

# PHASE FOUR FINAL PROJECT

A large, abstract graphic element consisting of numerous thin, curved purple lines that curve and overlap to create a sense of depth and motion, resembling waves or a stylized neural network.

Top Five Zipcodes for Optimizing ROI

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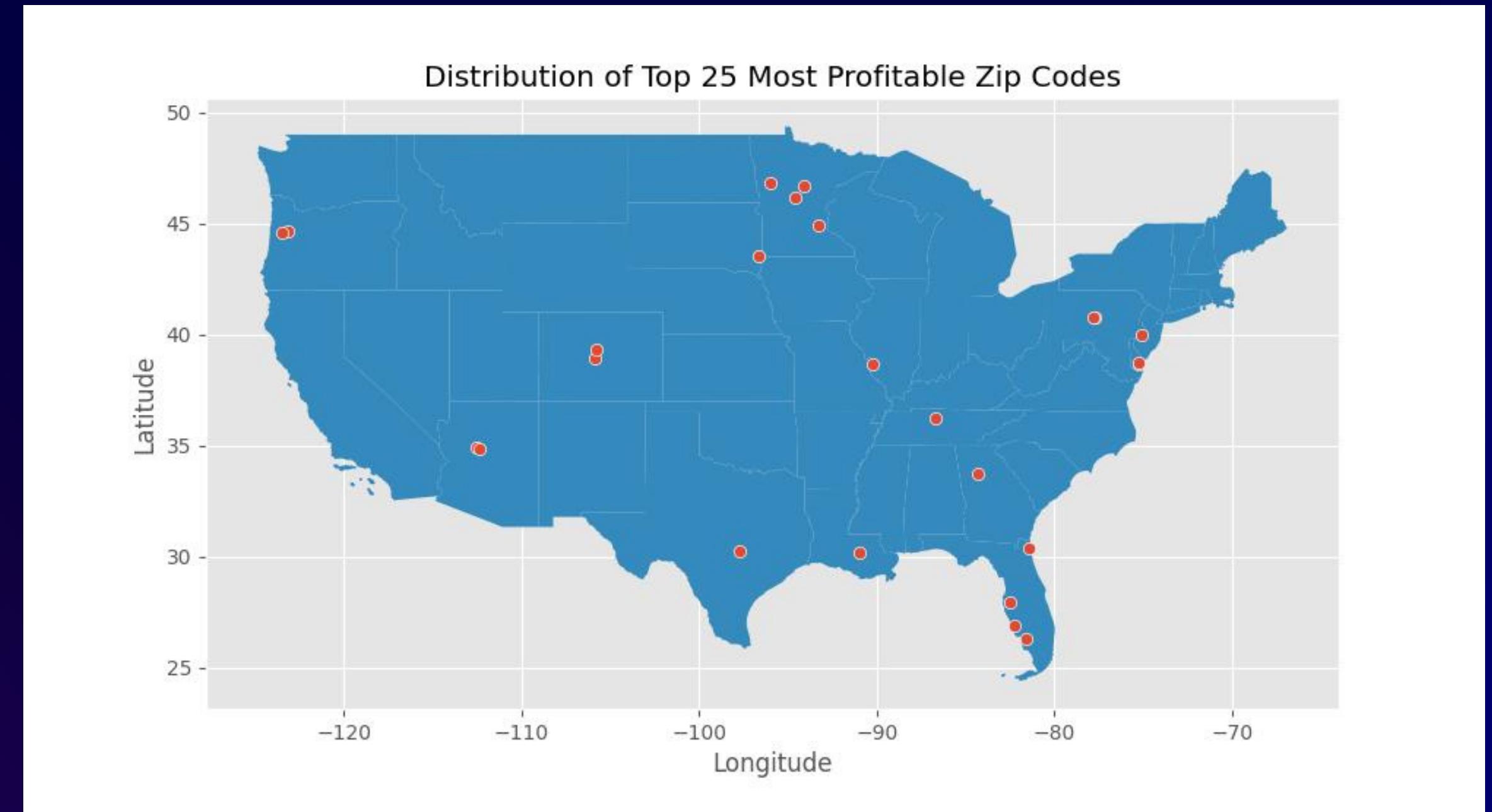
# Business Objective



**Compass Real Estate** is interested in investing in **lower-priced housing** for a smaller but more consistent revenue stream. Compass would like to test this new approach by **identifying and investing in Five Zipcodes** with the **highest Return on Investment (ROI)** over the next two years (2018 to 2020).

# Zillow Dataset

- The original dataset had 14723 zipcodes with average housing prices between April 1996 and April 2018
- Zipcodes were filtered to only include Properties with an average price under \$300,000 as of April 2018
- Top 25 Zipcode were selected after being ranked by ROI



# Methods

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## Build Models

Using the data series, multiple time series models were created

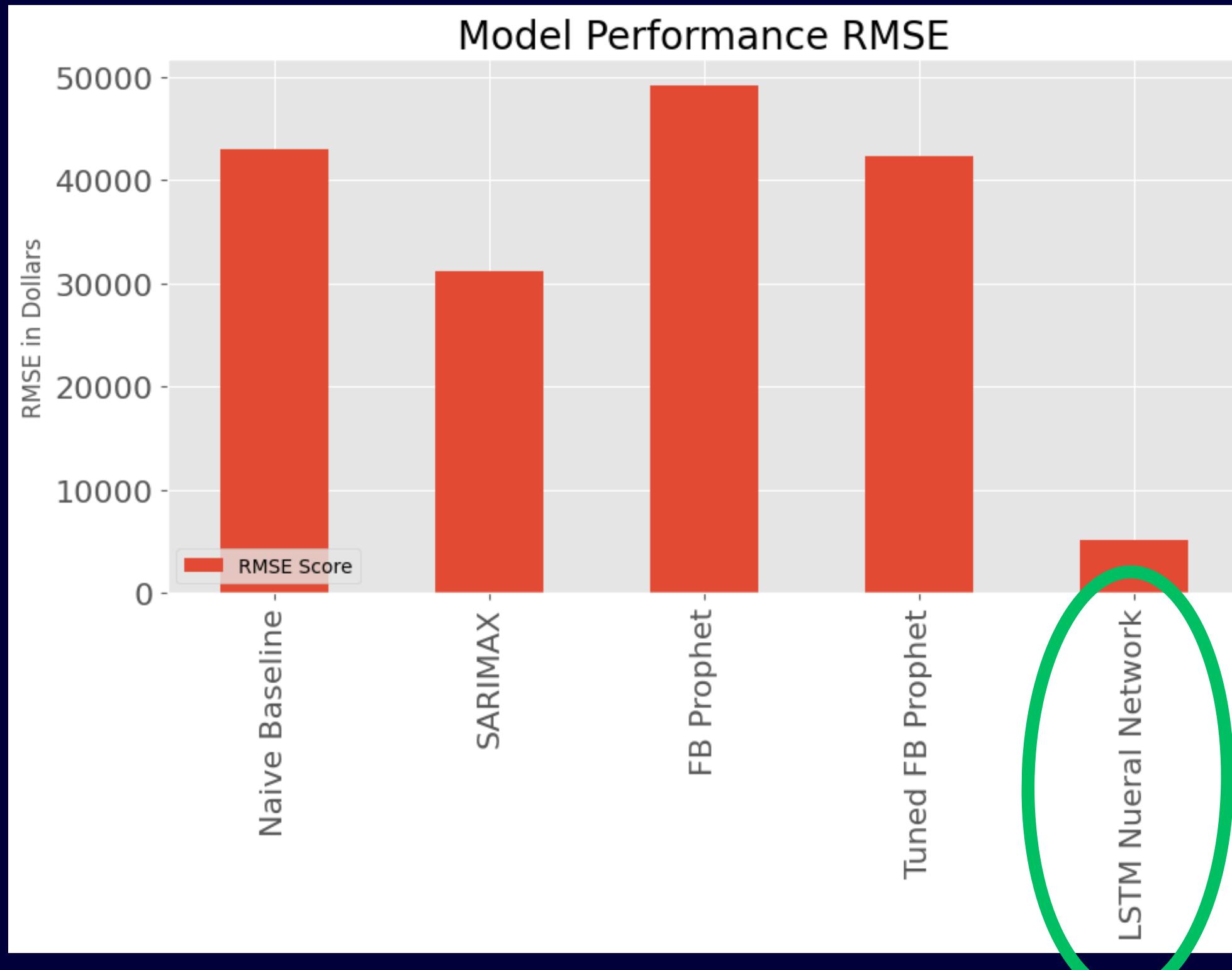
## Evaluate Model Performance

Accuracy of predictions were evaluated against test data to select a final model for forecasting

## Two Year Forecast

Final model was used to forecast ROI two years in the future (2018-2020)

# Results

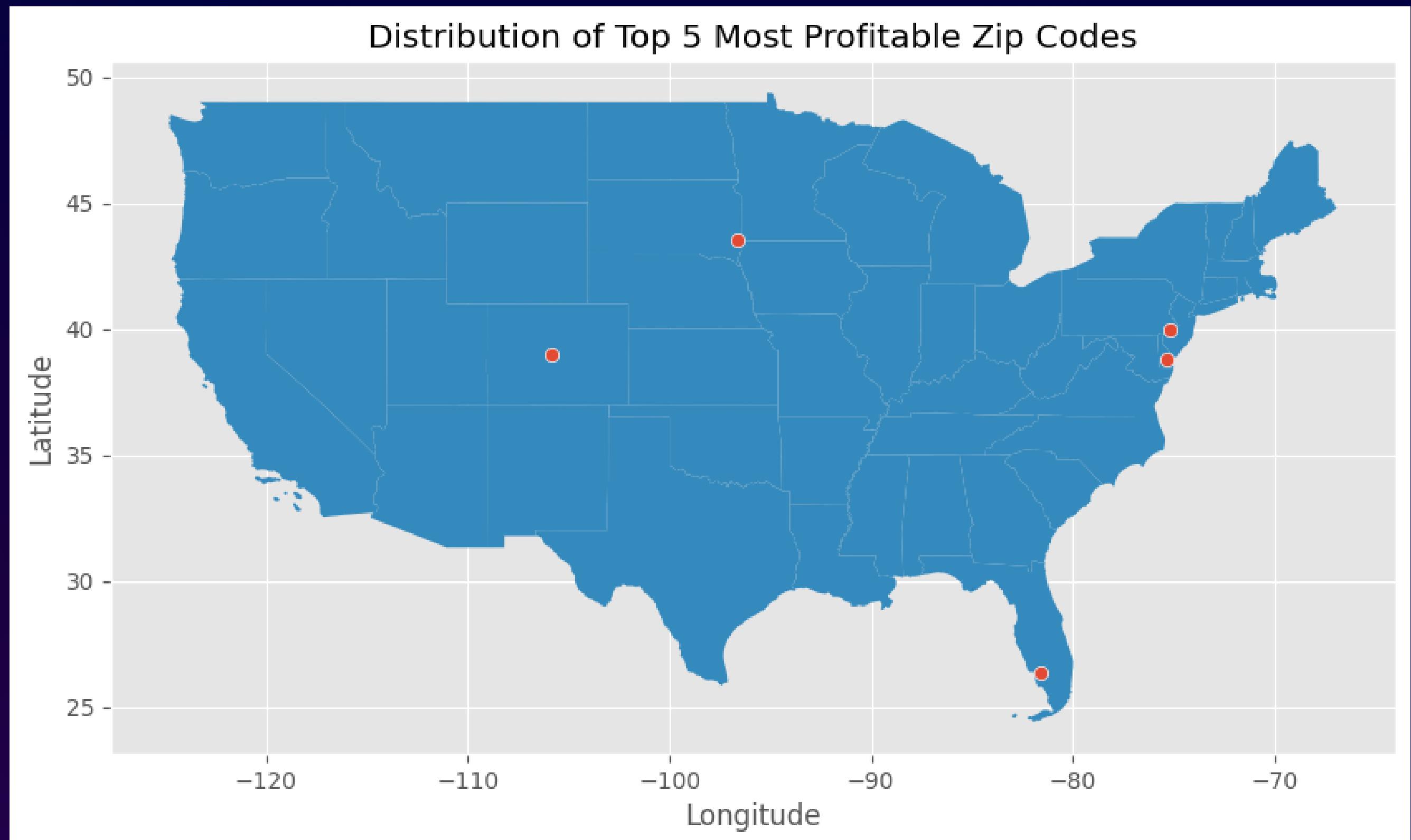


Several models were developed and evaluated. **LSTM Neural Network Model** was found to have the lowest error score on the test data.

# Conclusions

According to the final model, the following **five zip codes** will experience the **greatest ROI over two years**:

- **80449: 2.97% Growth**
- **57110: 2.49% Growth**
- **19125: 2.17% Growth**
- **19968: 1.9% Growth**
- **34120: 0.95% Growth**



# Recommendations



## 80449: Hartsel, Colorado

- Middle Aged Population
- Near Metropolitans (Denver & Colorado Springs)
- Cheaper Prices compared to surrounding zip codes



## 57110: Sioux Falls, South Dakota

- Late 20s to Mid 40s Population
- Largest Metropolitan in South Dakota
- Majority of Housing Construction in 2000s



## 19125: Fishtown, Philadelphia, Pennsylvania

- Young Population
- Near Metropolitan
- Recently Gentrifying Area



## 19968: Milton, Delaware

- Older Population
- Near Tourist Destination
- Majority of Housing Construction in 2000s



## 34120: Naples, Florida

- Large Family Population
- Near Tourist Destination
- Majority of Housing Construction in 2000s

# Next Steps



Include current pricing for more up-to-date predictions



Conduct additional research into feature importance of zipcodes for impact on growth



Additional exploration into optimized parameters for the LSTM Neural Network model to increase RMSE scores

# Any Questions?



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