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

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1. INTRODUCTION

1.1 Project Overview

This project presents a visual analysis of housing market data using Tableau to explore trends in sale prices, renovation impact, house features, and geography.

1.2 Purpose

To create an interactive dashboard for real estate analysts, developers, and decision-makers to easily explore key insights in housing data and drive data-informed strategies.

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2. IDEATION PHASE

2.1 Problem Statement

There is no quick and interactive tool for visually analyzing sale price patterns, house features, and renovation impacts in real estate markets.

2.2 Empathy Map Canvas

Users need clear insights into what drives housing prices. They feel uncertain about renovation value and seek user-friendly visual dashboards over raw tables and spreadsheets.

2.3 Brainstorming

Ideas included:

- KPIs like average sale price and total properties
- Trends based on years since renovation
- Feature comparisons (bedrooms, bathrooms, floors)
- Price distribution by zipcode and grade
- Map views based on property location

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3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Stages:
Awareness → Explore Dashboard → Interact with Charts → Extract Insights

3.2 Solution Requirement

- Clean dataset (CSV format)
- Tableau (for visualizations)
- Filterable by year, price range, renovation status, grade

3.3 Data Flow Diagram

User → Tableau Dashboard ← Cleaned Housing Dataset

3.4 Technology Stack

- **Data Source:** Housing Dataset (CSV)
- **Tools:** Python (for cleaning), Tableau
- **Optional:** Excel, GitHub for versioning

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4. PROJECT DESIGN

4.1 Problem–Solution Fit

The dashboard offers an intuitive way to visualize real estate trends, making data understandable to users without technical expertise.

4.2 Proposed Solution

An interactive Tableau dashboard with multiple views like bar charts, pie charts, histograms, KPIs, and maps.

4.3 Solution Architecture

Raw Housing Data → Data Cleaning (Pandas) → Tableau Visualization → User Interaction

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5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week	Activity
1	Data Collection
2	Data Cleaning & Prep
3–4	Visualization Building
5	Testing & Polishing
6	Final Documentation

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6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Dashboard tested for:

- Loading time
- Interaction responsiveness
- Filter functionality

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7. RESULTS

7.1 Output Screenshots

- KPI Summary (Count, Avg Price, Basement Area)
- Total Sales by Years Since Renovation
- House Age Distribution Pie Chart
- Grouped Bar Chart by Features
- Bubble Chart (Flat Area vs Price)
- Geographic Map (Latitude/Longitude)

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8. ADVANTAGES & DISADVANTAGES

Advantages:

- Interactive and user-friendly
- Visual insight into key real estate patterns
- Filterable by feature, age, price, and location

Disadvantages:

- Based on static dataset
- Requires Tableau or Tableau Public
- Not automatically real-time

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9. CONCLUSION

This project delivers a powerful, visual tool for analyzing housing market data. It allows stakeholders to explore the impact of renovations, house features, and geography on sale prices through intuitive Tableau dashboards.

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10. FUTURE SCOPE

- Live integration with real estate APIs (e.g., Zillow, Realtor.com)

- Predictive analytics integration (e.g., price forecasting)
- Mobile/tablet responsive dashboards
- Adding filters like property condition, agent performance, and time on market