

Visualizing Housing Market Trends: An Analysis of Sale Prices and Features

1. Key Variables to Analyze

- Property Features: Square footage, bedrooms, bathrooms, lot size, age, renovations, garage, pool, basement.
- Location Factors: Neighborhood, school district, proximity to city center, crime rates, amenities.
- Market Metrics: Sale price, price per square foot, days on market, inventory levels, interest rates.

2. Recommended Visualizations

- Sale Price Trends Over Time (Line Chart): Shows appreciation trends and seasonal effects.
- Price vs. Square Footage (Scatter Plot): Identifies correlation and outliers.
- Distribution of Sale Prices (Histogram/Box Plot): Highlights price ranges and skewness.
- Feature Impact Comparison (Bar Charts): Compares price by bedrooms, renovations, garage presence.
- Geographic Heat Maps: Visualizes pricing by neighborhood.
- Days on Market vs Price (Bubble Chart): Shows pricing efficiency and market dynamics.

3. Common Insights from Housing Data

- Strong positive correlation between size and price.
- Location often outweighs property features.
- Renovated homes sell faster and at premium prices.
- Market cycles reflect economic conditions and interest rates.
- Seasonal peaks often occur in spring and summer.

4. Advanced Analysis Ideas

- Regression modeling to quantify feature impact.
- Price per square foot comparisons by neighborhood.
- Rolling averages to smooth volatility.
- Machine learning for price prediction.
- Time-to-sale survival analysis.

5. Tools for Visualization

- Python (Pandas, Matplotlib, Plotly)
- R (ggplot2, Shiny)
- Tableau / Power BI
- Excel (Pivot Tables and Dashboards)

Key Analytical Questions

- How much does an additional bedroom increase price?
- Are renovated homes appreciating faster?
- Which neighborhoods show strongest growth?
- Is the market cooling based on days on market?