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# One Scoop Away From Happiness

## AirBnb Listings & Ice Cream Store Data Comparison Case Study

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### MOTIVATION

This datasheet was created to consolidate the locations and **features of AirBnb listings** in Brooklyn and compare them to the **top 5 ice cream stores** in Brooklyn. The datasheet includes latitude and longitude coordinates of both the listings and shops, actual and average walking distances to the stores from every listing, price per night of the listings, type of room, and other factors that differentiate the AirBnb listings. We were curious if walking distances between ice cream stores and AirBnb listings had any correlation to price and other factors. The creation of the dataset was done by all group members and the information was found using sites such as foursquare, publicly found AirBnb listings, and manual calculations that we all contributed to in order to find distances. We wanted to make sure we were keeping the scope of our project complex enough to find different interesting correlations while still keeping it narrow enough to make sense of the data. In efforts to narrow down the scope, we limited our location region to **Brooklyn, NY** and found the top 5 ice cream stores to have a more focused search. No people were directly involved in finding this data. The AirBnb listings were all found through public sites and therefore, no direct interaction with people were needed to gather our data.



### BACKGROUND

Airbnb is the largest accommodation firm in the sharing economy marketplace. With about 3 million listings, including entire homes, shared rooms, and private rooms, Airbnb is now considered one of the major competitors in the lodging industry. Therefore, understanding **what drives consumers to book Airbnb** accommodations becomes necessary for the hotel industry in developing strategies to compete with Airbnb. In order to understand the most influential factors that affect a guests' decision to rent a listing in Brooklyn, we gathered insight about what guests value the most in Airbnb accommodations. We found that the physical (space, location, amenities) and non-physical (sociability, trustworthiness, superhost, etc.)

attributes play a crucial role in guests' decision making. We decided to compare a listings' distance to an ice cream store and its drawing factors because we wanted to see how and if there's any correlation between picking an Airbnb listing and its **proximity to an ice cream store.**

Before starting our analysis, we made four hypotheses about the relationships between different variables in our datasets:

**H1:** The farther away an AirBnb listing is from a top ice cream store location, the less expensive the listing should be.

**H2:** Super host status AirBnb listings are closer in walking distance to top ice cream store locations compared to non-super host status AirBnb listings

**H3:** The ability to instant-book a listing increases the likelihood of an ice cream store being closer to the listing.

**H4:** The stricter the cancellation policy, the farther the distance to a top ice cream store.

We chose proximity to ice cream store location as our comparative factor because of a few different reasons. According to David Adam, a Science Correspondent for The Guardian, scientists have found **a spoonful of ice cream** to be as **stimulating** to the **pleasure centers of the brain** as winning money or listening to music would be (Adam, 2005). Neuroscientists at the Institute of Psychiatry in London conducted a study that scanned the brains of people eating vanilla ice cream and found an immediate effect on parts of the brain known to activate when people enjoy themselves, including the orbitofrontal cortex, which is the "processing" area of the brain. Using this research, we assume that ice cream plays a factor in human happiness and wanted to see if there was a positive correlation between ice cream proximity and listing factors.

According to Airbnb, one of the most important factors in an AirBnb listing is its **listing title**. The listing title should read like a newspaper headline and help guests find locations that are a great fit for his/her needs. In our sample size of 180 listings in Brooklyn, we found that there were mentions of being close to "Prospect Park" and "public transportation." Airbnb hosts tend to **include popular attractions in their title**, in hopes of drawing attention to the great location of their listing. By seeing if ice cream proximity affects AirBnb listing factors, we can make assumptions about whether including ice cream proximity in a listing title will make a significant impact on whether a guest chooses an AirBnb listing.



## DATA ANALYSIS & DISCUSSION

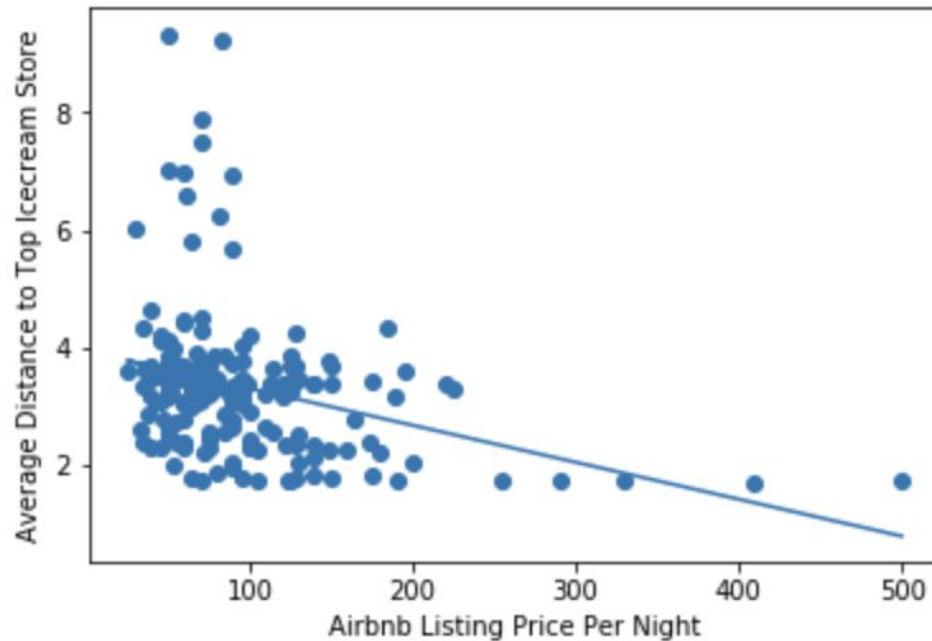


Figure 1: Correlation between the price of Airbnb listings and the average distance to ice cream stores from the listings

Our analysis suggests that average distance of an AirBnb listing to one of Brooklyn's top 5 ice cream stores might impact various factors of the listing itself. In terms of price, our studies met our first hypothesis. We found a **negative relationship** between listing price and average distance to an ice cream store, demonstrating that **the closer a listing was** to one of the ice cream stores, **the more expensive** the price per night was. There is also a large cluster of listings that are lower priced and relatively closer to an ice cream store. We infer that this is where the average price per night and average distance to an ice cream store lie. When we calculated the correlation coefficient of price and average distance to an ice cream store we found that there was a negative correlation of -0.006. Acknowledging that this is neither a very strong negative correlation, nor an accurate determination of causality, we emphasize that distance to an ice cream store may not be one of the most significant factors in determining listing prices.

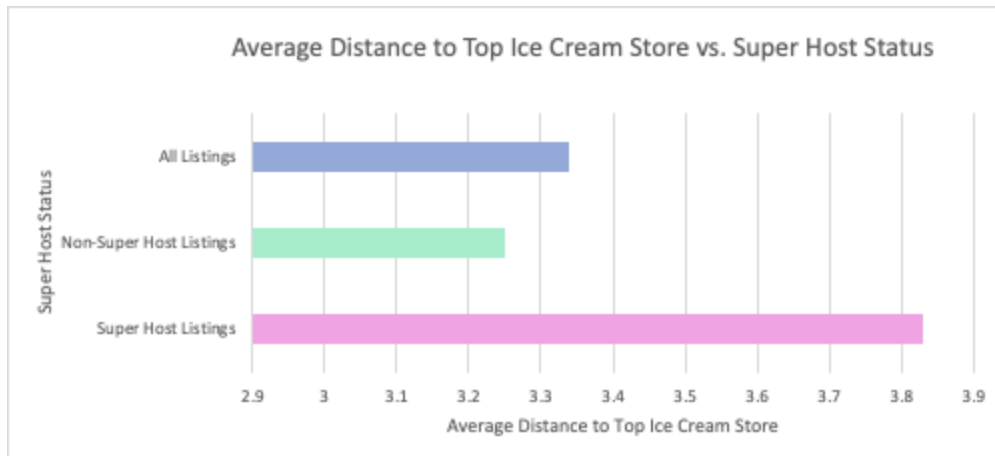


Figure 2: Comparison between the SuperHost Airbnb listings and the average distance to ice cream stores from the listings

Aside from price, we wanted to examine the impact of super host status, instant book feature and cancellation policy on distance. Super host status refers to super hosts who have had extensive experience listing out AirBnbs and serve as exemplary models for other hosts. An analysis by Airdna concluded that the biggest difference between super hosts and non-super hosts were cleanliness and value. **Super hosts have an 81% higher occupancy rate** and earn 60% more revenue per available day (Shatford, 2018). Given this, we hypothesized that super host listings would be overall closer to an ice cream store compared to non super host listings. **We found the opposite.** The average distance to an ice cream store for all super host listings was 3.83 miles which was greater than non super host listings (3.25 miles) and all listings (3.34 miles).

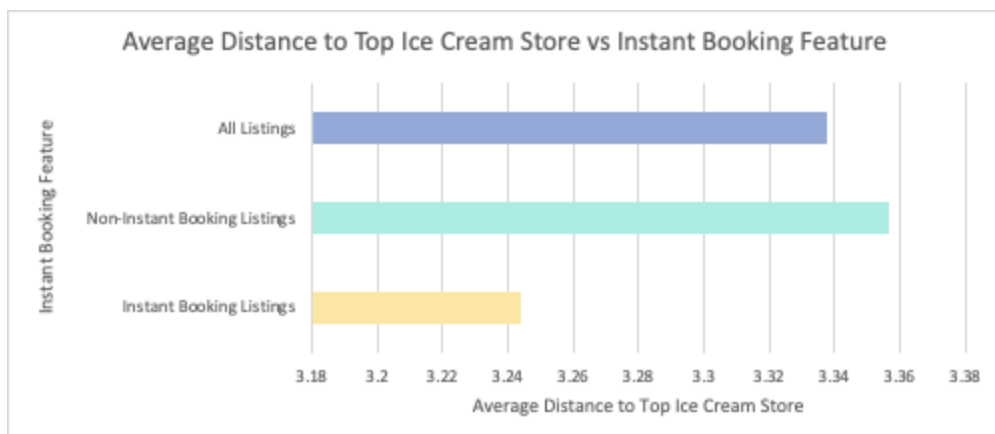


Figure 3: Comparison between instant booking of Airbnb listings and average distance to ice cream stores from the listings

The instant book feature allows guests to make reservations that are confirmed on demand. In this day and age, people want results quickly. This feature allows bookings to occur as fast as possible. The main purpose of instant book was to bridge the gap between hosts and guests and increase booking rates overall. Given that this initially seems like a beneficial feature for listings, we hypothesized that it would align with another beneficial feature of a listing - distance to a top ice cream store. We found that listings with the instant booking feature were also closest to ice cream stores (3.24 miles) compared to non-instant booking listings (3.36 miles) as well as all listings (3.34 miles). Interestingly enough, **non-instant booking listings were the farthest away**. However, we would like to note that during research on the efficacy of the instant book feature, we also found limitations and warnings. For hosts, the instant book feature would mean that guests do not review the details of the listing before confirming. This may be concerning if hosts are worried about the guests themselves as well as being able to prepare their place in time.

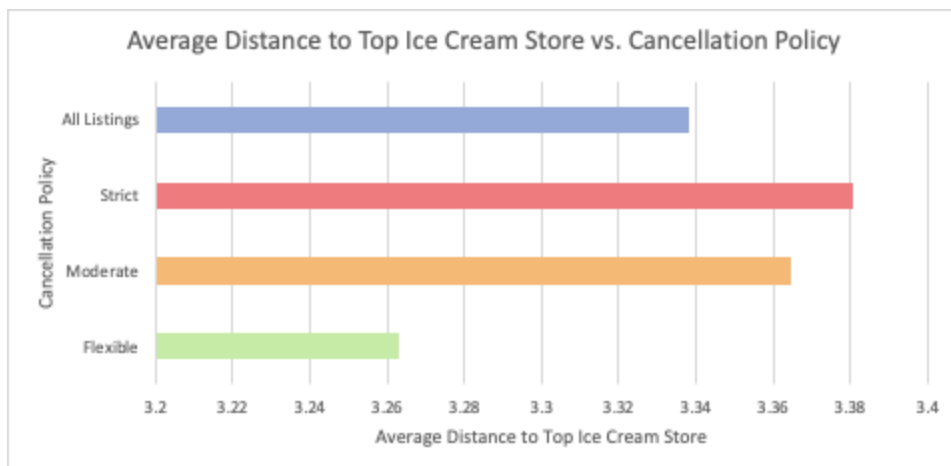


Figure 4: Comparison between the cancellation policy of Airbnb listings and the average distance to ice cream stores from the listings

Lastly, guests often look at a listing's cancellation policy before booking. Life is unpredictable and unexpected events can occur. **Guests want the ability to cancel** their reservations if something comes up. We hypothesized that listings with stricter cancellation policies would be farther from ice cream stores and the listings with more lenient cancellation policies would be closer. After separating all of the listings into three categories of cancellation stringency (flexible, moderate, strict), we found our hypothesis to be true. **Flexible cancellation listings were closest** (3.26 miles), moderate cancellation listings fell in the middle (3.36 miles) and **strict cancellation listings were the farthest** (3.38 miles).



## PROJECT LIMITATIONS & CAVEATS

It is important to note that we did not include numerous factors into the value of a listing. For example, due to the lack of access to a given listing's square footage, we did not take in consideration of the size of the rental space which is definitely the greatest contributor to price. Additionally, we did not examine neighborhood effect, to determine if being a good neighborhood influenced the listing price. In **future studies**, we would take these factors into consideration along with listings' amenities, photo quality, renting availability, host-response time, distance to public transportation and etc. which may be significant in adding value to a listing.

Due to the manual process of collecting distances between listings and ice and cream stores, we recognize there is a possibility for **human error** in recording distances from Google maps to our dataset.

Additionally, even though our data supported our hypotheses related to price, instant booking feature as well as cancellation policy, we must take into consideration statistical significance. For the calculated average distance to an ice cream store for listings with all three variables, super host status, instant booking feature and cancellation policy stringency, the differences were very small. These small differences, although not statistically significant; however, open the possibility of further investigation. With a larger AirBnb listing sample size as well as the inclusion of more ice cream stores, there is promising potential for a greater scaled study.



## CONCLUSION

Here's the inside scoop: Next time you're looking to book an AirBnb for that weekend get-a-way trip or for that city-based summer internship, make sure you check to see if there's an ice cream store nearby. For all the AirBnb hosts out there, highlighting that your listing is a block down from the local ice cream parlor could be your greatest selling point. **Remember, life is always better with sprinkles!**



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