

A wide-angle photograph of the Austin skyline, featuring several prominent skyscrapers and modern buildings. The city is situated along a body of water, likely the Colorado River, with a bridge visible in the foreground. The sky is clear and blue, and the water reflects the city's architecture.

# Austin Housing EDA

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SMU Data Analytics

# Project Overview



Objective



Data

Sources, Cleaning,  
Duplicates, Outliers,  
Missing Data



Analysis

Questions Answered  
and Actionable  
Insights



Limitations and Future Work



Q&A

# Objective

Conduct an in-depth review of the Austin Housing Market data and determine what variables impact price, sales frequency, timing for selling versus buying, and other factors that play a role in the housing market.

## Inspiration:

The population of Austin, TX is growing exponentially. How does this growth affect the housing market and its participants

# Objective

## Research Questions:

- How has the frequency of sales been affected by year? Have they increased or decreased?
- What type of houses are being purchased? (single, family, condo, multifamily)
- What area of Austin is the housing market growing in?
- Does the market favor investors/buyers or sellers?

# Data and Analysis

## Sources

U.S Census, Google Maps API, Kaggle

## Cleaning

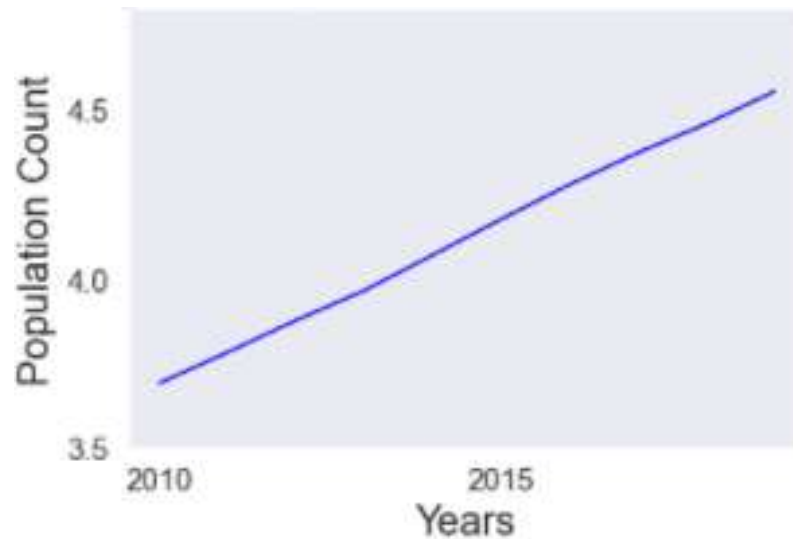
### Outliers

*Limited to the city of Austin and Single Family  
Removed extreme price and size outliers.*

### Missing Data

*Data for 2021 homes sales was limited in this  
data set*

### Population 2010-2019

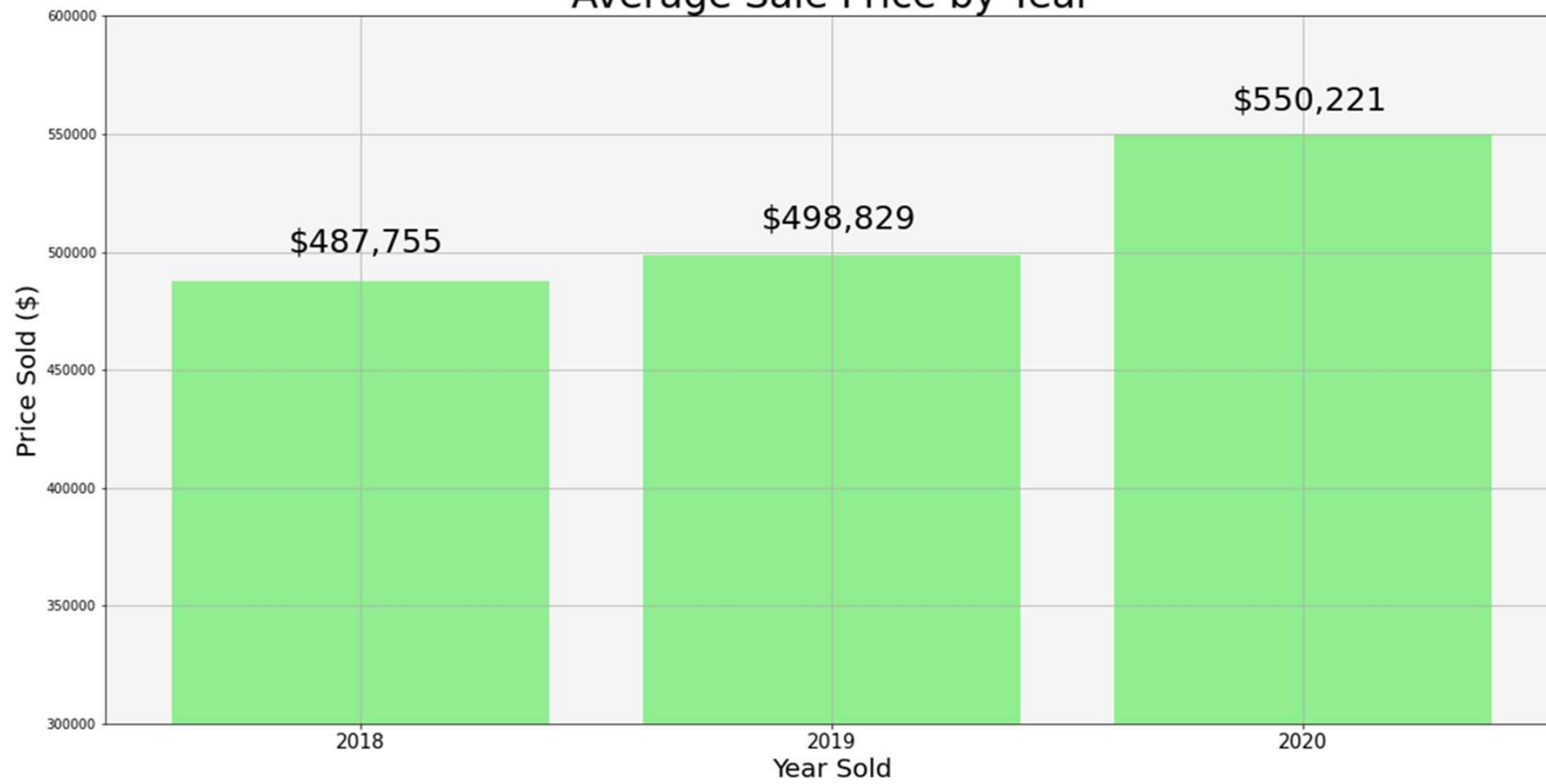


- Population increased 2.1% to 2.4% annually since 2010
- Steady increase of population could be a factor for the increase in the price of homes.

- Homes sales in Austin are increasing yearly
- Home sales increased 2% from 2018 to 2019 and jumped to 10% from 2019 to 2020

## Analysis

Average Sale Price by Year





# “What are different trends in the housing market?”

To answer that we look at a few key areas:

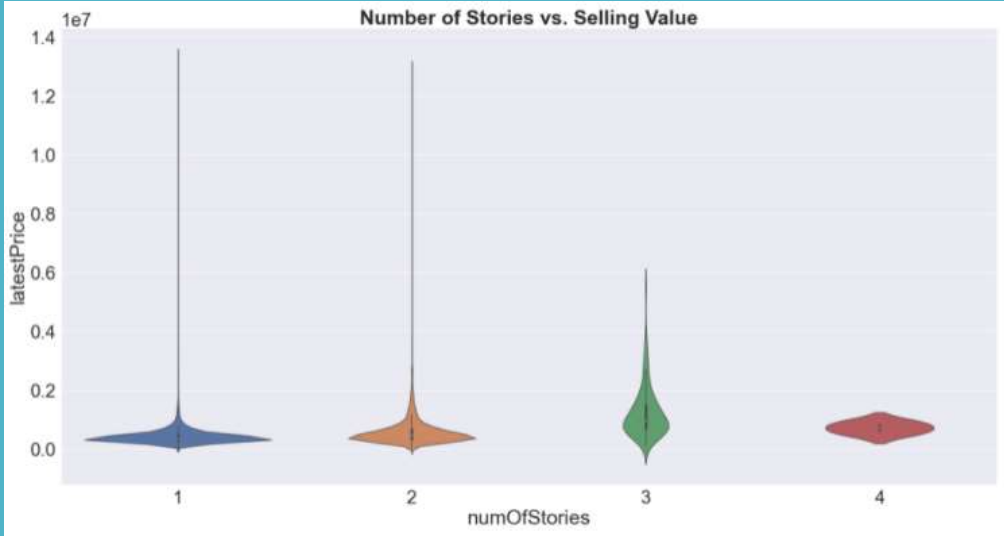
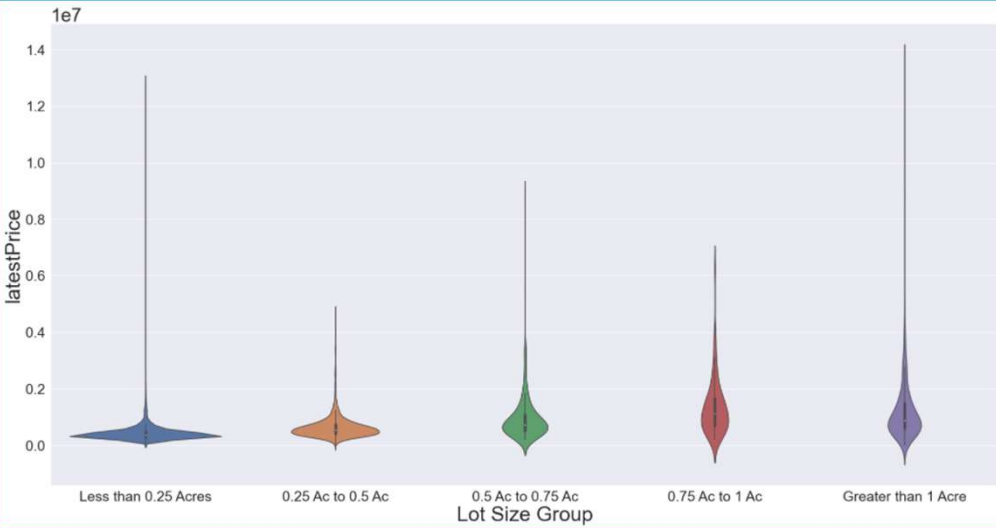
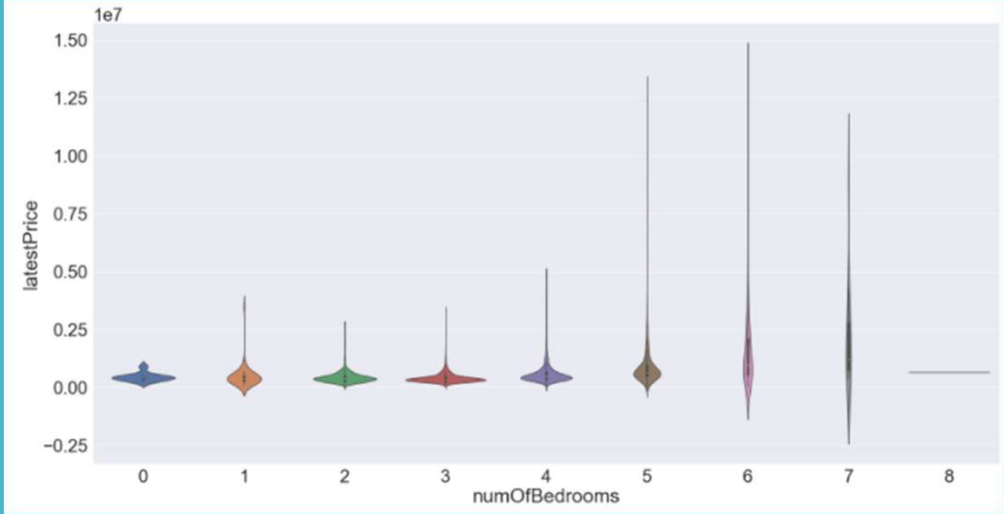
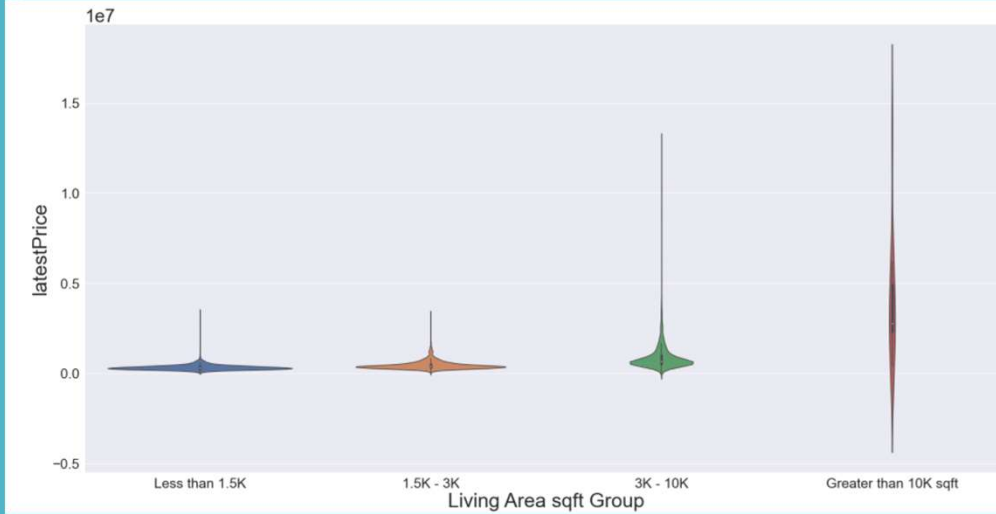
- What type of houses are being purchased?
- Where are homes being purchased?
- What time of the year are homes bought and sold?

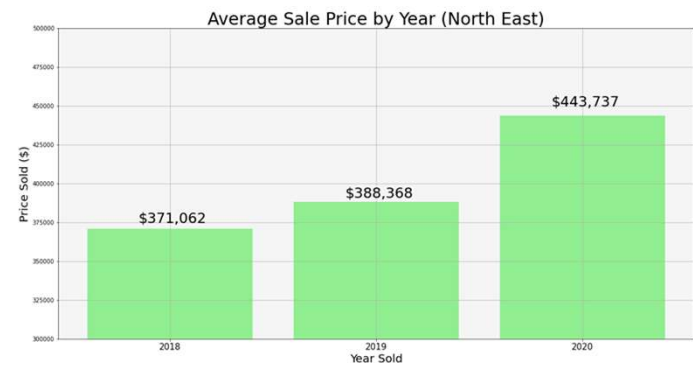


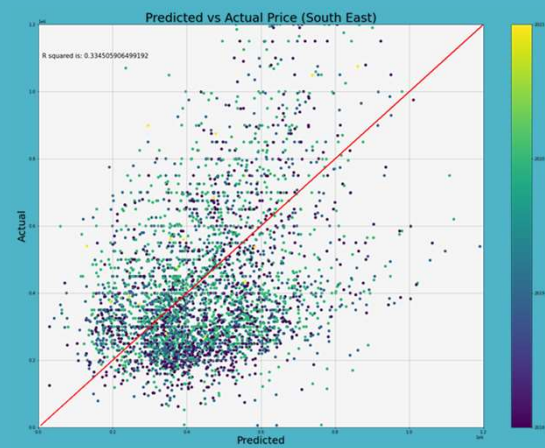
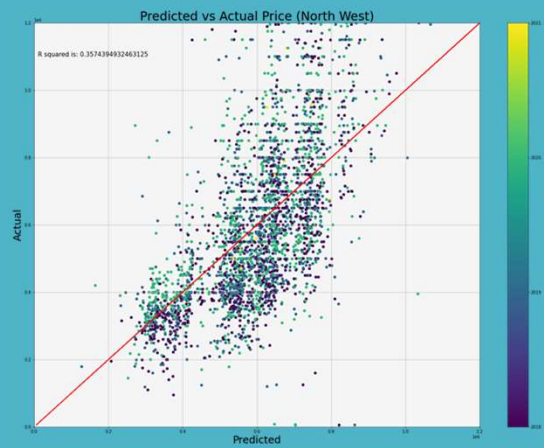
# Analysis

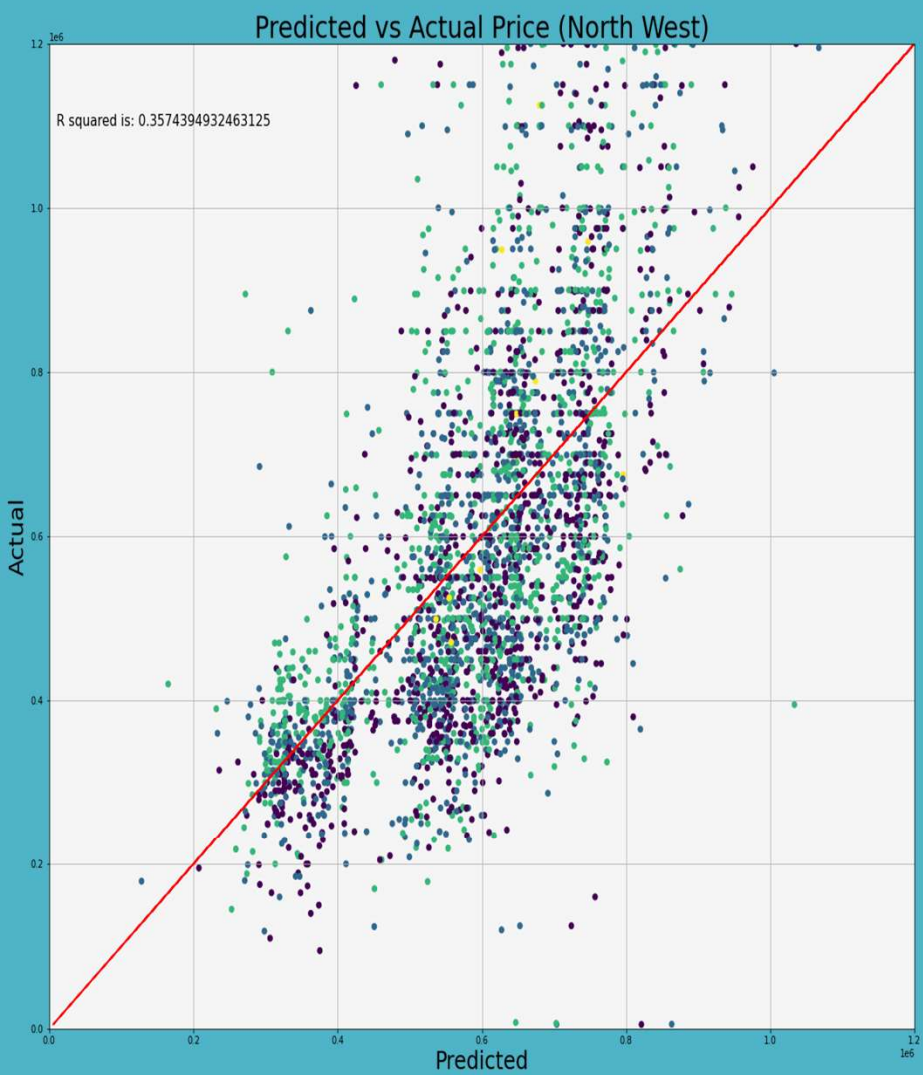
Market is primarily affected by:

- Location
  - *North-West*
  - *North-East*
  - *South-West*
  - *South-East*
- Living Space Square Footage
- Lot Space Square Footage
- Features of the house



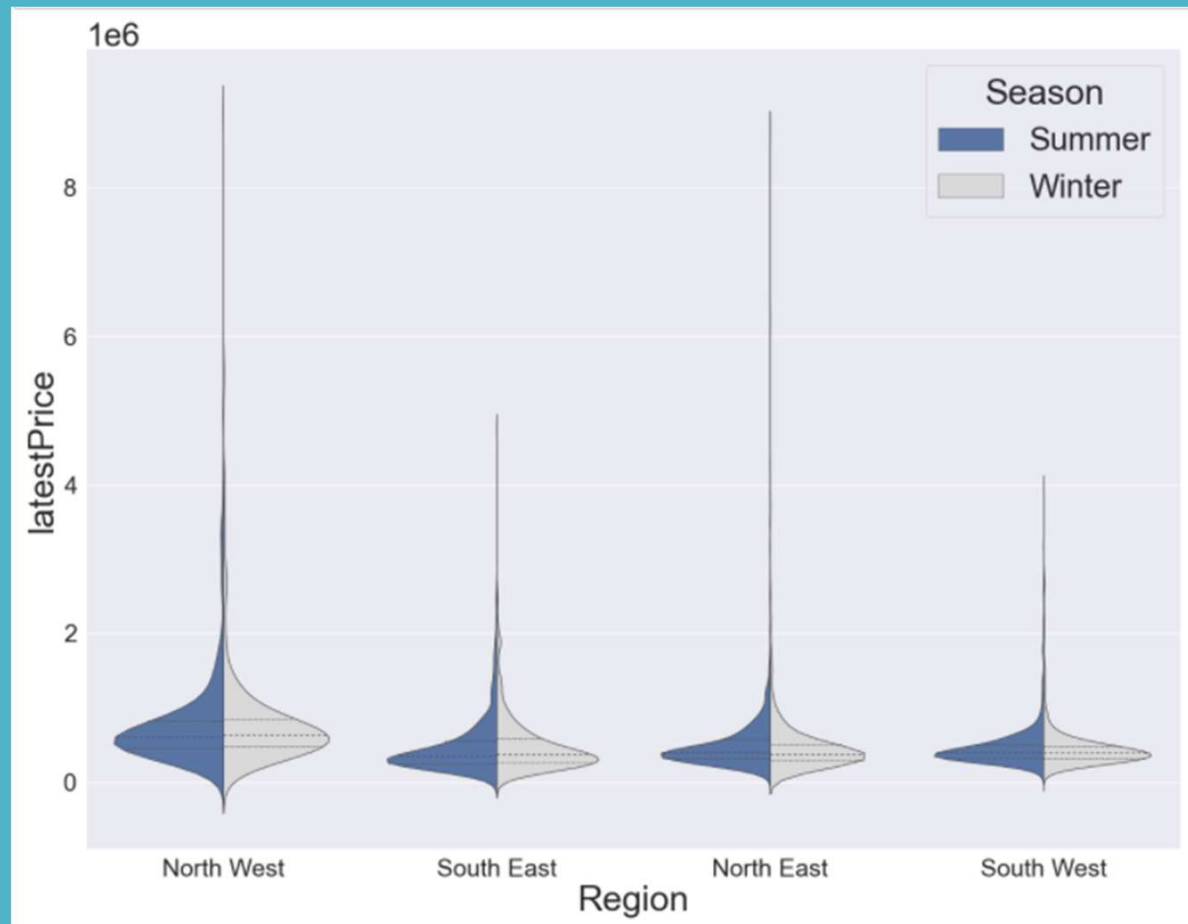






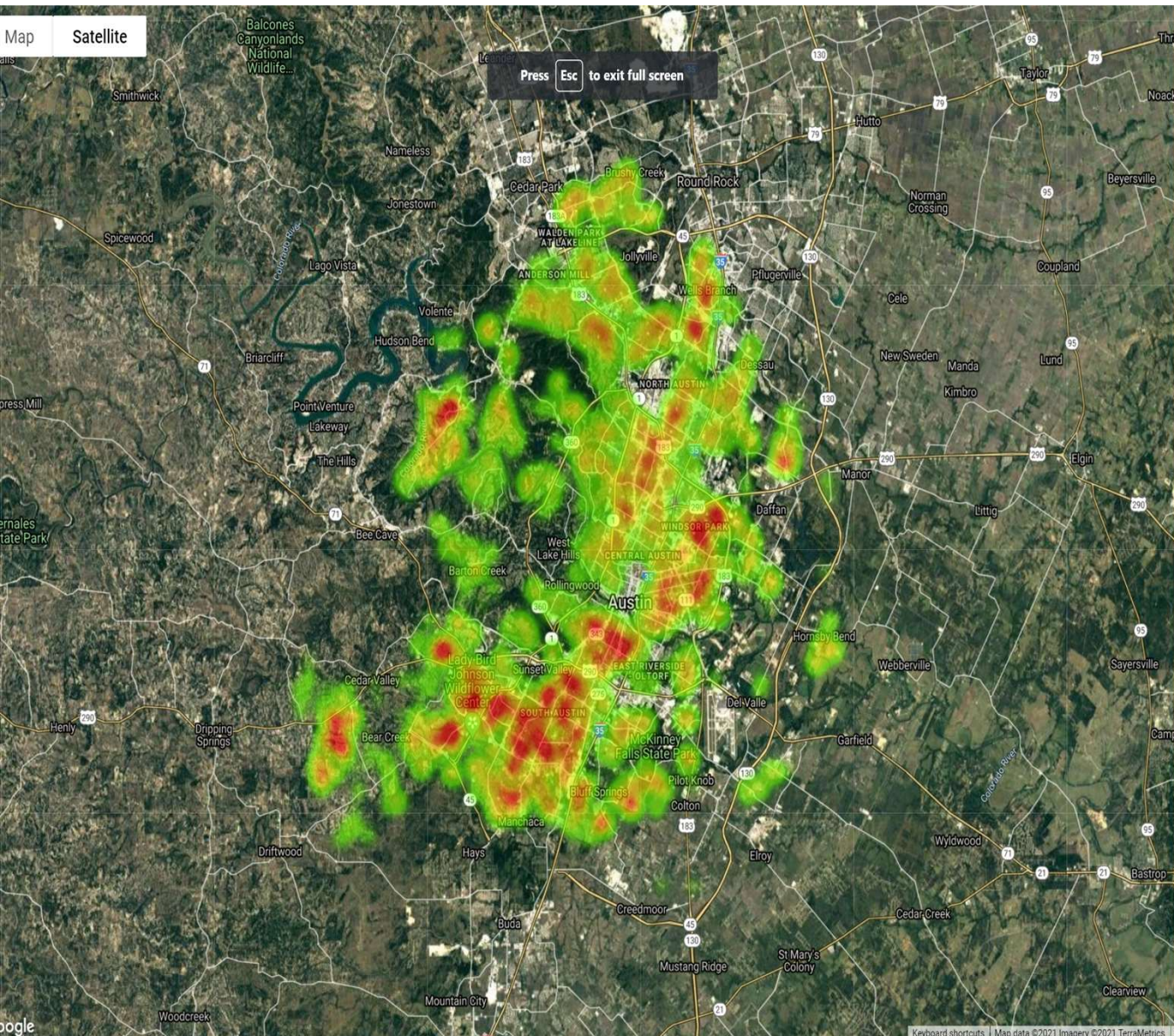






Prices vs. Region





Heatmap by sales price  
2020

[Click to see who is correct](#)

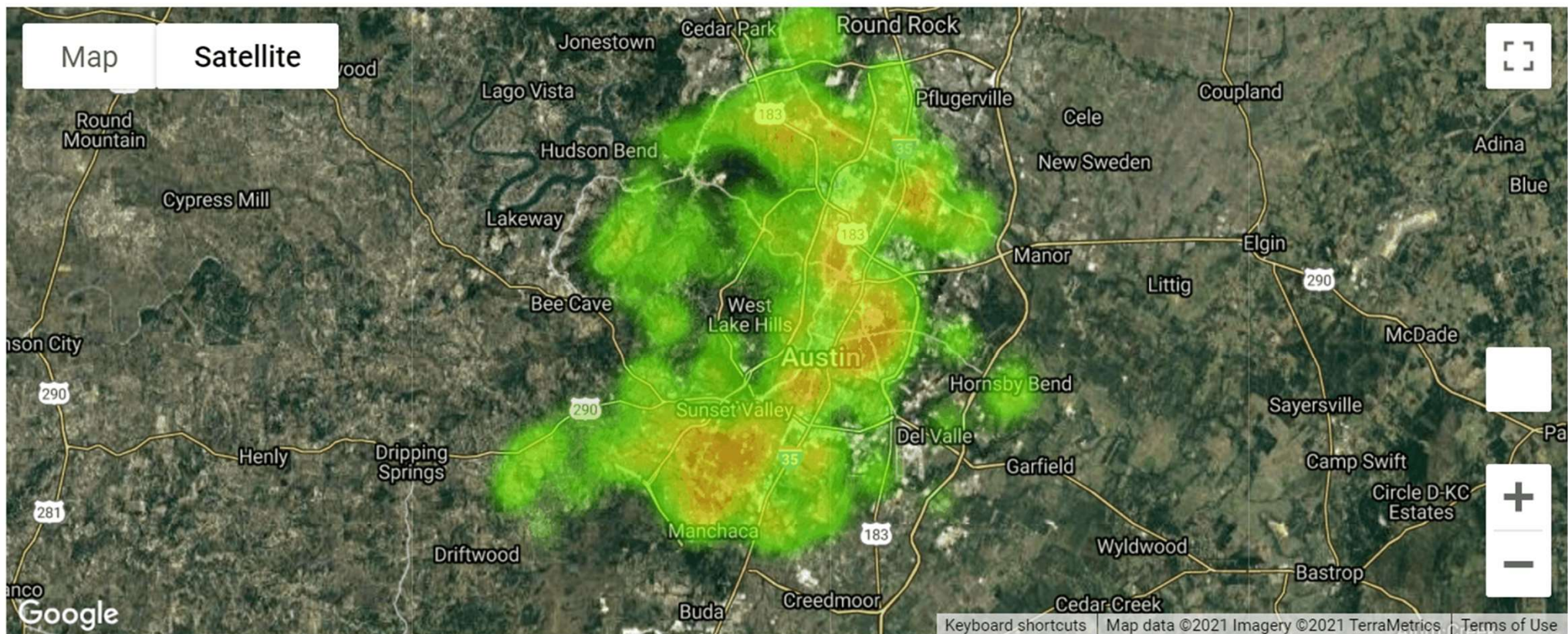


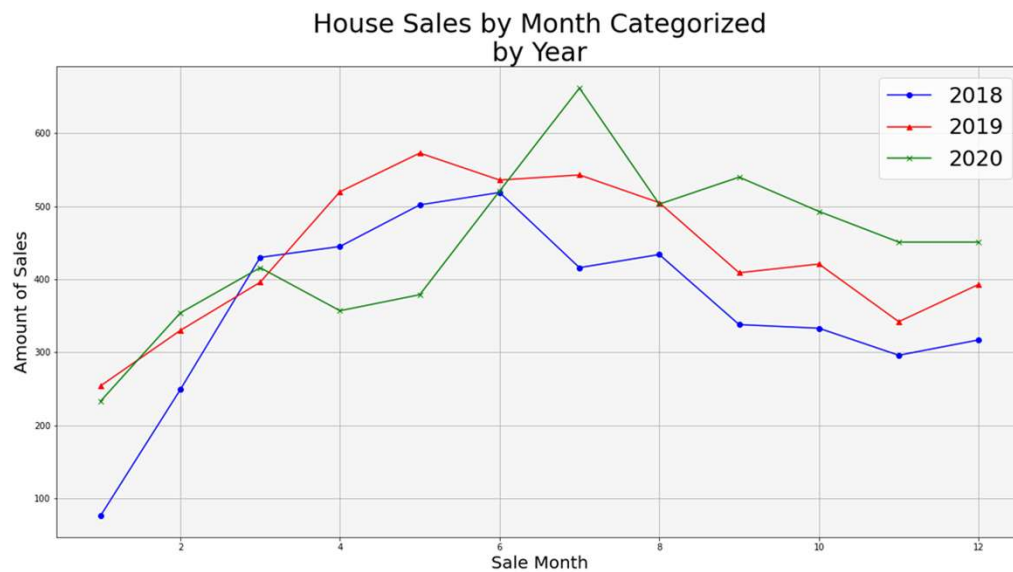
# Home sales by Month

Data from The Austin Housing Project

Month  1

607 historical Home Sales by Month



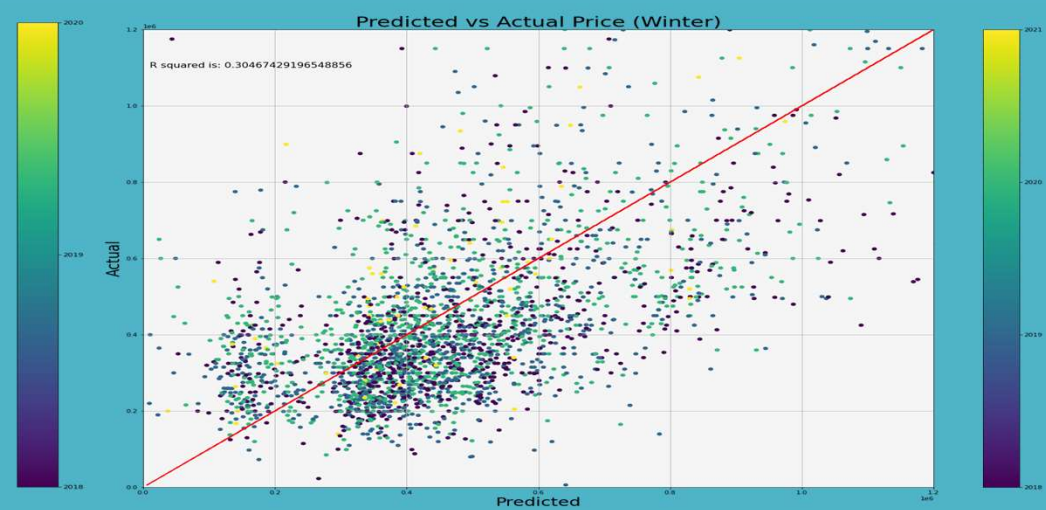
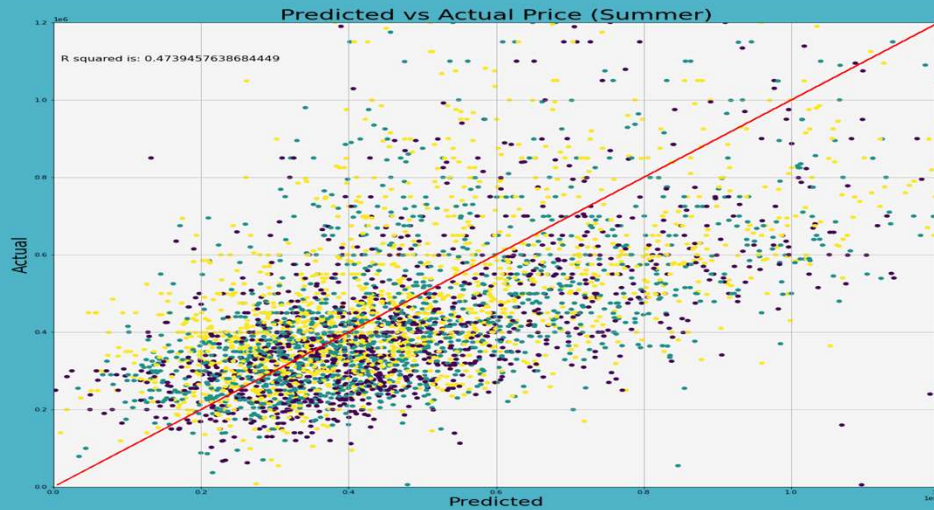


# Actionable Insights

## Investment/Buyer Strategies:

- Single family homes make up the vast majority of all homes sold in Austin
- Investors should buy during the winter months, ideally in Jan.
- Sell during the peak months in the late 2<sup>nd</sup> and 3<sup>rd</sup> quarters.
- The year the home was built has an impact on the price and square footage.





# Actionable Insights

## Seller Strategies:

Current owners, do not list homes during winter as sales are less likely to occur.

Summer months attracted more buyers and have more predictable prices

Austin's home sales are increasing at a higher rate than the population growth of the city

# Limitations and Future Work

## Data

Did not include list dates, length of time on the market, initial sales price, substantial data from 2021, total count of inventory.

With unlimited time and extensive data, we would conduct a more thorough analysis on the market to identify the best possible location, time.

# References

- Kaggle
  - <https://www.kaggle.com/ericpierce/austinhousingprices?select=austinHousingData.csv>
- Google Maps api
  - <https://cloud.google.com/maps-platform/>
- Census
  - <https://www.census.gov/data/datasets/time-series/demo/popest/2010s-counties-total.html>

Q/A