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Research Proposal

The problem

Can we improve the Airbnb description of an Airbnb listing in San Diego to increase amount of people renting it?

Hypothesis

Null Hypothesis: Adding the word 'ocean' to a description has no impact on the amount of traffic a Airbnb listing.

Alternative Hypothesis: Adding the word 'ocean' to a description will improve the amount of traffic that an Airbnb listing receives.

The method of testing the solution

We will do an A/B test, checking a subset of listings within Airbnb compared with other Airbnb listings that are similar. Airbnb is a tough data set to work with because each listing is different so it will be hard to limit all the variables (location, size, amenities, privacy, price). Luckily we can separate the listings based on these so that we can test our alternative hypothesis.

First we will filter by 'room_type' and look listings where room_type is private room and 'accommodates' is equal to 2. Then we will separate by neighborhood. Once we have numerous groups of neighborhoods, we will look at the mean 'price' of each neighborhood and remove all listings with price outside of 2 standard deviations from the mean. This is done to remove outliers, 1000 dollar a night rooms are rented out at a much different rate than a 100 dollar a night room. After that, to find the rate of renting we will divide the '30_availability' by 'reviews_per_month', we will call this 'traffic_score'. Finally we will separate each neighborhood into two groups, one group with a 'description' not containing the word ocean, the other with 'description' containing the word ocean (these will be referred to as ocean group and non ocean group.

Now we have the groups that we will compare. For each neighborhood, compare the 'traffic_score' between the ocean groups and the non ocean group. If the p-score is <.05 and 'traffic_score' of the ocean group is 10% higher than the non ocean group, then conclude that adding the word 'ocean' to the description will increase the amount of people who choose to rent that property. If not, conclude that the null hypothesis is correct.

Future testing

To test out the results for the ocean A/B test, if the alternative hypothesis is assumed correct, add the word ocean to a few of the Airbnb listings and monitor their future activity. Other possible tests can be done in searching through descriptions and finding common words used in listings with high traffic scores. Another possible test could be very similar to this ocean A/B test, but using a different 'room_type'.