Deducing Investment Opportunity for a Real Estate Investment Company

Where to invest in Queens County, New York

By: Tamjid Ahsan
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INDUSTRY OVERVIEW

- New York City is among the most expensive and competitive housing markets in the USA.

- It was impacted severely by the COVID-19.

- NYC is a buyer's real estate market and buyers may have an opportunity to get some heavy discounts.

- Many industry experts have been predicting a strong property appreciation in New York starting from 2021.

- Home prices are still low compared to where they were last year, just before the pandemic hit New York City.

- Most buyers aren't paying sellers' asking prices.

- Since 2012, the NYC home values have appreciated by nearly 52% as per Zillow Home Value Index.

This makes New York as one of the best real estate market for homes to get into.

1. The house prices are relatively low
2. High buyer power
3. Huge inventory of homes
4. Projected uptrend in price leading to higher return on investment.
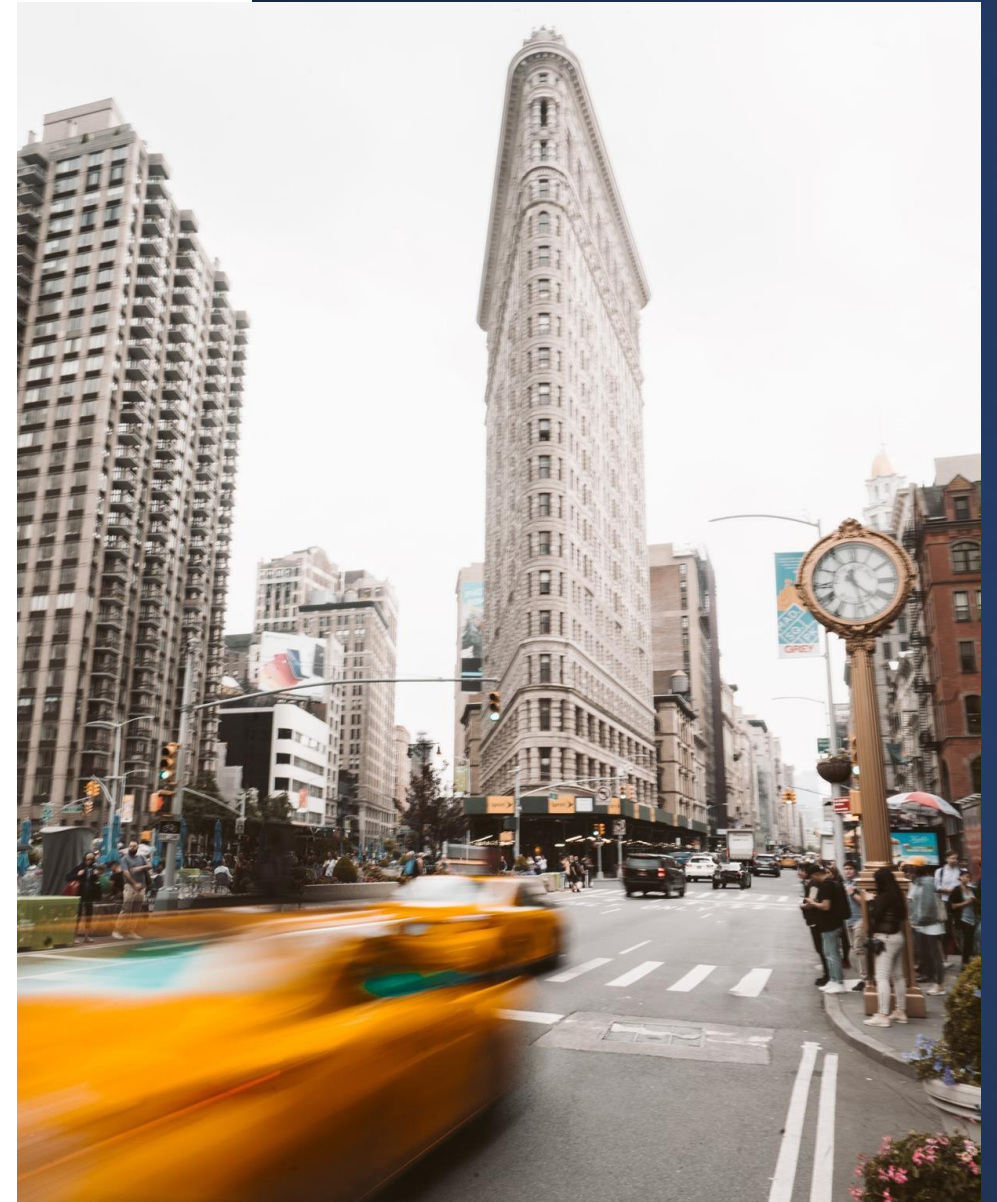
BUSINESS PROBLEM

XYZ, Inc. LLC is a (read: fictional) private equity investment company based on Queens, New York.

- They want to invest in the housing market for relatively short term, three years.

- They want to isolate and invest in properties with the highest return on investment potential based on geographical location close to their operation base in Queens, as they want to cluster their investment based on location.

- For this analysis, all 55 zip codes of Queens county of New York city, NY were considered.

- This analysis will recommend top five zip codes with return-on-investment potential with some insights, which will aid the top management of the company to make an educated decision on where to invest.

METHODOLOGY

- Zillow House Value dataset is used.
  - Data from January 1996 to April 2021
  - Monthly data

- Several analysis techniques were used, such as conventional time series method such as
  - ARIMA (autoregressive integrated moving average)
  - SARIMAX (ARIMA with seasonal trends)

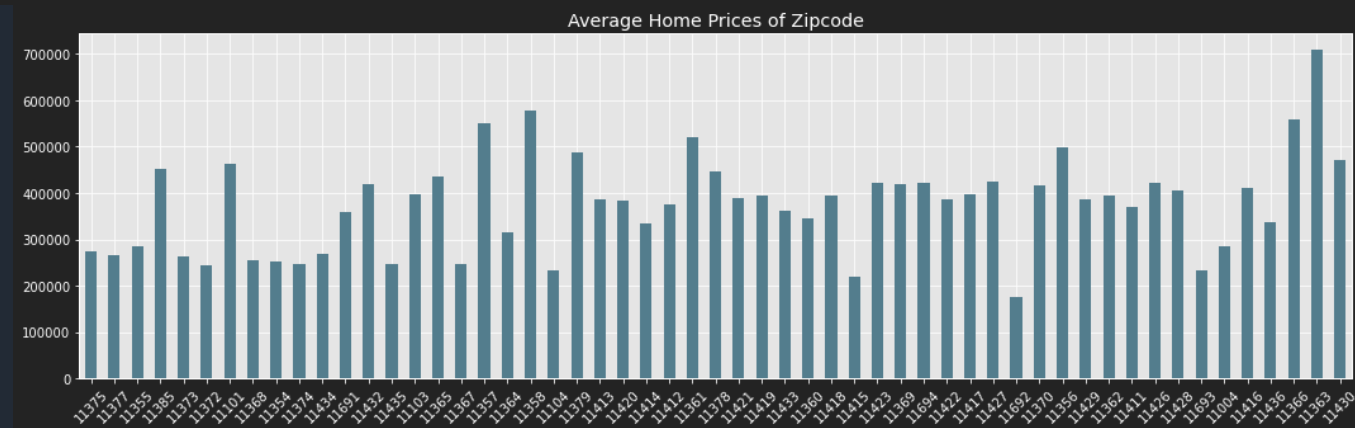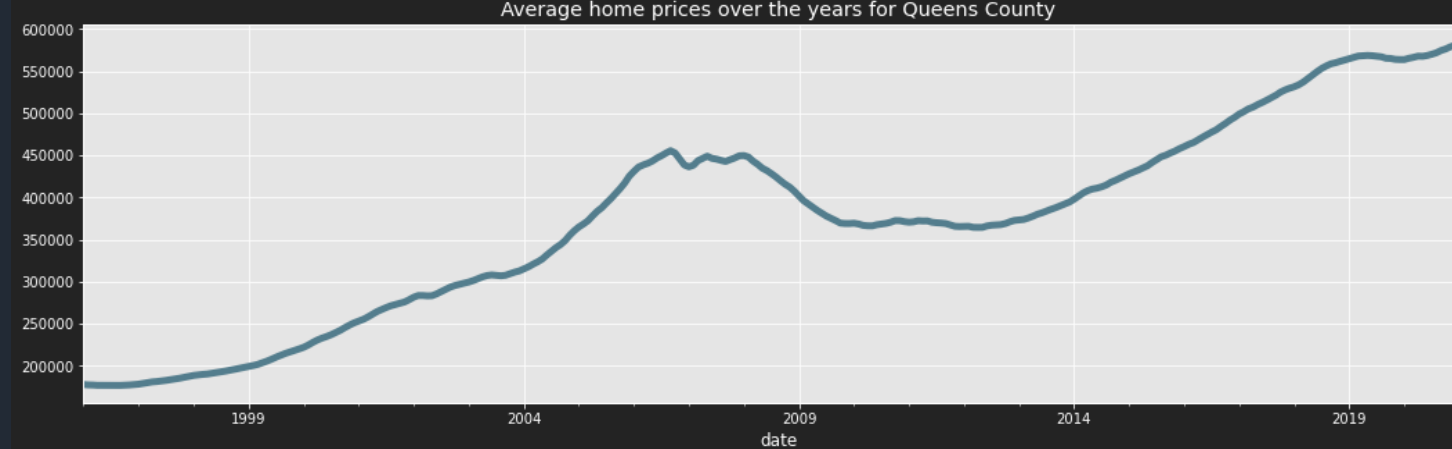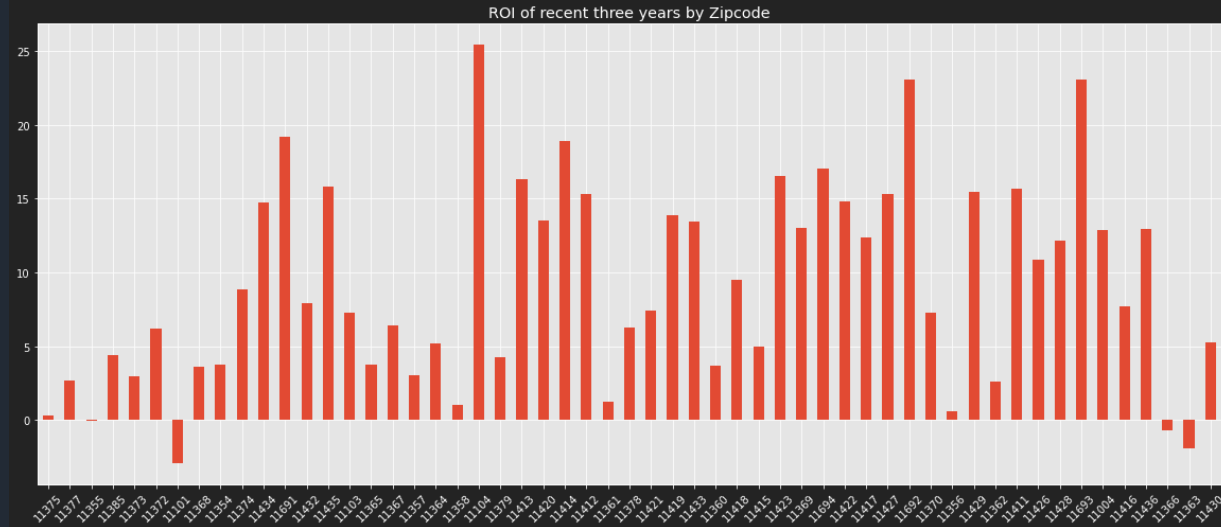- Forecasted for three years in the future using the best model.

Queens County New York

OVER THE YEARS

QUEENS COUNTY OVERVIEW

- ROI is negative for only a few of the zip codes
  - 11101
  - 11436
  - 11366
- Enjoying a recent bull run.
- Recovered well beyond the financial crisis of 2009
- Average median value is well above 200k across zip codes.

ROI of recent three years by Zipcode


Average home prices over the years for Queens County

Average Home Prices of Zipcode

BEST INVESTMENT BY ZIP CODE

SELECTION CRITERIA

| zipcode	mean_forecasted_roi	std_forecasted_roi
11429	22.230379	45.001385
11428	34.241021	47.287097
11427	30.558596	47.554807
11423	39.547861	48.105119
11417	18.564516	48.358635
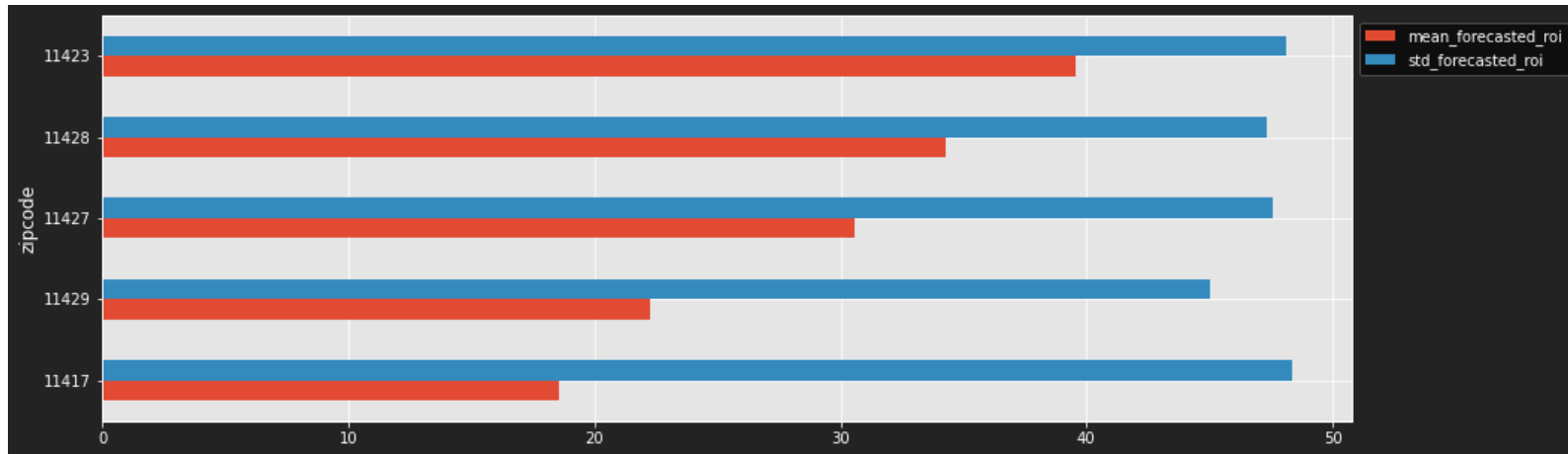
- Risk:
  - Cost is assumed to be the last true value of the median price of the zip code, i.e., value on April 30, 2021.
  - revenue is assumed to the mean forecasted value after three years, i.e., 36 steps in the future.
  - Then standard deviation is taken of the return on investment on upper confidence level and lower confidence level respectively as a proxy of risk of investment.
- Top five zip codes based on best 15 (27% of all available investment opportunity) ROI and then selecting top 5 of the based on lowest risk, i.e., the risk proxy mentioned above.
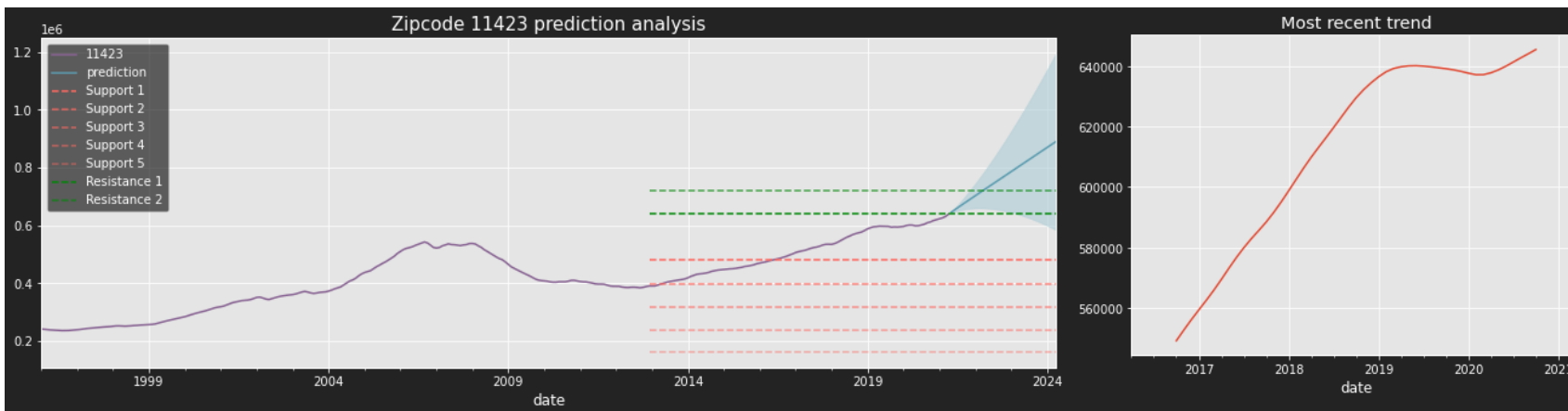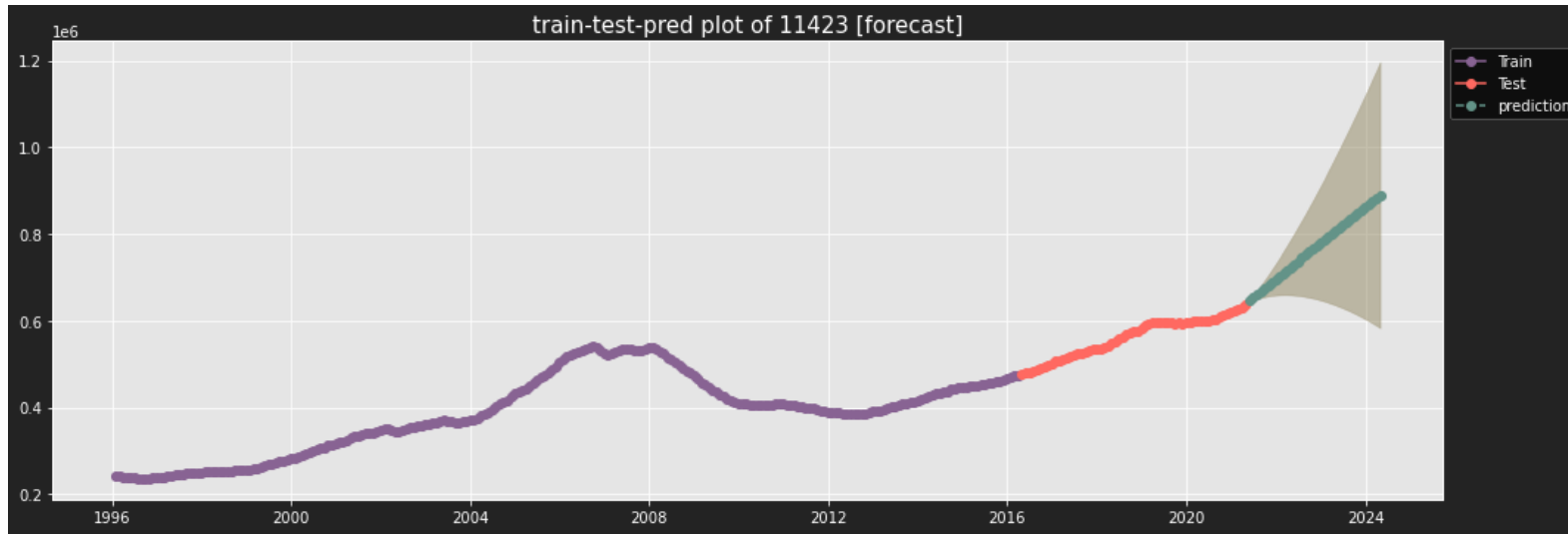
11417
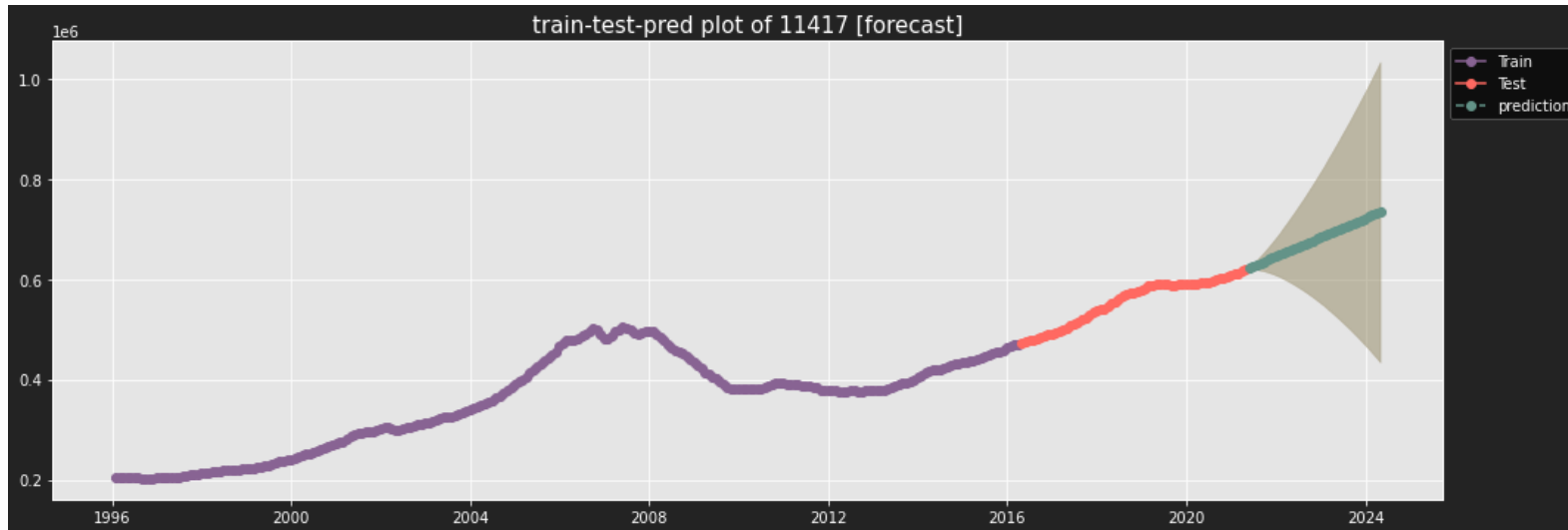
Observation:

- Massive uptrend since 2017

- Got struck by COVID19

- Recently breached three-year resistance, expected to keep the uptrend.
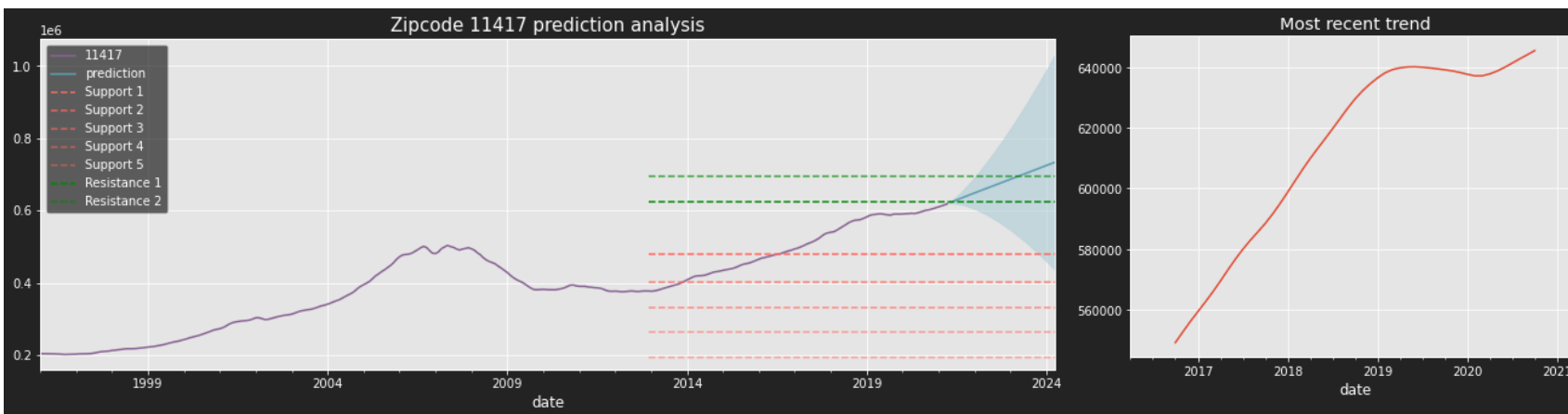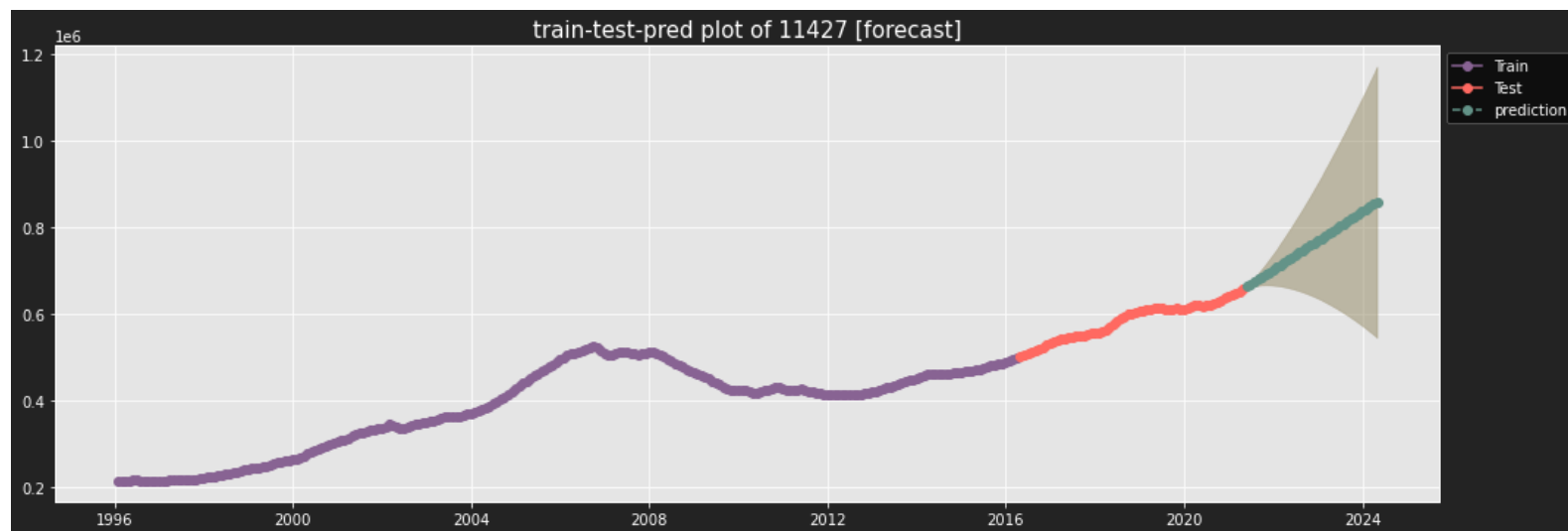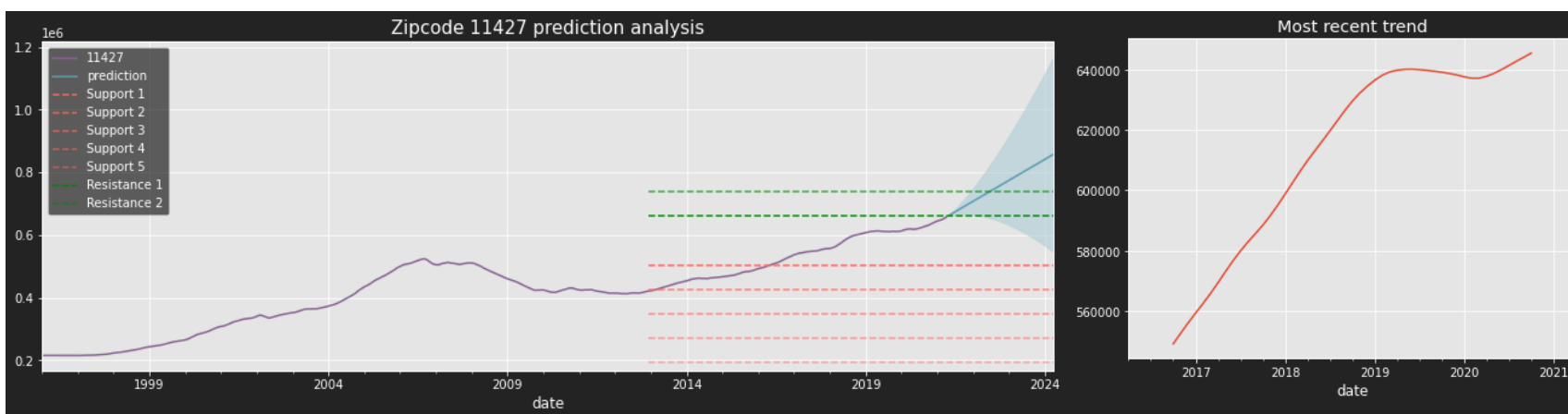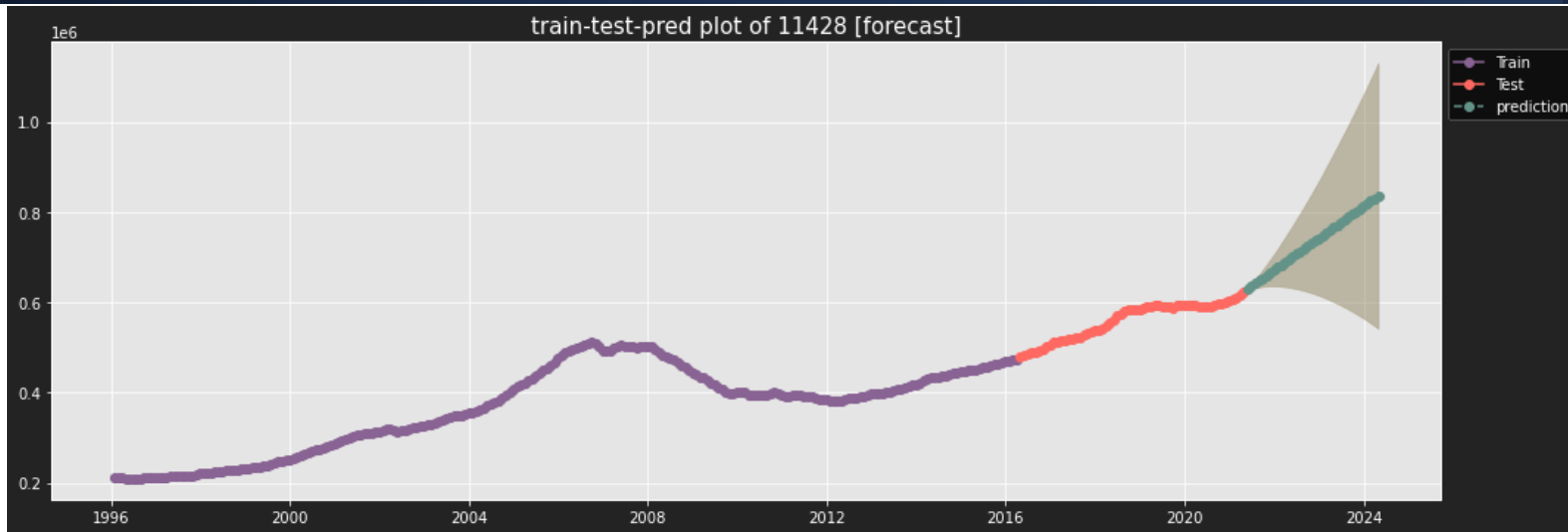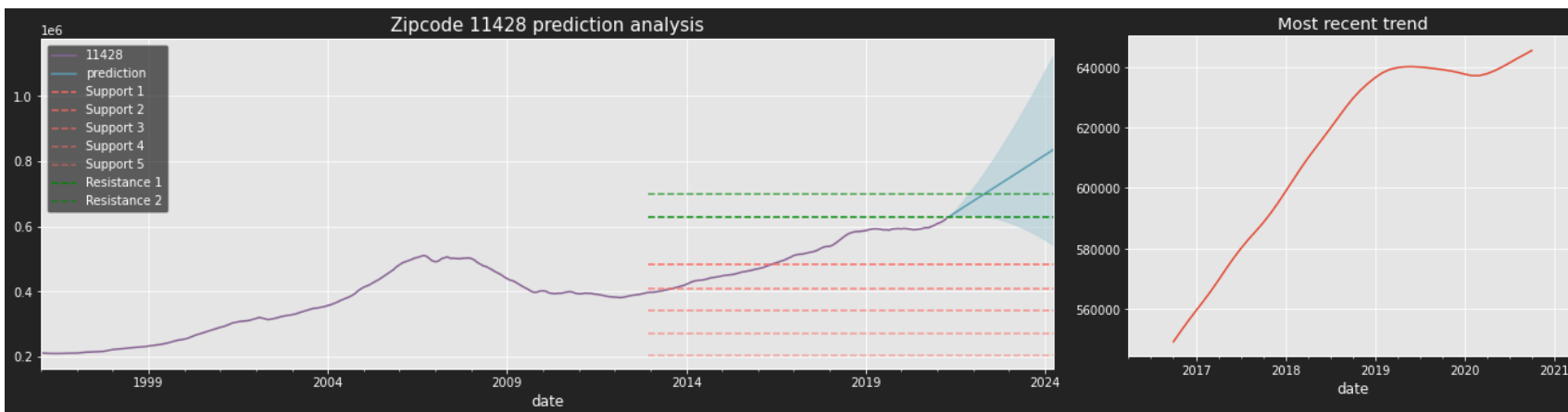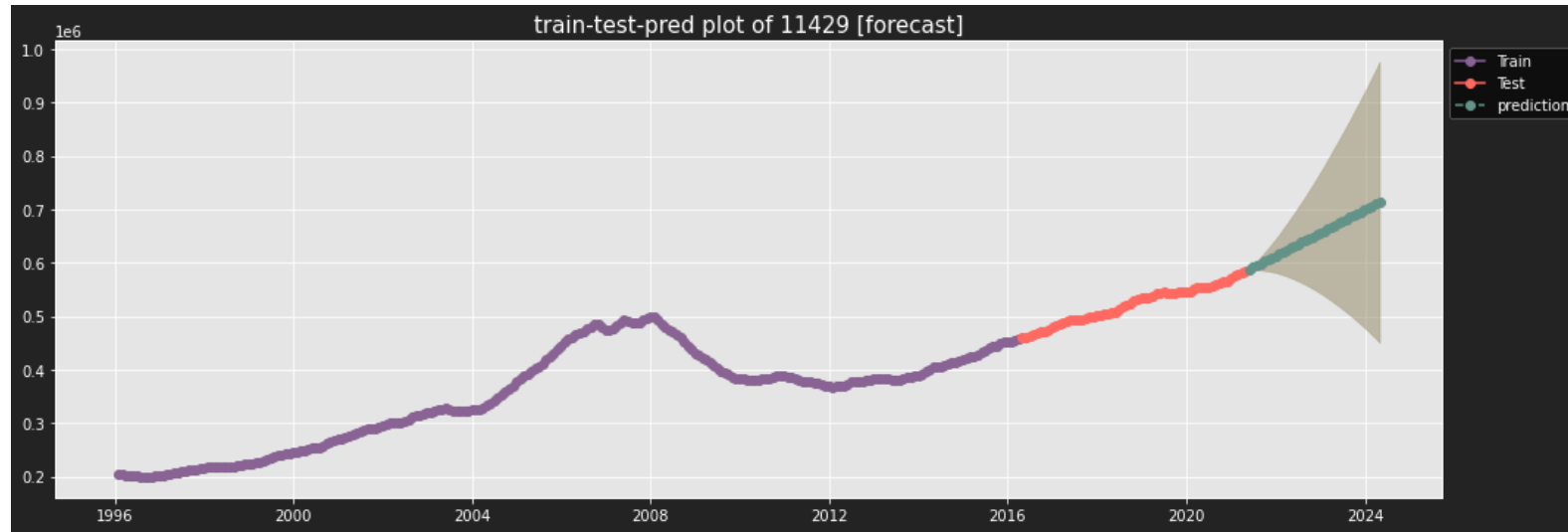
- Huge ROI potential.

11423

Observation:

- Massive uptrend since 2017

- Got struck by COVID19

- Recently breached three-year resistance, expected to keep the uptrend.

- Huge ROI potential.
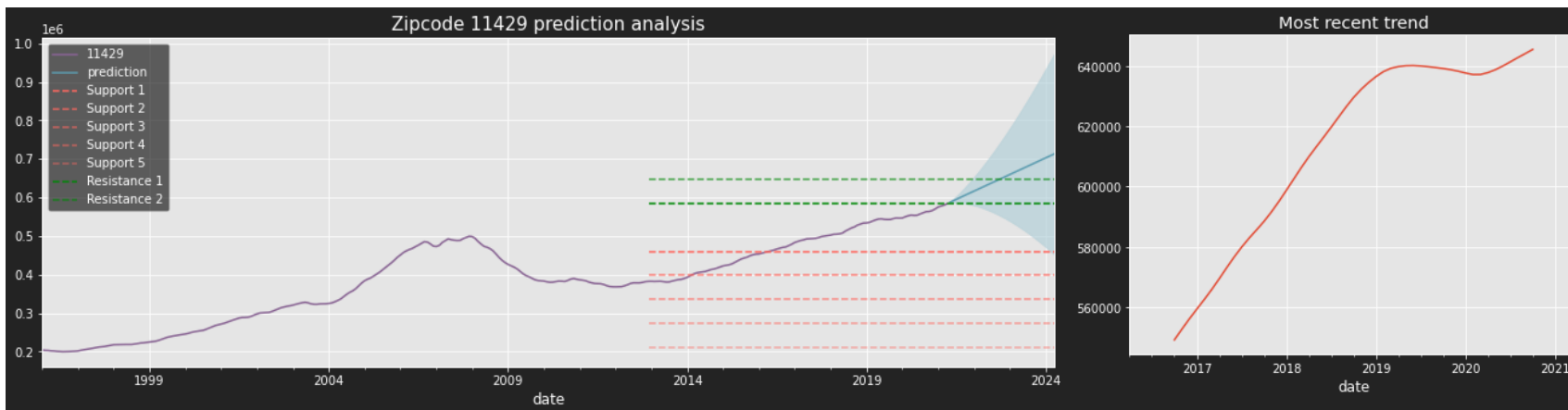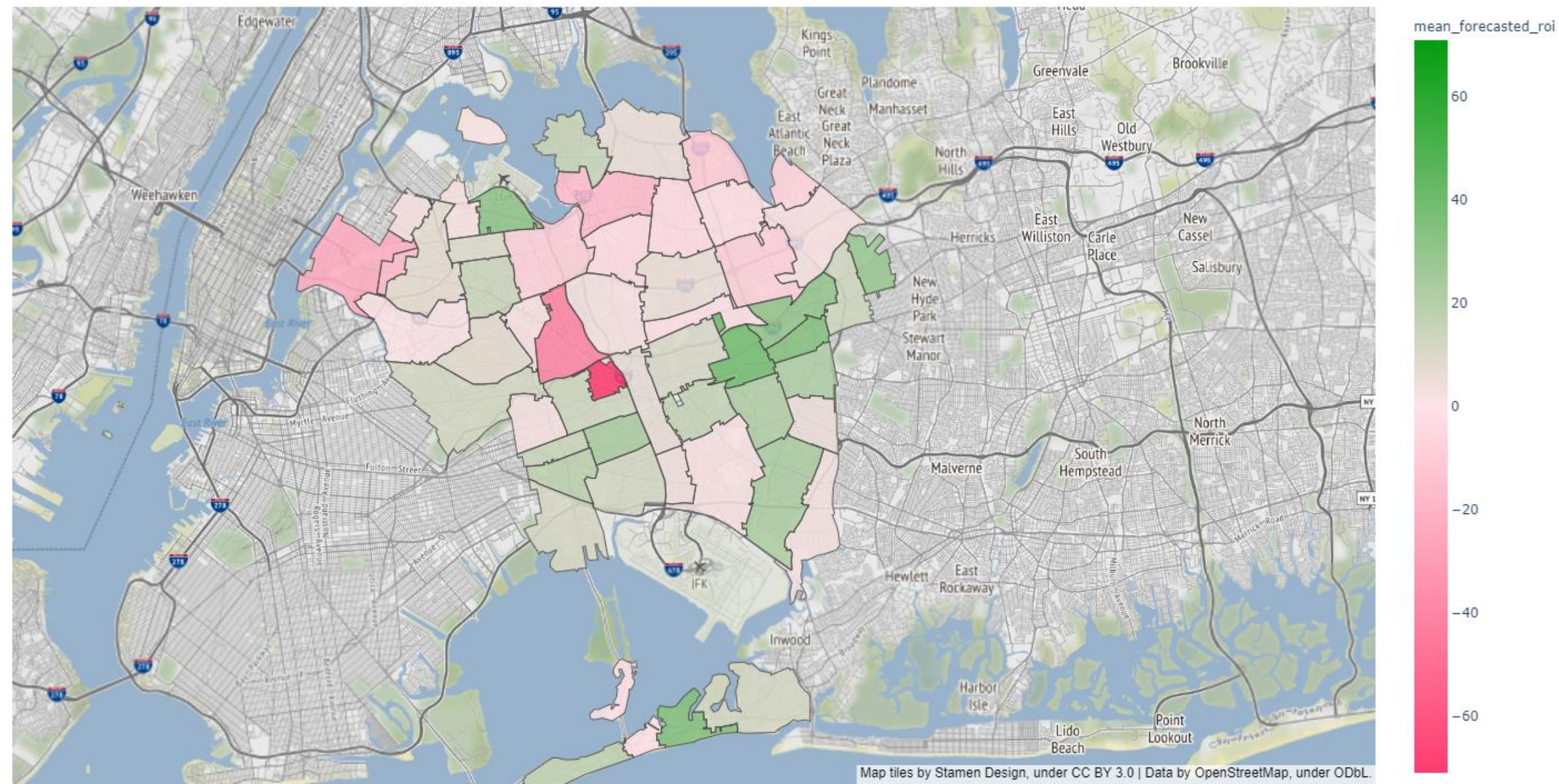
11427

Observation:

- Massive uptrend since 2017

- Got struck by COVID19

- Recently breached three-year resistance, expected to keep the uptrend.

- Huge ROI potential.

11428

Observation:

- Massive uptrend since 2017

- Got struck by COVID19

- Recently breached three-year resistance, expected to keep the uptrend.

- Huge ROI potential.

11429

Observation:

- Massive uptrend since 2017

- Got struck by COVID19

- Recently breached three-year resistance, expected to keep the uptrend.

- Huge ROI potential.
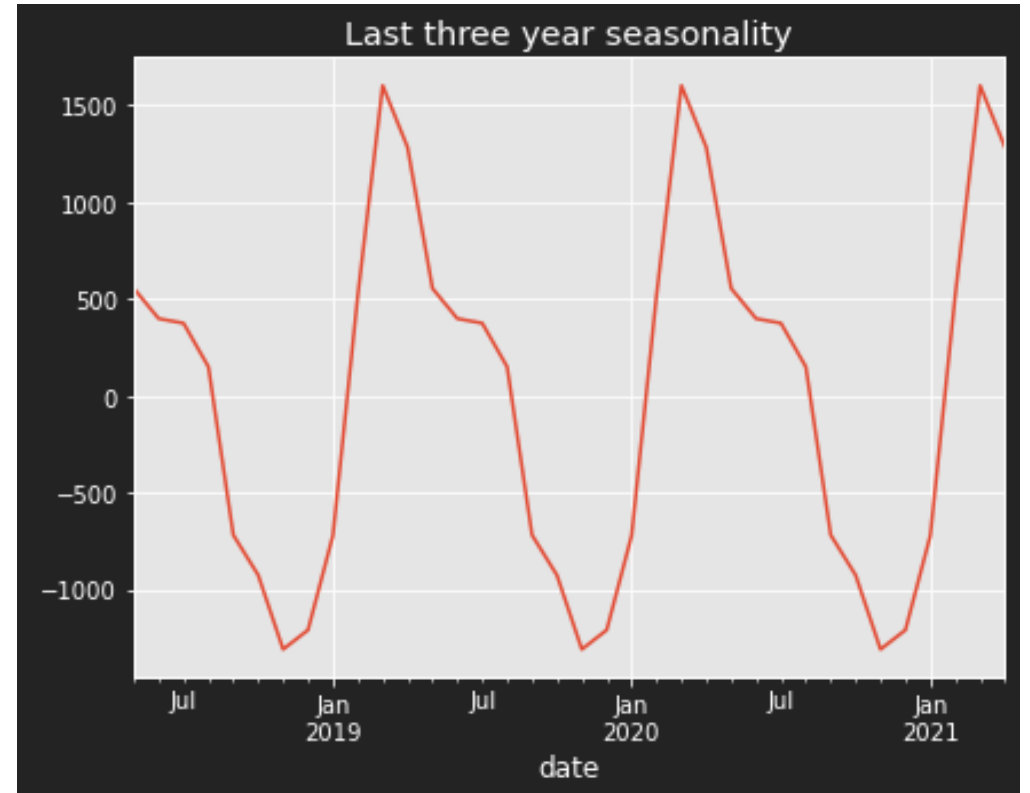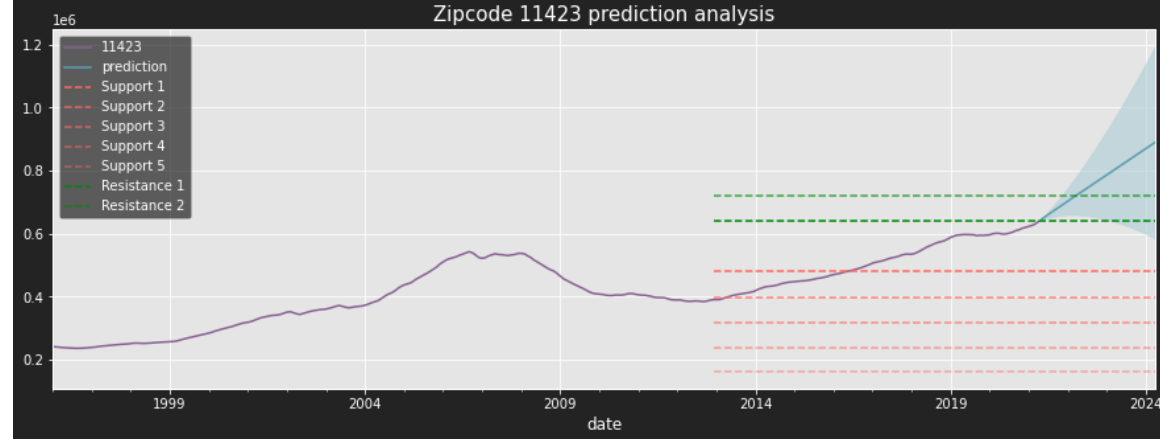
Zipcode by Average Price

ON A MAP

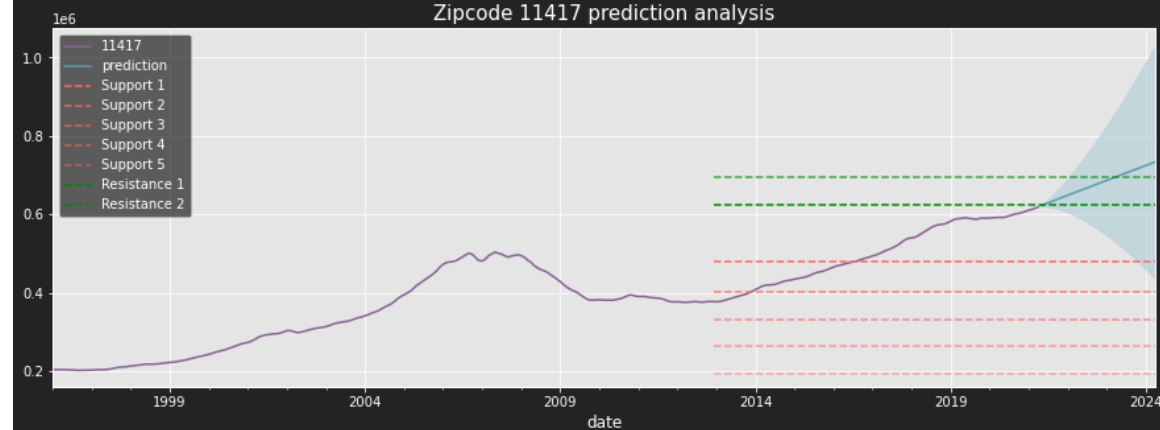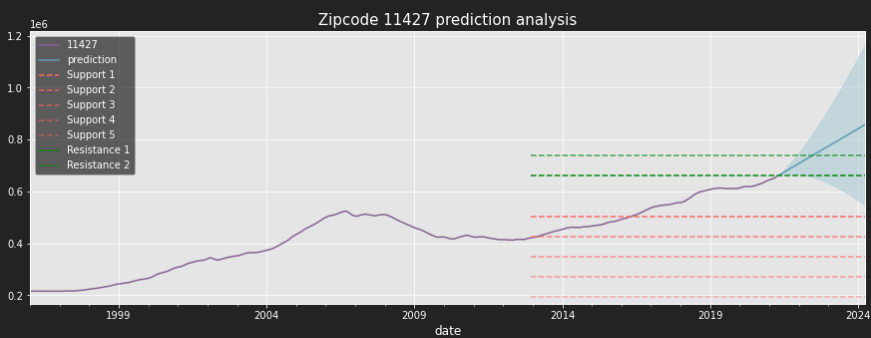Map tiles by Stamen Design, under CC BY 3.0 | Data by OpenStreetMap, under ODbL.
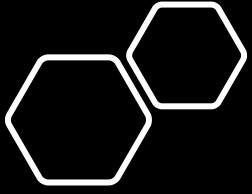
Seasonality

- For maximum return
  - Sell at he beginning of a year
  - Buy towards the end of a year

Last three year seasonality

SUMMARY

Invest in properties in these zip codes.

RECOMMENDATION

- Invest in following zip codes:
  - 11429
  - 11428
  - 11427
  - 11423
  - 11417
- Stay away from these, they are in a bubble :
  - 11693
  - 11415

- Rule of thumb
  - Go to southeast part of Queens for good investment opportunity.
  - Some of the house are overvalued, and awaits correction, be careful of those houses.
  - For maximum return
    - Sell at the beginning of a year
    - Buy towards the end of a year

NEXT STEPS

- Add variables to model, using a SARIMAX model
  - Interest rate
  - Other qualitative indicators of house value based on location, e.g., Schools.
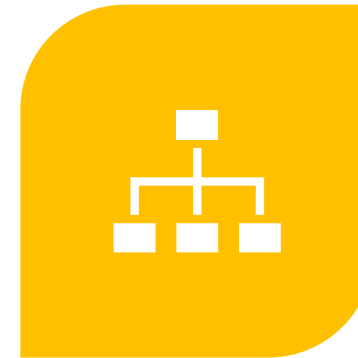 - Buyer and seller ratio

- Try other machine learning models

THANK YOU

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LINKEDIN:
linkedin.com/in/tamjidahsan/

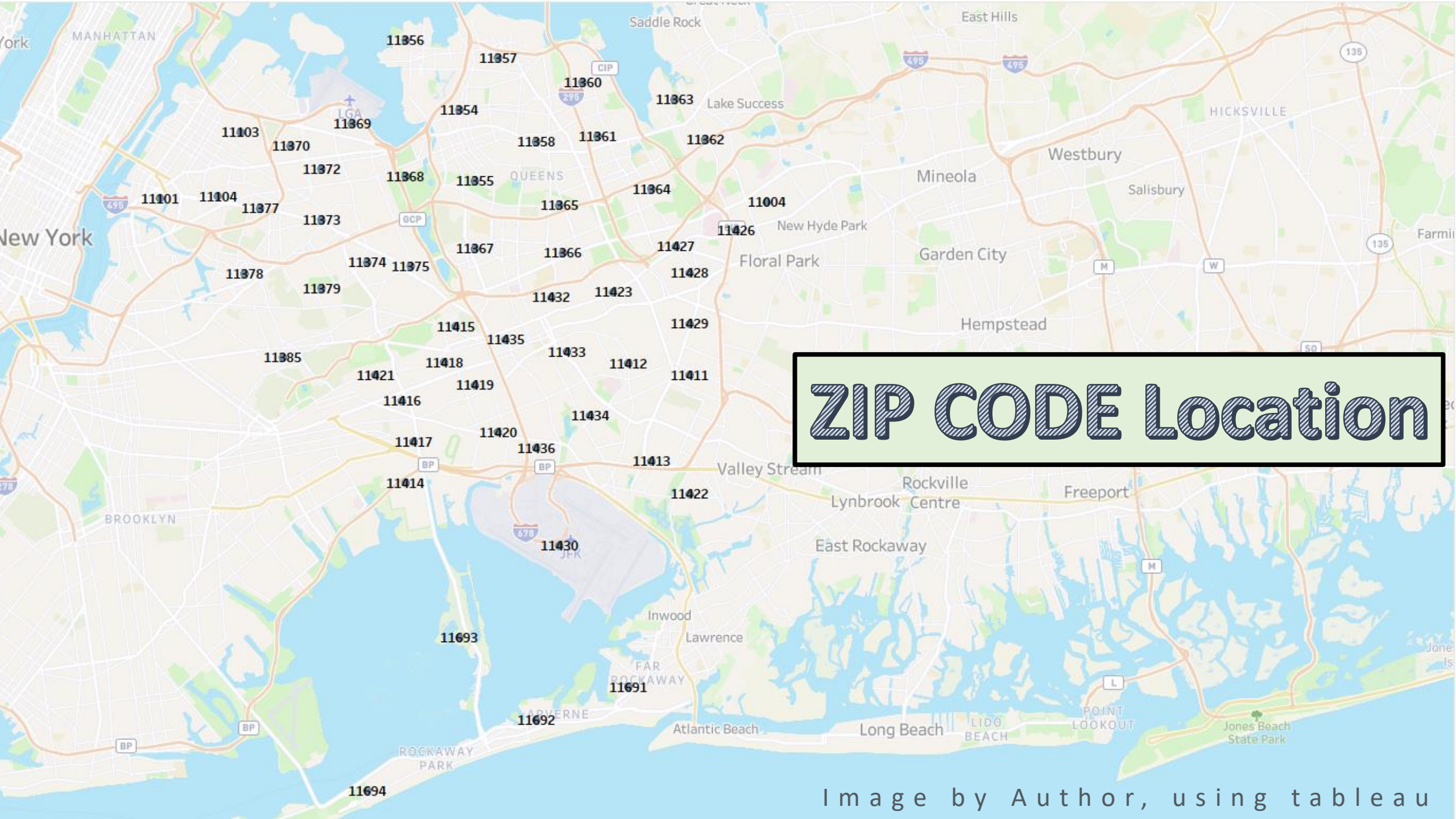PROJECT REPO:
https://github.com/tamjid-ahsan/dsc-phase-3-project

APPENDIX

ZIP CODE Location

Image by Author, using tableau