Airbnb Technical Write-up

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Overview:

My team and I were selected to provide a data driven recommendation to a potential first time Airbnb Host. Our investor's persona had specific goals outlined and constraints to stay within for this project. Using available data and supporting information, we developed recommendations based on the goals and constraints of our selected Investor persona. We hypothesized that, in the Fort Lauderdale area, a lower nightly property price and a shorter minimum nights requirement will increase estimated occupancy rates, subsequently increasing property revenue and value.

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Project Summary

Introduction: My team and I were selected to provide a data driven recommendation to a potential first time Airbnb Host.

Background: Using available data and supporting information, we developed recommendations based on the goals and constraints of our selected Investor persona. We hypothesized that, in the Fort Lauderdale area, a lower nightly property price and a shorter minimum nights requirement will increase estimated occupancy rates, subsequently increasing property revenue and value.

Technical details: We used Excel as our main data driver, allowing us to analyze and manipulate data directly from the Airbnb website, as well as Power BI for visualizations, OneDrive for collaboration, Trello for project management, Powerpoint for presentations, and Word for project outlining and planning.

Implementation: We first analyzed the data directly from the Airbnb website to understand the market and the direction we would take. While one team member looked at the Airbnb data, we had the others pull data from external sources, concerning finances, legislation, tourism, walk scores, taxes, and more. This ensures we consider possible confounding variables when making our recommendation.

Results: We found that entire homes and apartments makeup **89.33%** of the market, and of that, entire homes outperform entire rental units in occupancy rate and estimated income, generating almost 4x as much as rental units. As you move toward higher occupancy rates, listings trend toward lower nightly prices, and higher estimated income. Then, as you trend toward higher occupancy rate listings, we see a slight increase, peak, and then an ultimate decrease until you reach the highest occupancy rate listings, with the lowest amenity averages. This, combined with the pricing model findings, implies the highest occupancy rate models take the approach of appealing to cheaper customers who are looking for a quick and a cheap place that has the minimum amenities and needs.

Conclusion: Ultimately, we recommended that our clients pursue a single-family home in the most walkable areas of Ft. Lauderdale. They should be looking for a home with a low amount of basic amenities, substituted with a select few "luxury" amenities (pool, close to beach, free parking, private patio). They should rent out the home during the busiest tourist seasons (January through July), and use the home themselves in a down season (August to November).

Project Guidelines

Investor Persona:

Hello "Sunshine Seekers" – Amy and Addy!

These sisters want to invest in a condo or house with quick access to the beach! They have the following goals:

1) spend four weeks at the beach each year
2) rental income that covers most of the cost of ownership
3) a property that is accessible by car within eight hours.

Additionally, they want the condo to be within walking or cycling distance to swimming or snorkeling at the beach. They also want to be within 20 minutes of a business district with restaurants and other services. They want to make the property available for rental the remainder of the year.

Note: Select the city pairs that are roughly eight hours apart.

Project Deliverables:

Introduction

- Set context – investor persona & consulting team
- Specify goals and questions for analysis
- Data – sources, description, limitations or assumptions

Analysis

- 4-5 analytical questions or data story points, highlight insights
- Secondary support: market context, stats, images, maps, etc.

Conclusion

- Summary of data observations
- Recommendations, based on observations
- Next Steps, along with requirements for follow-on analysis

Project Introduction

Client Profile:

Personal Info
- Amy & Addy Smith from Valdosta, GA
- Sister Amy & Addy are both in their Mid-Thirties and looking for an investment property.
- Both married and working and each own a primary residence, no kids.
- Love vacationing together and plan to use the property together. Would like separate bedrooms (2 minimum).
- Both love coffee, return on investment and most importantly….data driven decisions.

Financial Profiles
- Each household has a total household income of $72,000 for a total of $144,000 in combined income
- Each household has an equal amount of fixed debt that includes primary property mortgage, taxes, vehicles, school and other cost of living around $1,600 per month for a total of $19,200 annually. Combined debt of $38,400 annually.
- Liquidity/Investment: Both Amy and Addy will jointly own the investment property and have $200,000 in cash savings available for the purchase and to cover any costs.

Project Aspirations
- "Seeking Sunshine": Presumed to live in a city that has lower than average days of sunshine
- Within an 8 Hour drive from their primary residences, within walking and/or cycling distance to snorkeling beach. & 20 min from business district
  - They have vacationed in FLL and would like to evaluate the Broward County / Fort Lauderdale metro location
- Investment: looking for investment property that can be used for short-term rental income that covers MOST of the annualized cost to own
  - They have asked the property income is 80% cost-coverage threshold

- Rental Platform: We chose Airbnb for its data availability and popularity (75% market share of home share industry)
- Time Constraints: Property will be vacant 48 of 52 weeks per year (92%) and available for short-term rental income

Data Profile:

Original Data Set
- Detailed listing data downloaded from Inside Airbnb (which scraps data directly from Airbnb website)
- Data was last scraped on 9/21/22
- Listing dates range from 6/11/11 to 9/21/22
- New listings are as recent as 9/21/22
- 82 columns (with categories concerning host, listing, property, and customer reviews)
- 16,635 rows (listings)
- 1,235,054 total cells
- Primarily text and numeric data

Cleaned Data Set
- 33 columns
- 2,625 rows
- 100,029 total cells
- Removed outliers (>2 std above average) within the Price, Minimum Days, est. Income, # of Reviews
- Removed blank cells
- Removed long description cells concerning property description, host background, and amenities breakdowns

Assumptions
- When determining occupancy rate, we assumed a review rate of ~41%
  - Per the Occupancy Report on Inside Airbnb, they detailed how to determine occupancy rate

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    - The first step is to determine a review rate (the % of bookings that we estimate to leave a review), then allowing you to collect the total estimated number of bookings, which you divide over your desired time period to determine occupancy rate
    - The Occupancy Report details that sources vary with occupancy rate averages from 30-70%. Thus, they recommend using the standard 50% as the average.
    - However, they displayed histograms on a virtual dashboard of their own occupancy rate estimations, so we guessed and checked our own replication of their histogram until we got the desired results - the rate of 41% saw replicated results within 2% error
- Per Inside Airbnb's Occupancy Report, we capped all occupancy rates at 70%
- We only worked with listings that were already up for a year, allowing us to assume that all seasonal impacts were constant across all listings, and therefore not statistically significant
- We assumed the financial profiles of our clients through census data

Limitations
- Lack of data concerning estimated bookings per month
- Lack of data concerning estimated revenue per month
- Lack of data concerning exact neighborhoods

Market Profile

- Fort Lauderdale is a six-hour drive from Valdosta, GA
- Proximity to beach
    - Overall, the walk score of Fort Lauderdale is 56, but there are three neighborhoods in the high 90's—Flagler Heights, the downtown area, and Colee Hammock—that may be within our budget
- The median value of a single family home is $364,100
- According to the US census data, only 54.4% of housing units are owner-occupied, making this a very popular short-term rental destination

Additional Resources

Broward County Home Pricing Index
20 Years: January 2000 through 10/2022
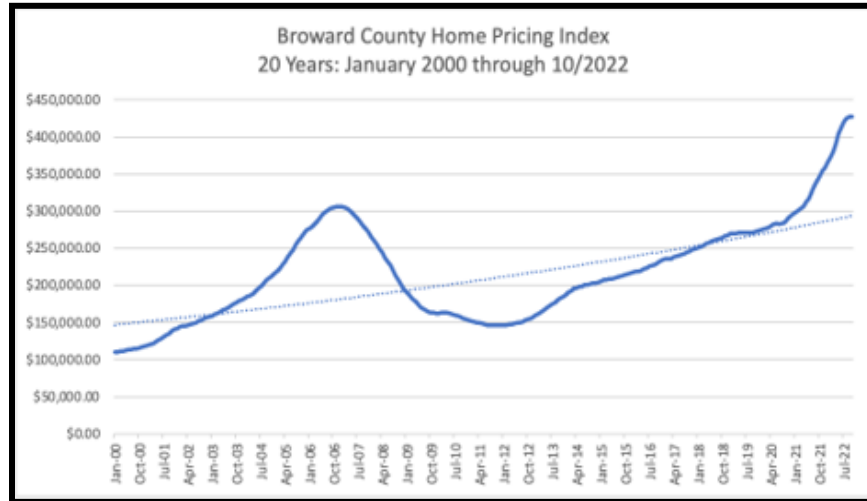
6% CAGR through GFC & Pandemic (excellent return)

Net Migration to FLL: From Origion State
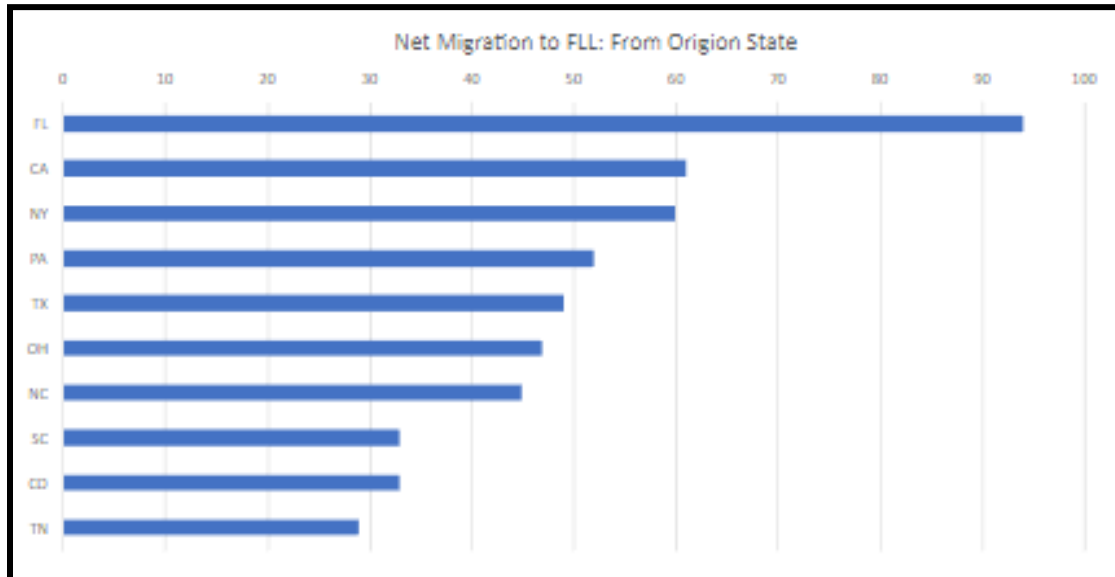
Fort Lauderdale Taxes and Fees Schedule

Fort Lauderdale Short Term Rental Fee Assessments	Yearly
Vacation Rental Fee Schedule	
Vacation Rental Registration Fee (Up to 4 units under the same roof. This fee includes the first 2 inspections)	$350.00
Non-Owner Occupied Vacation Rental Renewal Registration Fee	$160.00
Owner Occupied Vacation Rental Renewal Registration Fee	$80.00
Safety Inspection, Re-Inspection and No-Show Inspection (Assessed for each additional inspection)	$75.00
Late Registration Payment Fee	$75.00
Transfer Rental Agent Fee (Responsible party only)	$35.00
Business Tax License Fee (Prorated: October 1st – March 31st)	$157.50
Business Tax License Fee (Prorated: April 1st – June 30th)	$78.75
Business Tax License Fee (Prorated: July 1st – September 30th)	$236.25
A Broward County Tourist Development Tax of 6% of the listing price is charged for any reservations under 182 nights.	
Florida Transient Rental Tax of 6% of the listing price is charged on reservations under 182 nights.	
Florida Discretionary Sales Surtax of 0.5%-1.5% of the listing price may occur and varies by county. For detailed information, visit the Florida Dept. of Revenue website.	
County Tourist Development Taxes collected by the state in the amount of 2-5% of the listing price of a reservation under 182 nights will also be applied in the following counties:	

Data Process

Data Insights:

In order to better understand the data, we added 6 logical columns to our data set:

1. Time on Market
2. Estimated Bookings
3. Average Length of Stay LTM
4. Occupancy Rate
5. CLEANED Occupancy Rate
6. Estimated Income

Time on Market: Estimated total time the listing has spent on the market

        Found by: Date of Most Recent Review - Date of First Ever Review

Review Rate: The estimated % of bookings that end up leaving a review

        Found by: According to the Inside Airbnb website, review rate varies across cities and sources. The general range is between 30% and 70%, so they recommend using a safe review rate of 50% when completing calculations. However, we found this strongly underrepresented the true amount of monthly and yearly bookings for each listing. They have an interactive dashboard on their website that shows a histogram of their estimated occupancy rate (which is estimated by multiplying review rate by estimated bookings) shown to the right. We recreated the same histogram, and played around with the review rate until we saw results that were within 2% difference of the Inside Airbnb histogram. Ultimately, we
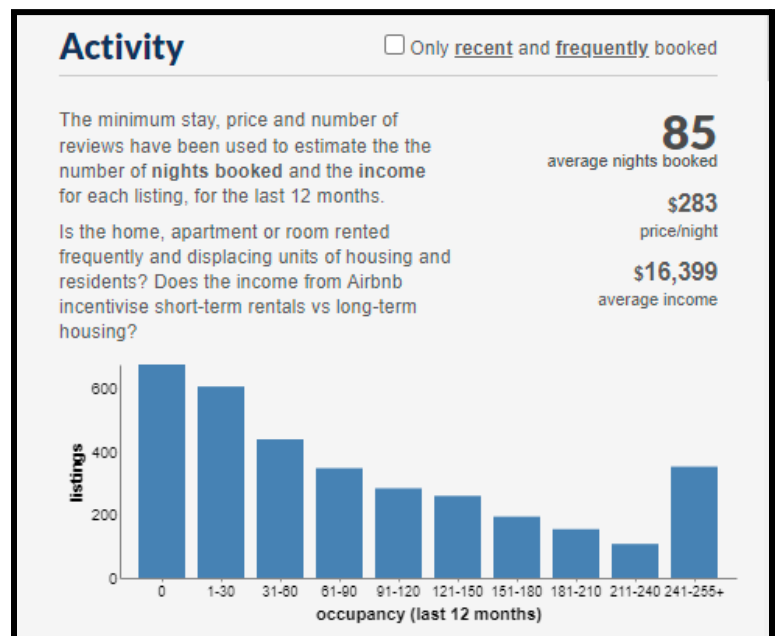
ended at a review rate of about 41%.

Estimated Yearly Bookings: The estimated amount of times the Airbnb listing was booked in the last year

Found by: The Average Number of Reviews * The Review Rate (2.42)

Average Length of Stay: The average time each booking lasted

Found by: As a safe estimate, we set it equal to the average minimum number of days the listing had over the previous 12 months.

Occupancy Rate: The amount of days in a year the listing is booked

Found by: Average Length of Stay * Estimated Yearly Bookings

CLEANED Occupancy Rate: The % of time the listing is booked

Found by: (Occupancy Rate / 365) * 100

The Inside Airbnb website recommended capping all occupancy rates at 70% (or 255 days of the year), so we called all occupancy rates at 255 days.

Estimated Yearly Income: The amount of revenue a listing produces in a year

Found by: Nightly Listing Price * Occupancy Rate

Defining Fort Lauderdale:

In order to better define Fort Lauderdale as our leading recommendation, we first created a basic pivot chart to understand Fort Lauderdale's market share. Shown to the right, Fort Lauderdale has 3,872 active Airbnb listings, or **23.28%** of the market, making it the largest neighborhood in Broward County for Airbnb.

Row Labels	Listings	Avg Price	Avg Review Scores	Reviews per Listing	Reviews per Month
Coconut Creek	70	$129.71	4.62	17.23	1.08
Cooper City	35	$208.86	4.77	23.51	1.38
Coral Springs	92	$143.04	4.72	10.22	1.06
County Regional Facility	12	$372.83	4.79	23.50	1.67
Dania Beach	500	$195.20	4.71	28.64	2.01
Davie	164	$293.58	4.70	23.73	1.71
Deerfield Beach	663	$203.06	4.75	28.97	1.31
Fort Lauderdale	**3872**	**$280.41**	**4.72**	**35.05**	**2.02**
Hallandale Beach	2201	$229.73	4.54	19.02	1.24
Hillsboro Beach	41	$184.51	4.93	16.51	0.82
Hollywood	4235	$248.37	4.63	25.29	1.53
Lauderdale By The Sea	377	$262.87	4.74	27.54	1.28
Lauderdale Lakes	43	$101.21	4.76	25.86	1.70
Lauderhill	109	$115.95	4.57	11.58	1.28
Lazy Lake	5	$435.80	4.70	22.40	1.16
Lighthouse Point	73	$724.14	4.82	20.37	1.64
Margate	97	$147.53	4.75	14.57	1.26
Miramar	462	$156.07	4.69	22.05	1.54
North Lauderdale	92	$101.95	4.48	13.43	1.33
Oakland Park	449	$182.68	4.74	30.68	2.02
Parkland	30	$218.17	4.81	20.90	1.28
Pembroke Park	50	$116.20	4.69	11.26	1.08
Pembroke Pines	269	$545.09	4.60	24.36	1.51
Plantation	187	$318.97	4.69	19.98	1.52
Pompano Beach	1360	$206.20	4.72	21.58	1.36
Sea Ranch Lakes	9	$650.00	4.81	41.78	2.38
Southwest Ranches	20	$611.30	4.87	31.15	1.48
Sunrise	200	$133.80	4.63	25.37	1.63
Tamarac	87	$134.99	4.68	14.94	1.58
Tribal Land	4	$448.25	4.59	4.25	2.73
Unincorporated	71	$166.13	4.63	14.20	1.16
West Park	156	$142.51	4.65	28.87	1.89
Weston	153	$163.11	4.46	4.42	0.37
Wilton Manors	446	$209.65	4.84	40.78	1.98
Grand Total	**16634**	**$241.92**	**4.67**	**26.43**	**1.61**

Defining Home Types:

In order to then better define the Fort Lauderdale home market we took a look at home types. The pivot table below was our first iteration, and shows that entire homes and apartments makeup **89.33%** of the market. Entire homes also tend to charge a lower price, maintain better review scores, and hold a high occupancy rate (we assume private rooms have higher reviews because of proximity and likely iteration with their host, increasing review rates).

Home Type	Listings	Avg Price	Avg Review Scores	Reviews per Listing	Reviews per Month
Entire home/apt	3459	$283.25	4.73	34.70	
Hotel room	14	$340.71	4.40	13.00	-12.41%
Private room	389	$258.85	4.65	39.88	-13.93%
Shared room	10	$51.80	3.89	0.50	-61.15%
Grand Total	3872	$280.41	4.72	35.05	

Then, we broke entire home type further into two property types: entire home and entire rental unit. Entire home outperforms entire rental unit in occupancy rate and estimated income, generating almost 4x as much as rental units. Thus, we recommended to our client to move forward with an entire home.

Property Type	Listings	Occupancy Rate	Estimated Income	Reviews per Month	Reviews per Listing (LTM)
Entire home	1023	21.10%	$22,676.73	1.59	9.58
Entire rental unit	945	16.34%	$6,942.55	1.61	10.42
Grand Total	1968	18.82%	$15,121.45	1.60	9.98

Analyzing Listing Patterns Across Occupancy Rates:

Next, we created a pivot table that outlined listing information, review information, and amenities information, across occupancy rates. As shown below, we immediately noticed patterns in pricing models. As you move toward higher occupancy rates, listings trend toward lower nightly prices, and higher estimated income. Reviews per listing increases as price decreases, and review scores increase.

Listings Grouped by Occupancy Rate

neighbourhood_cleansed	Fort Lauderdale						

Occupancy Rate (Days)	Listings	Avg Price	Estimated Income	Avg Review Scores	Reviews per Listing	Reviews LTM	Reviews per Month
<1	835	$427.09	$0.00	4.43	4.98	0.00	0.41
1-31	861	$308.64	$4,307.88	4.65	7.77	3.26	1.03
31-61	508	$220.85	$10,023.27	4.70	25.60	10.65	1.75
61-91	377	$232.87	$17,582.37	4.76	34.71	16.03	1.94
91-121	268	$216.50	$22,905.94	4.79	45.54	20.82	2.29
121-151	234	$252.25	$34,060.10	4.79	60.21	25.19	2.44
151-181	180	$208.59	$34,142.17	4.82	92.02	35.18	3.15
181-211	122	$196.34	$38,356.79	4.81	77.77	33.24	2.96
211-241	95	$195.33	$44,116.88	4.84	77.42	32.79	3.02
241-271	392	$169.12	$42,905.97	4.82	99.70	44.30	3.93
Grand Total	3872	$280.41	$15,850.64	4.72	35.05	14.62	2.02

Then, we added amenity columns to these same rows, and noticed another immediate pattern. As you trend toward higher occupancy rate listings, we see a slight increase, peak, and then an ultimate decrease until you reach the highest occupancy rate listings, with the lowest amenity averages.

This, combined with the pricing model findings, implies the highest occupancy rate models take the approach of appealing to cheaper customers who are looking for a quick and a cheap place that has the minimum amenities and needs.

Min Nights	Max Nights	Avg Bath	Avg Bedrooms	Avg Beds	Avg Accommodates
11.11	448.99	1.81	2.07	2.86	5.37
2.14	480.97	1.73	2.09	2.88	5.29
2.24	553.69	1.65	2.10	2.88	5.16
3.16	590.64	1.69	2.17	2.97	5.27
3.60	682.60	1.73	2.23	2.92	5.22
4.97	583.35	1.68	2.18	2.84	5.21
2.18	616.60	1.71	2.27	3.17	5.64
3.34	594.70	1.67	2.34	3.12	5.55
5.55	538.69	1.72	2.21	2.94	4.95
6.16	489.15	1.57	2.02	2.59	4.62
4.99	526.57	1.71	2.12	2.88	5.22

Analyzing Top Performers:

Then, we created a pivot table that looked at the same data across each individual occupancy rate % that has at least 10 live listings. The table is shown below, and is important to point out because there were large discrepancies in the data that we noticed. With just a 36% occupancy rate, those 27 listings with an average nightly price of $563.59 are projecting an estimated income of almost $74,000 - almost double our original projections at a doubled occupancy rate. Then when looking at possible variables that could be impacting this group, there was nothing statistically significant found - this implied outliers throughout the data set that now had to be accounted for. So, we went back into our data set, copied it, and created a new clean and condensed version, to then recreate the same pivot tables with.

Occupancy Rate	Listings	Avg Price	Estimated Income	Avg Rating	Reviews per Listing	Reviews per Month
14%	13	$ 340.69	$ 17,313.98	4.70	21.38	1.18
16%	54	$ 214.69	$ 12,468.92	4.80	37.56	1.70
17%	18	$ 259.06	$ 15,672.86	4.64	35.50	2.22
17%	23	$ 184.57	$ 11,612.84	4.75	37.48	1.91
18%	22	$ 159.73	$ 10,436.58	4.68	31.64	2.06
19%	42	$ 229.02	$ 15,518.65	4.75	28.79	1.73
20%	61	$ 234.52	$ 17,026.49	4.71	37.44	1.66
21%	22	$ 365.77	$ 28,325.44	4.81	25.82	1.44
22%	15	$ 342.67	$ 27,365.36	4.84	18.27	1.85
23%	13	$ 212.31	$ 17,982.46	4.65	49.00	2.27
24%	33	$ 233.64	$ 20,354.40	4.81	44.97	1.89
25%	12	$ 117.42	$ 10,797.64	4.70	49.58	2.88
26%	16	$ 238.94	$ 22,550.92	4.82	57.69	2.35
27%	32	$ 190.28	$ 18,419.23	4.80	44.03	2.14
28%	13	$ 197.15	$ 20,038.72	4.86	30.31	1.56
28%	19	$ 131.74	$ 13,389.73	4.77	33.42	2.06
29%	21	$ 367.52	$ 39,133.94	4.77	48.67	2.45
30%	12	$ 165.75	$ 18,050.18	4.75	85.92	2.09
30%	17	$ 111.82	$ 12,448.20	4.77	44.24	2.54
32%	32	$ 233.63	$ 27,137.88	4.76	33.78	2.18
34%	12	$ 174.75	$ 21,567.65	4.78	95.75	2.63
34%	14	$ 127.14	$ 15,999.66	4.79	133.71	3.21
36%	27	$ 563.59	$ 73,650.28	4.76	49.78	2.67
37%	20	$ 178.85	$ 24,237.75	4.77	66.20	2.86
38%	13	$ 329.23	$ 45,414.09	4.81	38.69	2.22
38%	16	$ 125.69	$ 17,641.50	4.77	65.75	3.13
40%	44	$ 228.09	$ 33,118.80	4.79	33.05	1.47
42%	18	$ 147.83	$ 22,538.67	4.79	60.06	2.57
42%	11	$ 251.45	$ 38,945.28	4.87	162.09	3.59
44%	11	$ 115.27	$ 18,411.36	4.81	124.45	3.81
45%	11	$ 198.45	$ 32,657.68	4.78	73.82	2.73
46%	11	$ 155.27	$ 25,927.44	4.82	112.45	3.25
48%	16	$ 200.81	$ 34,989.57	4.83	88.13	3.15
50%	11	$ 180.64	$ 33,222.64	4.71	130.45	3.33
52%	12	$ 154.67	$ 29,194.88	4.79	88.25	2.80
56%	16	$ 137.06	$ 27,862.07	4.81	108.94	3.35
60%	12	$ 191.50	$ 41,708.70	4.92	40.58	1.80
64%	14	$ 157.71	$ 36,640.18	4.87	107.57	3.35
68%	11	$ 110.36	$ 27,242.16	4.82	138.36	3.92
70%	343	$ 161.67	$ 41,225.99	4.82	97.96	4.01
Grand Total	28.33	$ 210.52	$ 25,456.02	4.78	65.29	2.50

Cleaning the Data:

We first removed all columns that were not relevant to the data we were looking at. This includes all things concerning host information, and unimportant listing information (such as listing descriptions, listing amenities, etc). Most of this data was text strings.

Then, with our new reduced data set, we moved toward removing outliers. We used conditional formatting to highlight all rows in the following columns that were greater than or less than 2 standard deviations from the mean, then deleting them:

- Price

- Average reviews

- Estimated income

- Minimum nights

- Time on Market

- Estimated bookings

Updating Previous Data Sets:

We updated the pivot table that analyzed listings across occupancy rates. When updating this, we noticed an immediate change. First, the average nightly price for lower occupancy rate listings drastically declined (by ~40% on listings with a 0% occupancy rate) but actually increased slightly in the higher occupancy rate models. This implies that the data set had many low occupancy rates (thus unsuccessful) but high nightly price listings that were greatly skewing the data.

Occupany Rate (Days)	Listings	Average Price	Est. Income	Reviews	Reviews per Listing	Reviews LTM	Reviews per Month
<1	751	$294.01	$0.00	4.42	1.68	0.00	0.20
1-31	838	$238.17	$3,382.88	4.64	6.49	3.25	1.03
31-61	486	$217.23	$9,792.10	4.70	19.58	10.41	1.71
61-91	355	$212.50	$16,076.49	4.75	28.07	15.59	1.89
91-121	210	$219.82	$23,304.63	4.79	28.56	16.41	1.94
121-151	173	$205.41	$28,018.71	4.80	31.06	18.08	1.96
151-181	112	$234.68	$38,413.39	4.82	40.54	23.07	2.20
181-211	68	$216.78	$42,213.08	4.83	39.57	21.04	2.10
211-241	59	$186.76	$42,309.57	4.86	36.86	22.54	2.27
241-271	168	$180.22	$45,739.14	4.84	41.43	23.02	2.14
Grand Total	3220	$237.71	$12,545.16	4.71	16.75	9.04	1.53

Minimum Days for Top Listings:

Next, when noticing that the minimum days for highest occupancy rate listings increased when cleaning the data set, we created a new pivot table that broke down listing specifics of all listings with occupancy rates between 66-70% by minimum days required. As pictured below, we noticed the range of 4-6 minimum days is more successful, with an average minimum days of 4 estimating $65,372.96, almost 50% higher than our previous number.

Min Days	Listings	Avg Est. Income	Avg Review Rating	Reviews per Listing	Reviews LTM	Reviews per Month
1	28	$28,729.97	4.90	49.54	23.79	2.35
2	21	$37,582.14	4.81	36.95	26.67	2.48
3	26	$48,704.89	4.86	50.77	30.92	2.84
4	34	$65,372.96	4.85	48.35	26.53	2.30
5-6	21	$61,555.42	4.87	44.14	21.14	2.03
7	7	$46,825.29	4.87	43.71	21.29	1.67
10-20	3	$21,206.00	4.68	29.67	16.33	1.87
21+	28	$32,765.89	4.74	18.25	10.50	1.03
Grand Total	168	$45,739.14	4.84	41.43	23.02	2.14

However, when looking deeper into the data and trying to determine why these listings are netting so much more bookings, and if the minimum days is the sole reason, no meaningful conclusions could be found. We did however map the data, as shown below, and we can see two main clumps as circled below. When combined with external walk score data (the walkability of a neighborhood) we noticed the areas highlighted correspond to neighborhoods with high walk scores. As walk score is a large indicator of client interest, and aligns with their personal goals of being close to a business district and beach, we recommended to our client that they pursue listings in the general area of the circled neighborhoods.
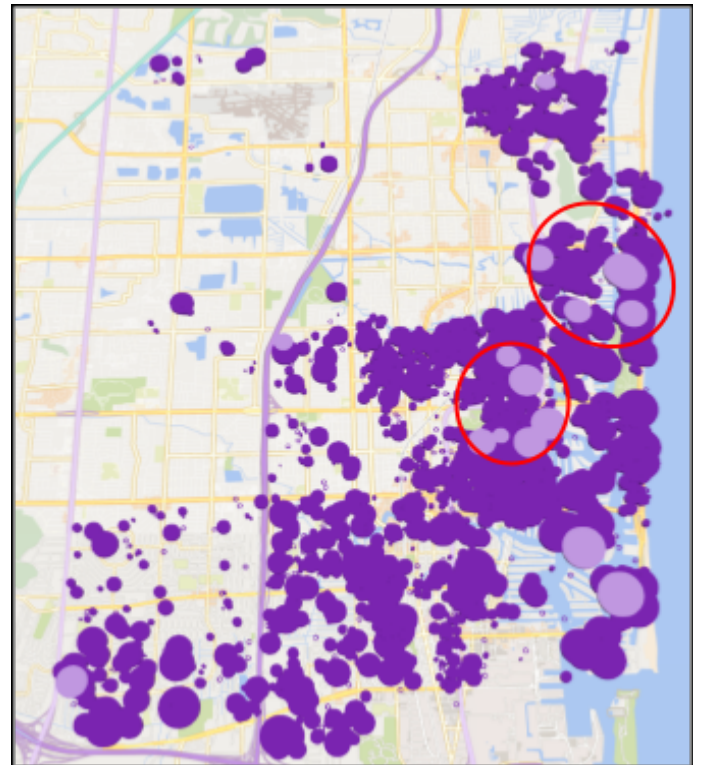
Comparing Property Types:

Finally, we populated the same initial pivot table (listings across occupancy rates) but this time we blocked the results for our main two property types (entire home vs. entire rental unit). The tables below, which are both additionally filtered as only listings with 4 minimum days, show that listings that are entire home generate significantly more revenue than entire apartments. However, it's important to note that due to 1) the small sample size and 2) the variability and impact of nightly prices on this output, we decided not to move forward with this data.

<1	10	$520.40	$0.00	4.83
1-31	13	$529.92	$9,638.67	4.56
31-61	17	$304.88	$14,205.30	4.74
61-91	8	$340.13	$27,095.92	4.93
91-121	17	$364.35	$38,883.07	4.89
121-151	10	$334.70	$46,023.32	4.85
151-181	12	$278.25	$45,406.90	4.89
181-211	6	$359.33	$70,974.81	4.81
211-241	6	$265.50	$59,881.77	4.85
241-271	16	$362.69	$91,926.69	4.83

Entire Home

<1	2	$525.00	$0.00	
1-31	6	$219.33	$3,307.33	4.78
31-61	6	$115.50	$5,532.12	4.82
61-91	6	$139.67	$10,890.81	4.79
91-121	3	$99.00	$10,860.96	4.77
121-151	3	$195.33	$25,940.22	4.72
151-181	1	$347.00	$56,430.53	4.75
181-211	1	$69.00	$12,690.48	4.96
211-241	3	$105.33	$23,806.67	4.78
241-271	7	$130.29	$32,988.86	4.90

Entire Apt

Additional Supplementary Data

Walk Score

Walk Score, a subsidiary of Redfin, provides walkability analysis and apartment search tools. We added a walk score data set from Redfin to make recommendations to our clients:

- Downloaded Fort Lauderdale neighborhoods ranked according to walk score by Walkscore.com
- Added the zip codes for the top 10 neighborhoods

Taking the top zip codes found from the walk score data, we referenced them against the zip codes listed in the redfin data to find the listings located in neighborhoods with the highest walkability. We calculated the estimated total monthly costs of owning a property in Fort Lauderdale. Narrowing our search of the listings with these criteria and searching for single family residential type homes gave us a list of 22 available listings to recommend to our clients.

PROPERTY TYPE	MLS#	PRICE	HOA/MONTH	IN RANGE?	ADDRESS	CITY	ZIP OR F	TOP WALK SCORE AREA?	LOCATION
Single Family Residential	A11310817	500000		In Range	1520 NE 14th Ter	Fort Lauderdale	33304	Yes	ALLENWOOD ADD NO 2
Single Family Residential	A11312670	405000		In Range	630 SW 29th Ave	Fort Lauderdale	33312	Yes	PARK PLAZA
Single Family Residential	A11312345	480000		In Range	1708 NW 14th St	Fort Lauderdale	33311	Yes	LAUDERDALE MANORS AMD PLA
Single Family Residential	F10359551	550000		In Range	1313 NW 2nd Ave	Fort Lauderdale	33311	Yes	Progresso 2-18 D
Single Family Residential	A11313289	450000		In Range	1019 NW 14th Ct	Fort Lauderdale	33311	Yes	LAUDERDALE VILLAS
Single Family Residential	RX-10850677	420000		In Range	1732 SW 14th St	Fort Lauderdale	33312	Yes	Riverside Estates 2nd Revision
Single Family Residential	RX-10850650	434900		In Range	5400 SW 25th Ave	Dania Beach	33312	Yes	LA Beau Acres 2
Single Family Residential	F10359147	450000		In Range	1464 SW 28th Way	Fort Lauderdale	33312	Yes	Chula Vista
Single Family Residential	F10358468	450000		In Range	1637 NW 9th Ave	Fort Lauderdale	33311	Yes	Lauderdale Villas 29-37 B
Single Family Residential	F10357677	432000		In Range	1116 NE 5th Ave	Fort Lauderdale	33304	Yes	Progresso 2-18 D
Single Family Residential	F10358183	499000		In Range	725 SW 2 Ct	Fort Lauderdale	33312	Yes	Bryan Sub Of Blk 22 Ft La
Single Family Residential	F10356994	450000		In Range	2311 NW 6th Pl	Fort Lauderdale	33311	Yes	Washington Park 19-22 B
Single Family Residential	F10358073	419000		In Range	1740 NW 29th Ter	Fort Lauderdale	33311	Yes	Wingate Ridge Amd Of
Single Family Residential	A11308457	450000		In Range	2730 Washington Dr	Fort Lauderdale	33311	Yes	WASHINGTON PARK FIRST ADD
Single Family Residential	A11305948	525000		In Range	1590 SW 31st Ave	Fort Lauderdale	33312	Yes	CHULA VISTA 3RD ADD
Single Family Residential	222084461	425000		In Range	3781 Jackson Blvd	Fort Lauderdale	33312	Yes	Fort Lauderdale
Single Family Residential	A11307288	499000		In Range	368 E Dayton Cir	Fort Lauderdale	33312	Yes	MELROSE PARK SECTION 2
Single Family Residential	RX-10848053	420000		In Range	728 NW 19th St	Fort Lauderdale	33311	Yes	Jamesson Sub Amen Plat
Single Family Residential	F10357237	469000		In Range	1111 NW 27th Ave	Fort Lauderdale	33311	Yes	Washington Park 5th Add 3
Single Family Residential	A11305873	499000		In Range	1520 NW 3rd Ave	Fort Lauderdale	33311	Yes	PROGRESSO
Single Family Residential	A11305754	399000	330	In Range	4950 Windward Way	Dania Beach	33312	Yes	VILLAS AT HARBOR ISLES CO
Single Family Residential	A11302085	440000		In Range	2017 NW 10th Ave	Fort Lauderdale	33311	Yes	HILLMONT MIDDLE RIVER VIS

Data Insights from Text Analysis

- Within the Airbnb dataset there were 3 columns of data that included text or string data types, that were considered for listing optimization. There are no case calls, special character limits or other restrictions, only guidelines and style guides.

- https://www.airbnb.com/resources/hosting-homes/a/new-guidelines-for-writing-your-listing-title-533

- Columns Reviewed
    - Amenities: Host generated text describing the benefits of the property
    - Name: Host generated text describing or giving name to their property (32 character limit)
    - Description: Host generated text describing the property itself.
- Data Cleansing
    - Copy and create a clean worksheet with the entire column (Amenities, Name, Description)
    - Concatenate cells using below formula delimiting each cell by a white space " ".

	A	B	C
1	airbnb text column	formula	Output
2	text1		
3	text2	=A1&" "&A2	text1
4	text3	=B3&" "&A3	text1 text2
5	text4	=B4&" "&A4	text 1 text 2 text3

- Fill to bottom of data set
- Copy the final concatenated cell to a text editor and remove, find and replace special characters.

- Use the cleaned text and introduce an online word cloud generator for quick word count and association. Project team used https://monkeylearn.com/word-cloud/
- Analysis Inferred
    - Name & Description: Showed a higher volume of words associated with water (pool, beach, hot tub, heated pool) and use of words describing property (bedrooms, space, home)
    - Amenities: showed a high volume of words associated with privacy (private entrance, private patio), extra personal items (extra pillow, blanket) and with parking (private parking, parking)

Character	Name
!	Exclamation
"	Double quote
#	Number sign (hash)
$	Dollar sign
%	Percent
&	Ampersand
'	Single quote
(	Left parenthesis
)	Right parenthesis
*	Asterisk
+	Plus
,	Comma
-	Minus
.	Full stop
/	Slash
:	Colon
;	Semicolon
<	Less than
=	Equal sign
>	Greater than
?	Question mark
@	At sign
[	Left bracket
\	Backslash
]	Right bracket
^	Caret
_	Underscore
`	Grave accent (backtick)
{	Left brace
|	Vertical bar
}	Right brace
~	Tilde

Estimating Seasonality

- In an attempt to assess seasonal demand, the team needed to introduce an independent data set that would be specific to Broward County in which Fort Lauderdale is located. Introduced in 1980, Broward County charges a tourism development tax on the total rental charge for every person who rents or leases any living quarters or accommodations such as a hotel/motel, apartment, rooming house, mobile home/RV park, condominiums, timeshare or single family home rented for a period of six months or less is subject to the tourist development tax.
- We used this data from 2008 - 2017 by month. Took the average for each month across the 10 years and bar graphed the results. We used the high-volume taxable months to visualize high-demand months for seasonal short term rentals.
- Converted table from PDF and delimited in excel, averaged each month across all years, bar charted for monthly seasonality.
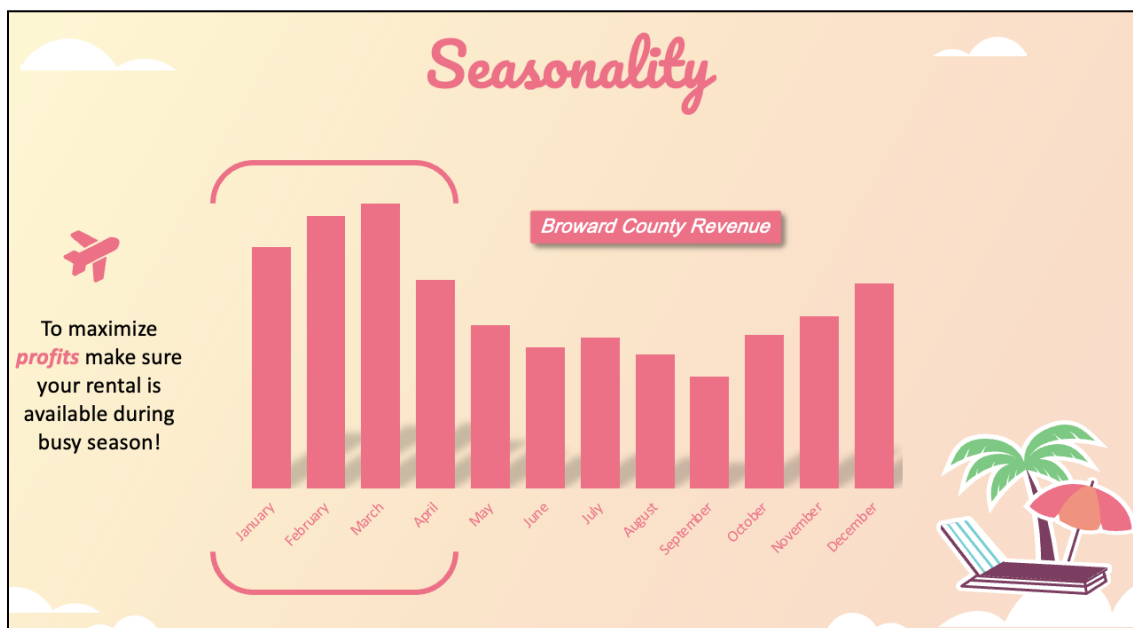- Highest Volume months are December through April

GREATER FORT LAUDERDALE
TOTAL TOURIST TAX COLLECTIONS

MONTH	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	% chg
JAN	$4,727,356	$3,983,280	$3,890,877	$4,055,687	$4,662,492	$5,085,933	$5,764,901	$6,485,370	$6,686,674	$6,493,398	-2.9%
FEB	$5,526,053	$4,429,125	$5,074,860	$4,768,340	$5,352,291	$5,510,358	$6,221,929	$7,088,533	$7,443,965	$7,018,884	-5.7%
MAR	$5,494,124	$4,031,730	$4,505,420	$5,200,449	$5,555,001	$6,352,084	$6,768,443	$7,410,655	$7,944,298	$7,893,521	-0.6%
APR	$4,162,768	$3,105,609	$3,240,869	$4,056,038	$3,981,888	$4,226,186	$4,952,092	$5,459,887	$5,632,547	$5,859,693	4.0%
MAY	$2,980,340	$2,616,786	$2,805,064	$3,130,661	$3,324,950	$3,413,741	$3,782,816	$4,045,323	$4,330,792	$4,601,100	6.2%
JUN	$2,492,245	$2,117,555	$2,331,264	$2,616,264	$2,801,721	$3,127,373	$3,380,263	$3,618,224	$3,737,259	$4,130,110	10.5%
JUL	$2,344,638	$2,253,356	$2,419,946	$2,766,325	$2,971,827	$3,185,406	$3,565,976	$3,885,598	$4,330,253	$4,756,497	9.8%
AUG	$2,287,439	$2,023,234	$2,112,759	$2,386,001	$2,561,865	$2,876,350	$3,345,489	$3,474,977	$3,545,989	$4,090,849	15.4%
SEP	$1,824,991	$1,611,029	$1,733,388	$2,061,380	$2,214,417	$2,335,376	$2,675,355	$2,991,525	$3,168,378	$3,472,776	9.6%
OCT	$2,658,761	$2,263,749	$2,628,799	$2,858,378	$3,146,023	$3,224,004	$3,695,371	$3,944,613	$3,694,577	$4,852,690	31.3%
NOV	$2,898,646	$2,367,004	$2,589,804	$2,996,037	$3,209,901	$3,796,454	$4,099,543	$4,725,906	$4,724,410	$5,627,866	19.1%
DEC	$3,222,053	$2,819,720	$3,213,873	$3,740,525	$4,070,978	$4,565,317	$5,183,258	$5,581,266	$5,246,720	$6,273,779	19.6%
TOTAL	$40,619,414	$33,622,176	$36,546,923	$40,636,084	$43,853,354	$47,698,582	$53,435,436	$58,711,876	$60,485,862	$65,071,162	7.6%

Estimating Nightly Expenses

- In order to estimate nightly expense averages, we needed to consider 3 sources
    - Airbnb Service Fees (3%)
        - Flat 3%
        - https://www.airbnb.com/help/article/1857
    - State, County & Local Taxes (16%)

- We took the high range of the 3 county taxes (transient, sales tax, tourist tax)
  - https://www.getchalet.com/rental-regulations/broward-county-fl-rental-regulations
- Average Cleaning Costs (9%)
  - Took an average of several websites at $87.32
  - Reviewing the ave booking for our narrowed property type, average of $92.00 was divided by 4 days = $23.00
  - https://www.getchalet.com/rental-regulations/broward-county-fl-rental-regulations
- We used the narrowed nightly rate of $250 and 4 Night booking
- Roughly 30% of Nightly Income is taken from Airbnb Nightly rate with majority

Nightly Rate (ave)	$250		
Airbnb Service Fees Total			
Flat Fee		$ (7.50)	3.0%
User/Host Optional Fees			
Airbnb Plus Host		$ (1.00)	
Additional Guest Fees		$ (1.00)	
County Taxes			
Transient Tax		$ (15.00)	6.0%
Descretionairy Sales Surftax (0-1.5)		$ (3.75)	1.50%
Tourist Development Tax (2-5%)		$ (6.25)	2.50%
State Taxes			
Sales Tax (flat 6%)		$ (15.00)	6%
Average Cleaning Costs		$ 23.00	9%
Total Operating Expenses		$ (26.50)	11%
NET INCOME (per Night)	$223.50		

Seasonality

Broward County Revenue

To maximize *profits* make sure your rental is available during busy season!

January February March April May June July August September October November December

Project Conclusion

Ultimately, we recommended that our clients pursue a single-family home in the most walkable areas of Ft. Lauderdale. They should be looking for a home with a low amount of basic amenities, substituted with a select few "luxury" amenities (pool, close to beach, free parking, private patio). They should rent out the home during the busiest tourist seasons (January through July), and use the home themselves in a down season (August to November). Although we did find data on properties generating upwards of $90k annually, any trends and patterns aren't strong enough to be statistically significant, so we recommended pursuing the above approach as the $45k in estimated revenue will be more than enough for their needs.