NYC Time Series Analysis

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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

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 zip codes holds value in the future based on prior historical values our prediction time series model

- Provide home owners and real estate agents 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

Model - SARIMA

- Test and tune models
- Choose best model

Investigate profitable Zip Codes

- Average Location Value
- Zillow Value Index (ROI)

Results

- Interpret results for recommendations
- Provide information

Chosen Zip Codes

Average NYC Property Trend (2009-2018)

ROI by Zipcode
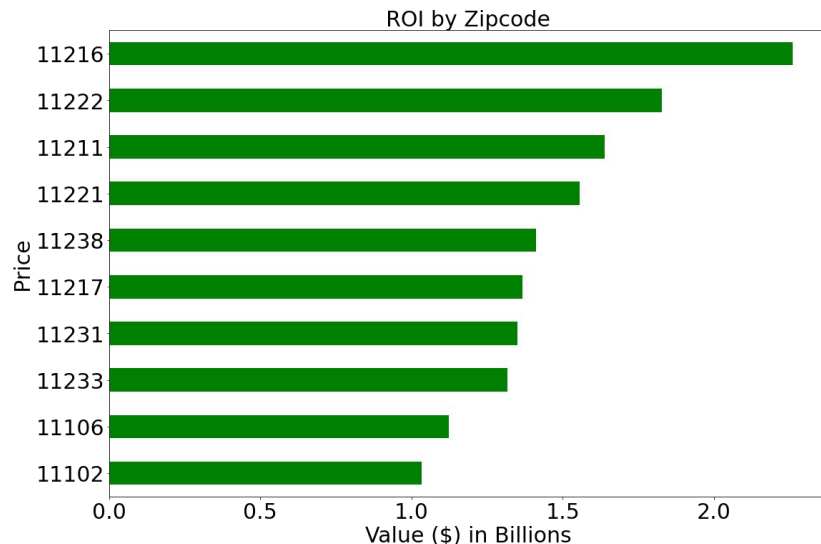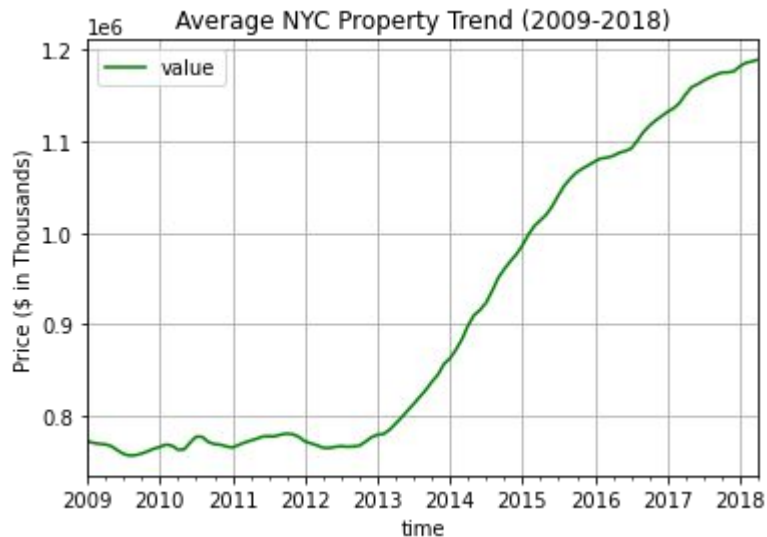
- Profitable Boroughs: Brooklyn and Manhattan

Zip Code – 11222

Average Home Price - 11222 - With Forcasted Value & Confidence Intervals

Zip Code – 11217

Average Home Price - 11217 - With Forcasted Value & Confidence Intervals

Zip Code – 11106

Average Home Price - 11106 - With Forcasted Value & Confidence Intervals

Zip Code – 11102

Average Home Price - 11102 - With Forcasted Value & Confidence Intervals

Zip Code – 11211

Average Home Price - 11211 - With Forcasted Value & Confidence Intervals
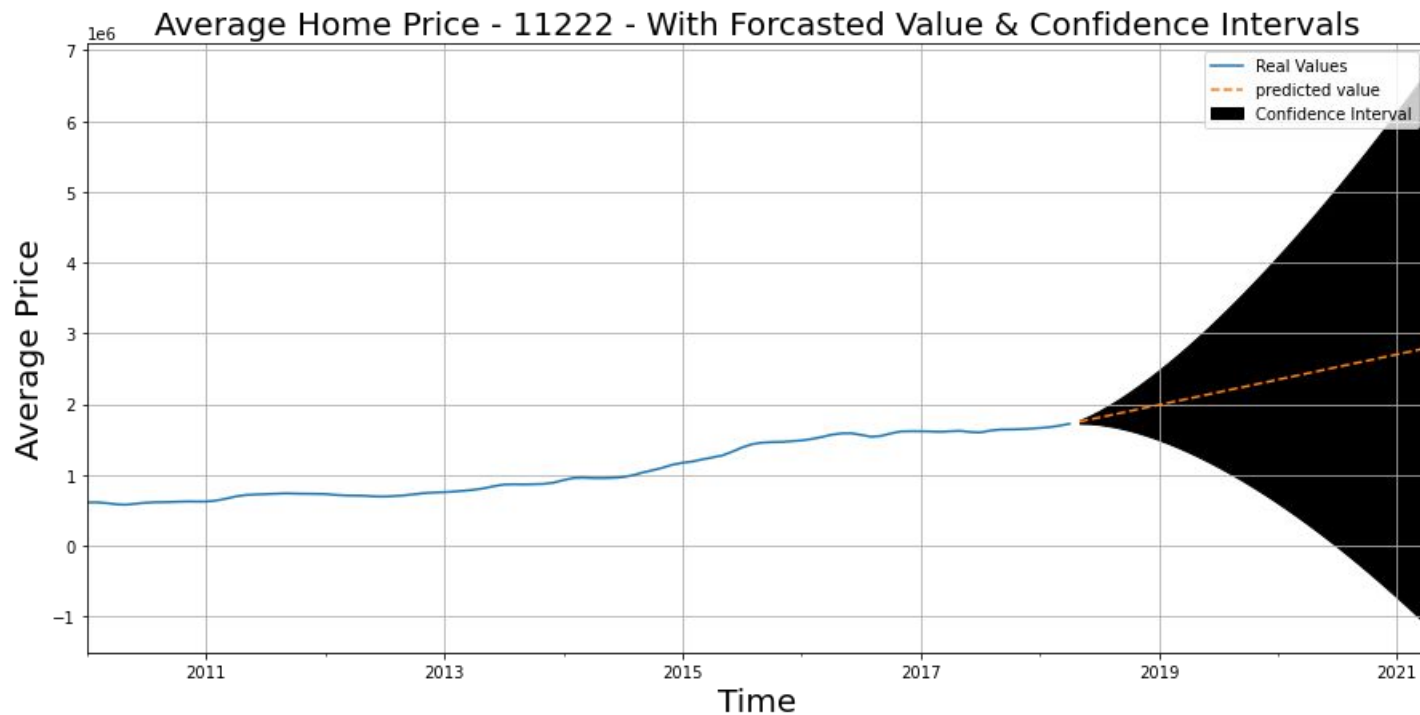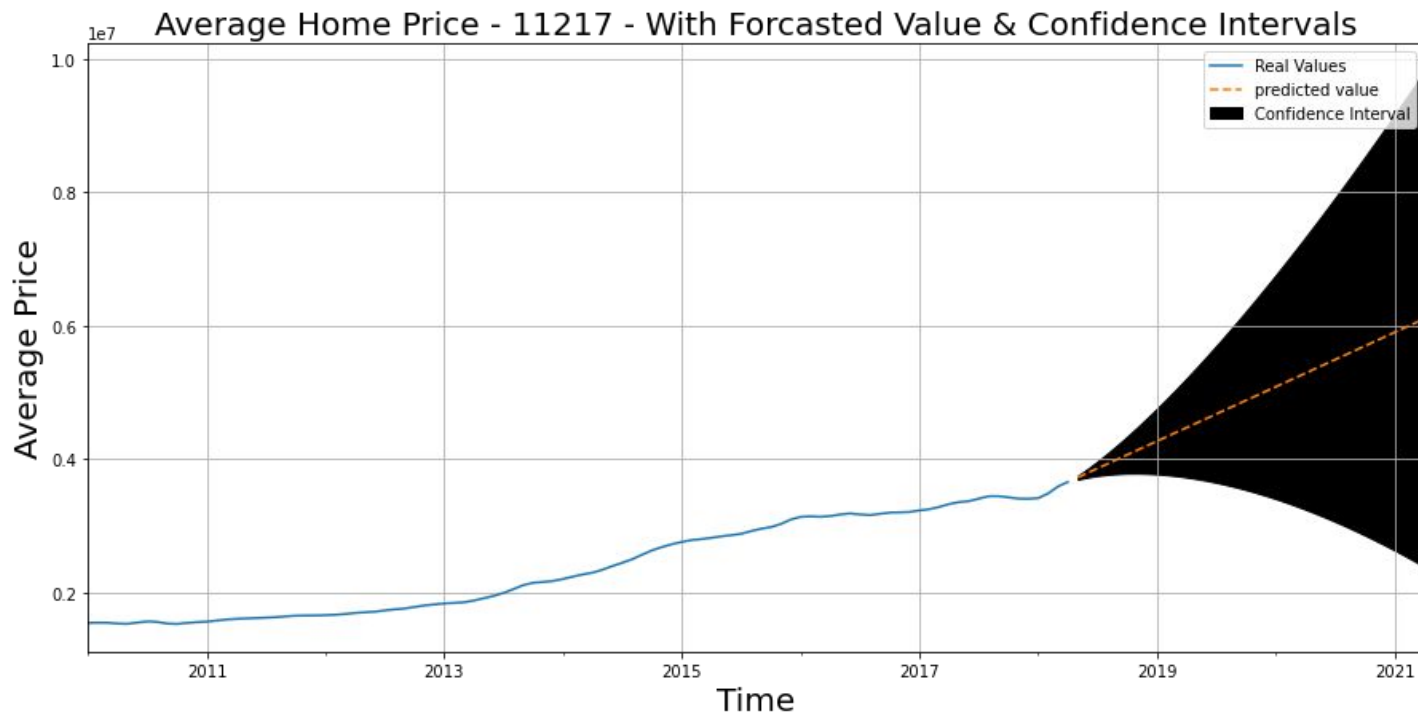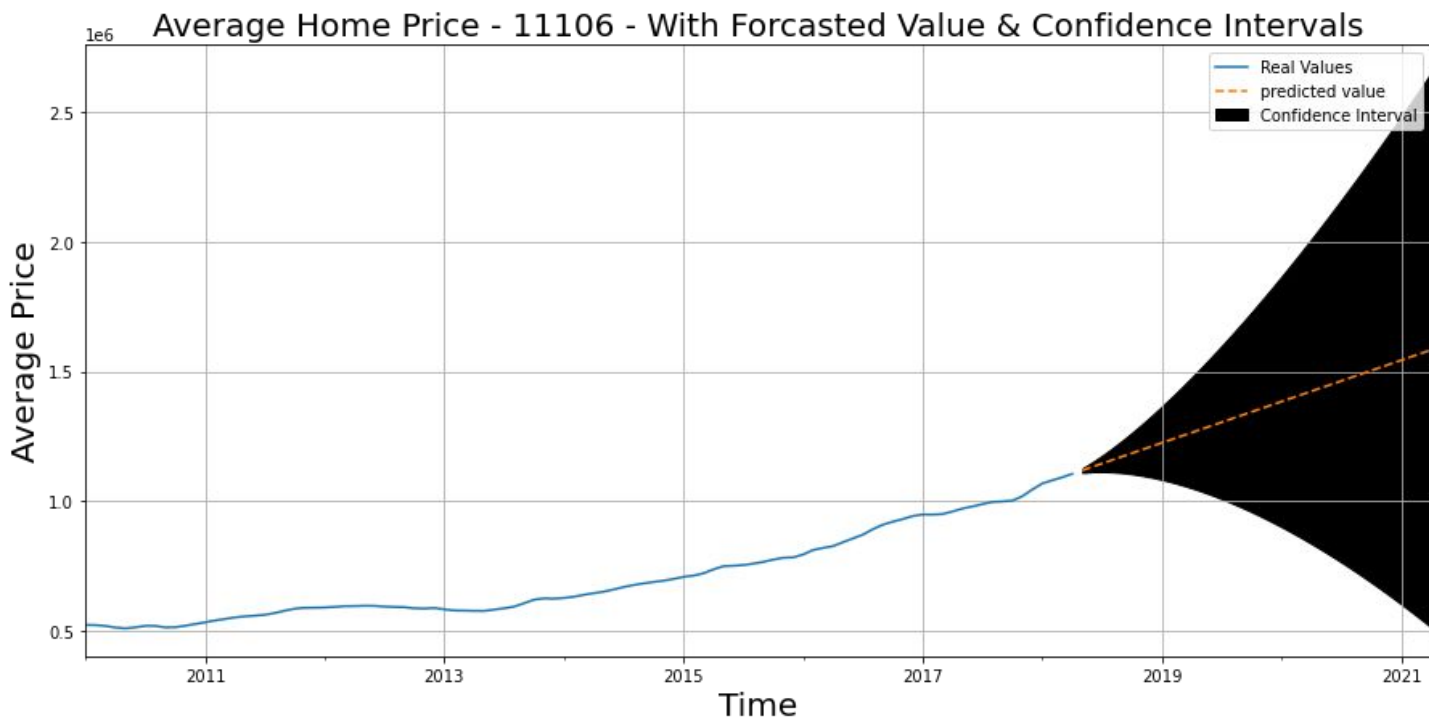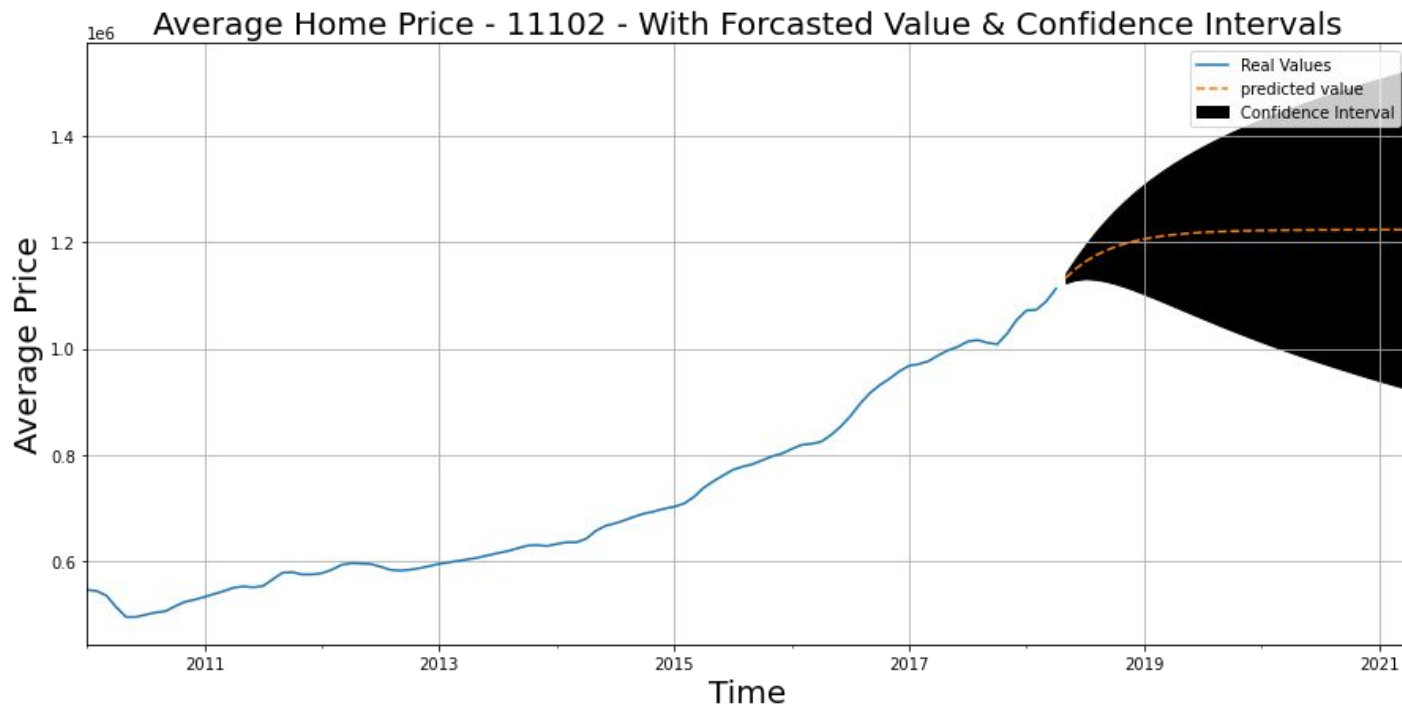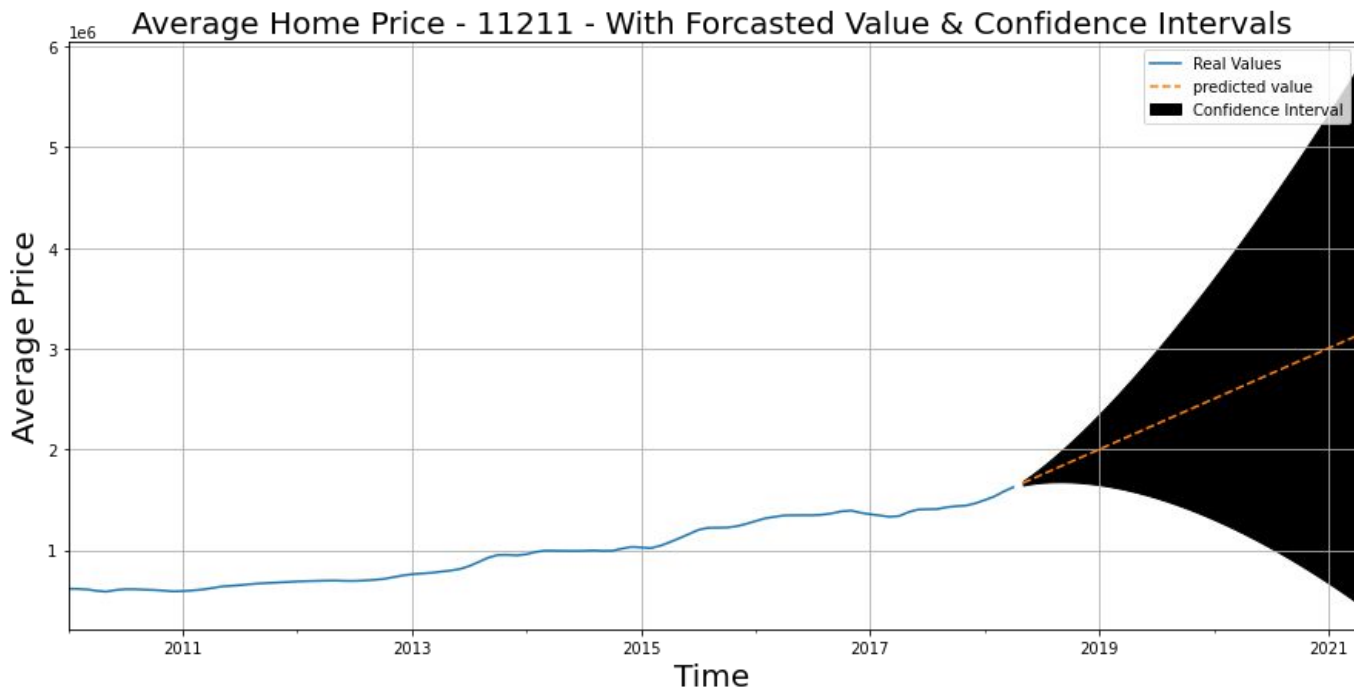
Model Results

Zip Codes to invest in based on Borough

Brooklyn:

- 11222
- 11217
- 11211

Queens:
- 11106
- 11102

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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