



KING COUNTY HOUSE SALES ANALYSIS REPORT

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"I used to sell mud pies, but I can charge more if I call it real estate."

The background of the slide is a composite image. It features a miniature model of a house under construction, with wooden framing for the roof and walls. Several tiny figures of construction workers are positioned around the model, some on ladders, some pushing wheelbarrows, and others using tools. The entire scene is set against a backdrop of a detailed architectural blueprint, showing various lines, dimensions, and room layouts. In the upper right corner, there are three large, white, cylindrical objects that look like ventilation ducts or pipes, also integrated into the architectural theme. A solid orange rectangle is located in the top left corner.

BUSINESS PROBLEM

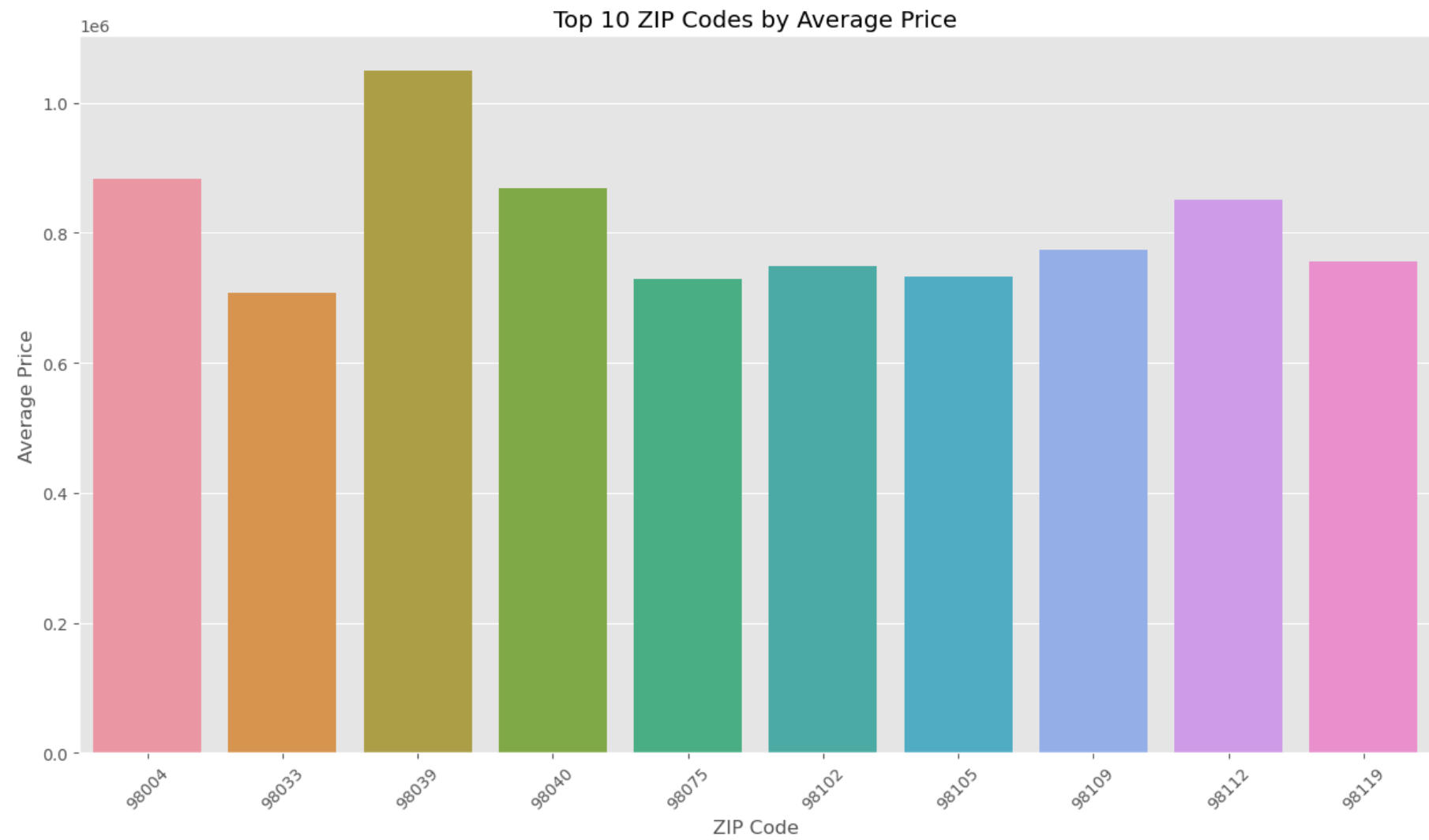
The Pro Home Builder Company aims to construct residences in King County Washington and wants to identify which housing features to focus on for maximum profitability. By understanding which amenities significantly influence home prices, the company can make data-driven choices on the types of houses to build in order to optimize profits



KEY FINDINGS



ZIP Codes Vs Price



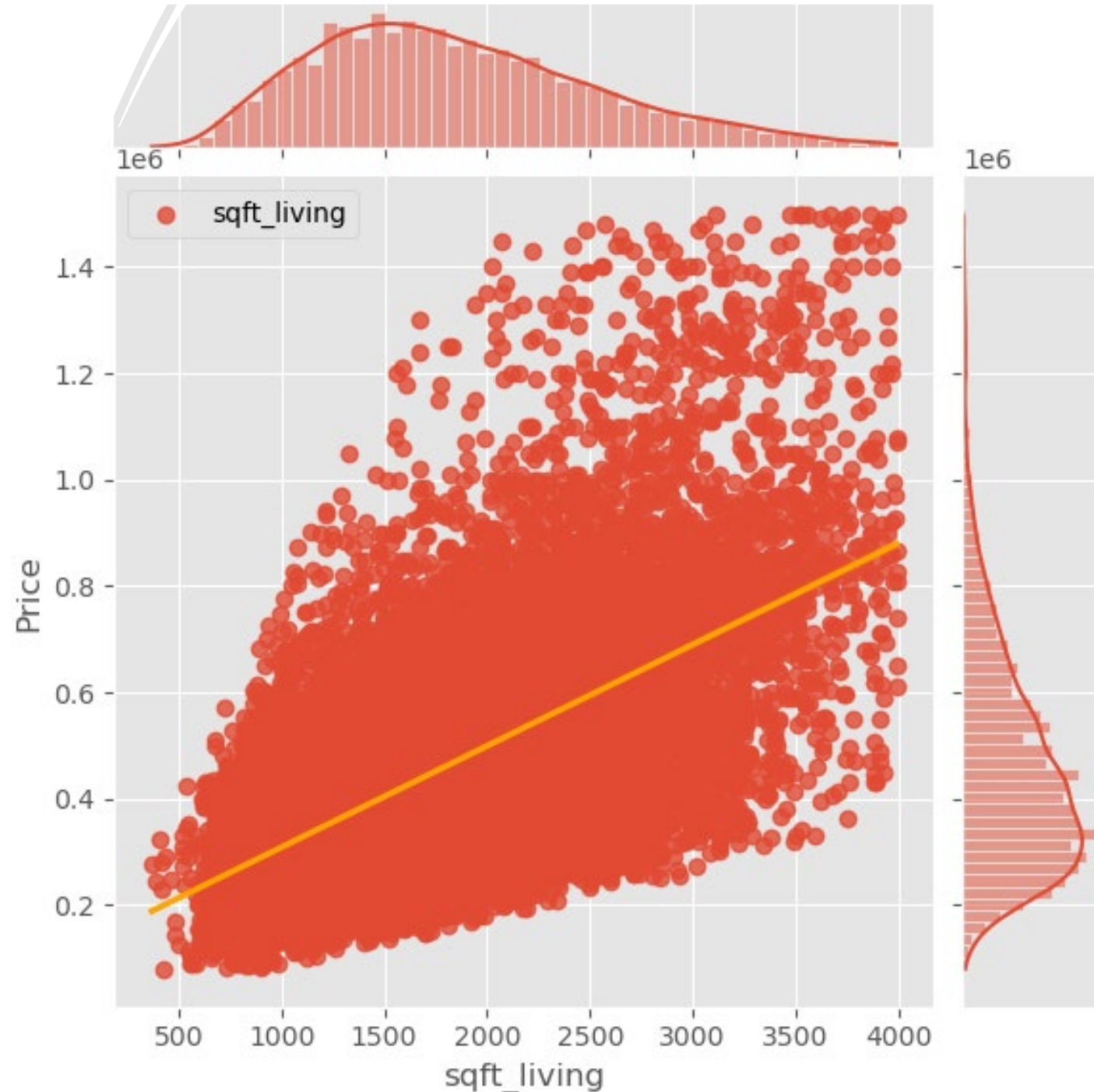
TOP SUBURBS IN KING COUNTY

- West Bellevue
- Kirkland
- Medina
- Mercer Island
- Sammamish
- Seattle
- Overlake
- Education Hill

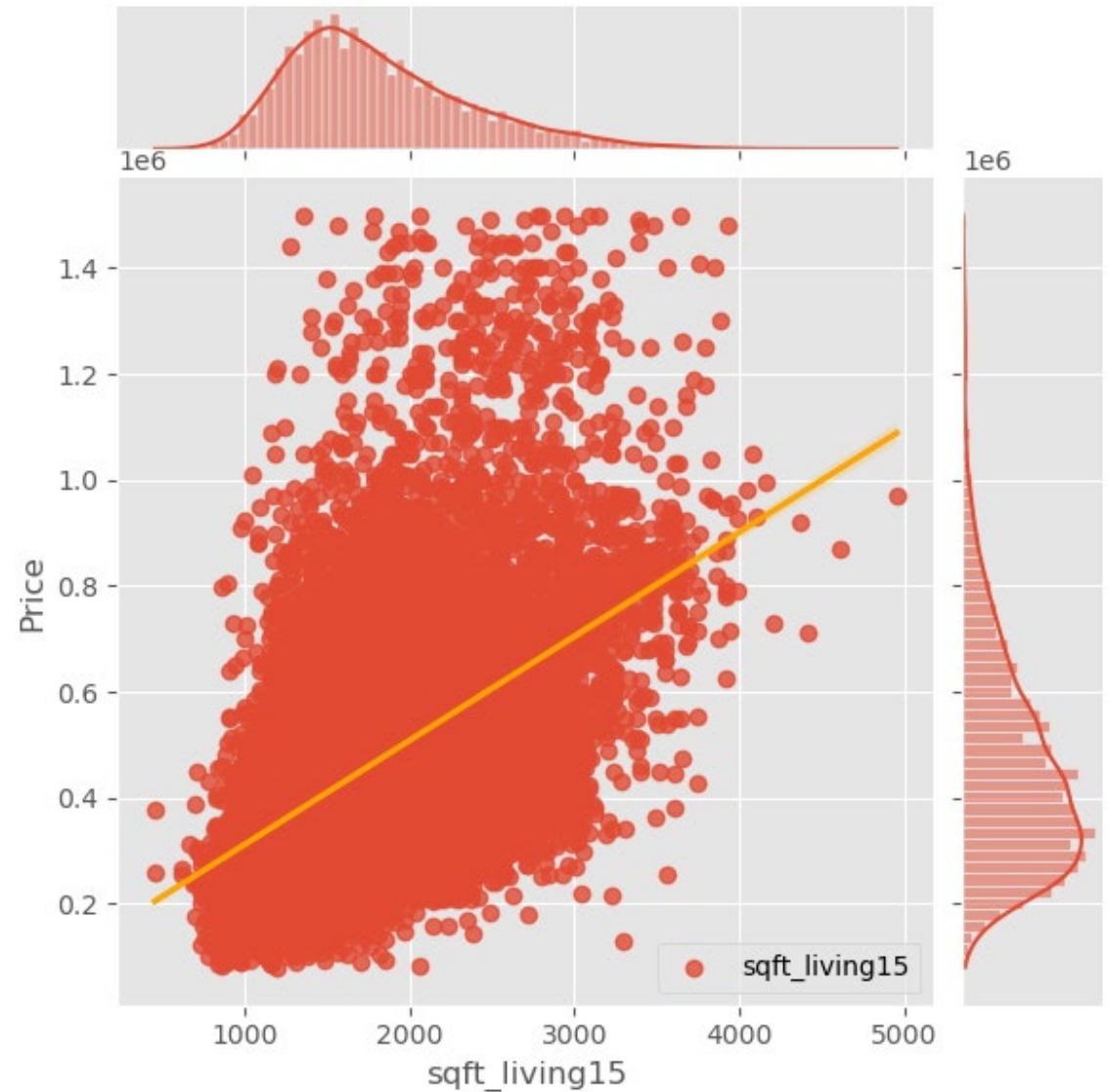


Square Foot Living Vs Price

- This visualization shows there seems to be a relatively strong linear relationship between square feet of living space and the price of a house.
- 1500 - 2500 sqft_living is the most observed footage of the house in this dataset



The square footage of interior housing living space for the nearest 15 neighbors Vs Price



House Grade by Price



The visualization above shows that when the building grade improves, the house price rises as well. We can see in the bar plot that the mean house price for a home with a grade of 11 is far above other grades. While the building grade of 4 falls short of minimum building standards based on the King County grading system.

Regression analysis

•The results of the analysis were as follows:

•The model above with an R-squared value of 0.775, telling us that the model fits the data with an accuracy of 78%, We can confidently say that zip code is one of the strongest influencers on the value of homes in King County.

Other features that were positively correlated with price included:

- Square footage of living space, which was positively correlated with house prices.
- Building grade, which was positively correlated with house prices
- The square footage of interior housing living space for the nearest 15 neighbors which was also positively correlated with house price.

```
In [107]: #include the zipcode column to the model
#zipcodes have no numerical significance in our data, this variable is treated as categorical
f = 'price~grade_sc+sqft_living_sc+sqft_living15_sc+C(zipcode)'
model = ols(formula=f, data=df).fit()
model.summary()
```

Out[107]: OLS Regression Results

Dep. Variable:	price	R-squared:	0.775
Model:	OLS	Adj. R-squared:	0.774
Method:	Least Squares	F-statistic:	730.7
Date:	Wed, 20 Sep 2023	Prob (F-statistic):	0.00
Time:	19:54:32	Log-Likelihood:	-1.9922e+05
No. Observations:	15334	AIC:	3.986e+05
Df Residuals:	15261	BIC:	3.991e+05
Df Model:	72		
Covariance Type:	nonrobust		

	coef	std err	t	P> t	[0.025	0.975]
Intercept	2.625e+05	7103.962	36.951	0.000	2.49e+05	2.76e+05
C(zipcode)[T.98002]	5.112e+04	1.09e+04	4.684	0.000	2.97e+04	7.25e+04
C(zipcode)[T.98003]	1.568e+04	1.05e+04	1.496	0.135	-4859.404	3.62e+04
C(zipcode)[T.98004]	5.824e+05	1.3e+04	44.957	0.000	5.57e+05	6.08e+05
C(zipcode)[T.98005]	3.531e+05	1.68e+04	21.022	0.000	3.2e+05	3.86e+05
C(zipcode)[T.98006]	3.047e+05	1.01e+04	30.143	0.000	2.85e+05	3.25e+05
C(zipcode)[T.98007]	2.585e+05	1.31e+04	19.750	0.000	2.33e+05	2.84e+05
C(zipcode)[T.98008]	2.603e+05	1.03e+04	25.320	0.000	2.4e+05	2.8e+05
C(zipcode)[T.98010]	1.201e+05	2.1e+04	5.713	0.000	7.89e+04	1.61e+05
C(zipcode)[T.98011]	1.485e+05	1.16e+04	12.824	0.000	1.26e+05	1.71e+05
C(zipcode)[T.98014]	1.754e+05	2.61e+04	6.716	0.000	1.24e+05	2.27e+05
C(zipcode)[T.98019]	8.871e+04	1.32e+04	6.704	0.000	6.28e+04	1.15e+05



Strategic Recommendations for a Pro Home Builder Company

- Strategic Location Selection
- Optimize Living Space
- Quality of Construction
- Neighborhood Composition



The background is a dark, textured blue-grey. It features several faint, light-grey financial charts. At the top, there's a candlestick chart with a solid line and two dotted trend lines. Below it, another candlestick chart is visible. At the bottom, there's a bar chart. The text "FUTURE WORK" is centered in a large, white, sans-serif font. A small grey triangle points downwards towards the text.

FUTURE WORK