Top 5 Zip Codes for investment in Harris County, Texas, USA

Analysis, findings and recommendations

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Problem statement

The company wants to invest in real estate in Harris County for the first time. The company has inquired of us to carry out analysis and recommend top 5 zip codes that they can consider for investment.

Context - Real Estate Industry Overview

Key factors influencing price

- **Supply-Demand Dynamics:** Limited inventory boosts prices, while oversupply can lead to declines.
- **Economic Conditions:** Job growth, income levels, and consumer confidence impact housing demand and prices.
- **Interest Rates:** Lower rates stimulate demand and support higher prices, while higher rates may dampen demand.
- **Demographic Changes:** Population growth, migration, and generational preferences influence regional demand.
- **Location-Specific Factors:** Proximity to amenities, schools, transportation, and economic hubs contribute to price differentials.

Project Objectives

1. Build a forecast model that accurately predicts house prices
2. Calculate the average return on investment (ROI) at the end of the forecast period (36 months)
3. Provide recommendation for top 5 zip codes with the highest ROI per forecast model

Data sources

Zillow Research: https://www.zillow.com/research/data/

Zillow is an online real estate marketplace that provides various tools, data and resources for buying, selling and renting properties.

Our dataset contained comprehensive monthly sales prices data for houses in the USA across various states, counties, cities and zip codes.

# Data analysis approach

1. Loading the data to pandas and analyzing the dataframes
2. Cleaning the data by checking & handling:
   - Duplicates
   - Missing data
   - Anomalies
   - Invalid data
   - Other additional data cleaning procedures as needed
3. Performing exploratory analysis
4. Modelling
5. Drawing conclusions and making recommendations

Observations & Conclusions

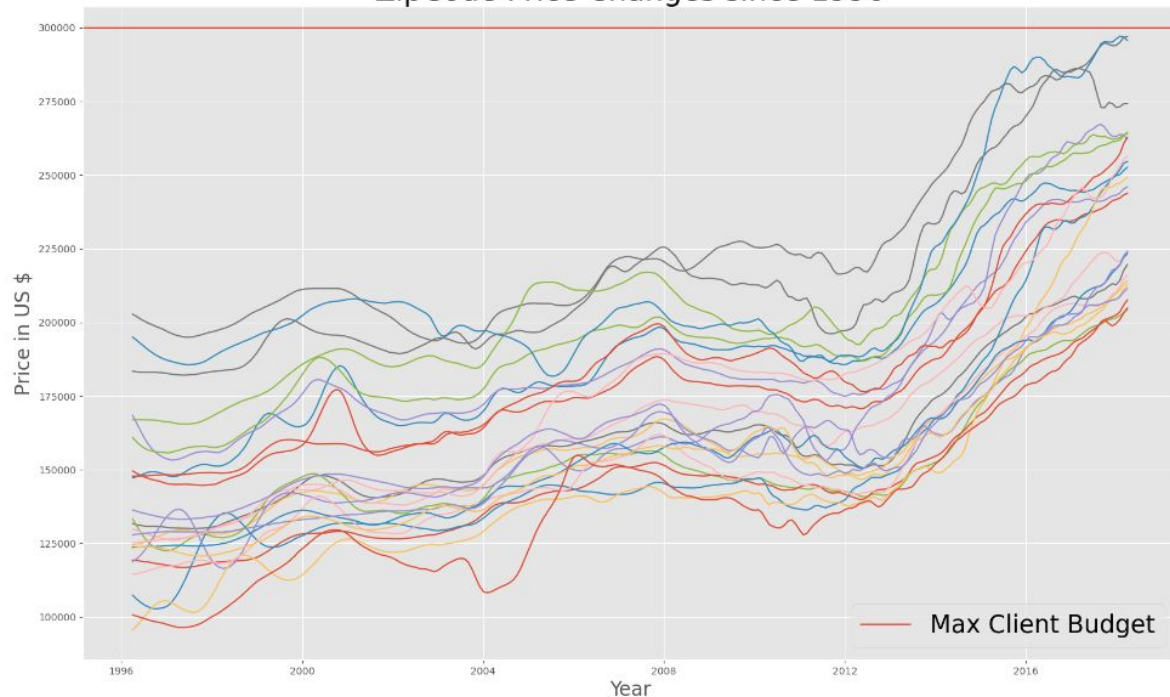*See next pages*

Cities with zipcodes within Client's budget
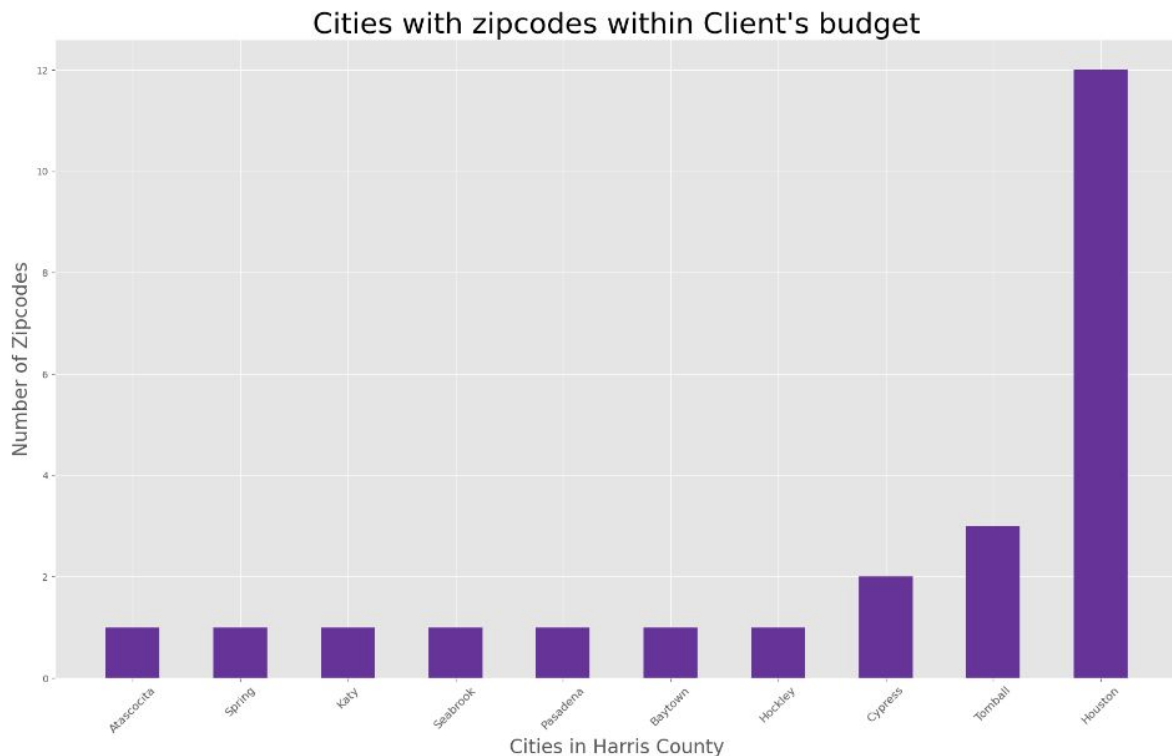
Harris county has more than 100 zip codes

We analyzed houses within the clients budget limit i.e., between $ 200,000 to $300,000. Resulting in 24 zip codes per bar graph
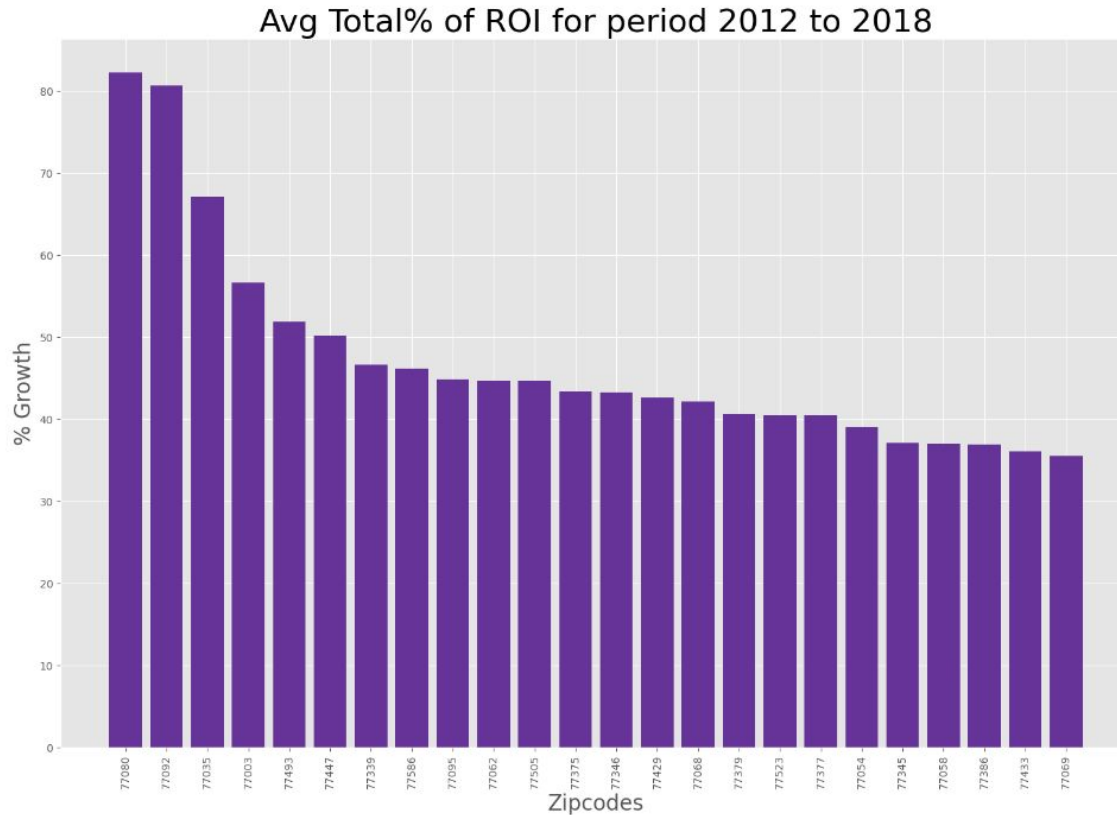
2. Historical prices Harris county


ZipCode Price Changes since 1996

- This graph captures the general price trends in Harris County.

- This prices have been on upward trend that accelerated post 2012.

- Important to note that despite the subprime mortgage & financial crisis of 2008, Harris county's prices saw a minimal drop

Avg Total% of ROI for period 2012 to 2018

The average return on investment ranges between 35% & 84% making Harris county attractive for investment.

3. Model 1 forecast - 1 Zip code

Average Home Price - 77080 - With Forecasted Values & Confidence Intervals
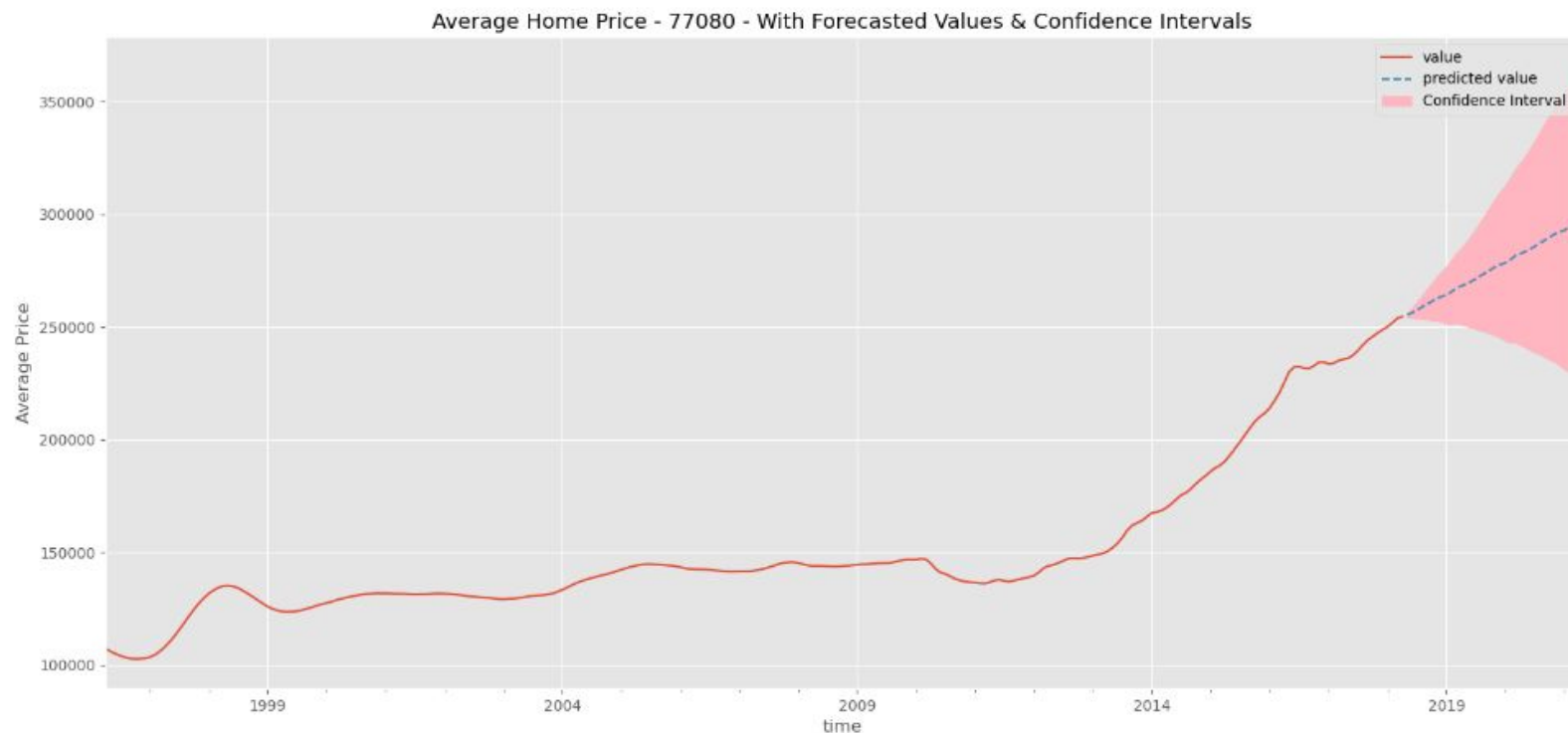
This model aimed to predict future house prices in zip code 77080. The forecast period was 36 months (May 2018 to April 2021). Per image, the model predicted a general upward trend in prices for the next 3 years.

Final model results - Top 5 zip codes with highest forecasted ROI at end of April 2021

Top 5 Zipcode Recommendations
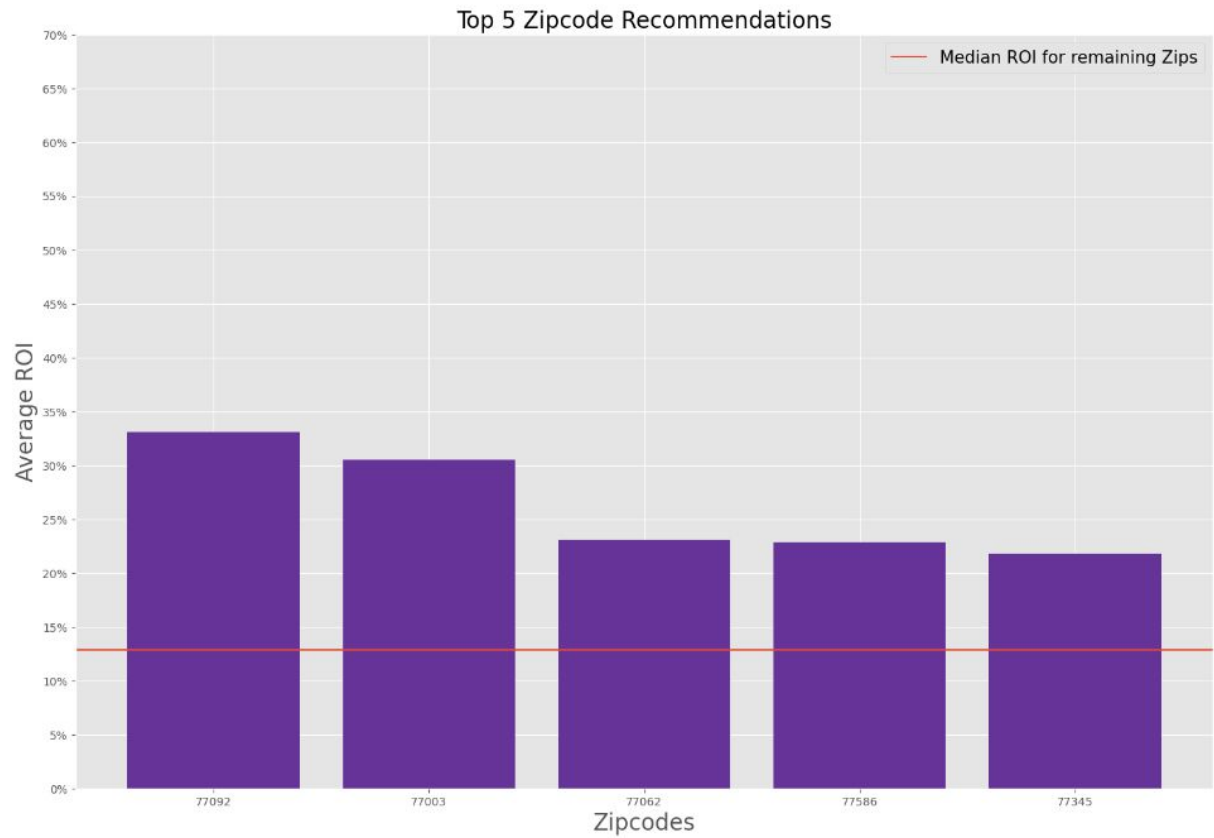
The forecast was build at a zip code level for each of the 24 zip codes within client budget. We utilized the forecasted future price at end of April 2021 to calculate average ROI at April 2021 and picked the zip codes with the highest ROI as per bar graph:

Conclusions and Recommendations

Following observations in previous section, we recommended that our client invests in the top five zip codes listed below:

Zip Code with highest ROI per Price prediction model:

1. Zip Code 77092: 33.09%
2. Zip Code 77003: 30.54%
3. Zip Code 77062: 23.13%
4. Zip Code 77586: 22.86%
5. Zip Code 77345: 21.81%

Next steps

1. Hand over detailed repository of dataset, analysis and other documentation on the findings

Thank you!

Any questions?

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