Airbnb Data Analysis Report

1. Data Cleaning & Preprocessing

The dataset initially contained missing values in multiple columns:

- **Missing values found in:**
  - name
  - host_name
  - last_review
  - reviews_per_month

Steps taken to handle missing values:

- Removed rows where **name** and **host_name** were missing, as these are essential identifiers.
- Extracted **month** and **year** from last_review and created two new columns (review_month, review_year).
- Dropped the last_review column since it contained more than 10% missing values.
- Replaced missing values in review_month and review_year with their **mean values** for consistency.

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2. New Calculations

- Created a new column **Total Payment** = price × minimum_nights.
- Defined the following **measures** in Power BI:
  - **Average Availability**
  - **Average Nights**
  - **Average Price**
  - **Average Reviews per Month**
  - **Total Records**

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3. Dashboard Insights

The Power BI dashboard provides an overview of Airbnb listings, prices, availability, and host activity.

Key Metrics

- **Total Records:** 25K
- **Average Nights:** 8.48
- **Average Availability:** 111.85 days
- **Average Price:** $211.90
- **Average Reviews per Month:** 22.80

Host-Level Insights

- **Highest Average Price by Host:** Olson (~$10K).
- **Most Listings:** Sonder (NYC) with over 104K listings, followed by Blueground (54K).

Neighbourhood Insights

- **Longest Average Stay:** Spuyten Duyvil (~50+ nights).

- Other neighborhoods with longer stays include Claremont Village and Port Richmond.

Geographical Distribution

- Most listings are concentrated around **New York City and nearby regions**.

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4. Business Implications

- **High competition among hosts** like Sonder and Blueground, suggesting large-scale property management companies dominate the market.

- **Spuyten Duyvil** attracts long-term stays, which may be ideal for targeting customers seeking extended visits.

- **Olson's high average price** indicates premium/luxury listings that cater to high-spending guests.

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5. Recommendations

- Encourage individual hosts to improve competitiveness against large operators by focusing on **unique experiences**.

- Potentially increase occupancy in **low-stay neighborhoods** by offering discounts for longer bookings.

- Track **Total Payment** insights to identify the most profitable areas and room types.