

The background image shows a laptop screen with a dark overlay. On the screen, there is a line graph with a blue line showing fluctuations over time, and a pie chart with a green slice. The text 'Time Series Analysis' is prominently displayed in white, bold font across the middle of the screen.

# Time Series Analysis

of Jacksonville Zip Code Housing Prices

# Client Breakdown

-Relocating for a 2-year work contract in Jacksonville, FL. It begins in 3 months.

-Might relocate again after the contract ends. Wants a house that will offer the best potential ROI.

- Budget: \$275,000

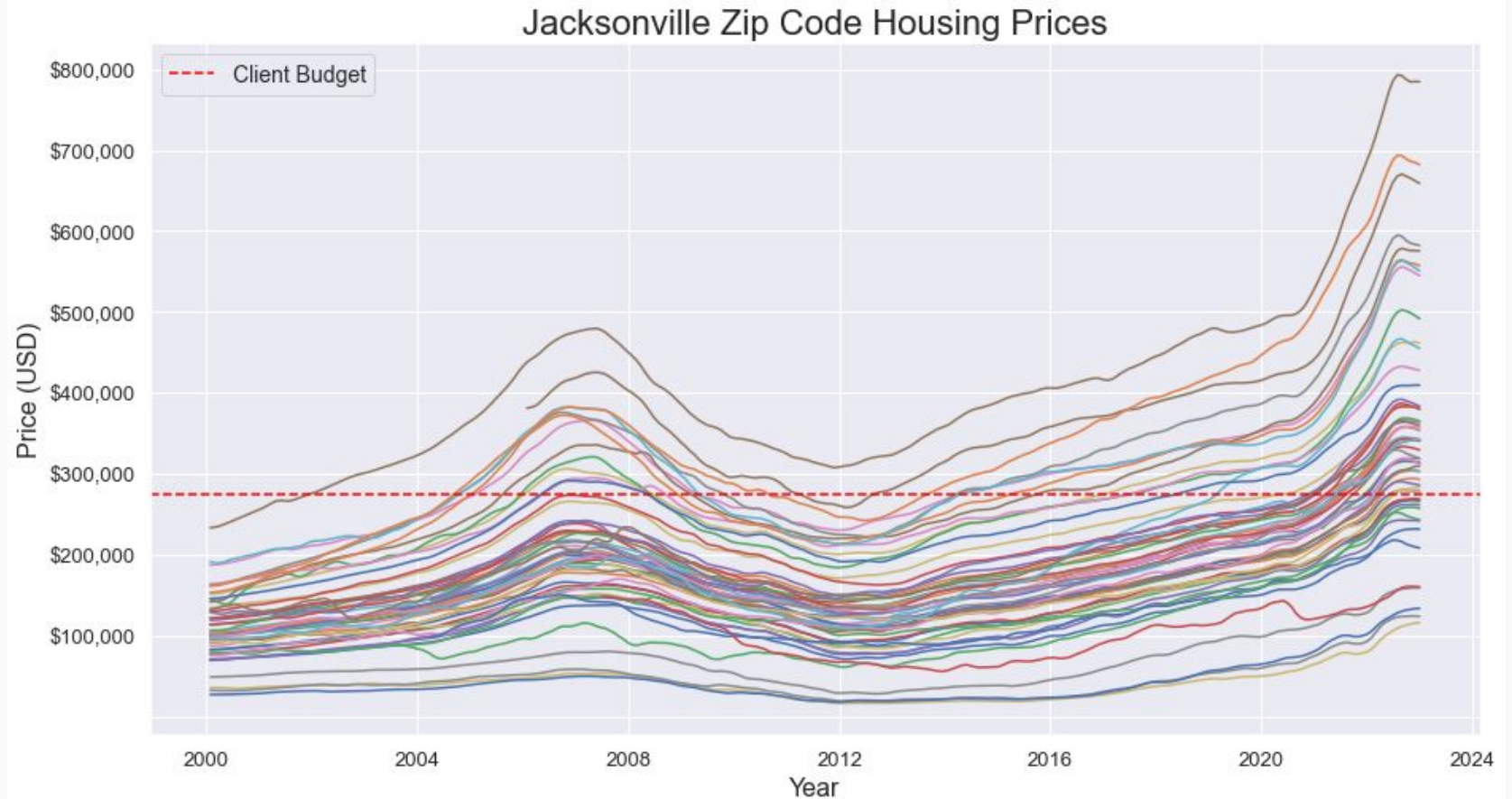
-Looking for a single-family home.



# Housing Prices Dataset

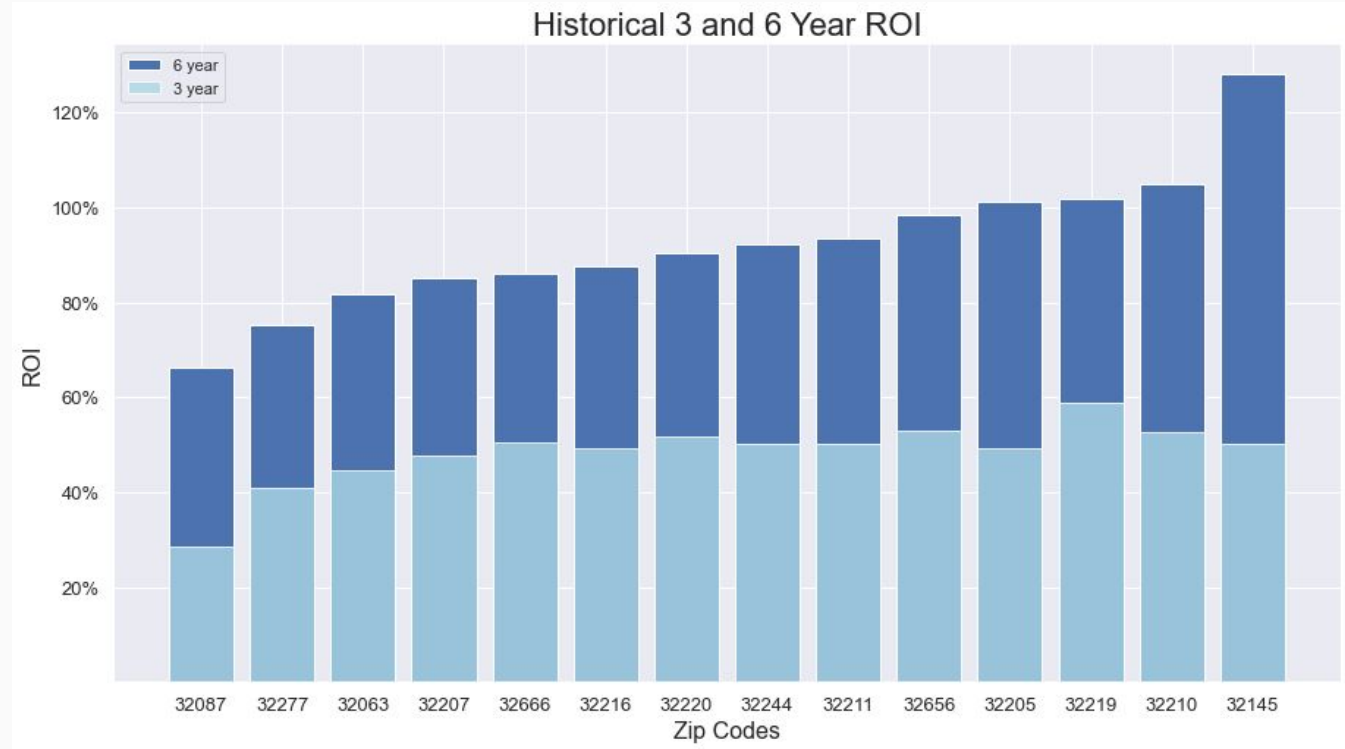
- available from [Zillow](#)
  - smoothed (non-seasonal)
  - median housing prices by zip code dating back to 1996.
  - data has been trimmed to start in January 2012. This period best captures the recent market trends.
  - supplementary Zillow data has been used to inform the analysis
-

# Median Housing Prices by Zip Code:



## Zip Code Breakdown:

- 56 Jacksonville zip codes
- Price Range:  
\$200,000 - \$300,000
- 14 zip codes within price range



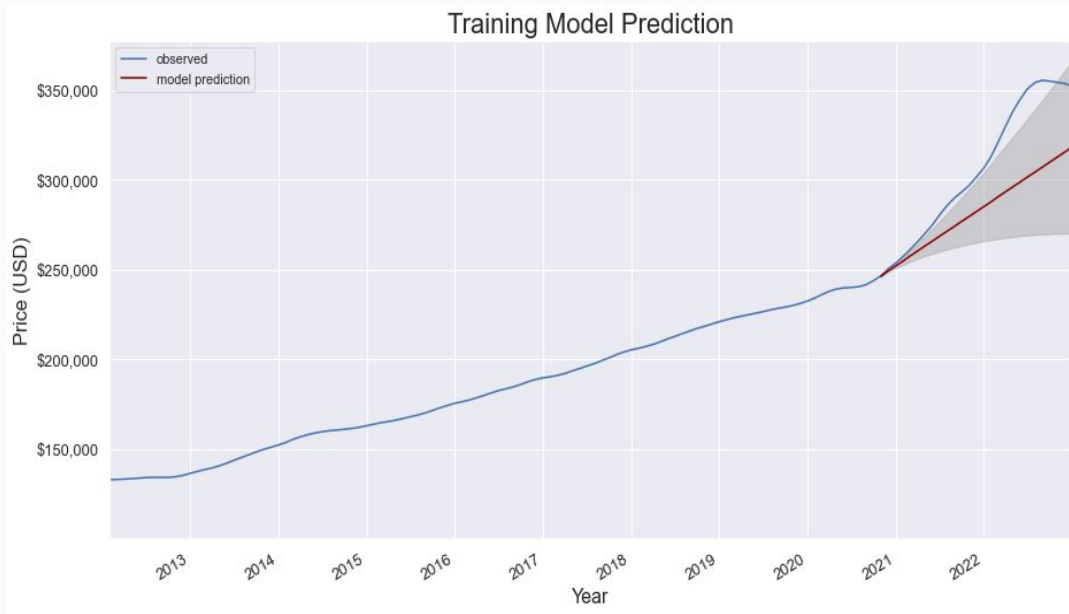
# Modeling Preparation:

Average median house price of all Jacksonville zip codes:



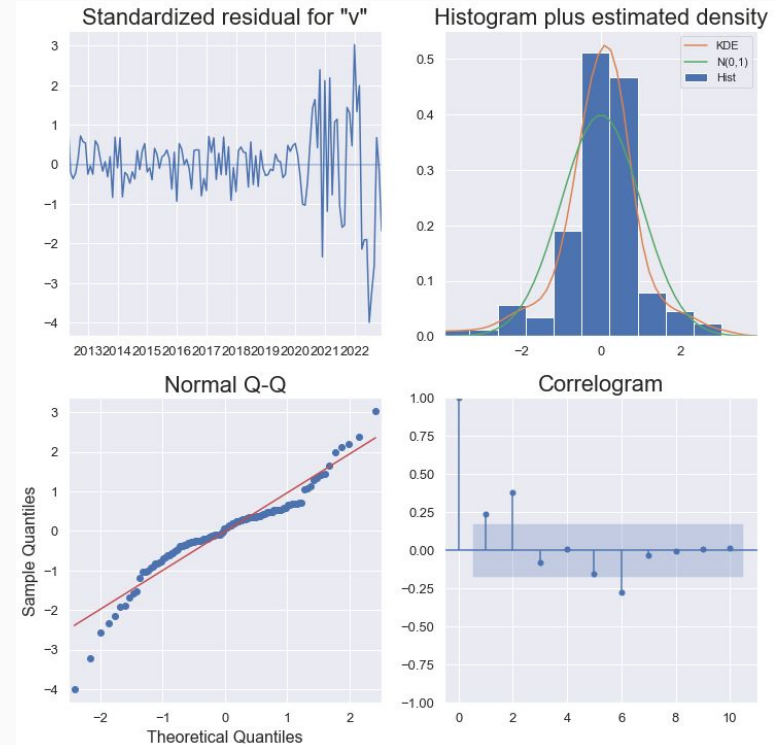
- start date: 01-31-2012
- 80/20 Split
- Difference in price growth creates issues for modeling

# Training Model Diagnostics:

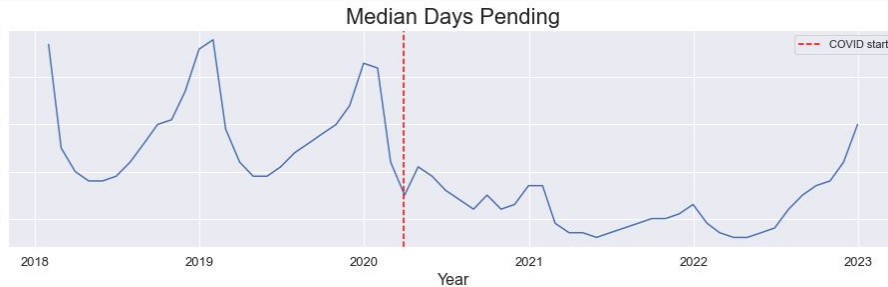
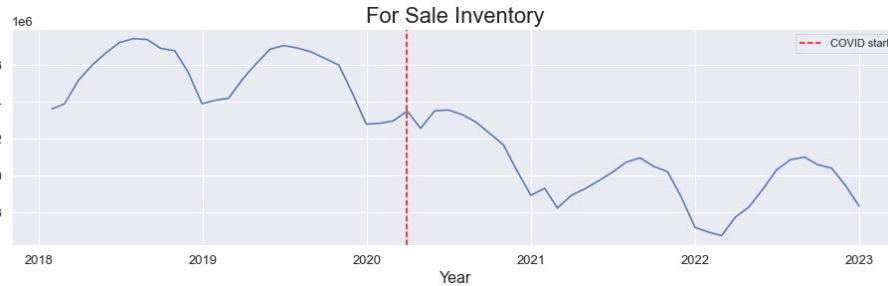


ARIMA parameters: (0,2,1)

## Model trained on full data:



## Supplementary US Data:



- pandemic effects are apparent starting in March 2023

- For Sale Inventory has dropped and shows no sign of recovery yet.

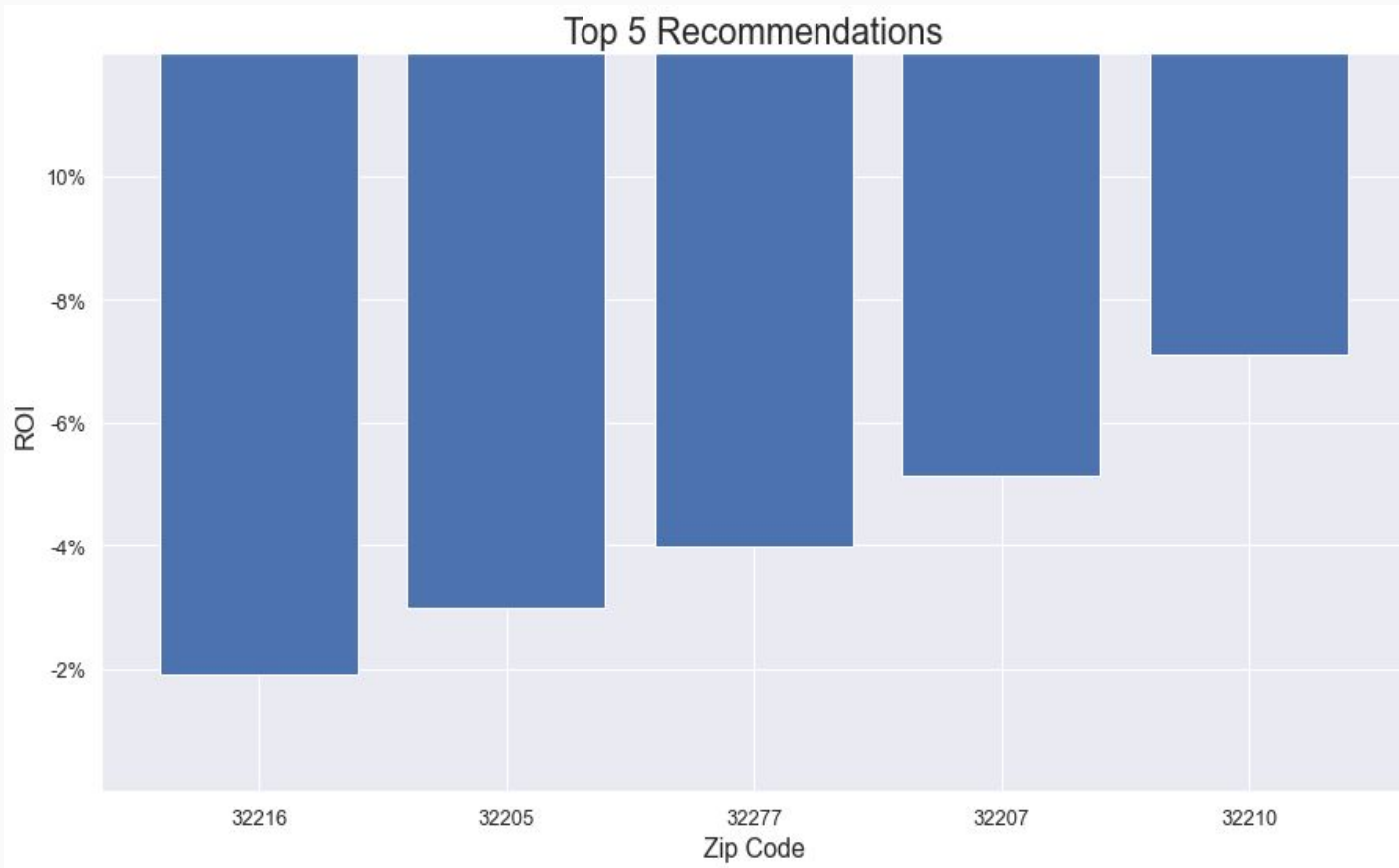
-Days Pending and Sale-to-List Ratio deviate from expected values, but show a return to pre-pandemic levels in late 2022



# Model Forecasting:



## Results:

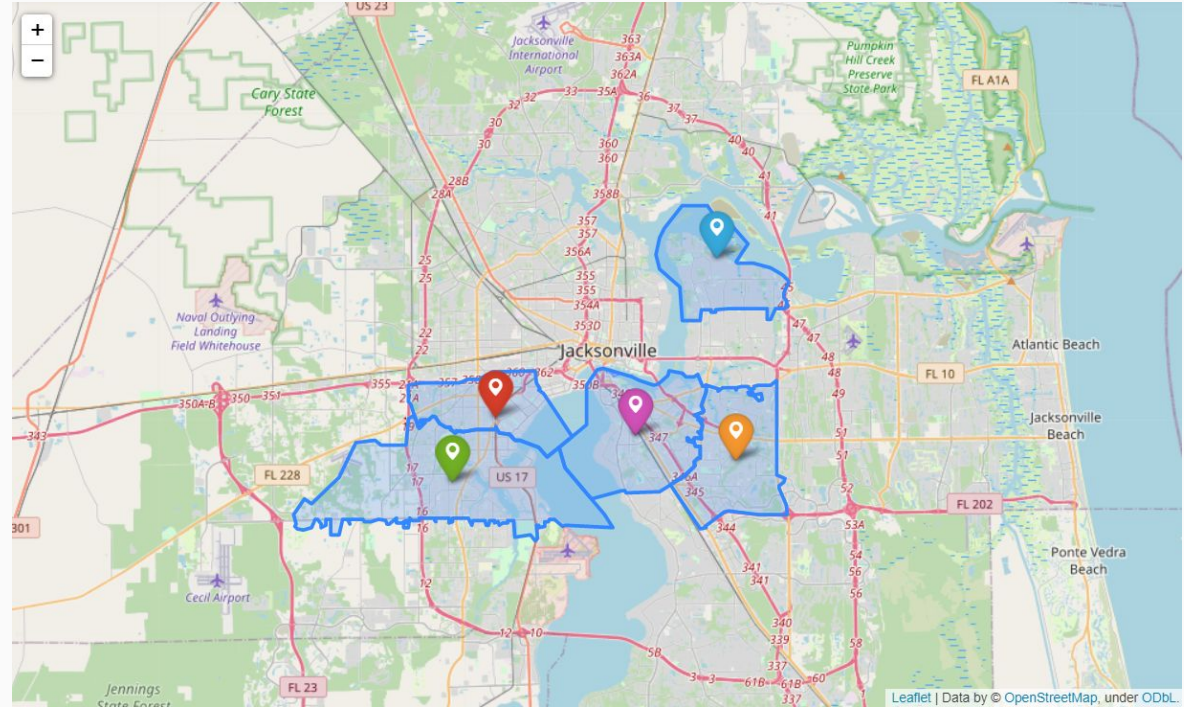


- the models predict a drop in price for all zip codes

- these 5 retain the most value

# Final Recommendations:

- 2-year forecast predicts a drop in prices
- prices are currently stagnant, and a return to pre-pandemic patterns are possible
- zip code recommendations allow us to move forward with the client as we narrow the search further



# Questions?

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