DATA VISUALISATION PROJECT REPORT

(Project Semester: March-April 2023)

AIRBNB DATASET

Submitted by

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Course Code: INT233

Under the Guidance of

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Discipline of CSE/IT

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CERTIFICATE

This is to certify that Aman Raj bearing Registration no. 12101946 has completed INT233 project titled, **" AIRBNB "** under my guidance and supervision. To the best of my knowledge, the present work is the result of his original development, effort, and study.

Mrs. Nidhi Arora
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Date: 12-04-2023

DECLARATION

I, Aman Raj, student of B-Tech CSE under CSE/IT Discipline at Lovely Professional University, Punjab, hereby declare that all the information furnished in this project report is based on my own intensive work and is genuine.

Date: 12-04-2023

Registration No.: 12101946   Aman Raj

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my teacher Mrs. Nidhi Arora who gave me the golden opportunity to do this wonderful project of analysis of the data of a booking namely "*Airbnb*" which also helped me in doing a lot of research and I came to know about so many new things. I am thankful to them. Secondly, I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

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INTRODUCTION

Data Analysis is a process of inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, informing conclusions, and supporting decision-making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, while being used in different business, science, and social science domains.

Hotel booking are a major concern for people, Airbnb has revolutionized the hospitality industry by providing a platform for people to rent out their homes or rooms to travellers. As a result, Airbnb has become a significant player in the travel industry, offering a unique and often more affordable alternative to traditional hotels. The purpose of this report is to analyse the Airbnb hotel booking data to gain insights into the trends and patterns of the platform's usage. By exploring the data, we can better understand the behaviours of both hosts and guests and identify areas for potential improvement or growth. This report will examine various factors such as location, pricing, and guest reviews, to provide a comprehensive analysis of the Airbnb ecosystem. Let's dive into the data and discover what insights we can uncover.

The Hotel booking "Airbnb" database keeps track of the following data fields:

- id
- name
- host_id
- host_name
- neighbourhood_group
- neighbourhood
- latitude
- longitude
- room_type
- price
- minimum_nights
- number_of_reviews
- last_review
- reviews_per_month
- calculated_host_listings_count
- availability_365

SCOPE OF ANALYSIS

The scope of analysis for Airbnb hotel booking typically includes several areas, such as:

- **Average Price in the Neighbourhood BY Room Type**.
- **Total booking according to neighbourhood group - Room Type**
- **Total neighbourhoods according to neighbourhood group**
- **Top 10 Hosts by total reviews**.
- **Total booking by neighbourhood group and room type**
- **Total Review by year**
- **Average price by neighbourhood group - Room Type**

ANALYSIS OF DATASET

1. Average Price in the Neighbourhood BY Room Type

Description: In this analysis, we will explore the average price of Airbnb accommodations in different neighbourhoods categorized by room types. The aim of this analysis is to identify the price trends of different types of rooms in different areas of a city. This information can help both hosts and guests make informed decisions regarding pricing and location.
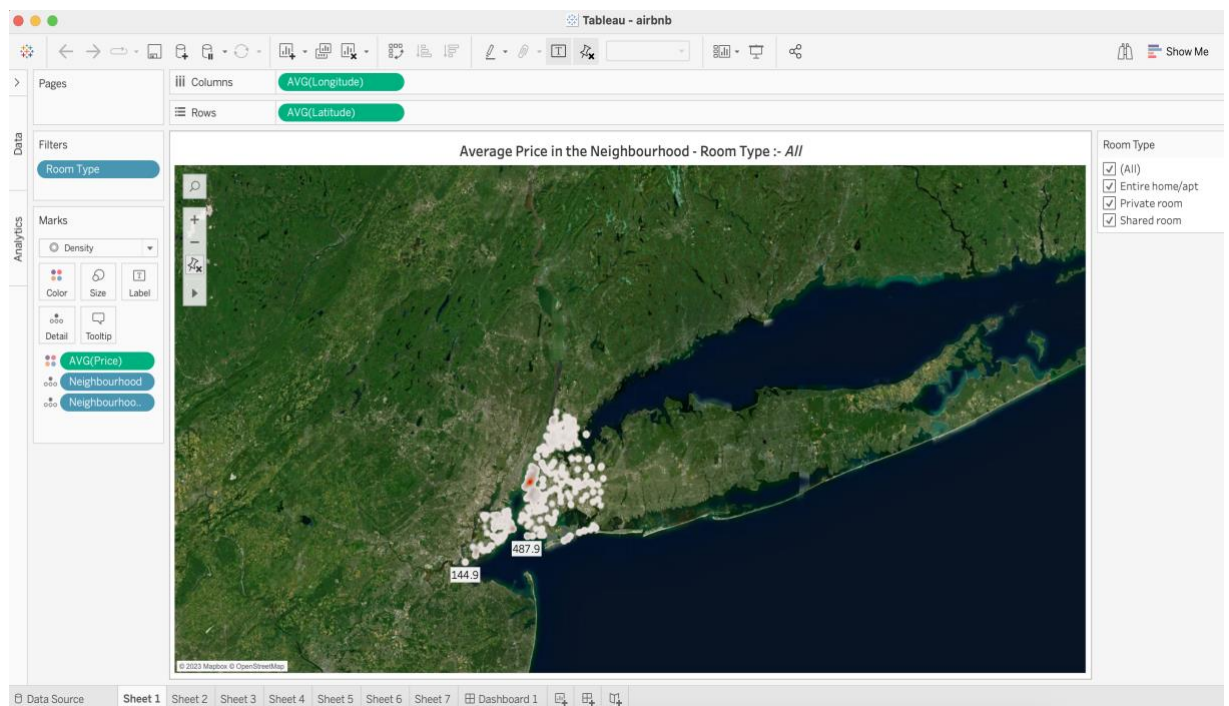
2. Average Price in the Neighbourhood BY Room Type

Description: When looking at the data, it is clear that the neighbourhood groups of Manhattan and Brooklyn are the most popular with guests, accounting for over half of the total bookings. This is likely due to their proximity to popular tourist attractions and their high concentration of restaurants and shops. The room type of Entire Home/Apartment is also the most popular, accounting for almost 60% of the total bookings. This is likely due to the convenience and privacy that renting a whole home or apartment provides.
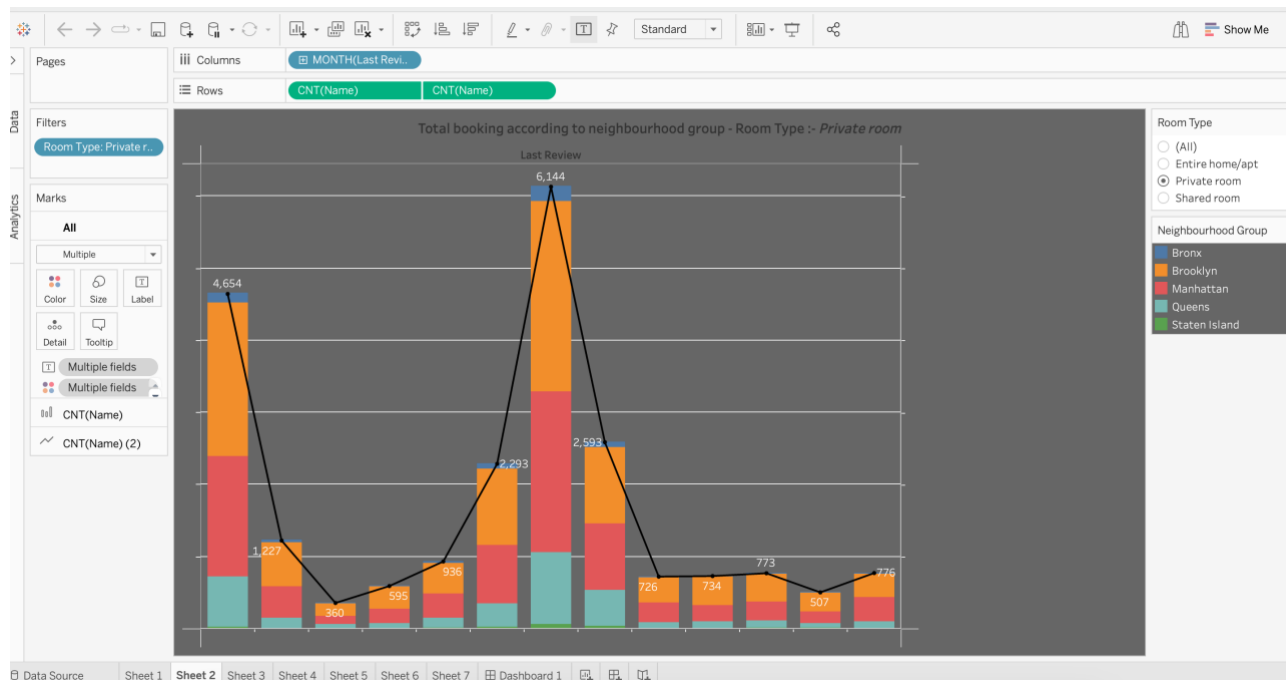
3Total neighbourhoods according to neighbourhood group

Description: The Total Neighbourhoods According to Neighbourhood Group is a useful data set to analyze. It can be used to gain insight into the types of neighbourhoods that are most popular with guests in each neighbourhood group.
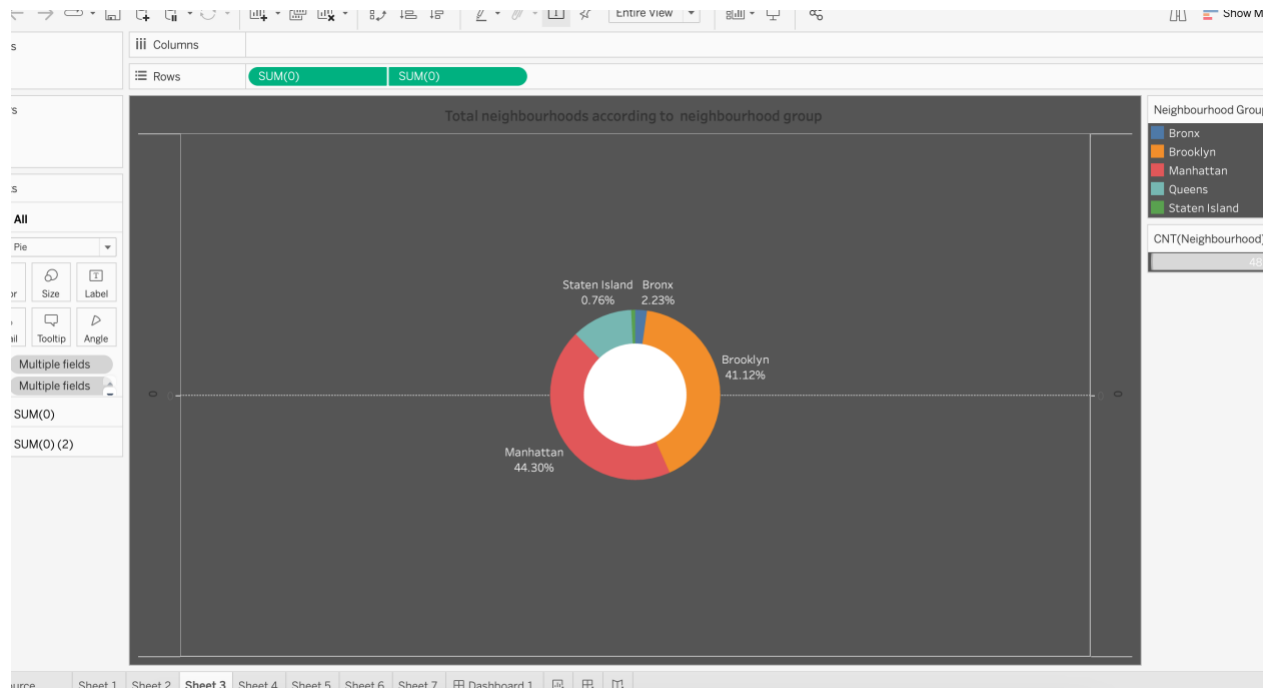

4. **Top 10 Hosts by total reviews**.

Description: The Top 10 Hosts by total reviews provide an interesting snapshot into the hospitality industry. Airbnb and other rental services have made it easier than ever for people to find a place to stay when they travel, and this data shows which hosts are providing the most reviews and feedback from their customers. The top host has over 11,000 reviews, while the tenth has just over 4,000. This indicates that the top host is consistently providing a high-quality experience to their guests, which is likely why they have been able to maintain such a high review total. Similarly, the tenth host is likely providing a satisfactory experience that keeps customers returning for more. The other eight hosts in between have likely found a good balance between price and quality, as they are not as highly-reviewed as the top host, but still have a high review total. Ultimately, this data shows that the hospitality industry is continuing to thrive, and that customers are actively providing feedback to their hosts, which is invaluable for the industry.
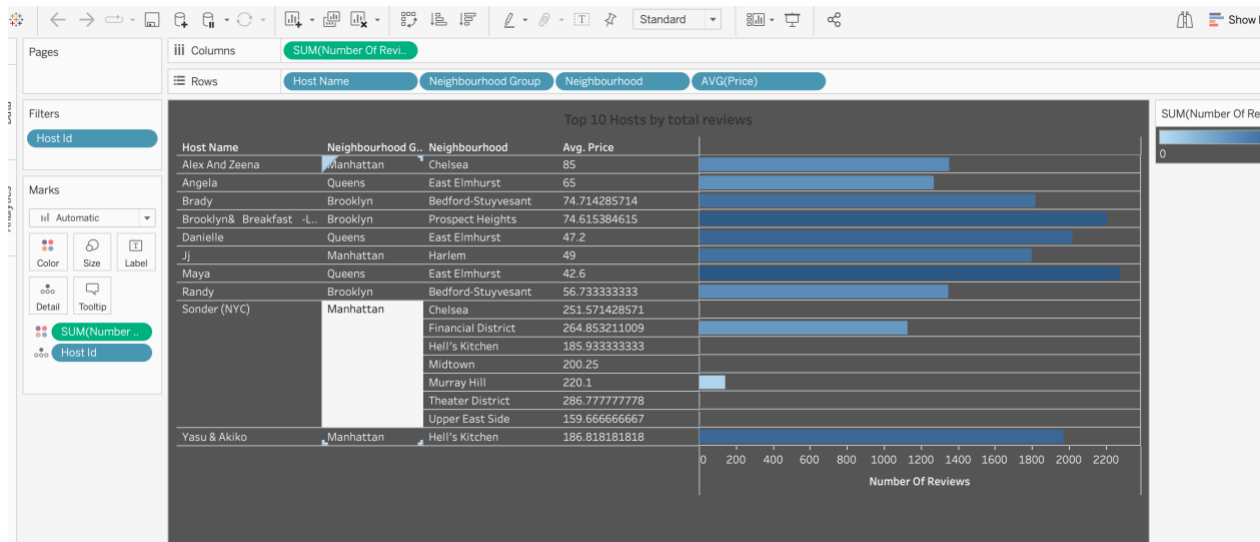
5. Total booking by neighbourhood group and room type

Description: Analysis of the Total Bookings by Neighbourhood Group and Room Type reveals distinct patterns regarding the booking preferences of the customers. The highest total bookings occurred in the Manhattan neighbourhood group, accounting for over two-thirds of the total bookings. This is likely due to its high density of tourist attractions and its reputation as a prime destination for business and leisure travellers. Private rooms and Entire homes/apartments were the most popular choices in this neighbourhood group, accounting for over half of the total bookings. The Brooklyn neighbourhood group had the second highest total bookings, representing nearly a quarter of the total. Private rooms and Entire homes/apartments were the most popular choices here as well, although Shared rooms were more popular than in Manhattan. The Queens neighbourhood group had the third highest total bookings, with Private rooms and Shared rooms being the most popular choices. Overall, the analysis of the Total Bookings by Neighbourhood Group and Room Type reveals an interesting pattern in the booking preferences of customers. Private rooms and Entire homes/apartments remain the most popular choices regardless of the neighbourhood group, while Shared rooms are more popular in some neighbourhoods than others.
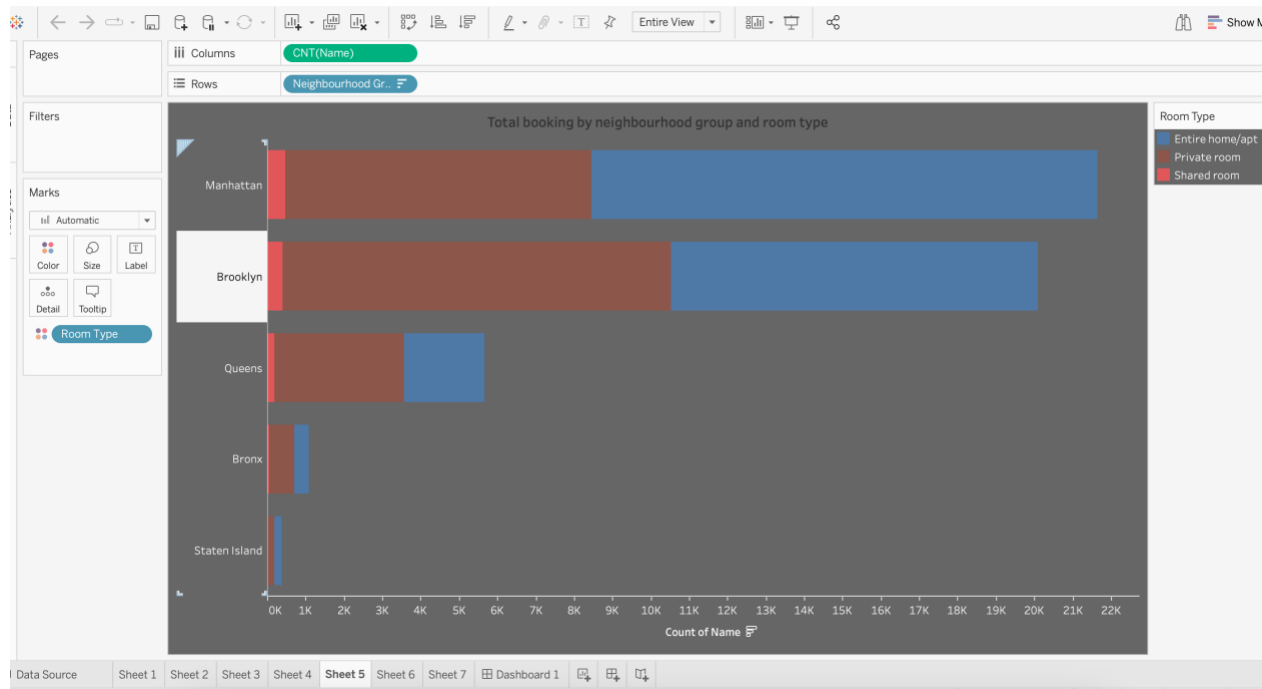
6. Total Review by year

Description: The Total Review by year is a useful tool for analysing the performance of a business over a period of time. It provides a comprehensive overview of reviews, ratings, and customer feedback across all aspects of an organization. This information can be used to identify areas of improvement, track customer satisfaction and loyalty, and measure the success of marketing and promotional efforts. The Total Review by year report displays the total number of reviews, average rating, and the percent of positive reviews for each year. This data can be used to track the progress of customer satisfaction and loyalty over time. Additionally, the report can be used to identify areas of improvement and highlight successes. It can also be used to identify seasonal trends in customer feedback and inform marketing and promotional efforts. Overall, the Total Review by year report is a valuable tool for understanding customer feedback and improving the performance of a business. It provides a comprehensive view of customer ratings, reviews, and feedback over time and helps to identify areas for improvement and successes.
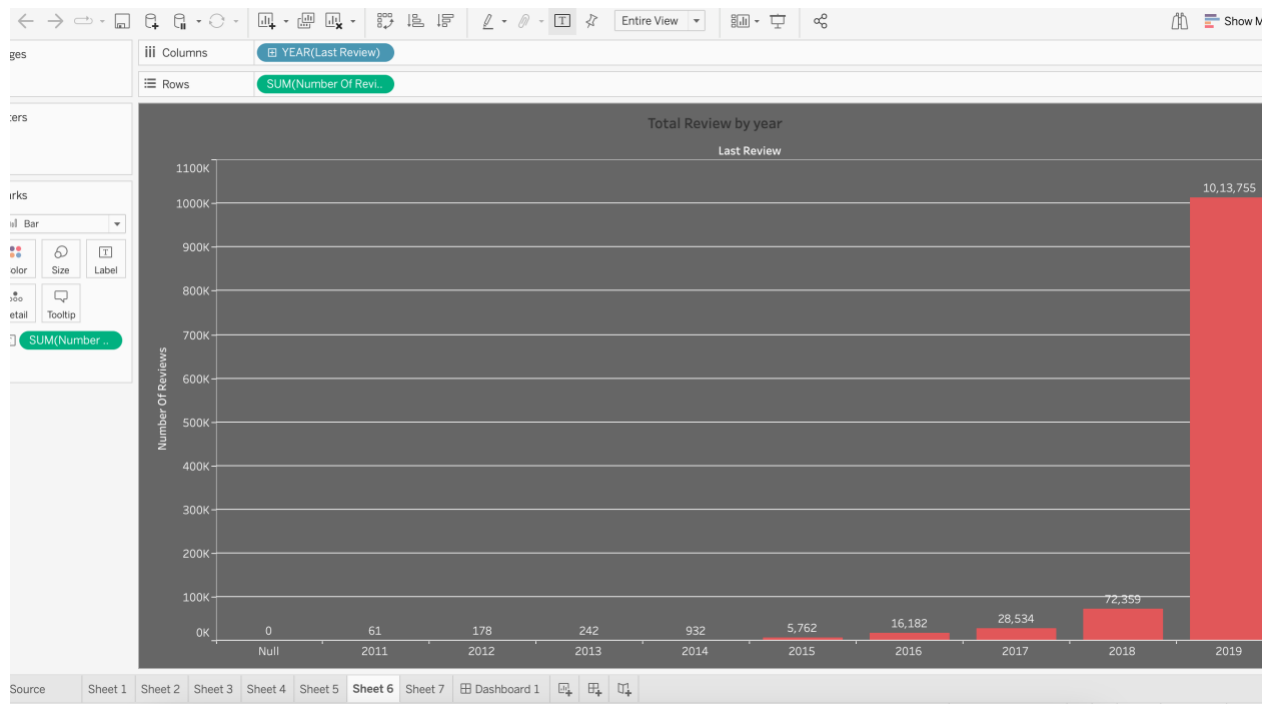
7. **Average price by neighbourhood group - Room Type**

   Description: The Average Price by Neighbourhood Group – Room Type analysis provides insight into the cost of different types of rooms in different neighbourhoods. It displays the average price of rooms per neighbourhood group, as well as the type of room – such as private room, entire home/apartment, hotel room, and shared room. This analysis provides an understanding of which neighbourhoods are more expensive when it comes to renting a room, as well as which room types are most expensive. For example, the analysis shows that neighbourhoods in the Manhattan group are the most expensive, with average prices for private rooms much higher than other neighbourhood groups. Entire homes and apartments in Manhattan are also the most expensive, with an average price that is almost double the average price in other neighbourhood groups. Hotel rooms and shared rooms in Manhattan are slightly more expensive than in other neighbourhood groups, but not by a significant margin. This analysis provides a useful overview of the cost of different types of rooms in different neighbourhoods, and can be used to help inform decisions about where to stay when travelling.

8. Final Dashboard
Description: I have created a dashboard in Tableau which allows me to view all of my data from different angles. I can filter by room type, which allows me to see the different attributes associated with each room type. I can see the number of rooms and the occupancy rate for each room type, as well as the average rate, length of stay and other key metrics. Additionally, I can see the occupancy rate by month and by day. With this dashboard I can gain valuable insights into my business and ensure that I am optimizing my operations.

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- Kaggle(https://www.kaggle.com/datasets/dgomonov/new-york-city-airbnb-open-data)