KINGS_CONTY HOUSE PRICE PREDICTION

BY: JASWINDER_SINGH

DATA

The data for this project belongs to KAGGLE.

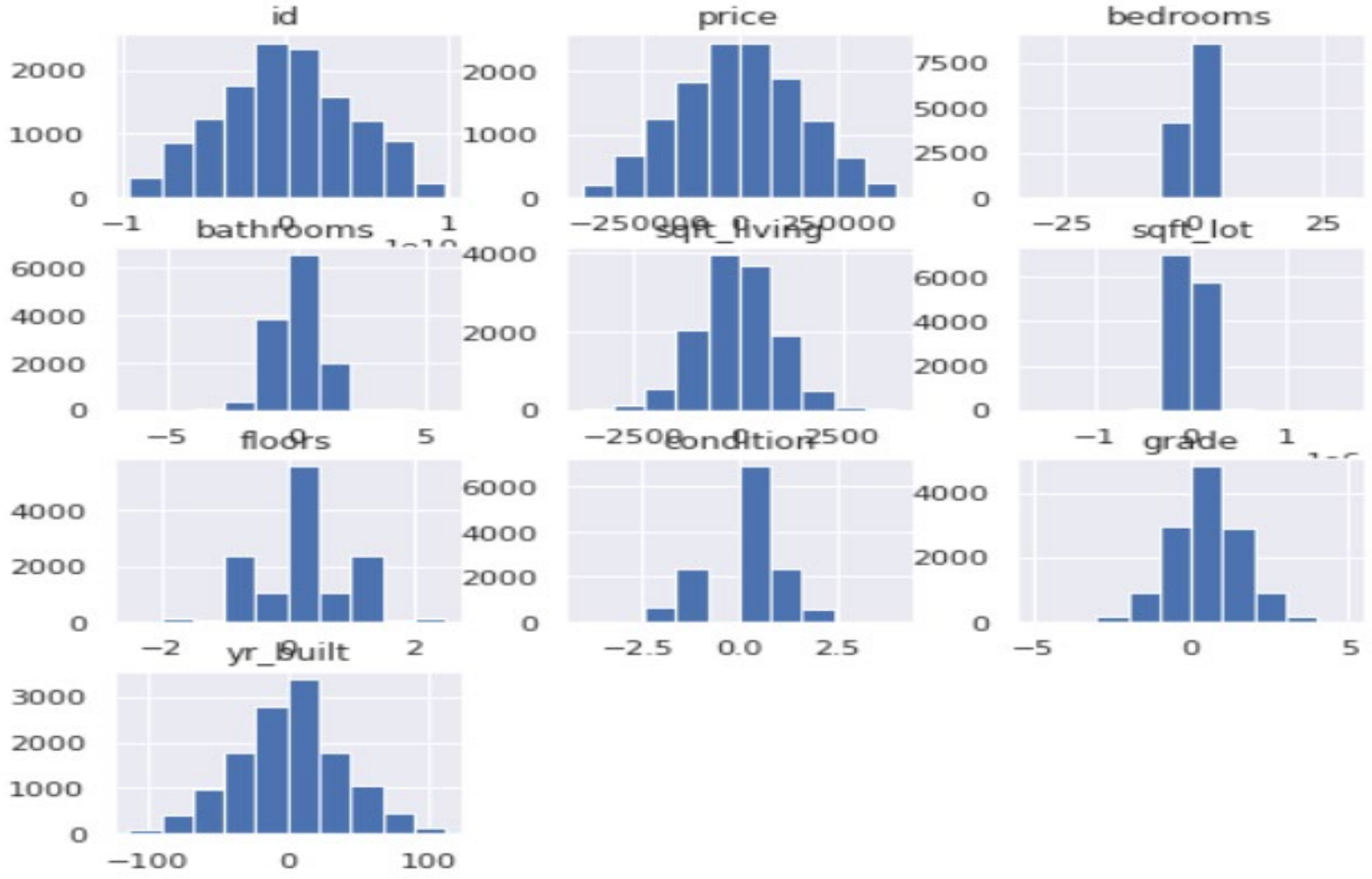
- Certain columns are dropped before any use
- Outliers were present, removed before modeling

VARIABLES(ATTRIBUTES)

```
data.corr()
```

	id	price	bedrooms	bathrooms	sqft_living	sqft_lot	floors	condition	grade	yr_built
id	1.000000	0.041012	0.001205	0.038139	0.025295	-0.145108	0.036880	-0.046310	0.050729	0.025829
price	0.041012	1.000000	0.133458	0.210216	0.330074	0.060274	0.098756	0.059382	0.361308	-0.044638
bedrooms	0.001205	0.133458	1.000000	0.446571	0.572897	0.019763	0.073894	0.024514	0.205709	0.136699
bathrooms	0.038139	0.210216	0.446571	1.000000	0.644385	0.025689	0.464352	-0.159436	0.517827	0.582732
sqft_living	0.025295	0.330074	0.572897	0.644385	1.000000	0.132691	0.226658	-0.070331	0.552788	0.347224
sqft_lot	-0.145108	0.060274	0.019763	0.025689	0.132691	1.000000	-0.051319	0.027309	0.038840	0.022745
floors	0.036880	0.098756	0.073894	0.464352	0.226658	-0.051319	1.000000	-0.310970	0.419620	0.551684
condition	-0.046310	0.059382	0.024514	-0.159436	-0.070331	0.027309	-0.310970	1.000000	-0.219287	-0.382615
grade	0.050729	0.361308	0.205709	0.517827	0.552788	0.038840	0.419620	-0.219287	1.000000	0.537574
yr_built	0.025829	-0.044638	0.136699	0.582732	0.347224	0.022745	0.551684	-0.382615	0.537574	1.000000

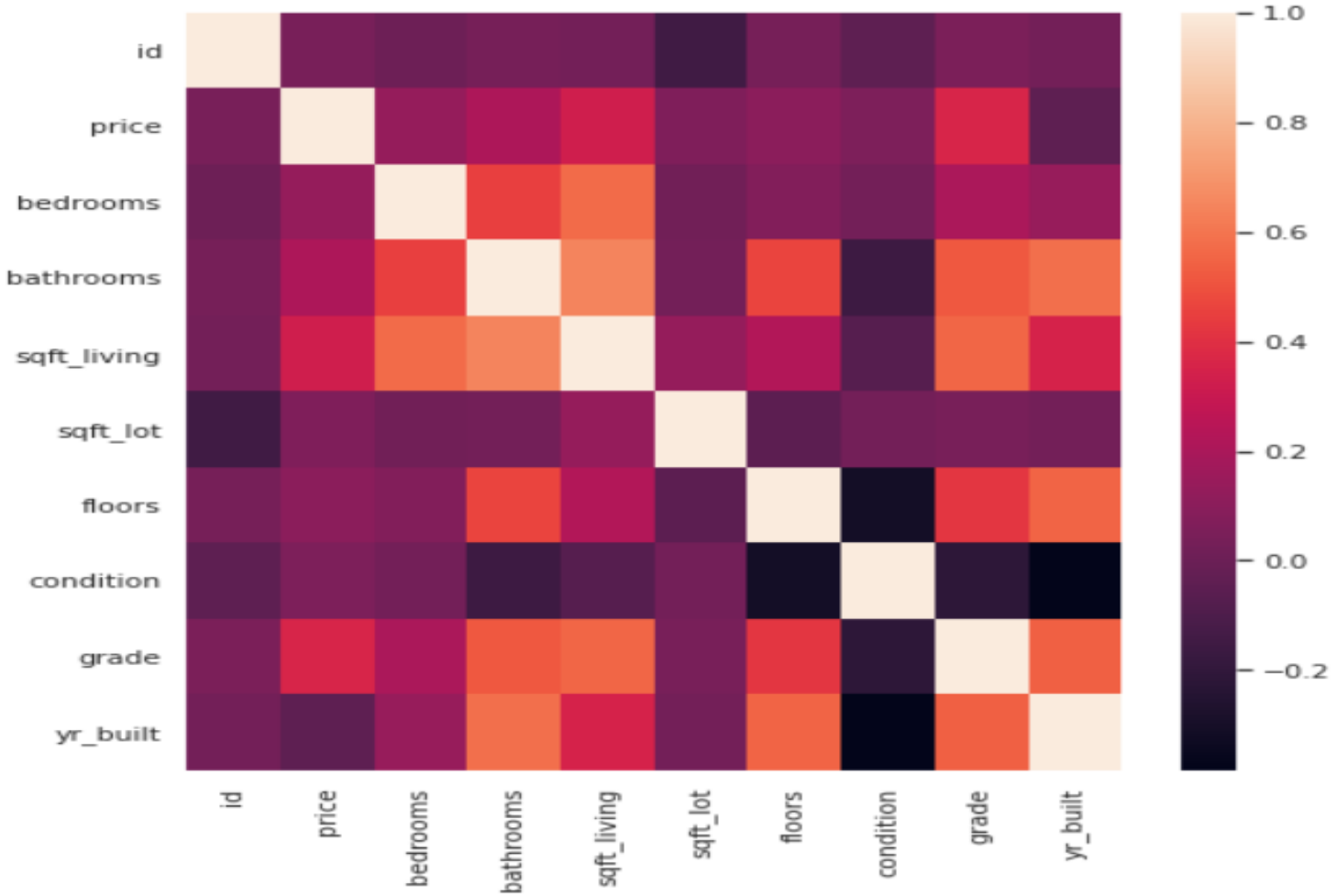
DISTRIBUTION OF THE DATA



HEATMAP

SHOWING THE CORRELATION VISUALLY

```
# Use the .heatmap method to depict the relationships visually!
sns.heatmap(data.corr());
```



FIRST MODEL SUMMARY

OLS Regression Results

Dep. Variable:	price	**R-squared (uncentered):**	0.844
Model:	OLS	**Adj. R-squared (uncentered):**	0.844
Method:	Least Squares	**F-statistic:**	1.952e+04
Date:	Mon, 23 May 2022	**Prob (F-statistic):**	0.00
Time:	12:38:38	**Log-Likelihood:**	-2.9974e+05
No. Observations:	21597	**AIC:**	5.995e+05
Df Residuals:	21591	**BIC:**	5.995e+05
Df Model:	6		
Covariance Type:	nonrobust		

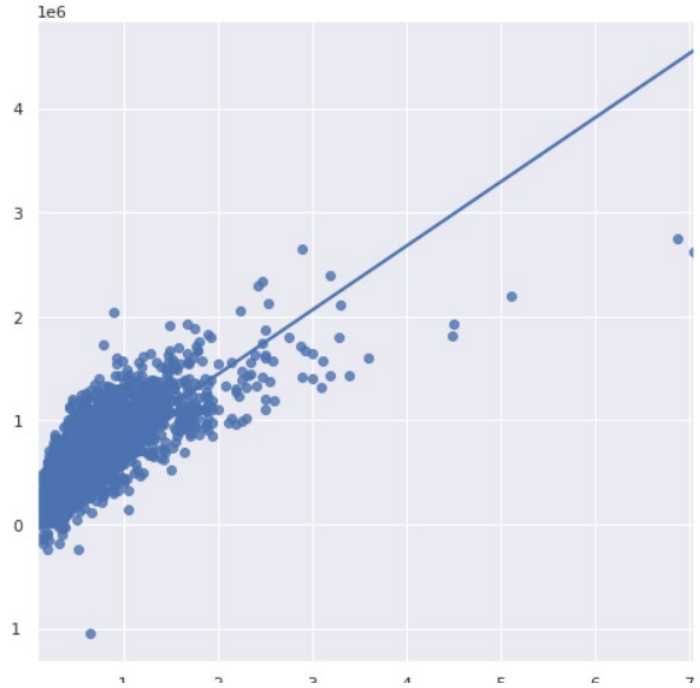
	coef	std err	t	P>|t|	[0.025	0.975]
bedrooms	-5.63e+04	2357.316	-23.882	0.000	-6.09e+04	-5.17e+04
bathrooms	6685.3449	3837.541	1.742	0.082	-836.518	1.42e+04
sqft_living	314.0643	3.152	99.628	0.000	307.885	320.243
sqft_lot	-0.3728	0.043	-8.606	0.000	-0.458	-0.288
floors	2234.4329	3817.106	0.585	0.558	-5247.376	9716.242
yr_built	32.4664	4.014	8.088	0.000	24.599	40.334

Omnibus:	14201.215	**Durbin-Watson:**	1.984
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	468535.936
Skew:	2.683	**Prob(JB):**	0.00
Kurtosis:	25.178	**Cond. No.**	1.13e+05

- DIFFERENCE IN PREDICTED AND ACTUAL VALUE IS 50K
- R2 VALUE IS GOOD BUT NOT SIGNIFICANT
- COEFFICIENTS ARE NOT IN DESIRED CONDITON

SECOND MODEL(r2_value:0.60)

TRAIN/TEST SPLIT BY RATIO 3:7



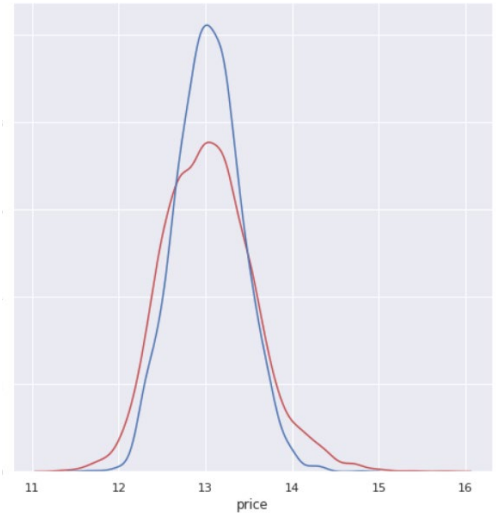
- THE REGRESSION IS BETTER AND THE POINTS ARE DISTRIBUTED EVENLY
- COEFFICINTS ARE BETTER THE PREVIOUS MODELS
- POSETIVE REALTION AMONG VARIBALES
- R2 VALUE IS GREATER
- MODEL SCORE IS DESIRABLE
- DIFFERENCE BETWEEN PREDICTED AND ACTUAL VALUE IS ARROUND 30K

```
model1.coef_
```

```
array([-2.29025909e-06, -5.12971820e+04,  5.87523832e+04,  1.837
       -3.27830585e-01,  2.06060871e+04,  2.16935350e+04,  1.339
       -4.09190776e+03])
```

Strong predictors

- Bedrooms
- Bathrooms
- Floors
- Area(dimensions)
- Condition
- Year of formation



- The negative coefficients suggesting:
  bathrooms and yr_built are inversely proportional

Sq_ft area accross all dimension is positively related to the price

Column	Change/unit	Change in price
Living area	1.83	1000
Floors	2.06	1000
Condition	By 1	1000

THANK YOU