

Introduction	Exploratory Analysis	Clusters	Final Results and Recommendations	Next Steps	Limitations
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King County House Sales May 2014-May 2015

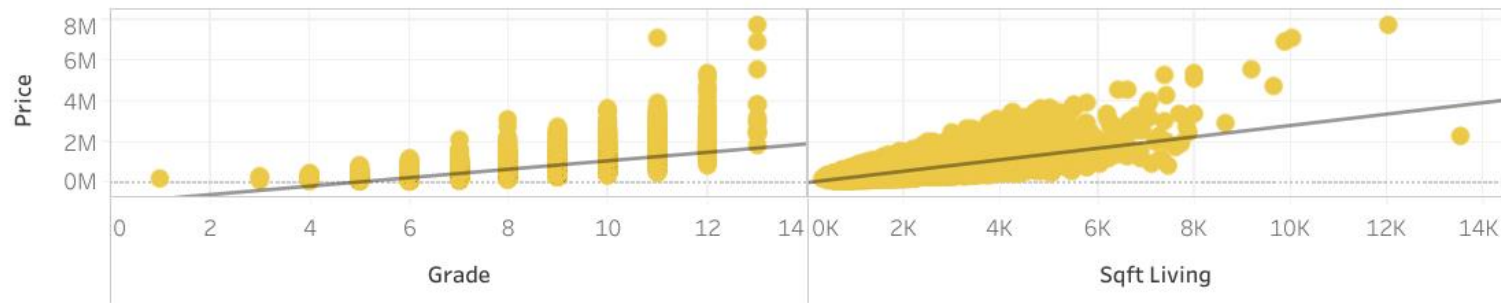


Introduction	Exploratory Analysis	Clusters	Final Results and Recommendations	Next Steps	Limitations
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chart showing King County housing prices over time.
 May 2014-May 2015

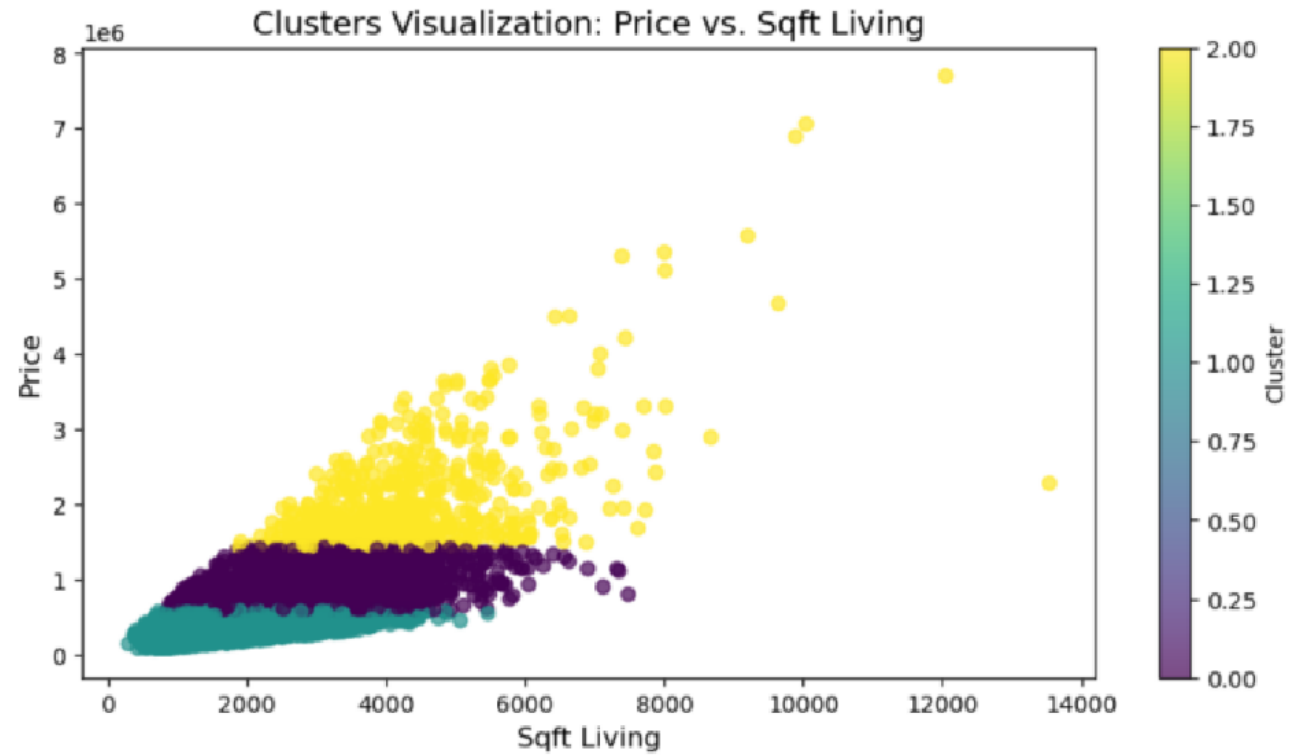


Regression (Grade and Sqft Living) vs Price



Insights:
Construction Grade: Higher construction grades are associated with higher house prices, though price variability within each grade suggests additional factors influence pricing.
Living Space: House prices strongly correlate with living space, increasing sharply for homes larger than 5,000 square feet, likely reflecting the influence of luxury features such as design and location.

Introduction	Exploratory Analysis	Clusters	Final Results and Recommendations	Next Steps	Limitations
--------------	----------------------	----------	-----------------------------------	------------	-------------



Insights:

Cluster Distribution:

The yellow cluster (Cluster 2) seems to group data points with mid-range sqft_living and price values.

The purple cluster (Cluster 0) represents data points with smaller sqft_living and lower price values.

The teal cluster (Cluster 1) appears to capture properties with higher prices, with sqft_living values that span a broad range

Interpretation:

These clusters may represent different market segments:

Cluster 0 (Purple): Affordable properties with smaller living spaces.

Cluster 2 (Yellow): Mid-range homes with moderate sizes and prices.

Cluster 1 (Teal): High-end properties with a mix of larger spaces and higher prices.

Introduction	Exploratory Analysis	Clusters	Final Results and Recommendations	Next Steps	Limitations
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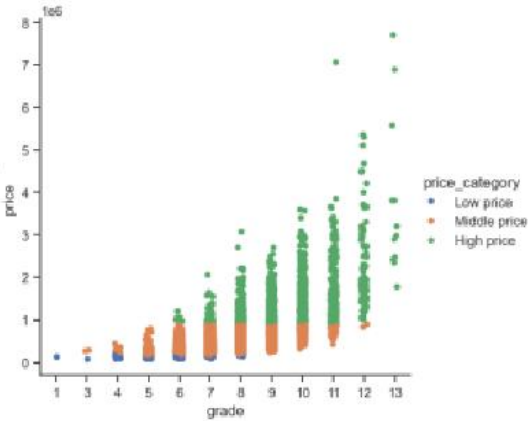
Key Insights on King County Housing Market:

Luxury Properties: Found in urban hubs like Seattle and Bellevue or along waterfronts, these homes feature large sizes, premium amenities, and scenic views, commanding the highest prices.

Affordable Homes: Smaller, older homes spread across the county offer budget-friendly options, appealing to first-time buyers and those seeking starter homes.

Upscale Suburban Residences: Spacious homes with higher-quality finishes and attractive views, located in suburban areas, provide a balance of price and features.

Mid-Range Homes: Moderately priced properties, often older and on larger lots, cater to families seeking practical space at a reasonable cost.



Trends and Considerations:

Waterfront Impact: Homes near Lake Washington and Puget Sound carry a price premium due to scenic value and proximity to nature.

Future Factors: Urban development, population growth, and climate resilience will influence long-term trends, especially for high-value waterfront properties.

Introduction	Exploratory Analysis	Clusters	Final Results and Recommendations	Next Steps	Limitations
--------------	----------------------	----------	-----------------------------------	------------	-------------

Future Directions:

Cluster-Specific Modeling: Conduct regression analyses tailored to each cluster, exploring advanced techniques such as polynomial or logistic regression. This approach could capture nuanced relationships between home features and prices unique to each group, leading to more accurate pricing models.

Localized Price Drivers:

Urban Areas: Focus on factors like public transit access, walkability, amenities, and proximity to business hubs, which heavily influence urban property values.

Suburban Areas: Investigate variables such as school quality, neighborhood appeal, and nearby recreational spaces or shopping facilities that drive demand in family-friendly suburban settings.

Rural Areas: Prioritize metrics like lot size, highway access, and proximity to essential services, which are critical in more remote locations.



Additional Suggestions:

Dynamic Market Analysis: Incorporate real-time data to adapt models for shifting market trends, especially in response to economic or environmental changes.

Demographic Insights: Examine population trends, including age and income shifts, to better align housing recommendations with emerging buyer profiles.

Infrastructure Development: Assess the impact of planned projects like new transportation routes or zoning changes, which can reshape local housing markets.

Introduction	Exploratory Analysis	Clusters	Final Results and Recommendations	Next Steps	Limitations
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Limitations:

- Outliers:** Extreme values in variables like lot size can skew the clustering results, indicating that the clusters may not fully capture the nuanced relationships between home features and prices.
- Non-linear Relationships:** The lack of strong linear correlations between features such as square footage, grade, view, and price highlights the need for more sophisticated models to better represent these complex dynamics.
- Cluster Simplification:** The clusters may oversimplify factors influencing house prices, as key variables like proximity to urban centers or specific neighborhood attributes were not included in the analysis.



Suggestions for Addressing Limitations:

- Consider preprocessing techniques, such as removing or transforming outliers, to improve consistency within clusters.
- Experiment with non-linear modeling approaches (e.g., decision trees, random forests, or neural networks) to capture intricate relationships.
- Incorporate additional variables—such as accessibility, urban proximity, or neighborhood ratings—into future analyses to enrich cluster accuracy.