**Final Project Report**

**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 analyzes and visualizes housing market trends using Tableau. It focuses on sale prices, location impact, and feature analysis such as lot area, quality, and year built to generate insights for real estate stakeholders.

**1.2 Purpose**

The purpose is to simplify the interpretation of housing data by presenting it visually using Tableau, enabling informed decision-making for buyers, sellers, and real estate analysts.

**2. IDEATION PHASE**

**2.1 Problem Statement**

Homebuyers and analysts struggle to understand complex housing data due to the lack of intuitive visualization tools.

**2.2 Empathy Map Canvas**

Captures the needs of buyers and analysts who want clear insights into housing trends and pricing factors.

**2.3 Brainstorming**

Explored visualizations like price vs. area, trend lines for year-built vs. sale price, and ML-driven price prediction.

**3. REQUIREMENT ANALYSIS**

**3.1 Customer Journey Map**

User uploads dataset → Data preprocessed → Tableau visualizes results → User interacts with dashboard.

**3.2 Solution Requirement**

CSV dataset input, preprocessing pipeline, interactive Tableau dashboard, optional Flask web interface.

**3.3 Data Flow Diagram**

*(Descriptive placeholder: Input CSV → Data Cleaning (Python) → Load into Tableau → Display Interactive Dashboard)*

**3.4 Technology Stack**

Python, Pandas, Flask, Tableau, Matplotlib, Jupyter Notebook, optionally Power BI and scikit-learn.

**4. PROJECT DESIGN**

**4.1 Problem Solution Fit**

Provides visual clarity and insight for housing market trends, improving data interpretation.

**4.2 Proposed Solution**

Create a Python + Tableau-based solution that enables users to explore housing price patterns interactively.

**4.3 Solution Architecture**

Input CSV → Data cleaning (Python) → Visualization (Tableau) → Optional Flask interface for upload and results.

**5. PROJECT PLANNING & SCHEDULING**

**5.1 Project Planning**

1. Requirement Gathering
2. Dataset Cleaning
3. Dashboard Creation
4. Testing
5. Final Review

**6. FUNCTIONAL AND PERFORMANCE TESTING**

**6.1 Performance Testing**

Tested with various housing datasets; visualization performs well on large data. Tableau loads interactive charts efficiently.

**7. RESULTS**

**7.1 Output Screenshots**

Dashboards displaying average price trends, feature impact analysis, and comparative visuals for different neighborhoods.

**8. ADVANTAGES & DISADVANTAGES**

**Advantages:**

* Clear visual insights
* Adaptable templates
* Scalable

**Disadvantages:**

* Dependent on data format quality

**9. CONCLUSION**

The project successfully simplifies housing market analysis, providing visual insights using Tableau dashboards.

**10. FUTURE SCOPE**

* Integrate real-time data feeds
* Expand to include rental markets
* Add ML-based price forecasting models

**11. APPENDIX**

**Sample Code:**

python

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import pandas as pd

df = pd.read\_csv('housing.csv')

df.dropna(inplace=True)

df.to\_csv('cleaned\_housing\_data.csv', index=False)

**Dataset Source:**  
https://www.kaggle.com/codeinstitute/housing-prices-data

**GitHub Link:**  
<https://github.com/yourusername/housing-market-analysis>