Airbnb NYC Data Analysis and Visualization Project Report

1. Project Overview

This project analyzes Airbnb listing data for New York City using Tableau to uncover trends in pricing, bookings, reviews, and host performance. The objective was to provide actionable insights into platform usage, high-performing neighborhoods, and host behavior using dynamic dashboards and story-driven visualization.

2. Tools and Dataset

• Dataset: NYC Airbnb Open Data (2019)
• Tools Used: Tableau, Excel
• Fields Analyzed: Room Type, Price, Number of Reviews, Availability, Neighborhood, Host ID, Reviews per Month, etc.
• Filtering: Focused on year 2019 to ensure relevance and reduce noise in trends.

3. Project Objectives

- Understand listing distribution across NYC boroughs
- Identify top-performing hosts and neighborhoods
- Analyze booking patterns and seasonal demand
- Compare pricing behavior and customer engagement
- Build interactive dashboards for decision-making

4. Key Worksheets and Insights

- Total Hosts / Reviews / Neighborhoods / Reviews per Month

KPI metrics summarizing platform activity: 37,457 hosts, 221 neighborhoods, and over 1.13M reviews with an average of 1.37 reviews per month.

- Airbnb Reviews Over Time

Bar chart showing annual growth in reviews, with a noticeable spike in 2019.

- Listings by Booking Rate and Room Type

Stacked bar chart showing how booking activity varies by room type and engagement level.

- Neighborhood Distribution (Pie Chart)

Visualizes the spread of neighborhoods across boroughs, with Manhattan and Brooklyn dominating.

- Estimated Monthly Bookings
Dual-axis line/bar chart revealing seasonal trends with peak activity in summer months.

- Booking Rate by Room and Location (Treemap)
Treemap showing lower-performing segments by borough and room type based on average booking rate.

- Listings and Revenue by Borough and Room Type
Dual bar chart comparing total listings and generated revenue by borough and room type.

- Top 10 Hosts by Reviews
Bar chart identifying the most reviewed hosts along with their average pricing and location.

- Average Price by Neighborhood (Map View)
Map chart illustrating spatial pricing patterns across NYC.

- Top N Neighborhoods by Price
Bar chart showing dynamically filtered top-priced neighborhoods using a parameter slider.

- Avg Reviews per Month Heatmap
Heatmap analyzing engagement levels (review frequency) by room type and borough.

5. Dashboards Overview
• Dashboard 1: Market Overview & Booking Trends
  - Includes KPIs, booking trends, room type performance, and borough-wise listing spread.
• Dashboard 2: Host & Pricing Insights
  - Focuses on top hosts, pricing by neighborhood, review intensity, and geographic distribution.

6. Story Presentation
The Tableau Story was structured into multiple steps to guide the viewer through high-level activity metrics, trends in bookings and prices, top host analysis, and review engagement. It was designed for stakeholders such as Airbnb managers or city planners interested in strategic data insights.

7. Conclusion

This project successfully demonstrates how Tableau can turn raw Airbnb data into actionable insights. By combining interactive elements like filters and parameters with compelling visual storytelling, we were able to identify patterns in demand, pricing, and engagement across NYC. These insights can support better decision-making in urban hospitality management and business strategy.