# Apartments in the USA

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# Our Dataset

We analyzed the Kaggle dataset **Apartments for Rent Classified.** It has:

- 100,000 entries
- Data on price, bed, bath, location, etc.
- Clean data that was improved upon

There are many practical uses for a dataset like this!



Renting an apartment is a common experience for most people at some point in their lives. This research aims to explore price variations across the United States and uncover insights about trends and patterns in rental pricing.

# Objective

Analyze our data to find most important factors to customers when they are renting for apartments.

We will attempt to answer the following questions:



### Seasonal Trends

Are there any trends in apartments prices throughout the year?

### Regional Variations
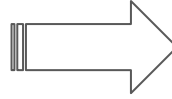
How do apartment prices vary by state and by city?

### Value

What is more important to renters - more bed/bath or more square feet?

# Question 1:

Are there any trends in apartment prices throughout the year?

**Feature Engineering:**
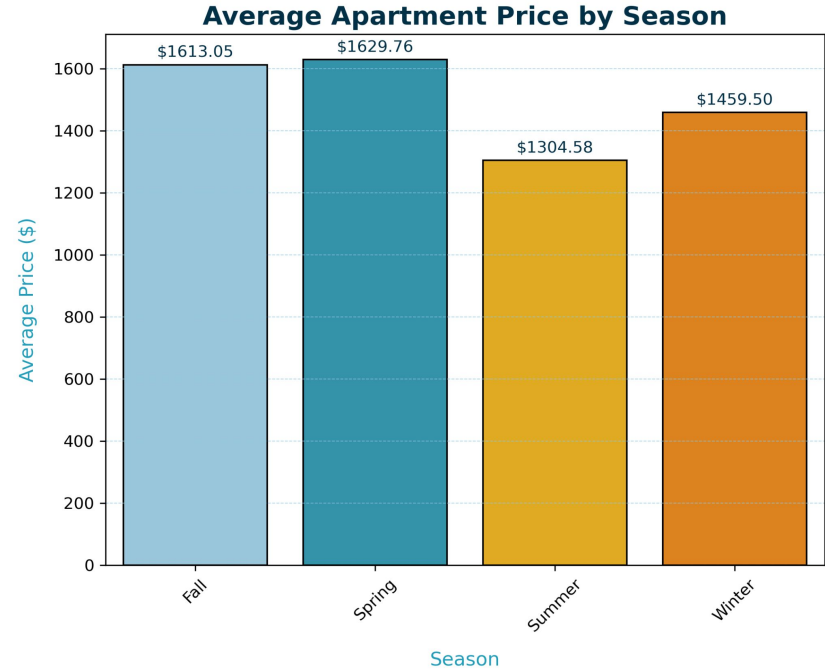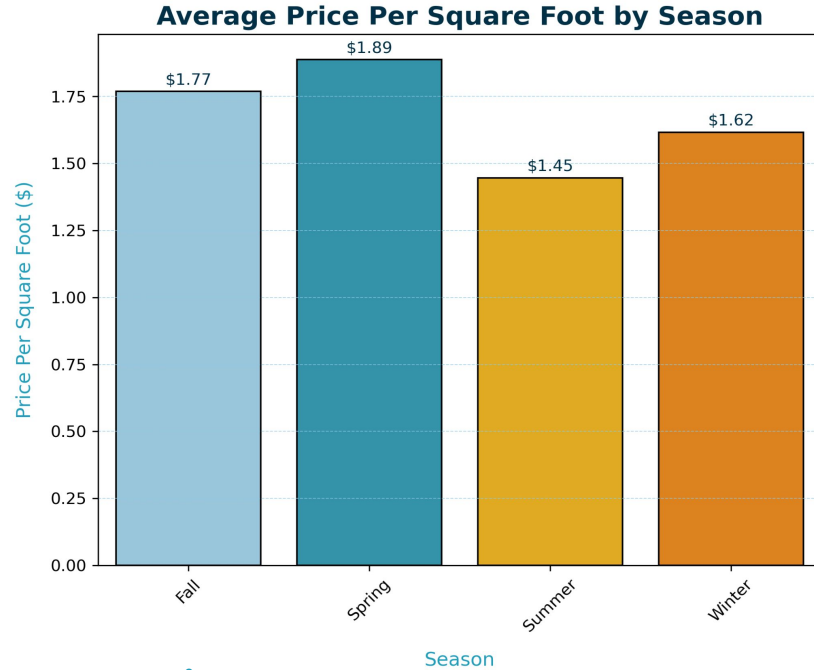Create a column to sort by seasons

➡️ **Ability to see seasonal trends**

🥇 **Winter and Fall have the most data**

🥇 **Fall and Spring have the highest average rental price**

# Seasonal Trends: Price per square foot vs Rental Price

## Average Price Per Square Foot by Season



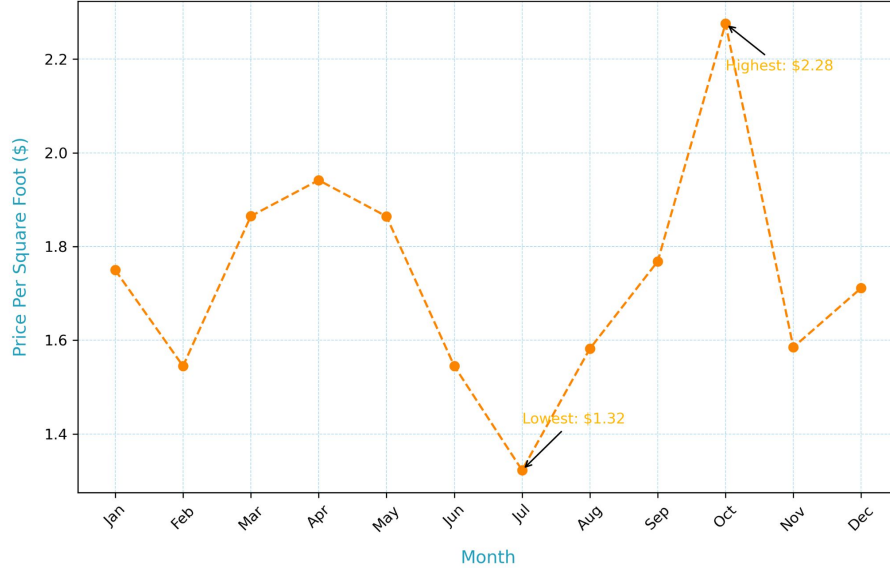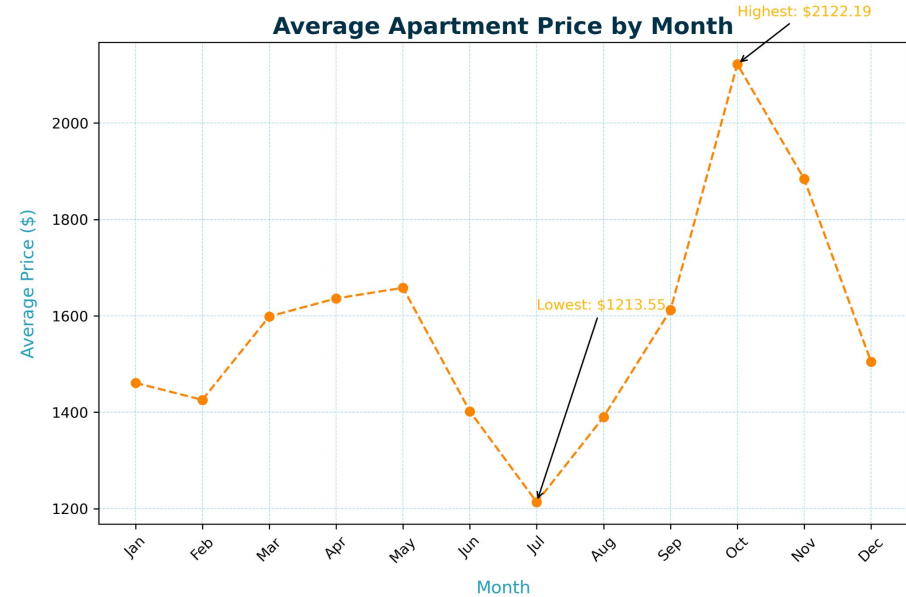## Average Apartment Price by Season



## Key Insights

- Demand is HIGHEST in Spring and Fall
- Best value for size is during Summer when demand is low

# Monthly Trends: Price per Square Foot vs Rental Price



**Average Price Per Square Foot by Month**

Highest: $2.28

Lowest: $1.32

**Average Apartment Price by Month**

Highest: $2122.19
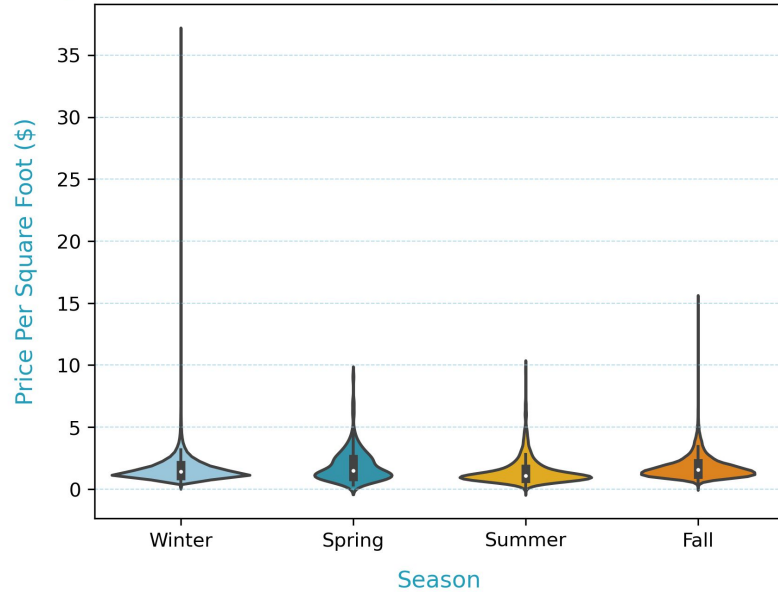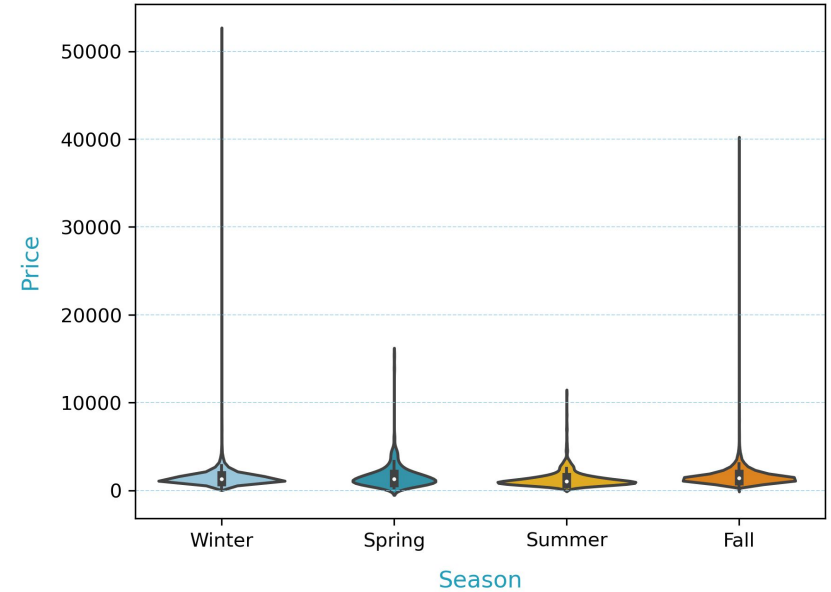
Lowest: $1213.55

## Key Insights
- Demand is HIGHEST in October
- Best value for size is in July when demand is low

# Seasonal Distribution: Price per Square Foot vs Rental Price

**Distribution of Price Per Square Foot by Season**

**Distribution of Apartment Prices by Season**
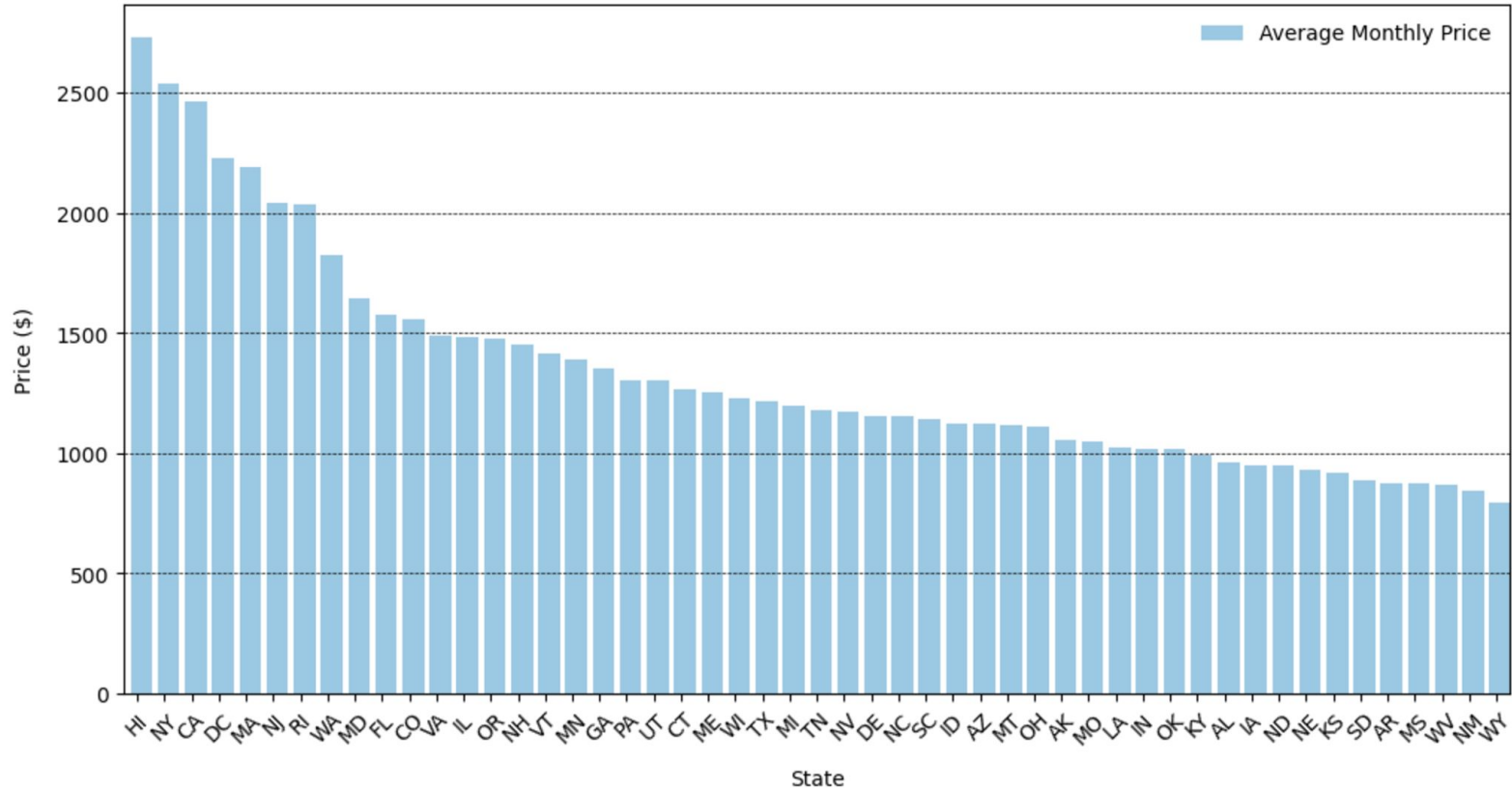


## Key Insights
- Distributions are skewed with a large clump of lower-priced apartments and a few high-priced outliers

# Question 2:

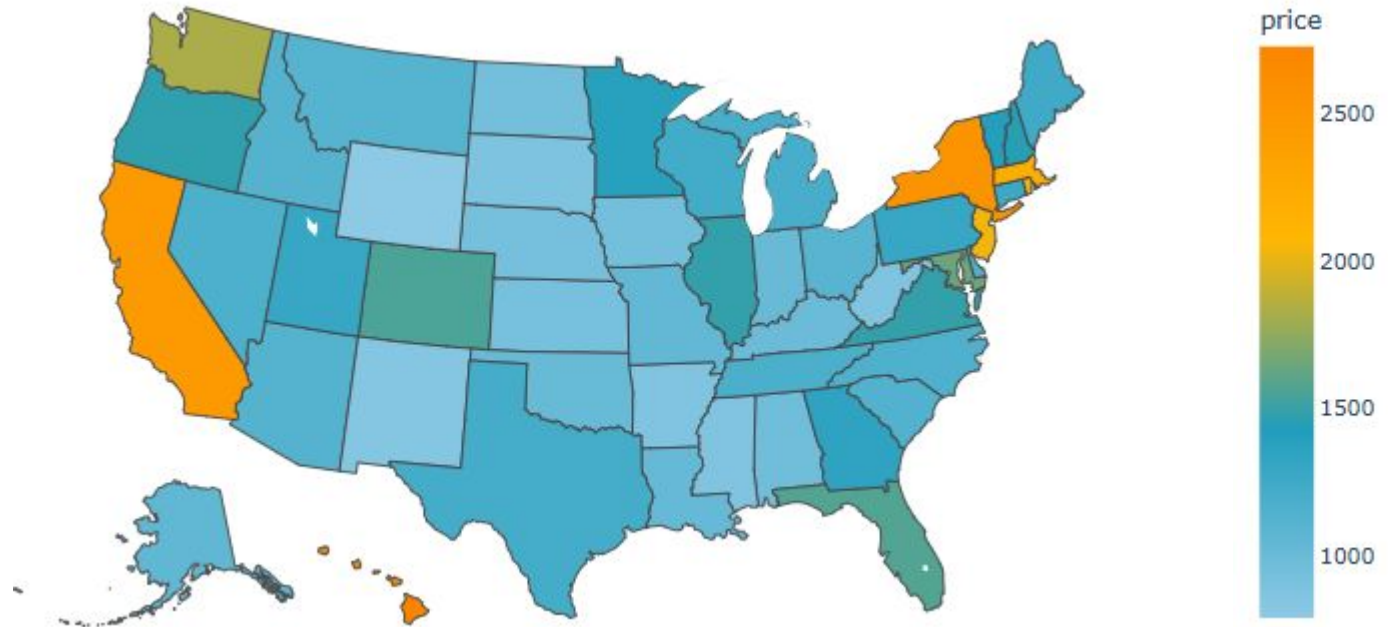How do apartment prices vary between states and cities?
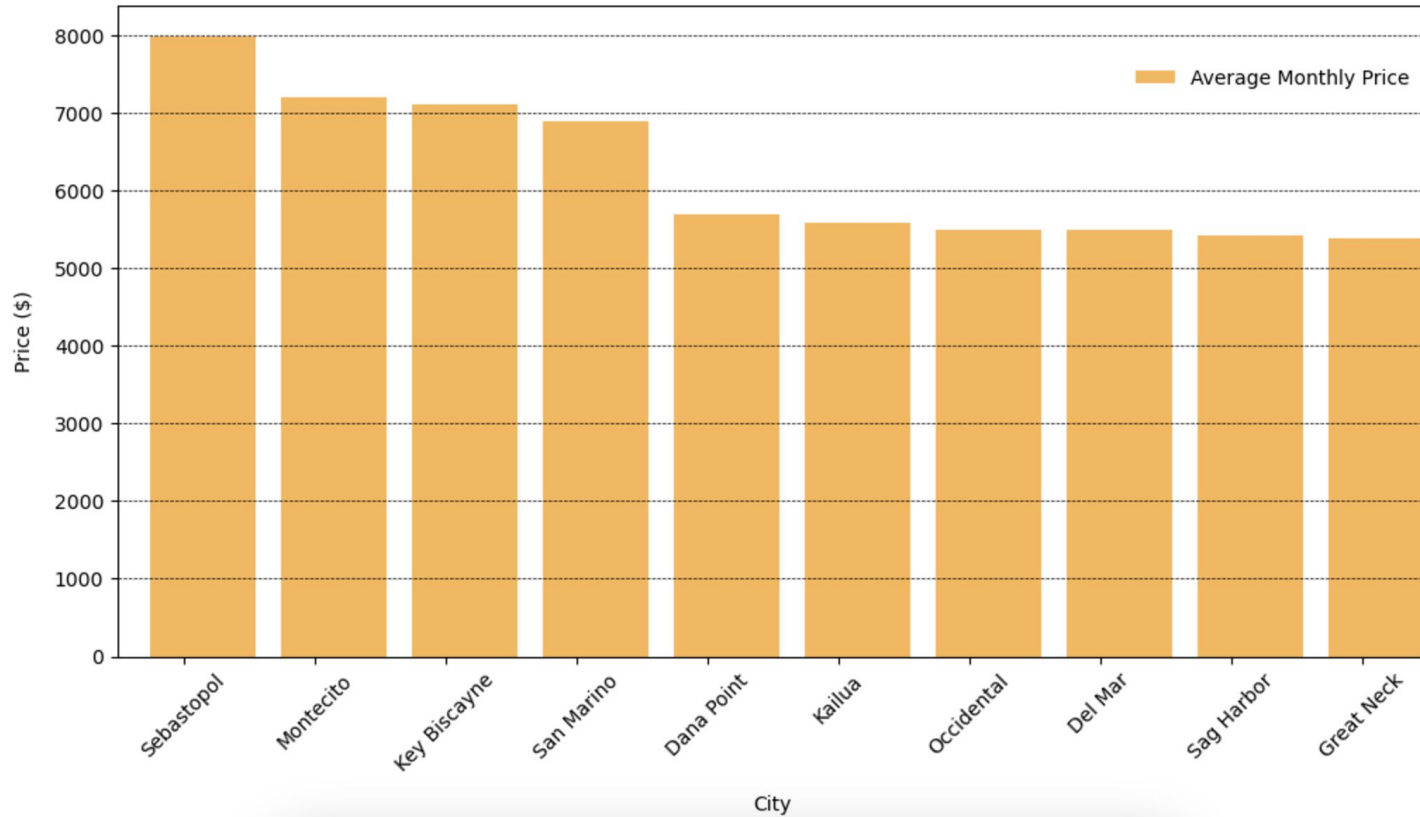
# What are the average prices in each state?



**Most expensive:** Hawaii, New York, California
**Least expensive:** Wyoming, New Mexico, West Virginia

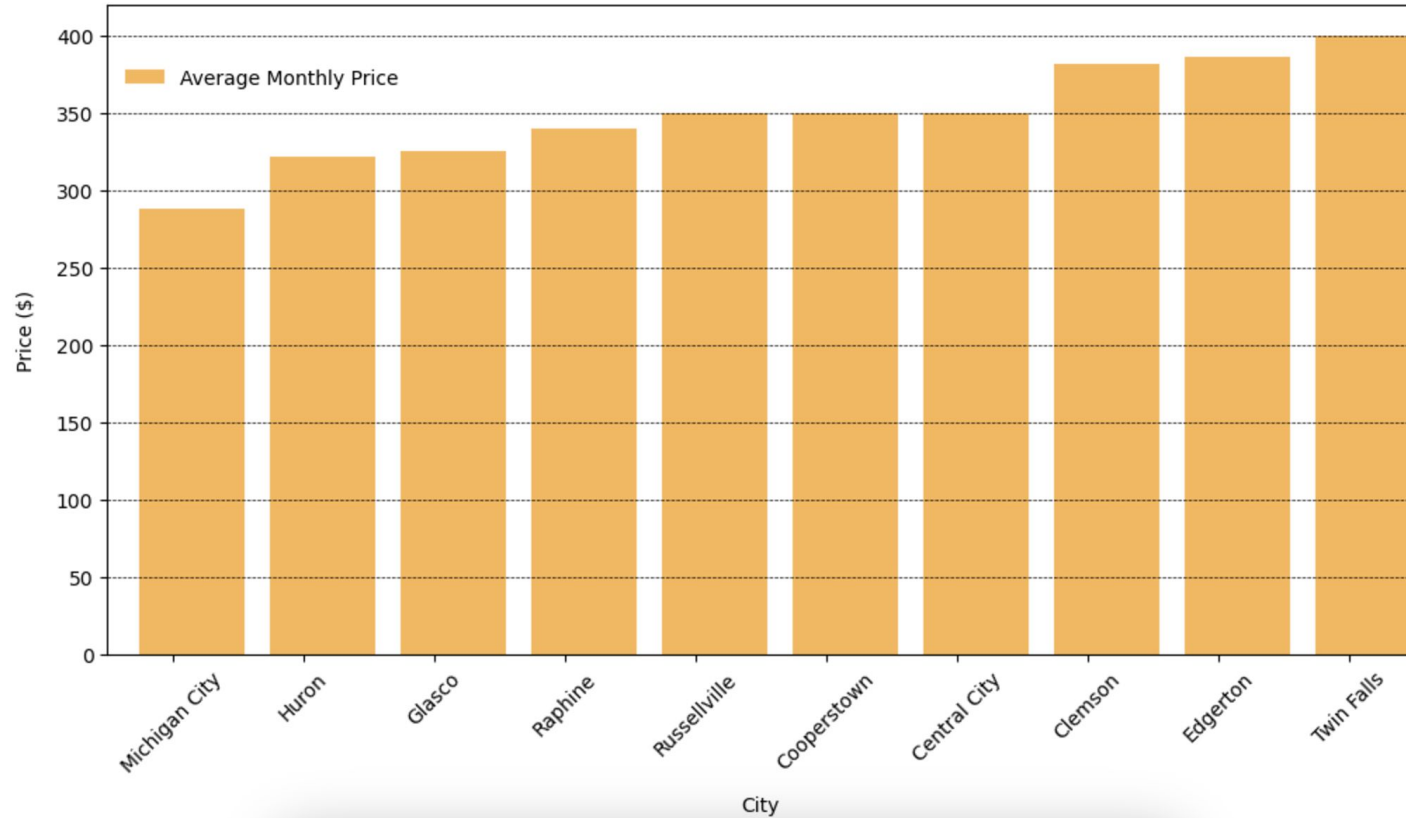# Average Apartment Prices by State in the U.S.

# What are the top 10 most expensive cities?



**Most expensive:** Sebastopol (California), Montecito (California), Key Biscayne (Florida)
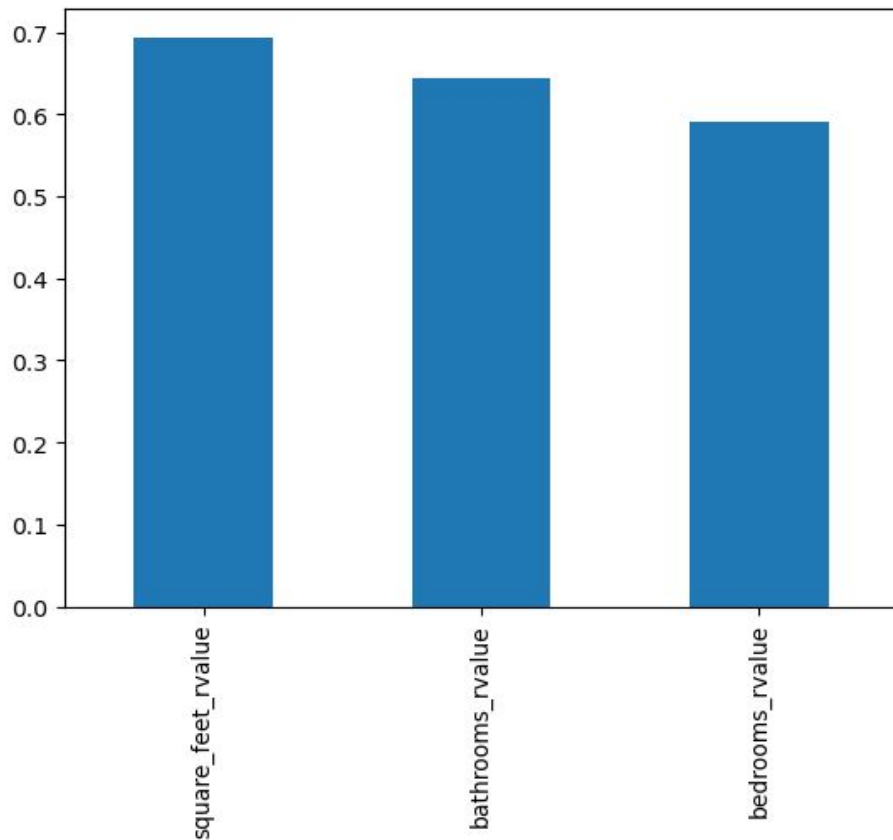
# What are the top 10 least expensive cities?



**Least expensive:** Michigan City (Michigan), Huron (Ohio), Glasco (Kansas)

# Question 3:
What is more valuable to renters—having more bedrooms and bathrooms or having more square footage?

# Comparing the apartment's price and its facilities



| | |
|---|---|
| bedrooms_intercept | 891.829137 |
| bathrooms_intercept | 759.044683 |
| square_feet_intercept | 575.248475 |
| bathrooms_slope | 490.249934 |
| bedrooms_slope | 324.670734 |
| square_feet_slope | 0.921991 |
| square_feet_rvalue | 0.745016 |
| bathrooms_rvalue | 0.648925 |
| bedrooms_rvalue | 0.610532 |

# Relationship between bathrooms, bedrooms, square_feet and price



Relationship between bathrooms and Price



Relationship between bedrooms and Price



Relationship between square_feet and Price
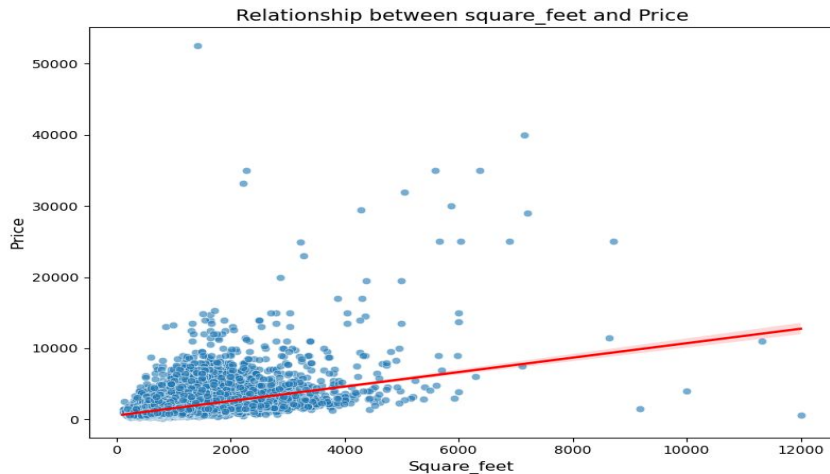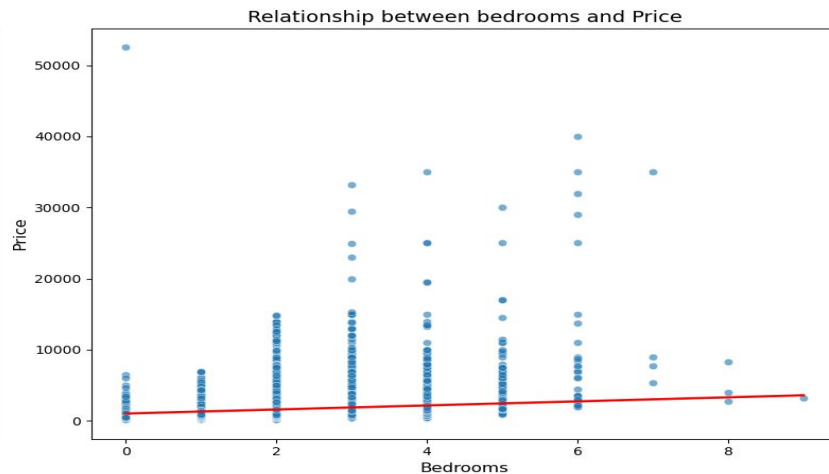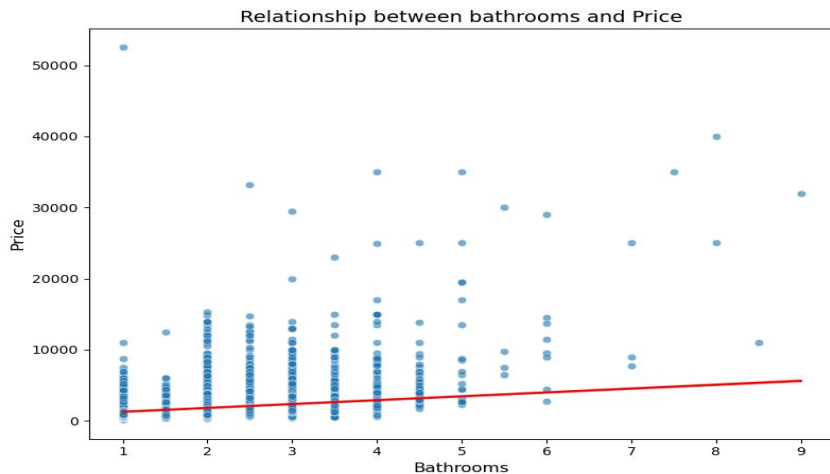
➢ **Square Feet** is the most significant predictor of price.
➢ Variability in bathrooms and bedrooms impact across cities.
➢ Strong correlations highlight critical factors for pricing strategies.

# Biases & Limitations

**Limitations**:

★ Timeline:
  ○ Old data since 2019
  ○ Unequal rows of each season
★ Missing data / - Outliers

★ Simplistic Linear Relationships

★ Geographical Context

★ Trends / conditions

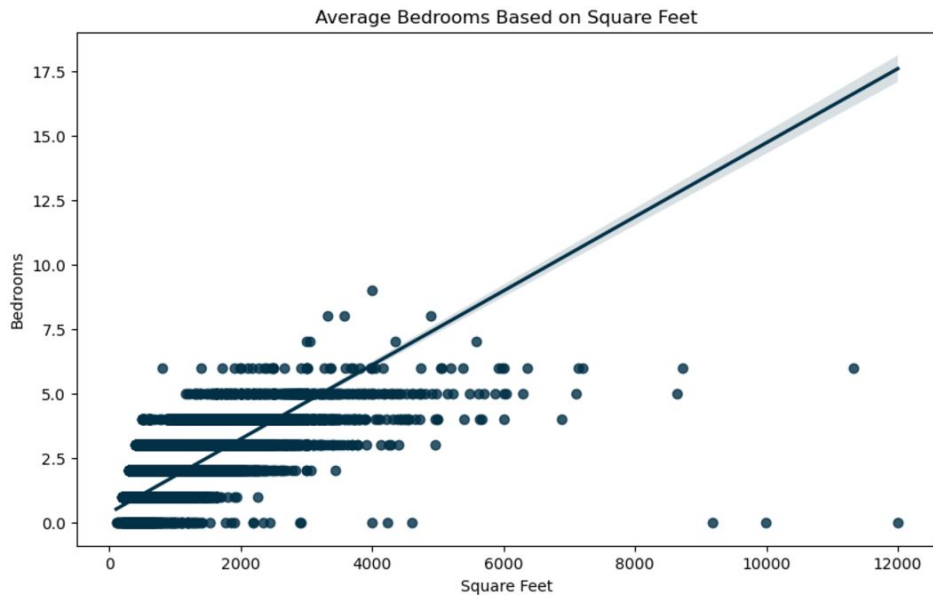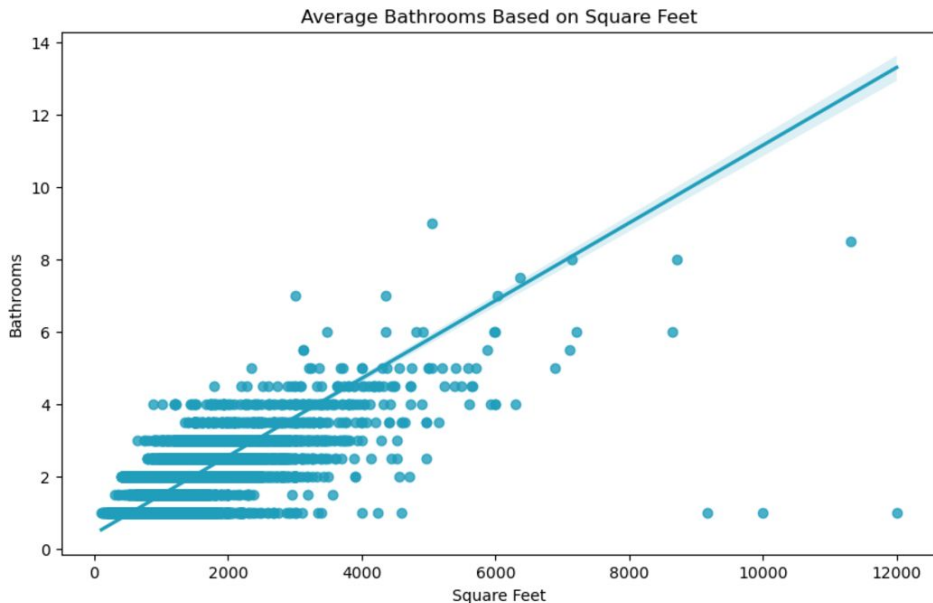**Biases**:

★ Selection from specific regions, price ranges

★ Few features focus

★ High correlation doesn't imply causation.
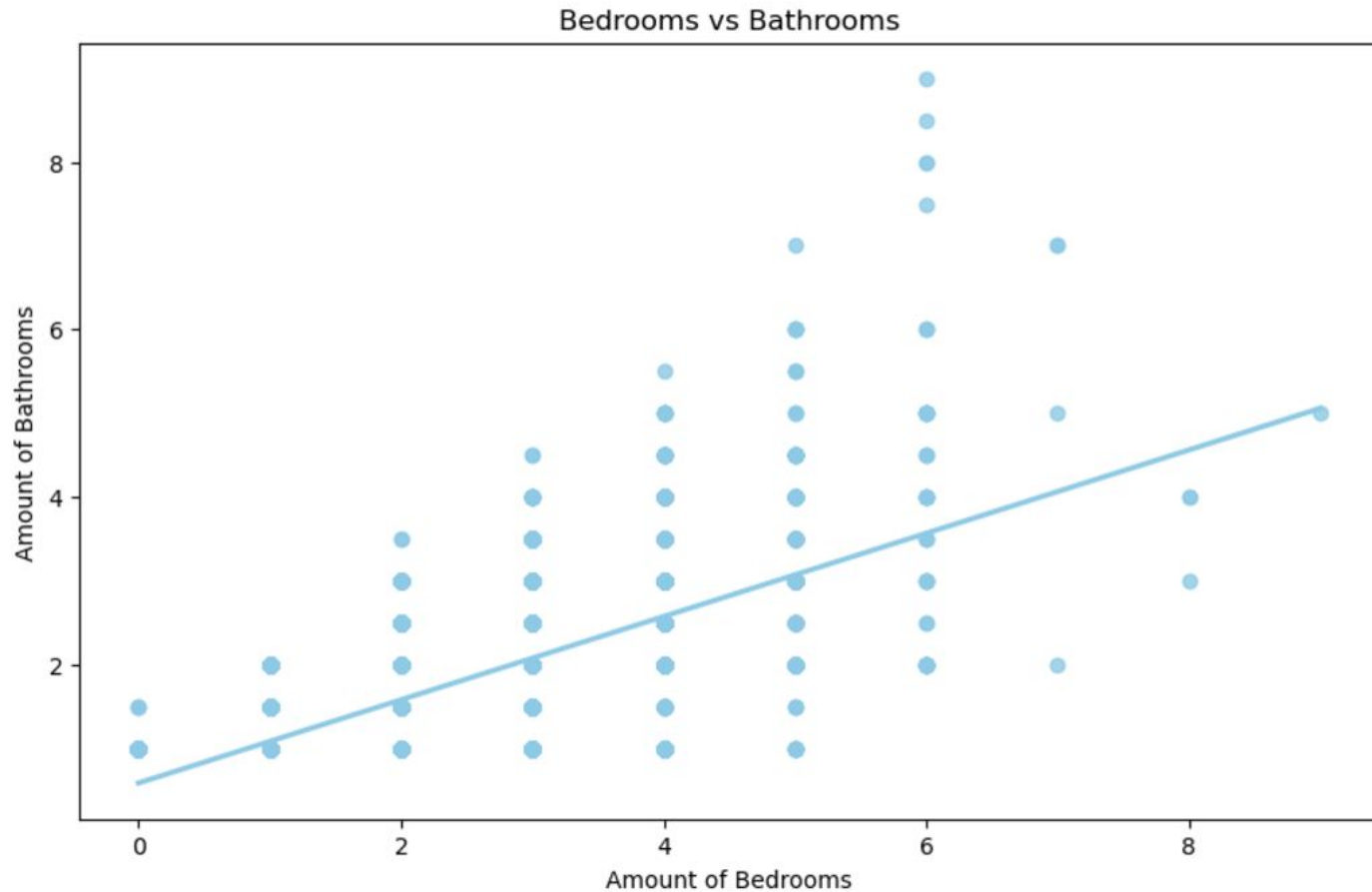
★ Regional economic bias.

# Regressions:

- **What variables have the most noticeable regressions?**
- **What kind of regressions appear in our data and what stories do they tell?**
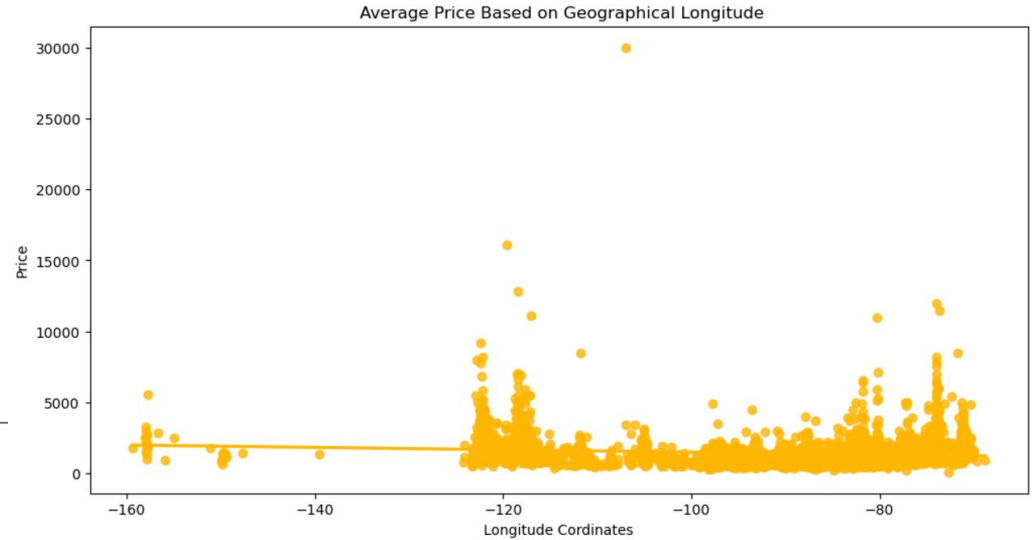
# Consistent Positive Regressions



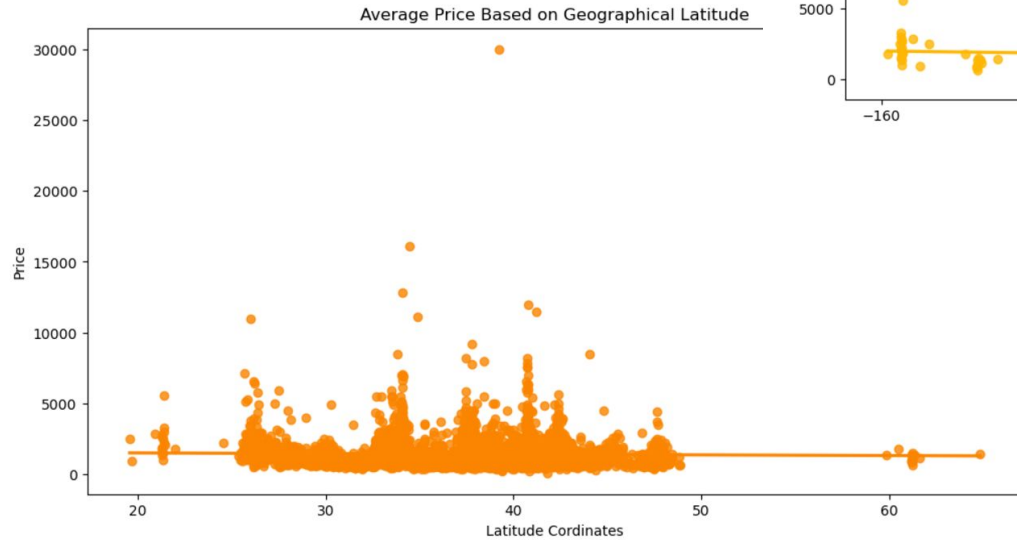- **In general terms, more space in an apartment means more rooms**

# Regression Between Bedrooms & Bathrooms



Bedrooms vs Bathrooms

# Geographical Regressions



Average Price Based on Geographical Longitude



Average Price Based on Geographical Latitude

# Conclusion

**Question 1:** Fall and spring have higher average prices with October being the highest overall

**Question 2:** California, New York, and Hawaii have the highest state prices while Wyoming, New Mexico and West Virginia have the lowest. Cities with the highest rent prices are: Sebastopol (CA), Monticello (CA), and Key Biscayne (FL). The least expensive cities are: Michigan City (MI), Huron (OH), and Glasco (KS).

**Question 3:** Renters value more square footage above amount of bathrooms and bedrooms