PROJECT REPORT

1.INTRODUCTION:

1.1 Project Overview:

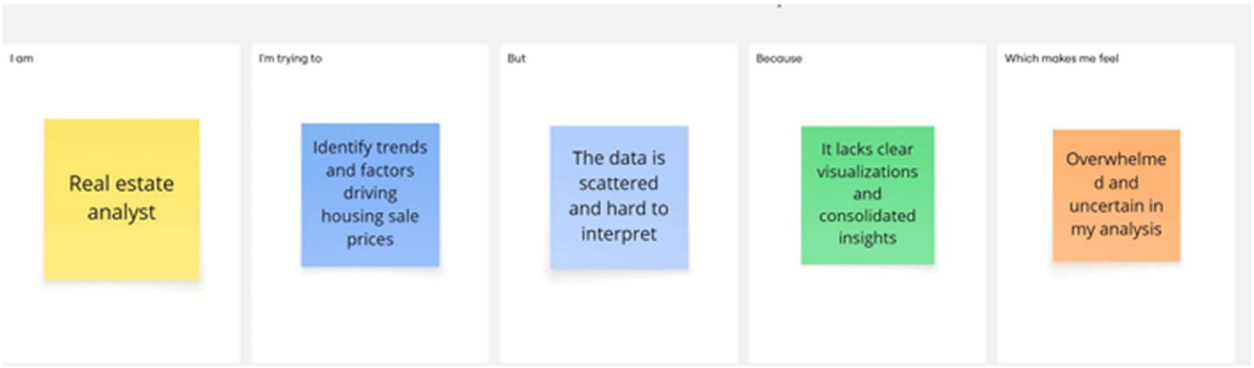
This project leverages Tableau to explore and visualize housing market trends by analyzing historical sales data. The goal is to uncover patterns and insights related to house prices in connection with key features such as square footage, location, number of bedrooms, and construction year. Through interactive dashboards and visual analytics, this project aims to support data-driven decision-making for buyers, sellers, and real estate professionals by highlighting the factors that most significantly influence property values.

1.2 Project Purpose:

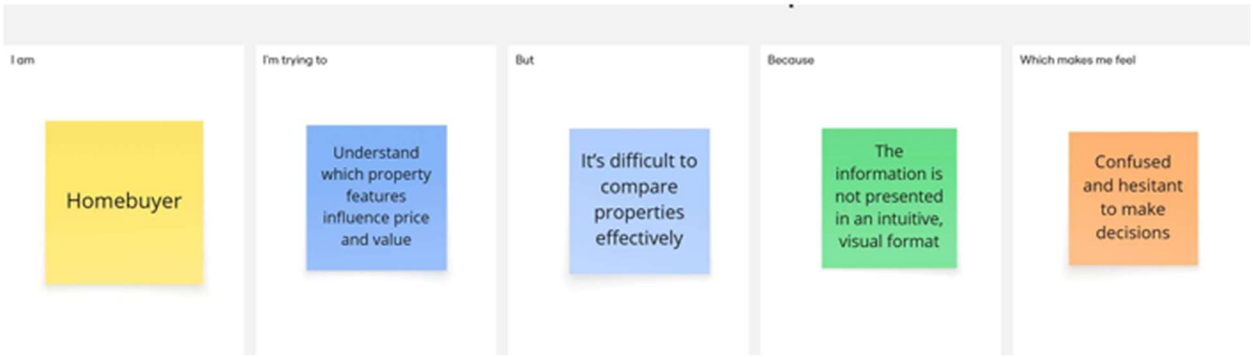
The purpose of this project is to analyze and visualize housing market data to identify the key factors influencing property sale prices. By using Tableau to create interactive and insightful dashboards, the project aims to help stakeholders — including potential buyers, sellers, and real estate agents — better understand market trends, make informed decisions, and anticipate pricing patterns based on various housing features and location attributes.

2.IDEATION PHASE:

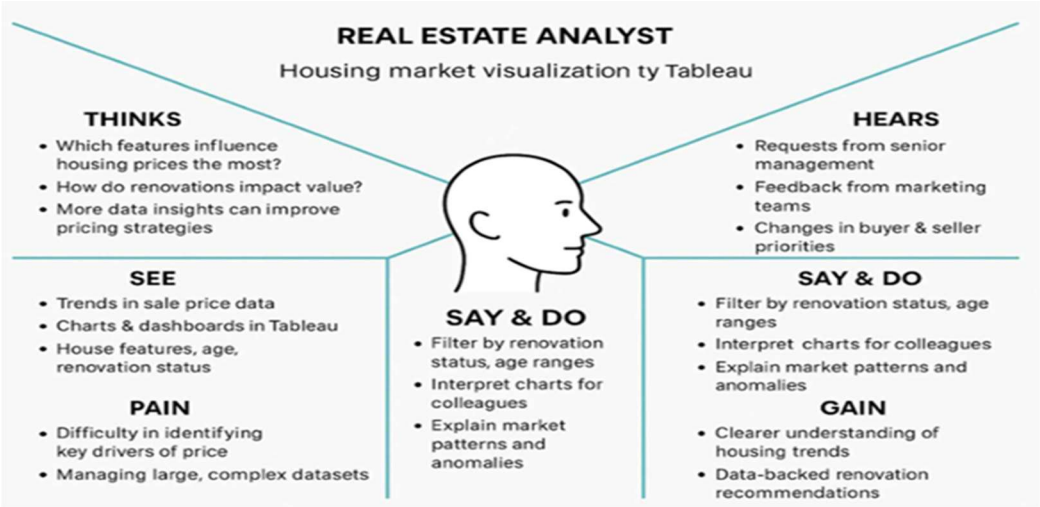
2.1Problem statement:



PROJECT REPORT

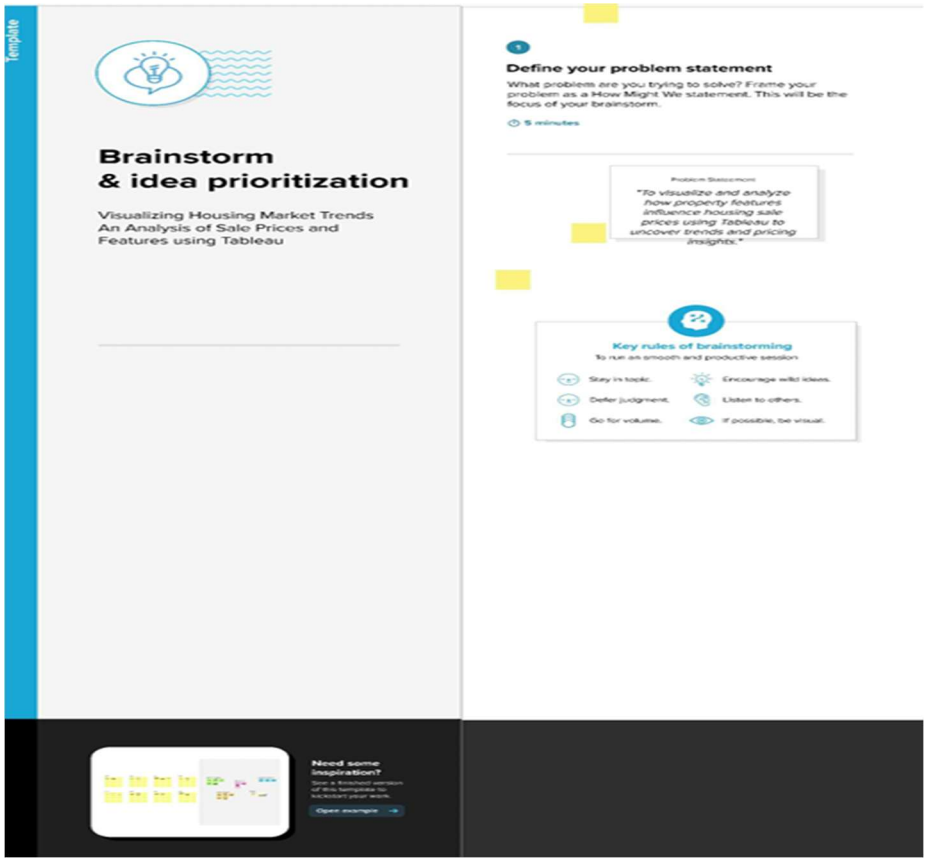


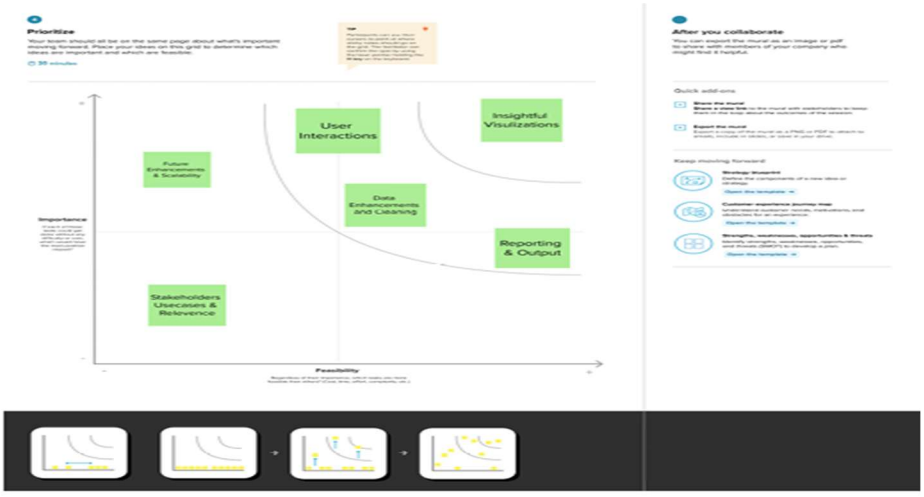
Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Real estate analyst	Identify trends and factors driving housing sale prices	The data is scattered and hard to interpret	It lacks clear visualization s and consolidated insights	Overwhelmed and uncertain in my analysis
PS-2	Homebuyer	Understand which property features influence price and value	It's difficult to compare properties effectively	The information is not presented in an intuitive, visual format	Confused and hesitant to make decisions



PROJECT REPORT

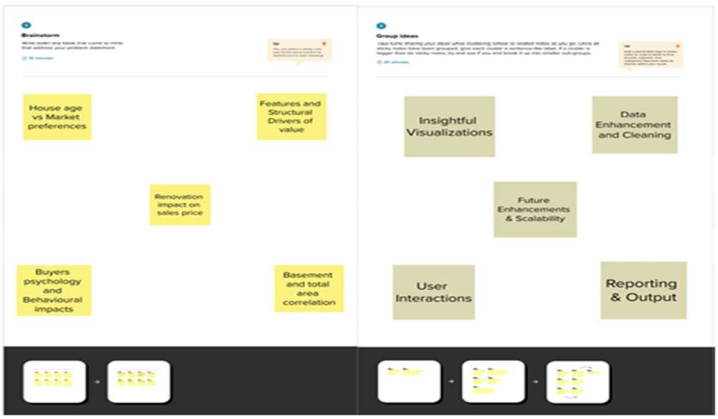
2.2 Brainstorming & Ideation:





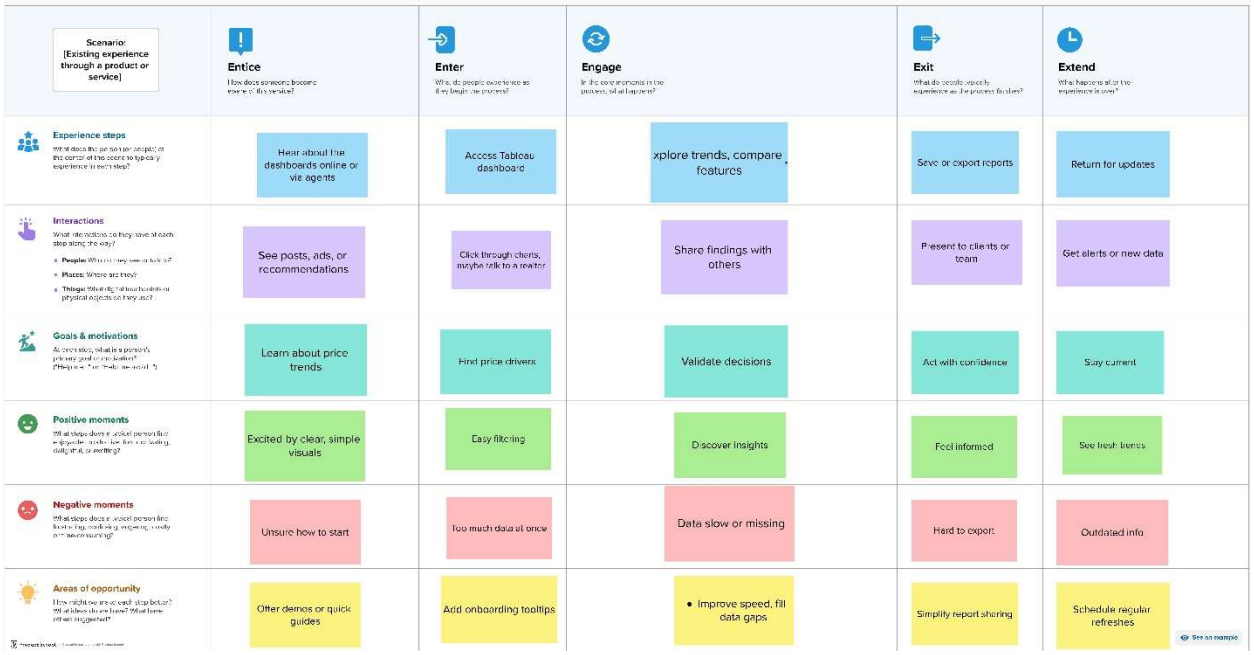
PROJECT REPORT

Step-2: Brainstorm, Idea Listing and Grouping



3.REQUIREMENT ANALYSIS:

3.1:Customer Journey Map:



3.2:Solution Requirement:

Functional Requirements:

FR NO	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Collection and Import	System must allow importing housing dataset from Excel/CSV.

PROJECT REPORT

FR-2	Data Cleaning and Transformation	Must calculate house age and years since renovation; handle missing or invalid data
FR-3	Visualization of Key Metrics	Dashboard must display KPIs such as average price, total houses, and basement area.
FR-4	Sales Analysis by Renovation	Create a histogram that groups total sales based on years since renovation.
FR-5	Feature-based House Age Distribution	Display grouped bar charts showing house age versus bathrooms, bedrooms, and floors.
FR-6	Renovation Status Visualization	Show proportion of renovated vs. non renovated houses using pie charts.
FR-7	Dashboard Interactivity	Enable users to filter dashboard by house age, renovation status, bedrooms, bathrooms, and floors.
FR-8	Reporting and Export	Allow export of visualizations in PDF or image format for reporting and presentations.

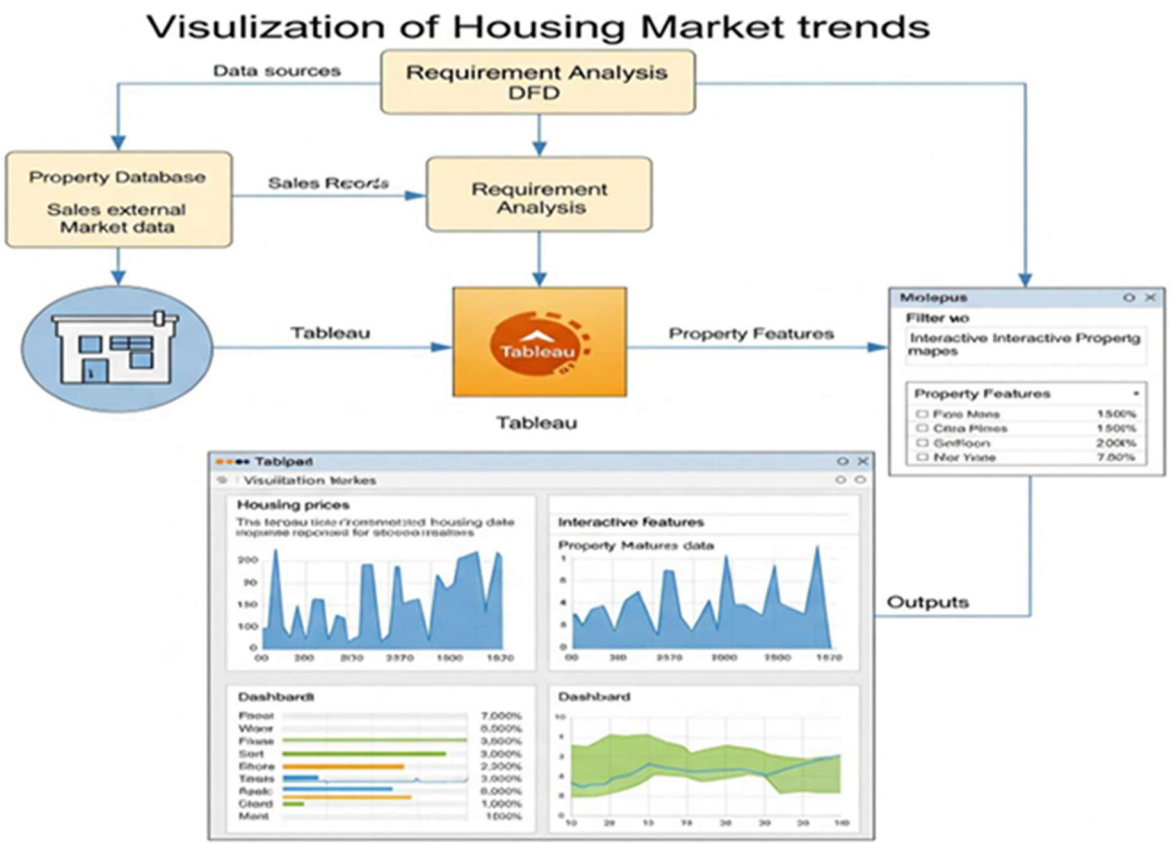
Non-Functional Requirements:

FR NO	Non-Functional Requirement	Description
NFR-	Usability	Dashboard must be intuitive and easy to navigate for non technical stakeholders.
NFR-2	Security	Only authorized users should be able to access or modify the dashboard if published to a secure server.
NFR-3	Accessibility	Visuals must be readable on standard desktop and tablet screens.
NFR-4	Performance	Dashboard should load within 5 seconds with a dataset of up to 10,000 records.

PROJECT REPORT

NFR-5	Maintainability	The solution must be easily updatable if new scenarios or charts are added.
NFR-6	Scalability	The system should be able to accommodate additional features or larger datasets in the future.

3.3:Data Flow Diagram:



3.4:Technology stack:

Component	Technology Used	Description
Data Source	Microsoft Excel / CSV / Google Sheets	Easily accessible and widely used formats for structured housing datasets.
Data Cleaning	Tableau Prep / Excel Formulas / Power Query	Quick transformation, field derivation, and cleaning within a visual interface.

PROJECT REPORT

Data Analysis & Viz	Tableau Desktop / Tableau Public	Drag-and-drop analytics with grouped bar charts, pie charts, histograms, etc.
Optional Backend	Python with Pandas (Jupyter Notebooks)	For deeper pre-processing or model based analytics if needed in the future
Hosting	Tableau Public (Free) or Tableau Server (Enterprise)	Shareable dashboards, secure access control, and collaboration support.
Export / Reporting	Built-in PDF/Image Export from Tableau	Simplifies reporting and snapshot sharing with stakeholders.

4.PROJECT DESIGN:

4.1:Problem Solution Fit:

4.2:Proposed Solution:

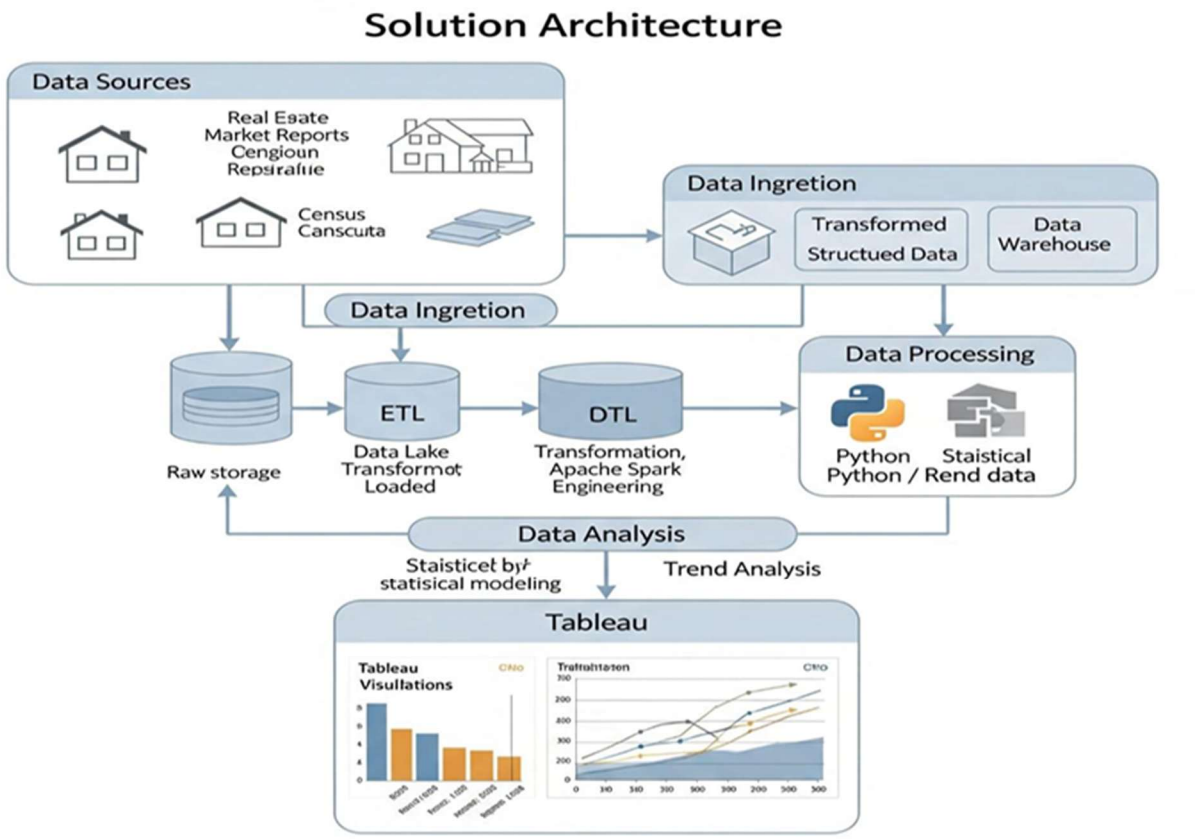
S.NO	Parameter	Description

PROJECT REPORT

1.	Problem statement	Lack of clear ,visual insights into housing market trends and pricing makes it difficulty for buyers ,sellers, and analysts to make informed decisions
2.	Idea/Solution description	Develop interactive Tableau dashboards to visualize housing sales data, including sale price trends ,property features, and neighborhood analysis .This solution enables users to explore and filter data easily ,understand market dynamics and identify patterns.
3.	Novelty/Uniqueness	The project combines multiple visualization techniques in a single dynamic dashboard ,offering a comprehensive ,user friendly tool that updates automatically with new data inputs.
4.	Social impact/Customer Satisfaction	By making market data transparent and accessible ,the solution empowers home buyers and sellers to make informed choices ,reduces reliance on intermediate ,and promotes fair pricing practices ,ultimately increasing trust and satisfaction .
5.	Business Model(Revenue model)	The dashboard can be offered as a subscription base service for real estate agencies and financial institutions .

PROJECT REPORT

4.2:Solution Architecture:



5.PROJECT PLANNING&SCHEDULING:

5.1:Project Planning:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority
Sprint-1	Registration	USN-1	Import housing sales dataset	2	High
Sprint-1	Registration	USN-2	Clean and preprocess data	1	High

PROJECT REPORT

Sprint-1	Registration	USN-3	Create initial data visualizations	2	Low
Sprint-2	Login	USN-4	Develop filters for dashboards	2	Medium
Sprint-2	Dashboard	USN-5	Configure calculated fields	1	High

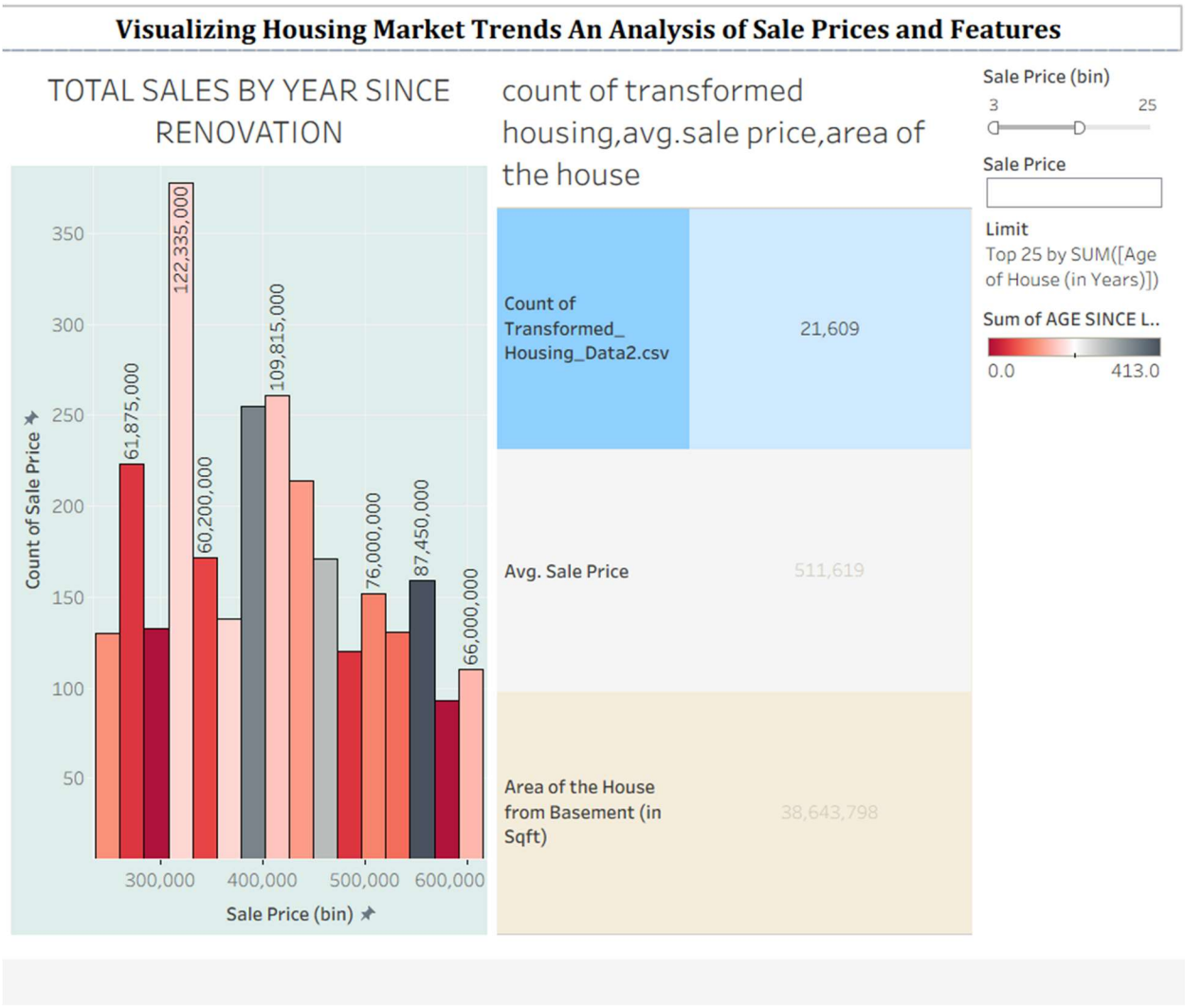
6.FUNCTIONAL &PERFORMANCE TESTING:

S.NO	Parameter	Screenshot/Values
1.	Data Rendered	21,609 records successfully loaded into Tableau 31 columns, including numeric, categorical, and calculated fields No data truncation or errors
2.	Data Preprocessing	Null values handled in relevant columns (e.g., bathrooms, renovations) Derived fields like House Age, Years Since Renovation, and flags generated
3.	Utilisation of Filters	Filters applied: Bedrooms, Bathrooms, Floors, Renovation Status, House Age ranges Interactivity verified across all dashboard scenarios
4.	Calculation fields used	House Age (in Years), Years Since Renovation, Renovated Flag (Yes/No) Grouped bins for visualization e.g., price ranges, age groups
5.	Dashboard design	No of Visualisations / Graphs – 4 • KPI Cards (Avg Price, Total Houses, Basement Area) • Pie Chart • Histogram • Grouped Bar Chart
6.	Story Design	No of Visualisations / Graphs -Each dashboard scenario visualized as a story step 4 story points: • Overview • Sales by Renovation • Renovation vs Age • Age by Features

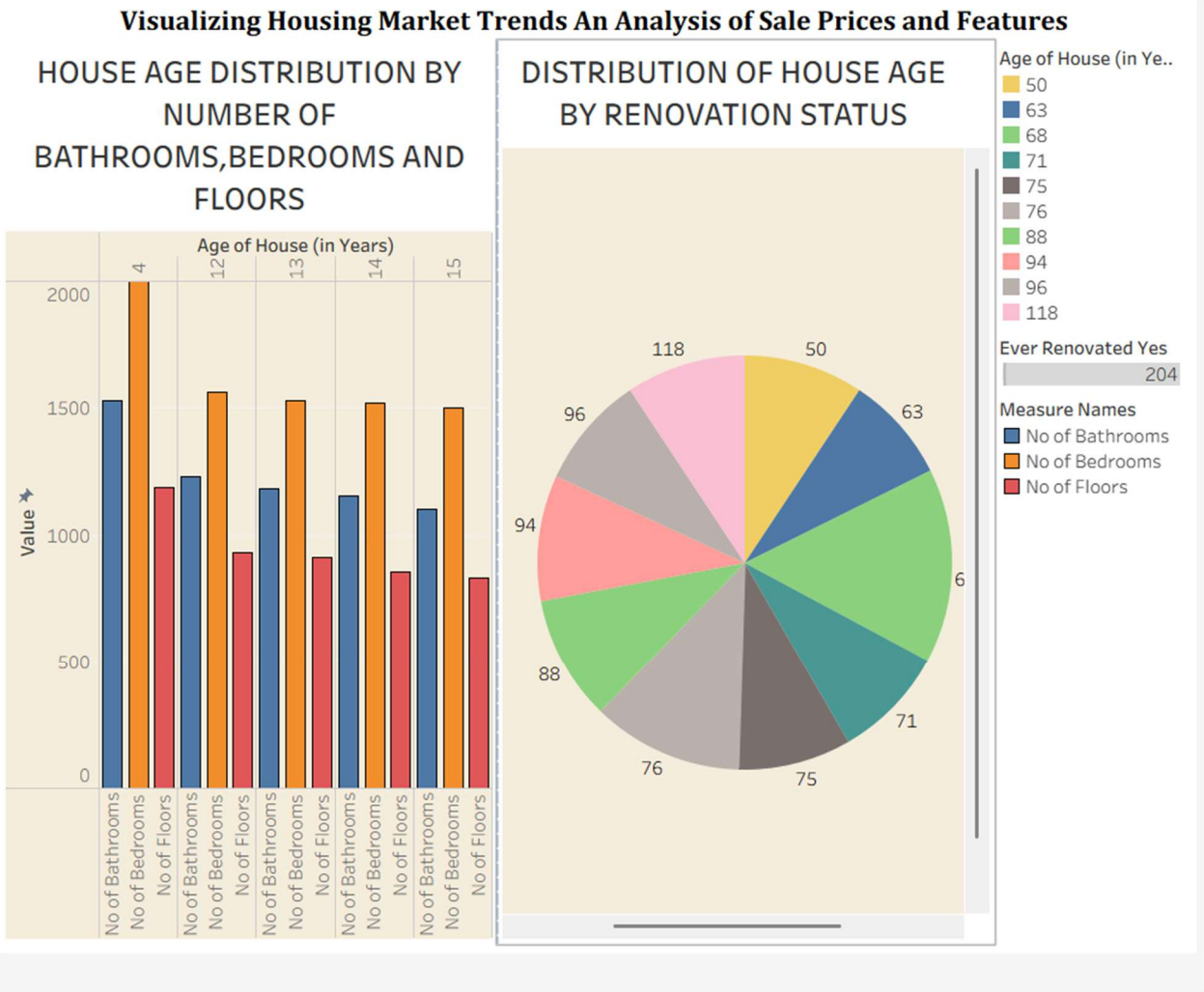
PROJECT REPORT

7.RESULTS:

7.1:Output Screenshots:



PROJECT REPORT



8.ADVANTAGES & DISADVANTAGES:

Advantages:

- Interactive and easy-to-use visual analysis
- Supports data-driven real estate decisions
- Saves time compared to manual analysis
- Easy to share insights with others

Disadvantages:

- Requires Tableau skills or training
- May depend on data quality and freshness
- Can be overwhelming for first-time users
- Needs regular updates to stay relevant

9.CONCLUSION:

Conclusion

This project demonstrates how Tableau can effectively visualize housing market trends, making complex data accessible and actionable. By analyzing sale prices and property features, stakeholders can gain valuable insights to support smarter real estate decisions. While there are some challenges, such as the need for user training and consistent data updates, the benefits of interactive, data-driven analysis far outweigh these limitations, enabling more confident and informed choices in the housing market.

10.FUTURE SCOPE:

Future Scope

- Integrate real-time housing market data feeds
- Add predictive analytics and forecasting features
- Expand to include rental market trends
- Incorporate more demographic and economic factors

PROJECT REPORT

11.APPENDIX:

Dataset link:

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

Project demo link:

https://drive.google.com/file/d/1riucpFHBd2BkPZp0vzdl8oKgWexbzhQM/view?usp=drive_link