AirBNB Stay Analysis

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Abstract - This market analysis focuses on Airbnb, a prominent online hospitality marketplace that has revolutionized the way people find accommodation and lodging. Airbnb's unique platform connects hosts offering their properties and guests seeking short-term rentals, creating a vast global network of diverse and unique accommodations. The analysis begins by providing an overview of Airbnb's history, growth trajectory, and its impact on the traditional hospitality sector. Utilizing various market research methodologies and data sources, the study examines Airbnb's market share, geographical expansion, and user demographics. It evaluates the factors that attract hosts to list their properties on the platform, as well as the motivations that drive guests to choose Airbnb over traditional hotels. Ultimately, this market analysis aims to provide valuable insights into Airbnb's position within the hospitality industry, identifying its key success factors and potential areas for improvement. It serves as a valuable resource for industry stakeholders, investors, and policymakers seeking to understand the dynamics of the sharing economy and its impact on the traditional lodging sector. As Airbnb continues to redefine the travel and accommodation landscape, an in-depth analysis of its market presence proves crucial for making informed decisions and predicting its future trajectory.

Keywords— Airbnb's market share analysis, future trajectory.

I. DATASET

In this project we are going to work with New York City Airbnb open Data.

Summary of the key attributes:-

- A. Listing Information: Details about individual listings, such as unique identifiers, property type (e.g., entire home, private room, shared room, number of bedrooms and bathrooms, and amenities provided (e.g., Wi-Fi, kitchen).
- B. Information: Information about hosts.
- C. Geographical Information: Location-related data, such as latitude and longitude coordinates, neighborhood, city, and county of the listings.
- D. Price and Availability: Pricing details for renting the property, including the base price, cleaning fees, and additional charges.
- E. Reviews and Ratings: Information on guest reviews and ratings, including overall rating, cleanliness etc.
- F. Booking Details: Data related to the number of reviews, bookings, and sometimes the minimum and maximum length of stay.
- G. Calendar Data: Detailed information about the availability of the listing over time, including dates that are available for booking and dates that are already booked.

II. PROJECT FLOW

The main idea of this project is to develop a filtering system and analyze the stays available in New York City, for the AirBNB dataset that we have obtained from Kaggle. In this particular section of the report, we shall be discussing both these aspects one after the other.

A. Filter System:

In this model, we have developed a 4-stage / 4-layer filter for the dataset that we have. The filters modify the dataset on these 4 grounds: Location, Room Type, Price & Number of Reviews.

The first filter is a *location filter* that reduces the existing dataset into a smaller one on the basis of the location the user wishes to reside at for their vacation. The filtering is done on the basis of the *'neighbourhood_group'* attribute. The user can simply enter the location that they wish to reside in and the dataset gets filtered accordingly.

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eg: If we search neighborhood group as Manhattan we will find all the listings of Manhattan.

The second filter filters the dataset further on the ground of what *room type* the user wishes to stay in. Once the user enters the required room type, they can view all such rooms available in the selected location.

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		Cony Bedroom in the Heart of Manhattan							Private 1000s						
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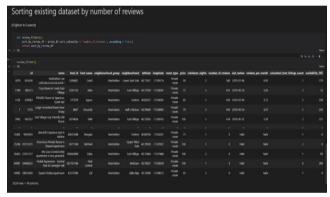
eg: Here we have searched the room_type as Private room, so we find all the corresponding listings under this category.

The third filter reduces the dataset on the basis of the *budget* of the user. This is the *price filter* that generates a dataset according to the upper and lower budget bounds of the user. In this way, the user can obtain a much more sophisticated view of the options available to them according to their preferences of stay.

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	Huge Modern Room in a Cargo Apartment - Standarton							Private						

eg : Here we have searched for the listings having price ranging from 70-100.

Last but not the least, we have a filter that reorders the dataset in a descending order on the basis of the number of reviews a stay has got. This is the *review filter*. The reason why we have taken the number of reviews as a ground of categorization is because higher the number of reviews, the better the stay is likely to be. The user definitely wants to have the best options available for them at the top of their screen and hence we decided the sorting to be in a descending fashion, thus generating the best possible filtering system.



eg: To sort an existing Airbnb dataset by the number of views, we extracted the "number of views" column from the dataset, sorted it based on the "number of views" column in descending order. The sorted dataset will now display listings with the highest number of views at the top, allowing you to identify the most viewed properties on AirBNB.

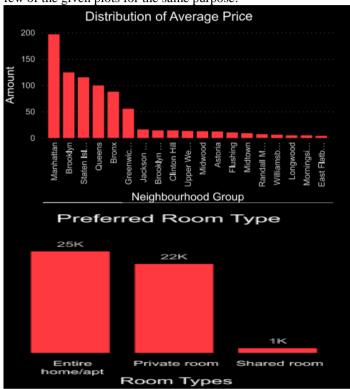
ame	Location	Lodging	Price	Reviews
eautiful 1br on Upper West Side	Upper West Side, Manhattan	Home/Apt	135	53
BG Helps Haiti Rm #2	Park Slope, Brooklyn	Private Room	110	71
Clean and Quiet in Brooklyn	Bedford-Stuyvesant, Brooklyn	Private Room	35	8
Fort Greene brownstone	Fort Greene, Brooklyn	Private Room	88	135
2 bedroom – Upper East Side-great for kids	Upper East Side, Manhattan	Home/Apt	250	66
Charming East Village One Bedroom Flat	East Village, Manhattan	Home/Apt	198	21
Great Location for NYC	East Village, Manhattan	Private Room	58	2
House On Henry (3rd FLR Suite)	Carroll Gardens, Brooklyn	Home/Apt	175	233
2 BR / 2 Bath Duplex Apt with patio! East Village	East Village, Manhattan	Home/Apt	350	7
Secluded Master Bedroom in Beautiful Huge Apt	Washington Heights, Manhattan	Private Room	85	36

The finally filtered dataset contains information on location (city or neighborhood), lodging type (e.g., entire home, private room), price, number of reviews and a brief

description of each listing(name of listing). This comprehensive dataset is ideal for conducting detailed analysis, visualizations.

B. Stay Analysis (Exploratory Data Analysis):

For analyzing price trends, room types and availability at different locations, etc. we have performed exploratory analysis on our dataset. Using PowerBI, we have generated a few of the given plots for the same purpose.





III. PROJECT PROGRESS

The entire project has been successfully accomplished, thanks to the committed efforts of every team member.