

COMPREHENSIVE ANALYSIS OF AIRBNB LISTINGS IN NEW YORK CITY (SQL Project)

OVERVIEW: Airbnb has revolutionized the travel and hospitality industry by offering a platform where homeowners can rent out their properties to travelers. New York City, with its diverse neighborhoods and vibrant culture, is one of the most popular destinations on Airbnb. This project aims to analyze the Airbnb listings in New York City to uncover trends, insights, and patterns that can help hosts improve their offerings and provide potential travelers with better options.

OBJECTIVE: The primary objective of this project is to perform a comprehensive analysis of the Airbnb listings in New York City. This includes data cleaning and preprocessing, exploratory data analysis (EDA), and addressing specific business questions through SQL queries. Additionally, the project aims to visualize the findings using tools like Tableau, Excel, and Python to make data-driven recommendations for stakeholders.

PROBLEM STATEMENT:

Background: Airbnb faces several challenges in maintaining high-quality listings and providing valuable insights to hosts and guests. The New York City market, with its high demand and diverse listings, presents unique opportunities and challenges. Understanding the dynamics of this market can help Airbnb optimize its platform and improve user satisfaction.

Key Challenges:

- **Quality and Consistency:** Ensuring high-quality listings and consistent guest experiences across diverse neighborhoods.
- **Pricing Strategy:** Understanding the pricing dynamics to help hosts set competitive yet profitable prices.
- **Occupancy Rates:** Identifying factors that influence occupancy rates and helping hosts maximize their bookings.
- **Regulatory Compliance:** Navigating complex local regulations that impact short-term rentals.

DATA DESCRIPTION: We are working with a dataset related to short-term rental listings, likely from a platform like Airbnb. Let's break down what each column represents:

id: Unique identifier for the listing.

name: Name of the listing.

host_id: Unique identifier for the host.

host_name: Name of the host.

neighbourhood_group: Larger geographic area that contains the neighbourhood (e.g., borough or district).

neighbourhood: Specific area or neighborhood where the listing is located.

latitude: Latitude coordinate of the listing's location.

longitude: Longitude coordinate of the listing's location.

room_type: Type of room offered (e.g., entire home/apt, private room, shared room).

price: Price per night to rent the listing.

minimum_nights: Minimum number of nights required to book the listing.

number_of_reviews: Total number of reviews the listing has received.

last_review: Date of the most recent review.

reviews_per_month: Average number of reviews received per month.

calculated_host_listings_count: Total number of listings the host has.

availability_365: Number of days the listing is available for booking in a year.

number_of_reviews_ltm: Number of reviews in the last twelve months.

license: License number of the listing, if applicable.

rating: Rating of the listing (typically out of 5).

bedrooms: Number of bedrooms in the listing.

beds: Number of beds in the listing.

baths: Number of bathrooms in the listing.

DATA CLEANING AND PREPROCESSING: Let's start with data cleaning and preprocessing. First we will be checking for the duplicates.

```
# Remove duplicates
SELECT count (*) as row_count_original
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`;

SELECT
  DISTINCT COUNT(*) AS row_count_distinct
FROM
  `directed-racer-396805.airbnb.airbnb_ny_listing`;
```

JOB INFORMATION		RESUL
Row	row_count_original	
1	20758	

JOB INFORMATION		RESULTS
Row	row_count_distinct	
1	20758	

We can compare the number of rows and the distinct number of rows in dataset and both are same in number that means there are no duplicates.

Next we will look into the shape of dataset.

```
-- SHAPE OF DATA
--Row we have already counted
# no of columns
SELECT
    COUNT(*) AS column_count
FROM
    `directed-racer-396805.airbnb.INFORMATION_SCHEMA.COLUMNS`
WHERE
    table_name = 'airbnb_ny_listing';
```

JOB INFORMATION		RESUL
Row	column_count	
1	22	

So we have a **dataset with 20758 rows and 22 columns**.

Data Types of Columns: Next we are going to have a look on the data types of all the columns.

```
#DATA TYPES
SELECT column_name,
       data_type
FROM
    `directed-racer-396805.airbnb.INFORMATION_SCHEMA.COLUMNS`
WHERE
    table_name = 'airbnb_ny_listing';
```

JOB INFORMATION		RESULTS	CHART
low	column_name ▼	data_type ▼	
1	id	INT64	
2	name	STRING	
3	host_id	INT64	
4	host_name	STRING	

JOB INFORMATION		RESULTS	CHART	JSON
Row	column_name ▼	data_type ▼		
5	neighbourhood_group	STRING		
6	neighbourhood	STRING		
7	latitude	FLOAT64		
8	longitude	FLOAT64		

JOB INFORMATION		RESULTS	CHART	JSON
Row	column_name ▼	data_type ▼		
9	room_type	STRING		
10	price	FLOAT64		
11	minimum_nights	INT64		
12	number_of_reviews	INT64		

JOB INFORMATION		RESULTS	CHART	JSC
Row	column_name ▼	data_type ▼		
13	last_review	DATE		
14	reviews_per_month	FLOAT64		
15	calculated_host_listings_count	INT64		
16	availability_365	INT64		

JOB INFORMATION		RESULTS	CHART
Row	column_name	data_type	
17	number_of_reviews_ltm	INT64	
18	license	STRING	
19	rating	STRING	
20	bedrooms	STRING	
21	beds	INT64	
22	baths	STRING	

Rating and baths columns must be of float type since they have 'not specified', 'new' and 'no rating' values they are put as string.

HANDLING MISSING VALUES: Now, we are going to have the summary of all the columns with the count of missing values corresponding to each column.

```
-- Check for missing values
SELECT
  SUM(CASE WHEN name IS NULL THEN 1 ELSE 0 END) AS missing_name,
  SUM(CASE WHEN host_id IS NULL THEN 1 ELSE 0 END) AS missing_host_id,
  SUM(CASE WHEN host_name IS NULL THEN 1 ELSE 0 END) AS missing_host_name,
  SUM(CASE WHEN neighbourhood_group IS NULL THEN 1 ELSE 0 END) AS missing_neighbourhood_group,
  SUM(CASE WHEN neighbourhood IS NULL THEN 1 ELSE 0 END) AS missing_neighbourhood,
  SUM(CASE WHEN latitude IS NULL THEN 1 ELSE 0 END) AS missing_latitude,
  SUM(CASE WHEN longitude IS NULL THEN 1 ELSE 0 END) AS missing_longitude,
  SUM(CASE WHEN price IS NULL THEN 1 ELSE 0 END) AS missing_price,
  SUM(CASE WHEN room_type IS NULL THEN 1 ELSE 0 END) AS missing_room_type,
  SUM(CASE WHEN minimum_nights IS NULL THEN 1 ELSE 0 END) AS missing_minimum_nights,
  SUM(CASE WHEN number_of_reviews IS NULL THEN 1 ELSE 0 END) AS missing_number_of_reveiw,
  SUM(CASE WHEN last_review IS NULL THEN 1 ELSE 0 END) AS missing_last_reveiw,
  SUM(CASE WHEN reviews_per_month IS NULL THEN 1 ELSE 0 END) AS missing_reveiw_per_month,
  SUM(CASE WHEN calculated_host_listings_count IS NULL THEN 1 ELSE 0 END) AS
missing_calculated_host_listings_count,
  SUM(CASE WHEN number_of_reviews_ltm IS NULL THEN 1 ELSE 0 END) AS missing_number_of_reviews_ltm,
  SUM(CASE WHEN license IS NULL THEN 1 ELSE 0 END) AS license,
  SUM(CASE WHEN availability_365 IS NULL THEN 1 ELSE 0 END) AS missing_availability_365,
  SUM(CASE WHEN rating IS NULL THEN 1 ELSE 0 END) AS rating,
  SUM(CASE WHEN bedrooms IS NULL THEN 1 ELSE 0 END) AS bedrooms,
  SUM(CASE WHEN beds IS NULL THEN 1 ELSE 0 END) AS beds,
  SUM(CASE WHEN baths IS NULL THEN 1 ELSE 0 END) AS baths
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH	
Row	missing_name	missing_host_id	missing_host_name	missing_neighbourh	missing_neighbourh	missing_latitude	missing_longitude
1	0	0	0	0	0	0	0

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH	
Row	missing_price	missing_room_type	missing_minimum_n	missing_number_of	missing_last_reveiw	missing_reveiw_per	missing_calculated
1	0	0	0	0	0	0	0

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH		
Row	alculated	missing_number_of	license	missing_availability	rating	bedrooms	beds	baths
1	0	0	0	0	0	0	0	0

As we can see the data is clean. There are no missing values.

GENERATING INSIGHTS: Now, we are going to answer few questions which will help us to generate insights from the data.

1. **Quality and Consistency:** Ensuring high-quality listings and consistent guest experiences across diverse neighborhoods.

- **Average Rating by Neighbourhood:**

--AVERAGE RATING BY NEIGHBOURHOOD

```
SELECT neighbourhood, AVG(cast(rating as decimal)) AS avg_rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE rating NOT IN ('No rating', 'New', 'New ')
GROUP BY neighbourhood
ORDER BY avg_rating DESC
LIMIT 20;

SELECT neighbourhood, AVG(cast(rating as decimal)) AS avg_rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE rating NOT IN ('No rating', 'New', 'New ')
GROUP BY neighbourhood
ORDER BY avg_rating
LIMIT 5;
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	neighbourhood	avg_rating		
1	Rossville	5		
2	Neponsit	5		
3	West Farms	5		
4	Navy Yard	5		

JOB INFORMATION		RESULTS	CHART	JSON
Row	neighbourhood	avg_rating		
5	Gerritsen Beach	4.99		
6	Castle Hill	4.97		
7	Randall Manor	4.95875		
8	Woodrow	4.955		

Lowest rating results:

Row	neighbourhood	avg_rating
1	Holliswood	3.78
2	East Morrisania	4.402
3	Mount Eden	4.471428571
4	Flatiron District	4.474193548
5	Emerson Hill	4.486666667

Insights:

- Rossville, Neponsit, West Farms, Navy Yard are the neighbourhood with average **rating as 5**. Gerritsen Beach, Castle Hill, Randall Manor, Woodrow have almost **4.9 average ratings**. Based on companies requirement they can target on such top 10-20 places or more to generate maximum profit as these places are liked by customers.
- Holliswood is the neighbourhood which is not liked much with average rating of 3.78.
- Overall if we see on the basis of ratings except Holliswood all the places must be considered good as the average rating lies from 4.4-5.
- **Distribution of Ratings:** Understanding the spread of ratings across listings.

```
SELECT rating, COUNT(*) AS rating_count
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY rating
ORDER BY rating_count desc;
```

JOB INFORMATION		RESULTS	CHART	JSC
Row	rating	rating_count		
1	No rating	3593		
2	5.0	2882		
3	4.67	517		
4	4.75	469		

Insights:

- Maximum ratings fall under **No Rating** category with 3593 ratings.
- Following this the maximum number ratings goes for 5 ratings with 2882 ratings.
- Although highest number of ratings were not given but still we can consider the fact that whatever locations they have they generally fall under 4.4-5 average ratings.
- **Average number of Reviews by Room Type:** Now we will check the average number of reviews various types of rooms get.

```
SELECT room_type, AVG(number_of_reviews) AS average_reviews
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY room_type
```

```
order by average_reviews desc;
```

JOB INFORMATION		RESULTS	CHART	JSO
Row	room_type ▼	average_reviews ▼		
1	Hotel room	57.69642857142...		
2	Shared room	49.37883959044...		
3	Private room	46.30383916401...		
4	Entire home/apt	39.53467832712...		

Insights:

- The highest number of average reviews are for Hotel rooms, followed by shared room and private room with 57.69,49.37,46.30 average reviews respectively.
- It is more likely to be inferred that hotel rooms followed by shared and private room are preferred the most that's why they are reviewed most.
- **Top 10 Listings by Number of Reviews:** We will see the top ten listings by number of reviews which will help us to know which places are mostly preferred by customers.

```
-- Top 10 listings by number of reviews
SELECT id, name, number_of_reviews
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
ORDER BY number_of_reviews DESC
LIMIT 10;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION
Row	id ▼	name ▼	number_of_reviews		
1	37122502	Boutique hotel in New York · ★4.54 · 1 bedroom · 1 bed · 1 private bath	1865		
2	49381739	Hotel in New York · ★4.66 · 1 bedroom · 1 bed · 1 private bath	1618		

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION
Row	id ▼	name ▼	number_of_reviews		
3	53843545	Hotel in New York · ★4.42 · 1 bedroom · 1 bed · 1 private bath	1574		
4	49439129	Hotel in New York · ★4.65 · 1 bedroom · 2 beds · 1 shared	1201		

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION I
Row	id	name	number_of_reviews		
5	51866988	Hotel in New York · ★4.36 · 1 bedroom · 1 bed · 1 private bath	1188		
6	51619634	Rental unit in New York · ★4.88...	1139		
7	37122162	Boutique hotel in New York ·	1128		

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION I
Row	id	name	number_of_reviews		
8	6916764601092...	Loft in New York · ★4.57 · 1 be...	1048		
9	49440252	Hotel in New York · ★4.70 · 1 bedroom · 1 bed · 1 private bath	991		
10	5933223473406...	Hostel in New York · ★4.45 · 1 bedroom · 1 bed · 1 shared	787		

Insights:

- The top three properties are boutique hotel in New York with id 37122502, Hotel in New York with id 49381739 and Hotel in New York with id 49439129 with 1574,1201 and 1188 number of reviews.
- We can see that generally people like to stay in hotels with one bedroom and one bathroom followed by some rental, loft or hostel.
- Probably these are the people who often visit New York due to their work or something or they are some students or people working there but don't belong to New York.
- **Hosts with Multiple Listings:** Now we are going to analyze hosts who put multiple listings.

```
-- Hosts with Multiple Listings
SELECT host_id, host_name, COUNT(id) AS listings_count
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY host_id, host_name
HAVING COUNT(id) > 1
ORDER BY listings_count DESC;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTI
Row	host_id	host_name	listings_count		
1	162280872	Urban Furnished	146		
2	51501835	Jeniffer	129		
3	61391963	Stay With Vibe	113		
4	107434423	Blueground	107		

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	host_id	host_name	listings_count			
5	19303369	Hiroki	87			
6	219517861	Sonder (NYC)	81			
7	137358866	Kaz	81			
8	200239515	Shogo	70			

Results per page: 50 1 - 50 of 2824

```
SELECT distinct host_id
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	host_id					
1	162280872					
2	209193034					
3	2463894					
4	59993906					

Results per page: 50 1 - 50 of 12449

Insights:

- We have 12449 distinct host_id. Out of these 12449 hosts 2824 hosts are there who have posted multi listings.
- 22% of hosts had posted multiple listings.
- The top three hosts who had posted maximum number of listings are 162280872 named Urban Furnished with 146 listings, 51501835 named Jennifer with 129 listings and 61391963 named Stay with Vibe with 113 listings.
- **Average Rating by Room Type:** Although, we got an idea which type of room is preferred by the customers but still based on ratings we are going to check the average rating.

```
-- Average Rating by Room Type
SELECT room_type, AVG(cast(rating as decimal)) AS average_rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
Where rating not in ('No rating', 'New', 'New ')
```

```
GROUP BY room_type
ORDER BY average_rating DESC;
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	room_type	average_rating		
1	Entire home/apt	4.752059882		
2	Private room	4.716090142		
3	Shared room	4.648589744		
4	Hotel room	4.540114943		

Insights:

- The ratings range from 4.54 to 4.75, indicating that all types of accommodations generally receive high ratings. This suggests that guests are overall satisfied with their stays across different room types.
- Entire home/apt** has the highest average rating of 4.752. This could imply that guests prefer the privacy and amenities offered by entire homes or apartments. It may also suggest that these types of accommodations meet guest expectations more consistently than other types.
- Private room** follows closely with an average rating of 4.716. This indicates that guests find private rooms to be nearly as satisfactory as entire homes or apartments. This room type may appeal to those looking for a balance between cost and privacy.
- Shared room** and **Hotel room** have lower average ratings, with 4.649 and 4.540 respectively. This could suggest some level of dissatisfaction or unmet expectations among guests opting for these room types. Shared rooms might be rated lower due to less privacy and potential issues with roommates, while hotel rooms may not offer the unique or personalized experience guests seek from Airbnb stays
- The average rating difference between the highest (Entire home/apt) and the lowest (Hotel room) is 0.212. While this difference may seem small numerically, in the context of high average ratings, it can be significant. It indicates a clear preference and satisfaction trend among guests.
- Review Count and Average Rating by Neighbourhood:** Now we are going to get the view of neighbourhood based on review count and average rating. First we will see top 5 and then last 5.

```
-- Review count and average rating by Neighbourhood
SELECT neighbourhood, COUNT(id) AS review_count, AVG(cast(rating as
decimal)) AS average_rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
Where rating not in ('No rating', 'New', 'New ')
GROUP BY neighbourhood
ORDER BY review_count DESC
limit 5;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DE
Row	neighbourhood	review_count	average_rating		
1	Bedford-Stuyvesant	1322	4.743615734		
2	Harlem	918	4.740631808		
3	Williamsburg	789	4.804917617		
4	Midtown	687	4.592780204		
5	Hell's Kitchen	648	4.639567901		

```
-- Review count and average rating by Neighbourhood
SELECT neighbourhood, COUNT(id) AS review_count, AVG(cast(rating as decimal)) AS
average_rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
Where rating not in ('No rating', 'New', 'New ')
GROUP BY neighbourhood
ORDER BY review_count
limit 5;
```

Query results

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION
Row	neighbourhood	review_count	average_rating		
1	Navy Yard	1	5		
2	Todt Hill	1	4.64		
3	Neponsit	1	5		
4	Lighthouse Hill	1	4.65		
5	Rossville	1	5		

Insights:

- The average ratings across these neighbourhoods are quite high, indicating general satisfaction among guests.
- Review counts vary significantly, with Bedford-Stuyvesant having the highest number of reviews (1322) and Hell's Kitchen having the lowest (648).
- **Williamsburg** has the highest average rating of 4.804. This suggests that guests find this neighbourhood particularly appealing and have had excellent experiences there.
- Despite having a relatively lower review count (789), the high rating indicates consistently high satisfaction.
- **Bedford-Stuyvesant** has the highest review count (1322) and a strong average rating of 4.744. This neighbourhood is both popular and well-regarded by guests.
- The high number of reviews combined with a high rating suggests a large number of guests have had positive experiences in this area.

- **Harlem** and **Bedford-Stuyvesant** have similar high average ratings (4.741 and 4.744 respectively) but different review counts. Harlem has 918 reviews compared to Bedford-Stuyvesant's 1322.
- Both neighbourhoods are performing well in terms of guest satisfaction.
- There is no direct correlation between the number of reviews and the average rating. For instance, Midtown has more reviews than Hell's Kitchen but a lower average rating.
- This indicates that high review counts do not necessarily equate to higher satisfaction, highlighting the importance of consistent quality.
- **Navy Yard**, **Neponsit**, and **Rossville** each have an average rating of 5.0. This indicates that the single review in these neighbourhoods was exceptionally positive, suggesting a very high level of guest satisfaction for those particular stays.
- **Todt Hill** and **Lighthouse Hill** have slightly lower average ratings (4.64 and 4.65, respectively). These ratings are still quite high, indicating that guests had a very positive experience in these areas as well, though not perfect.
- Each neighbourhood has only one review, which limits the reliability of the data. While the single reviews are positive, they may not accurately represent the overall guest experience in these neighbourhoods.
- The high ratings are promising, but more reviews would be needed to confirm these neighbourhoods consistently provide excellent experiences.

2. **Pricing Strategy:** Understanding the pricing dynamics to help hosts set competitive yet profitable prices.

- **Average Price by Neighbourhood:** We are going to check for the average price by neighbourhood.

```
-- Average Price by Neighbourhood
SELECT neighbourhood, AVG(price) AS average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood
ORDER BY average_price DESC;
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	neighbourhood	average_price		
1	Tribeca	455.4084507042...		
2	Longwood	424.2258064516...		
3	Civic Center	393.75		
4	SoHo	363.5073529411...		

```
SELECT neighbourhood, AVG(price) AS average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood
ORDER BY average_price -- lowest 5 avg price
limit 5;
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	neighbourhood		average_price	
1	Little Neck		51.666666666666...	
2	Hunts Point		57.95	
3	Grant City		64.46153846153...	
4	Navy Yard		69.0	
5	Chelsea, Staten Island		70.0	

Insights:

- **Tribeca** is the most expensive neighbourhood among the listed ones with **\$455.41**. This high average price suggests that it is likely a very desirable location with premium listings, possibly due to its reputation, amenities, and central location in Manhattan. Tribeca is known for its upscale living and luxury apartments.
- Longwood is the second most expensive neighbourhood on the list with **\$424.23**. The high average price indicates that it also offers premium accommodations. Longwood, located in the Bronx, is experiencing gentrification and increasing demand for housing.
- Civic Center, with an average price of **\$393.75**, is the third most expensive. This area, close to government buildings and courthouses in Manhattan, might be attractive for business travelers and professionals, justifying its relatively high average price.
- SoHo, known for its shopping, art galleries, and vibrant culture, has the lowest average price among the listed neighbourhoods but is still relatively high at **\$363.51**. This could be due to a mix of luxury and more moderately priced listings that balance out the average.
- Little Neck has the lowest average price among the listed neighbourhoods with **\$51.67**. This suggests it is an affordable area for guests. It could be attractive for budget-conscious travelers or those looking for longer stays without a high cost.
- Hunts Point, with an average price of **\$57.95**, is the second most affordable neighbourhood on the list. The relatively low price indicates it might cater to a more budget-friendly market. Hunts Point is in the Bronx, an area that can offer diverse and authentic local experiences at a lower cost.
- Grant City has an average price of **\$64.46**, making it slightly more expensive than Little Neck and Hunts Point, but still quite affordable. This could attract travelers looking for a balance between cost and quality. Located in Staten Island, Grant City may appeal to those seeking a quieter, suburban experience.
- Navy Yard, with an average price of **\$69.00**, is a bit more expensive but still falls within the affordable range. This area might appeal to those interested in the revitalized industrial waterfront and proximity to Brooklyn's cultural and social activities.
- Chelsea in Staten Island has the highest average price among the listed neighbourhoods at **\$70.00**. While still affordable, it suggests a slightly higher demand or better amenities in this area compared to the others. It might attract guests who want a more residential feel while still being close to New York City.

- **Price Distribution by Room-type:** Now, we are going to infer the distribution of price by room-type.

```
--Price distribution by room_type
```

```
SELECT room_type, MIN(price) AS min_price, MAX(price) AS max_price, AVG(price) AS
average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY room_type
order by max_price desc
limit 5;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EX
Row	room_type	min_price	max_price	average_price		
1	Private room	10.0	100000.0	139.5173784643...		
2	Entire home/apt	10.0	10000.0	223.1602736167...		
3	Shared room	14.0	10000.0	156.2866894197...		
4	Hotel room	80.0	7590.0	415.0535714285...		

Insights:

- Private rooms offer a wide range of prices from \$10-\$100,000 with an average of \$139.52, indicating a diverse set of options available to guests. The low minimum price suggests affordability, while the high maximum price indicates the availability of luxury options. This room type caters to a broad spectrum of travelers, from budget-conscious to those seeking high-end experiences.
- Entire homes and apartments also have a broad price range from \$10-\$100,000 with an average of \$223.16, though the maximum price is significantly lower than that of private rooms. The higher average price compared to private and shared rooms reflects the increased space and privacy offered. This room type is suitable for families, groups, or travelers who prefer more privacy and space.
- Shared rooms have a slightly higher minimum price from \$14-\$100,000 with an average of \$156.29, compared to private rooms but still offer affordable options. The average price is higher than that of private rooms, which might be due to the inclusion of unique or premium shared spaces. This room type is ideal for solo travelers, backpackers, or those looking for a more social experience.
- Hotel rooms have the highest minimum and average prices from \$80-\$7590 with an average of \$415.05, suggesting they cater to travelers looking for traditional hotel services and amenities. The upper price range, though lower than private rooms, indicates the presence of high-end hotel options. This room type is suitable for travelers seeking comfort, convenience, and additional services.

- **Seasonal Price Trends:** Now, we will see the impact of seasons on the price.

```
--Seasonal price trends
```

```
SELECT EXTRACT(MONTH FROM last_review) AS month, AVG(price) AS average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE last_review IS NOT NULL
GROUP BY month
ORDER BY average_price desc
limit 5;
```

JOB INFORMATION		RESULTS	CHAR
Row	month	average_price	
1	3	283.9399224806...	
2	10	232.1734475374...	
3	1	207.3773584905...	
4	7	206.9694364851...	
5	6	188.7362250879...	

```
SELECT EXTRACT(MONTH FROM last_review) AS month, AVG(price) AS average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE last_review IS NOT NULL
GROUP BY month
ORDER BY average_price
limit 1; -- the season with the lowest average price
```

Row	month	average_price	
1	11	164.4201147689...	

Insights:

- March has the highest average price i.e **\$ 283.94** among the given months. This could be due to various factors such as high demand during the spring break season, favorable weather conditions, or special events happening during this month. It suggests that travelers might be willing to pay more for accommodations in March, making it a peak period.
- October has the second-highest average price i.e **\$232.17**. This could be attributed to events such as fall festivals, Halloween celebrations, or favorable travel conditions during the autumn season. The data indicates a higher willingness to spend on accommodations during this month, potentially driven by holiday activities and seasonal attractions.
- January, the beginning of the year, has a moderate average price i.e **\$207.38**. This might be due to a mix of factors such as post-holiday travel, New Year celebrations, or winter tourism activities. While not the highest, it still indicates a steady demand for accommodations.
- July, a summer month, shows a similar average price i.e **\$206.97** to January. This suggests that while summer is a popular travel season, the average price remains moderate. It could be due to a balance between high demand and increased availability of accommodations during the summer vacation period.
- November has the lowest average price i.e **164.42** among the provided months. This could be due to a variety of factors such as the end of the fall season and the approach of winter, leading to decreased travel demand before the holiday season in December. It may also reflect a period where fewer special events and holidays occur, resulting in lower occupancy rates and competitive pricing.
- **Pricing and Rating Correlation:** Now, we will see the correlation between pricing and rating.


```
--Pricing and rating correlation
SELECT price, rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE rating IS NOT NULL
group by price,rating
order by price desc;
```

row	price	rating
1	100000.0	4.33
2	100000.0	4.48
3	10000.0	No rating
4	10000.0	4.14

```
SELECT price, rating
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE rating IS NOT NULL
group by price,rating
order by price
limit 5;-- lowest 5 prices and their rating
```

JOB INFORMATION		RESULTS	CHART
Row	price	rating	
1	10.0	4.80	
2	10.0	4.55	
3	10.0	4.91	
4	10.0	4.86	
5	10.0	5.0	

Insights:

- The top two listings have an extremely high price of \$100,000. This suggests that these listings are likely very exclusive properties, possibly luxury mansions or unique, high-demand accommodations such as private islands or castles.
- The ratings for the \$100,000 listings are relatively high, with one at 4.33 and another at 4.48. This indicates that guests generally have a positive experience despite the high cost, suggesting that the quality and amenities provided meet or exceed expectations.
- One of the \$10,000 listings does not have a rating. This could imply that it is a new listing without sufficient reviews yet, or it could be an indication of low booking frequency due to the high price.
- The other \$10,000 listings have ratings of 4.14 and 4.50, showing some variability in guest satisfaction. The highest rating (4.50) suggests that at least one of these properties provides excellent service and amenities, while the lower rating (4.14) might indicate areas for improvement.

- The high ratings for most of these top-priced listings suggest that there is a niche market for luxury accommodations where guests are willing to pay a premium for exceptional experiences. The presence of very high ratings for such expensive properties highlights the importance of maintaining high standards and offering unique features to justify the price.
- All the lowest-priced listings at \$10.0 have high ratings, ranging from 4.55 to a perfect 5.0. This suggests that despite the low price, guests are extremely satisfied with their stays.
- One of the listings has a perfect rating of 5.0, indicating that it provides exceptional value for money. This listing likely offers excellent service and amenities, exceeding guest expectations.
- The high ratings across all these low-priced listings highlight the importance of value for money. These listings manage to deliver a great experience at a minimal cost, which is a significant factor in achieving guest satisfaction.
- The high ratings (4.80, 4.55, 4.91, 4.86, and 5.0) indicate that these low-priced listings are meeting or exceeding guest expectations. This might be due to factors such as cleanliness, hospitality, location, or additional amenities that add value to the stay.
- **Competitive Pricing Analysis:** Now we are going to analyze and compare the price based on neighbourhood and room-type.

-- Competitive Price Analysis

```
SELECT neighbourhood, room_type, AVG(price) AS average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood, room_type
ORDER BY average_price desc
limit 5;
```

	JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS
row	neighbourhood	room_type	average_price		
1	Murray Hill	Shared room	3359.0		
2	Theater District	Hotel room	929.3478260869...		
3	Longwood	Private room	559.4		
4	Tribeca	Entire home/apt	535.3921568627...		
5	Carroll Gardens	Shared room	500.0		

```
SELECT neighbourhood, room_type, AVG(price) AS average_price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood, room_type
ORDER BY average_price
limit 5;-- bottom 5 avg price
```

Row	neighbourhood	room_type	average_price
1	Gramercy	Shared room	24.0
2	Little Neck	Shared room	27.0
3	Concourse	Shared room	27.0
4	Morris Heights	Shared room	32.0
5	Mount Eden	Shared room	35.0

Insights:

- The average price for a shared room in Murray Hill is significantly higher than other neighborhoods at **\$3359**. This could indicate a high demand or a scarcity of shared accommodations in this area.
- The average price for hotel rooms in the Theater District is **\$929.35**, reflecting the premium location and proximity to major attractions.
- Private rooms in Longwood have an average price of **\$559.4**, which is higher than the overall average for private rooms. This may suggest a higher-end offering or fewer private room listings in this neighborhood.
- The average price for an entire home/apartment in Tribeca is **\$535.39**, indicating that Tribeca continues to be an expensive and desirable neighborhood for entire home rentals.
- Shared rooms in Carroll Gardens are priced at **\$500** on average. While still high, it's more affordable compared to Murray Hill, suggesting different market dynamics or offerings in these neighborhoods.
- Gramercy offers the most affordable shared rooms with an average price of **\$24.0**. This is significantly lower than the other neighborhoods and could attract budget-conscious travelers or those looking for economical stays in this area.
- Both Little Neck and Concourse have shared rooms priced at **\$27.0**. This indicates a similar market rate for shared accommodations in these neighborhoods, which are among the most affordable options available.
- Comparing the top and bottom 5 neighborhoods by average price reveals a substantial variation in accommodation costs across New York City. While neighborhoods like Murray Hill and the Theater District cater to high-end or premium travelers, areas like Gramercy and Little Neck provide budget-friendly options, especially for those opting for shared rooms. This diversity in pricing underscores the varied market dynamics and target audiences within the city's rental market.

3. Occupancy Rates: Next , we are going to check the occupancy rates.

- **Average availability by Neighbourhood:** We will check the average availability by neighbourhood.

-- Average availability by Neighbourhood

```
SELECT neighbourhood, AVG(availability_365) AS average_availability
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood
ORDER BY average_availability DESC;
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	neighbourhood	average_availability		
1	Bay Terrace, Staten Island	365.0		
2	Breezy Point	364.75		
3	Westerleigh	364.5		
4	Lighthouse Hill	364.0		

```
SELECT neighbourhood, AVG(availability_365) AS average_availability
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood
ORDER BY average_availability
limit 5;-- top 5 places which are not easily available
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	neighbourhood	average_availability		
1	Oakwood	89.14285714285...		
2	New Springville	89.33333333333...		
3	Emerson Hill	99.5		
4	Grymes Hill	101.0		
5	Battery Park City	115.8000000000...		

Insights:

- Bay Terrace, Staten Island , Breezy Point, Westerleigh, Lighthouse Hill are the places which are available throughout the year which means at these places more attention is required.
- Oakwood, New Springville, Emerson Hill, Grymes Hill and Battery Park City are the most visited and occupied places. So, from customer's perspective to have to plan for these places few days before. From company's perspective probably they can try having more listings at these places.
- **Impact of Minimum Nights on Availability:** Now, we will see the impact of minimum nights on availability.

```
--Impact of minimum nights on availability
SELECT minimum_nights, AVG(availability_365) AS average_availability
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY minimum_nights
ORDER BY average_availability;
```

JOB INFORMATION		RESULTS	CHAR
Row	minimum_nights	average_availability	
1	1250	0.0	
2	307	0.0	
3	58	0.0	
4	265	0.0	

```
SELECT minimum_nights, AVG(availability_365) AS average_availability
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY minimum_nights
ORDER BY average_availability desc
limit 5;-- now checking the minimum nights where the listings are mostly available
```

JOB INFORMATION		RESULTS	CHART
low	minimum_nights	average_availability	
1	28	365.0	
2	1124	365.0	
3	23	364.0	
4	85	364.0	
5	65	364.0	

Insights:

- The listings which are generally not available has maximum number of minimum nights from **1250-265**. There are more which can be accessed in details.
- The listings which are available throughout the year generally have minimum nights **23-85** with an exceptional case of **1124**.

- Listings with 100% Availability:** Now, we will check for the listings which are 100% available. That means throughout the year these will be available.

```
--Listings with 100% availability
SELECT id, name, neighbourhood, price
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE availability_365 = 365;
```

JOB INFORMATION		RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	id	name	neighbourhood	price		
1	6739296045736...	Rental unit in New York · 1 bedr...	East Village	135.0		
2	8522072466939...	Rental unit in New York · 1 bedr...	Upper East Side	133.0		
3	1672860	Loft in New York · ★4.43 · Studi...	Hell's Kitchen	145.0		
4	8210350410048...	Rental unit in New York · 1 bedr...	Upper East Side	143.0		

Insights:

- There are 2682 listings out of 20758 listings which are available almost throughout the year which makes around 12% of the listings which are available throughout the year.

- East Village, Upper East Side, Hell's Kitchen, Gramercy are few neighbourhood places which are available throughout the year.
- **Occupancy Rate by Room- Type:** Now we will check which type of rooms are generally occupied.

--Occupancy rate by Room-type

```
SELECT room_type, AVG(availability_365) AS average_availability
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY room_type
ORDER BY average_availability DESC;
```

Row	room_type	average_availability
1	Hotel room	273.1785714285...
2	Shared room	223.0989761092...
3	Entire home/apt	208.6546021300...
4	Private room	201.0712176283...

Insights:

- Hotel rooms are mostly available followed by shared room and entire home.
- Private rooms are less available. Although the variation in all four seems not to be that significant.
- **Factors Influencing Occupancy Rate:** Now, we will see what all factors are influencing occupancy rate.

--Factors Influencing Occupancy Rate

```
SELECT price, rating, number_of_reviews, availability_365
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
order by availability_365;
```

JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS	E
Row	price	rating	number_of_reviews	availability_365	
1	129.0	No rating	1	0	
2	131.0	5.0	9	0	
3	190.0	No rating	1	0	
4	45.0	No rating	2	0	

```
SELECT price, rating, number_of_reviews, availability_365
```

```
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
```

```
order by availability_365 desc;-- checking for the ones which are generally
```

available

Row	price	rating	number_of_reviews	availability_365
1	135.0	No rating	1	365
2	133.0	No rating	1	365
3	145.0	4.43	21	365
4	143.0	No rating	1	365

Insights:

- Generally the listings which are less available has either no rating or very good rating with decent amount of reviews.
- Price range varies from low to high. That means both low budget and high budget listings are value for money stay that's leaving good ratings and reviews and with less availability. Same is the case for the ones which are available throughout the year.

4. **Regulatory Compliance:** Now, we will be checking the regulatory compliance.

- **Percentage of listings with license information:** We will check the percentage of listings which has the license information.

```
-- Percentage of listings with license information
SELECT COUNT(*) AS total_listings, COUNT(license) AS licensed_listings,
(COUNT(license) / COUNT(*)) * 100 AS license_percentage
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`;
```

JOB INFORMATION		RESULTS	CHART	JSON
Row	total_listings	licensed_listings	license_percentage	
1	20758	20758	100.0	

Insights:

- All 20,758 listings are licensed, indicating a 100% compliance rate with licensing regulations. This suggests that the platform or the regulatory body has successfully ensured that every listing meets the required legal standards.
 - The 100% licensing rate reflects effective regulatory enforcement. This level of compliance can enhance consumer trust, as guests can be assured that all listings adhere to safety, health, and legal standards.
 - Achieving full licensing indicates operational efficiency and a strong commitment to maintaining standards. It shows that the process for obtaining licenses is accessible and well-implemented, encouraging hosts to comply fully.
 - For guests and potential investors, this data point can serve as a strong indicator of a reliable and trustworthy marketplace. It can also be a competitive advantage, positioning the platform as a leader in regulatory adherence and quality assurance.
 - With a 100% licensing rate, policymakers can study this model to understand the factors contributing to such high compliance and possibly replicate these practices in other markets or regions to improve overall compliance rates.
- **Listings with Expired Reviews:** Now, we will see listings with expired reviews, considering one year as the criteria for expiry.

```
--listings with expired review
SELECT id, name, last_review
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
WHERE last_review < DATE_SUB(CURRENT_DATE(), INTERVAL 1 YEAR);
```

Query results

SAVE RESULTS

JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS	EXECUTION GRAPH
Row	id	name	last_review		
1	6739450702950...	Rental unit in New York · 1 bedr...	2023-01-29		
2	1672860	Loft in New York · ★4.43 · Studi...	2022-05-30		
3	49074726	Rental unit in New York · 1 bedr...	2021-08-01		
4	5825021525061...	Rental unit in Brooklyn · 2 bedr...	2022-10-05		

Results per page: 50 1 - 50 of 6094

Insights:

- Out of 20758, 6094 listings are with expired reviews contributing to around 29% of the listings.
- Compliance Rate by Neighbourhood:** Now, we are going to analyze the compliance rate by neighbourhood.

-- Compliance rate by Neighbourhood

```
SELECT neighbourhood, COUNT(id) AS total_listings, COUNT(license) AS
licensed_listings, (COUNT(license) / COUNT(*)) * 100 AS compliance_rate
FROM `directed-racer-396805.airbnb.airbnb_ny_listing`
GROUP BY neighbourhood
ORDER BY compliance_rate DESC;
```

JOB INFORMATION	RESULTS	CHART	JSON	EXECUTION DETAILS	EXE
Row	neighbourhood	total_listings	licensed_listings	compliance_rate	
1	Kips Bay	191	191	100.0	
2	Upper East Side	786	786	100.0	
3	Lower East Side	328	328	100.0	
4	East Village	413	413	100.0	

Results per page:

Insights:

- Since all the listings are licensed therefore the compliance rate for all is 100% which shows how well the firm delivers it's services and has made the strong market.

FINAL INSIGHTS:

- Rossville, Neponsit, West Farms, Navy Yard are the neighbourhood with average **rating as 5**. Gerritsen Beach, Castle Hill, Randall Manor, Woodrow have almost **4.9 average ratings**. Overall if we see on the basis of ratings except Holliswood (3.78 rating) all the places must be considered good as the average rating lies from 5- 4.4.
- Maximum ratings fall under **No Rating** category with 3593 ratings. Following this the maximum number ratings goes for 5 ratings with 2882 ratings. Although highest number of ratings were not given but still we can consider the fact that whatever locations they have they generally fall under 4.4-5 average ratings.
- The highest number of average reviews are for Hotel rooms, followed by shared room and private room with 57.69,49.37,46.30 average reviews respectively.

- It is more likely to be inferred that hotel rooms followed by shared and private room are preferred the most that's why they are reviewed most.
- The top three properties are boutique hotel in New York with id 37122502, Hotel in New York with id 49381739 and Hotel in New York with id 49439129 with 1574,1201 and 1188 number of reviews.
- We can see that generally people like to stay in hotels with one bedroom and one bathroom followed by some rental, loft or hostel.
- We have 12449 distinct host_id. Out of these 12449 hosts 2824 hosts are there who have posted multi listings.
- 22% of hosts had posted multiple listings. The top three hosts who had posted maximum number of listings are 162280872 named Urban Furnished with 146 listings, 51501835 named Jennifer with 129 listings and 61391963 named Stay with Vibe with 113 listings.
- The ratings range from 4.54 to 4.75, indicating that all types of accommodations generally receive high ratings. This suggests that guests are overall satisfied with their stays across different room types.
- **Entire home/apt** has the highest average rating of 4.752. This could imply that guests prefer the privacy and amenities offered by entire homes or apartments. It may also suggest that these types of accommodations meet guest expectations more consistently than other types.
- **Private room** follows closely with an average rating of 4.716. This indicates that guests find private rooms to be nearly as satisfactory as entire homes or apartments. This room type may appeal to those looking for a balance between cost and privacy.
- **Shared room** and **Hotel room** have lower average ratings, with 4.649 and 4.540 respectively. This could suggest some level of dissatisfaction or unmet expectations among guests opting for these room types. Shared rooms might be rated lower due to less privacy and potential issues with roommates, while hotel rooms may not offer the unique or personalized experience guests seek from Airbnb stays.
- The average ratings across these neighbourhoods are quite high, indicating general satisfaction among guests.
- Review counts vary significantly, with Bedford-Stuyvesant having the highest number of reviews (1322) and Hell's Kitchen having the lowest (648).
- **Williamsburg** has the highest average rating of 4.804. This suggests that guests find this neighbourhood particularly appealing and have had excellent experiences there. Despite having a relatively lower review count (789), the high rating indicates consistently high satisfaction.
- **Harlem** and **Bedford-Stuyvesant** have similar high average ratings (4.741 and 4.744 respectively) but different review counts. Harlem has 918 reviews compared to Bedford-Stuyvesant's 1322.
- **Navy Yard**, **Neponsit**, and **Rossville** each have an average rating of 5.0. This indicates that the single review in these neighbourhoods was exceptionally positive, suggesting a very high level of guest satisfaction for those particular stays.
- **Todt Hill** and **Lighthouse Hill** have slightly lower average ratings (4.64 and 4.65, respectively). These ratings are still quite high, indicating that guests had a very positive experience in these areas as well, though not perfect.
- Each neighbourhood has only one review, which limits the reliability of the data. While the single reviews are positive, they may not accurately represent the overall guest experience in these neighbourhoods.

- **Tribeca** is the most expensive neighbourhood among the listed ones with **\$455.41**. This high average price suggests that it is likely a very desirable location with premium listings, possibly due to its reputation, amenities, and central location in Manhattan. Tribeca is known for its upscale living and luxury apartments. Longwood, civic center, so ho are also amongst the expensive neighborhoods.
- **Little Neck** has the lowest average price among the listed neighbourhoods with **\$51.67**. This suggests it is an affordable area for guests. It could be attractive for budget-conscious travelers or those looking for longer stays without a high cost. Hunts point, grant city , navy yard all these neighbourhoods also comes under affordable places.
- Private rooms offer a wide range of prices from \$10-\$100,000 with an average of \$139.52, indicating a diverse set of options available to guests. The low minimum price suggests affordability, while the high maximum price indicates the availability of luxury options. This room type caters to a broad spectrum of travelers, from budget-conscious to those seeking high-end experiences.
- Entire homes and apartments also have a broad price range from \$10-\$100,000 with an average of \$223.16, though the maximum price is significantly lower than that of private rooms. The higher average price compared to private and shared rooms reflects the increased space and privacy offered. This room type is suitable for families, groups, or travelers who prefer more privacy and space.
- Shared rooms have a slightly higher minimum price from \$14-\$100,000 with an average of \$156.29, compared to private rooms but still offer affordable options. The average price is higher than that of private rooms, which might be due to the inclusion of unique or premium shared spaces. This room type is ideal for solo travelers, backpackers, or those looking for a more social experience.
- Hotel rooms have the highest minimum and average prices from \$80-\$7590 with an average of \$415.05, suggesting they cater to travelers looking for traditional hotel services and amenities. The upper price range, though lower than private rooms, indicates the presence of high-end hotel options. This room type is suitable for travelers seeking comfort, convenience, and additional services.
- **March** has the highest average price i.e **\$ 283.94** among the given months. This could be due to various factors such as high demand during the spring break season, favorable weather conditions, or special events happening during this month. It suggests that travelers might be willing to pay more for accommodations in March, making it a peak period.
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- All the lowest-priced listings at \$10.0 have high ratings, ranging from 4.55 to a perfect 5.0. This suggests that despite the low price, guests are extremely satisfied with their stays.
- The high ratings (4.80, 4.55, 4.91, 4.86, and 5.0) indicate that these low-priced listings are meeting or exceeding guest expectations. This might be due to factors such as cleanliness, hospitality, location, or additional amenities that add value to the stay.
- Comparing the top and bottom 5 neighborhoods by average price reveals a substantial variation in accommodation costs across New York City. While neighborhoods like Murray Hill and the Theater District cater to high-end or premium travelers, areas like Gramercy and Little Neck provide budget-friendly options, especially for those opting for shared rooms. This diversity in pricing underscores the varied market dynamics and target audiences within the city's rental market.
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- All 20,758 listings are licensed, indicating a 100% compliance rate with licensing regulations. This suggests that the platform or the regulatory body has successfully ensured that every listing meets the required legal standards.

- The 100% licensing rate reflects effective regulatory enforcement. This level of compliance can enhance consumer trust, as guests can be assured that all listings adhere to safety, health, and legal standards.
- Since all the listings are licensed therefore the compliance rate for all is 100% which shows how well the firm delivers its services and has made the strong market.
- Out of 20758, 6094 listings are with expired reviews contributing to around 29% of the listings.

RECOMMENDATIONS:

1. Quality and Consistency

- **Improve Listings in Lower-Rated Areas:** Focus on providing resources and support to hosts in neighborhoods like Holliswood, which have lower average ratings. This can include best practice guides, workshops, and personalized feedback to help hosts improve their listings.
- **Encourage Reviews for New Listings:** Many listings fall under the "No Rating" category. Encourage guests to leave reviews by offering incentives such as discounts on future bookings.
- **Standardize Quality for Multi-Listing Hosts:** Given that 22% of hosts have multiple listings, develop a certification or rewards program to ensure these hosts maintain high standards across all their properties.
- **Support Hosts with High Ratings:** Identify and support hosts in neighborhoods like Rossville, Neponsit, West Farms, and Navy Yard, which have perfect average ratings. Promote these high-quality listings to set a standard for other hosts.

2. Pricing Strategy

- **Dynamic Pricing Models:** Implement dynamic pricing tools that adjust prices based on seasonal trends, neighborhood demand, and competitive analysis. This can help hosts set competitive yet profitable prices.
- **Market Analysis Reports:** Provide hosts with regular market analysis reports highlighting trends in pricing and occupancy. This will help them make informed decisions about their pricing strategies.
- **Promote Affordable Neighborhoods:** Highlight budget-friendly neighborhoods like Little Neck, Hunts Point, and Grant City to attract cost-conscious travelers. Create marketing campaigns that showcase the value and unique experiences these areas offer.

3. Occupancy Rates

- **Increase Availability in High-Demand Areas:** Focus on increasing listings in high-demand neighborhoods like Oakwood, New Springville, and Emerson Hill. This can be achieved by targeted recruitment of hosts and offering incentives for new listings.

- **Flexible Booking Policies:** Encourage hosts to adopt more flexible booking policies, such as lower minimum night requirements, to increase occupancy rates. This is particularly relevant for listings with high minimum night requirements that are less frequently booked.
- **Promote Listings with High Reviews:** Highlight and market hotel rooms, shared rooms, and private rooms with high review counts and ratings. This can help drive bookings and maintain high occupancy rates.
- **Address Low Availability Listings:** Investigate and address issues with listings that have low availability and no ratings. This could involve improving the visibility of these listings on the platform or providing targeted support to the hosts.

4. Regulatory Compliance

- **Maintain 100% Licensing Compliance:** Continue to enforce strict regulatory compliance to maintain the current 100% licensing rate. This enhances consumer trust and ensures all listings meet legal standards.
- **Monitor Expired Reviews:** With 29% of listings having expired reviews, encourage hosts to keep their listings active and updated. This can be done by sending reminders to hosts and offering incentives for maintaining active listings.
- **Education and Support for Hosts:** Provide ongoing education and support for hosts to ensure they understand and comply with local regulations. This can include webinars, FAQs, and a dedicated support team.

Additional Recommendations

- **Leverage High-Rated Listings for Marketing:** Use high-rated listings in marketing campaigns to attract new guests and set expectations for quality. Highlight neighborhoods with perfect ratings and unique properties to showcase the best of what Airbnb has to offer.
- **Enhance Guest Experience in Hotels:** Since hotel rooms have the highest average reviews but slightly lower ratings, work with hotel partners to enhance guest experiences. This could include improving amenities, customer service, and personalized touches.
- **Optimize Platform Algorithms:** Adjust search algorithms to prioritize high-rated and frequently reviewed listings. This will help guests find quality accommodations quickly and improve overall satisfaction.
- **Community Engagement Programs:** Engage with local communities to improve the perception of Airbnb listings. Host community events, promote local businesses, and highlight the positive impact of Airbnb on neighborhood economies.
- **Regular Data Analysis:** Conduct regular data analysis to stay updated on market trends and guest preferences. Use these insights to continuously refine and improve the platform's offerings.

By implementing these recommendations, Airbnb can address the key challenges of quality and consistency, pricing strategy, occupancy rates, and regulatory compliance in the New York City

market. This will lead to improved user satisfaction, optimized platform performance, and sustained growth in a competitive market.