Analysis

Through our analysis of the real estate data, we aimed to answer the following questions;

* Does weather have an impact on home price?
* Does the house size impact the home price?
* Are house prices affected by number of bedrooms and square footage
* What are the changes in prices of 3 bedroom houses over the past 20 years in the US?
* Are house prices affected by location

After completing our analysis we were able to draw conclusions and answer these questions

**Weather**

Weather data from the city of each property location was pulled into our data set. This included such data as Max Temp, the Feels like temp, Min Temp, Humidity, Raininess and Cloudiness. Not a single one of these data points had a Pearson correlation factor greater than a 0.18. This would indicate that there is not a very strong correlation between any of these weather factors and the sales price of a home. Finally, we looked at the mean house price by the max temp of a city. This data was graphed in a bar chart looking for a distribution pattern. This again yielded no positive results. Ultimately this leads us to the conclusion that while weather may be a factor in where individuals choose to live, it does not correlate with the price of houses.

**How does size impact the price of a 3 bedroom home?**

The size of a 3 bedroom home can have a significant impact on its price. In general, the larger the home, the more expensive it will be. This is because larger homes typically have more features and amenities, such as more bedrooms, bathrooms, and square footage. They may also be located in more desirable neighborhoods.

However, there are some exceptions to this rule. For example, a small 3 bedroom home in a desirable neighborhood may be more expensive than a large 3 bedroom home in a less desirable neighborhood. This is because the location of the home can be more important than its size.

Ultimately, the price of a 3 bedroom home will depend on a variety of factors, including its size, location, features, and amenities.

**Square footage Vs. Number of bedrooms**

Based on the analysis, we explored the relationship between square footage and the number of bedrooms in relation to house prices. The correlation coefficients revealed a positive correlation between both square footage and the number of bedrooms, with house prices. The correlation coefficient for square footage and price was 0.46, indicating a moderate positive linear relationship. Similarly, the correlation coefficient for square footage and the number of bedrooms was 0.49, suggesting a somewhat stronger positive linear relationship. However, it is noteworthy that the correlation between price and the number of bedrooms was lower, with a coefficient of 0.29. This finding suggests that while there is a positive correlation between house prices and the number of bedrooms or square footage independently, the increase in both factors simultaneously does not lead to a proportional increase in house prices.

**What are the changes in prices of the last 20 years?**

The housing data from this dataset were narrowed down to look at only three bedroom houses and the changes in their pricing over the last 20 years in the US. The year was extracted from the sold date provided to make it more uniform for analysis. In the bar graph and scatter plot created it does show an obvious outlier in 2011 with a price much higher than the rest. The calculated average of the pricing $498,810 does show that the houses were typically around that price point. There are many factors that can contribute to the difference in the pricing of houses in a particular year. It does seem that about every 5-6 years there is an increase in the pricing. An ANOVA test was conducted with a p-value of 0.009, which could confirm that the alternative hypothesis of there being a correlation of the particular year in the past 20 years having an effect on the house price is true.