



KC Home Analysis

NANCY LOPEZ





Summary

Data was analyzed to unveil key factors influencing home prices in King County:

- 1. Square Footage**
- 2. View Quality**
- 3. Heat Source**
- 4. Waterfront Properties**
- 5. Above-Average Condition**
- 6. Grade Categories**

Outline

01 Business Problem

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Business Problem



The real estate investment company seeks to address a crucial issue: accurately estimating home prices in King County. This is vital for homebuyers, sellers, and their own investment decisions. The goal is to develop a predictive model that provides price estimates.

- **Does view, size, bathrooms, grade, and quality of home play an important role in price?**



The Data

King County House Sales dataset: includes property characteristics such as square footage, the number of bedrooms and bathrooms, house condition, grade, and even aspects like views.

The Results



Final Model

OLS Regression Results						
Dep. Variable:	log_price	R-squared:	0.473			
Model:	OLS	Adj. R-squared:	0.473			
Method:	Least Squares	F-statistic:	1688.			
Date:	Tue, 19 Sep 2023	Prob (F-statistic):	0.00			
Time:	10:25:27	Log-Likelihood:	-16726.			
No. Observations:	30049	AIC:	3.349e+04			
Df Residuals:	30032	BIC:	3.363e+04			
Df Model:	16					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
const	12.2540	0.037	334.083	0.000	12.182	12.326
sqft_total	0.0002	3.44e-06	55.794	0.000	0.000	0.000
view	0.0550	0.003	16.736	0.000	0.049	0.061
heat_source_Gas	0.0172	0.006	3.127	0.002	0.006	0.028
waterfront_YES	0.2666	0.021	12.758	0.000	0.226	0.308
condition_Above Average	0.1381	0.008	17.457	0.000	0.123	0.154
grade_2.0	0.4992	0.390	1.280	0.201	-0.265	1.264
grade_4.0	0.6257	0.068	9.233	0.000	0.493	0.758
grade_5.0	0.6487	0.041	15.821	0.000	0.568	0.729
grade_6.0	0.6985	0.036	19.143	0.000	0.627	0.770
grade_7.0	0.8595	0.036	24.043	0.000	0.789	0.930
grade_7.65479360852197	0.3874	0.134	2.881	0.004	0.124	0.651
grade_8.0	1.0411	0.036	29.146	0.000	0.971	1.111
grade_9.0	1.2868	0.036	35.700	0.000	1.216	1.357
grade_10.0	1.4861	0.037	39.959	0.000	1.413	1.559
grade_11.0	1.6502	0.041	40.279	0.000	1.570	1.730
grade_12.0	1.7012	0.051	33.252	0.000	1.601	1.802
grade_13.0	1.3697	0.089	15.324	0.000	1.194	1.545
Omnibus:	7433.378	Durbin-Watson:		1.978		
Prob(Omnibus):	0.000	Jarque-Bera (JB):		73900.752		
Skew:	-0.906	Prob(JB):		0.00		
Kurtosis:	10.466	Cond. No.		2.20e+17		

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The smallest eigenvalue is 3.89e-24. This might indicate that there are strong multicollinearity problems or that the design matrix is singular.



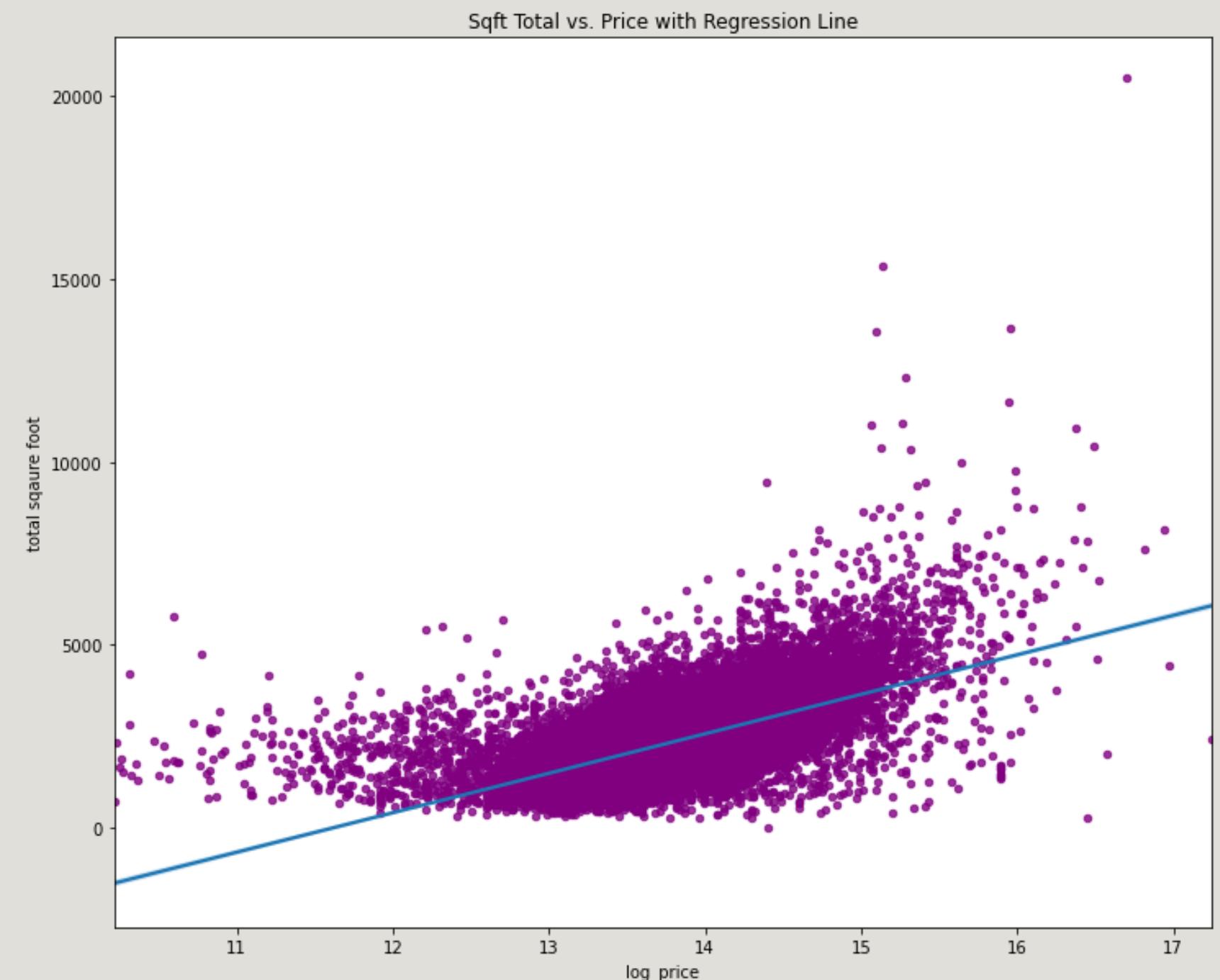
- The final regression model is like a blueprint for predicting home prices in King County, it explains nearly **48%** of the variance in home prices.
- They guide us in choosing the right properties and pricing strategies, **heres what we found...**

Sqaure Foot

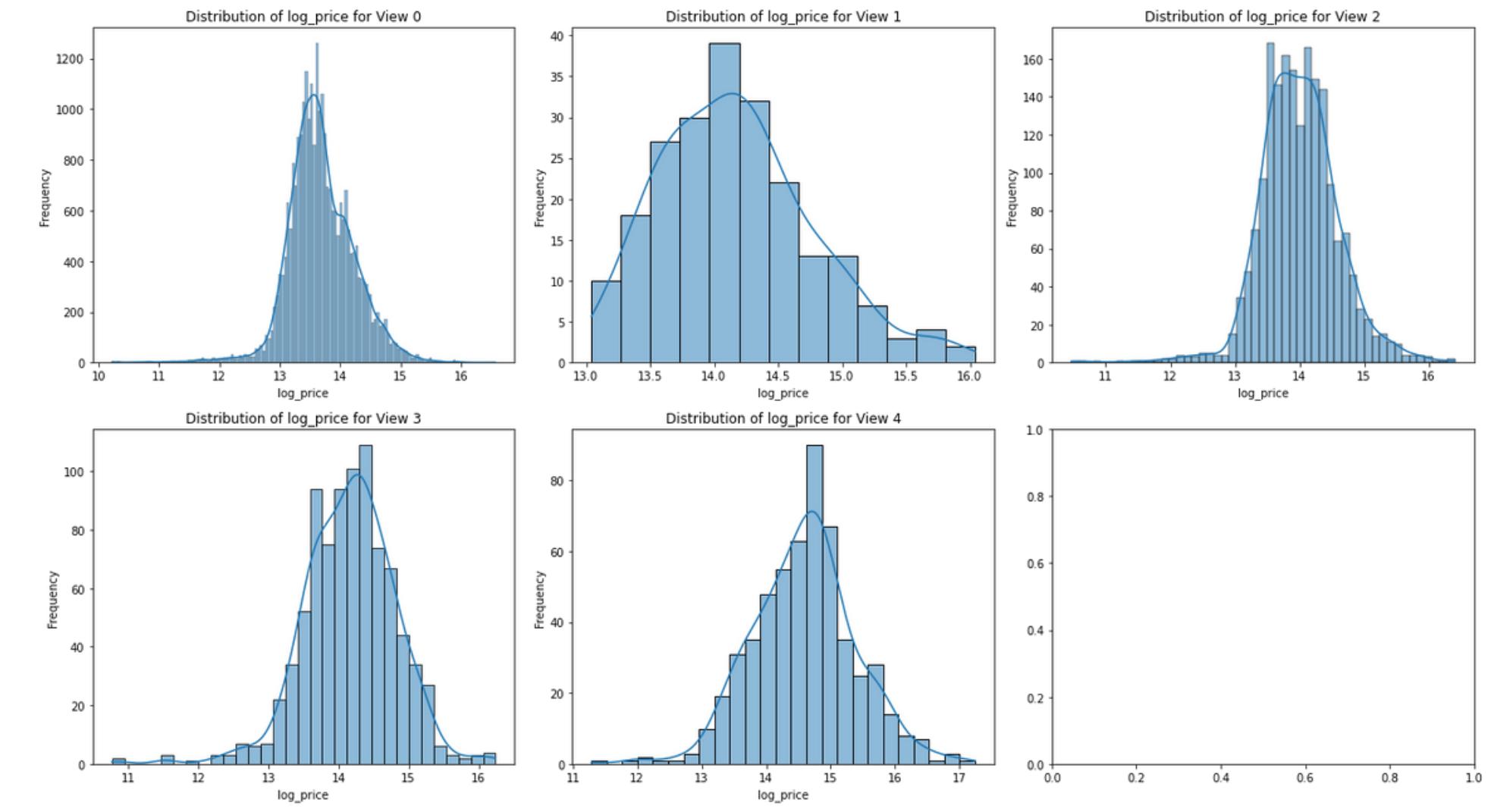
Larger square footage positively impacts home prices.

For every extra square foot, our model estimates an **increase** in home price of approximately **\$200**.

ex. For every extra 1,000 square feet, the estimated price increases by around \$200,000. So, more space means a higher price.



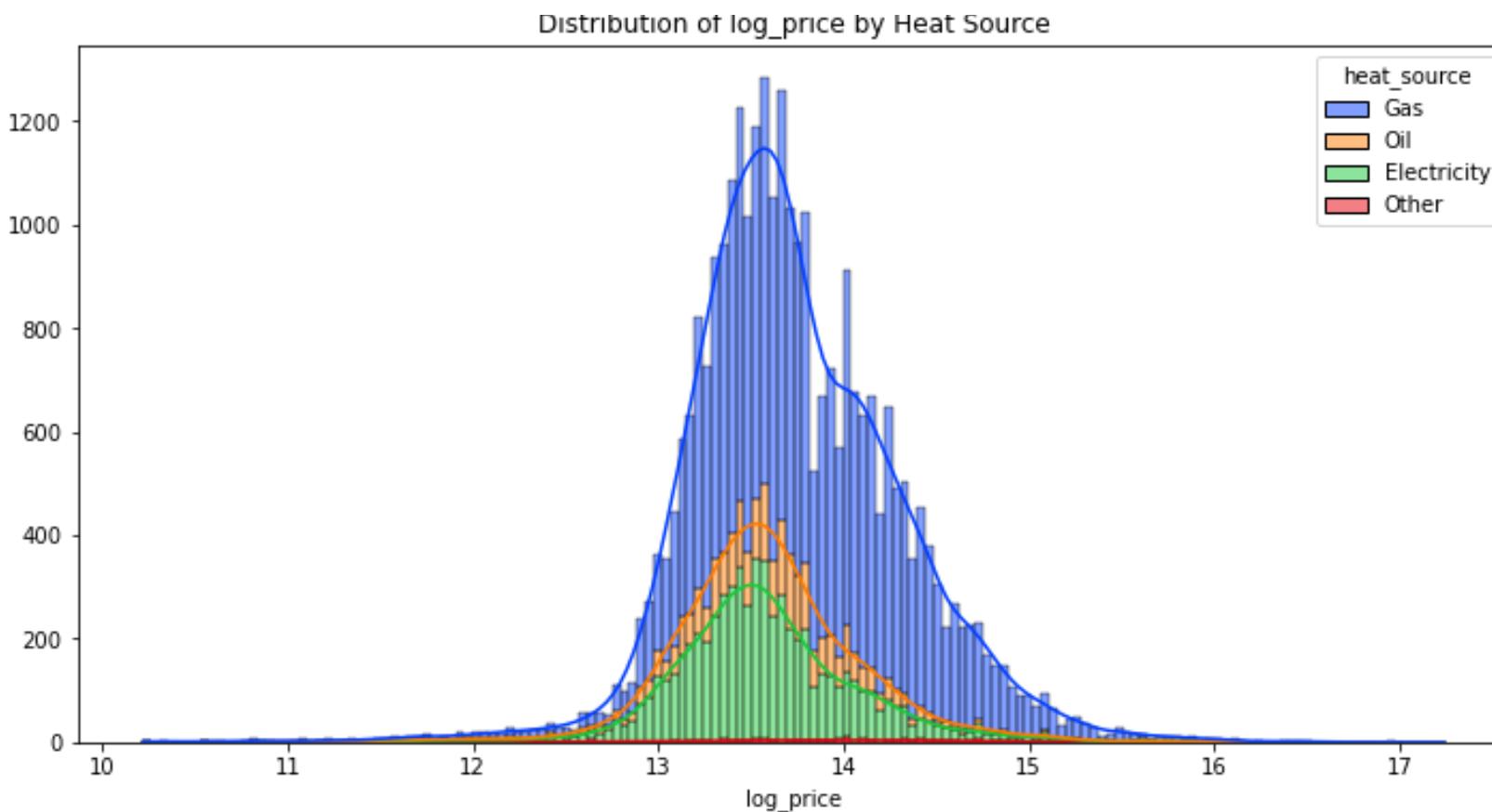
View



Superior views contribute to higher home prices.

- Upgrading from a lower-quality view to a better one there's an increase in estimated sale price by around **\$55,000**.

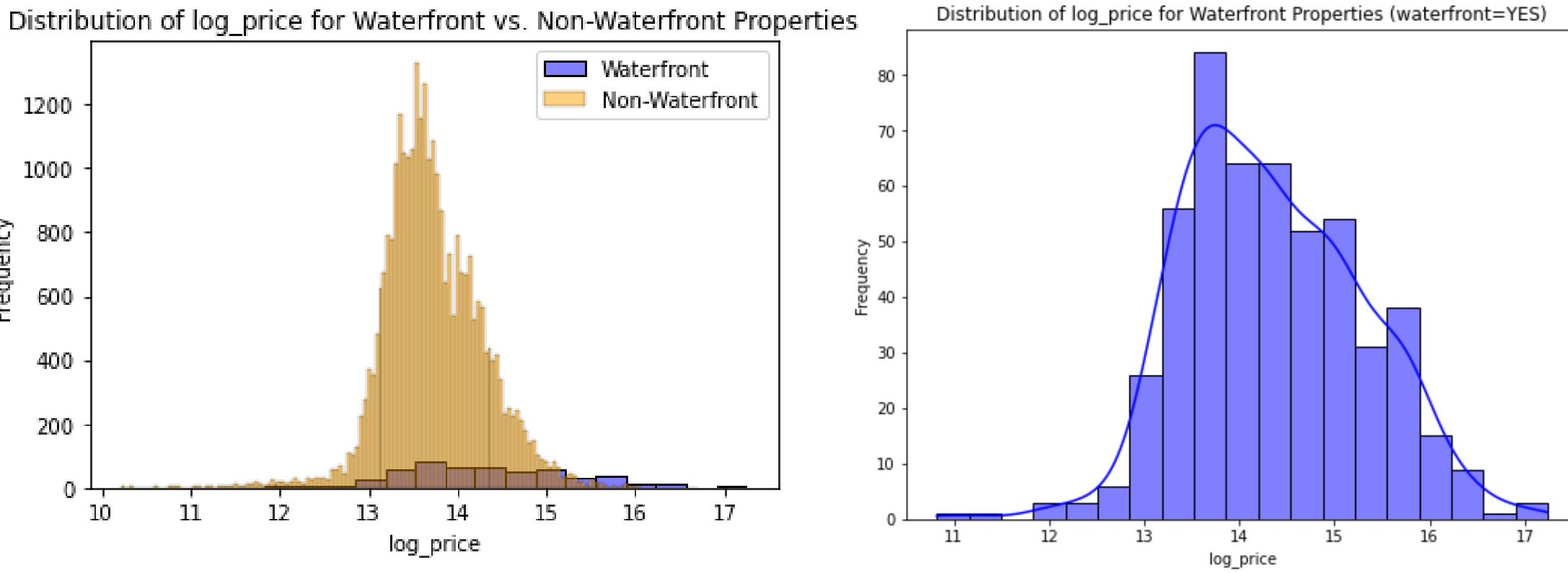
Heat Source (gas)



Homes with gas heating sources impact prices positively.

- Homes with a gas heating source, on average, contribute approximately **\$17,000** to the price.

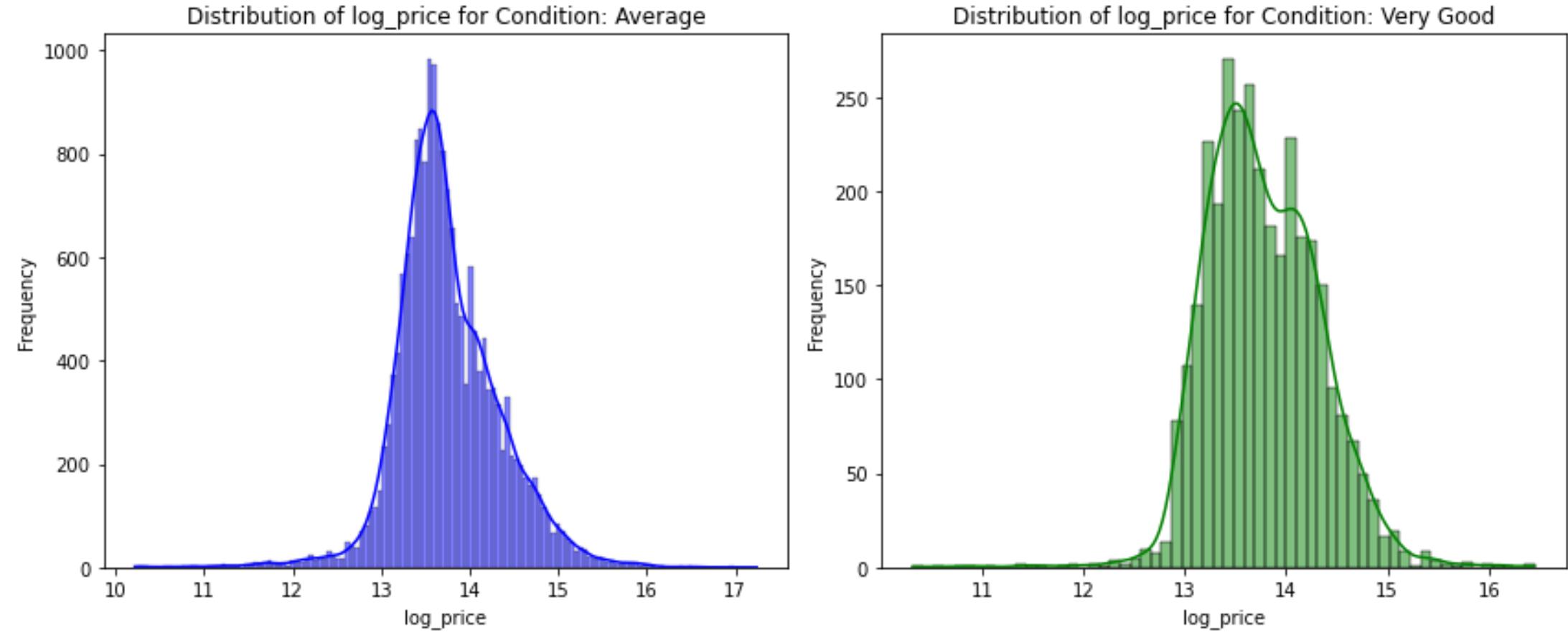
Waterfront



Waterfront properties have a premium price.

- Waterfront properties have an estimated premium of around **\$267,000** compared to non-waterfront properties.

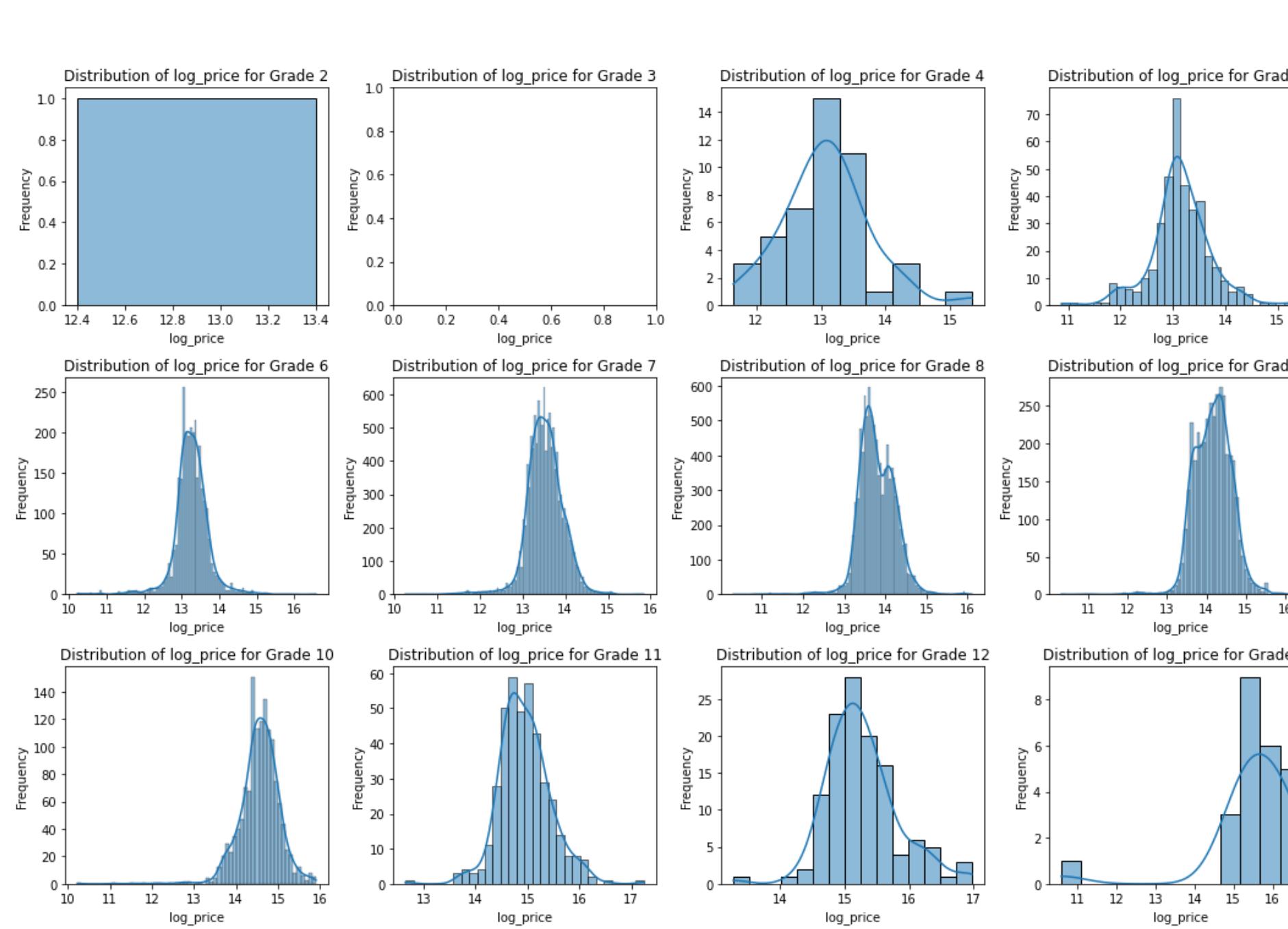
Condition



Above-average condition homes
maintain value.

- Homes in above-average condition contribute approximately **\$138,000** to the estimated price.

Grade



Property grades significantly affect prices.

- Just like school grades, home grades matter. Higher-grade properties come with higher estimated prices.

ex. grade of 13.0 properties have an estimated sale price that is approximately **\$1,369,000 higher** than properties with lower-grade ratings.



Conclusion

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1. **Size Matters:** Square footage plays a crucial role in pricing; consider larger homes.
 2. **Prioritize Waterfront Properties:** Investing in dreamy waterfront properties can yield significant returns.
 3. **Value View Quality:** Homes with superior views tend to be more valuable in the long run.
 4. **Favor Above-Average Condition:** Well-kept homes not only make living enjoyable but also hold their value.
 5. **Consider Heating Source:** Properties with gas heating sources have a positive impact on price.
 6. **Grade Categories:** Higher-grade properties often come with higher prices; they're worth considering.

Next Steps



The journey doesn't end here; there are crucial next steps for further enhancing our analysis.

- **Data Enrichment:** To increase the predictive accuracy of our model, it's essential to continue collecting and incorporating relevant data. Staying updated with the latest information is key to making informed decisions.

Thank you!

Email: nancy1593@gmail.com

GitHub: nv593