STAT 131 FINAL PROJECT

PREDICTING HOUSE SALES IN KING COUNTY, USA

Python_Boiz.append(Girl)™

Annie Choi, Seungwoo Hong, Larny Lopez, Tyler “Python Boi” Rodriguez

Infographic Style

Observations

Each row is a different house bought during the period in Kings county

No missing values

Data dimensions

21,000 rows X 21 columns

Added predictors

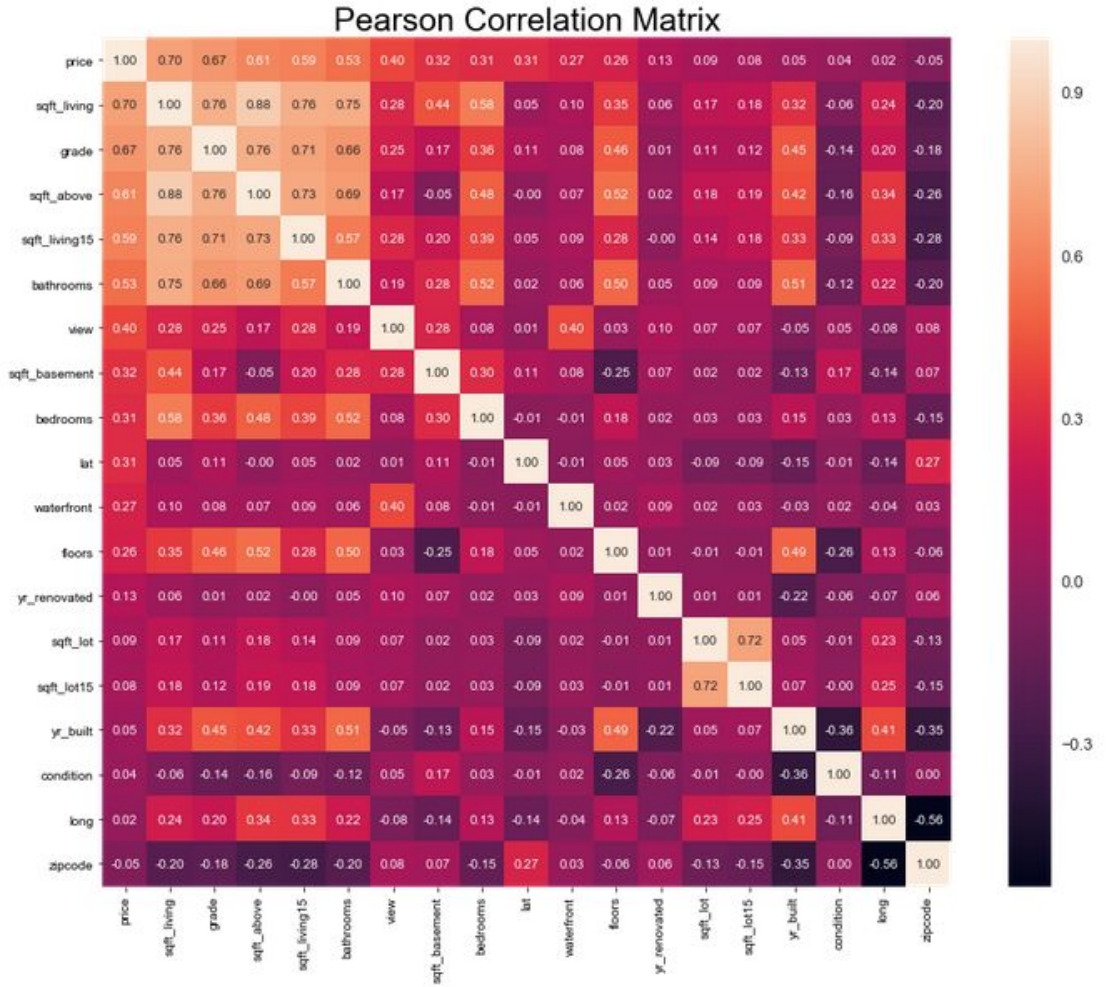
- city
- vintage

Exploratory Analysis of Data

Based on our correlation matrix

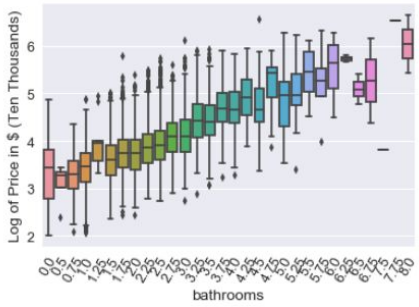
- bathrooms
- sqft_living
- grade
- sqft_above
- sqft_living15

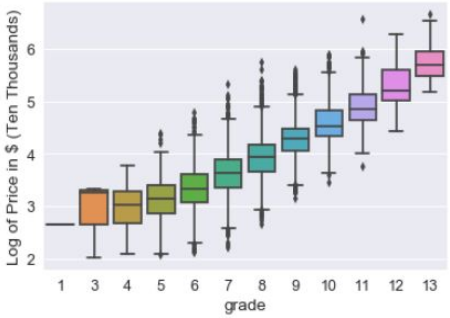
are highly correlated with price

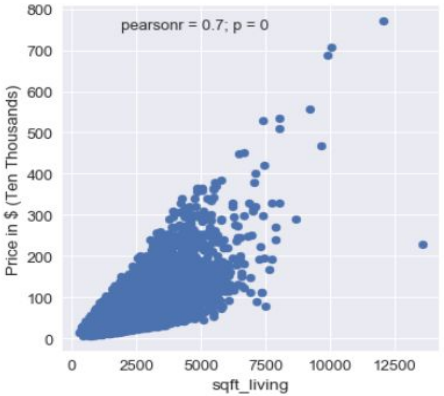


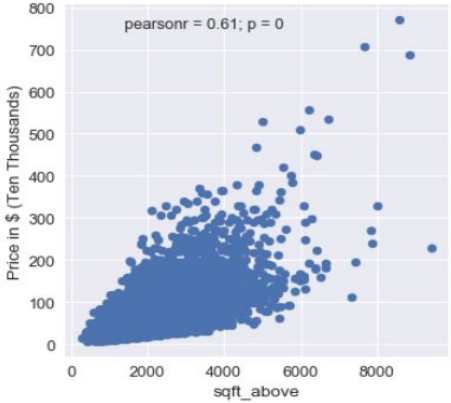
Exploratory Analysis

of highly correlated variables









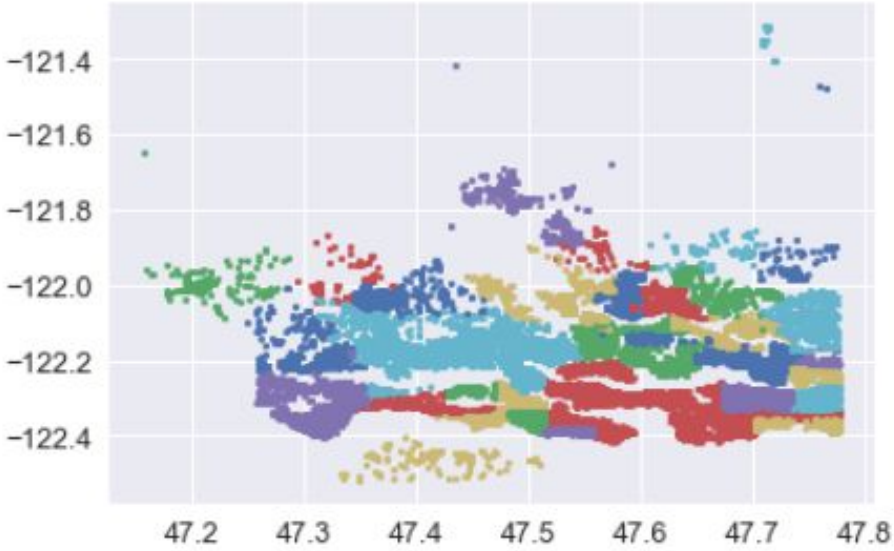
Bathroom & Grade

A general linear and upward relationship between log of price(in ten thousands)

sqft_living & sqft_above

a positive relationship

Adding New Features



Based on the zipcode we have (70 unique values). We create a column called ‘city’ so that houses can be classified by city

‘City’ column has 36 unique values

Data Modeling

Multiple Linear Regression is used to predict house prices based on all the other variables excluding date and ID number

For prediction on testing data, 70% of observations are used to set up the model

OLS Regression Results

Dep. Variable:	price	R-squared:	0.702
Model:	OLS	Adj. R-squared:	0.702
Method:	Least Squares	F-statistic:	2992.
Date:	Sun, 09 Dec 2018	Prob (F-statistic):	0.00
Time:	23:48:01	Log-Likelihood:	-2.9452e+05
No. Observations:	21613	AIC:	5.891e+05
Df Residuals:	21595	BIC:	5.892e+05
Df Model:	17		
Covariance Type:	nonrobust		

Results

- Using our multiple linear regression, we were able to correctly predict 70% of the training data
- Our model successfully explains 70% of the variations in the testing data
- All variables significant
- Additional variables could help further research