

**Washington DC - Virginia Metro Area:**  
**House Price Forecast**

Mengyu Jackson

# Summary

- Business Problem
- Data
- Results
- Conclusions

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# Business Problem

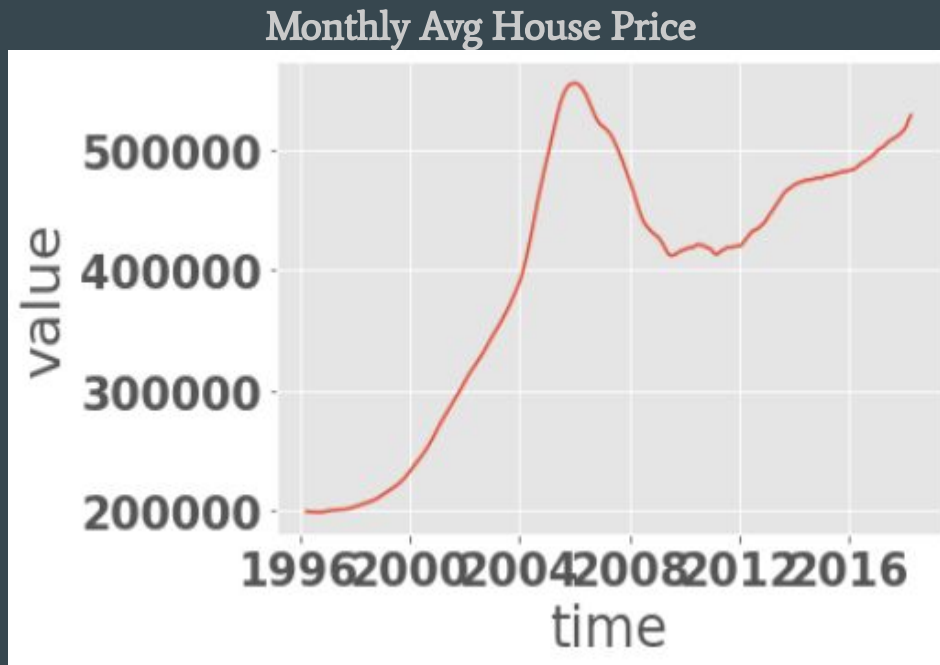
**Mortgage Lenders need to:**

- Predict future value of homes
- Understand uncertainty of those predictions

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# Data

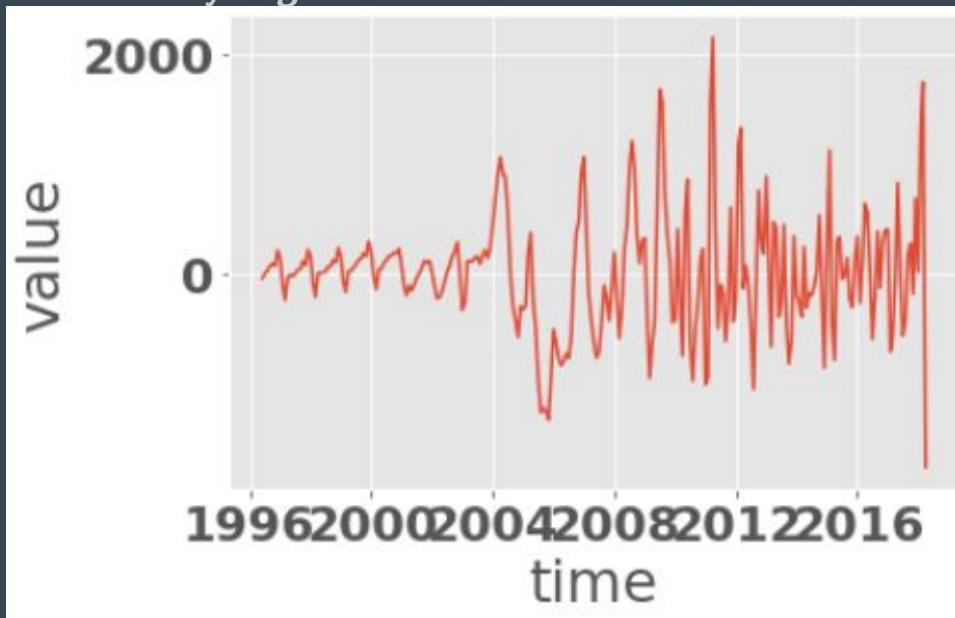
- VA-DC Metro Area
- 1996-2018



# Data

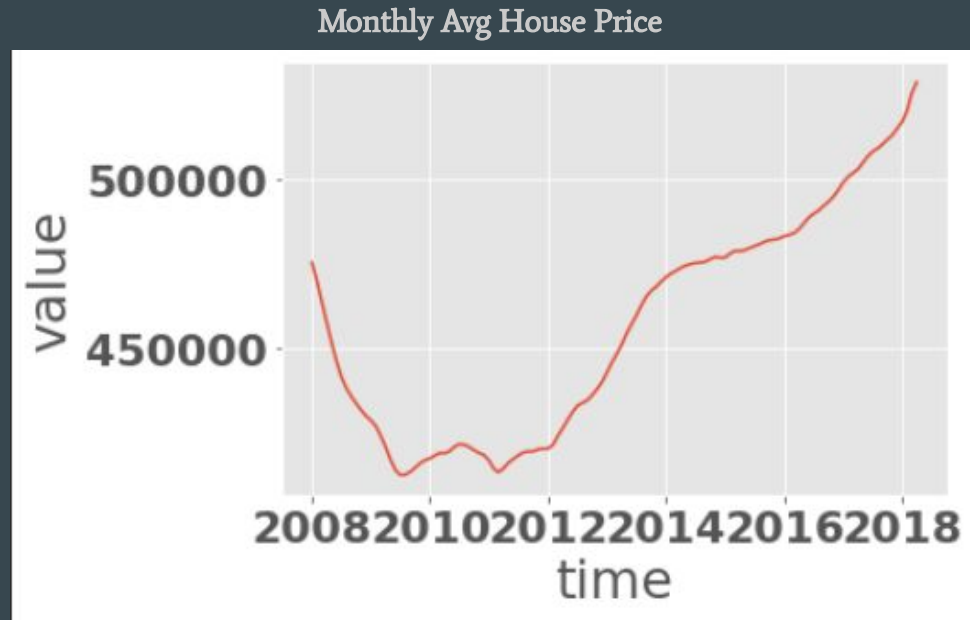
- VA-DC Metro Area
- 1996-2018

Monthly Avg House Price: 2nd Order Difference



# Data

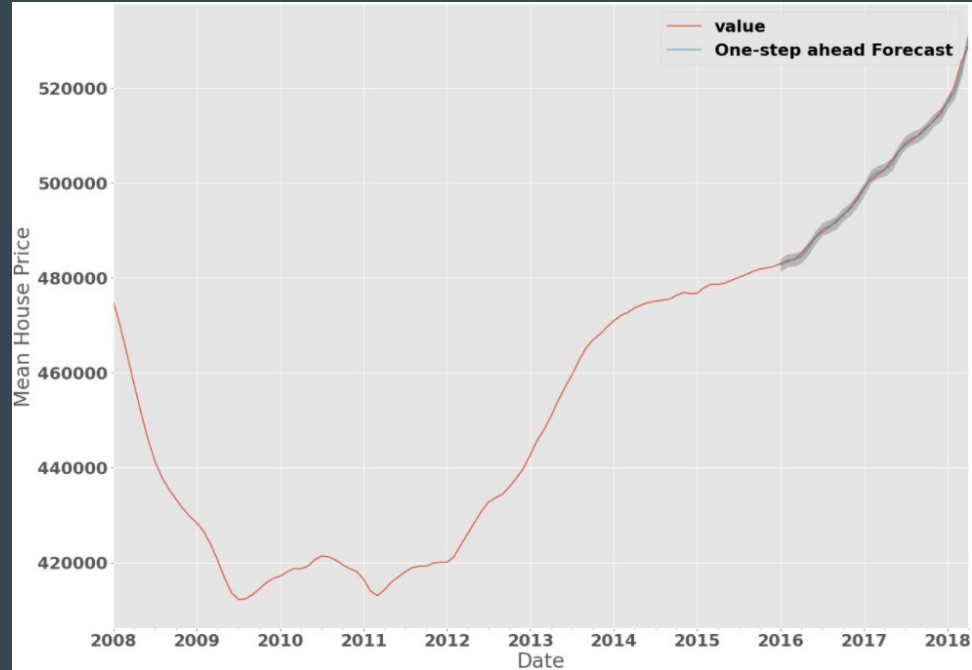
- VA-DC Metro Area
- 2008-2018



# Results

## One Month Forecast (Overall)

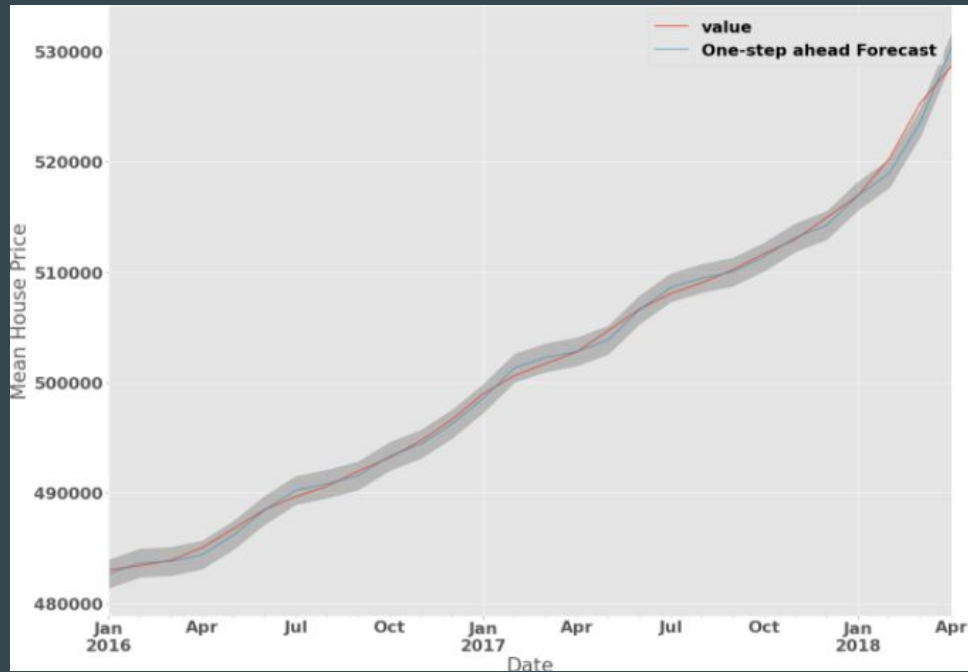
- ARIMA Model
- Average Error: \$698
- Actual Within Expected: 23/24



# Results

## One Month Forecast (2016-2018)

- ARIMA Model
- Average Error: \$698
- Actual Within Expected: 23/24

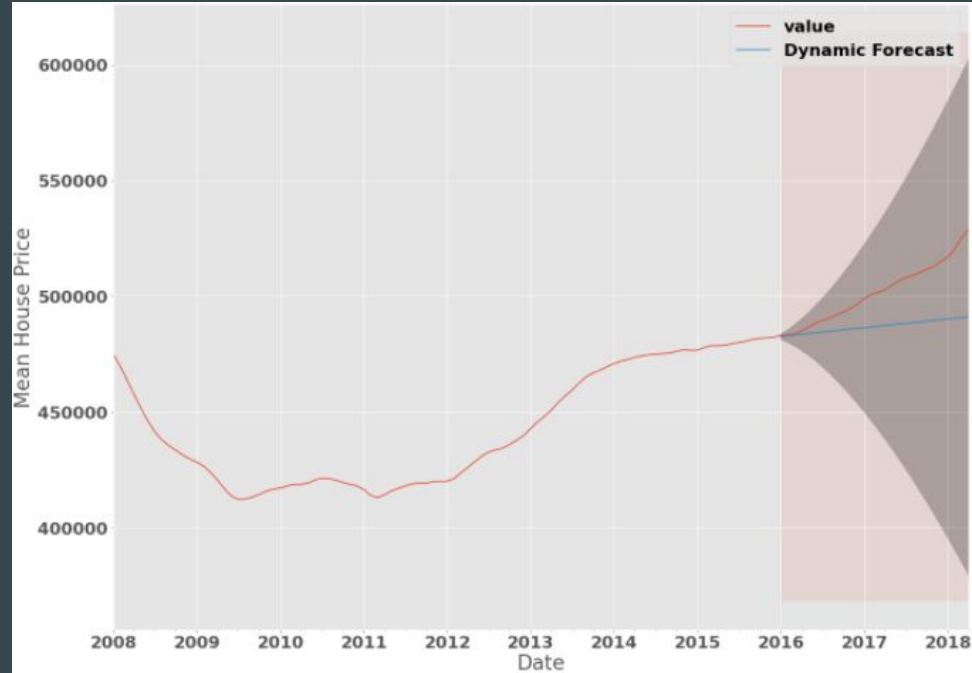




# Results

## 24 Month Forecast

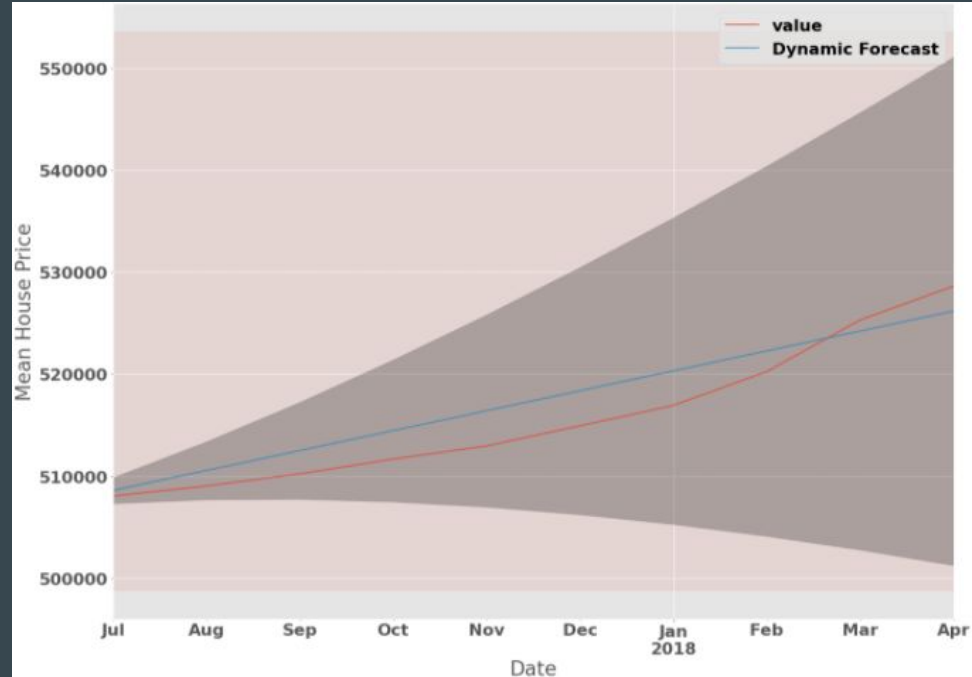
- ARIMA Model
- Average Error: Huge
- Actual Within Expected: 100%



# Results

## 6 Month Forecast

- ARIMA Model
- Confidence Interval: \$50,000
- Actual Within Expected: 100%



# Conclusions

- Good for short-term forecasts
- Novel approach required for better model

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# Thank You for Watching!

Mengyu Jackson