

Executive Summary

This project presents an in-depth **exploratory data analysis (EDA)** of Airbnb listings to uncover key pricing patterns, room-type preferences, neighborhood concentration, and availability trends that influence both guest choices and host strategies.

The dataset contains **102,599 Airbnb listings** with **26 features**, including room type, neighborhood, availability, minimum nights, reviews, and pricing-related attributes. Analysis shows that **Entire homes/apartments dominate the market, accounting for 52.34% of all listings**, followed closely by **Private rooms at 45.38%**, while **Shared rooms (2.17%)** and **Hotel rooms (0.11%)** form a very small fraction of the market.

Pricing analysis (based on cleaned service fee values used as a price proxy) reveals a **mean nightly price of \$125**, with a **median of \$125**, indicating a balanced mid-range pricing structure. Approximately **38.76% of listings are priced below \$100 per night**, while **over 82.15% fall under \$200**, highlighting a strong affordability segment within the Airbnb market.

Geographic analysis indicates a clear concentration of listings. The **top five neighborhoods—Bedford-Stuyvesant, Williamsburg, Harlem, Bushwick, and Hell's Kitchen—together account for 29.36% of all listings**, suggesting high demand and dense hosting activity in these areas.

Availability trends further reveal host behavior patterns. Listings show an **average availability of 141 days per year**, with **50% of properties available for fewer than 96 days annually**, indicating that a significant portion of hosts operate on limited or seasonal availability, potentially to maintain higher pricing or personal usage.

Overall, this analysis demonstrates how **pricing, room type, neighborhood location, and availability collectively shape Airbnb market dynamics**. The insights derived from this dataset are valuable for **hosts aiming to optimize pricing, travelers seeking cost-effective stays, and analysts exploring short-term rental trends in urban markets**.