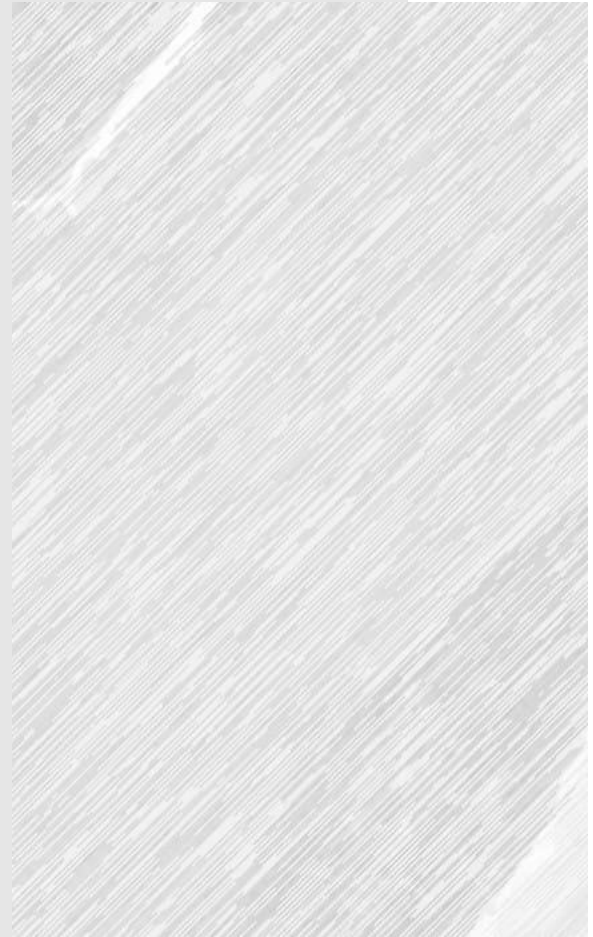# Zillow Real Estate Analysis

Created by

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Business Understanding

Business Problem: Finding the Best Investment Locations

- Objective: Identify the top 5 zip codes with strong growth potential based on recent data

- Provide reliable areas for future investment.

Data Understanding

Complete Location Data: Reliable details for zip code, city, and state allow easy comparisons across regions.

Full Price History: Consistent monthly price data supports accurate trend analysis and forecasting.

Minimal Metro Data Gaps: A few metro areas are missing but don't impact selected top zip codes.
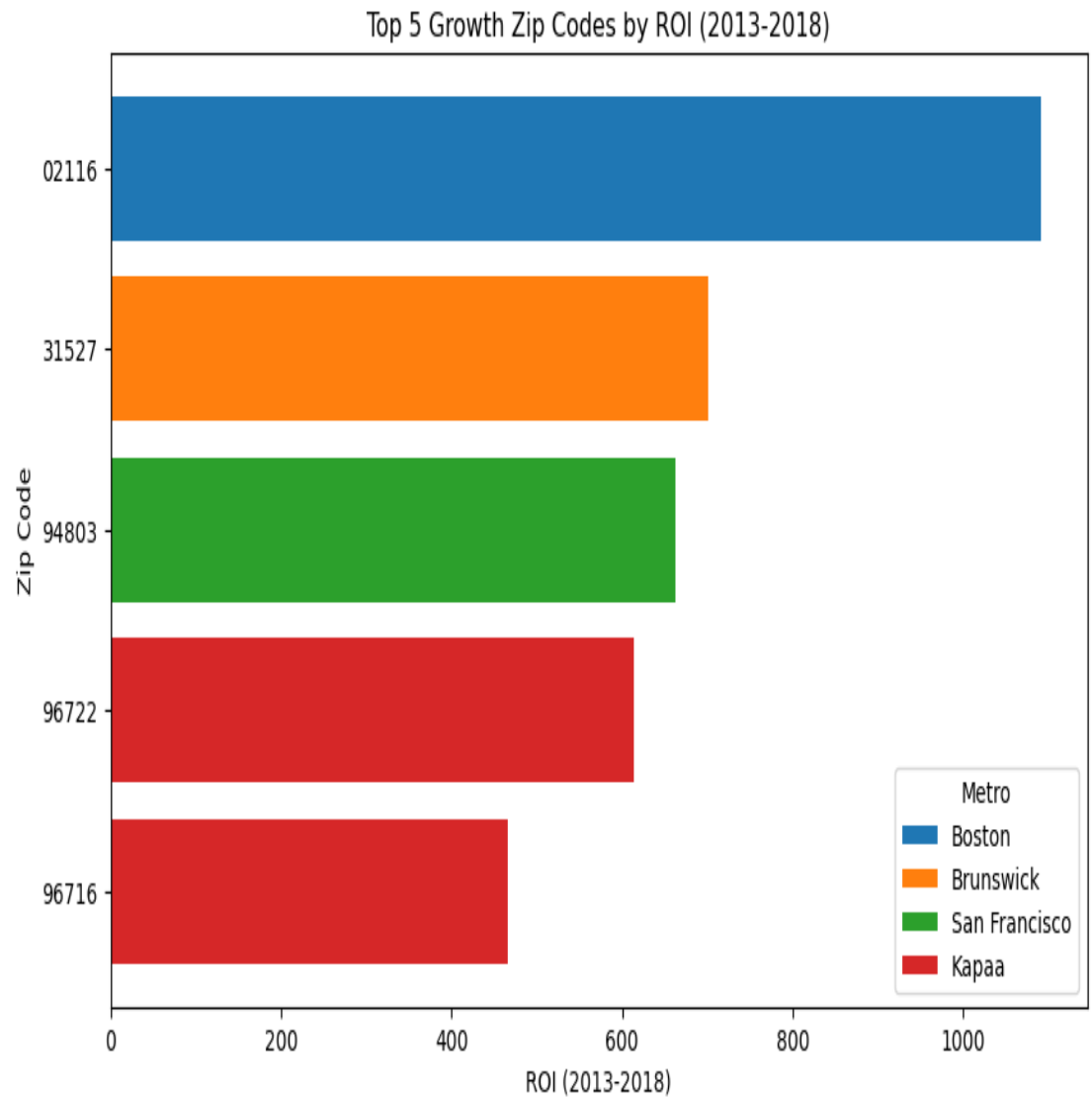
Data Preparation

Using Data to Guide Investments

Data Collection: Analyzed historical data on housing prices for multiple zip codes.

ROI Analysis: Focused on recent growth (2013-2018) to avoid skewed data from earlier volatile years, like the 2008 housing crisis.
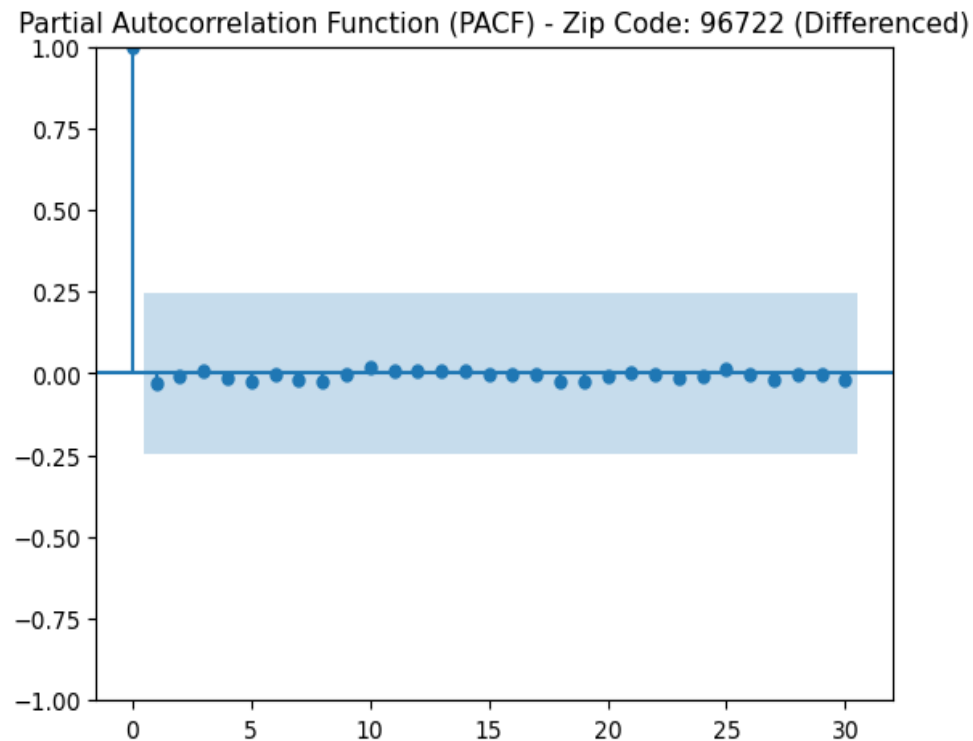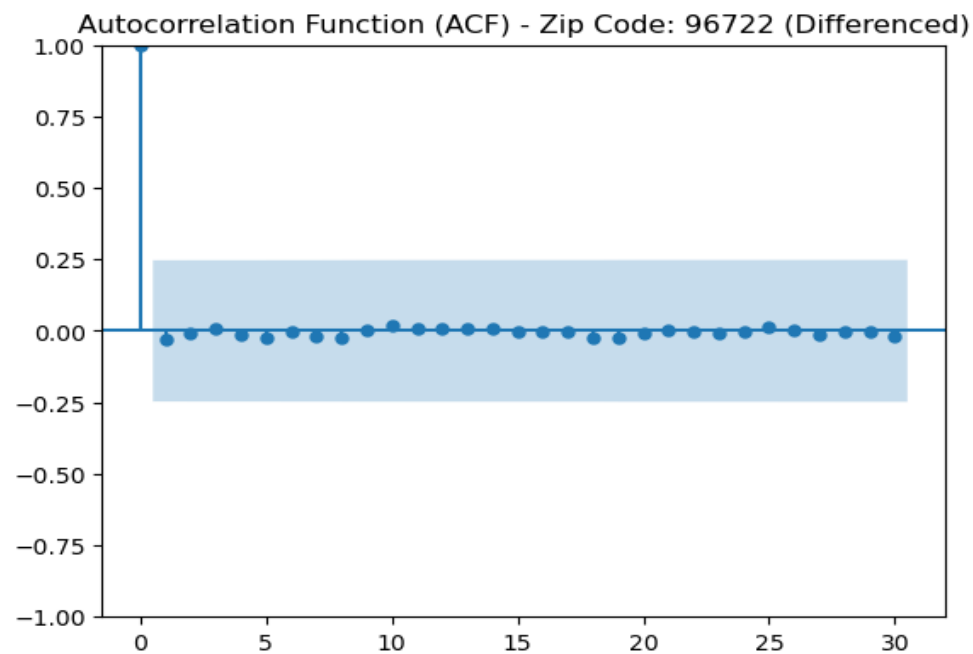
Forecasting Models: Used models to predict which zip codes are likely to show stable and strong growth.

Top 5 Growth Zip Codes by ROI (2013-2018)

Modeling Approach

Stationarity Tests: Checked if price trends in each zip code were stable over time.

Seasonality Tests: Identified zip codes with repeating seasonal price trends.

Autocorrelation Function (ACF) - Zip Code: 96722 (Differenced)

Partial Autocorrelation Function (PACF) - Zip Code: 96722 (Differenced)

Model Selection

ARIMA:

• **AutoRegressive Integrated Moving Average**

• Forecasts future values based on past patterns.

• Ideal for trends without seasonal variations.

SARIMA:

• **Seasonal ARIMA**

• Incorporates seasonal components.

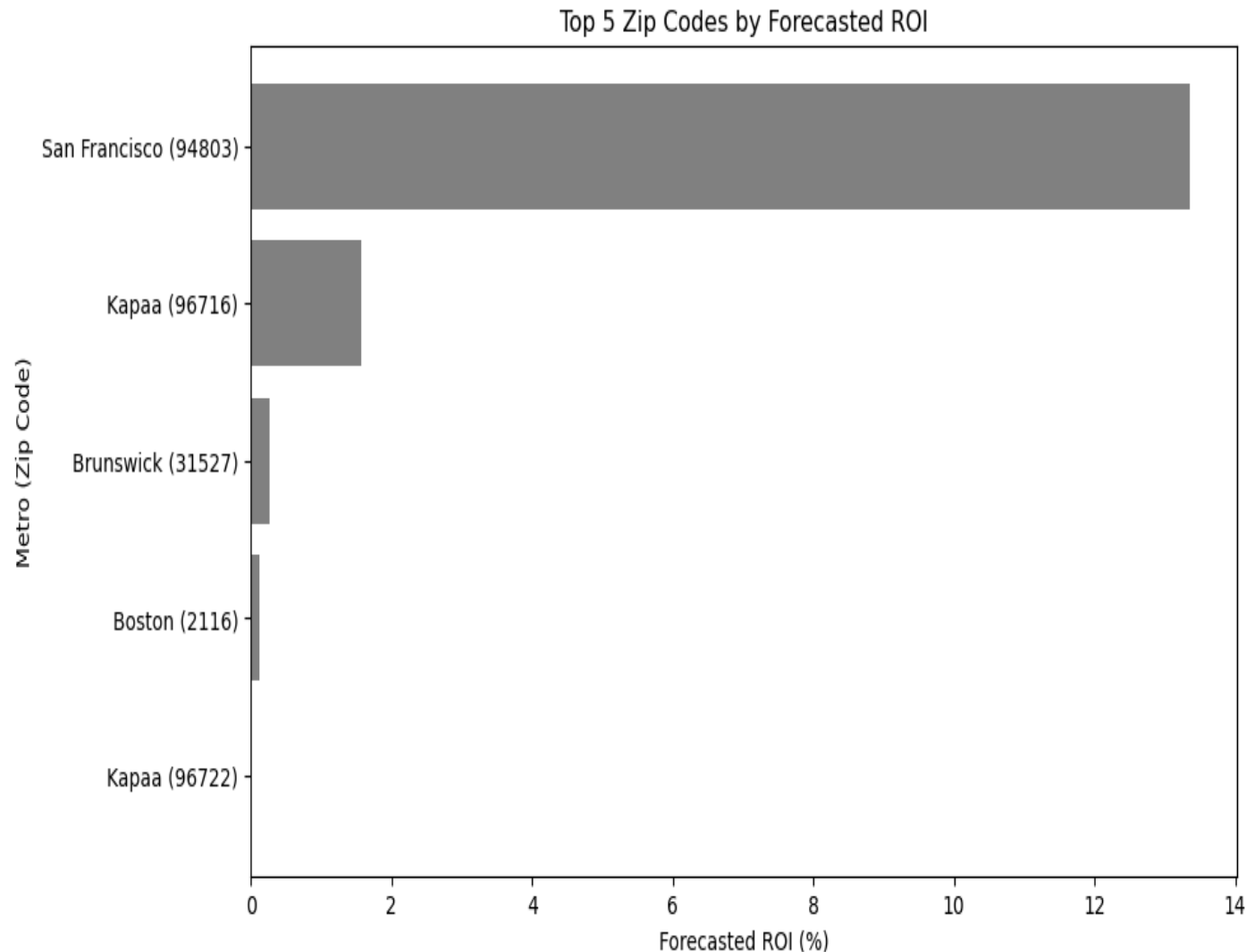• Ideal for prices that fluctuate yearly.

Hybrid:

• **ARIMA/SARIMA Blend**

• Combines non-seasonal ARIMA with seasonal SARIMA.

• Leverages both approaches.

Evaluation

- Models with lower error values were more reliable.

- High ROI zip codes suggest strong growth.

- Stable areas are better for long-term growth; others offer short-term gains.

Top 5 Zip Codes by Forecasted ROI

Conclusion

Leverage	Leverage the Forecasts: Focus investment efforts on the top 5 zip codes identified.
Monitor and Update	Monitor and Update: Continue tracking, reassess annually as new data becomes available.
Explore	Explore Hybrid Models: Consider combining ARIMA and SARIMA models as needed to optimize predictions