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TOP 5 BEST ZIP CODES FOR REAL ESTATE INVESTMENT IN USA: A TIME SERIES ANALYSIS

OVERVIEW

Project Overview

- Location: United States Of America

- Population: 333.29 million

- Geography: Diverse

Real Estate

- Historical data on home prices across various zip codes, along with other relevant features such as location characteristics and market trends.

Challenges:

- Analyzing this data to determine which zip codes offer the most promising investment opportunities based on criteria such as price appreciation, market stability.

Research Focus

- **Objective**: identify the top 5 best zip codes for real estate investment using Time Series.

Business Understanding

Industries across the world have been exposed to dynamic trends in the marketplace.

The Real Estate Industry has not been spared and has been forced to adapt the emerging trends to remain relevant. As a consultant for a real estate investment firm, we have been tasked to determine the best 5 zip codes to live in.

The project aims to forecast real estate prices using historical prices to predict future prices. We shall set out to discover areas with the highest profitability using data from Zillow Research.

Data Understanding

- The dataset used for this project was downloaded from Zillow housing data. The dataset spans from April 1996 to April 2018 and provides detailed monthly home value data for a wide range of regions across the United States.
- The dataset has 14,723 rows and 272 columns. The information contained within the columns is as follows, as described by the data dictionary:
  - RegionID
  - RegionName
  - Time
  - City
  - State
  - Metro
  - CountyName
  - SizeRank
  - Monthly Home Values

Zip Code

RegionName converted to represent the zip codes

Problem Statement

The real-estate investment firm needs a data-driven approach to identify the top 5 zip codes for investment. To achieve this, the firm requires accurate forecasts of future real estate prices to make profitable investment decisions. This involves:

- Forecasting real estate prices for top 5 zip codes using historical data.

- Defining the criteria for the "best" zip codes, considering profit margins, risk, and investment horizons.

- Providing a comprehensive recommendation with a rationale that addresses potential ambiguities and aligns with the firm's investment goals.

Objectives

1. Trend Analysis

- To Identify long-term trends in property values across different regions.

- Purpose: To help investors understand how property values have changed over time and predict future trends.

2. Regional Comparison

- To Compare property value changes across different ZipCodes.

- Purpose: To identify the top 5 Zipcodes which have seen the highest appreciation in property values, helping investors and policymakers allocate resources more effectively.
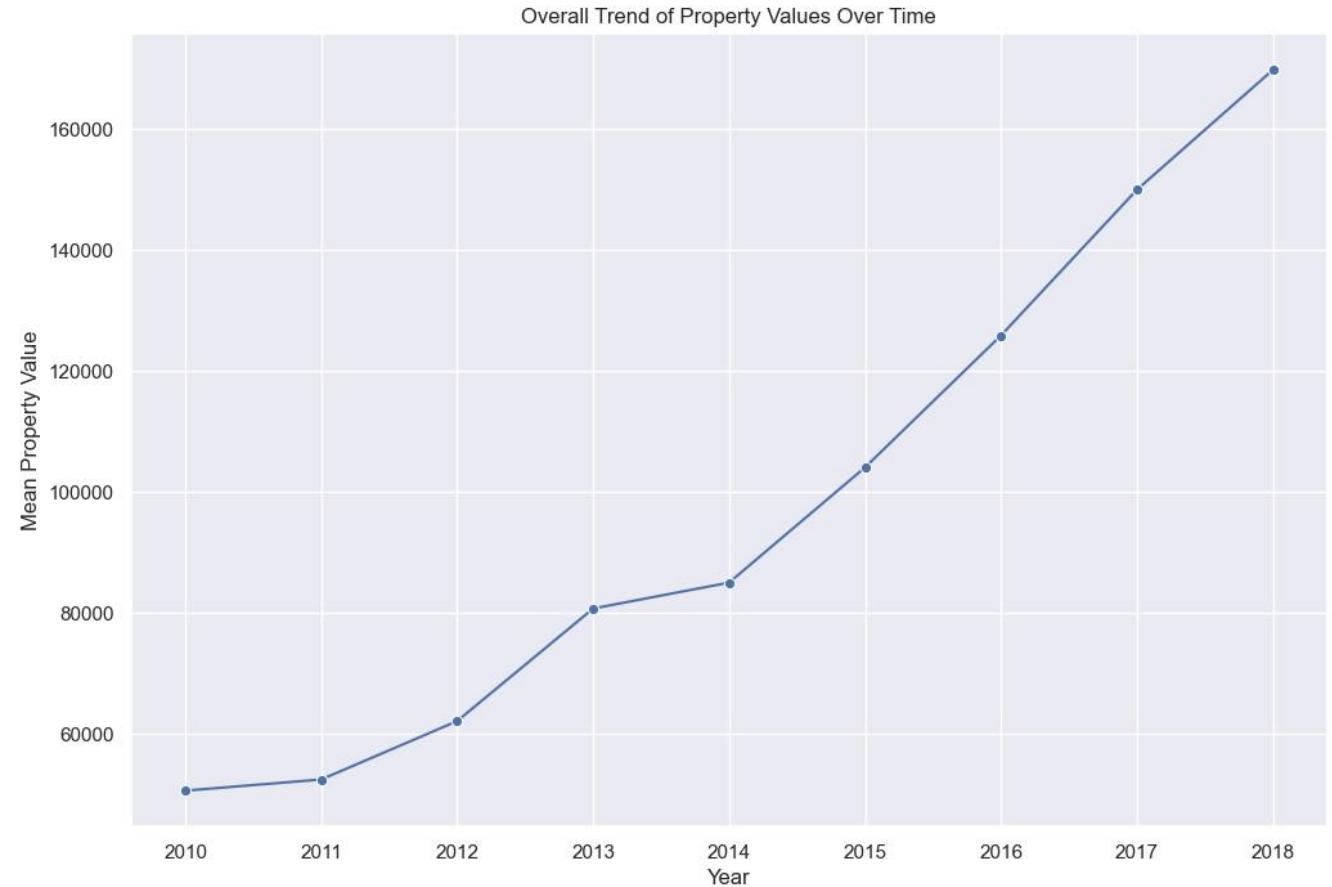
3. Seasonal Patterns

- To detect any seasonal patterns in property values.

- Purpose: To assist real estate agents and investors in timing their buying and selling activities.

Data Preparation and Cleaning

- We looked for:

- Outliers

- Duplicates

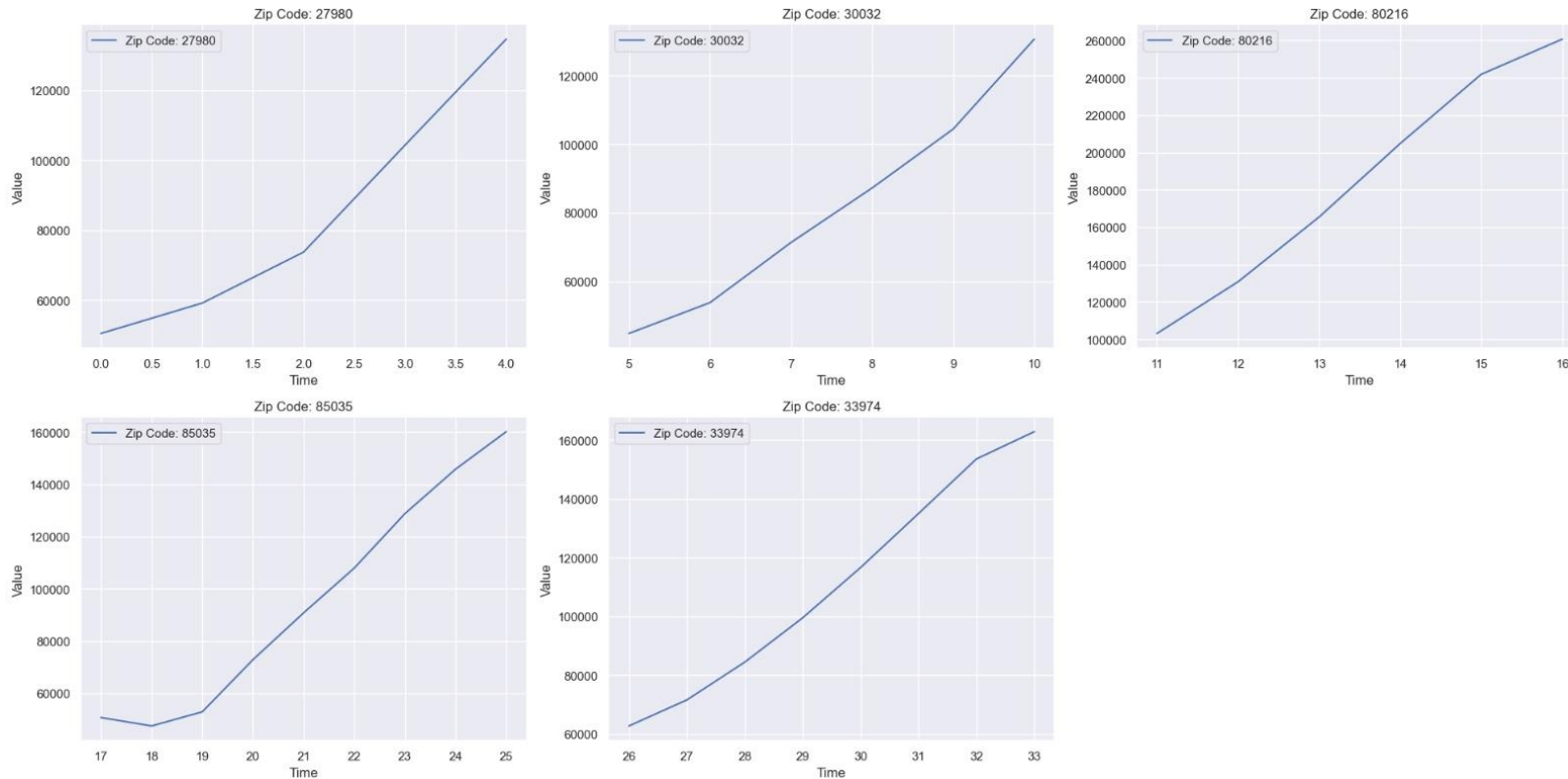- Missing values

- Data Slicing to the last 10 years

UNIVARIATE ANALYSIS

- The mean value of the properties appreciates over time.

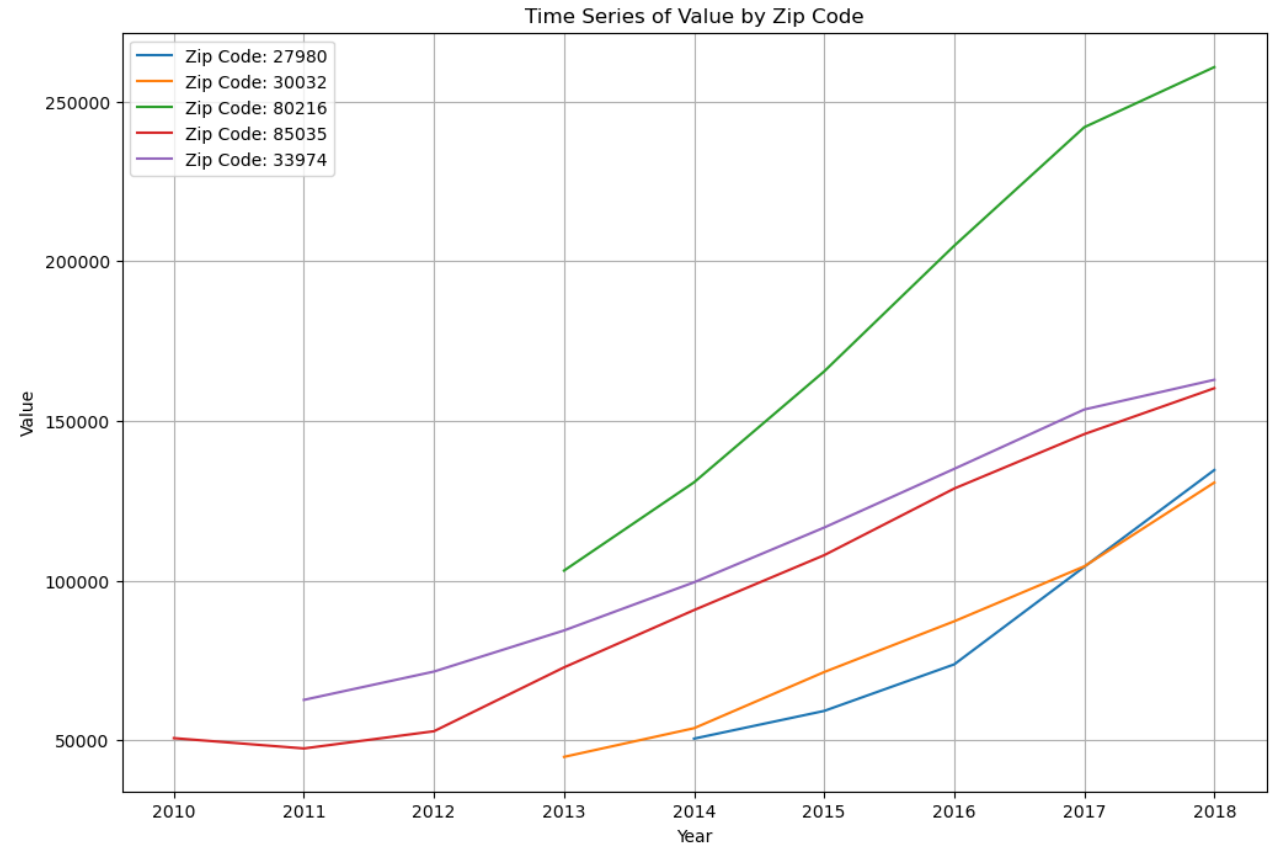Overall Trend of Property Values Over Time

UNIVARIATE ANALYSIS

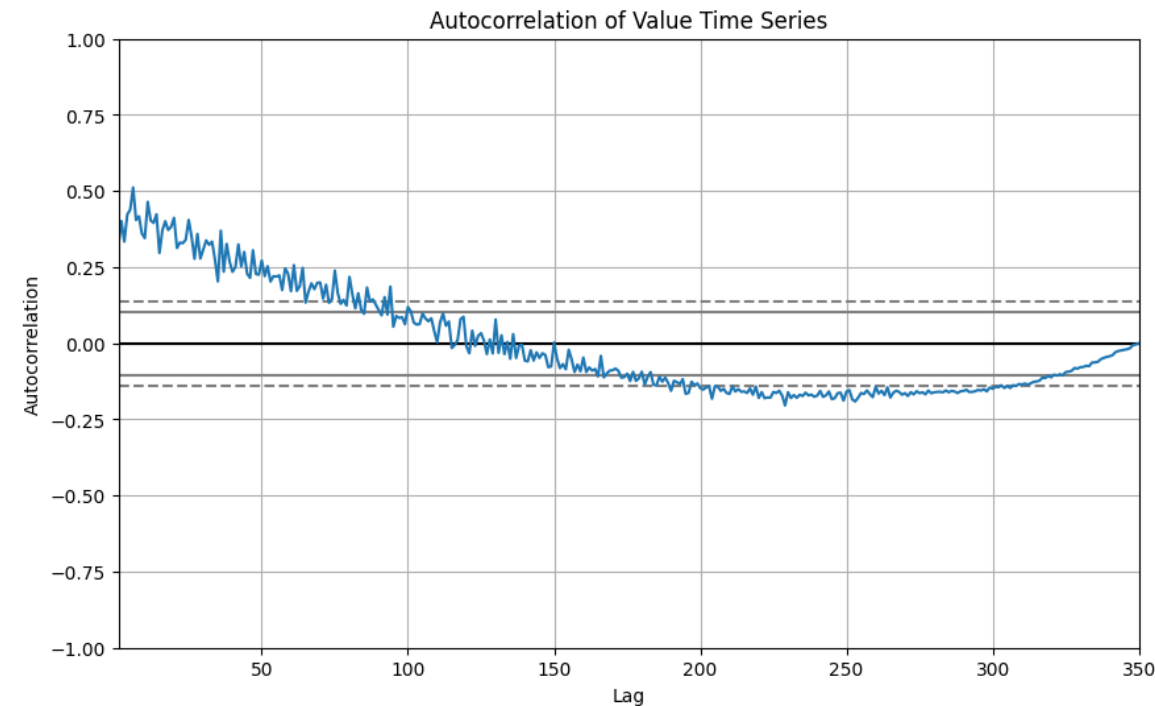The value of the properties appreciates over time for all the top 5 ZipCodes
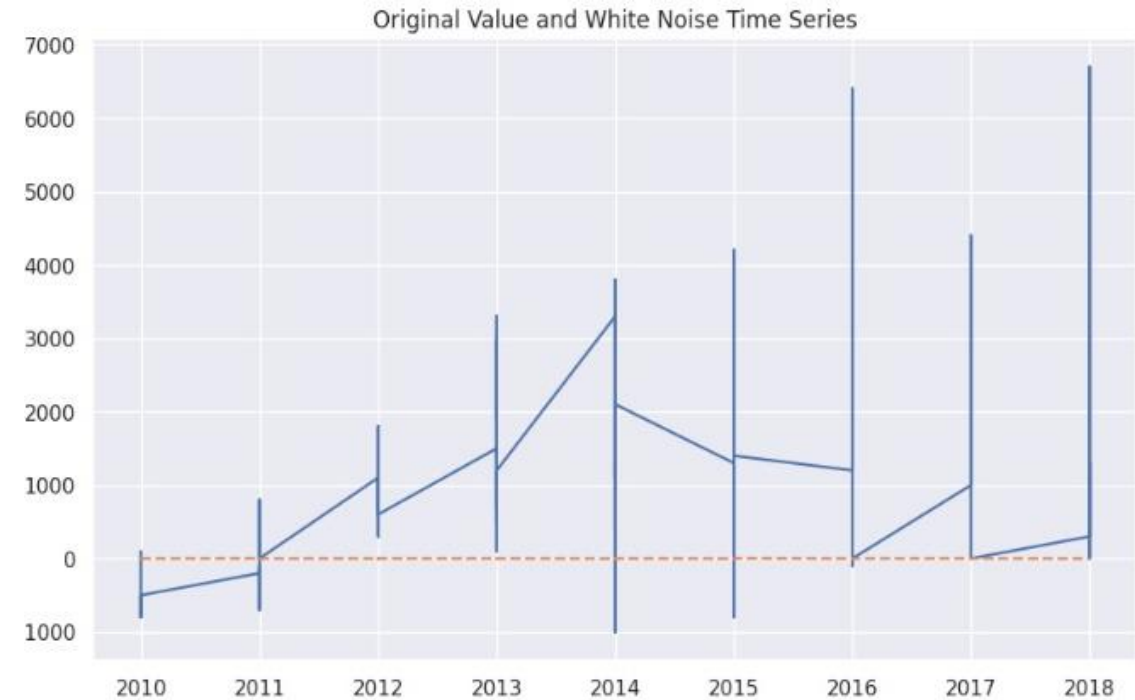
Trend Analysis Top 5 ZipCodes

- Zip code 80216 registered highest property values and has appreciated since 2013 and reached its highest value in 2018.
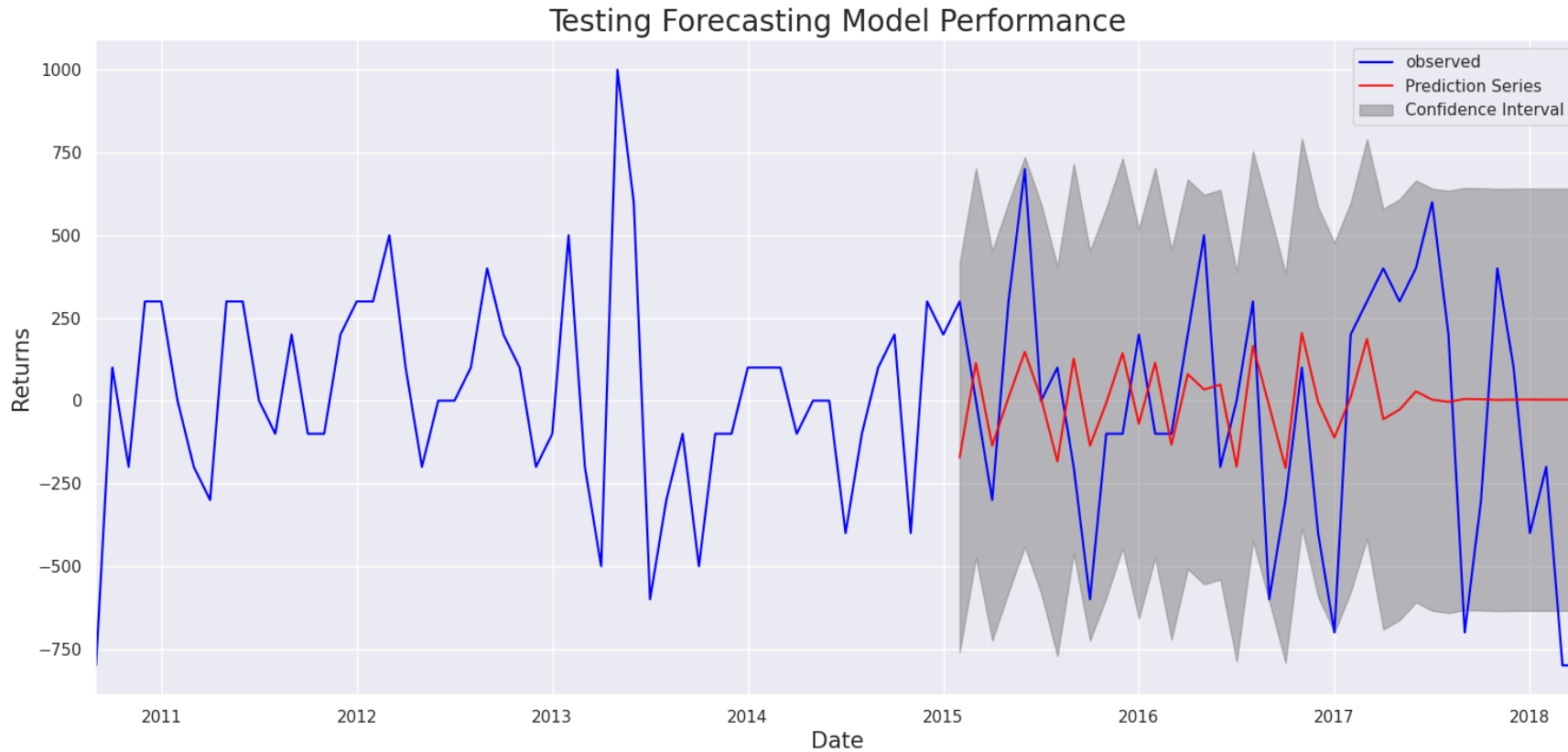

Time Series of Value by Zip Code

ORIGINAL SERIES & CORRELATION

- There is a clear trend indicating that there is autocorrelation and therefore our dataset will be able to predict future values.
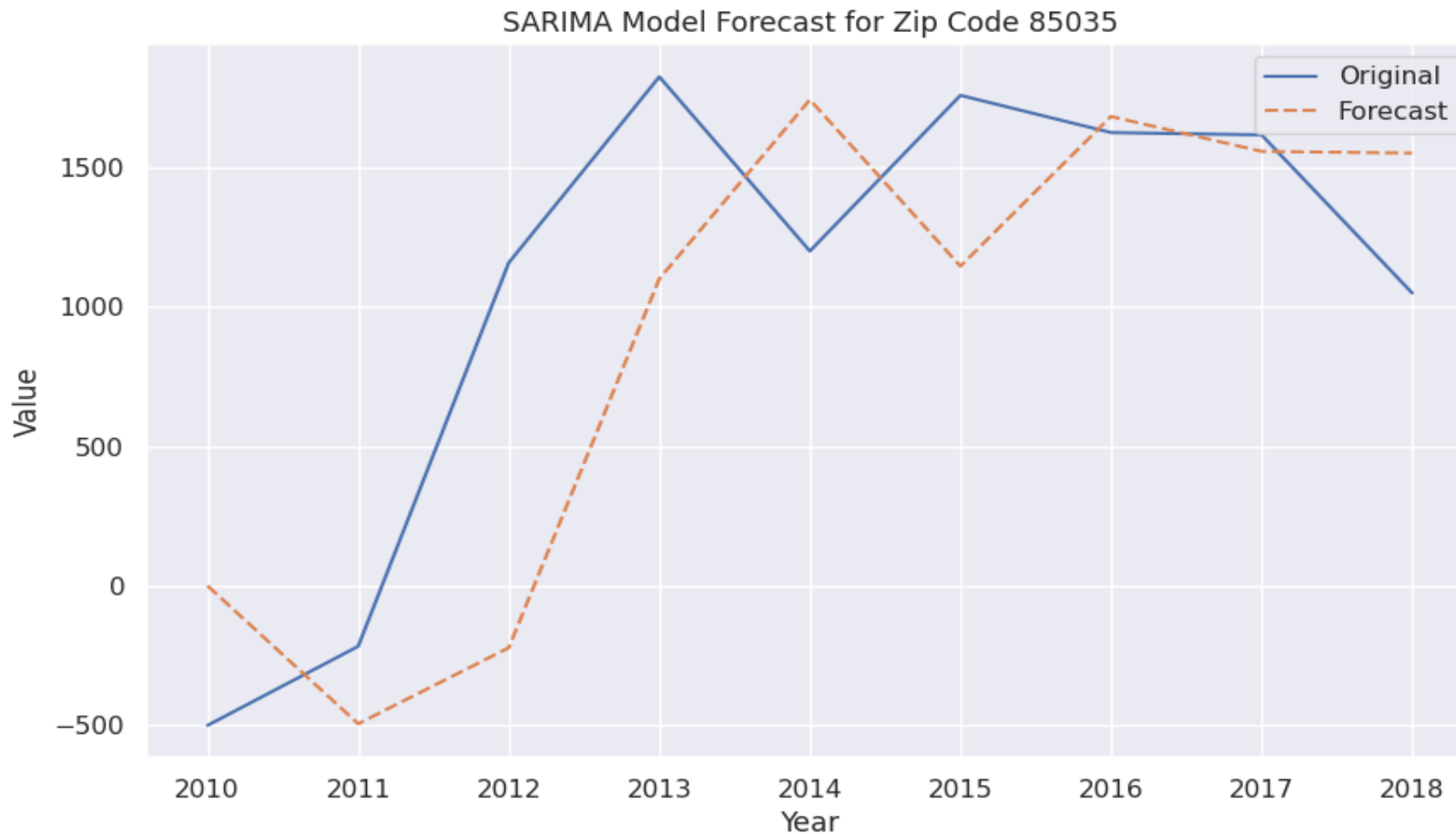
Modeling - Arima

Testing Forecasting Model Performance

- Based on the graph, we can forecast our top 5 recommendations and their expected ROI.

Modelling - SARIMA

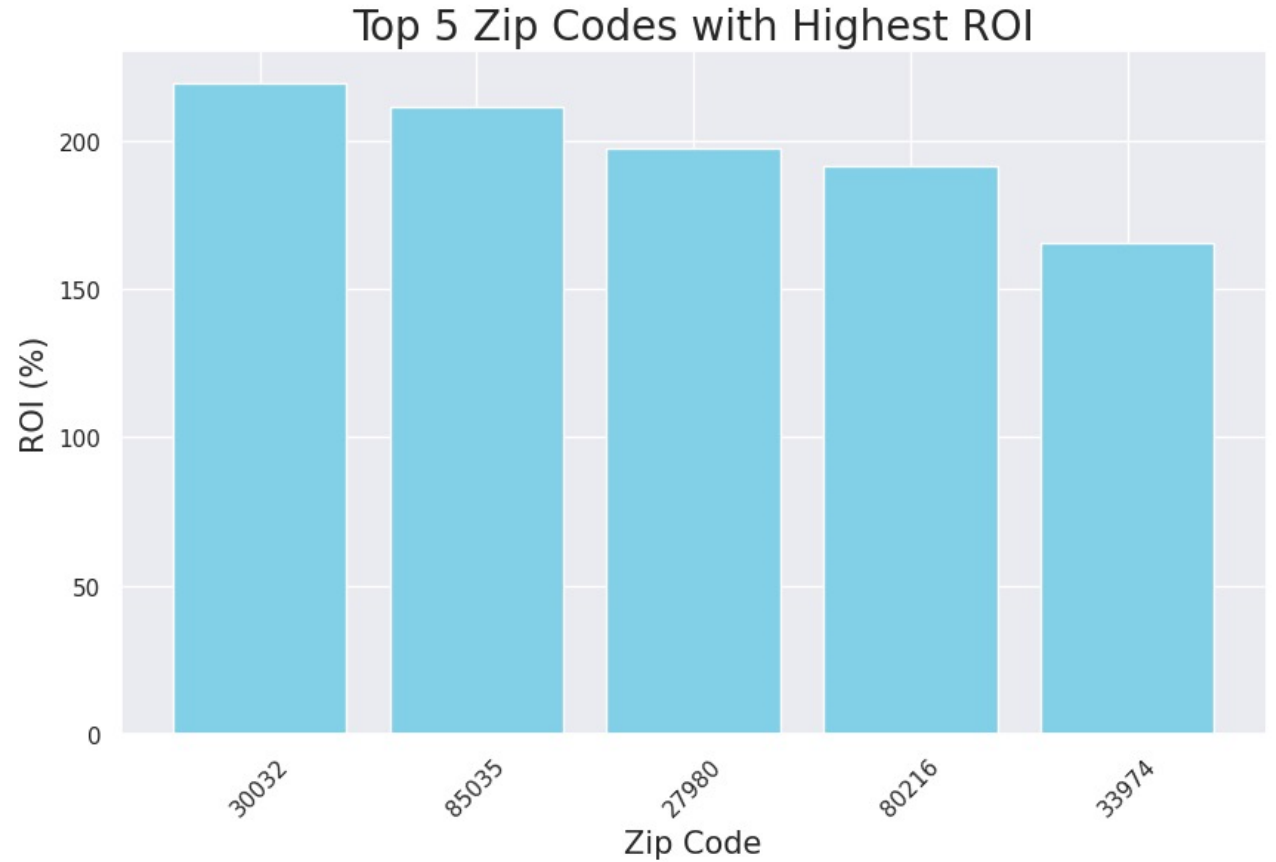SARIMA Model Forecast for Zip Code 85035

- Based on the graph, we can forecast our top 5 recommendations and their expected ROI.

Conclusion

Based on ROI, the best zipcodes with their corresponding cities and states to invest in are as follows:

- 30032 Candler Mcafee GA, ROI - 219.01%

- 85035 Phoenix AZ, ROI - 211.41%

- 27980 Hertford NC, ROI - 197.31%

- 80216 Denver CO, ROI - 191.18%

- 33974 LeHigh Acres FL, ROI - 165.65%

Top 5 Zip Codes with Highest ROI

Recommendations & Next steps

- Invest in properties in Zipcodes with high Return on Investment (ROI) and Capitalization Rate (Cap Rate) as they have higher potential profitability

- Consider the availability of amenities like parks, shopping centers, hospitals, and public transport.

- Understand the demographics of the population within the preffered Zipcod

- Consider any new residential or commercial developments in the area that could impact supply and demand.

- Review the average household income within the Zipcode. Higher income levels can support higher property values and rents.

Thank you

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