PROJECT REPORT

1. INTRODUCTION:

1.1 Project Overview:

This project explores housing market trends through interactive visualizations developed in Tableau, focusing on the relationship between sales prices and key property features such as location, square footage, number of bedrooms and bathrooms, and year built. By leveraging a dataset of real estate transactions, the analysis aims to identify patterns and insights that can inform buyers, sellers, and market analysts.

1.2 Purpose:

- Understand how various property features (e.g., square footage, number of rooms, year built) influence sales prices.
- Identify trends and patterns in housing prices over time and across different geographic areas.
- Provide interactive dashboards that allow users to explore housing market dy namics and make informed decisions.
- Support stakeholders including homebuyers, real estate agents, investors, and policymakers with visual tools for better understanding market conditions.

2. IDEATION PHASE:

2.1 Problem Statement:

The housing market is influenced by a complex set of factors, including property features, location, and economic trends.

Traditional data tables and static reports often fail to capture the nuances and relationships between variables such as sales price**,** property size, and location**.** This project addresses the need for an intuitive and interactive way to analyze and visualize housing market data**.**

2.2 Empathy map:

housing market visualization project is a great way to stay user-centered. It helps you deeply understand your audience's needs, motivations, and pain points especially when the project involves presenting insights to stakeholders like homebuyers, investors, real estate agents, or policymakers.

2.3 Brainstorming:

Analyze how property features affect housing prices. Identify market trends over time and by location. Build interactive dashboards for easy data exploration. Help stakeholders make data-driven real estate decisions.

3. REQUIREMENT ANALYSIS:

3.1 Customer Journey Map:

Mapping the customer journey helps ensure your Tableau dashboard is not just visually appealing, but truly user-centered. By understanding how users discover, interact with, and benefit from your visualizations, you can design a tool that supports their goals — whether it's buying a home, investing smartly, or analyzing market trends. This journey-focused approach improves usability, builds trust, and increases the dashboard's real-world impact.

3.2 Solution Requirement:

- Comprehensive dataset including sales prices, property features (square footage, bedrooms, bathrooms), location (ZIP code/neighborhood), year built, and sale dates.
- Interactive dashboards that allow users to filter data by location, price range, time period, and property features.
- User-friendly interface with clear navigation and intuitive controls.

3.3 Data Flow Diagram:

Raw data is processed to handle missing values, correct inconsistencies, remove duplicates, and format fields for analysis. This step ensures data quality and accuracy.

4. PROJECT DESIGN:

4.1 Problem solution :

Gather comprehensive housing market data from reliable sources. Clean and preprocess the data to ensure accuracy, completeness, and consistency.

4.2 Problem solution fit:

Improved Decision-Making**:** By visually correlating sales prices with property features and locations, the solution empowers users with actionable insights that traditional reports fail to provide.

4.3 Solution Architecture:

A well-designed solution architecture is essential for transforming raw housing market data into actionable insights. It ensures that data flows seamlessly from multiple sources through cleaning and integration stages into a reliable storage system, before being visualized in Tableau dashboards. This structured approach guarantees data accuracy, system scalability, and a smooth user experience.

5. PROJECT PLANNING AND PERFORMANCE TESTING:

5.1 Project planning:

Effective project planning is critical to ensure the successful delivery of the housing market visualization tool. It helps organize tasks, allocate resources, and set realistic timelines, minimizing risks and avoiding delays. With a clear plan, the team can

systematically collect and prepare data, develop intuitive dashboards, gather user feedback, and deploy a reliable solution.

6. FUNCTIONAL AND PERFORMANCE:

6.1 Performance testing:

To ensure the Tableau dashboards load quickly, respond smoothly to user interactions, and handle large datasets without lag, providing a seamless user experience.

7. Output Screenshots:

Output screenshots provide tangible proof of the project's progress and effectiveness. They visually demonstrate how raw housing market data is transformed into insightful, interactive dashboards that users can explore. These snapshots help stakeholders understand the solution's capabilities, validate design choices, and communicate the value of the analysis clearly and quickly. Including screenshots also aids in documentation, training, and marketing efforts, making the project's impact more accessible and compelling.

8. ADVANTAGES AND DISADVANTAGES:

Advantages:

- Improved Decision-Making
- Accessibility
- Market Transparency
- Scalability

Disadvantages:

- Data Quality Dependence
- Performance Issues
- Limited Predictive Capability
- Resource Intensive

9. CONCLUSION:

This project successfully demonstrates how Tableau can transform complex housing market data into clear, interactive visualizations that enhance understanding of sales prices and property features. By providing users with intuitive tools to explore geographic and temporal trends, the dashboard supports informed decision-making for homebuyers, investors, and real estate professionals.

10. FUTURE SCOPE:

- **Mobile Optimization:** Develop a fully responsive design or a dedicated mobile app to improve accessibility on smartphones and tablets.

- **User Personalization:** Enable users to save preferences, create alerts for market changes, and customize reports.

- **Geospatial Enhancements:** Add detailed neighborhood-level mapping with crime rates, school ratings, and amenities for more comprehensive decision support.

- **Real-Time Updates:** Automate data refresh cycles to provide near real-time market information.

- **Integration with Other Tools:** Allow exporting data to Excel, integration with CRM systems for real estate agents, or embedding dashboards into websites.

11.APPENDIX:

Dataset Link:

https://www.kaggle.com/datasets/rituparnaghosh18/transformed-housing-data-2

Git hub Link:

https://github.com/MohammadRabbani07

Demo & Link:

https://drive.google.com/file/d/1pViEultFGKnu2Hs3ZUbIvHm0rAUlQzpM/view?usp=drivesdk