INT 233: DATA VISUALIZATION

PROJECT REPORT ON

TITLE: Airbnb NYC Interactive Tableau Dashboard

SUBMITTED TO: **SUBMITTED BY:**

MS. Sandeep Kaur   **Prince Keshri**

                                                     12208969

1. Introduction

Airbnb is a popular platform that connects hosts who want to rent out their properties with travelers seeking accommodations. The goal of this project is to analyze Airbnb listings in New York City to gain insights into various aspects, such as neighborhood popularity, room type preference, price distribution, and booking trends. This report presents the data visualization and analysis conducted using Tableau.

2. Project Objectives

The primary objectives of this analysis are:

1. To explore Airbnb listings across different neighborhoods in New York City.

2. To analyze the relationship between neighborhood, room type, and booking trends.

3. To examine price variations across neighborhoods and room types.

4. To study booking and review trends over time.

3. Data Description

The dataset used in this analysis includes information on Airbnb listings in New York City. Key fields include:

- **Host Name:** The name of the host.

- **Neighborhood Group:** The borough in New York City (e.g., Manhattan, Brooklyn).

- **Neighborhood:** Specific neighborhoods within each borough.

- **Room Type:** Type of rental (Entire home/apt, Private room, Shared room).

- **Price:** Listing price per night.

- **Reviews per Month:** Average number of reviews each listing receives per month.

- **Total Bookings:** The total number of bookings by room type and neighborhood.

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4. Methodology

The data was imported into Tableau for visualization and analysis. Four main dashboards were created, each focusing on a different aspect of the Airbnb data. Below is a detailed description of each dashboard.

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5. Dashboard Analysis

Page 1: Overview of Neighborhoods and Room Types

This page provides an overview of the Airbnb listings in New York City, segmented by neighborhood group and room type.

- **Bar Chart - Total Bookings by Neighborhood Group and Room Type:** This chart displays the number of bookings across different boroughs for each room type, revealing the popularity of certain room types in different neighborhoods.

- **Heat Map - Average Reviews per Month by Room Type and Neighborhood Group:** The heat map highlights review activity across neighborhoods and room types, which can help in understanding customer engagement and feedback frequency in each area.

- **Pie Chart - Total Neighborhoods by Neighborhood Group:** This visualization shows the distribution of listings across the boroughs, allowing a quick comparison of Airbnb density in each borough.

Key Findings:

- Entire homes/apartments are most popular in Manhattan and Brooklyn.

- Manhattan and Brooklyn dominate the listings, with smaller shares in Queens, Bronx, and Staten Island.

Page 2: Pricing Analysis

This page focuses on the price distribution of Airbnb listings in different neighborhoods and room types.

- **Treemap - Average Price by Neighborhood Group:** The treemap visualizes the average price across boroughs, with darker colors indicating higher prices. This helps identify which boroughs are more expensive on average.

- **Bar Chart - Average Price in Neighborhoods within Staten Island:** This chart provides a more granular view of pricing in specific neighborhoods within Staten Island, useful for those focusing on this area.

- **Map - Average Price in the Neighborhoods:** A color-coded map shows the average prices geographically, which provides spatial insights into which areas are more affordable or expensive.

Key Findings:

- Manhattan has the highest average prices, especially for entire homes/apartments.

- Prices are generally lower in Queens, the Bronx, and Staten Island.

Page 3: Yearly and Monthly Trends

This page examines booking and review trends over time to identify patterns and seasonality.

- **Bar Chart - Total Reviews by Year:** This chart shows the growth in reviews over the years, indicating the rising popularity of Airbnb in New York City.

- **Stacked Bar Chart - Total Bookings by Month and Neighborhood Group (All Room Types):** This chart reveals seasonal trends in bookings for each borough, helping to identify peak months and low-demand periods.

Key Findings:

- There has been significant growth in Airbnb reviews in recent years, indicating increased popularity.

- Bookings peak during certain months, which could be aligned with tourist seasons in New York City.

Page 4: Detailed Host and Neighborhood Analysis

This page provides a more detailed analysis of specific hosts and neighborhoods, as well as a focused price comparison.

- **Host Details Table - Host Name, Neighborhood Group, and Price:** A table listing hosts, neighborhoods, and prices gives an overview of specific listings and their pricing.

- **Pie/Bar Chart - Average Price in Staten Island Neighborhoods:** This chart provides specific pricing information for neighborhoods in Staten Island, useful for comparing different areas within this borough.

Key Findings:

- Hosts in Manhattan tend to charge higher prices, particularly for entire homes/apartments.

- Certain neighborhoods in Staten Island have lower prices, making them a potential target for budget-conscious travelers.

6. Conclusion

This project provided valuable insights into Airbnb listings in New York City. By analyzing neighborhood preferences, room type popularity, price distribution, and temporal trends, we can conclude:

- Manhattan and Brooklyn are the most popular and expensive neighborhoods for Airbnb listings.

- Entire homes/apartments tend to have higher booking rates and prices, especially in Manhattan.

- Booking and review trends indicate seasonality, with increased activity in specific months, likely due to tourism patterns.

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