

Project Title: Airbnb Booking Dashboard – NYC 2019

Introduction

In this project, I analyzed a real-world Airbnb dataset focused on New York City listings. The goal was to explore pricing patterns, availability, and room type distributions across neighbourhoods using a fully interactive Excel dashboard. This analysis helps identify trends and anomalies that can guide strategic decisions for hosts and marketplace managers.

Objective / Problem Statement

The objective was to analyze how room type, price category, and availability vary across neighbourhoods, identify which room types are most common and cost-effective, and highlight areas with high availability or underperformance. The final goal was to produce a data-driven dashboard to help optimize Airbnb listings and improve customer targeting.

Tools Used

- Microsoft Excel
 - Pivot Tables & Pivot Charts
 - Excel Formulas (IF, COUNT, AVERAGE, MODE)
 - Conditional Formatting
 - Slicers for interactivity
-

Dataset Description

- **Source:** Kaggle (AB_NYC_2019 Airbnb Dataset)
- **Records:** 48,896 listings
- **Columns Used:**
neighbourhood_group, neighbourhood, room_type, price, minimum_nights, number_of_reviews, availability_365
- **Calculated Columns:**
Price_Category, Booking_Status

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POSSIBLE DATA LOSS Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format. Don't show again Save As...

AB_NYC_2019

id	name	host_id	host_name	neighbourhood	neighbourhood_group	latitude	longitude	room_type	price	minimum_nights	number_of_reviews	last_review	reviews_per_month	calculated_host_availability	availability_365
2539	Clean & quiet	2787	John	Brooklyn	Kensington	40.64749	-73.9724	Private room	149	1	9	10/19/2018	0.21	6	365
2595	Skyline Midtown	2845	Jennifer	Manhattan	Midtown	40.75362	-73.9838	Entire home/apt	225	1	45	5/21/2019	0.38	2	355
3647	THE VILLA	4632	Elisabeth	Manhattan	Harlem	40.80902	-73.9419	Private room	150	3	0			1	365
3831	Cozy Entire	4869	LisaRoxan	Brooklyn	Clinton Hill	40.68514	-73.9598	Entire home/apt	89	1	270	7/5/2019	4.64	1	194
5022	Entire Apt	7192	Laura	Manhattan	East Harlem	40.79851	-73.944	Entire home/apt	80	10	9	11/19/2018	0.1	1	0
5099	Large Cozy	7322	Chris	Manhattan	Murray Hill	40.74767	-73.975	Entire home/apt	200	3	74	6/22/2019	0.59	1	129
5121	Bliss Artsy	7356	Garon	Brooklyn	Bedford-Stuyvesant	40.68688	-73.956	Private room	60	45	49	10/5/2017	0.4	1	0
5178	Large Furr	8967	Shunichi	Manhattan	Hell's Kitchen	40.76489	-73.9849	Private room	79	2	430	6/24/2019	3.47	1	220
5203	Cozy Clear	7490	MaryEllen	Manhattan	Upper West Side	40.80178	-73.9672	Private room	79	2	118	7/21/2017	0.99	1	0
5238	Cute & Cozy	7549	Ben	Manhattan	Chinatown	40.71344	-73.9904	Entire home/apt	150	1	160	6/9/2019	1.33	4	188
5295	Beautiful 1BR	7702	Lena	Manhattan	Upper West Side	40.80316	-73.9655	Entire home/apt	135	5	53	6/22/2019	0.43	1	6
5441	Central Manhattan	7989	Kate	Manhattan	Hell's Kitchen	40.76076	-73.9887	Private room	85	2	188	6/23/2019	1.5	1	39
5803	Lovely Room	9744	Laurie	Brooklyn	South Slope	40.66829	-73.9878	Private room	89	4	167	6/24/2019	1.34	3	314
6021	Wonderful 1BR	11528	Claudio	Manhattan	Upper West Side	40.79826	-73.9611	Private room	85	2	113	7/5/2019	0.91	1	333
6090	West Village	11975	Alina	Manhattan	West Village	40.7353	-74.0053	Entire home/apt	120	90	27	10/31/2018	0.22	1	0
6848	Only 2 steps to subway	15991	Allen & Iri	Brooklyn	Williamsburg	40.70837	-73.9535	Entire home/apt	140	2	148	6/29/2019	1.2	1	46
7097	Perfect for couples	17571	Jane	Brooklyn	Fort Greene	40.69169	-73.9719	Entire home/apt	215	2	198	6/28/2019	1.72	1	321
7322	Chelsea Private Room	18946	Doti	Manhattan	Chelsea	40.74192	-73.995	Private room	140	1	260	7/1/2019	2.12	1	12
7726	Hip Historic	20950	Adam	Brooklyn	Crown Heights	40.67592	-73.9469	Entire home/apt	99	3	53	6/22/2019	4.44	1	21
7750	Huge 2 BR	17985	Sing	Manhattan	East Harlem	40.79685	-73.9487	Entire home/apt	190	7	0			2	249
7801	Sweet and cozy	21207	Chaya	Brooklyn	Williamsburg	40.71842	-73.9572	Entire home/apt	299	3	9	12/28/2011	0.07	1	0
8024	CBG City Center	22486	Lisel	Brooklyn	Park Slope	40.68069	-73.9771	Private room	130	2	130	7/1/2019	1.09	6	347

Ready Accessibility: Unavailable

Data Cleaning Steps

- Removed irrelevant columns like id, name, host_name, license, latitude, etc.
- Cleaned text inconsistencies in room types
- Created:
 - Price_Category using price buckets (Low / Medium / High)
 - Booking_Status based on availability_365 (> 200 = Available)
- Ensured numeric columns had no text or missing values
- Applied conditional formatting for insights like high price, low availability

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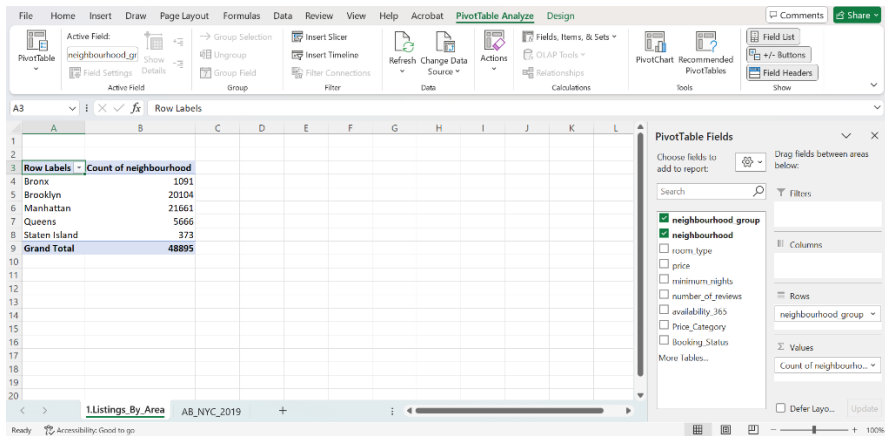
	A	B	C	D	E	F	G	H	I	J	K	L	M
	neighbourhood_group	neighbourhood	room_type	price	minimum_nights	number_of_reviews	availability_365	Price_Category	Booking_Status				
1	Brooklyn	Kensington	Private room	149	1	9	365	Medium	Available				
2	Manhattan	Midtown	Entire home/apt	225	1	45	355	High	Available				
3	Manhattan	Harlem	Private room	150	3	0	365	Medium	Available				
4	Brooklyn	Clinton Hill	Entire home/apt	89	1	270	194	Low	Not Available				
5	Manhattan	East Harlem	Entire home/apt	80	10	9	0	Low	Not Available				
6	Manhattan	Murray Hill	Entire home/apt	200	3	74	129	Medium	Not Available				
7	Brooklyn	Bedford-Stuyvesant	Private room	60	45	49	0	Low	Not Available				
8	Manhattan	Hell's Kitchen	Private room	79	2	430	220	Low	Available				
9	Manhattan	Upper West Side	Private room	79	2	118	0	Low	Not Available				
10	Manhattan	Chinatown	Entire home/apt	150	1	160	188	Medium	Not Available				
11	Manhattan	Upper West Side	Entire home/apt	135	5	53	6	Medium	Not Available				
12	Manhattan	Hell's Kitchen	Private room	85	2	188	39	Low	Not Available				
13	Brooklyn	South Slope	Private room	89	4	167	314	Low	Available				
14	Manhattan	Upper West Side	Private room	85	2	113	333	Low	Available				
15	Manhattan	West Village	Entire home/apt	120	90	27	0	Medium	Not Available				
16	Brooklyn	Williamsburg	Entire home/apt	140	2	148	46	Medium	Not Available				
17	Brooklyn	Fort Greene	Entire home/apt	215	2	198	321	High	Available				
18	Manhattan	Chelsea	Private room	140	1	260	12	Medium	Not Available				
19	Brooklyn	Crown Heights	Entire home/apt	99	3	53	21	Low	Not Available				
20	Manhattan	East Harlem	Entire home/apt	190	7	0	249	Medium	Available				
21	Brooklyn	Williamsburg	Entire home/apt	299	3	9	0	High	Not Available				
22	Brooklyn	Park Slope	Private room	130	2	130	347	Medium	Available				
23	Brooklyn	Park Slope	Private room	80	1	39	364	Low	Available				
24	Brooklyn	Park Slope	Private room	110	2	71	304	Medium	Available				

AB_NYC_2019

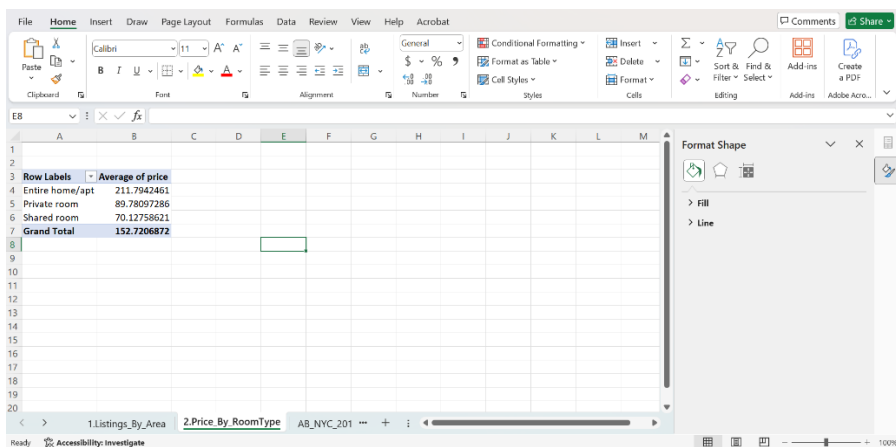
Ready Accessibility: Good to go

Analysis & Pivot Table Insights

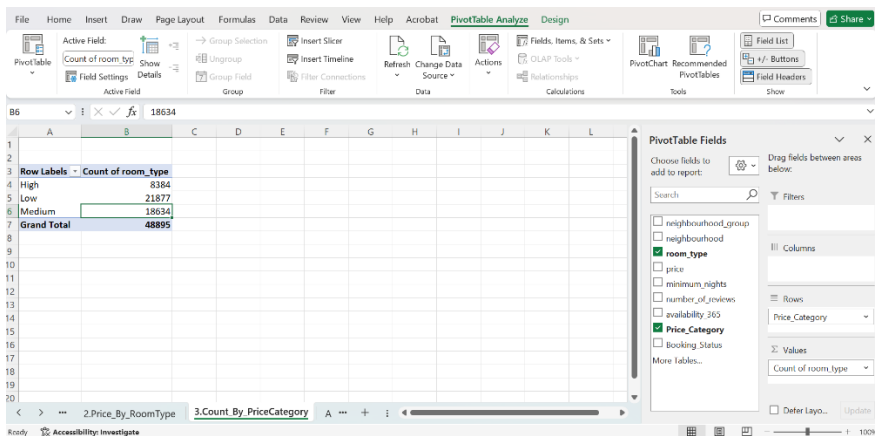
- Listings by Area



- Avg Price by Room Type



- Listings by Price Category



- Booking Availability

Count of Booking Status	Available	Not Available	Grand Total
Row Labels			
Bronx	416	675	1091
Brooklyn	4773	15331	20104
Manhattan	6031	15630	21661
Queens	1920	3746	5666
Staten Island	193	180	373
Grand Total	13333	35562	48895

- Avg Minimum Nights by Room

PivotTable

Active Field:

room_type

Show

Field Settings

Details

→ Group Selection

Group

Ungroup

Field Group

Group

Insert Slicer

Insert Timeline

Filter Connections

Filter

Refresh

Change Data Source

Data

Actions

Relationships

Calculations

Fields, Items, & Sets

OLAP Tools

PivotChart

Recommended PivotTables

Tools

Field List

+/- Buttons

Field Headers

Show

File

Home

Insert

Draw

Page Layout

Formulas

Data

Review

View

Help

PivotTable Analyze

Design

Comments

Share

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Row Labels

A	B	C	D	E	F	G	H	I	J	K
1										
2										
3	Row Labels	Average of minimum_nights								
4	Entire home/apt	8.506907001								
5	Private room	5.377900206								
6	Shared room	6.475								
7	Grand Total	7.029962164								
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

PivotTable Fields

Choose fields to add to report:

Search

☐neighbourhood_group

☐neighbourhood

☒room_type

☐price

☒minimum_nights

☐number_of_reviews

☐availability_365

☐Price Category

☐Booking_Status

More Tables...

Filters

Columns

Rows

Values

Drag fields between areas below:

room_type

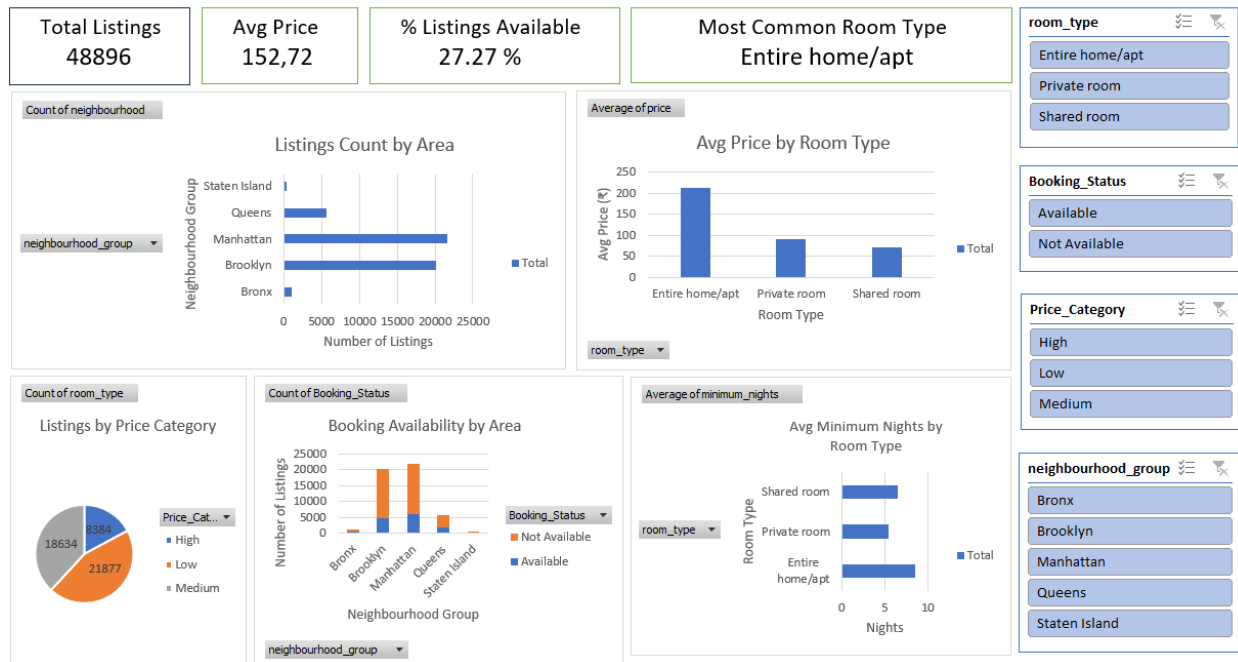
Average of minimum_nights

Update

Defer Layout...

Final Dashboard (Key Insights)

Airbnb Booking Dashboard – NYC 2019



Explain each part:

Section	Description
KPIs	Total listings, average price, % available, most common room
Charts	Visual breakdowns of price, room type, and area comparisons
Slicers	room_type, price_category, booking_status, neighbourhood
Insight	Entire home/apt is the most common & expensive room type

Conclusion

- Developed a clean, interactive Excel dashboard for Airbnb analysis
- Practiced end-to-end Excel workflow: cleaning → pivoting → dashboard
- Gained deeper understanding of how location, pricing, and availability interact
- This project can help Airbnb hosts and analysts optimize listings & target marketing