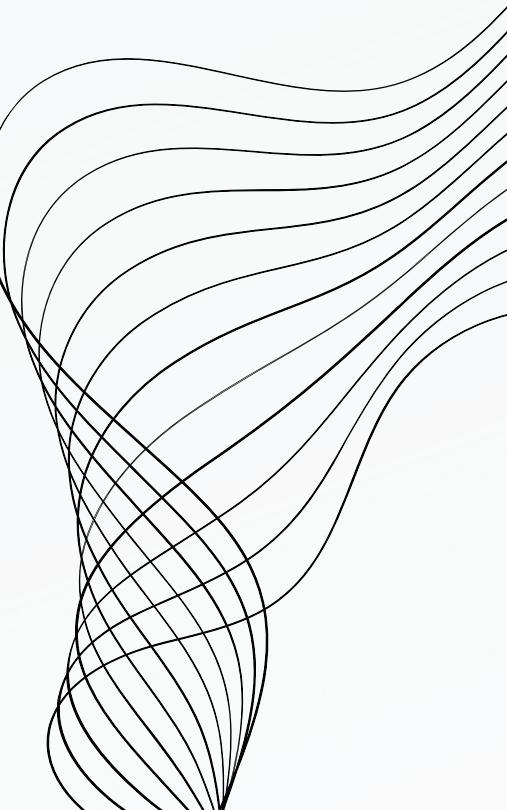


# **REAL ESTATE INVESTMENT ANALYSIS**





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# CONTENT

- 01** → INTRODUCTION
- 02** → PROBLEM STATEMENT
- 03** → BUSINESS OBJECTIVE
- 04** → DATA UNDERSTANDING
- 05** → METRICS OF SUCCESS
- 06** → MODELLING
- 07** → CONCLUSION
- 08** → RECOMMENDATION



# INTRODUCTION



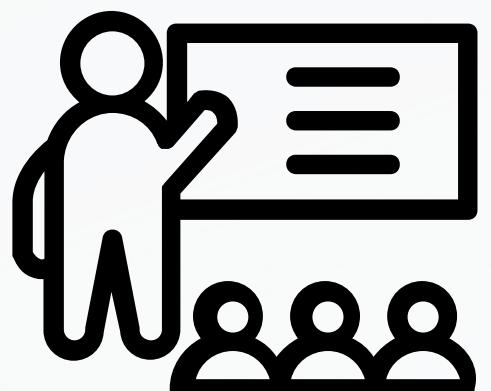
The real estate industry in the United States had a valuation of USD 3.69 trillion in 2021, and it is expected to grow at a compound annual growth rate of 5.2% between 2022 and 2030.



This growth, combined with the increasing population rates, presents a highly profitable opportunity for real estate investors.



To capitalize on this potential, investors need to manage risk wisely and make astute investment choices.



# PROBLEM STATEMENT

- Residential properties offer an average annual return of 10.6%, and commercial properties yield an average return of 9.5%, underscoring the potential for profitable investments in the real estate market, contingent on informed decision-making and risk management.



# BUSINESS OBJECTIVES



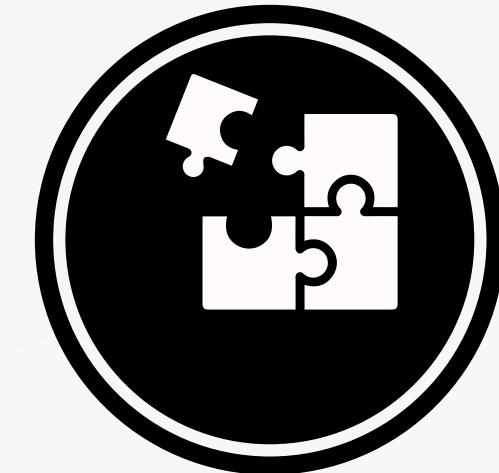
## Objective n° 1

1. Provide effective real estate investment recommendations to the stakeholder.



## Objective n° 2

2. Identify the locations/zip codes of houses with the highest price volatility by analyzing price fluctuations over a specific time period.



## Objective n° 3

3. Explore the effectiveness of predicting future median house prices using statistical models, machine learning algorithms, and relevant factors to gain insight

# DATA UNDERSTANDING

## SOURCES

- **ZILLOW HOUSE PRICE DATASET(1996-2018)**

[HTTPS://WWW.KAGGLE.COM/DATASETS/PAULTIMOTHYMOONEY/ZILLOW-HOUSE-PRICE-DATA](https://www.kaggle.com/datasets/paultimothymooney/zillow-house-price-data)



## DATA METHODS

- **EXPLORATORY DATA ANALYSIS(EDA)**



# METRICS OF SUCCESS

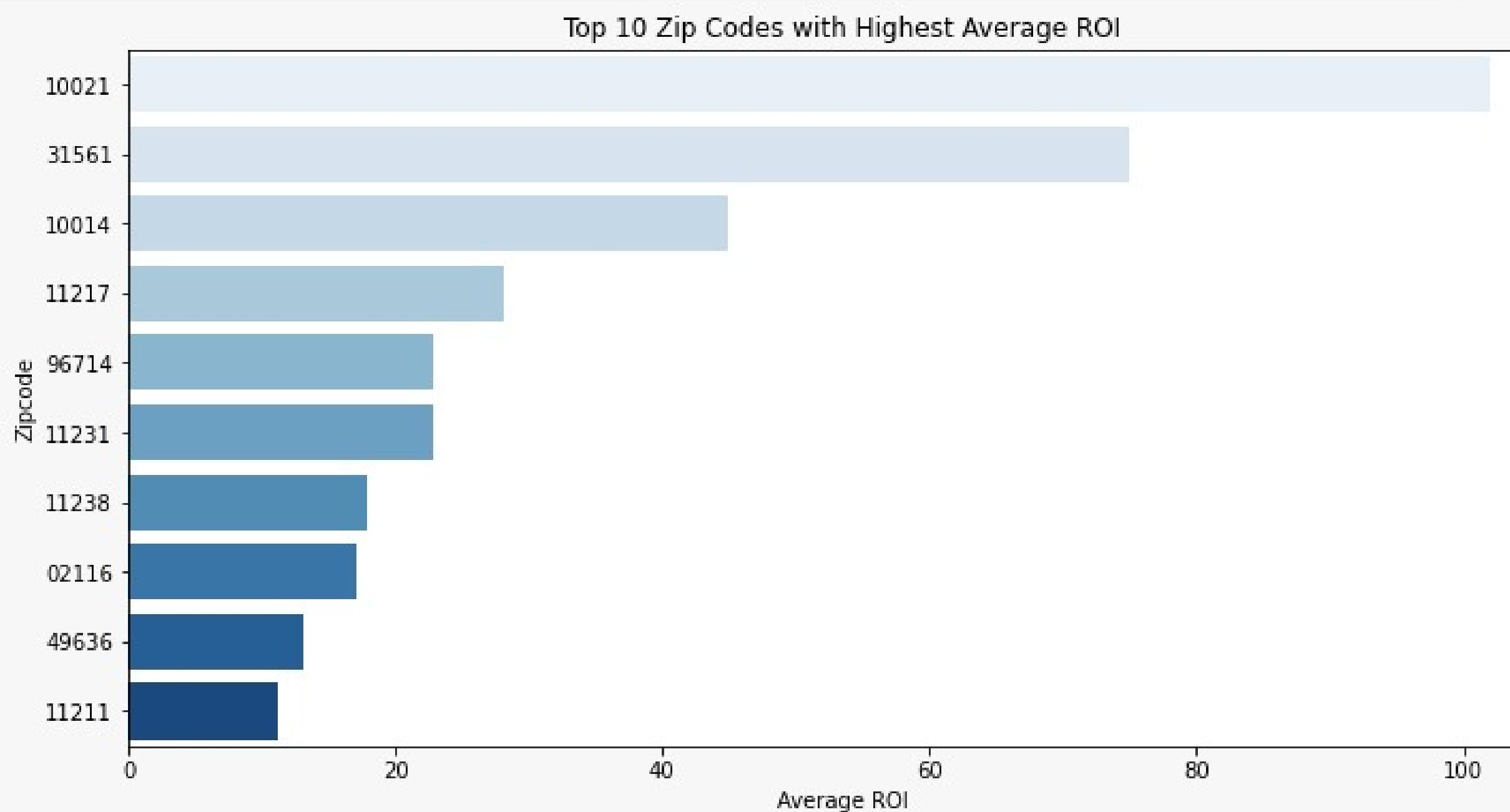


By setting a threshold of 20% for the MAPE, we aim to ensure that the forecasted values do not deviate significantly from the actual values



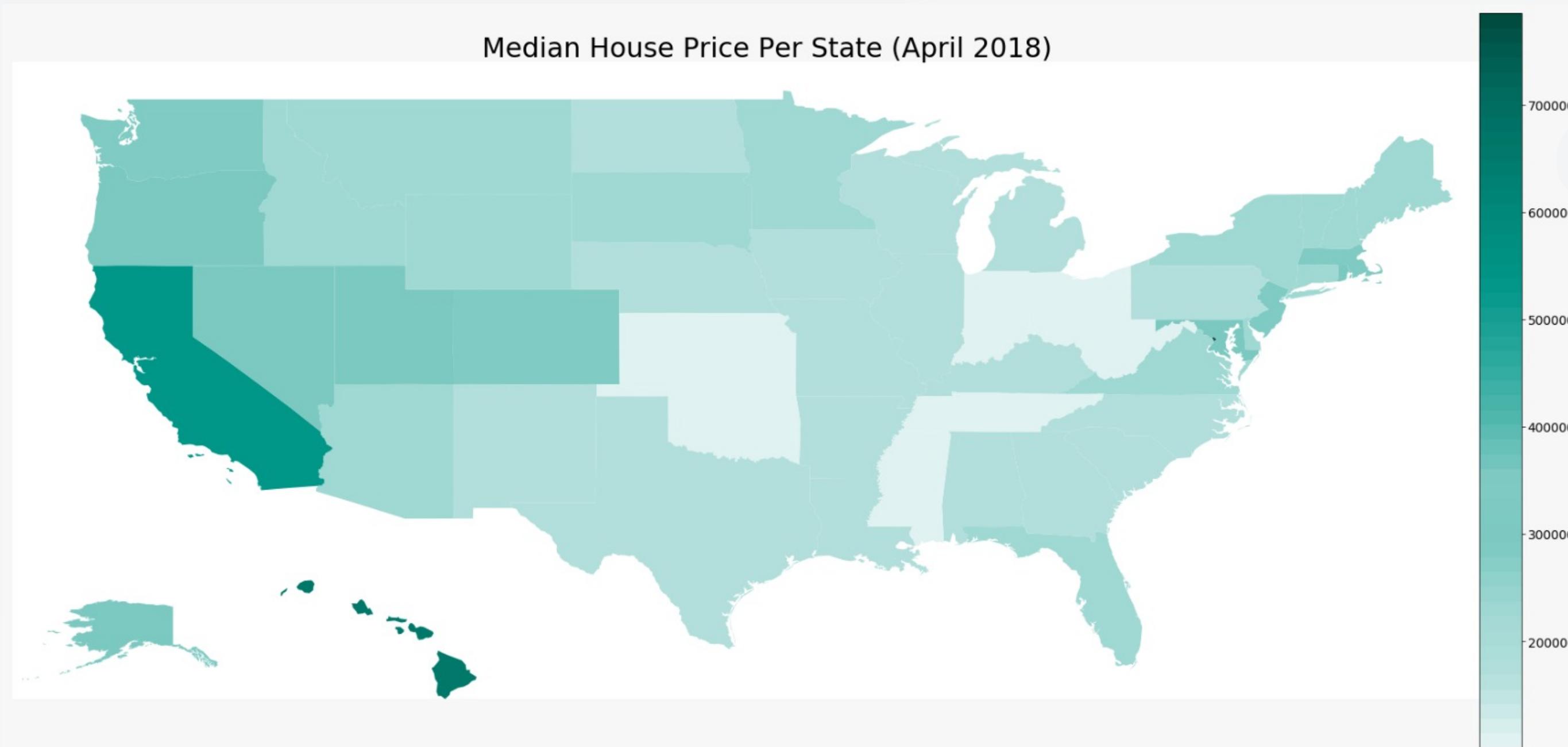
# DATA ANALYSIS

## ZIPCODES WITH THE HIGHEST ROI



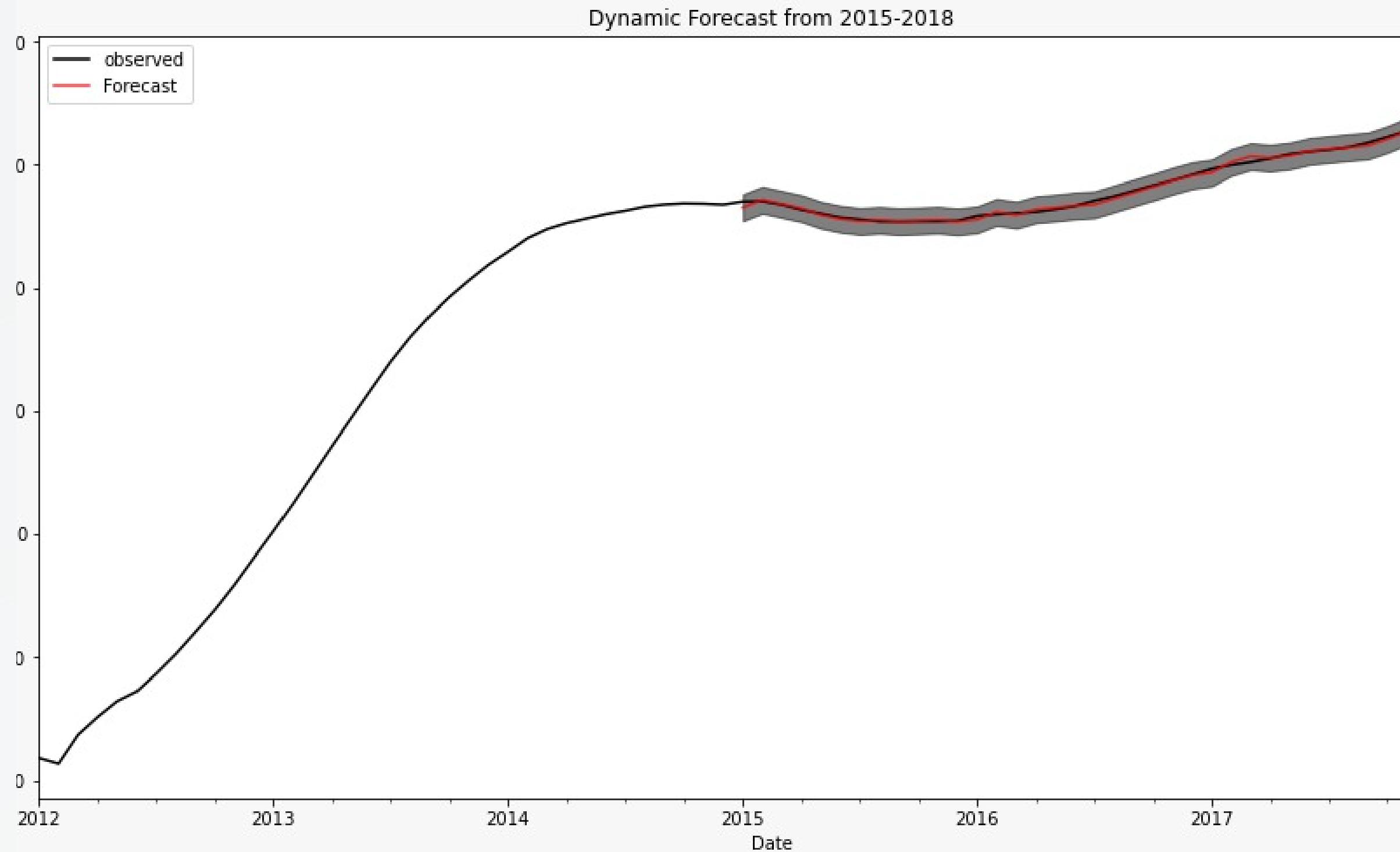
**Identifying zip codes with the highest average ROI allows investors to make informed capital allocation decisions, as shown in the graph where the top 10 zip codes have ROI ranging from around 1.5% to 3.5%.**

# DATA ANALYSIS



UPON ANALYSIS, IT APPEARS THAT STATES SUCH AS CALIFORNIA, HAWAII, DC, COLORADO, MASSACHUSETTS, AND NEW JERSEY HAVE HIGHER MEDIAN AND MEAN HOME VALUES, SUGGESTING POTENTIAL OUTLIERS IN CERTAIN ZIP CODES THAT ARE INFLUENCING THE OVERALL STATE MEAN VALUES.

# MODELLING



**Shows the non-dynamic forecast from 2015 to 2018, comparing the predicted values (labeled as "Forecast") to the observed values of the time series. The shaded area represents the confidence interval for the forecasts. please summarize**

# MODEL EVALUATION

- In simple terms, the MAPE (Mean Absolute Percentage Error) is a measure of how accurately a forecasting model predicts future values.
- A lower MAPE indicates a better fit of the model to the actual observed data.
- In this case, the MAPE value of 0.055 (or 5.5%) this indicates that the model performed well and had a relatively small margin of error in its forecasts.



# CONCLUSION

**1. Forecast disparity:** Variations between your model and the prophet model's forecasts require investigation into methodologies, assumptions, and data inputs.



**2. Analysis of different zip codes:** To provide valuable insights for investors, analyze various zip codes separately due to location-based differences in real estate dynamics and market conditions.



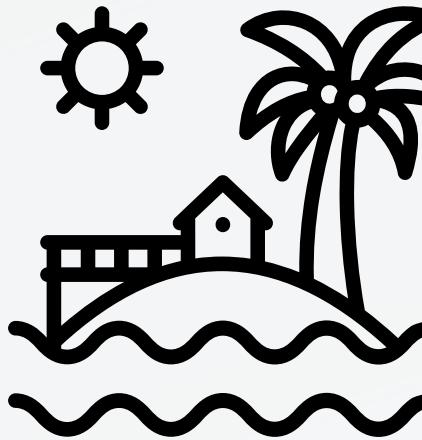
**3. Higher MAPE in prophet model:** The prophet model's higher Mean Absolute Percentage Error (MAPE) suggests potential accuracy advantages for your dynamic model, but consider model complexity and validation techniques for a comprehensive assessment.



# RECOMMENDATION

## STRATEGY N°1

Prioritize locations with attractive beaches and abundant outdoor activities, as they tend to have higher house prices.



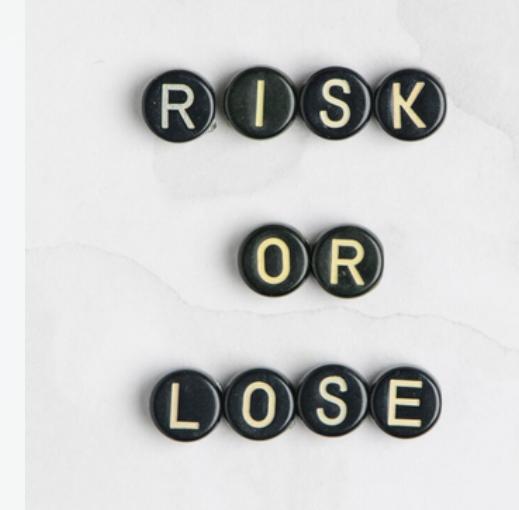
## STRATEGY N°2

Exercise caution when considering investments in New York due to the potential for high ROI but also the risk of price decline.



## STRATEGY N°3

Avoid investing in cities like Boston, New Ulm, New Castle, Ohio, and Dublin due to their high price fluctuations and associated risk.



## STRATEGY N°4

Urbanization impact may not be the primary factor for investment decisions; consider other relevant factors.

# THANK YOU



**ANYBODY HOME? ANY  
QUESTION?**

