Predicting Airbnb Price In New York City

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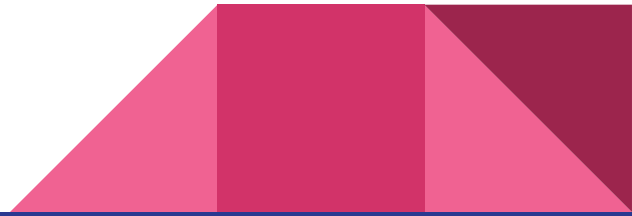
Introduction - Airbnb

Motivation

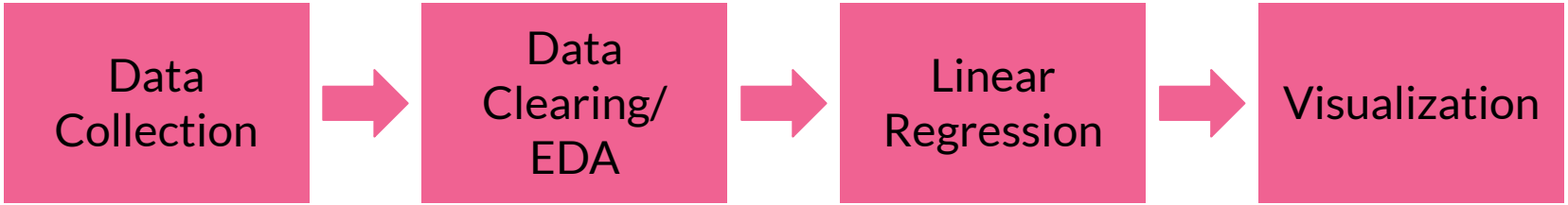
- rapidly growing market
- New York City: one of most popular market

Goal

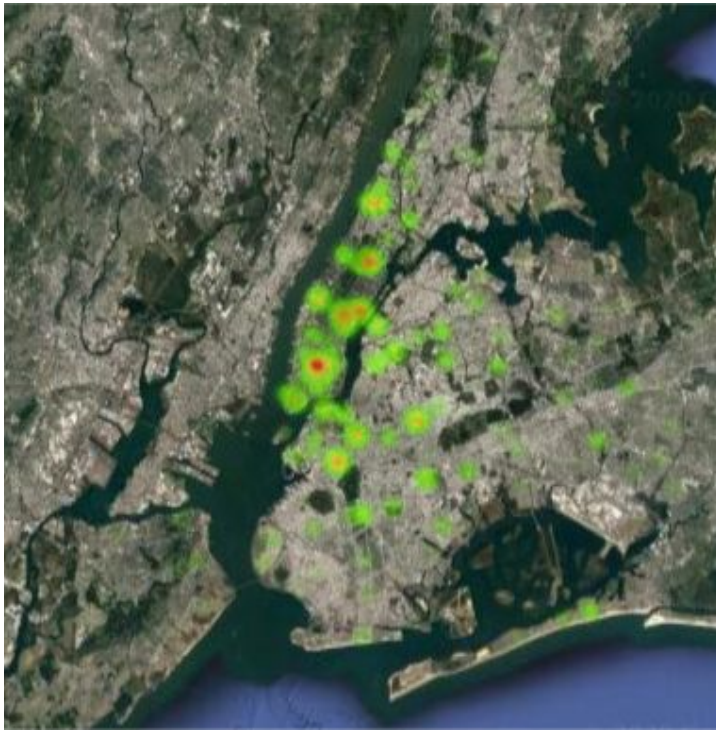
- Predict Airbnb price



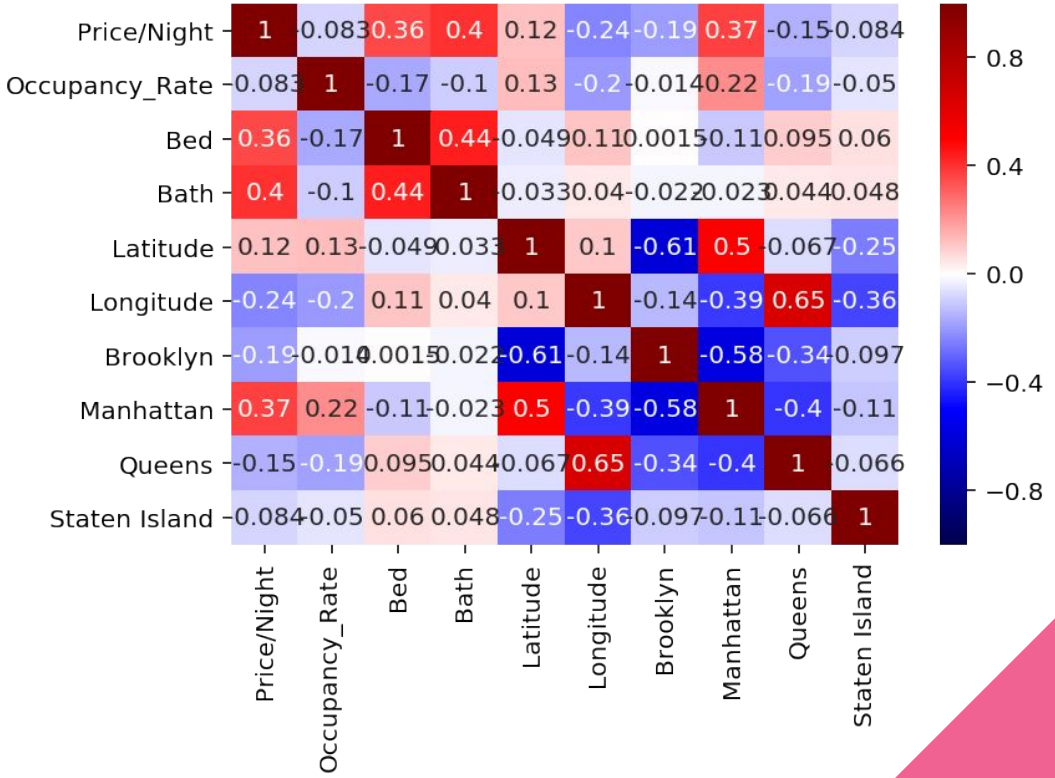
Methodology



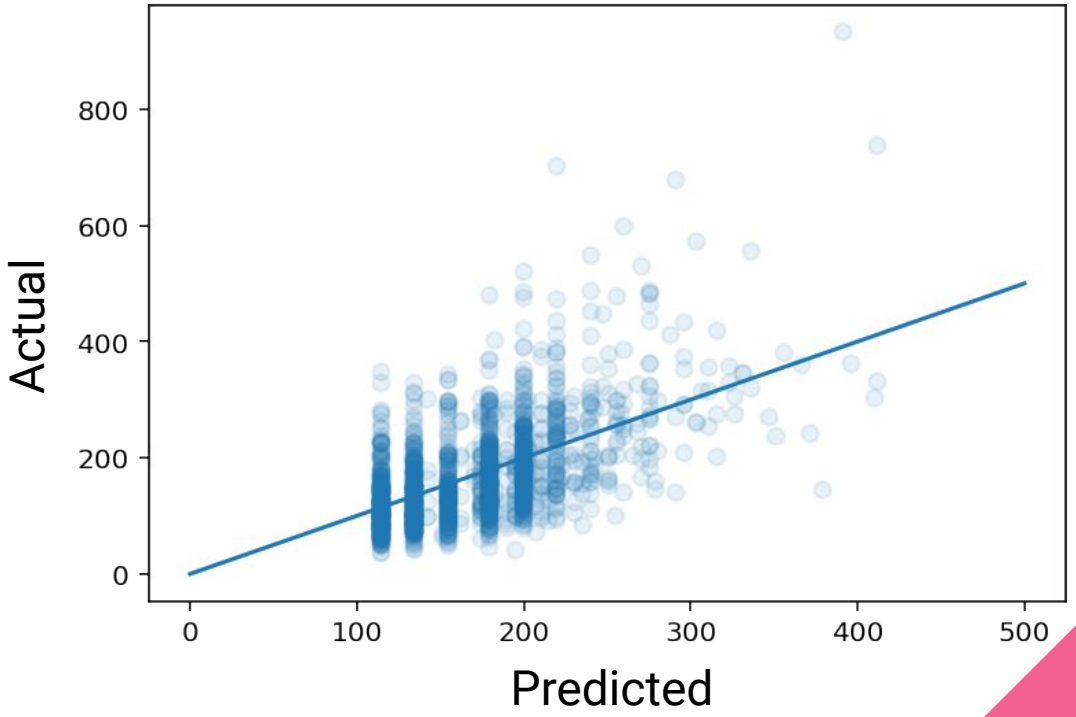
Distributions of Listing



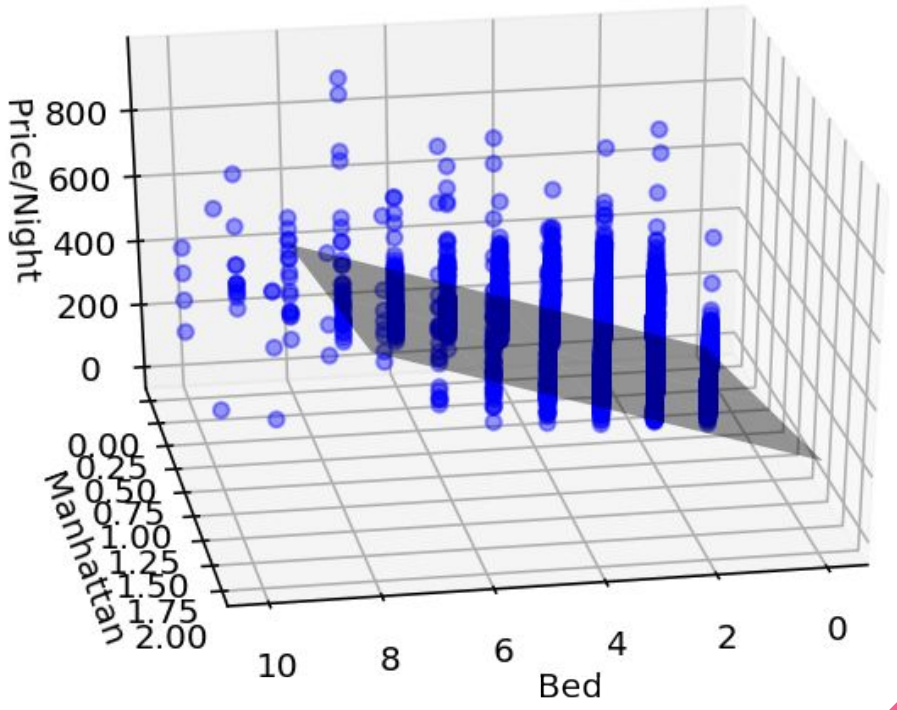
Correlation



Result



Result

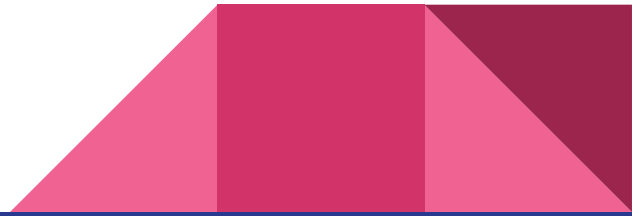

Price/Night
800
600
400
200
0
Manhattan
0.00
0.25
0.50
0.75
1.00
1.25
1.50
1.75
2.00
10
8
6
4
2
0
Bed

Conclusion

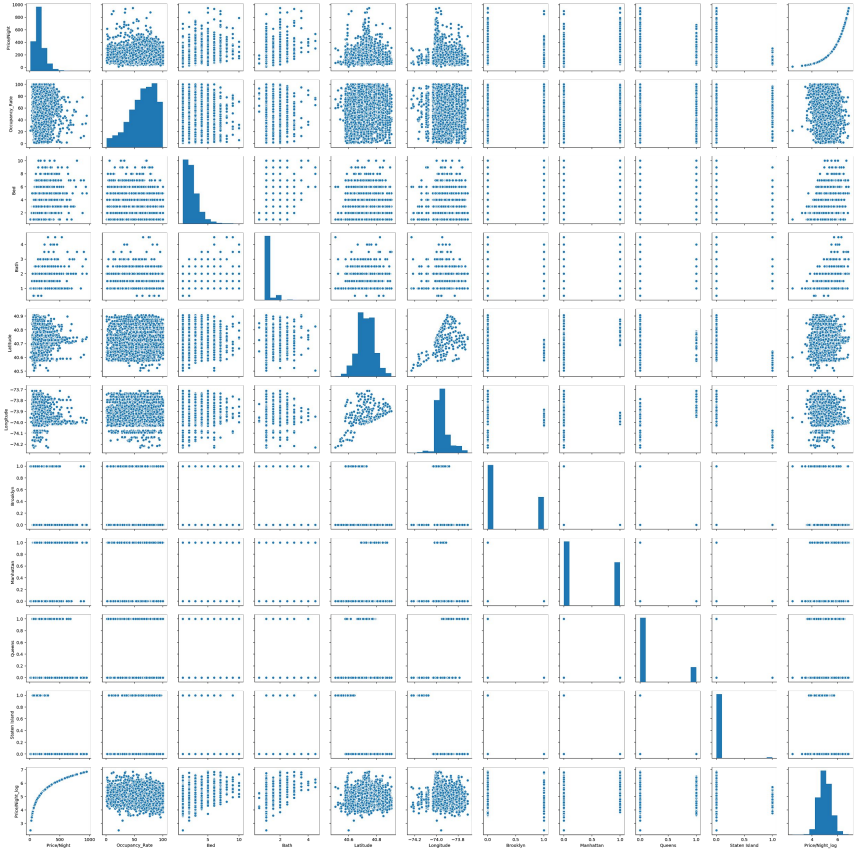
- Location and bedroom
- Significant p-value: less than 0.001

Future Work

- Adding seasonal data
- Adding different data sets
- Model for another cities



Appendix


PriceNight
Occupancy_Rate
Bed
Bath
Latitude
Longitude
Brooklyn
Manhattan
Queens
Staten Island
PriceNight_log

Appendix

OLS Regression Results

Dep. Variable:	Price/Night_log	**R-squared:**	0.359
Model:	OLS	**Adj. R-squared:**	0.359
Method:	Least Squares	**F-statistic:**	926.7
Date:	Thu, 23 Jan 2020	**Prob (F-statistic):**	0.00
Time:	15:06:48	**Log-Likelihood:**	-2156.9
No. Observations:	4959	**AIC:**	4322.
Df Residuals:	4955	**BIC:**	4348.
Df Model:	3		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	4.2778	0.019	229.075	0.000	4.241	4.314
Bed	0.1055	0.005	22.534	0.000	0.096	0.115
Bath	0.3103	0.017	18.061	0.000	0.277	0.344
Manhattan	0.4261	0.011	39.086	0.000	0.405	0.447

Omnibus:	29.829	**Durbin-Watson:**	2.007
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	43.319
Skew:	-0.012	**Prob(JB):**	3.92e-10
Kurtosis:	3.457	**Cond. No.**	13.0