Chi-Square Tests of Independence:

1. The Chi-Square Test of Independence or Chi-Square Test of Association is a non-parametric test that determines whether there is an association between categorical variables (i.e., whether the variables are independent or related).
2. We had to convert numerical columns such as price, capacity, number of bedrooms etc. into categorical columns in order to conduct chi-square tests on different combinations of columns to understand their relationships.
3. This test utilizes a contingency table to analyze the data. It is an arrangement in which data is classified according to two categorical variables. The categories for one variable appear in the rows, and the categories for the other variable appear in columns. Each variable must have two or more categories. Each cell reflects the total count of cases for a specific pair of categories.
4. Cramér's V sometimes referred to as Cramér's phi is a measure of association between two nominal variables, giving a value between 0 and 1.
5. Cramer’s V of less than 0.05 indicates a weak or no relationship at all between the categorical variables, a value of around 0.1indicates a moderate correlation and more than 0.1 would indicate a stronger correlation.
6. The following are the results we got from the multiple chi-square tests we conducted on the different variable pairs.

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1. The conclusions we made from the chi-square tests are
2. There is a moderate correlation between the following variables: price range of the Air BnBs and their availability.
3. There was a weak correlation between the capacity of the Air BnBs and their availability, the number of bathrooms and their availability, the number of bedrooms and their availability, location and availability, the price of the Air BnB and whether it has a pool and the price and location of the Air BnBs.
4. There was no correlation between their being a pool at the Air BnBs and their availability, Air BnBs' hosts being super hosts and their availability and the price of Air BnBs and their capacity.

One way ANOVA tests

1. ANOVA which stands for Analysis of Variance is a statistical method for analyzing the relationship between more than two independent groups of a variable by comparing their means and their effect on the numerical dependent variable. The ANOVA method assesses the relative size of variance among group means compared to the average variance within groups.
2. Like the t-test, ANOVA helps you find out whether the differences between groups of data are statistically significant. It works by analyzing the levels of variance within the groups through samples taken from each of them.
3. Put simply, ANOVA tells you if there are any statistical differences between the means of three or more independent groups.
4. We used ANOVA to test a particular hypothesis. ANOVA helped us understand how our different groups respond, in this case, the different groups are availability being 0 or 1 that is if the listing is available or unavailable. We tested whether there will be a significant difference in prices of available and unavailable Air BnBs. The p-value obtained from ANOVA analysis is significant (p < 0.05), and therefore, we concluded that there are significant differences in the mean of the prices of available and unavailable Air BnBs.
5. We also conducted the same test on the capacity and the availability variables of Air BnBs. We found out that there are significant differences in the mean of the capacity of available and unavailable Air BnBs.