AN ANALYSIS OF CURRENT INVENTORY IN:
NEW YORK CITY

SCOPE OF PROJECT

- Spreadsheet with <u>48,895</u> Listings
- 16 Data Points Per Listing
- TASK: **Exploratory Analysis**
  1. Formulate questions & hypotheses
  2. Answer these with multiple tools
     - Visualizations
     - Statistical Analysis (including p-value tests)
     - Query-based insights (SQL)
  3. Identify trends & areas of concern
  4. Establish relationships between variables

<u>DATA POINTS</u>

Listing ID
Name
Host ID
Host Name
Borough (Neighborhood Group)
Neighborhood
Latitude
Longitude
Room Type
Price
Minimum Nights
Number of Reviews
Last Review Date
Reviews Per Month
Number of Listings per Host
Availability (Last 365 Days)

LET'S BOOK A WEEKEND TRIP TO NEW YORK CITY

A customer searches through recommended options...

... until he finds the one.

Historic Loft borders NYC best neighborhoods.

Ben

New York

4 guests   1 bedroom   3 beds   1 bath

🏠 Entire home
You'll have the loft to yourself.

Just pass the faux watches, and bags is a true NYC open loft perfectly located on the boarders of Soho, TriBeCa, Little Italy and Chinatown. The loft is just outside the 4, 5, 6, N, Q and R subway lines which get you to just about any part of the 5 boroughs. Ascend to the top floor you'll enter the loft which has windows on the North and South sides. There are skylights littered above that let in some lovely afternoon light. Through those windows are downtown and uptown looks at the city.

Read more about the space ⌄

Contact host

$315 per night

★5.0 (8 reviews)

Dates

| 12/06/2019 | → | 12/08/2019 |

Guests

2 guests   ⌄

Cancellation policy ⓘ

| Non-refundable $847 | Refundable $926 |

Show price details ⌄

Total $847

Reserve

You won't be charged yet

However, he changes his date but there is no availability soon...

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Dates

12/06/2019 → 12/08/2019

← **December 2019** →

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Clear dates

… or ever again.

Availability

This host offers 5% off if you stay a week and a 10% monthly discount.

← December 2019   January 2020 →

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Availability

This host offers 5% off if you stay a week and a 10% monthly discount.

← February 2020   March 2020 →

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
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Let's look at:
AVAILABILITY

Why?

A review of New York City's inventory can provide insight into possible host behavior patterns of similar and/or emerging cities.

ACTIVE VS. INACTIVE

CLAIM 1: Majority of Listings (75%) are available at least 1 day / year

Result of Hypothesis Test: Claim __rejected__ with 95% confidence. Unexpectedly, 36% of listings are not available ("inactive").
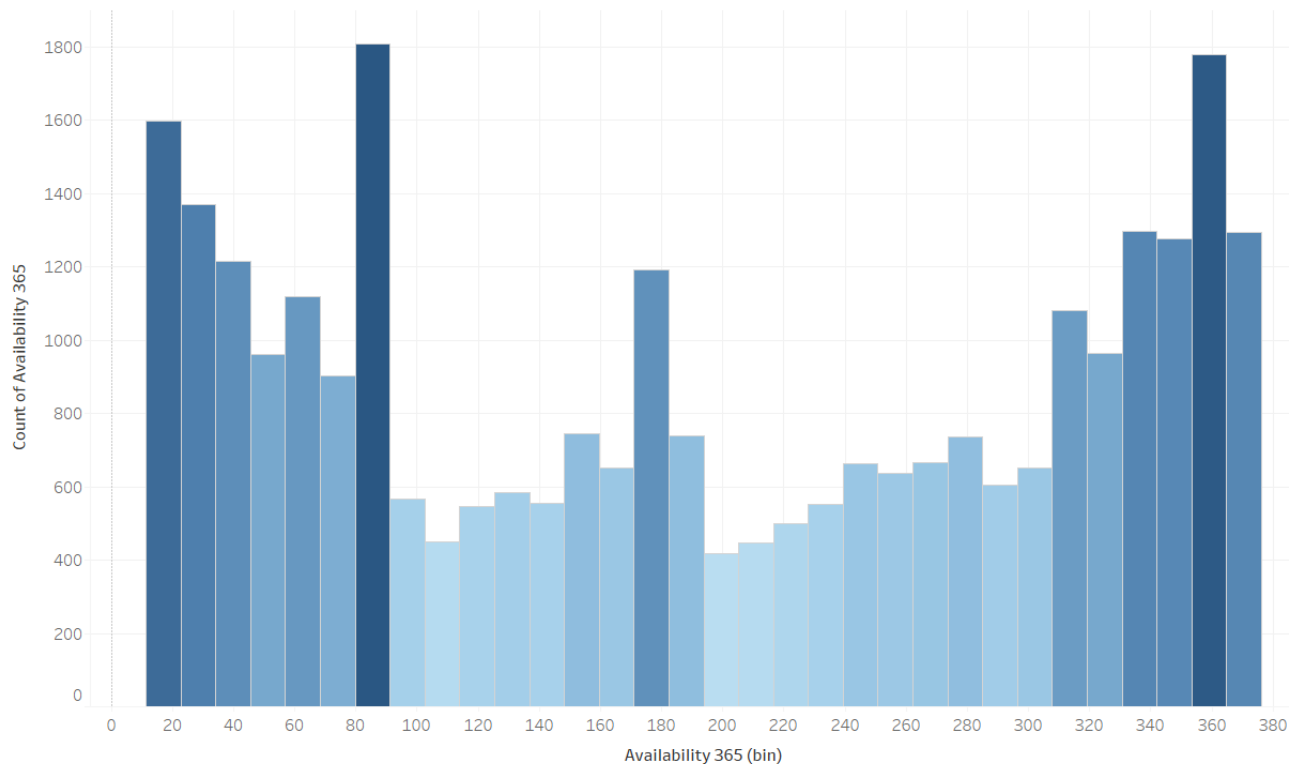
What IS available?

Status	Number of Listings	% of Total
Active (Available 1+ Days)	31,362	64%
Inactive (Available 0 Days)	17,533	36%
TOTAL	48,895	100%

HOW AVAILABLE IS A LISTING?

CLAIM 2: 50% of active are available 50+% of Year (183 days)

Result of Hypothesis Test: Claim **rejected** with 95% confidence

46% of Listings are available at least half the year

Availability	Listing Count	% of Total
Less Than Half the Year (1-182)	17,052	54%
More Than Half The year (183-365)	14,310	46%
TOTAL ACTIVE	31,362	100%

COMPARING LEVELS OF AVAILABILITY

Define Attribute: <u>Availability Level</u>

| Availability (Days)	Attribute: Availability Level
0	Unavailable
1 -182 (Less than 50% Year)	Low Availability
183 - 365 (More than 50% Year)	High Availability

Proportion of Total Listings

Attribute: Availability Level	Listing Count (Source: SQL)	% of Total
Unavailable	17,533	36%
Low Availability	17,052	35%
High Availability	14,310	29%
TOTAL	48,895	100%

AVAILABILITY BY ROOM TYPE

What is the most frequently listed room type?
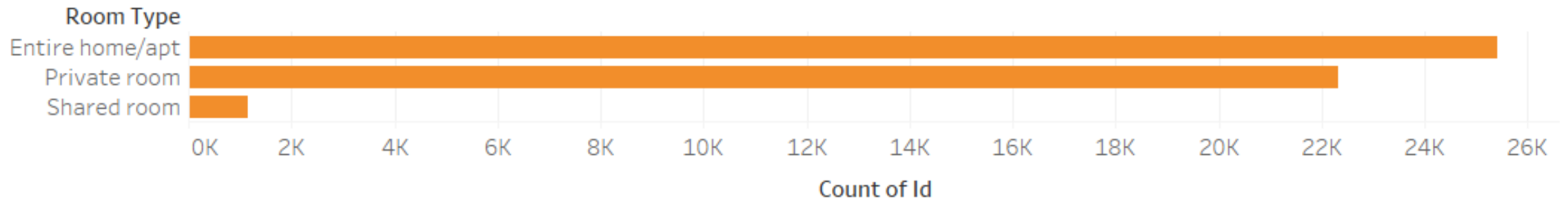
How do room types compare on average available days per year?
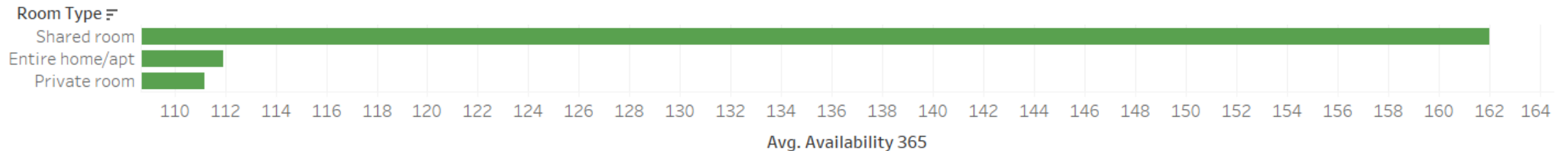
As expected, shared rooms are the most available. But surprisingly, entire apartments have more available that private rooms.

AVAILABILITY BY ROOM TYPE (cont.)

From initial findings,

let's look at proportions at active status and availability level

Active Status

Activity Status	Entire home/apt	Private Room	Shared Room	Grand Total
Active	65%	63%	74%	64%
Inactive	35%	37%	26%	36%
Grand Total	100%	100%	100%	100%

Availability Level (Active only)

Availability Level	Entire home/apt	Private room	Shared room	Grand Total
High Availability	46%	44%	56%	46%
Low Availability	54%	56%	44%	54%
Grand Total	100%	100%	100%	100%

Entire Home and Private follow similar proportion than total, but **Shared Rooms** are proportionally more active than the total. When listed, they stay in the platform.

Surprisingly, **Entire home/apt and Private Rooms follow the same availability patterns.** They are almost equally listed, active, and available.

AVAILABILITY BY ROOM TYPE (cont.)

From initial findings,

let's look at proportions at active status and availability level

Active Status

Activity Status	Entire home/apt	Private Room	Shared Room	Grand Total
Active	65%	63%	74%	64%
Inactive	35%	37%	26%	36%
Grand Total	100%	100%	100%	100%

Availability Level (Active only)

Availability Level	Entire home/apt	Private room	Shared room	Grand Total
High Availability	46%	44%	56%	46%
Low Availability	54%	56%	44%	54%
Grand Total	100%	100%	100%	100%

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HOST PATTERNS

Average number of listings per host: **10.34** *
For **multiple-listing** hosts (at least 2), average is: **21.96***

Total Number of Hosts: 21,809*
Total Multiple-Listing hosts: 4,416*
20% of Hosts have multiple listings

Total Listings from Multiple-Listing hosts: 13,969
Total Active Listings: 31,362
45% of listings from multiple-listing hosts

Source: SQL, Inactive Listings (Availability_365 = 0) Removed

CONCLUSIONS

Conclusion	Potential Application / Next Steps
29% of Total Inventory is Inactive	Why? Does it take less resources to re-activate a listing or source a new one?
Less than half of the Active(46%), is available over 6 months of the year	What is the effect on customer experience? Should we review resources allocated to encourage more availability from existing listings?
Entire Apartments are more frequently listed than private rooms	In a city where affordable housing is of concern, is this expected? Does this unintentionally support the argument for curbing short-term rentals? What are we doing about it?
Shared rooms are more likely to be remain active, but also the least frequently listed.	Is this a result of demand for this room type within market? Should we invest in this type of listing or not?
Entire homes follow similar inventory patterns and availability patterns than Private Rooms.	Assuming there should be some difference, is this a sign of too much Entire home inventory or a sign of opportunity to increase Private Room inventory.
The average listing count per host is 10 list, but it goes up to 21 for hosts multiple listings	Indication of commercial usage in market. How are we dedicated resources in host acquisition to attract different types of hosts? A bigger question, is this in line with vision?
20% of hosts have multiple listings. These hosts control 45% of the inventory.	
Are there observations unique to New York City or can they do they apply to similar and/or emerging cities?	

TOOLS USED:

- MICROSOFT EXCEL
- STRUCTURED QUERY LANGUAGE (SQL)
- TABLEAU

MORE INFORMATION ON THIS PROJECT:

- [GITHUB](#)
- [TABLEAU PUBLIC](#)
- [LINKEDIN](#)