Visualization of Housing Market Trends

Visualization of Housing Market Trends: An Analysis of Sale Prices and Features using Tableau

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Project Overview:

Visualizing Housing Market Trends using Tableau is a comprehensive data visualization project developed for ABC Company. It addresses the challenge of extracting actionable insights from complex housing transaction data by creating interactive Tableau dashboards that reveal the patterns governing house prices and market behavior. By leveraging Tableau as the primary business intelligence platform and the Kaggle Transformed Housing Data 2 dataset, the project delivers four unique visualizations — KPI overview cards, a renovation histogram, a house age pie chart, and a structural features grouped bar chart — assembled into a single responsive interactive dashboard with dynamic filters, and presented as a 3-scene Tableau Story for executive-level communication.

Scenario 1: Overall Data Overview

This visualization presents a high-level summary of the dataset, showing the count of transformed housing data records, the average sales price across all properties, and the total area of houses measured from the basement in square feet. This overview gives stakeholders an immediate understanding of the dataset scale and key performance metrics before deeper analysis begins.

Scenario 2: Total Sales by Years Since Renovation

A histogram illustrating the distribution of total property sales segmented by the number of years since each house was last renovated. The bars represent different sale price bins, clearly showing how recently renovated properties command higher prices and attract greater buyer demand. This insight directly supports renovation investment strategy recommendations for ABC Company.

Scenario 3: Distribution of House Age by Renovation Status

A pie chart visualizing the housing inventory by age group and renovation status — Renovated versus Not Renovated. This visualization enables stakeholders to assess the proportion of the aging, unrenovated inventory which represents a significant market opportunity for targeted renovation-focused investment strategies.

Scenario 4: House Age Distribution by Bathrooms, Bedrooms, and Floors

A grouped bar chart displaying house age distribution across three structural dimensions: number of bathrooms, bedrooms, and floors. Key insight: properties built in the last 20 years feature significantly more amenities compared to older stock, reflecting evolving construction standards and buyer expectations over time.

Technical Architecture:

The system is built on a 3-tier architecture comprising a Presentation Layer (HTML5/Bootstrap 5 Flask web interface with embedded Tableau Public dashboards), a Logic Layer (Flask server managing route rendering and Tableau embed code integration), and a Data/Visualization Layer (Tableau Desktop workbook connected to the Kaggle housing CSV dataset, published to Tableau Public for cloud-hosted embedding).

Pre-Requisites:

To complete this project, you must require the following software, concepts, and packages.

Tableau Desktop / Tableau Public:

- Download Tableau Desktop (trial): https://www.tableau.com/products/desktop
- Or use Tableau Public (free): https://public.tableau.com/
- Refer to setup guide: https://www.youtube.com/watch?v=jEgVto5QME8

Python packages (for Flask web integration):

- Open command prompt and type "pip install flask" and press enter.
- Open command prompt and type "pip install jinja2" and press enter.

Prior Knowledge:

You must have prior knowledge of the following topics to complete this project.

- Data visualization principles and chart type selection
- Tableau basics — worksheets, dashboards, stories, calculated fields
- Tableau tutorial: https://www.youtube.com/watch?v=TPMlZxRRaBQ
- Python Flask basics: https://www.youtube.com/watch?v=lj4I_CvBnt0
- HTML iframe embedding for web integration
- Basic understanding of CSV data formats and Kaggle dataset structure