# Hackathon Task: Airbnb Data Analytics Dashboard

**Objective**

Participants will develop an **interactive dashboard** to analyze Airbnb rental trends, utilizing different descriptive functions and **group by** functionality to compare variations across different categories such as price, number of reviews, availability, and neighborhood. The goal is to provide **actionable insights** for hosts, travelers, or policymakers.

**Dataset: Airbnb Listings (New York City)**

The dataset contains details of Airbnb listings, including:

- **Price**

- **Neighborhood**

- **Room Type** (Entire home, Private room, Shared room)

- **Number of Reviews**

- **Availability (days available per year)**

- **Host Listings Count** (Total listings managed by a host)

**Dataset Source**

📌 Kaggle - New York City Airbnb Open Data
https://www.kaggle.com/datasets/arianazmoudeh/airbnbopendata/data

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**Task Instructions for Participants**

**1. Data Exploration & Preparation**

- Clean the dataset by handling **missing values** and **outliers** (e.g., unrealistic prices).

- Use the **group by** function to summarize key metrics:

    o Average price per neighborhood

    o Number of reviews per room type

    o Availability trends across boroughs

    o Host listing distribution (small vs. large-scale hosts)

**2. Dashboard Development**

📌 **Tools Allowed:** You can use any tool you want (Tableau, Power BI, R shiny, Python (Dash/Streamlit), MS Excel etc)

- Create **interactive visualizations** showcasing price variations, demand trends, and room type distributions.

- Include **filters** (e.g., by neighborhood, price range, room type).

- Highlight outliers (e.g., luxury listings vs. budget-friendly options).

- Provide **comparative views**, such as:

    o Price vs. Number of Reviews

    o Neighborhood-wise availability trends

    o Host activity (single vs. multi-listing hosts)

## 3. Key Insights & Recommendations

- Identify trends such as **most profitable areas**, **room types with high demand**, and **seasonal availability shifts**.

- Provide **business insights** for Airbnb hosts (e.g., pricing strategies based on neighborhood trends).

- Suggest data-driven recommendations for potential travelers, property investors, or local policymakers.

## 4. Presentation

- Each team will present their **dashboard and findings** (max **10 minutes**).

- Explain **methodology, key insights, and how the dashboard can be used for decision-making**.