Airbnb Investment Analysis Report

Regression Results

Regression A)

SUMMARY O	JTPUT							
Regression	Statistics							
Multiple R	0.76440433							
R Square	0.58431397							
Adjusted R S	0.58325893							
Standard Erro	64.4603171							
Observations	396							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	2301240.16	2301240.16	553.830754	4.1362E-77			
Residual	394	1637122.2	4155.13248					
Total	395	3938362.35						
	Coefficients	Standard Erro	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	22.4404166	5.70308192	3.9347877	9.8414E-05	11.2281393	33.6526939	11.2281393	33.6526939
accommodate	34.7447141	1.47638699	23.533609	4.1362E-77	31.8421325	37.6472956	31.8421325	37.6472956

- i. The coefficient on accommodates, 34.755, means that each additional accommodate increases the price of the Airbnb by \$34.76. The coefficient is statistically significant because the corresponding |t-stat| = 23.577 > 3.
- ii. The variation in accommodates somewhat explains the price variation but does not explain it well since the Adjusted R-Squared value is 0.583, and the closer this value is to 1, the better it explains the variation due to the model.

Regression B)

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SUMMARY O	JTPUT							
Regression	Statistics							
	0.80658689							
R Square	0.65058241							
Adjusted R S	0.6488042							
Standard Erro	59.1744107							
Observations	396							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	2	2562229.28	1281114.64	365.864364	1.8503E-90			
Residual	393	1376133.08	3501.61088					
Total	395	3938362.35						
	Coefficients	Standard Erro	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	3.05727822		0.53669257	0.59178367		14.2567362		
accommodate	17.5619026	2.40793615	7.2933423	1.6806E-12	12.8278553	22.2959498	12.8278553	22.2959498
bedrooms	50 8834766	5.89385594	8.6333085	1.5046E-16	39.2960461	62.4709071	39.2960461	62.4709071

Price =
$$3.057 + (17.562 * accommodates) + (50.883 * bedrooms)$$

(0.537) (7.293) (8.633)

i. The coefficient on accommodates, 17.562, means that each additional accommodate results in an increase in the price of the Airbnb by \$17.56, holding the number of bedrooms constant. The coefficient on accommodates is statistically significant because the corresponding |t-stat| = 7.293 > 3.

The coefficient on bedrooms, 50.883, means that each additional bedroom results in an increase in the price of the Airbnb by \$50.88, holding the number of accommodates constant. The coefficient on bedrooms is statistically significant because the corresponding |t-stat| = 8.633 > 3.

ii. The coefficient on accommodates does change between A and B, and it decreases because an additional correlated variable is added to the regression equation. This causes a decrease in the effect of accommodate due to the added impact of bedrooms.

Regression C)

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SUMMARY O	JTPUT							
Regression	Statistics							
Multiple R	0.81390643							
R Square	0.66244367							
Adjusted R S	0.65986033							
Standard Erro	58.2355164							
Observations	396							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	2608943.21	869647.737	256.429219	4.6389E-92			
Residual	392	1329419.14	3391.37537					
Total	395	3938362.35						
	Coefficients	Standard Erro	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-18.939124		-2.3215038	0.02077162		-2.8999668		
accommodate			6.89470858	2.1692E-11	23.5816461	42.3949481		
accommodate			-3.7113789	0.00023595		-0.5448741		
bedrooms	44.1737109		7.27072349	1.956E-12		56.1184675		

- i. This tells us that the relationship between price and the number of people accommodated is not a linear relationship, but rather it is an exponential relationship. This is because the coefficient of accommodates_sq is statistically significant because the corresponding |t-stat| = 3.711 > 3, meaning that the accommodates_sq variable belongs in the regression equation, so it is no longer linear.
- ii. If a rental accommodates 3 people instead of 2, the price increases by **\$27.19** on average, holding the number of bedrooms constant.
 - Price(2 accommodates) = $-18.939 + (32.988 * 2) (1.159 * 2^2) + (44.174 * 1)$ = -18.939 + 65.976 - 4.636 + 44.174 = \$86.58
 - Price(3 accommodates) = $-18.939 + (32.988 * 3) (1.159 * 3^2) + (44.174 * 1)$ = -18.939 + 98.964 - 10.431 + 44.174 = \$113.768
 - Price(3 accommodates) Price(2 accommodates) = 113.768 86.58 = \$27.19.

If a rental accommodates 6 people instead of 5, the price increases by **\$20.24** on average, holding the number of bedrooms constant.

- Price (5 accommodates) =
$$-18.939 + (32.988 * 5) - (1.159 * 5^2) + (44.174 * 1)$$

= $-18.939 + 164.94 - 28.975 + 44.174 = 161.20

Price (6 accommodates) =
$$-18.939 + (32.988 * 6) - (1.159 * 6^2) + (44.174 * 1)$$

= $-18.939 + 197.928 - 41.724 + 44.174 = 181.44

• Price(6 accommodates - 5 accommodates) = 181.44 - 161.20 = \$20.24

Regression D)

Regressio	$\mathbf{m} \mathbf{D}_j$							
SUMMARY O	UTPUT							
Regression	Statistics							
Multiple R	0.82498243							
R Square	0.68059601							
Adjusted R S	0.67483357							
Standard Erro	56.9393024							
Observations	396							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	7	2680433.7	382919.1	118.108933	4.3106E-92			
Residual	388	1257928.65	3242.08416					
Total	395	3938362.35						
	Coefficients	Standard Erro	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 05.0%
Intercept	30.3987715		2.81225563	0.00516943	9.14646106	51.651082		51.651082
accommodate		2.45741078	5.41964198	1.0511E-07		18.1497943		18.1497943
bedrooms	41.5790204		6.77579291	4.6088E-11	29.5142505	53.6437902		53.6437902
bathrooms	21.0922513		2.89804388	0.00396807		35.4016998		35.4016998
	-10.631432			0.29405568		9.26259642		
Entire House			-1.0506884		-30.52546		-30.52546	9.26259642
Private room	-43.390954		-5.1565666	4.0179E-07	-59.935067	-26.846841	-59.935067	-26.846841
Private room	-45.046813		-4.8570118	1.7317E-06	-63.281563	-26.812062	-63.281563	-26.812062
Shared room	-28.842959	26.3758757	-1.0935356	0.27483715	-80.700486	23.0145677	-80.700486	23.0145677

Price =
$$30.399 + (13.318 * accommodates) + (41.579 * bedrooms) + (21.092 * bathrooms) + ... (2.812) (5.420) (6.776) (2.898)$$

i. **Accommodates -** For each additional accommodate, the price increases by \$13.32 on average, holding constant the number of bedrooms, number of bathrooms, and property/house type. This makes sense because we would expect the price to increase with the number of guests.

Bedrooms - For each additional bedroom, the price increases by \$41.57 on average, holding constant the number of accommodates, number of bathrooms, and property type/house type. This makes sense because we would expect the price to increase with the number of bedrooms.

Bathrooms - For each additional bathroom, the price increases by \$21.09 on average, holding constant the number of accommodates, number of bedrooms, and property type/house type. This makes sense because we would expect the price to increase with the number of bathrooms

Entire House - For an entire house, the price is on average \$10.63 less than an entire apartment, holding constant the number of accommodates, number of bedrooms, and number of bathrooms. We do not think this makes sense since we would expect a house to be more expensive than an apartment because there is more space

Private Room in Apartment - For a private room in an apartment, the price on average is \$43.39 less than an entire apartment, holding constant the number of accommodates, number of bedrooms, and number of bathrooms. This makes sense because we would expect a private room in an apartment to be cheaper than the entire apartment because there is less space.

Private Room in House - For a private room in house, the price is on average \$45.05 less than an entire apartment, holding constant the number of accommodates, number of bedrooms, and number of bathrooms. This makes sense because we would expect a private room in a house in a house to be less expensive than an entire apartment. **Shared Room -** For the shared room, the price is on average \$28.84 less than an entire apartment, holding constant the number of accommodates, number of bedrooms, and number of bathrooms. This makes sense because we would expect a shared room to be cheaper than an entire apartment since it is not private.

ii. Holding constant accommodates, bedrooms, and bathrooms, the category with the highest prices is an entire apartment. This is because the other coefficients are negative, meaning all other property/house types cause a decrease in the price as compared to an entire apartment the omitted variable.

Regression E)

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SUMMARY O	JTPUT							
Regression	Statistics							
Multiple R	0.81206639							
R Square	0.65945183							
Adjusted R S	0.65508583							
Standard Erro	58.6428149							
Observations	396							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	5	2597160.25	519432.051	151.042486	6.6204E-89			
Residual	390	1341202.1	3438.97974					
Total	395	3938362.35						
	Coefficients	Standard Erro	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-96.417825	40.4628114	-2.3828751	0.01765621	-175.97036	-16.865294	-175.97036	-16.865294
accommodate	17.4871667	2.39721047	7.29479821	1.685E-12	12.7740943	22.2002391	12.7740943	22.2002391
bedrooms	47.4894682	6.26936494	7.57484509	2.6355E-13	35.1634871	59.8154492	35.1634871	59.8154492
bathrooms	14.2431491	7.06100262	2.01715674	0.04436384	0.3607566	28.1255415	0.3607566	28.1255415
review scores	9.13181307	4.19522156	2.17671771	0.03010088	0.88373341	17.3798927	0.88373341	17.3798927
Missing Revie			2.34444525	0.01955638	15.2938874	174.228231	15.2938874	174.228231

Price =
$$-96.418 + (17.487 * accommodates) + (47.489 * bedrooms) + (14.243 * bathrooms) + ... (-2.383) (7.295) (7.575) (2.017)$$

... (9.132 * review_scores_location) + (94.761 * Missing Reviews)

- i. Review_scores_location is significant since the t-stat is greater 2. The lack of a review is also significant as it has a very high coefficient and the t-stat is also greater than 2
- ii. The price difference between an Airbnb with the lowest location review and the highest location review was (9.132 * 10) (9.132 * 2) = 91.32 18.264 = \$73.06

Regression F)

Variables:

- 1. **Bedrooms** The number of bedrooms each rental property has. This is important because it dictates how many guests the property can accommodate and indicates how large or small it is.
- **2. Bathrooms** The number of bathrooms on the property. This is important because it indicates how large the property is.
- **3.** Entire house Indicates that renters have the entire house, it indicates how much privacy guests have.
- **4. Private room in Apartment -** Indicates renters do not have access to the entire property.
- 5. Private room in House Indicates renters do not have access to the entire property.
- **6. Shared room -** Indicates guests do not have access to the entire property, or a private room
- 7. **Accommodates -** The owners recommendation of how many guests the property can sleep. This directly affects how large of a party can stay at each property.
- **8. Location -** Where the property is located. Desirable locations near local attractions can increase the rental price, and make it more appealing.
- **9. Missing Location Score** If a property is new it may not have reviews, been given scores by guests yet, or on the contrary have biased reviews since most people who give reviews are biased towards loving or hating the property. Which means it is important to consider that bias when looking at a property's ratings.
- **10. Review Score Rating -** How guests have rated their stay at the property. Higher scores indicate a more desirable rental property.
- **11. Air Conditioning -** Does the property have air conditioning? Especially in the hotter months this amenity can make properties more desirable.
- **12. Wireless Internet -** Does the property have wireless internet? A necessity in the 21st century that makes properties less desirable if they do not have it.
- **13. Parking -** Does the property have free parking? A bonus that makes a property more desirable in alleviating parking headaches for guests.
- **14. Pets Allowed -** Does the property allow guests to bring their pets? Since allowing pets is a risk the owner takes on it can boost the nightly rate.
- **15. Family/kid friendly -** Is the property family and kids friendly? Generally these types of properties need more bedrooms to accommodate families which means these types of properties should have a higher nightly rate.
- **16. Superhost** Is the host a superhost, or verified host? This makes hosts more trustworthy meaning guests may not mind paying higher rates on their rentals.

SUMMARY O	UTPUT							
Regression	Statistics							
Multiple R	0.83926996							
R Square	0.70437406							
Adjusted R S	0.69189381							
Standard Erro	55.4254849							
Observations	396							
ANOVA								
7	df	SS	MS	F	Significance F			
Regression	16	2774080.27	173380.017	56.4390946	8.9381E-90			
Residual	379	1164282.08	3071.98438					
Total	395	3938362.35						
	Coefficients	Standard Erro	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-76.10746	48.432333	-1.5714184	0.11691992	-171.33719	19.1222745	-171.33719	19.1222745
accommodate	12.4018985	2.43409218	5.09508171	5.5101E-07	7.61588189	17.1879152	7.61588189	17.1879152
bedrooms	45.0876328	6.06779958	7.43063976	7.2416E-13	33.1568645	57.0184011	33.1568645	57.0184011
bathrooms	19.9205578	7.15763768	2.78311905	0.00565346	5.84690299	33.9942126	5.84690299	33.9942126
Entire House	-10.834782	9.9178017	-1.0924581	0.27532574	-30.33559	8.66602541	-30.33559	8.66602541
Private room	-41.82628	8.38976511	-4.9853935	9.4277E-07	-58.322597	-25.329964	-58.322597	-25.329964
Private room	-38.710804	9.25840993	-4.1811504	3.6058E-05	-56.915088	-20.506521	-56.915088	-20.506521
Shared room	-16.698468	26.2025816	-0.6372833	0.52432509	-68.21911	34.8221741	-68.21911	34.8221741
review_scores	9.1426461	4.85473573	1.8832428	0.060433	-0.4029439	18.6882361	-0.4029439	18.6882361
Missing Revie	90.58592	45.0220829	2.01203308	0.04492361	2.06156594	179.110274	2.06156594	179.110274
review_scores	0.03988555	0.5140827	0.07758587	0.93819843	-0.970926	1.05069706	-0.970926	1.05069706
Air Conditioni	17.2330835	6.13531878	2.80883262	0.00522963	5.16955608	29.296611	5.16955608	29.296611
Wireless Inter	8.12779034	16.6695448	0.48758322	0.626127	-24.648585	40.9041657	-24.648585	40.9041657
Parking	-6.4428678	5.86585436	-1.0983682	0.27274103	-17.976563	5.09082715	-17.976563	5.09082715
Pets Allowed	29.0141878	7.63673348	3.79929297	0.00016898	13.9985143	44.0298614	13.9985143	44.0298614
Family/kid Frie	-9.3389313	6.19396623	-1.5077466	0.13245249	-21.517774	2.83991129	-21.517774	2.83991129
superhost	-7.1082436	6.85427439	-1.0370527	0.3003725	-20.585412	6.36892521	-20.585412	6.36892521

- i. Adjusted R-squared is 0.692, and SEE is 55.425.
- ii. Compared to question E, the adjusted R-squared in regression F is 0.037 more than regression E. This regression does a slightly better job of explaining variation in price, yet it is still not very good.

Regression G)

SUMMARY OU	JTPUT							
	0							
Regression								
Multiple R	0.83897218							
R Square	0.70387432							
Adjusted R S								
Standard Erro								
Observations	396							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	13	2772112.14	213239.395	69.8456028	2.2136E-92			
Residual	382	1166250.21	3053.01103					
Total	395	3938362.35						
	Coefficiente	Standard Erro	t Stat	P-value	Lower 95%	Upper 05%	Lower 95.0%	Upper 05 0%
Intercept	-71.131401	40.2890132	-1.7655285	0.07827383	-150.3474	8.08459563		
accommodate		2.41511932	5.19873597	3.2762E-07	7.80697575	17.3041596	7.80697575	17.3041596
bedrooms	45.2209048	6.04159712	7.48492558	4.9862E-13	33.3419558	57.0998539	33.3419558	57.0998539
bathrooms	19.9834598	7.10465346	2.81272829	0.00516597	6.01433625	33.9525833	6.01433625	33.9525833
Entire House	-10.115275	9.84540485	-1.0274108	0.30487719	-29.473246	9.24269597	-29.473246	9.24269597
Private room	-40.333629	8.13060518	-4.9607167	1.0592E-06	-56.319972	-24.347286	-56.319972	-24.347286
Private room	-37.524354	9.03180905	-4.1546886	4.0224E-05	-55.282638	-19.76607	-55.282638	-19.76607
								-19.70007
rovious coores								17 400600
review_scores	9.58730316	4.01963733	2.38511646	0.01756061	1.68391835	17.490688	1.68391835	17.490688
Missing Revie	9.58730316 90.6299331	4.01963733 38.5693998	2.38511646 2.34978853	0.01756061 0.01929235	1.68391835 14.7950296	17.490688 166.464837	1.68391835 14.7950296	166.464837
Missing Revie Air Conditioni	9.58730316 90.6299331 17.9287561	4.01963733 38.5693998 5.99844514	2.38511646 2.34978853 2.98890057	0.01756061 0.01929235 0.00298087	1.68391835 14.7950296 6.13465224	17.490688 166.464837 29.72286	1.68391835 14.7950296 6.13465224	166.464837 29.72286
Missing Revie Air Conditioni Parking	9.58730316 90.6299331 17.9287561 -6.2923522	4.01963733 38.5693998 5.99844514 5.78708635	2.38511646 2.34978853 2.98890057 -1.0873092	0.01756061 0.01929235 0.00298087 0.27758576	1.68391835 14.7950296 6.13465224 -17.670884	17.490688 166.464837 29.72286 5.08617944	1.68391835 14.7950296 6.13465224 -17.670884	166.464837 29.72286 5.08617944
Missing Revie Air Conditioni Parking Pets Allowed	9.58730316 90.6299331 17.9287561 -6.2923522 28.9246497	4.01963733 38.5693998 5.99844514 5.78708635 7.60789755	2.38511646 2.34978853 2.98890057 -1.0873092 3.80192419	0.01756061 0.01929235 0.00298087 0.27758576 0.00016707	1.68391835 14.7950296 6.13465224 -17.670884 13.966051	17.490688 166.464837 29.72286 5.08617944 43.8832485	1.68391835 14.7950296 6.13465224 -17.670884 13.966051	166.464837 29.72286 5.08617944 43.8832485
Missing Revie Air Conditioni Parking	9.58730316 90.6299331 17.9287561 -6.2923522 28.9246497	4.01963733 38.5693998 5.99844514 5.78708635 7.60789755 6.15654329	2.38511646 2.34978853 2.98890057 -1.0873092	0.01756061 0.01929235 0.00298087 0.27758576 0.00016707 0.13960169	1.68391835 14.7950296 6.13465224 -17.670884	17.490688 166.464837 29.72286 5.08617944	1.68391835 14.7950296 6.13465224 -17.670884	166.464837 29.72286 5.08617944 43.8832485 2.99106031

- i. Adjusted R-squared is 0.694 and SEE is 55.254.
- ii. Dropping the variables of shared room, review score rating, and wireless internet has made model G more precise, as the adjusted R-squared increased and the SEE decreased from models E and F.

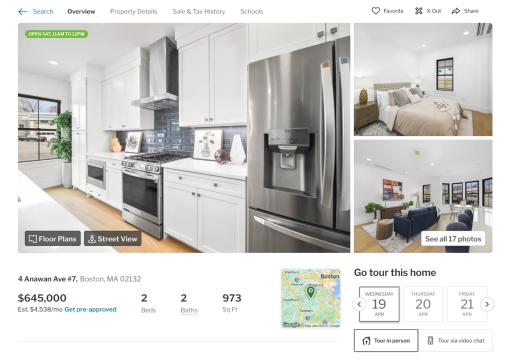
H)

- 1. **Accommodates** For each additional accommodate, the price increases by \$12.56 on average, holding constant number of bedrooms, number of bathrooms, property/house type, review_scores_location, missing_reviews, amenities, and superhost.
- 2. **Bedrooms** For each additional bedroom, the price increases by \$45.22 on average, holding constant number of accommodates, number of bathrooms, property/house type, review_scores_location, missing_reviews, amenities, and superhost.
- 3. **Bathrooms** For each additional bathroom, the price increases by \$19.98 on average, holding constant number of accommodates, number of bedrooms, property/house type, review scores location, missing reviews, amenities, and superhost.
- 4. **Entire House** If the property is an entire house, the price will be on average \$10.12 less than an entire apartment or shared room, holding constant number of accommodates, number of bedrooms, number of bathrooms, review_scores_location, missing_reviews, amenities, and superhost.
- 5. **Private room in apartment** If the property is a private room in an apartment, the price will be on average \$40.33 less than an entire apartment or shared room, holding constant number of accommodates, number of bedrooms, number of bathrooms, review scores location, missing reviews, amenities, and superhost.
- 6. **Private room in house** If the property is a private room in a house, the price will be on average \$37.52 less than an entire apartment or shared room, holding constant number of accommodates, number of bedrooms, number of bathrooms, review_scores_location, missing reviews, amenities, and superhost.
- 7. **Review_scores_location** For each 1 point increase in the review score location, the price increases by \$9.59 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms, property/house type, missing_reviews, amenities, and superhost.
- 8. **Missing_reviews** If the property is missing review score location, the price increases by \$90.63 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms, property/house type, amenities, and superhost.
- 9. **Air conditioning** If the property has air conditioning, the price increases by \$17.93 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms, property/house type, review scores location, missing review scores, amenities, and superhost.
- 10. **Parking** If the property has free parking on the premises, the price decreases by \$6.29 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms, property/house type, review scores location, missing review scores, amenities, and superhost.
- 11. **Pets allowed** If the property allows pets, the price increases by \$28.29 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms,

- property/house type, review scores location, missing review scores, amenities, and superhost.
- 12. **Family/kid friendly** If the property is family/kid friendly, the price decreases by \$9.11 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms, property/house type, review scores location, missing review scores, amenities, and superhost.
- 13. **Superhost** If the property is listed by a superhost, the price decreases by \$6.90 on average, holding constant number of accommodates, number of bedrooms, number of bathrooms, property/house type, review scores location, missing review scores, and amenities.

Investment Analysis

A) https://www.redfin.com/MA/Boston/4-Anawan-Ave-02132/unit-7/home/185151507



"Est. Monthly Payment" = 4538 * 0.65 =**\$2949.70**

B)
Price = -71.131 + (12.556 * accommodates) + (45.221 * bedrooms) + (19.983 * bathrooms) + ...
... (-10.115 *entire house) + (-40.334 *private room in apt) + (-37.524 *private room in house)...
... + (9.587 * review_scores_location) + (90.630 * Missing Review scores) + (17.929 * Air ...
... conditioning) + (-6.292 * parking) + (28.925 *pets allowed) + (-9.114 * family/kid friendly)...
... + (-6.897 * superhost)

Price =
$$-71.131 + (12.556 * 5) + (45.221 * 2) + (19.983 * 2) + (-10.115 * 0) + (-40.334 * 0) + (-37.524 * 0) + (9.587 * 8.167) + (90.630 * 0) + (17.929 * 1) + (-6.292 * 0) + (28.925 * 1) + (-9.114 * 0) + (-6.897 * 0) = $$247.21$$$

Values for each variable:

- **Accommodates:** 5. We used the value of 5 accommodates as given in the assignment.
- **Bedrooms:** 2. The listing stated there were 2 bedrooms.
- **Bathrooms:** 2. The listing stated there were 2 bathrooms.
- **Entire house:** 0. Since it is not a house the value used is 0.
- **Private room in apt:** 0. Since it is not an apt or private room the value used is 0.
- **Private room in house:** 0. Since it is not a house or private room the value used is 0.
- **Review scores location:** 8.167. The average review score location from the data is 8.167.
- **Missing location review scores:** 0. The listing has information on the location.
- **Air conditioning:** 1. The listing states that it has cooling.
- **Parking:** 0. The listing does not say there is free parking on the premises.

- **Pets allowed:** 1. The listing states that pets are allowed.
- Family/kid friendly: 0. The listing does not mention anything about children or families
- **Superhost:** 0. Assuming I am not a superhost.

95% Confidence Interval =
$$[247.21 - (2 * 55.25), 247 + (2 * 55.25)] = [136.71, 357.71]$$

C)
i. Expected monthly profit for 20 days rented = (20 * 247.21) - 2949.70 - 400 = \$1594.50

ii. In order to break even on the investment, the property would need to be rented on Airbnb for 14 days per month.

$$0 = 247.21x - 2949.70 - 400$$
$$3349.7 = 247.21x \rightarrow x = 13.55$$

- D) In conclusion, it is profitable to purchase this condo and rent it out on Airbnb, as we can see a decent expected monthly profit. We are somewhat confident that we would see a profit with our estimated price. However, the 95% confidence interval from our model is quite an extensive range of about \$200, which makes us less confident about the selected nightly rental price. Furthermore, a few risks are associated with an investment like this, such as possible low demand and difficulty renting the property for enough days each month to break even. Some other risks and considerations go along with purchasing property, such as damage or destruction to property and maintenance or upkeep of the property. Some limitations to our analysis are a small sample size to base our model on, possible variation in the cleaning fee as we used a fixed value of \$400 for our analysis, and not factoring in other potential costs like property tax or insurance.
- E) While converting a condo or apartment to an Airbnb rental can be profitable in the long run, there are some ethical implications to consider. As Airbnb and other short-term rental sites become more popular, each property purchased can have more significant societal and economic implications. These investments could contribute to a housing shortage in certain areas, affecting homelessness rates as more and more people purchase properties that no one lives in. Additionally, this can contribute to gentrification and urban sprawl as more land is used to build houses, replacing other buildings, local businesses, and parks, ultimately leading to the destruction of the environment.

Table of Regression Output (t-statistic in parentheses)

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Regression:	Α	В	С	D	E	F	G	
A	34.745***	17.562***	32.988***	13.318***	17.487***	12.402***	12.556***	
Accommodates	(23.53)	(7.293)	(6.895)	(5.420)	(7.295)	(5.095)	(5.199)	
		50.883***	44.174***	41.579***	47.489***	45.088***	45.221***	
Bedrooms		(8.633)	(7.271)	(6.776)	(7.575)	(7.431)	(7.485)	
1				21.092**	14.243**	19.921**	19.983**	
Bathrooms				(2.898)	(2.017)	(2.783)	(2.813)	
Accommodates			-1.159***					
squared			(-3.711)					
				-10.631*		-10.835*	-10.115*	
Entire house				(-1.05)		(-1.092)	(-1.027)	
			<u>. </u>	-43.391*				
Private room in				**		-41.826***	-49.337***	
apartment				(-5.157)		(-4.985)	(-4.961)	
				/			/	
				-45.047*				
Private room in				**		-38.711***	-37.524***	
house				(-4.857)		(-4.181)	(-4.155)	
				-28.843*		-16.698		
Shared room				(-1.09)		(-0.637)		
			<u></u>					
Review_scores_loc					9.132**	9.142*	9.587**	
ation					(2.177)	(1.883)	(2.385)	
							λ	
Missing Reviews					94.761**	90.596**	90.630**	
dummy					(2.344)	(2.012)	(2.350)	
/								
Review_scores_rati						0.040		
ng						(0.078)		
<u>U</u>						(2.0.0)		
						17.233**	17.929**	
Air Conditioning						(2.809)	(2.989)	
			<u></u>	ė		(=:000)	\\	
						8.128		
Wireless Internet						(0.488)		
						(0.700)		
	İ			.			.	

		•					*
Parking						-6.443*	-6.292*
raikiig						(-1.098)	(-1.087)
Pets allowed						29.014***	28.925***
Pets allowed						(3.799)	(3.802)
Family/Kid Friendly						-9.339*	-9.114*
Family/Kid Friendly						(-1.508)	(-1.480)
Superhost						-7.108*	-6.897*
Supernost						(-1.037)	(-1.034)
Intorcont	22.440***	3.057	-18.939**	30.399**	-96.418**	-76.107*	-71.131*
Intercept	(3.934)	(0.537)	(-2.321)	(2.812)	(-2.383)	(-1.571)	(-1.766)
Adjusted R-squared	0.5832	0.649	0.660	0.675	0.655	0.692	0.694
SEE	64.460	59.174	58.236	56.939	58.643	55.425	55.254
Number of	206	396	396	396	396	396	396
observations	396	390	390	390	390	390	390

Excluded categories:

t-stats in

parentheses *p-value <.10 ** p-value <.05 *** p-value <.01