

# 1. INTRODUCTION

## 1.1 Project Overview:

Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau is a data analytics project aimed at understanding the key factors that influence house prices and sales patterns. The project analyzes comprehensive housing data, including sale prices, years since renovation, house age distribution, and structural features such as the number of bathrooms, bedrooms, and floors. Using Tableau, interactive dashboards and visualizations were created to explore trends such as total sales by renovation period, distribution of house age by renovation status, and feature-based comparisons across different property types. The objective is to transform complex housing datasets into meaningful visual insights that support strategic decision-making, optimize pricing strategies, and enhance overall market competitiveness for stakeholders such as real estate analysts, marketing teams, and business executives.

## 1.2 Purpose:

The purpose of this project is to analyze housing market data and identify the key factors that influence property prices and sales trends. By utilizing Tableau for interactive data visualization, the project aims to transform complex housing datasets into clear and meaningful insights. These insights help in understanding the impact of renovations, house age, and structural features such as bathrooms, bedrooms, and floors on overall market behavior. Ultimately, the project supports data-driven decision-making, improves pricing strategies, and enhances strategic planning for stakeholders in the real estate sector.

- To evaluate trends in total sales over different renovation periods.
- To examine how house age distribution affects market value and buyer demand.
- To compare property features such as bathrooms, bedrooms, and floors across different age groups.
- To identify patterns that indicate buyer preferences in the housing market.
- To improve understanding of housing inventory characteristics through visual analytics.
- To enhance the clarity and accessibility of housing data through interactive dashboards.

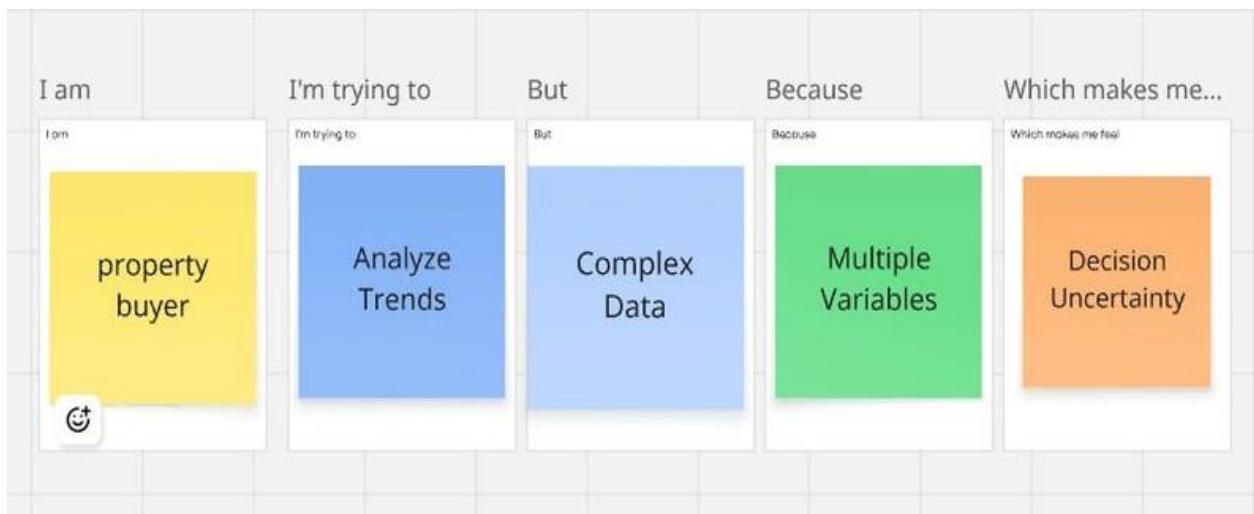
## 2. IDEATION PHASE

### 2.1 Define the Problem Statements

Date	30 January 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	2 Marks

Customer Problem Statement Template:

This template is used to define the problem from the perspective of stakeholders who rely on housing market data for decision-making. It helps identify the challenges in understanding price variations and market trends, enabling the development of effective data visualization solutions.



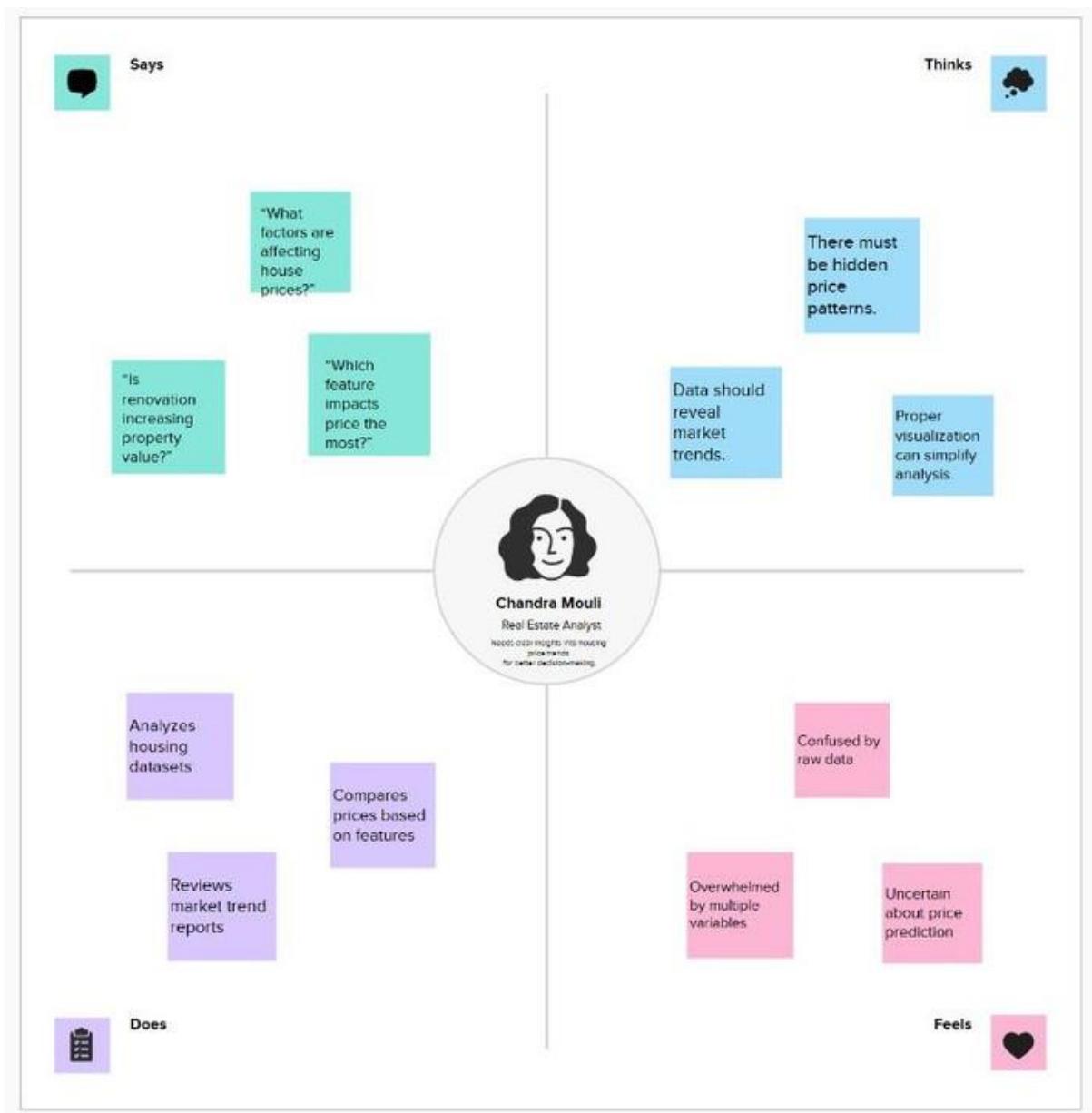
Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	property buyer	Understand the factors influencing house sale prices and identify market trends to make better decisions.	The housing data is large, contains multiple complex, and features such as difficult to interpret without proper visualization.	The dataset values that are hard to analyze manually	Confused and uncertain about making accurate pricing or investment decisions.
PS-2	Property Investor	Find Profitable Properties	Unclear Price Factors	Multiple Influencing Variables	Investment Uncertainty

## 2.2 Empathy Map Canvas

Date	31 January 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

### Empathy Map:

The Empathy Map is used to understand the needs, goals, and challenges of stakeholders such as real estate analysts, property buyers, and investors. It helps identify how they perceive housing market data and the difficulties they face while analyzing price trends. This understanding supports the development of effective data visualizations and dashboards.



## 2.3 Brainstorm & Idea Prioritization

Date	29 January 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

### Step-1: Team Gathering, Collaboration and Select the Problem Statement

The slide is divided into three main sections:

- Section 1 (Left):** Contains a circular icon with a lightbulb and wavy lines, followed by the title "Brainstorm & idea prioritization". Below it, a note states: "This template was used to brainstorm and prioritize ideas for our Housing Market Analysis project using Tableau and data visualization techniques."
- Section 2 (Middle):** A section titled "Before we collaborate" with a blue dot icon. It describes the preparation phase: "Before collaboration, our team prepared by reviewing the dataset and understanding the project objectives related to housing market analysis." Below this is a "Session Preparation" section with a note: "Team members from data analysis and visualization participated in the brainstorming session. The team focused on identifying key factors affecting house sale prices such as bedrooms, bathrooms, house age, and renovation impact. Clear roles were assigned for data preparation, visualizations development, and dashboard design."
- Section 3 (Right):** A section titled "Problem Statement" with a blue dot icon. It defines the problem: "To analyze housing market trends and identify the key factors influencing house sale prices using data visualization techniques in Tableau." Below this is a "Key Objectives" section with a note: "- Understand how structural features affect sale prices  
- Examine the impact of house age and renovation  
- Identify sales trends using visual analytics  
- Develop dashboards to present meaningful insights"

## Step-2: Brainstorm, Idea Listing and Grouping

**2**

**Brainstorm**

List potential analytical approaches and visualization ideas to study housing market trends and factors affecting house sale prices.

**Chandru**



**Apoorva**



**Shalini**



**Priyanka**



**3**

**Group ideas**

Group similar analytical ideas based on common themes such as structural features, house age, renovation impact, sales trends, and visualization development. Assign meaningful labels to each group to organize the project approach clearly.

⌚ 20 minutes

**Structural Feature Analysis**

- Bedrooms vs Sale Price
- Bathrooms vs Sale Price
- Floors vs Sale Price

**Sales Trend Analysis**

- Total Sales by Renovation Years
- Average Sale Price Trend
- Revenue Comparison

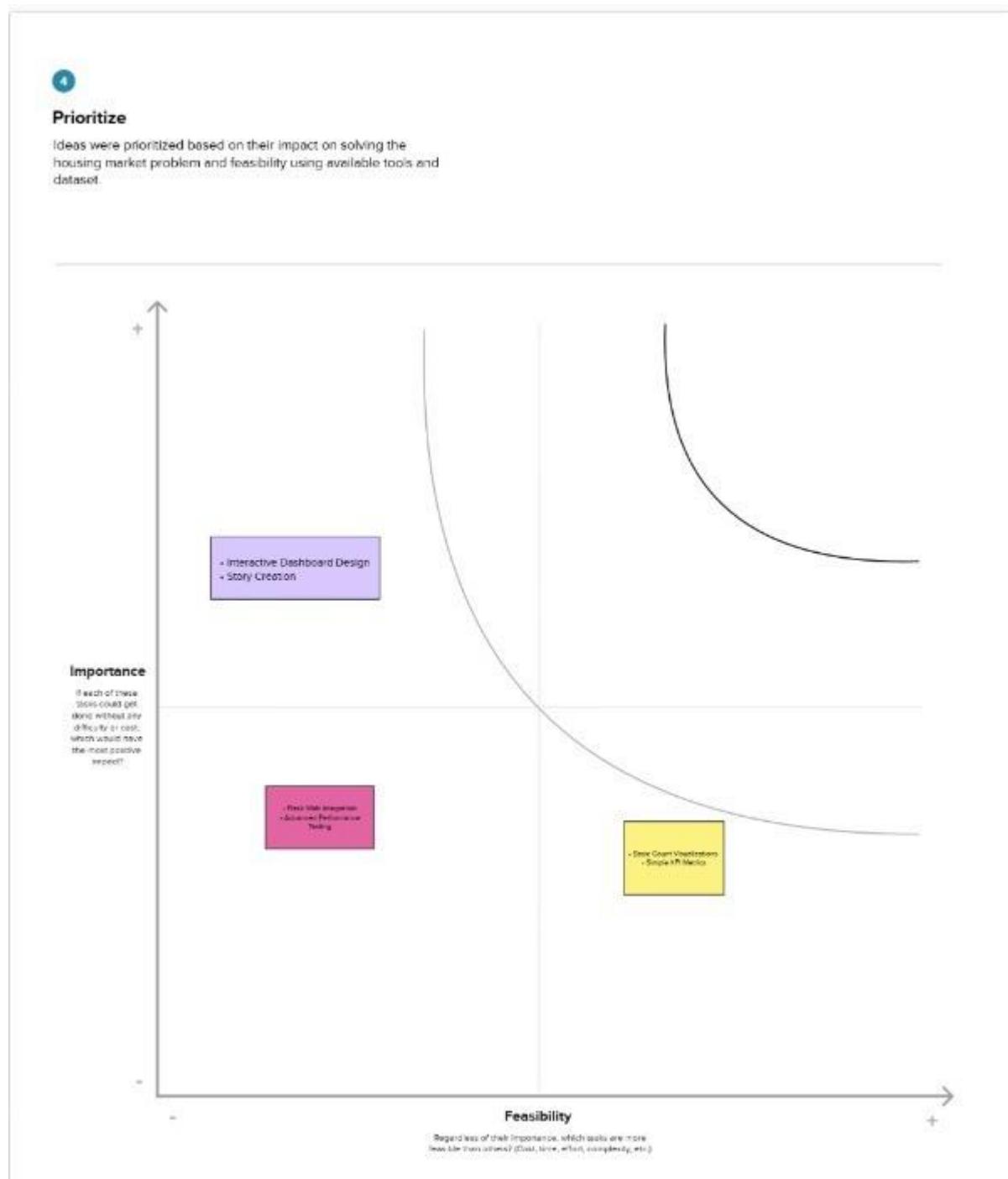
**Age & Renovation Analysis**

- House Age Distribution
- Impact of Renovation on Sale
- Years Since Renovation Analysis

**Visualization & Deployment**

- Dashboard Creation
- Story Development
- Flask Web Integration

## Step-3: Idea Prioritization



### 3. REQUIREMENT ANALYSIS

#### 3.1 Customer Journey map

Customer Journey Map												
Phase of journey	Awareness			Consideration			Conversion			Retention/Advocacy		
Actions	Searches housing investment website	Looks for real estate reports	Browses property market articles	Compares feature, features and prices	Analyses renovation impact	Reviews data visualizations	Logs decision to make a decision	Downloads insights	Registers purchase decision	Shares feedback for new projects	Shares insights with others	Referrals from others
Touchpoint	Google Search	Real Estate Websites	Social Media / Blogs	Tableau Dashboard	Web Application	Interactive Filters	Flask Web App	Final Dashboard View	Web App Access	Dashboard Updates		
Customer Thought What is the customer needing and intending?	What factors affect house price?	Is this the right time to invest?		Which factors influence house price most?	Deep renovation can add value!		Now I understand my buying power.	This data helps my decision.	This tool is helpful.	I'll use this again.		
Customer Feeling	• Curious • Confused • Interested		• Slightly overwhelmed • Analytical • Hopeful		• Confident • Satisfied		• Trust • Satisfaction • Loyalty					
Opportunities	Provide clear data-driven dashboards	Offer very specific insights		Add interactive filters	Provide context-based dashboards		Provide interactive reports	Offer summary insights	Regular data updates	Add new analytics features		

## 3.2 Solution Requirement

Date	01 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Collection & Extraction	Collect housing dataset from database / CSV file Connect dataset to Tableau Verify data loading
FR-2	Data Preparation	Clean missing values Create calculated fields (House Age, Years Since Renovation) Format data types correctly
FR-3	Data Visualization	Create charts for price vs bedrooms, bathrooms, floors Create age distribution charts Create renovation impact charts
FR-4	Dashboard Development	Design 4 scenario dashboards Add filters (bedrooms, bathrooms, renovation years) Make dashboard interactive
FR-5	Story Creation	Create Story with multiple scenes Add scenario-wise explanation Arrange charts logically
FR-6	Web Integration	Embed Tableau dashboard into Flask web application Ensure dashboard loads in browser

Non-functional Requirements:

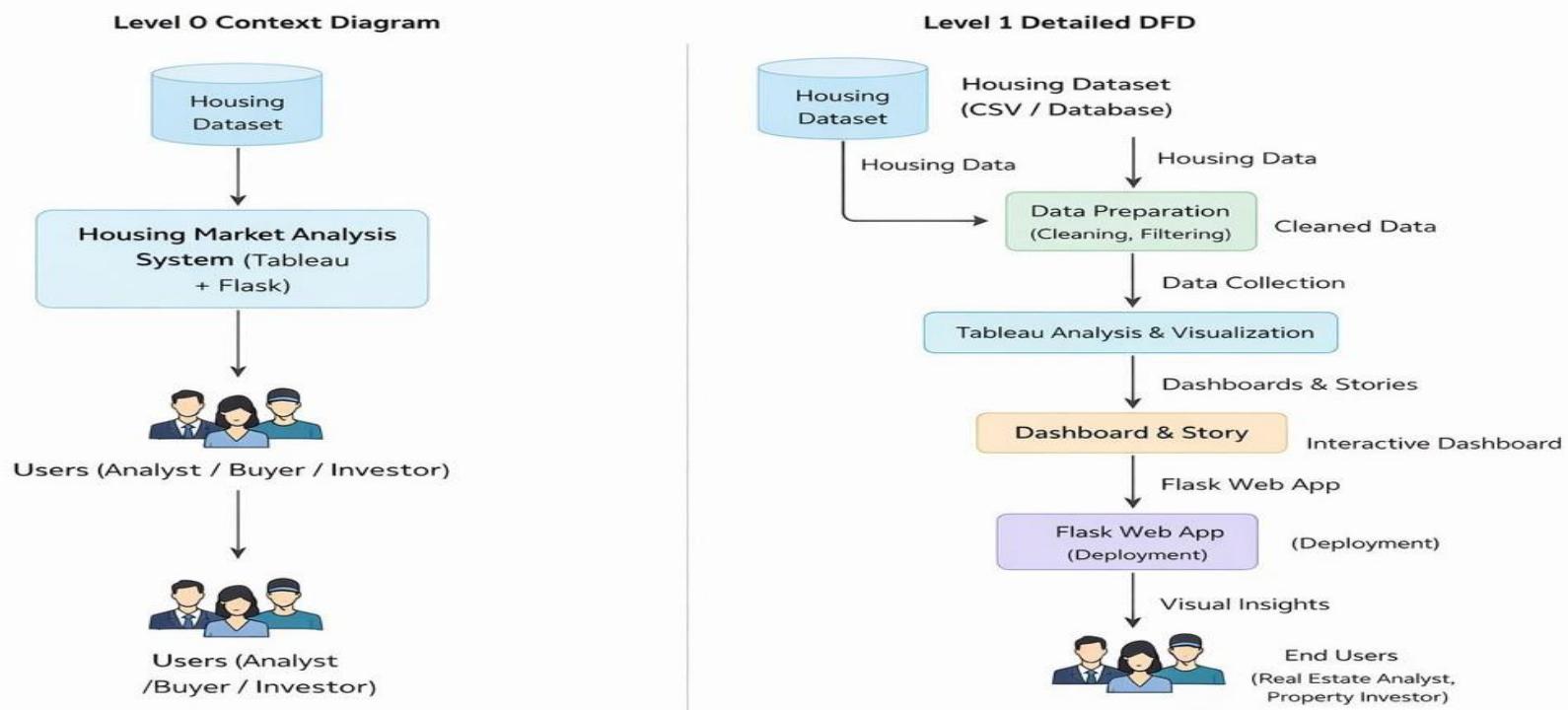
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The dashboard should be user-friendly, easy to navigate, and visually clear so users can understand housing trends without technical knowledge.
NFR-2	Security	The dataset and dashboard access should be protected. Only authorized users should access the web application. Data should not be modified by unauthorized users. The system should provide accurate visualizations and consistent results without errors during analysis and filtering. The dashboard should load quickly even with large housing datasets.
NFR-3	Reliability	Filters and calculations should respond without delay. The web application and dashboards should be accessible anytime when hosted on the server.
NFR-4	Performance	The system should support additional data (future housing data) without affecting performance or requiring major redesign.
NFR-5	Availability	
NFR-6	Scalability	

### 3.3 Data Flow Diagram

Date	02 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

#### Data Flow Diagrams:

The Data Flow Diagram illustrates the overall working process of the Housing Market Analysis System. The system begins with collecting the housing dataset from a CSV file or database, which is then processed through data cleaning and preparation. The cleaned data is analyzed using Tableau to generate meaningful visualizations, dashboards, and stories. These visual insights are further integrated into a Flask web application for deployment. Finally, end users such as real estate analysts, property buyers, and investors access the interactive dashboards to understand housing price trends and make informed decisions.



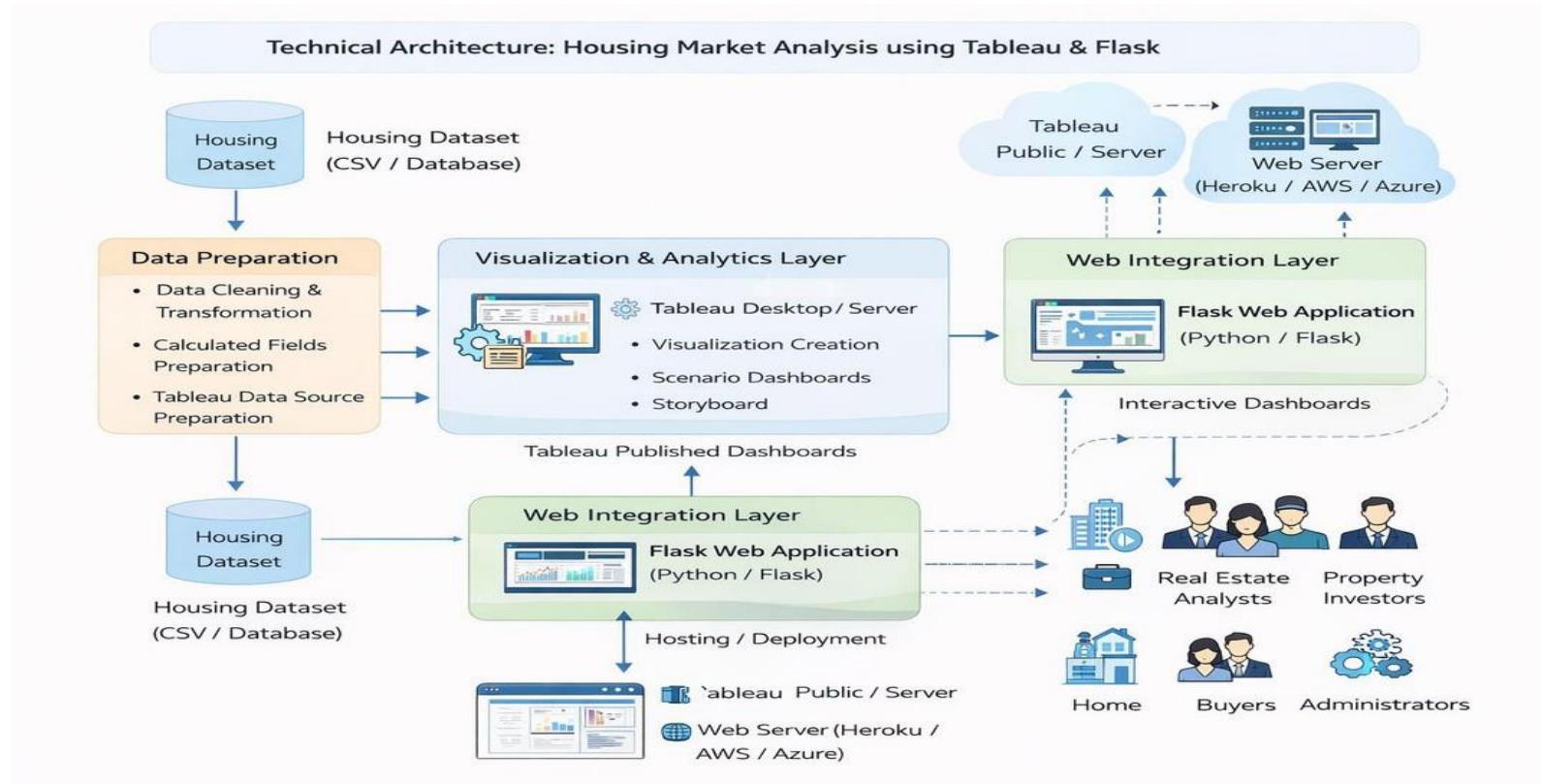
## User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Real Estate Analyst	Data Visualization	USN-1	As a real estate analyst, I want to view average house prices based on bedrooms, bathrooms, and floors so that I can understand pricing patterns.	Dashboard displays filtered price comparison charts.	High	Sprint-1
	Age & Renovation Analysis	USN-2	As an analyst, I want to analyze house age distribution and renovation impact so that I can identify value trends.	System shows age distribution and renovation price comparison charts.	High	Sprint-1
	Interactive Dashboard	USN-3	As a user, I want interactive filters (bedrooms, bathrooms, renovation) so that I can customize my analysis.	Filters update dashboard dynamically.	High	Sprint-2
Property Investor	Trend Analysis	USN-4	As an investor, I want to view total sales by years since renovation so that I can identify profitable investment opportunities.	Sales trend graph is visible and interactive.	High	Sprint-2
	Web Access	USN-5	As a user, I want to access the dashboard through a web application so that I can view insights anytime.	Flask web app successfully displays dashboard.	Medium	Sprint-3
Administrator	Data Management	USN-6	As an administrator, I want to upload or update housing datasets so that the system reflects current data.	System accepts updated dataset and refreshes dashboards.	Medium	Sprint-3
Home Buyer	Feature Comparison	USN -7	As a home buyer, I want to compare properties based on features and price so that I can make informed decisions.	Filters allow comparison of property features.	Medium	Sprint-3

## 3.4 Technology Stack

Date	03 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

### Technical Architecture:



**Table - 1: Technical Architecture Components:**

S. No	Component	Description	Technology
1.	User Interface	Web-based dashboard interface where users interact with visualizations and filters	HTML, CSS, JavaScript (Flask Templates)
2.	Application Logic-1	Backend logic for handling web requests and rendering dashboards	Python (Flask Framework)
3.	Application Logic-2	Data processing, cleaning, and calculated field preparation	Tableau Desktop / Tableau Prep
4.	Application Logic-3	Data visualization and dashboard creation logic	Tableau Desktop / Tableau Server
5.	Database	Housing dataset storage and management (CSV or Database)	CSV File / MySQL (Optional)
6.	Cloud Database	Optional cloud-based data storage for scalability	AWS RDS / Azure SQL (Optional)
7.	File Storage	Storage of dataset files and project resources	Local File System / Cloud Storage
8.	External API-1	(Optional) API integration for real-time housing or market data	Public Real Estate API (Optional)
9.	External API-2	(Optional) Integration for additional data sources	Open Data APIs (Optional)
10.	Machine Learning Model	Data analysis and calculated metrics for price trends and insights	Tableau Calculated Fields
11.	Infrastructure (Server / Cloud)	Deployment of Flask web app and Tableau dashboards	Local Server / Tableau Public / AWS / Heroku

**Table-2: Application Characteristics:**

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The application uses open-source technologies for backend development and web integration of dashboards.	Python, Flask, HTML, CSS, JavaScript
2.	Security Implementations	The system restricts unauthorized access to the web application. Dataset files are protected locally. Deployment can include authentication and HTTPS for secure access.	Flask Security (Basic Authentication), HTTPS, Role-Based Access (Optional)
3.	Scalable Architecture	The architecture follows a layered approach (Data Layer, Visualization Layer, Web Layer). It can handle increased dataset size and additional dashboards without major changes.	Tableau Server / Tableau Public, Flask (Modular Structure)
4.	Availability	The application can be hosted on cloud platforms to ensure 24/7 availability. Tableau dashboards remain accessible when deployed on server/cloud.	Tableau Public / AWS / Heroku / Local Server
5.	Performance	The application is optimized to handle moderate data loads efficiently. Tableau dashboards use optimized queries, filters, and calculated fields to reduce load time. Data caching and lightweight web deployment ensure faster response.	Tableau Optimized Extracts, Flask, Local Hosting / Cloud Hosting

# 4. PROJECT DESIGN

Team ID: LTVIP2026TMIDS38402

## 4.1 Problem Solution Fit

Define CS, fit into CC	<b>1. CUSTOMER SEGMENTS</b>	<b>CS</b>	<b>6. CUSTOMER CONSTRAINTS</b>	<b>CC</b>	<b>5. AVAILABLE SOLUTIONS</b>	<b>AS</b>	Explore AS, differentiate
	<ul style="list-style-type: none"> <li>Real estate buyers, Prop. sellers</li> <li>Property sellers</li> <li>Market researchers</li> <li>Property investors</li> </ul>		<ul style="list-style-type: none"> <li>Large and complex datasets forms</li> <li>Lack of technical knowledge</li> <li>Limited visualization tools</li> <li>Time constraints</li> </ul>		<ul style="list-style-type: none"> <li>Manual Excel analysis</li> <li>Real estate websites with limited insights</li> <li>Broker advice</li> <li>Static reports without visualization</li> </ul>		
Focus on J&P, the into Rn	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b>	<b>J&amp;P</b>	<b>9. PROBLEM ROOT CAUSE</b>	<b>RC</b>	<b>5. AVAILABLE SOLUTIONS</b>	<b>AS</b>	Focus on J&P, the into Rn
	<ul style="list-style-type: none"> <li>Analyze housing price trends</li> <li>Compare property features (bedrooms; bathrooms)</li> <li>Understand renovation impact on price</li> <li>Make better buying or selling decisions</li> <li>Identify profitable investment areas</li> </ul>		<ul style="list-style-type: none"> <li>Housing data-Scattered</li> <li>No centralized analytics system</li> <li>Nyk-visually structured</li> <li>Manual analysis is inefficient</li> </ul>		<ul style="list-style-type: none"> <li>Manual Excel analysis</li> <li>Real estate websites with limited insights</li> <li>Broker advice</li> <li>Static reports without visualization</li> </ul>		
Identify strong TR & EM	<b>3. TRIGGERS</b>	<b>TR</b>	<b>9. PROBLEM ROOT CAUSE</b>	<b>RC</b>	<b>8. CHANNELS of BEHAVIOUR</b>	<b>CB</b>	Identify strong TR & EM
	<ul style="list-style-type: none"> <li>Planning to buy or sell property.</li> <li>Sudden change in housing market prices</li> <li>Need for investment planning</li> <li>Real estate market competition</li> <li>Increase in property demand</li> </ul>		<ul style="list-style-type: none"> <li>Housing data is scattered</li> <li>No centralized analytics system</li> <li>Data not visually structured</li> <li>Manual analysis is inefficient</li> </ul>		<ul style="list-style-type: none"> <li><b>Online:</b></li> <li>Real estate websites, Tableau dashboards</li> <li>Google search</li> <li>Property listing apps</li> </ul>		
Develop a solution TR & EM	<b>4. EMOTIONS: BEFORE / AFTER</b>	<b>EM</b>	<b>9. PROBLEM ROOT CAUSE</b>	<b>RC</b>	<b>10. YOUR SOLUTION</b>	<b>SL</b>	Develop a solution TR & EM
	<ul style="list-style-type: none"> <li>Confused</li> <li>Uncertain</li> <li>Overwhelmed by data</li> <li>Fear of wrong investment</li> </ul>		<ul style="list-style-type: none"> <li>Housing data is scattered</li> <li>No centralized analytics system</li> <li>Data not visually structured</li> <li>Manual analysis is inefficient</li> </ul>		<ul style="list-style-type: none"> <li><b>Develop a Housing Analysis System</b> that:</li> <li>Collects housing dataset</li> <li>Cleans and processes data</li> <li>Provides interactive Tableau-dashboards,</li> <li>Visualizes price trends, renovation impact*, and property features.</li> <li>Helps users make data-driven real estate decisions.</li> </ul>		

## 42 Proposed Solution

Date	09 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	2 Marks

Proposed Solution Template:

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Real estate buyers, sellers, and analysts face difficulty in understanding housing price trends, renovation impact, and property features due to scattered and unstructured data. There is a need for a centralized system to analyze housing market trends effectively.
2.	Idea / Solution description	The proposed solution is a Housing Market Analysis System that collects housing dataset (CSV/Database), performs data cleaning and processing, and visualizes insights using Tableau dashboards. The system provides interactive reports on sale prices, house age, number of bedrooms, bathrooms, floors, and renovation impact.
3.	Novelty / Uniqueness	The solution provides interactive visual dashboards with real-time filtering and story-based insights. It simplifies complex housing data into easy-to-understand charts and analytics for decision-making.
4.	Social Impact / Customer Satisfaction	Helps buyers make informed property decisions, assists sellers in pricing strategies, and supports researchers in analyzing housing trends. Improves transparency in the real estate market.
5.	Business Model (Revenue Model)	Subscription-based access for real estate agencies and analysts. Premium dashboard access for advanced analytics. Data insights service for property consultants.
6.	Scalability of the Solution	The system can be scaled using cloud deployment. It can handle larger datasets, integrate multiple city databases, and support more users by deploying on cloud infrastructure like AWS / IBM Cloud.

## 43 Solution Architecture

Date	14 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

### Solution Architecture:

The solution architecture defines how the Housing Market Analysis system addresses the problem of understanding housing price trends through data visualization. It outlines the integration of data sources, data preparation processes, visualization tools, and web deployment components. The architecture ensures that raw housing data is transformed into meaningful dashboards and interactive insights that support informed decision-making for analysts, investors, and buyers.

- Provide an efficient data-driven approach to analyze housing market trends.
- Design interactive dashboards using Tableau for clear visualization.
- Integrate dashboards into a Flask web application for easy access.
- Ensure scalability, performance, and usability of the system.
- Deliver structured documentation and deployment strategy.

### Solution Architecture Diagram:

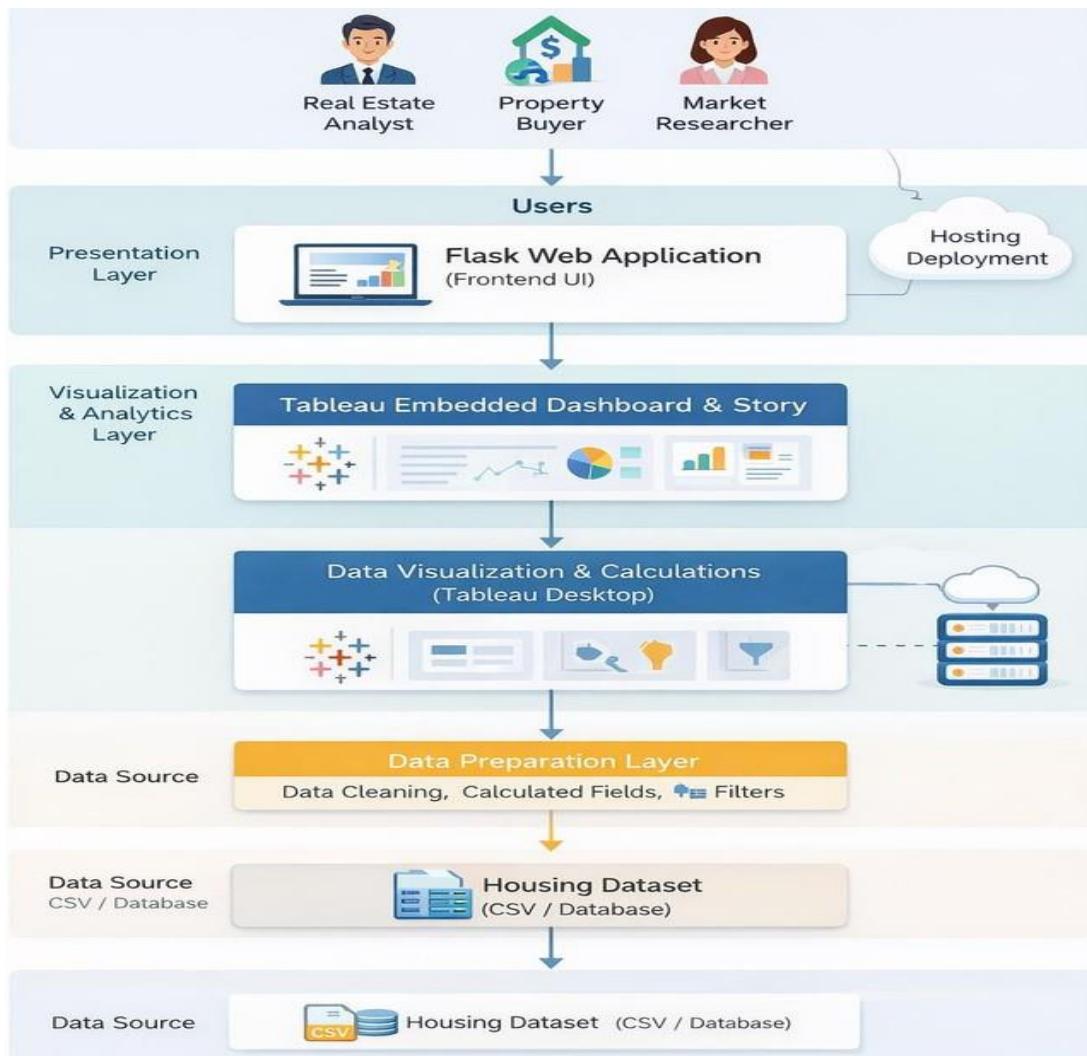


Figure X: Solution Architecture and Data Flow of Housing Market Analysis System

## 5. PROJECT PLANNING & SCHEDULING

### 5.1 Project Planning

Date	18 October 2022
Team ID	LTVIP2026TMIDS38402
Project Name	<b>Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau</b>
Maximum Marks	8 Marks

#### Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Collection	USN-1	As a user, I want to import the housing dataset into Tableau for analysis	2	High	
Sprint-1	Data Preprocessing	USN-2	As a user, I want to clean and prepare the dataset before visualization	1	High	
Sprint-2	Dashboard Development	USN-3	As a user, I want to create an interactive housing market dashboard	2	High	
Sprint-2	Filter Implementation	USN-4	As a user, I want to apply filters to analyze housing features dynamically	2	Medium	
Sprint-3	Story Creation	USN-5	As a user, I want to present insights in a structured story format	1	Medium	
Sprint-3	Deployment	USN-6	As a user, I want to publish the dashboard on Tableau Public	1	High	

### Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	8	2 Days	15 Feb 2026	16 Feb 2026	8	16 Feb 2026
Sprint-2	10	2Days	17 Feb 2026	18 Feb 2026	10	18 Feb 2026
Sprint-3	6	2 Days	19 Feb 2026	19 Feb 2026	6	20 Feb 2026

#### Velocity:

The project was completed in 3 sprints between 15 February 2026 and 20 February 2026.

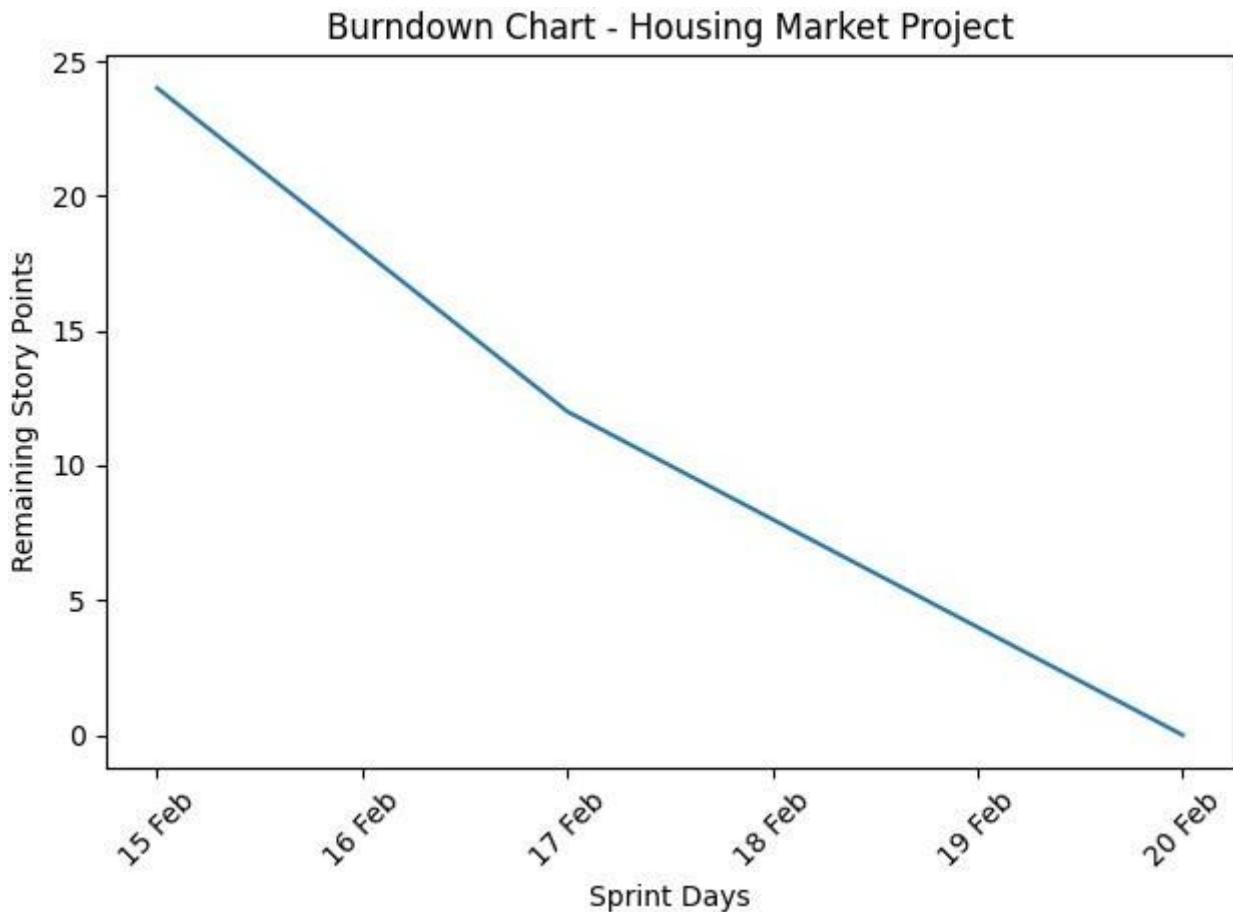
The total story points completed were 24.

The average velocity of the project was 4 story points per day, indicating efficient sprint execution.

$$AV = \text{Total Story Points} / \text{Total Sprint Duration}$$

$$AV = 24 / 6 = 4 \text{ Story Points per Day}$$

## Burndown Chart:



## Reference:

<https://www.atlassian.com/agile/project-management>

<https://www.atlassian.com/agile/tutorials/how-to-do-scrum-with-jira-software>

<https://www.atlassian.com/agile/tutorials/epics>

<https://www.atlassian.com/agile/tutorials/sprints>

<https://www.atlassian.com/agile/project-management/estimation>

<https://www.atlassian.com/agile/tutorials/burndown-charts>

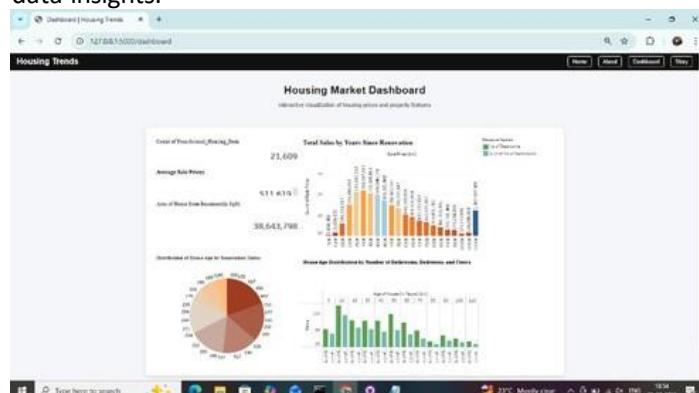
## 6. FUNCTIONAL AND PERFORMANCE TESTING

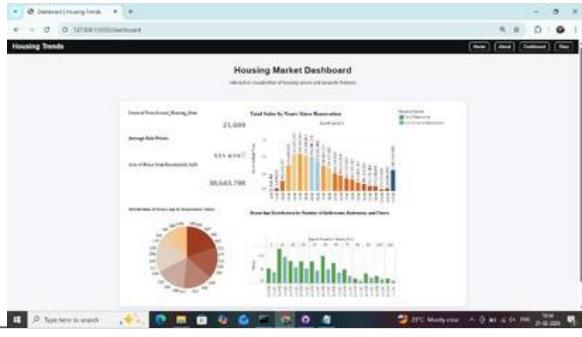
### 61 Performance Testing

Date	15 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	<b>Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau</b>
Maximum Marks	

#### Model Performance Testing:

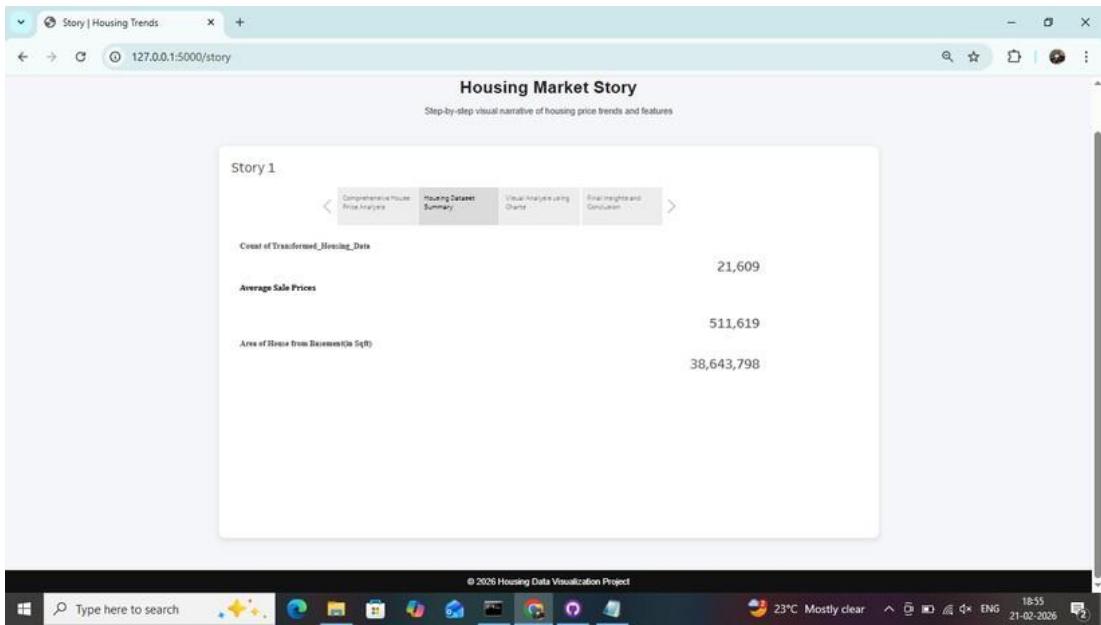
Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Screenshot / Values
1.	Data Rendered	<p>The dashboard successfully renders all visualizations without delay. The data is displayed clearly including total records, average sale price, and area from basement. All charts load properly and represent accurate housing data insights.</p> 
2.	Data Preprocessing	<p>The dataset was cleaned before visualization. Null values were handled and required fields were formatted correctly. The data was transformed to ensure accurate aggregation and calculation of housing metrics.</p>
3.	Utilization of Filters	<p>Interactive filters are implemented to enhance user interaction. Users can dynamically explore data by selecting different parameters such as number of bedrooms and bathrooms. The filters respond quickly without performance lag. Calculated fields were used to derive important metrics such as:</p>
4.	Calculation fields Used	<ul style="list-style-type: none"><li>• Average Sale Price</li><li>• Total Count of Housing Data</li></ul>

5.	Dashboard design	<ul style="list-style-type: none"> <li>• Aggregated Basement Area</li> </ul> <p>The dashboard is designed with structured layout and consistent formatting. It includes bar charts, pie charts, and comparative visualizations. The interface is user-friendly and visually organized for better analysis.</p> 
6	Story Design	<p>The story section presents insights in a step-by-step manner. It includes:</p> <ul style="list-style-type: none"> <li>• Comprehensive House Price Analysis</li> <li>• Housing Dataset Summary</li> <li>• Visual Analysis using Charts</li> <li>• Final Insights and Conclusion</li> </ul> <p>The story format improves clarity and understanding of housing trends.</p> 

# 7. RESULTS

## 7.1 Output Screenshots



## **8. ADVANTAGES & DISADVANTAGES**

### **Advantages of the Project:**

- Provides clear and interactive visualization of complex housing data.
- Helps identify key factors influencing property prices and sales trends.
- Supports data-driven decision-making for pricing and marketing strategies.
- Improves understanding of renovation impact on property value.
- Makes large datasets easy to interpret using dashboards and charts.
- Saves time compared to manual data analysis methods.
- Enhances strategic planning for real estate stakeholders.

### **Disadvantages of the Project:**

- The analysis depends on the accuracy and completeness of the dataset.
- Limited to historical data; may not fully predict future market fluctuations.
- External factors like economic conditions or government policies are not included.
- Requires basic technical knowledge to interpret advanced dashboards.
- Insights may vary if different datasets are used.

## **9. CONCLUSION**

In conclusion, the project "Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau" successfully demonstrates how data analytics and visualization techniques can be used to understand complex housing market patterns. By analyzing factors such as sale prices, renovation years, house age, and structural features including bathrooms, bedrooms, and floors, meaningful insights were derived to explain variations in property values and buyer preferences. The interactive dashboards created using Tableau effectively transformed raw housing data into clear, interpretable visual insights. Overall, this project highlights the importance of data-driven decision-making in the real estate sector and showcases the practical application of Tableau and analytics tools in solving real-world business problems.

## **10. FUTURE SCOPE**

- The project can be enhanced by integrating real-time housing market data for more accurate and up-to-date analysis.
- Advanced predictive analytics and machine learning models can be implemented to forecast future house prices and market trends.
- Additional factors such as economic indicators, interest rates, and location-based insights can be included for deeper analysis.
- The dashboard can be expanded with more interactive filters and customization options for users.
- The system can be deployed as a fully functional web application accessible to real estate companies and stakeholders.
- Comparative analysis between different cities or regions can be added to broaden market insights.
- Automated data updating mechanisms can be implemented to improve efficiency and reduce manual work.

# **11. APPENDIX**

DATASET LINK:

[https://drive.google.com/file/d/1u1c1ALaIJxN9w3gTRTQSD\\_dZCA5fWe4u/view?usp=sharing](https://drive.google.com/file/d/1u1c1ALaIJxN9w3gTRTQSD_dZCA5fWe4u/view?usp=sharing)

DEMO LINK:

<https://drive.google.com/file/d/1ogwlvzkXpgPQgJdFMuvrU5YqBKuxXtAx/view?usp=sharing>

GITHUB LINK:

<https://github.com/chandhu4207/Visualizing-Housing-Market-Trends-An-Analysis-of-Sale-Prices-and-Features-using-Tableau>