Airbnb Short term Rental Insights

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Link of the dashboard:
https://public.tableau.com/app/profile/sandhya.bamaniya/viz/AirbnbNewYork_16864302603320/Dashboard2

Summary:

From the analysis below, to increase the revenue and occupancy rates we should focus more on the properties which are more popular such as entire home/apt. By offering promotional offers and discounts in the off-peak periods the revenue can increased. Manhattan and Brooklyn are the most popular borough in New York City.

Context:

Pillow Palooza is a real estate start-up. The main objective is to get insights on short term rental market in New York City. This analysis is based on Airbnb New York's nine months data. The insights gained from the analysis will help Pillow Palooza to enhance its revenue and occupancy rates for their short-term rental properties. For the analysis three techniques were used to gain insights. Data Wrangling and cleaning is done with Python. Data Analysis and insights were generated with the help of SQL and visualizations with Tableau.

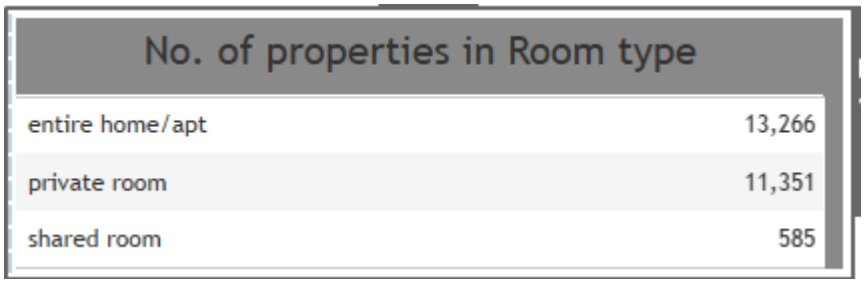
Analysis Findings:

There are total of 5 Boroughs and 3 types of properties.

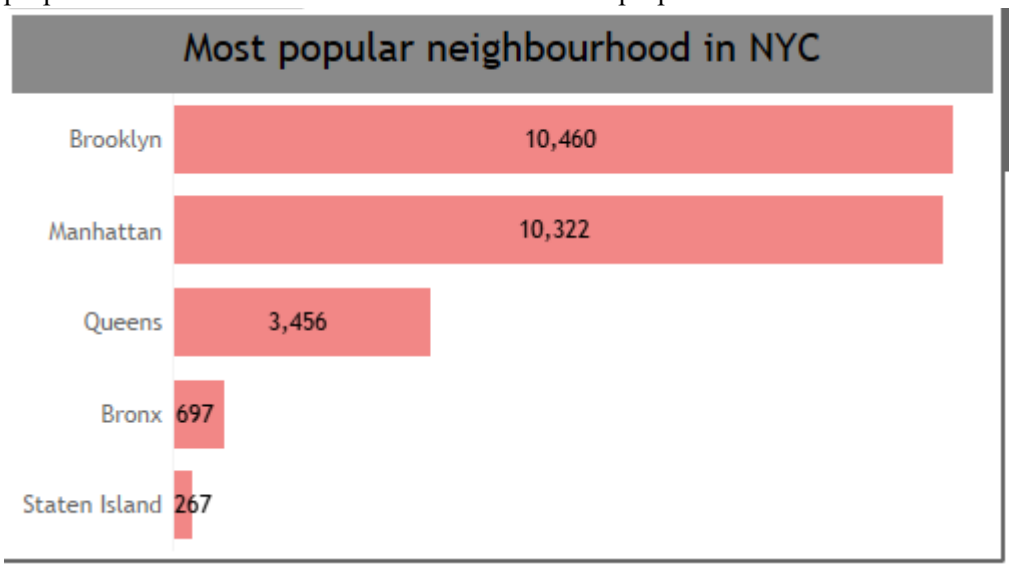
1. Avg. Price/night in Borough:
   Manhattan is having the highest average price ($184/night) in borough and Bronx is having the lowest ($79.24/night).

Avg. Price/night in Borough	
Manhattan	$184.00
Brooklyn	$121.97
Queens	$92.81
Staten Island	$86.04
Bronx	$79.24

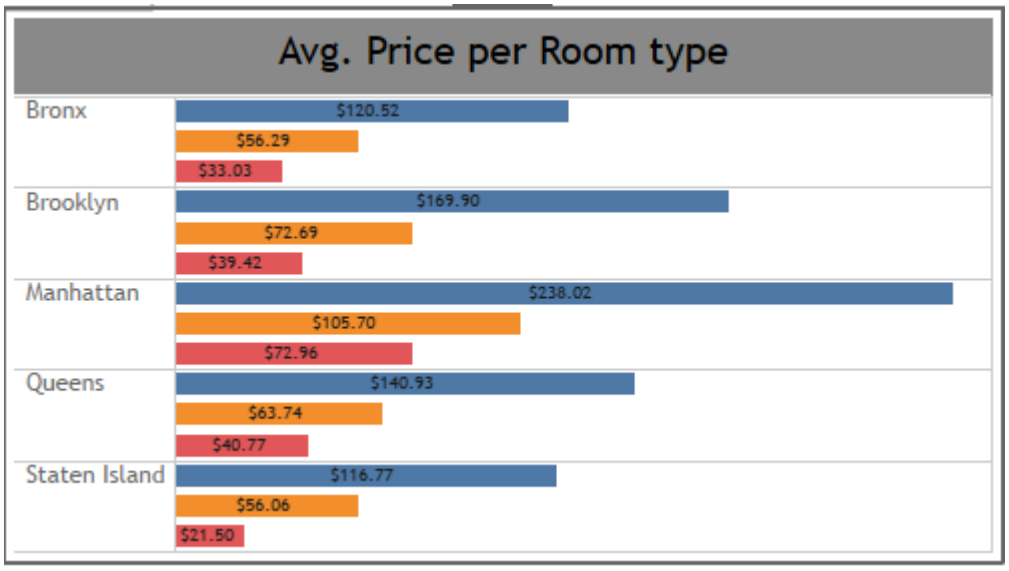
2. No. of properties in Room type:
   In this visualization, entire home/apt has total of 13,266 properties across all 5 boroughs. The second is private room with 11,351 properties whereas shared room with the lowest of 585 properties. This all-combined give us the total of 25,202 room types across all boroughs.



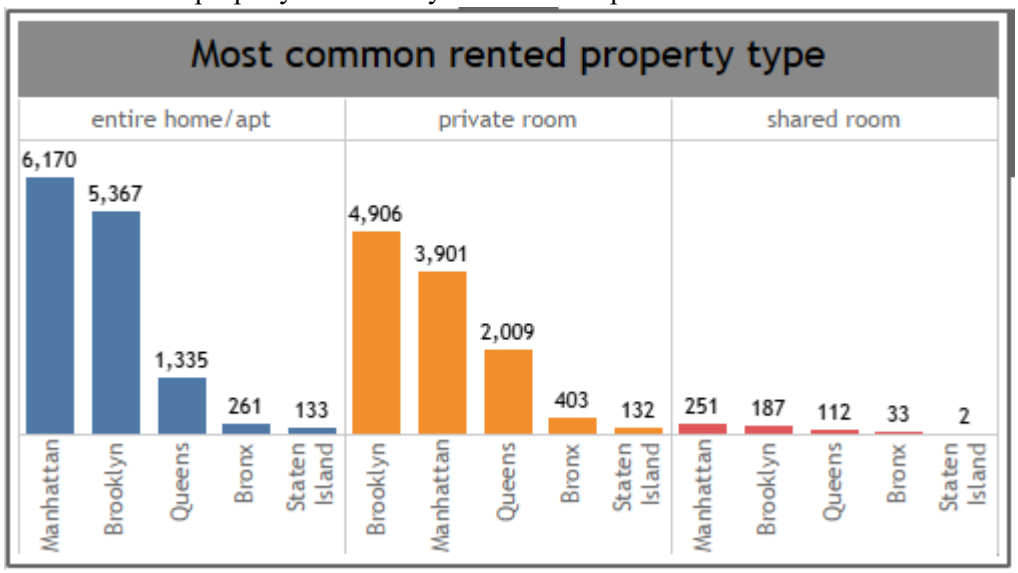
3. Most popular neighborhood in NYC:
   For this visualization we used the listing ids of room types to see which borough/neighborhood is most popular. Brooklyn is the most popular with over 10,460 properties whereas Staten Island has 267 number of properties which is the lowest.



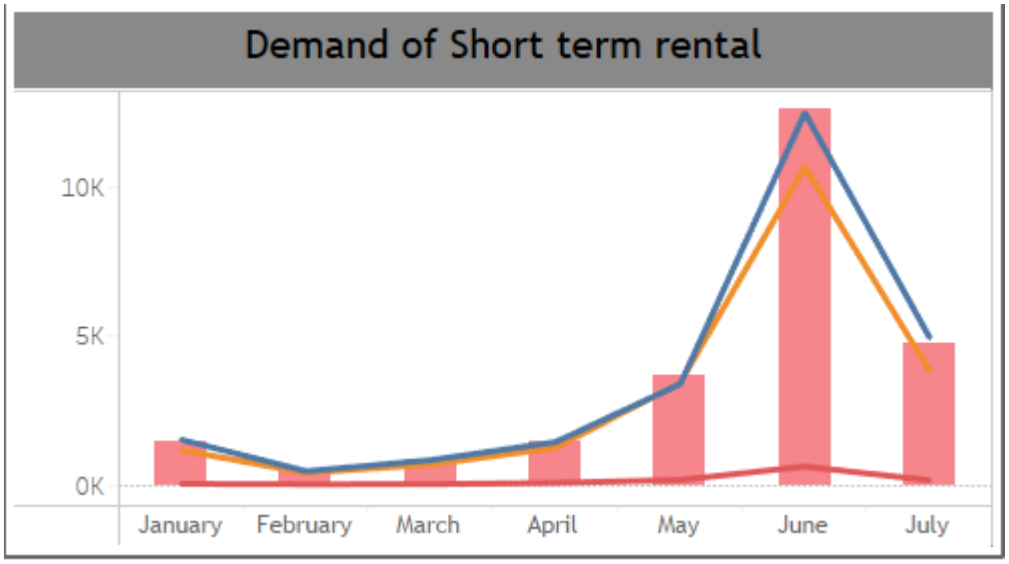
4. Avg. Price/night in Room type and Borough:
   Manhattan shows the highest avg. price/night for entire home/apt ($238.02), and Staten Island has the lowest avg. price/night for entire home/apt ($116.77).
   For private room Manhattan is having the highest avg. price/night ($105.70), and Staten Island is having the lowest amount ($56.06).
   For shared room, Manhattan with highest price ($72.96), Staten Island with lowest price ($21.50).
   It also indicates that entire home/apt property type is the most common type for rental whereas shared room is the least common.



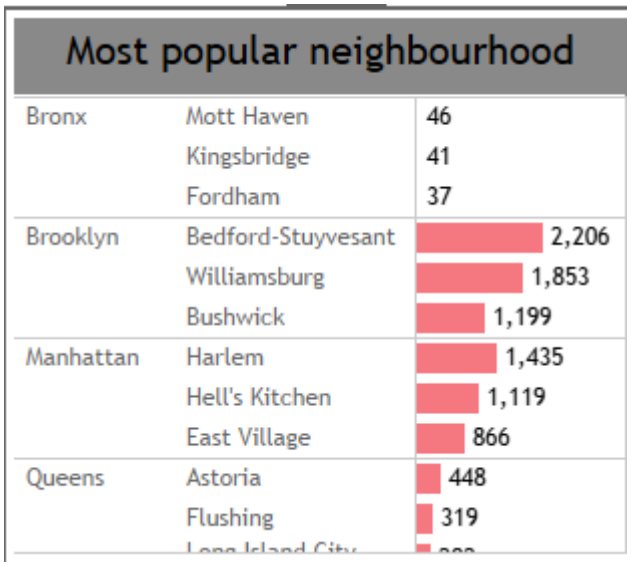
5. Most common rented property type:
   Entire home/apt is the most common rented property. Manhattan and Brooklyn both have entire home/apt as common property. Queens and Bronx are having private room as the most common rented property followed by entire home/apt.



6. Demand of short-term rental:
   From this visualization, it is clearly mentioned June and July month which has high demand. The season during these months is summer which indicates high demand in those months whereas February shows the lowest demand. This is calculated when the customer has last rated or reviewed the property.



7. Most Popular Neighborhood:
   The visualization shows the top 3 popular neighborhoods in all the borough. These neighborhoods are the prime for revenue increase. Brooklyn is having the highest number of listings of prime property followed by Manhattan. Staten Island has the lowest number of listings of neighborhoods as well as the listings of prime property is low.



Recommendations:

Based on the analysis above, it shows that entire home/apt shows the potential to increase revenue as it is the most rented property in Manhattan and Brooklyn. There should be more properties listed in Staten Island as it has the lowest number of properties listed. By adjusting the prices based on seasonal fluctuations, events, and local demand to increase the revenue. Pillow Palooza can also offer some promotional discounts, or special rates during off-peak periods to attract more bookings. We should also track revenue and occupancy rates and monitor guest feedback and reviews to identify improvement.

Appendix:

```sql
--1. What is the most common room type in NYC Airbnb listings?
SELECT room_type, COUNT(*) AS count
FROM room_types
GROUP BY room_type
ORDER BY count DESC;

--2. What is the average price of the listings by room type "shared room"?This question is required.
SELECT ROUND(AVG(price),2)
FROM prices AS p
JOIN room_types AS r
ON p.listing_id = r.listing_id
WHERE room_type = 'shared room';

--3. Which borough has the highest average price per month?
SELECT borough, AVG(price_per_month) AS avg_price
FROM prices AS p
JOIN room_types AS r
ON p.listing_id = r.listing_id
GROUP BY borough
ORDER BY avg_price DESC;

--4. How many listings of each room type are in each borough?
SELECT borough, room_type, COUNT(calculated_host_listings_count) AS listing_count
FROM prices AS p
JOIN room_types AS r
ON p.listing_id = r.listing_id
JOIN reviews AS rv
ON p.listing_id = rv.listing_id
GROUP BY borough, room_type;

--5. How many listings in each room type category have a price greater than $500 per night?
SELECT room_type, COUNT(calculated_host_listings_count) AS listing_count
FROM prices AS p
JOIN room_types AS r
ON p.listing_id = r.listing_id
JOIN reviews AS rv
ON p.listing_id = rv.listing_id
WHERE price > 500
GROUP BY room_type;

--6. What is the distribution of listing prices by borough?
SELECT borough, MIN(price), MAX(price), AVG(price)
FROM prices AS p
JOIN room_types AS r
ON p.listing_id = r.listing_id
GROUP BY borough;
```

```sql
--7. What is the estimated amount of revenue generated by hosts in each borough?
SELECT borough, SUM(price*booked_days_365)
FROM prices AS p
JOIN reviews AS r
ON p.listing_id = r.listing_id
GROUP BY borough;

--8. What is the average price per month for listings in each neighborhood?
SELECT neighbourhood, room_type, AVG(price_per_month) AS avg_price_per_month
FROM prices AS p
JOIN room_types AS r
ON p.listing_id = r.listing_id
GROUP BY neighbourhood, room_type
ORDER BY avg_price_per_month DESC;

--9. How many listings have no reviews?
SELECT *
FROM reviews
WHERE last_review IS NULL;

--10. How do the estimated book days correlate with the price of an Airbnb listing in New York City?
SELECT CORR(booked_days_365, price)
FROM reviews AS r
JOIN prices AS p
ON r.listing_id= p.listing_id;
```