Airbnb New York Rental Listing Data Analysis

Erdem Dağdeviren

Problem

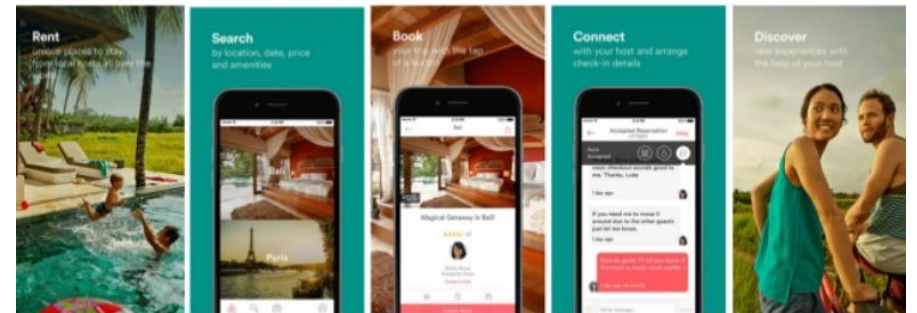**Where to stay in New York** considering preferred **Room Type** and **Neighbourhood** with **Price** concern?

Solution

Use Airbnb New York listing data including Neighbourhood, room type and price to guide the customer for suitable accomodation that fits the customer's preferences.

Airbnb is a platform where millions of hosts and travelers can list their space and book unique accommodations anywhere in the world.

Description of Data

id	name	host_id	host_name	neighbourhood_group	neighbourhood	latitude	longitude	room_type	price	minimum_nights	number_of_reviews	last_review	reviews_per_month	calculated_host_listings_count	availability_365
2539	Clean & quiet apt home by the park	2787	John	Brooklyn	Kensington	40.64749	-73.97237	Private room	149	1	9	2018-10-19	0.21	6	365
2595	Skylit Midtown Castle	2845	Jennifer	Manhattan	Midtown	40.75362	-73.98377	Entire home/apt	225	1	45	2019-05-21	0.38	2	355
3647	THE VILLAGE OF HARLEM....NEW YORK !	4632	Elisabeth	Manhattan	Harlem	40.80902	-73.94190	Private room	150	3	0	NA	NA	1	365
3831	Cozy Entire Floor of Brownstone	4869	LisaRoxanne	Brooklyn	Clinton Hill	40.68514	-73.95976	Entire home/apt	89	1	270	2019-07-05	4.64	1	194
5022	Entire Apt: Spacious Studio/Loft by central park	7192	Laura	Manhattan	East Harlem	40.79851	-73.94399	Entire home/apt	80	10	9	2018-11-19	0.10	1	0
5099	Large Cozy 1 BR Apartment In	7322	Chris	Manhattan	Murray Hill	40.74767	-73.97500	Entire home/apt	200	3	74	2019-06-22	0.59	1	129

Variable Description

```
In [7]: df_airbnb.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25088 entries, 0 to 25087
Data columns (total 13 columns):
id                              25088 non-null int64
name                            25073 non-null object
host_id                         25088 non-null int64
host_name                       25074 non-null object
neighbourhood_group             25088 non-null object
room_type                       25088 non-null object
price                           25088 non-null int64
minimum_nights                  25088 non-null int64
number_of_reviews               25088 non-null int64
last_review                     20918 non-null object
reviews_per_month               20918 non-null float64
calculated_host_listings_count  25088 non-null int64
availability_365                25088 non-null int64
dtypes: float64(1), int64(7), object(5)
memory usage: 2.5+ MB


*float64(1): calculated_host_listings_count

*int64(7) : id,host_id,price,minimum_nights,number_of_reviews,calculated_host_listings_count,availability_365

*object(5) : name,host_name,neighbourhood_group,room_type,last_review
```
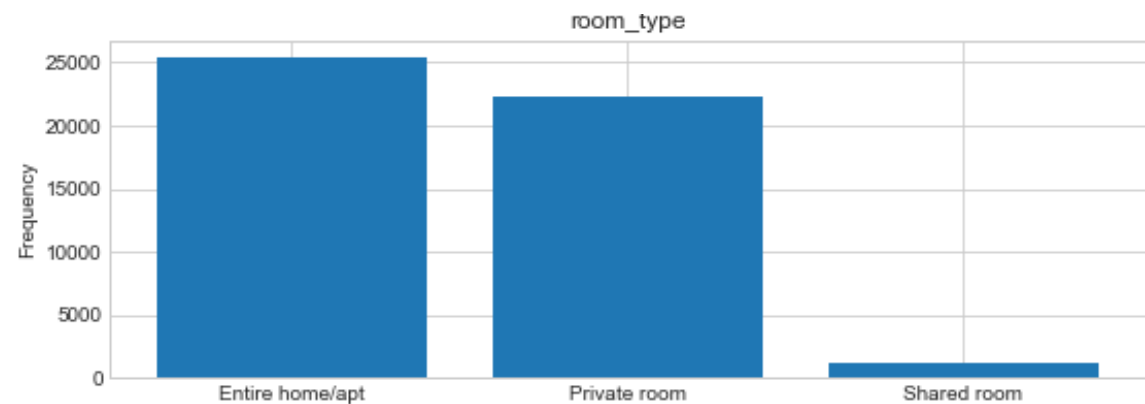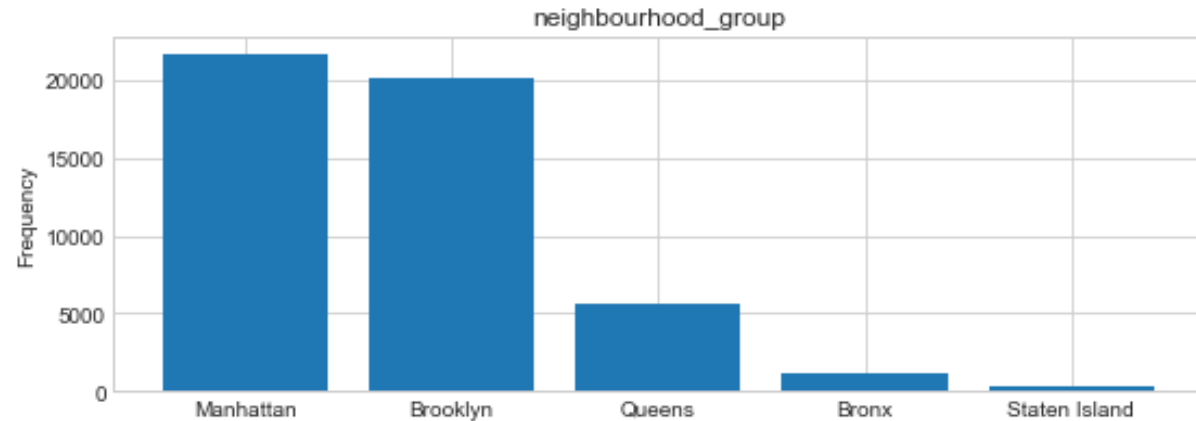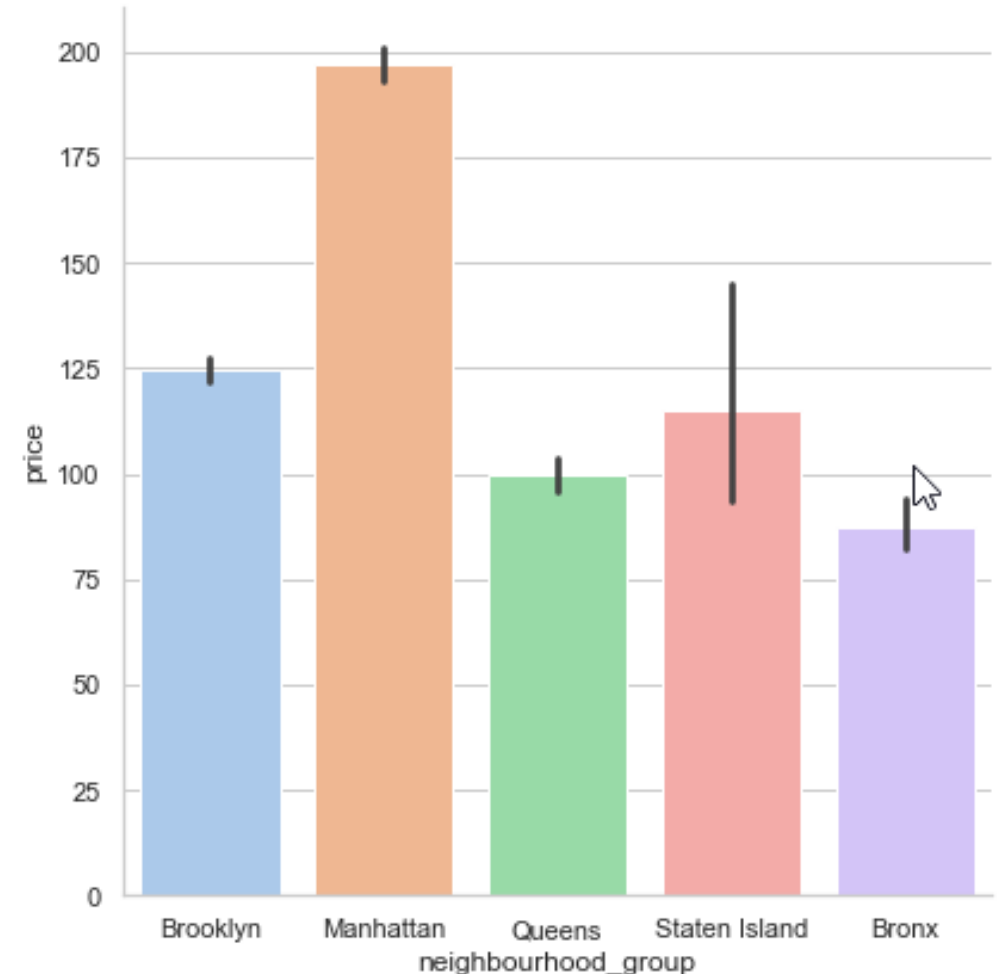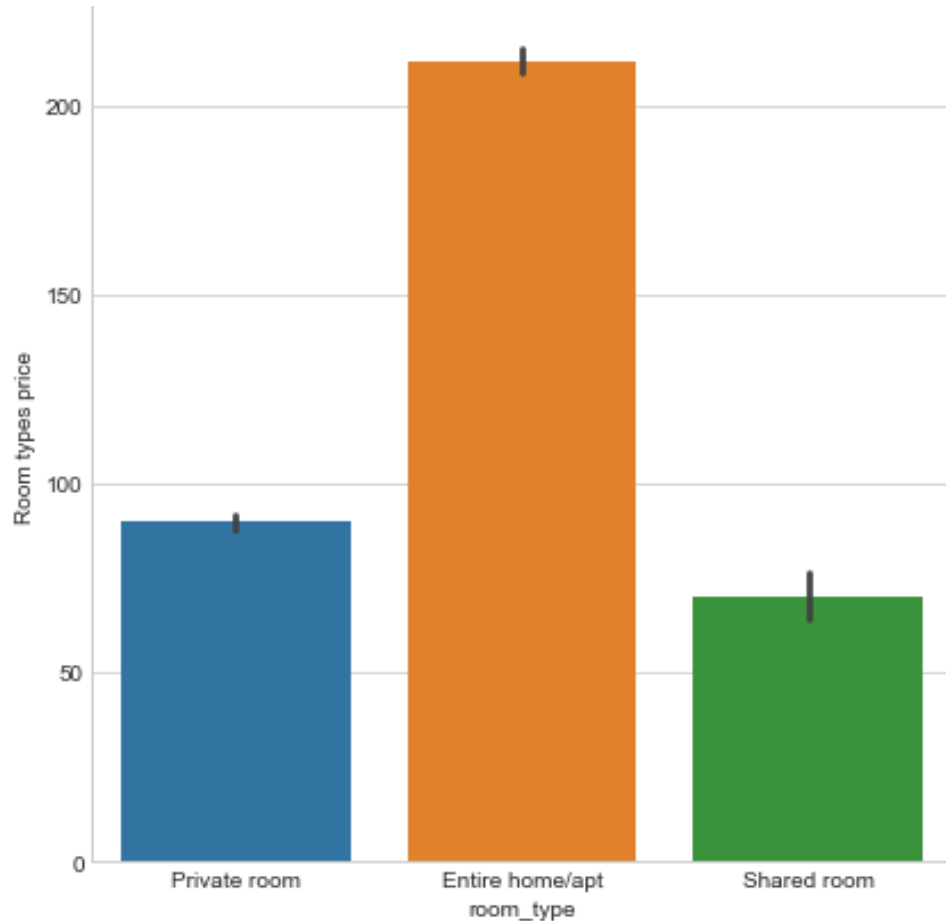
Which types of listings are there in NYC?

- Manhattan has the most number of listings, followed by Brooklyn
- Private room style listings are highest in number in all four neighbourhoods except Manhattan

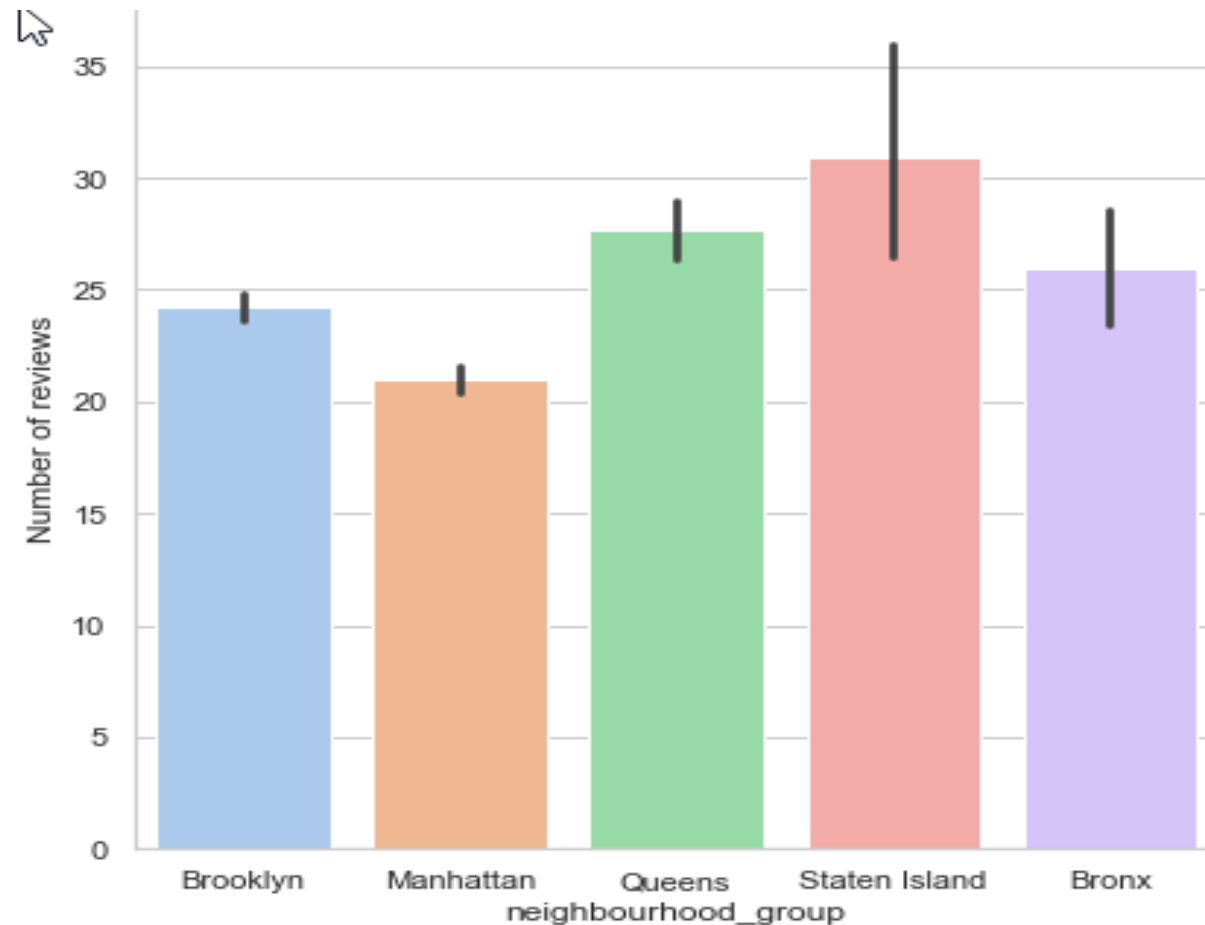| neighbourhood_group	room_type	room_type
Bronx	Entire home/apt	379
	Private room	652
	Shared room	60
Brooklyn	Entire home/apt	9559
	Private room	10132
	Shared room	413
Manhattan	Entire home/apt	13199
	Private room	7982
	Shared room	480
Queens	Entire home/apt	2096
	Private room	3372
	Shared room	198
Staten Island	Entire home/apt	176
	Private room	188
	Shared room	9

What is the variation of price for Room Types?

- "Entire home/apt" listings are pricier than "Private room", which in turn are more expensive than "Shared room".
- The most expensive listings are belongs to Manhattan.

How many reviews are there for Neighbourhoods?

- There are listings with higher number of reviews in Staten Island, followed by Queens

Conclusion & Future Work

Conclusion

- At first glance, room type and neighborhood have an effect on the listing price, but not the number of listings in the neighborhood.

- Private room appears to be the most reasonable choice except Manhattan with price concern

Future Work

- According to content of the reviews best host, best listing prediciton will be done

- Suggestion of the most convenient place to stay for attending a special event by merging NYC event dataset with as-is