



Real Estate Pricing: Exploratory Data Analysis

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Introduction & Problem Statement

- 📌 In the real estate market, pricing a house depends on multiple factors.
- 📊 This project explores how various features like area, bedrooms, age, and amenities affect house pricing using EDA techniques.
- 🎯 Goal: Help the company make data-driven pricing decisions.



Objectives of the Project

- ✓ Identify key factors influencing SalePrice
- ✓ Use Python for EDA and visualizations
- ✓ Perform feature engineering for better insights
- ✓ Provide business-relevant recommendations

Tools & Technologies



Python (Jupyter
Notebook)



Libraries: pandas,
numpy, matplotlib,
seaborn




Visualization
techniques for analysis



Environment:
Anaconda / Google
Colab



Dataset Summary

- 80+ features, 1 target column: SalePrice
 - Feature types: numeric, categorical, temporal
 - Size: ~1500 rows
 - Key columns: GrLivArea, OverallQual, YearBuilt, GarageCars
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Data Cleaning & Preprocessing

- Dropped duplicates and handled missing values
 - Column names standardized
 - Ensured consistency in data types
- Created new features: price_per_sqft
 - , property_age

Univariate Analysis

- SalePrice is right-skewed
- Most homes have 3 bedrooms
- Number of bathrooms shows natural grouping



Bivariate Analysis




- GrLivArea shows strong positive correlation with SalePrice
 - Bedrooms and Bathrooms show moderate influence

Multivariate Analysis

Heatmap of correlations revealed:

- 🔥 High correlation: OverallQual, GrLivArea
- 🧊 Weak correlation: BedroomAbvGr

Feature Engineering

-  Created price_per_sqft for better
- Comparison
-  Property Age gives insight into value
- Depreciation
-  Combined features help identify
- undervalued/overvalued homes



Market Trends Analysis

- Analyzed prices over time (by year/month)
- Found pricing spikes during certain years
- Used YrSold and MoSold to create
- `sale_date`

Amenities & Customer Preferences

- 🛠 Amenities like garage, deck, and pool impact price significantly
- Homes with more garage space sold for higher prices

Final Insights & Recommendations

- 📌 Focus on improving overall quality for value boost
- 📌 Market homes with high living area & modern features
- 📌 Include amenity-based pricing in strategy
- 📌 Use EDA insights for targeted pricing models

Thank You!

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