



NYC Time Series Analysis

Grace Calip

Topics to Cover

- Business Understanding
- Data
- Strategy
- Results
- Recommendations
- Future Work



Business Understanding

Business Problem

- Which zip codes will bring profit in the future years?
- What zip codes based on our data has the highest ROI and will it continue to generate profit?

Business Value

- Determine which borough by zip code holds value in the future based on prior historical values our prediction time series model
- Provide aspiring landlords information on which NYC area is worth investing in

Data

Historical Zillow Home Values

- Year: 2009-2018 (Post Market Crisis)
- NYC Zip Codes: 114
- Metric: Zillow Home Value Index (ZHVI)



Strategy

Data Preparation

- Filter data by location
- Set date to post Market Crisis

Investigate profitable Zip Codes

- Average Location Value
- Zillow Value Index (ROI)

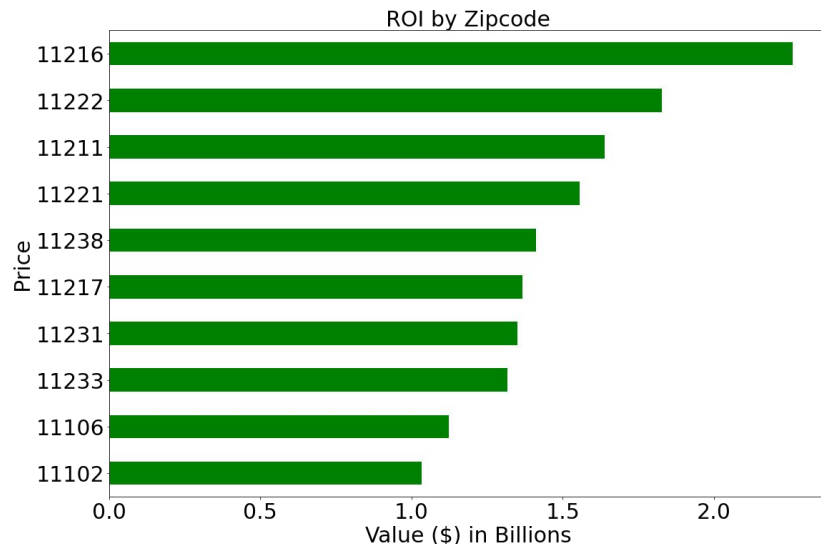
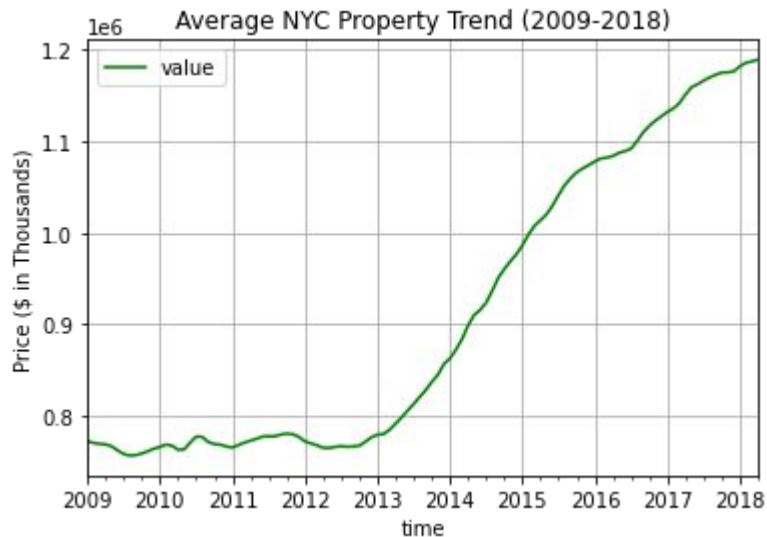
Model - SARIMA

- Test and tune models
- Choose best model

Results

- Interpret results for recommendations
- Provide information

Chosen Zip Codes



- Profitable Boroughs: Brooklyn and Manhattan

Model Results

Zip Codes to invest in based on Borough

Brooklyn:

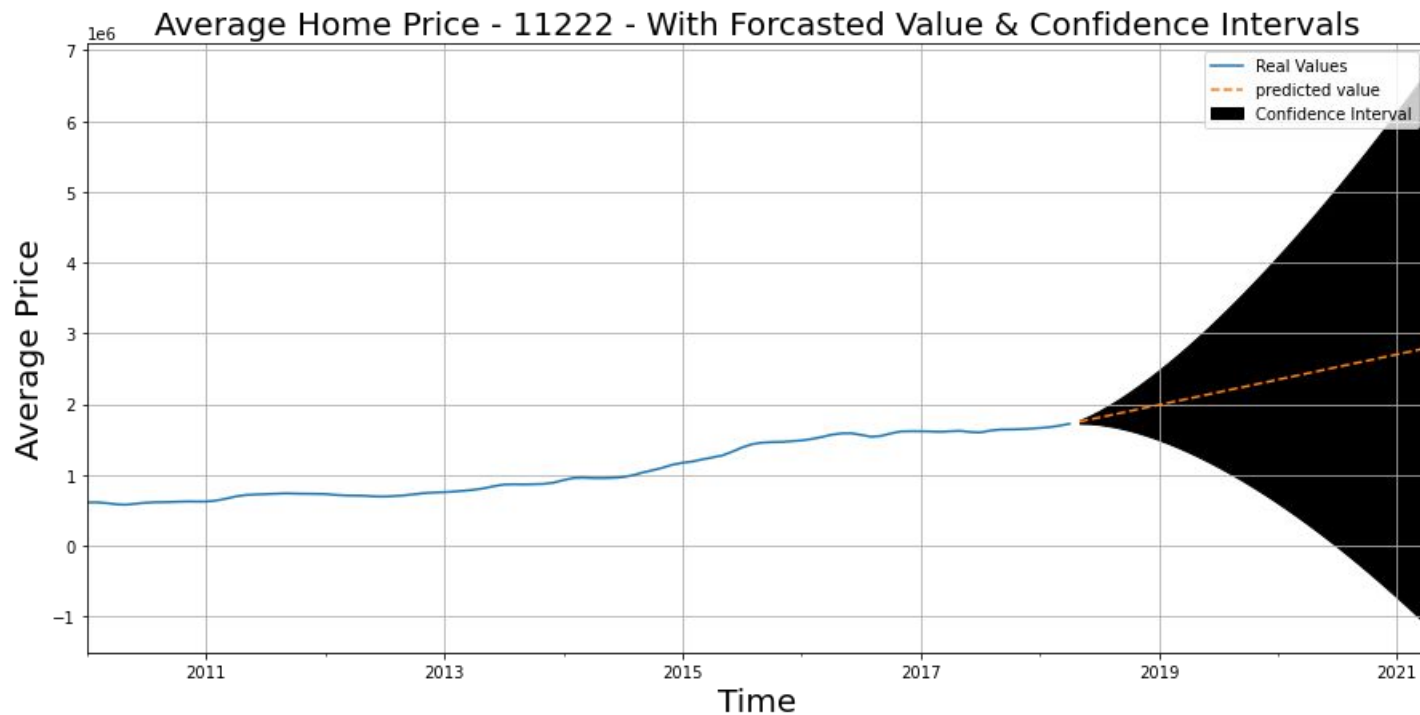
- 11222 - Greenpoint
- 11217 - Boerum Hill
- 11211 - Williamsburg

Queens:

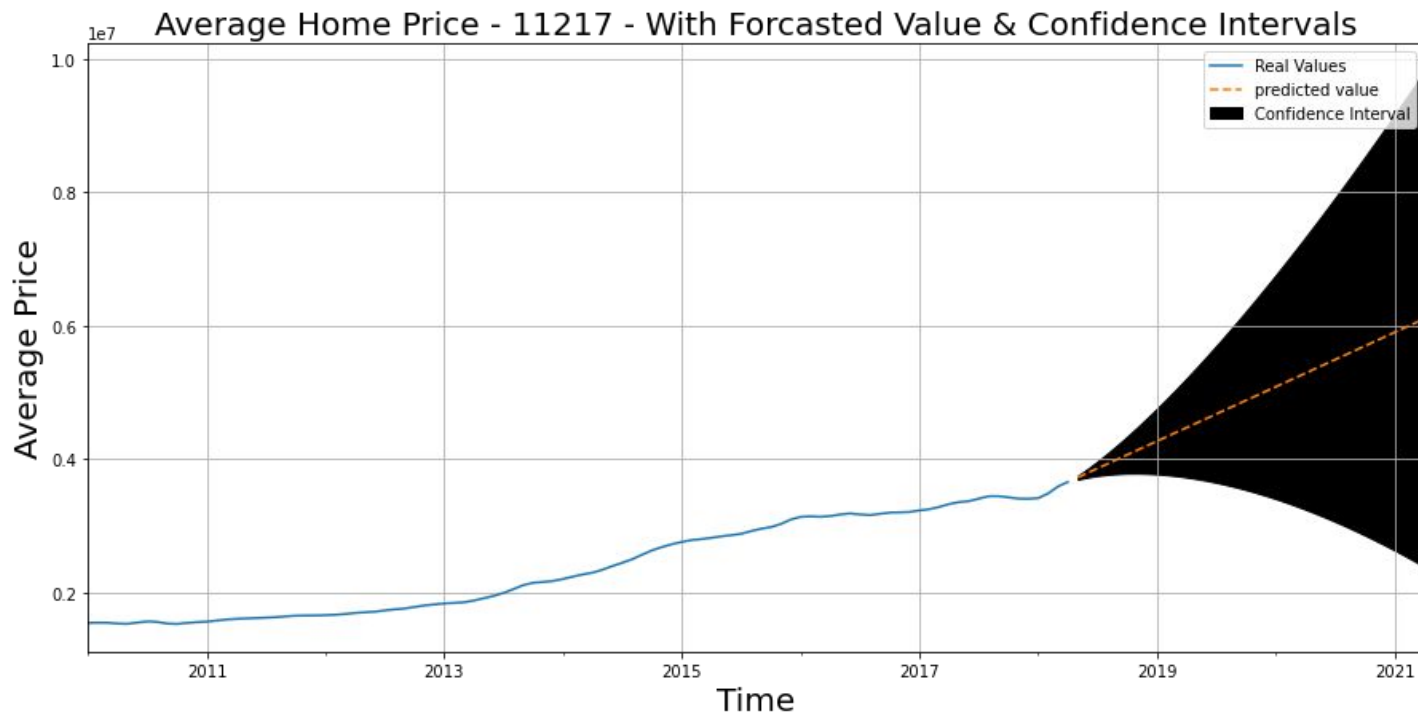
- 11106 - Astoria
- 11102 - Long Island City



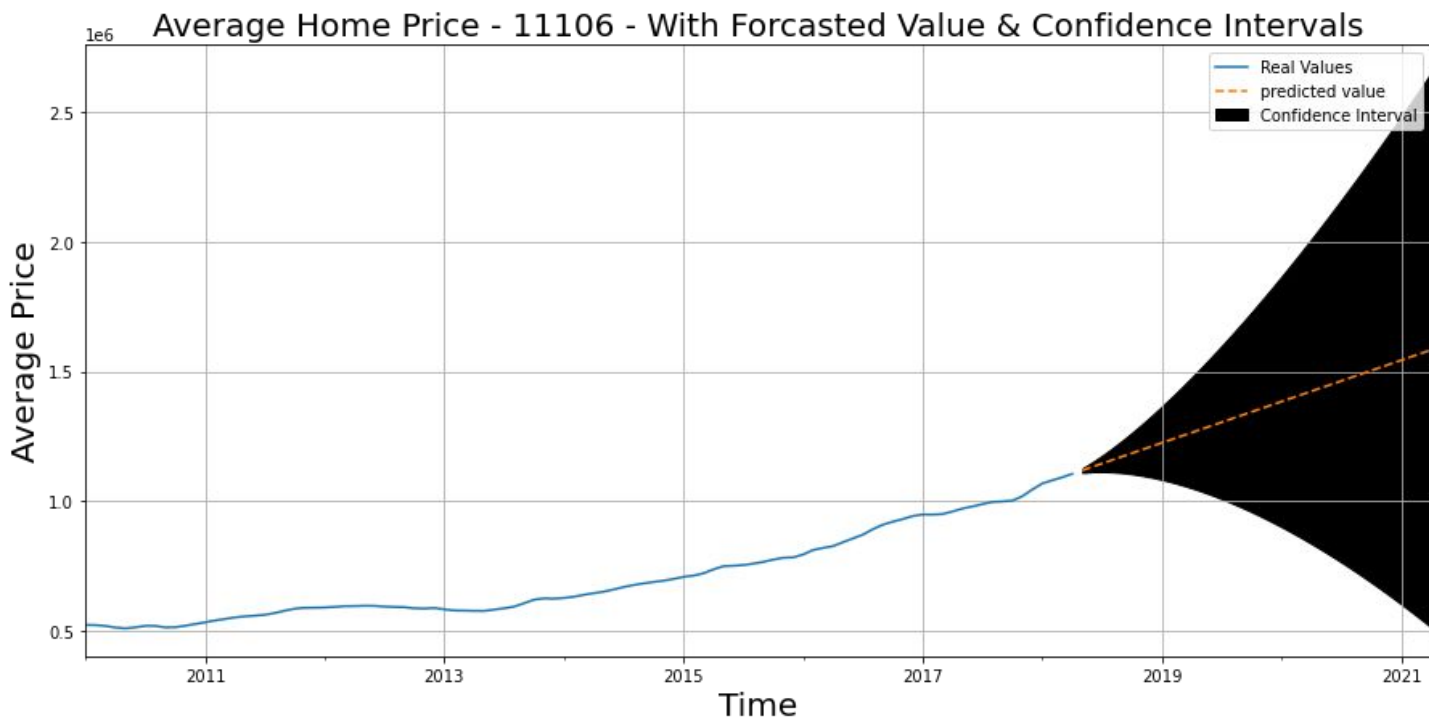
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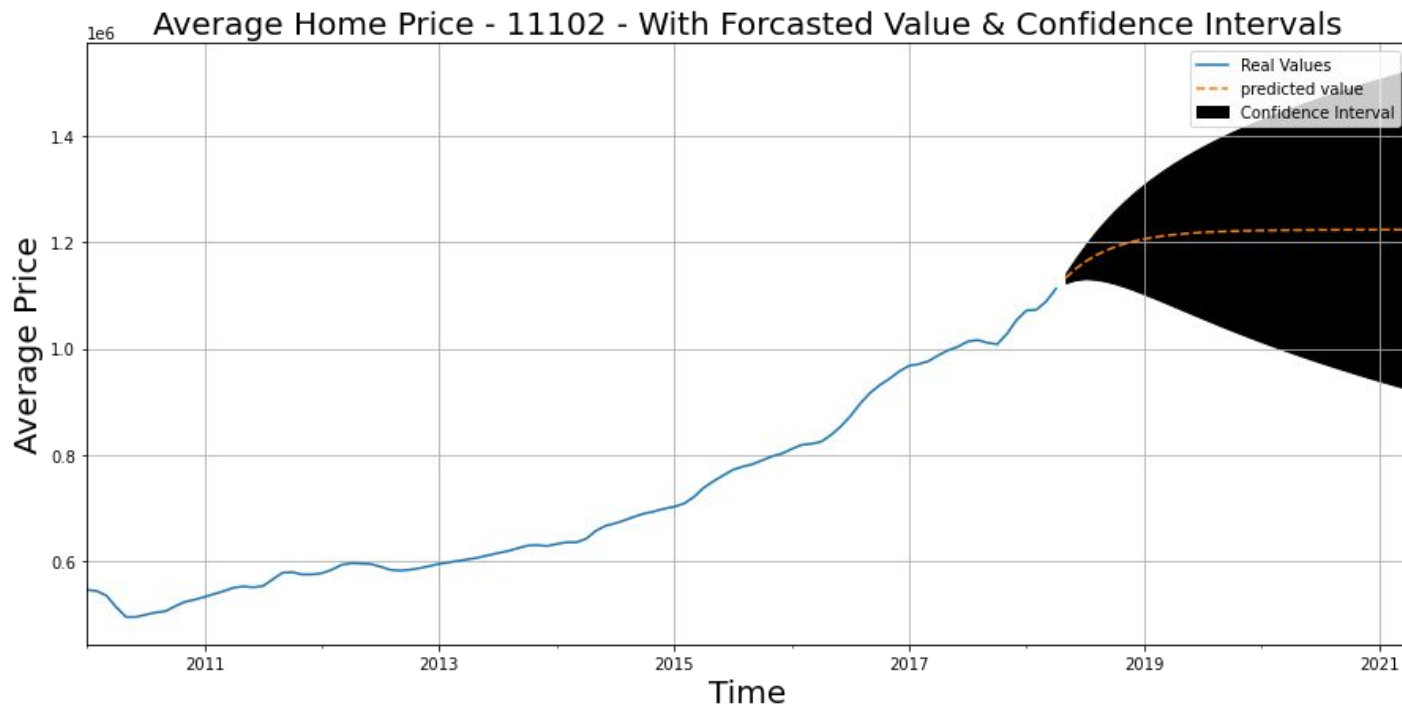
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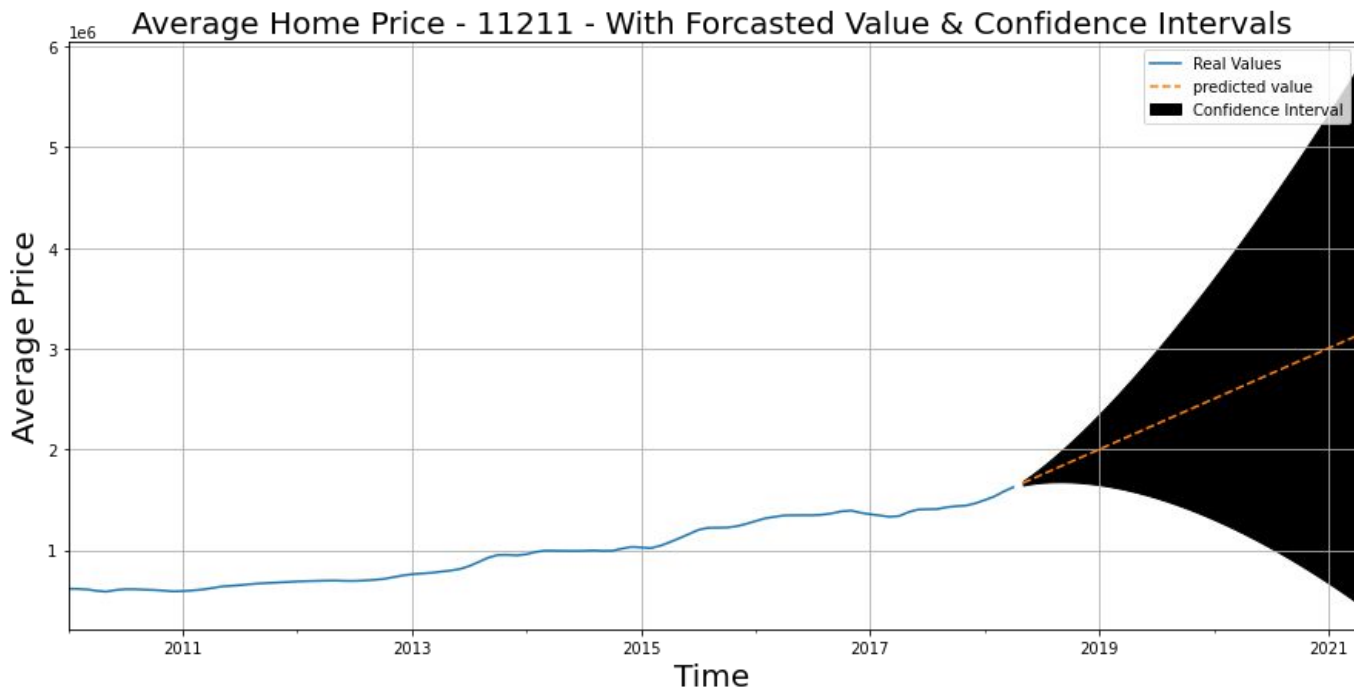
Zip Code - 11106



Zip Code – 11102



Zip Code - 11211



Recommendations

Where to invest?

- Invest in known residential areas like Brooklyn and Queens

Why?

- Model Results
- Top ROI zip codes

Future Work

Include Exogenous variables:

- Rent vs. Buy Property
- COVID pandemic
- Crime Rating
- Neighborhood Rating

Compare Data:

- RedFin
- StreetEasy

Thank You!

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