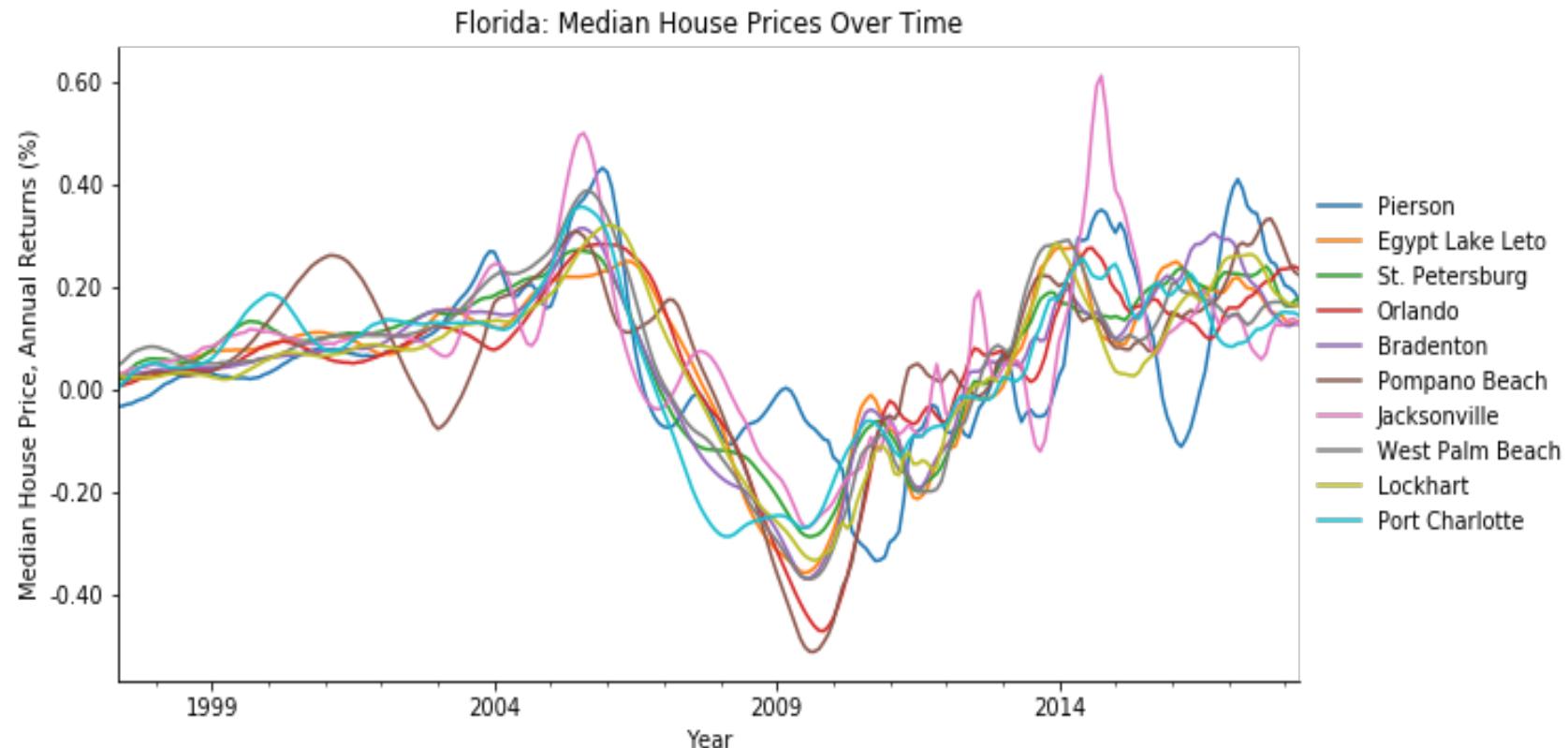


Methods

- Descriptive data analysis and statistics
- Time series modelling

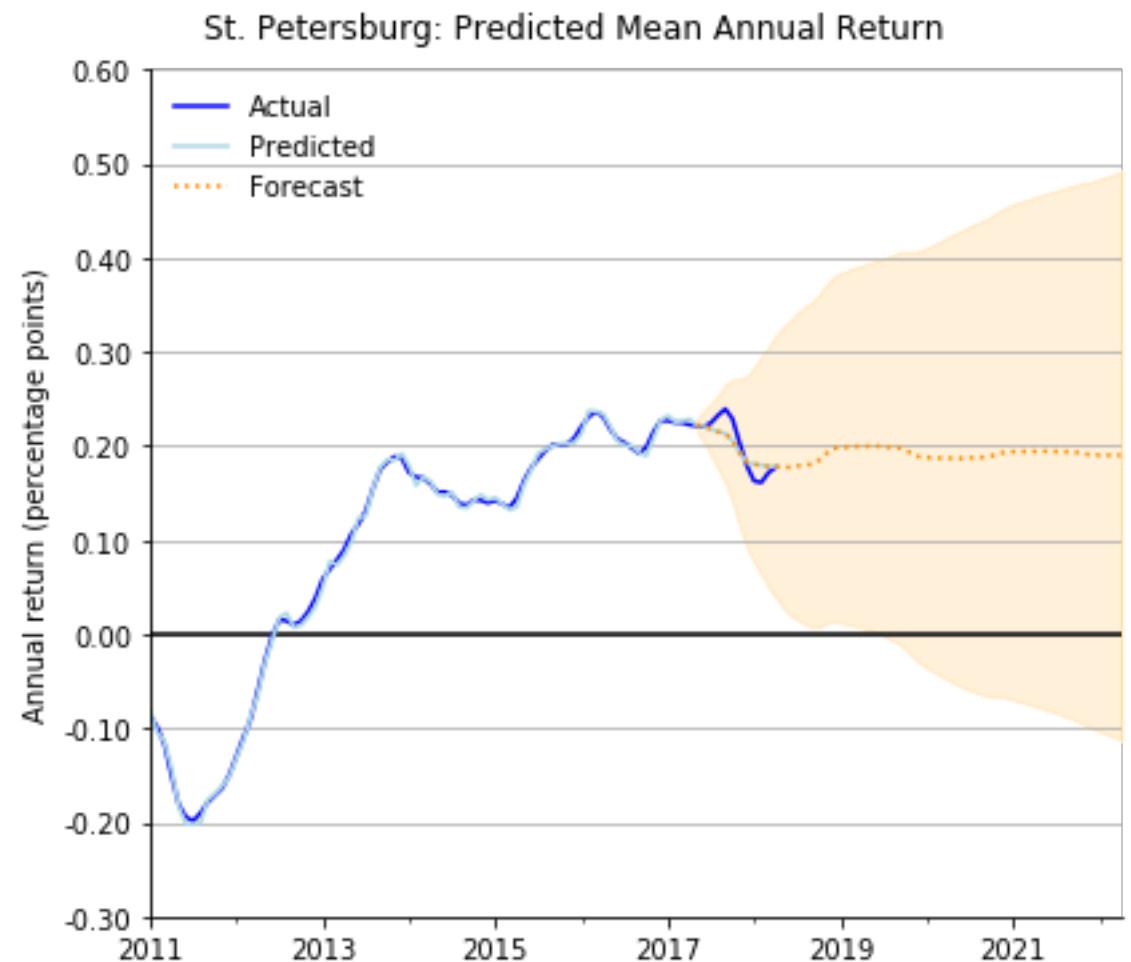
DATA UNDERSTANDING

- Long time series with cyclical trends
- Includes 2007-09 housing crisis. Annual ROIs have generally returned to pre-crisis ROIs



RESULTS

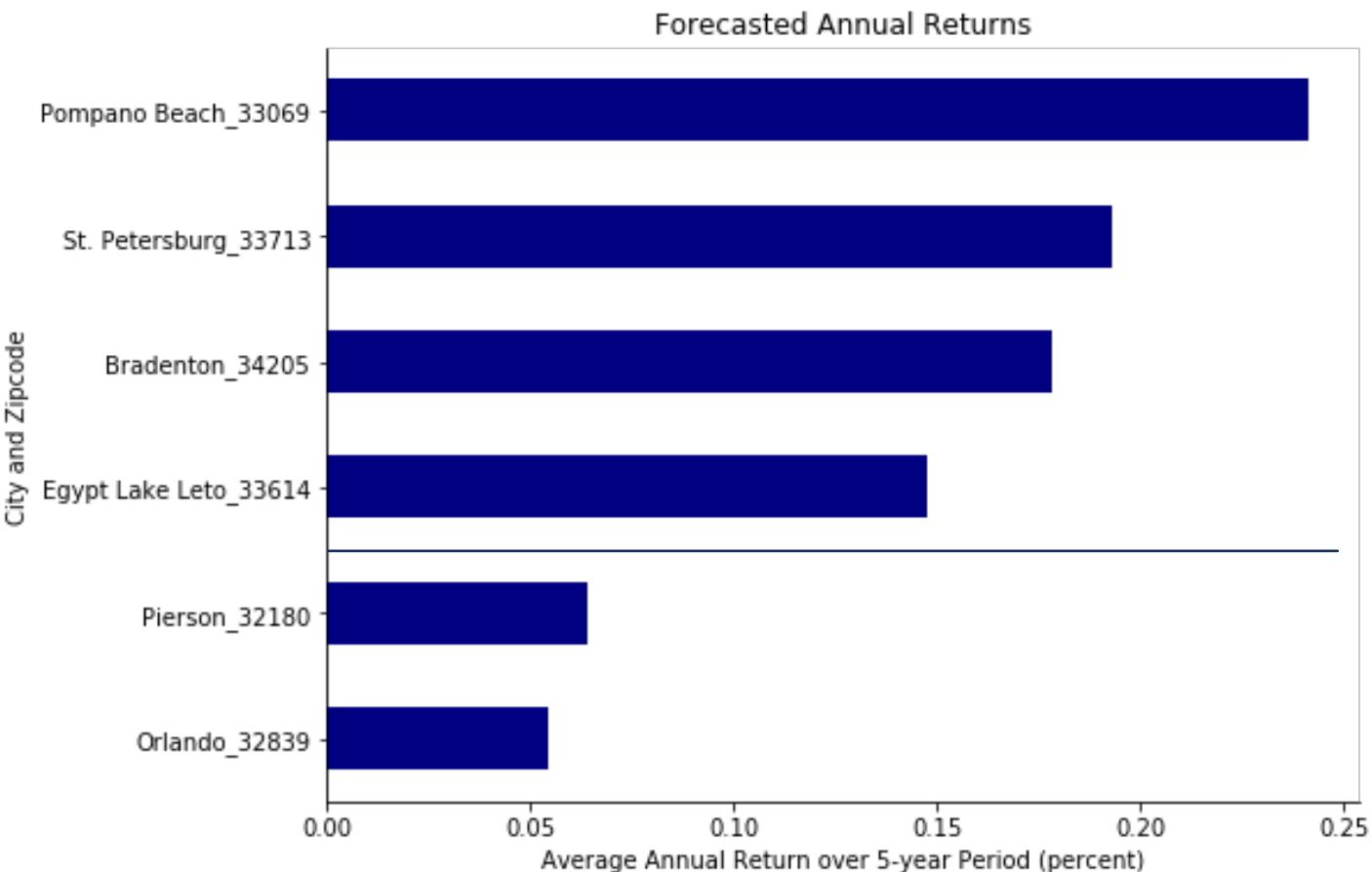
- SARIMAX model was run and fit on ten zipcodes
- 5y forecasts:
 - Overfitting: training data performed better than test data
 - Wide confidence intervals, indicating uncertainty



RECOMMENDATIONS

Invest in zipcodes:

- Pompano Beach (Miami metro)
- St. Petersburg (Tampa metro)
- Bradenton (Bradenton/Sarastota metro)
- Egypt Lake Leto (Tampa metro)



NEXT STEPS: EXTENDED ANALYSIS



Model improvements should take into account external factors (mortgage rates, economic conditions)



Focus analysis on post-2008 housing crisis period

THANK YOU

For questions, contact:

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