

King County Housing Market Analysis

Data-Driven Insights for Smarter Real Estate Decisions.

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Client: Charles Christensen

Client Context & Objectives:

Client Wants To:

- Maximize returns from property sales
- Understand whether renovation add value.
- Identify high-value neighborhoods
- Know which features drive price the most


Dataset Overview:



Dataset Summary

- 21,597 residential properties
- Location: King County, Washington (Seattle region)
- Time period: 2014–2015

Key variables used:

- Price
- Sqft_living (house size)
- Grade (construction quality)
- Bedrooms, bathrooms, floors
-  Zip Code (location)
- Year built, year renovated

Missing values mainly in:

- waterfront
- view
- Sqft_basement
- yr_renovated

Research Questions:

Key Questions We Aim to Answer:

1. Does renovation lead to higher house prices?
2. Does the number of floors influence the number of bedrooms?
3. Do different neighborhoods have different typical house sizes?
4. How do size, quality, and location influence price?

Hypothesis 1 — Price vs Renovation

Hypothesis:

- Renovated houses (yr_renovated) tend to have higher (price) than non-renovated houses.

Business Meaning:

- Renovation increases value only when it meaningfully improves overall house quality.

Hypothesis 2 — Floors and Bedrooms.

Hypothesis:

- Houses with more than one floor (floors > 1) tend to have more bedrooms (bedrooms) than single-floor houses.

Business Meaning:

- Multi-level homes tend to support higher-quality layouts that appeal to family and premium buyers.

Hypothesis 3: Geographic & House Size

Hypothesis:

- House size varies by *geographic location*, with some *neighborhoods* dominated by larger homes and others by smaller properties.

Business Meaning:

- Location sets the price ceiling, making neighborhood choice critical for investment returns.

Hypothesis 1 Result:

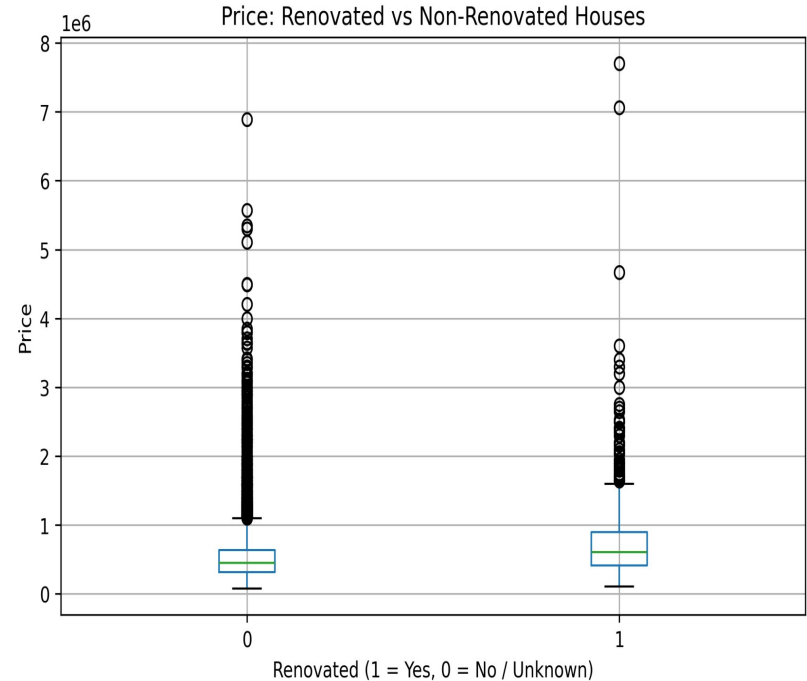
Does Renovation Increase Price?

- Renovated and non-renovated houses show overlapping price distributions.
- Renovation records are incomplete and inconsistent.

Conclusion:

Renovation is not a strong or reliable predictor of higher price.

Renovation adds value when it improve house grade.



Hypothesis 2 Result:

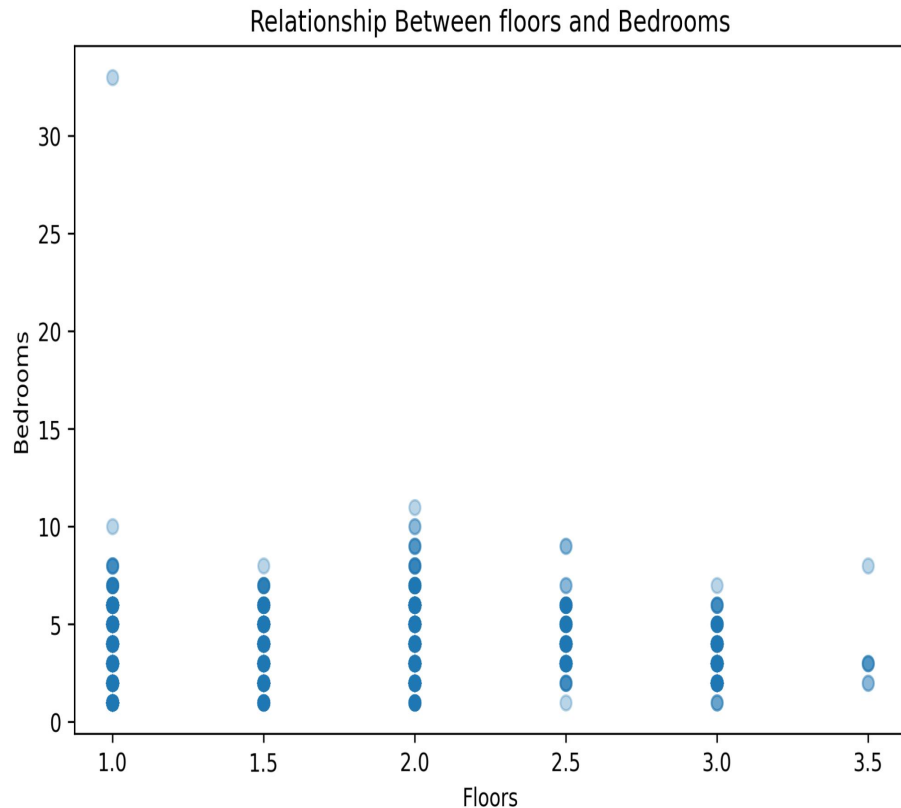
Do More Floors Mean More Bedrooms?

Findings:

- There is a no **positive trend** between number of floors and number of bedrooms.
- Houses with **2 floors** commonly have more 3–4 bedrooms than other floors.

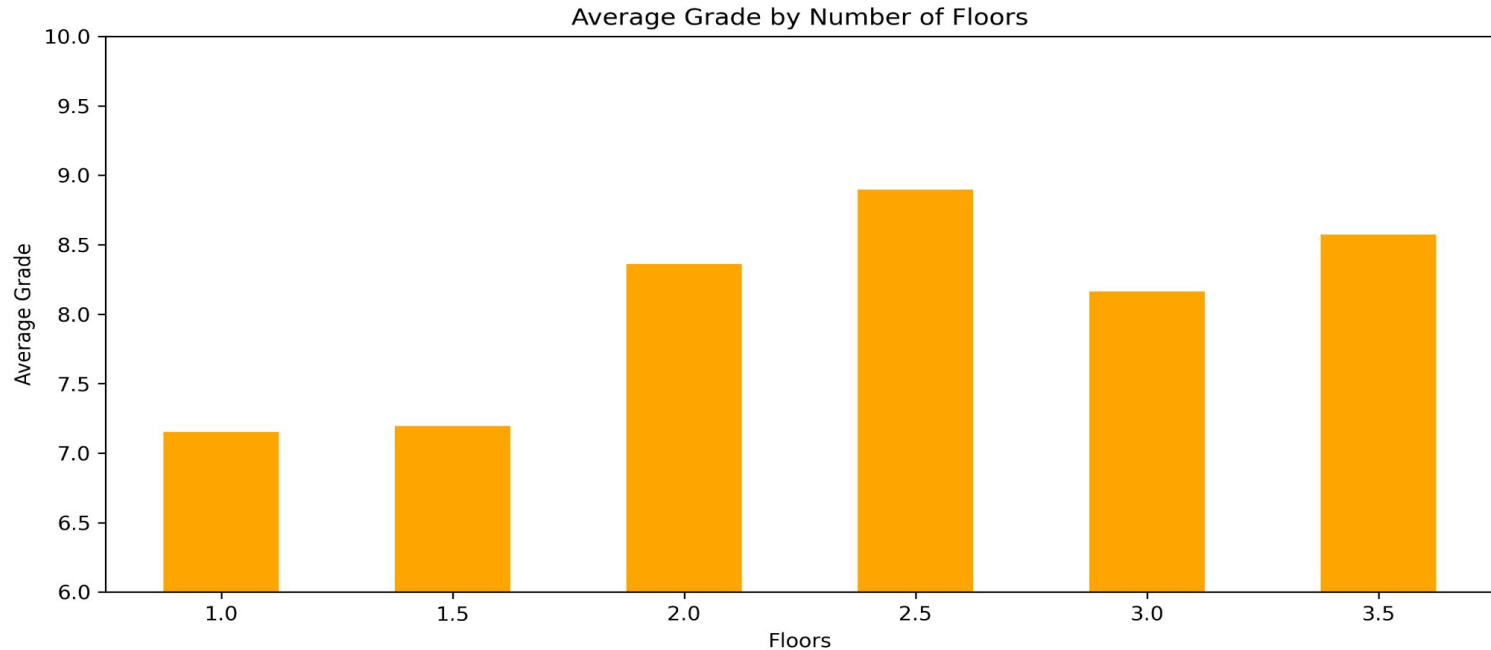
Conclusion

Floors do **not** predict bedroom count.



What actually increases when floors increase:

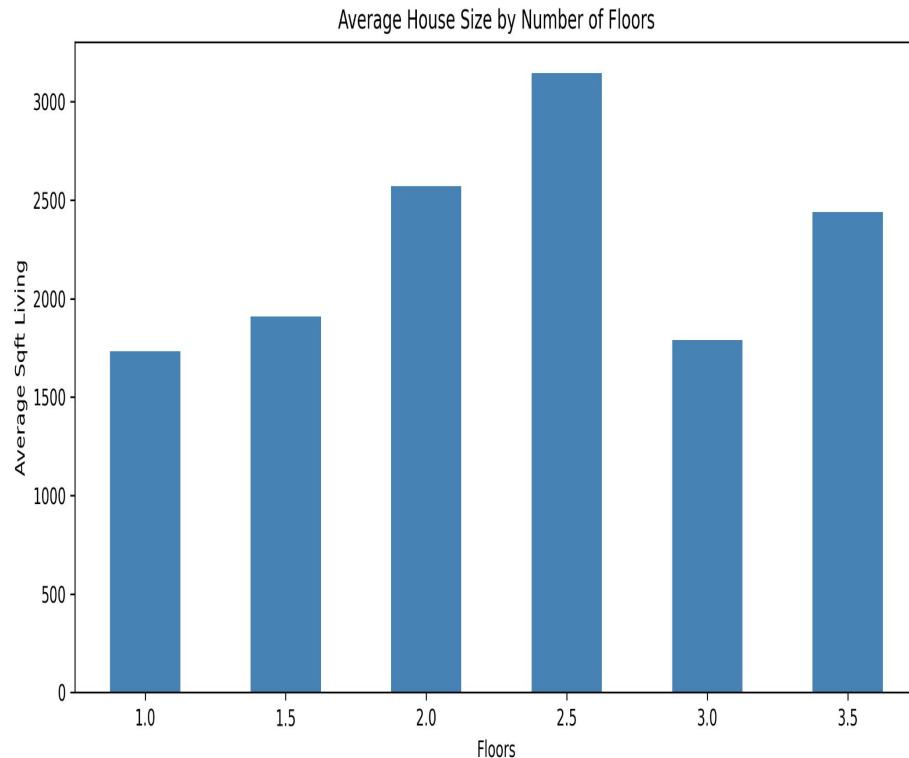
More floors → higher construction quality (grade)



What Increases When Floors Increase?

- More floors → **larger homes.**
- More floors → **higher price.**

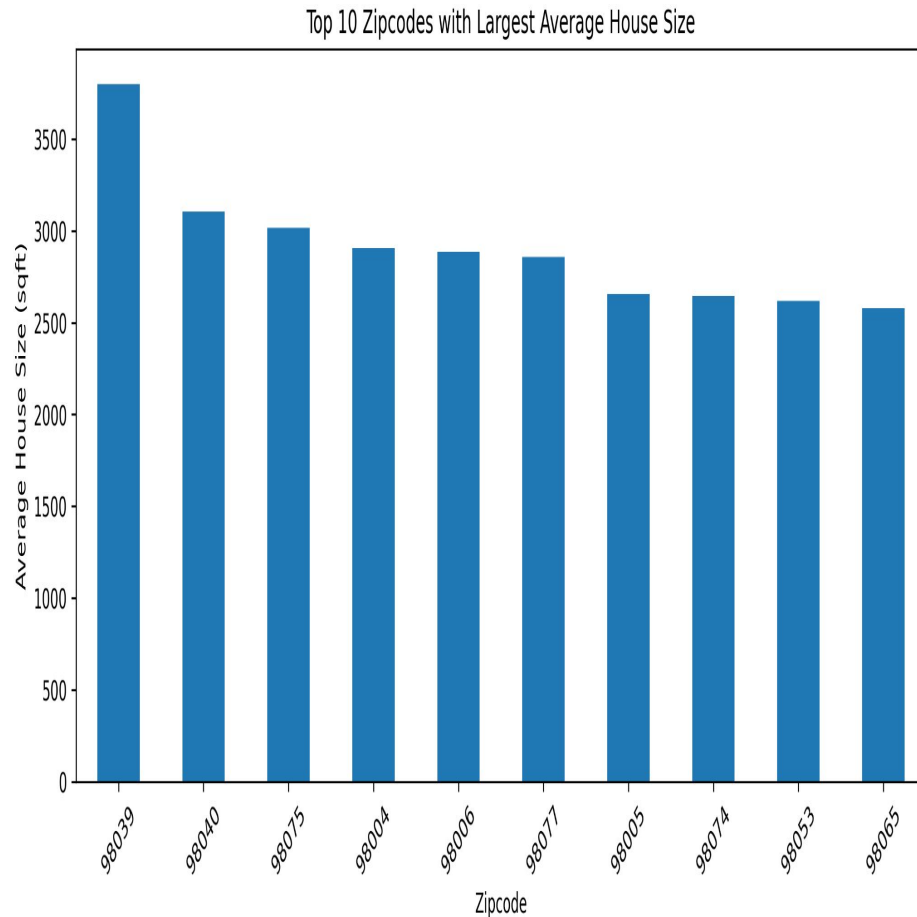
Multi-floor homes signal for **higher value**, not higher capacity.



Hypothesis 3 Result

Does Location Affect House Size?

- Neighborhoods (zipcodes) such as **98039, 98040, 98075** have the **largest average living spaces**, often exceeding 3,000 sqft.
- These are **premium neighborhoods**, suggesting that wealthier areas tend to offer larger homes.
- This confirms the hypothesis: **house size varies significantly by location.**



✓ Hypothesis 3 is **supported**

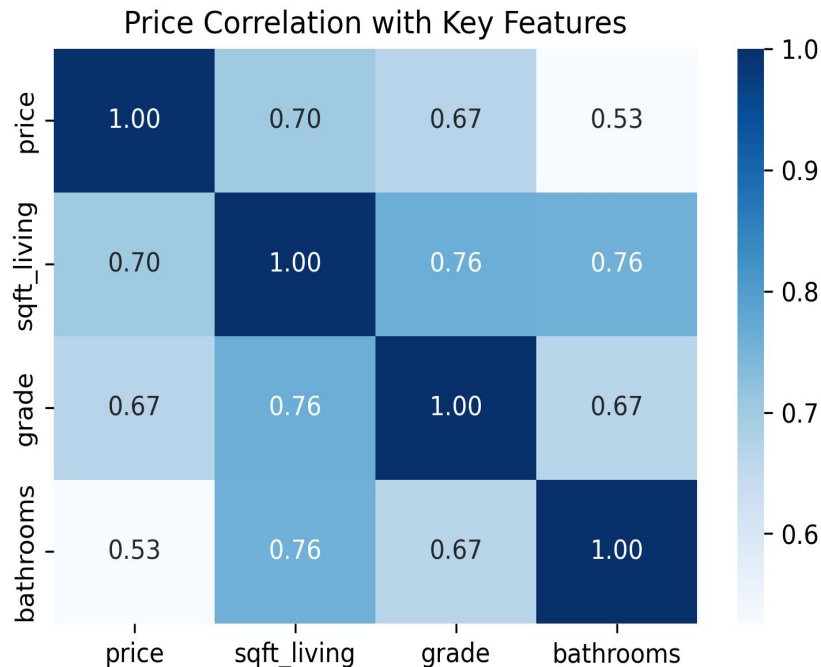
Price Drivers (Correlation Analysis)

Strongest Predictors of Price

- **Sqft Living:** 0.70 (largest driver)
- **Grade (quality):** 0.67 (strong).
- Bathrooms: moderate
- **Floor & bedrooms:** 0.53 (weak).
impact.

Key Insight

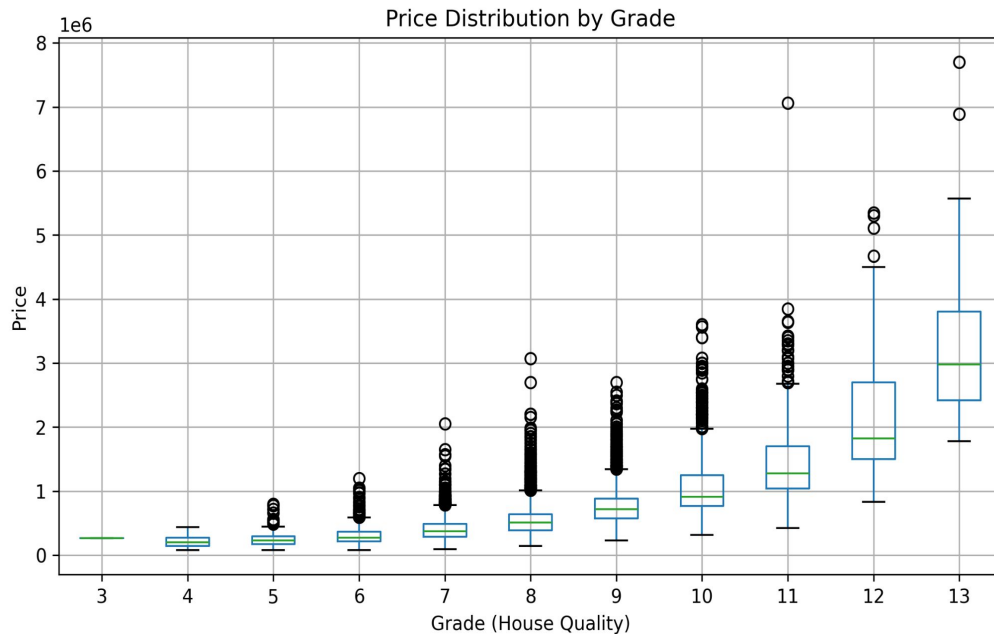
- **Size and quality** explain most price variation.
- Structural features matter more than the number of floors or bedrooms alone.



What Drives House Prices?

Price distribution by grade.

- Low grades → low prices
- Mid grades → average prices
- High grades → much higher prices.



Key Insights Summary

Market Insights

- ✓ Size (sqft_living).
- ✓ Quality (grade).
- ✓ Bathrooms.
- ✓ Location (zip codes).

What Matters Less:

- ✗ Renovation status (data unreliable).
- ✗ Floor count alone.
- ✗ Bedroom count alone.

Recommendations for the Client:

For Sellers / Investors:

- Focus on quality upgrades, not just adding rooms
- Prioritize larger living space and quality.
- High-grade homes command strong price premiums
- Be cautious relying on renovation history alone
- Neighborhoods (zipcodes) strongly influence house size and price, which have best potential returns

Thank You

Questions & Discussion

Data-backed insights for smarter real estate decisions.

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