

Exploratory Data Analysis (EDA) for Real Estate Pricing:

**Unveiling the Dynamics of House Valuation in a
Dynamic Market**

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Introduction

Objective

Understanding
the factors
influencing house
prices.

Approach

Data analysis, feature
engineering,
visualization, and
market trends.

Outcome

Identify key
trends to make
data-driven real
estate decisions.

Dataset Overview



01

Dataset: House price data with various attributes
(e.g., price, size, amenities)

02

Sources: Collected from real estate listings and transaction records.

03

Key Features:

- Sale Price
- Living Area (SqFt)
- Number of Bedrooms & Bathrooms
- Amenities (Garage, Pool, Fireplace)
- Year Built

Feature Engineering

Handling Missing Data

Imputed missing values for key features to ensure dataset completeness.

Feature Transformation

Applied log transformation to normalize skewed data.

Categorical Encoding

Converted categorical variables (e.g., neighborhoods, amenities) into numerical representations

New Features Created:

- Price per square foot
- Total number of bathrooms (full and half combined)
- Age of the house since construction

Exploratory Data Analysis (EDA)



01

- **Understanding Data Distribution:**
- Sale Price follows a right-skewed distribution.
- KDE and histogram plots used to visualize patterns.

02

- **Feature Correlation Analysis:**
- Heatmap visualization to detect relationships between variables.

03

- **Outlier Detection:**
- Boxplots and scatterplots used to identify anomalies in price and size.

Market Trends & Historical Pricing



01

Visualization: Line chart showing house price trends over different time periods.

02

Real estate market exhibits cyclical trends influenced by economic factors.

03

Sharp price increases seen during economic booms.

04

Recessions cause price declines but markets recover over time.

Customer Preferences & Amenities

ANALYSIS

Assessed the impact of preferred amenities (e.g., pools, fireplaces, garages) on property valuation.

VISUALISATIONS

Bar chart highlighting how different amenities influence house prices.

KEY FINDINGS

- **Homes with pools and garages command significantly higher prices.**
- **Fireplaces add moderate value, while basement features vary in impact.**

house trends sale price



Review Analysis & Sentiment

01

Customer Sentiment Analysis: Used customer feedback and reviews to assess perceived home value.

02

Visualization: WordCloud showing frequently mentioned keywords.

03

Insights:
Buyers prioritize location, space, and modern amenities.
Negative sentiments mostly related to outdated features or maintenance issues.

Conclusions & Recommendations

Key Takeaways :

- House size, number of rooms, and amenities strongly impact prices.
- Market fluctuations are driven by external economic conditions.
- Customer preferences for modern features influence property valuation.

Recommendations :

- Invest in homes with high-value amenities (garages, pools, modern kitchens).
- Renovating older homes can increase their market appeal.
- Consider historical pricing trends when making investment decisions.



Thank You