



# Real Estate Investment Strategy

Using Zillow Dataset of home sales from 1996-2017

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E|R|I|S|E

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eRise Consulting is a consulting firm that uses AI applications to ensure Real Estate firms have a competitive edge. We ensure our partners positive ROI strategies that are data driven.



# Mission Statement



E|R||S|E

## Our Company

In a competitive market such as the Real Estate Industry we provide the competitive edge to make data driven decisions to meet your Business goals.

Our expertise focuses on using AI applications that drives investment strategies within the Real Estate market focusing in the tri-state area.



# 01 Business Overview



## Problem

Growing demand from residents in NYC and their ever-growing desire to leave and head to New Jersey. The Investment firm reached out to my Consultant company to provide them direction into specific areas in Hudson County. The proximity to NYC is hard to beat and a transportation system already established makes this county the perfect location to explore. We are task to explore this area and determine the best zip codes in Hudson County to invest in.

## Solution

By using AI application we will analysis home sales prices to make predictions on the home sales price until the end of 2018. This will allow you the opportunity to focus your marketing and business strategies to 5 zipcodes.



# Market Analysis

# 02



## Home Sales Price

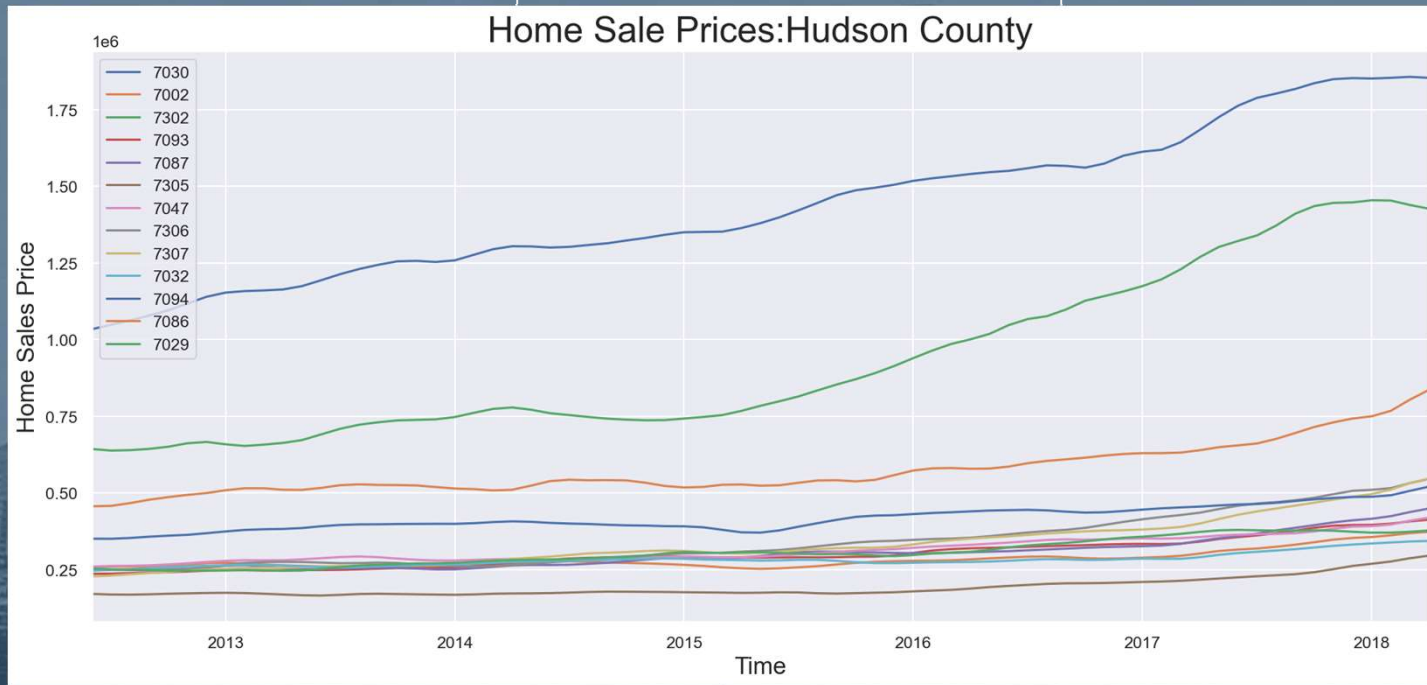




## Trend: Timezone

The chart displays the trend of home sale prices in Hudson County from 2013 to 2018. The y-axis represents the Home Sales Price in millions of dollars (1e6), ranging from 0.25 to 1.75. The x-axis represents Time in years, from 2013 to 2018. The chart shows that prices generally increased over the period, with ZIP code 7030 consistently having the highest prices and ZIP code 7087 the lowest. The legend lists the following ZIP codes: 7030, 7002, 7302, 7093, 7087, 7305, 7047, 7306, 7307, 7032, 7094, 7086, and 7029.

ZIP Code	2013	2014	2015	2016	2017	2018
7030	1.10	1.25	1.35	1.50	1.60	1.80
7002	0.45	0.50	0.52	0.55	0.60	0.80
7302	0.65	0.75	0.75	0.90	1.20	1.45
7093	0.35	0.38	0.35	0.40	0.42	0.45
7087	0.18	0.15	0.15	0.15	0.18	0.25
7305	0.25	0.25	0.25	0.28	0.30	0.35
7047	0.25	0.25	0.25	0.28	0.30	0.35
7306	0.25	0.25	0.25	0.28	0.30	0.35
7307	0.25	0.25	0.25	0.28	0.30	0.35
7032	0.25	0.25	0.25	0.28	0.30	0.35
7094	0.35	0.38	0.35	0.40	0.42	0.45
7086	0.25	0.25	0.25	0.28	0.30	0.35
7029	0.25	0.25	0.25	0.28	0.30	0.35





# 03 Model Development

## Method:Crisp-dm



### Data Understanding & Prep

- Establish timeline
- Make timeseries stationary

### Modeling

- Try AR models, MA models, ARIMA models
- AutoARIMA model to stream line process

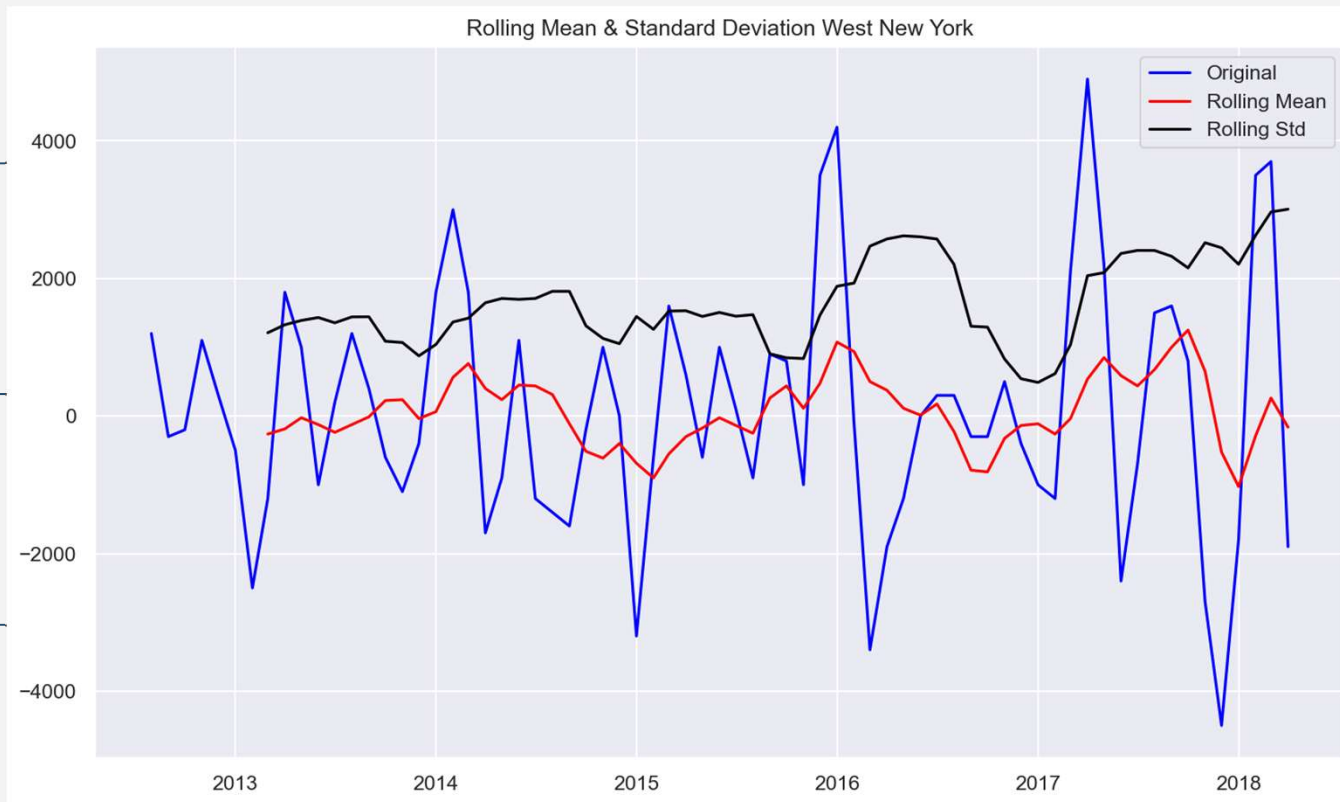
### Evaluation

- Cost & benefit analysis
- LLR test
- RMSE

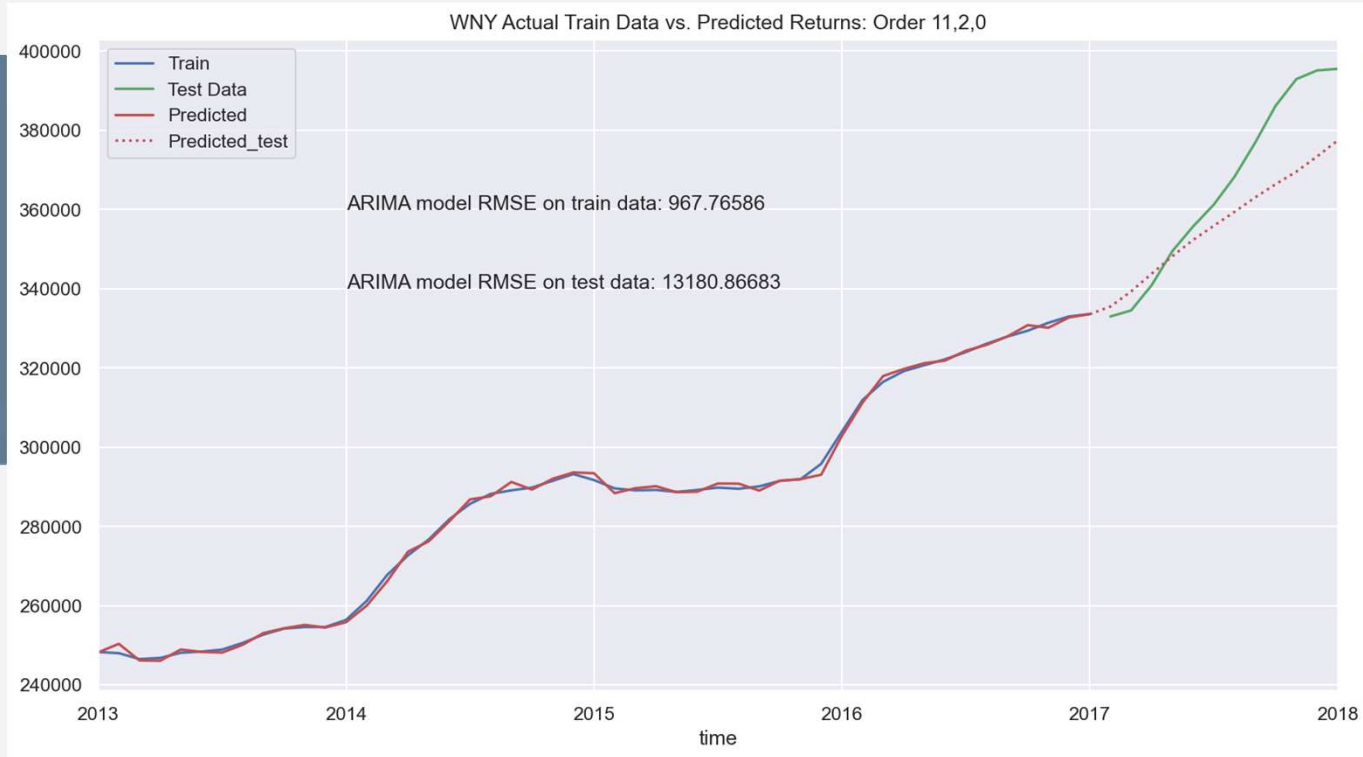
### Deployment

- Deploy the most effective but simple model through out all Zip codes

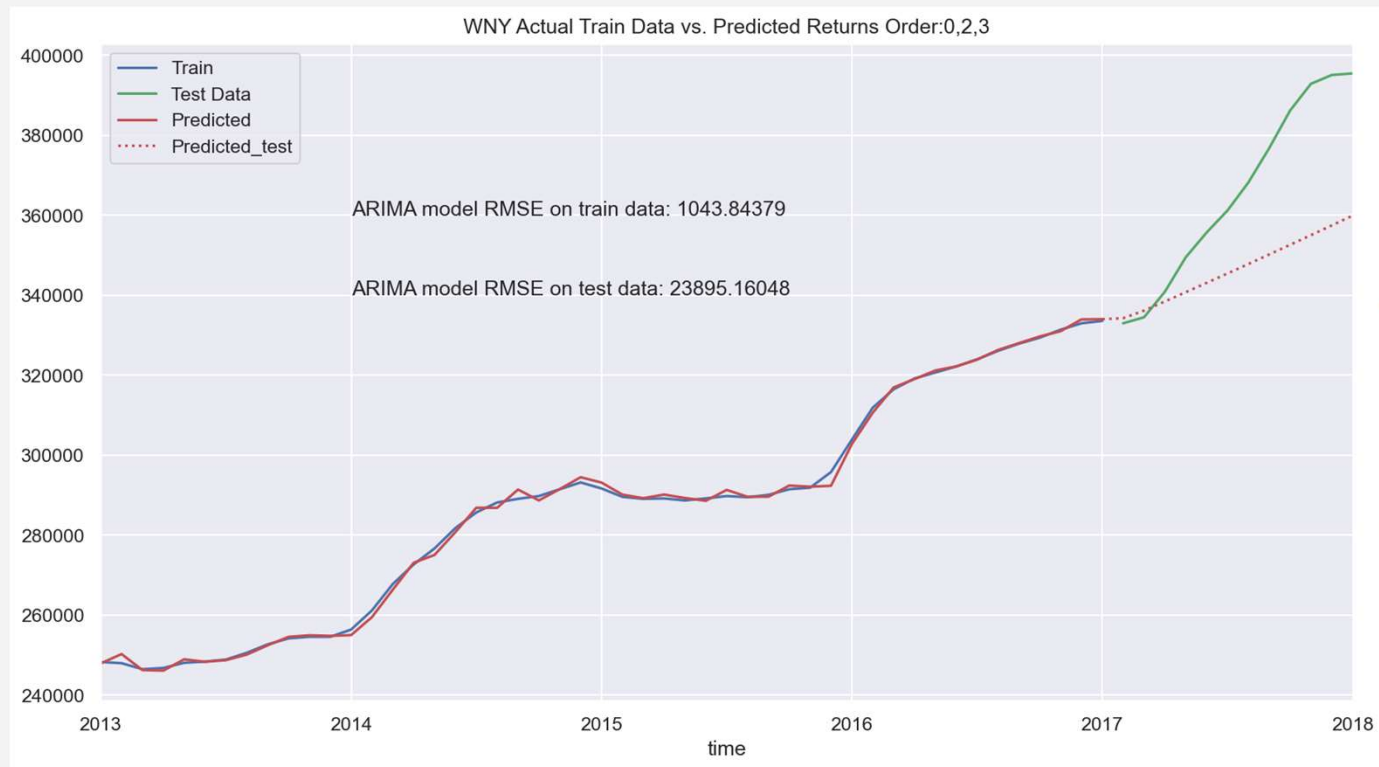
## Data Prep : Differencing Twice



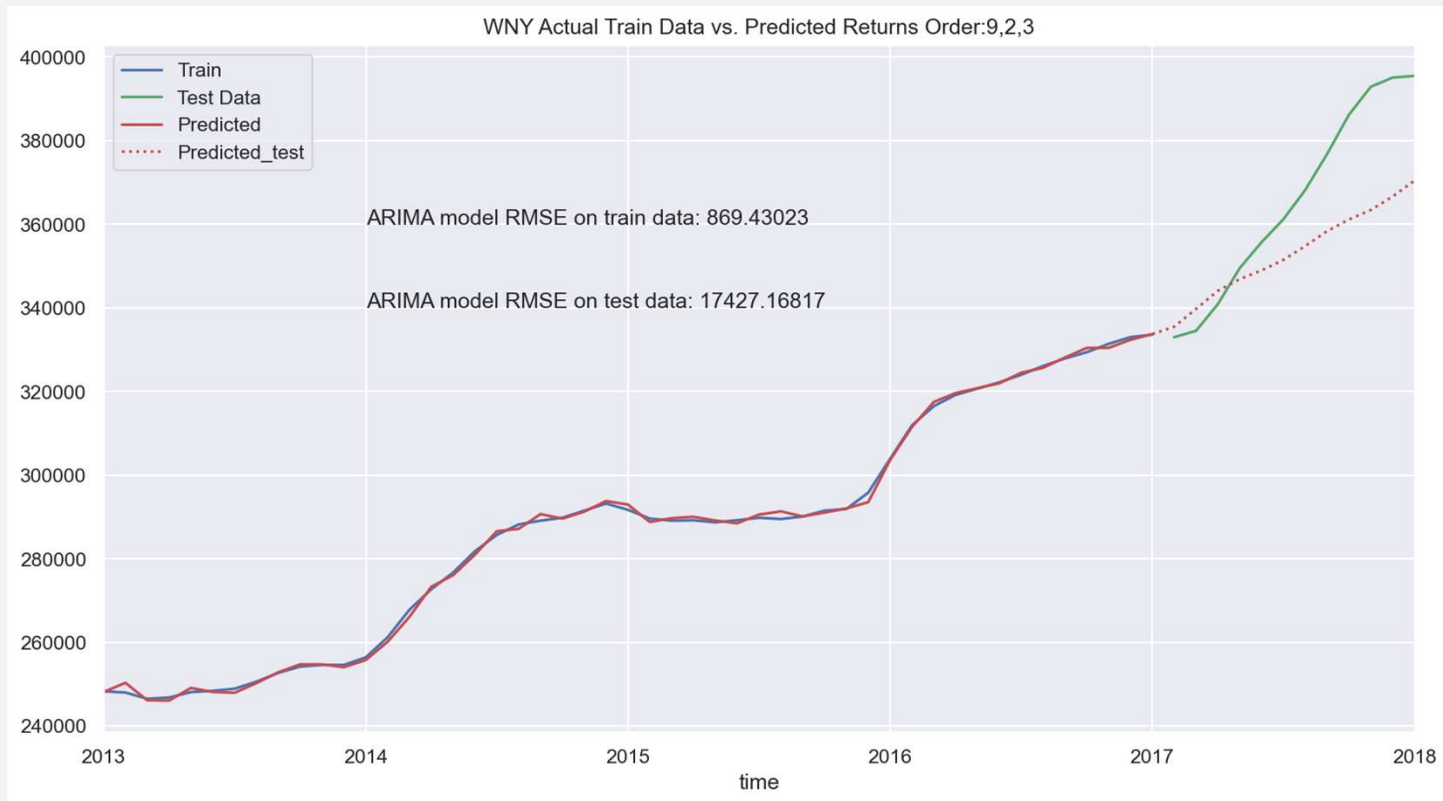
## AR model: Order 11,2,0 | Complex



## MA Model: Order 0,2,3 | Less complex but worse RMSE



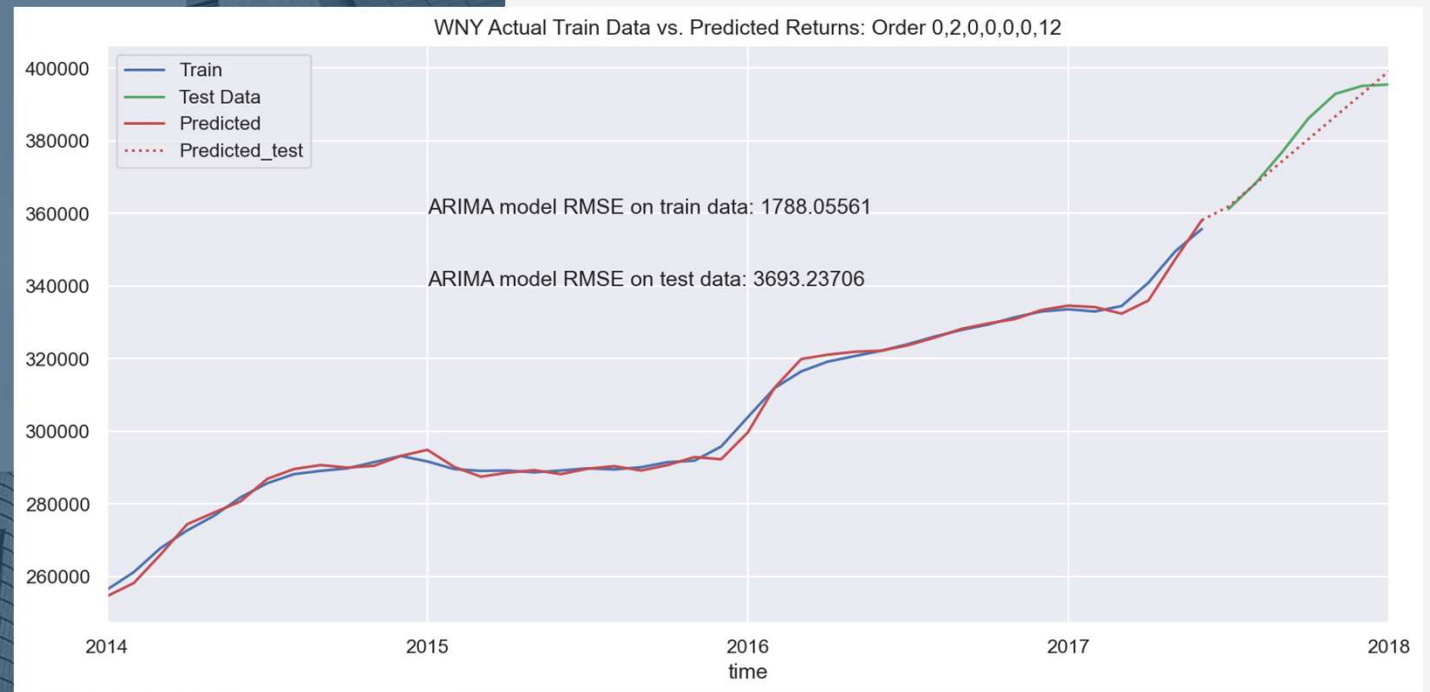
## ARIMA Model: Order 9,2,3 | More Complex but more reliable





## Cost & Benefit Analysis

- Less complex, more reliable
- Less computationally heavy, reduce cost
- Reduce time by being applicable to all markets in Hudson County

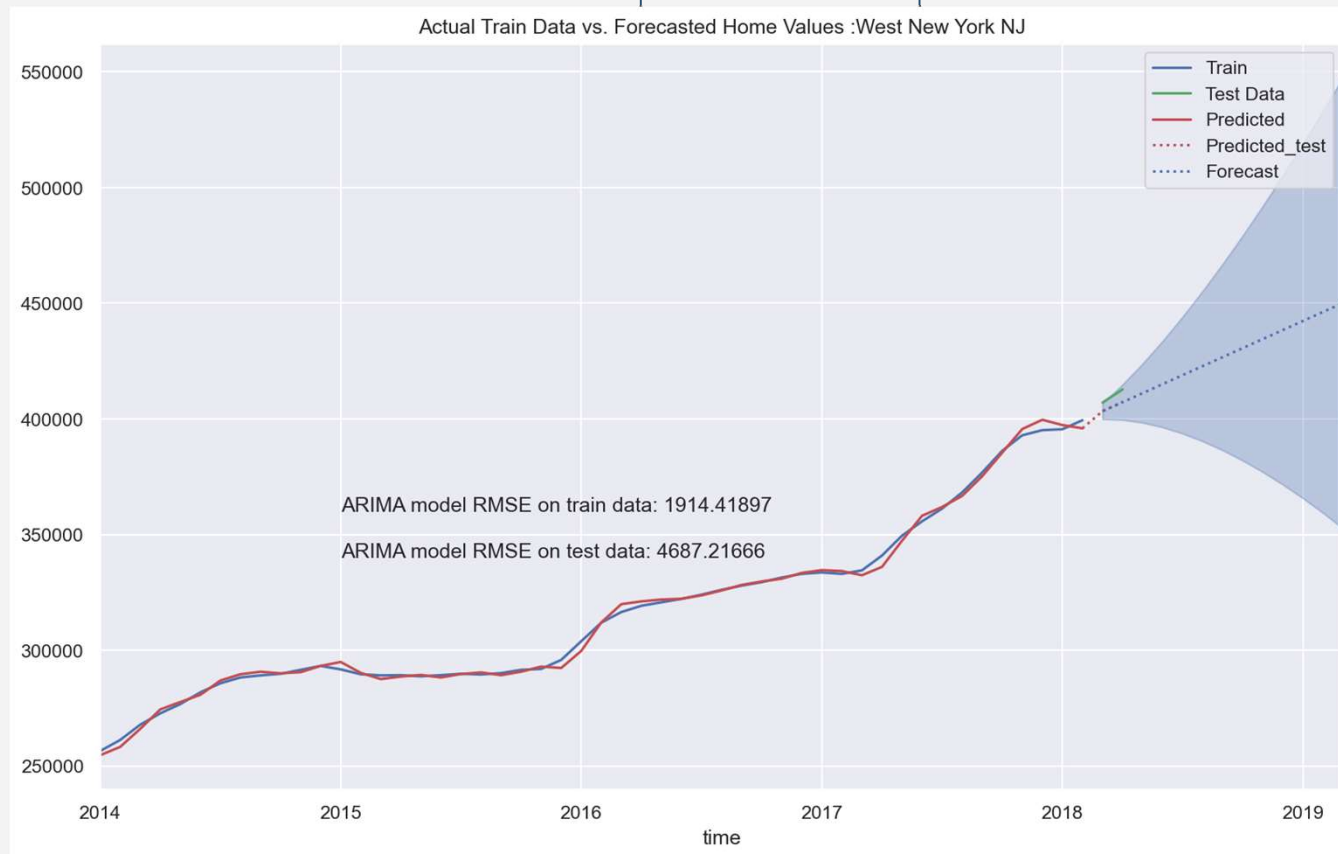




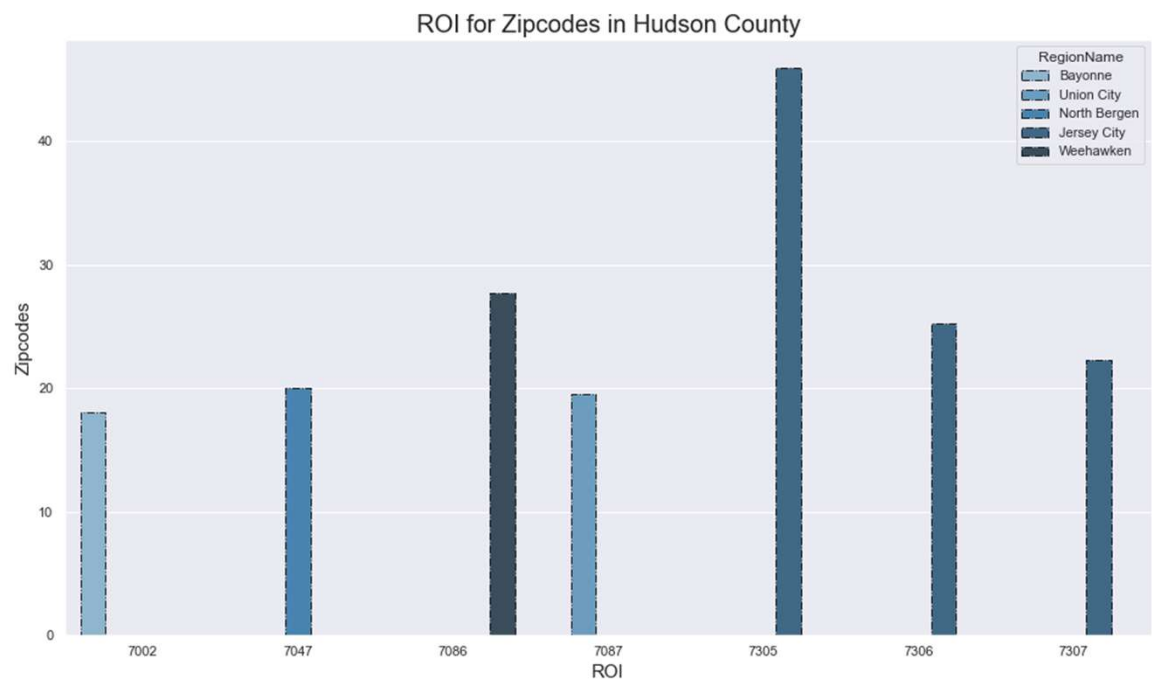
Deployment  
& Results

04

## Deployment of Model



# Results





# 05

## Recommendations

## Recommendations

1. Continue to invest heavily in Jersey City as the market still has room for potential returns
2. I would also begin to make strategic steps to enter areas like Weehawken, North Bergen, Union City and West New York. Eventually when Jersey City becomes over saturated, like Hoboken, these other towns provide promising returns
3. Consider entering the development space as the need for parking spaces is a problem for all these areas. By building studio apartment with parking spaces your firm would surely capitalize on the growing demand to head to North Jersey



A low-angle, upward-looking photograph of several modern skyscrapers with glass facades. The buildings are set against a clear blue sky with some light, wispy clouds. A thin white rectangular frame is superimposed over the center of the image, enclosing the text.

Future Work

06



## Future Work

### Better Model Development

Inability to adjust to unique events, will include exogenous data.

### Create Interactive Dashboards

Explore more areas other than Hudson County

### Search for Motivated Sellers

Search for motivated sellers by creating a classification model that located individuals that are sitting on equity





# Questions

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Thanks

Does anyone have any  
questions?

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