DATA ANALYSIS WITH TABLEAU

APSCHE SHORT TERM INTENSHIP

BY

SMART INTERNZ(smart bridge educational services pvt ltd)

PROJECT TITLE

VISUALIZING HOUSING MARKET TRENDS: AN ANALYSIS OF SALES

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Team ID: LTVIP2025TMID51556

1. INTRODUCTION

1.1 Project Overview

This project, titled "Visualizing Housing Market Trends: An Analysis of Sales," is dedicated to developing a comprehensive data visualization solution designed to demystify the intricacies of the housing market. Leveraging the powerful capabilities of Tableau, the initiative focuses on transforming raw transactional data from the dataset into actionable intelligence. The primary objective is to create an intuitive and highly interactive platform that allows diverse stakeholders to easily explore and comprehend historical price fluctuations, discern prominent seasonal patterns in sales volume, and analyze how various property attributes (such as square footage, number of bedrooms, and property grade) directly influence sale prices. Furthermore, the solution will incorporate geographic insights, enabling users to visualize market dynamics across different regions. This project operates under an agile framework, utilizing short, focused sprints to ensure the rapid development and delivery of core functionalities by the specified deadline, providing a robust tool for data-driven real estate analysis.

1.2 Purpose

The fundamental purpose of this project is to address a significant gap in the real estate sector: the absence of readily accessible, clear, and consolidated insights necessary for informed decision-making. Currently, real estate professionals, prospective homebuyers, and astute investors often face challenges in making optimal choices due to the fragmented and complex nature of market data. This project directly confronts these challenges by providing a solution that visually simplifies complex datasets. Specifically, it aims to empower users to:

1. **Identify Value Drivers:** Clearly see how specific property features contribute to or detract from market value.
2. **Optimize Timing:** Understand cyclical and historical market behaviors to determine the most advantageous times for transactions.
3. **Explore Geographically:** Gain insights into regional price variations and sales activities to pinpoint desirable or emerging areas.

2. IDEATION PHASE

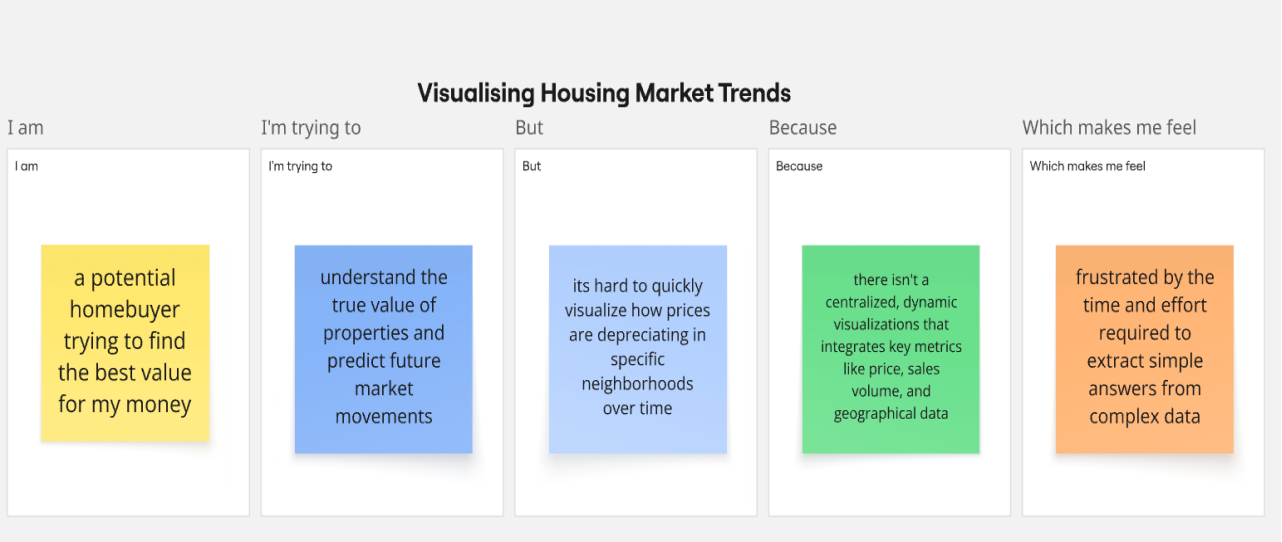
2.1 Define the Problem Statements

Date	16 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	4 Marks

Problem Statement Template:

A problem statement is a concise description of an issue or challenge that needs to be addressed. It clarifies the gap between the current state and the desired future state, outlining what is wrong, why it matters, and what needs to be done to fix it. It focuses on identifying the problem, not necessarily providing a solution.

A problem statement serves as a foundational element in various domains, acting as a concise and explicit articulation of an issue that necessitates resolution. It essentially answers the critical questions of "what" and "why" regarding a particular challenge, setting the stage for focused problem-solving efforts. This crucial document typically outlines the current undesirable situation, identifies the individuals or groups affected by it, specifies the context or environment where the problem manifests, and indicates the time or frequency of its occurrence. Most importantly, it elucidates the negative consequences or the impact of the problem if left unaddressed, thereby establishing the imperative for its resolution.



2.2 Empathy Map Canvas

Empathize & Discover

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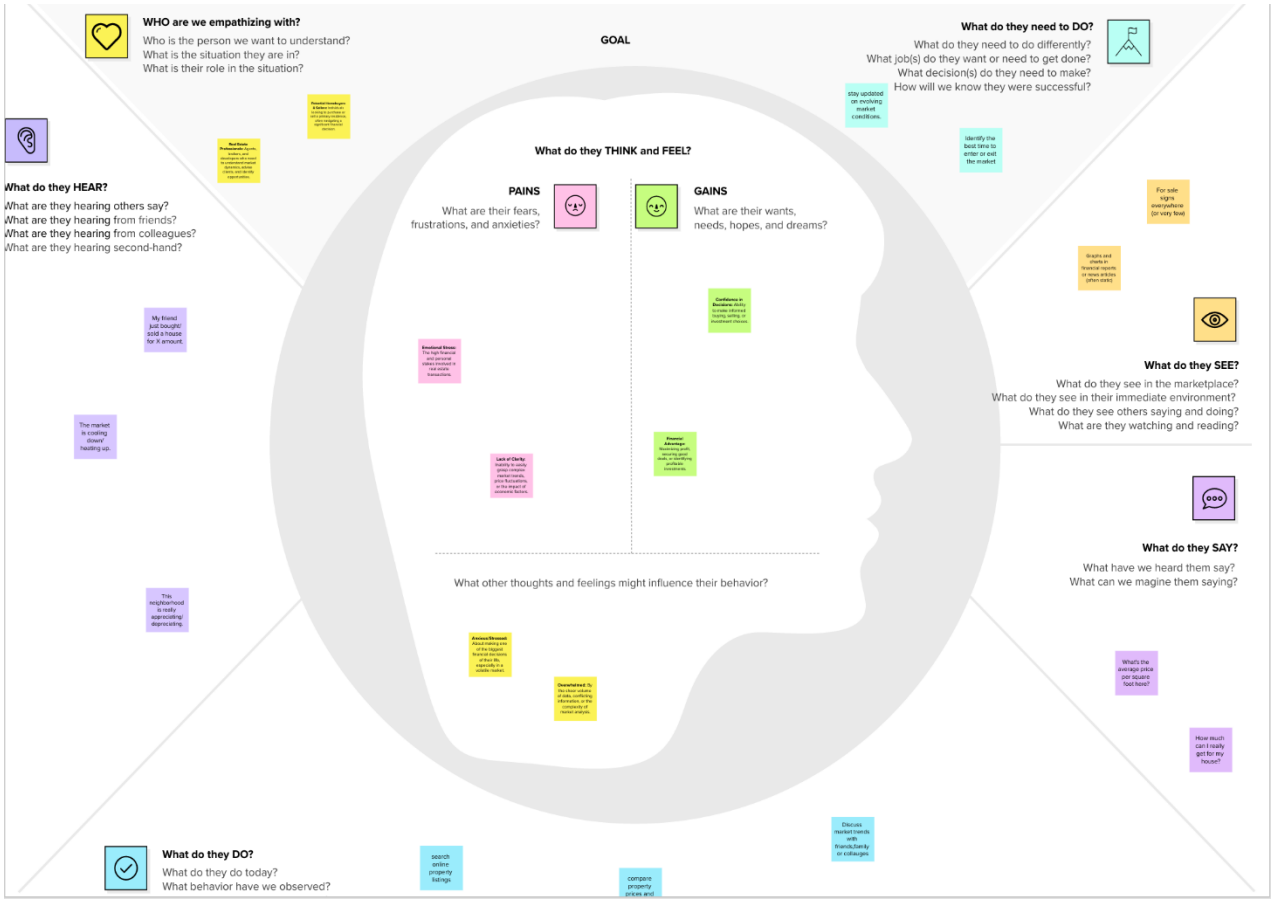
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to helps teams better understand their users.

Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.



2.3 Brainstorming

Date	16 June 2025
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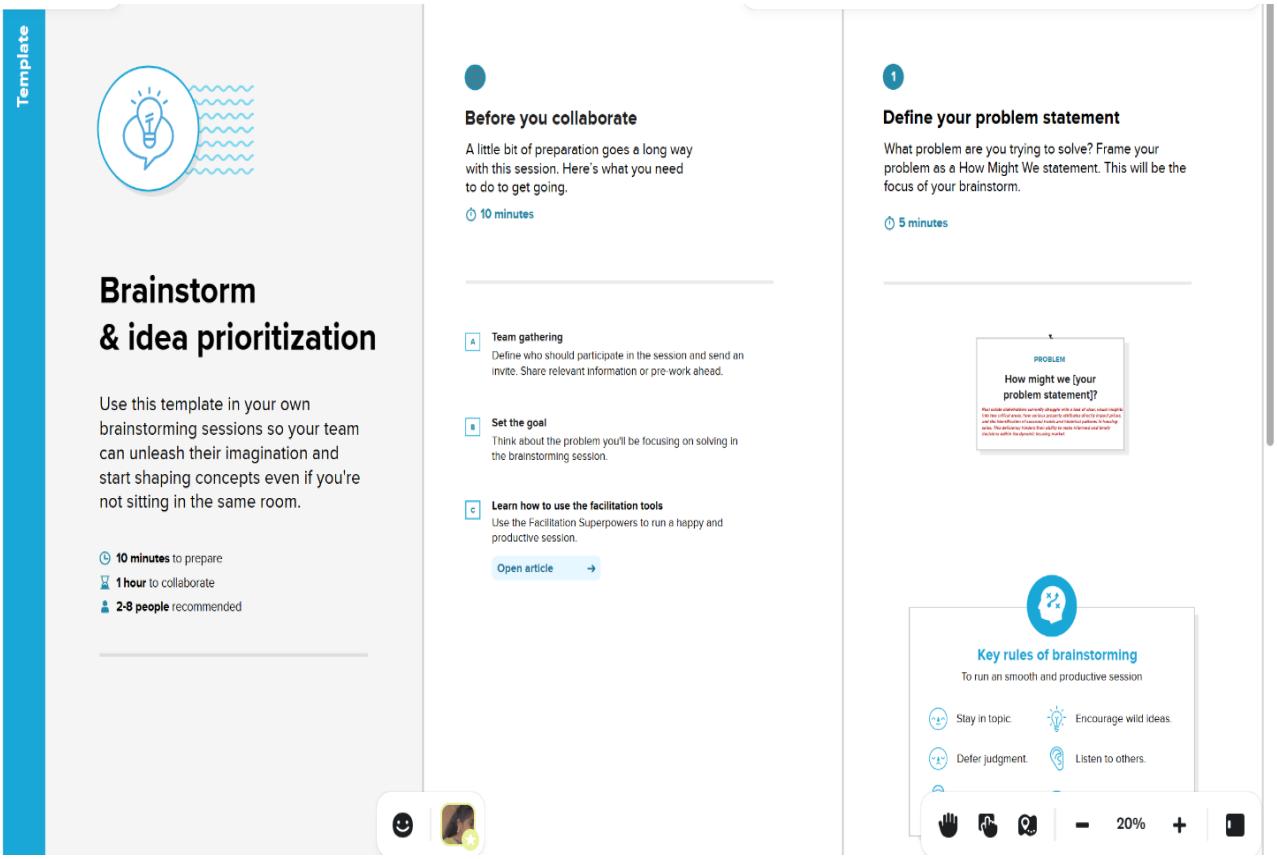
Maximum Marks	4 Marks

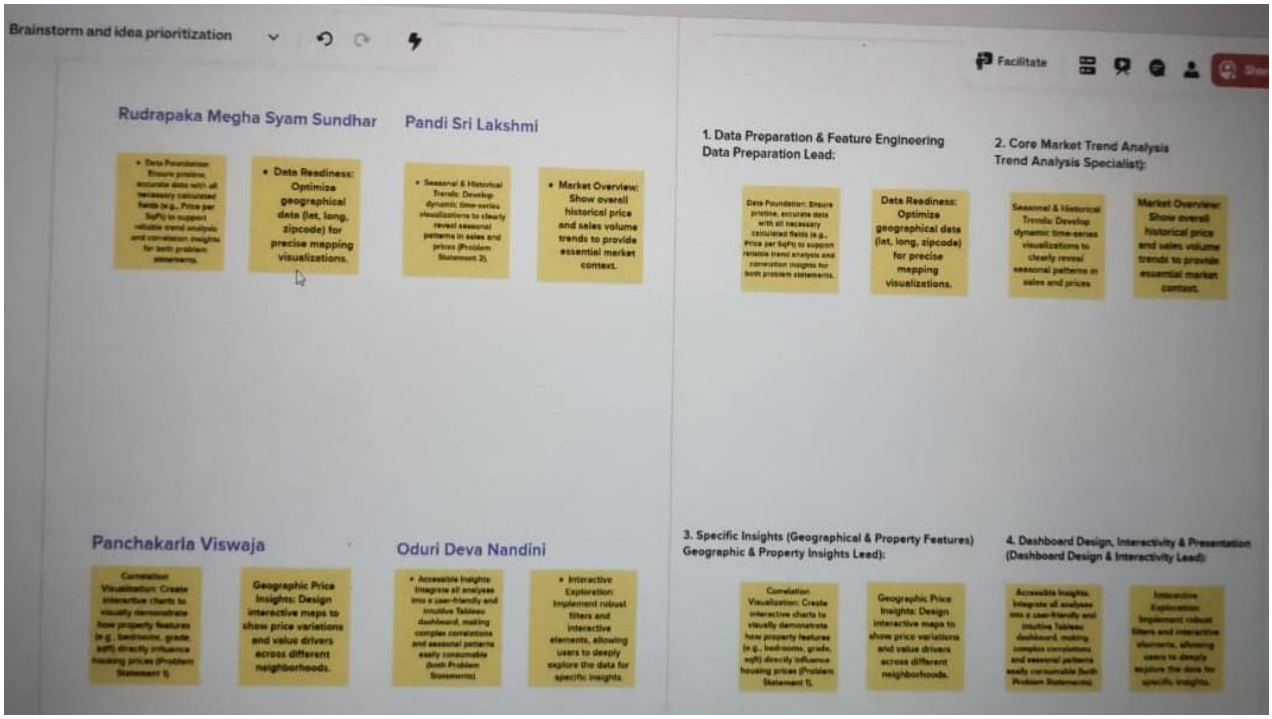
Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

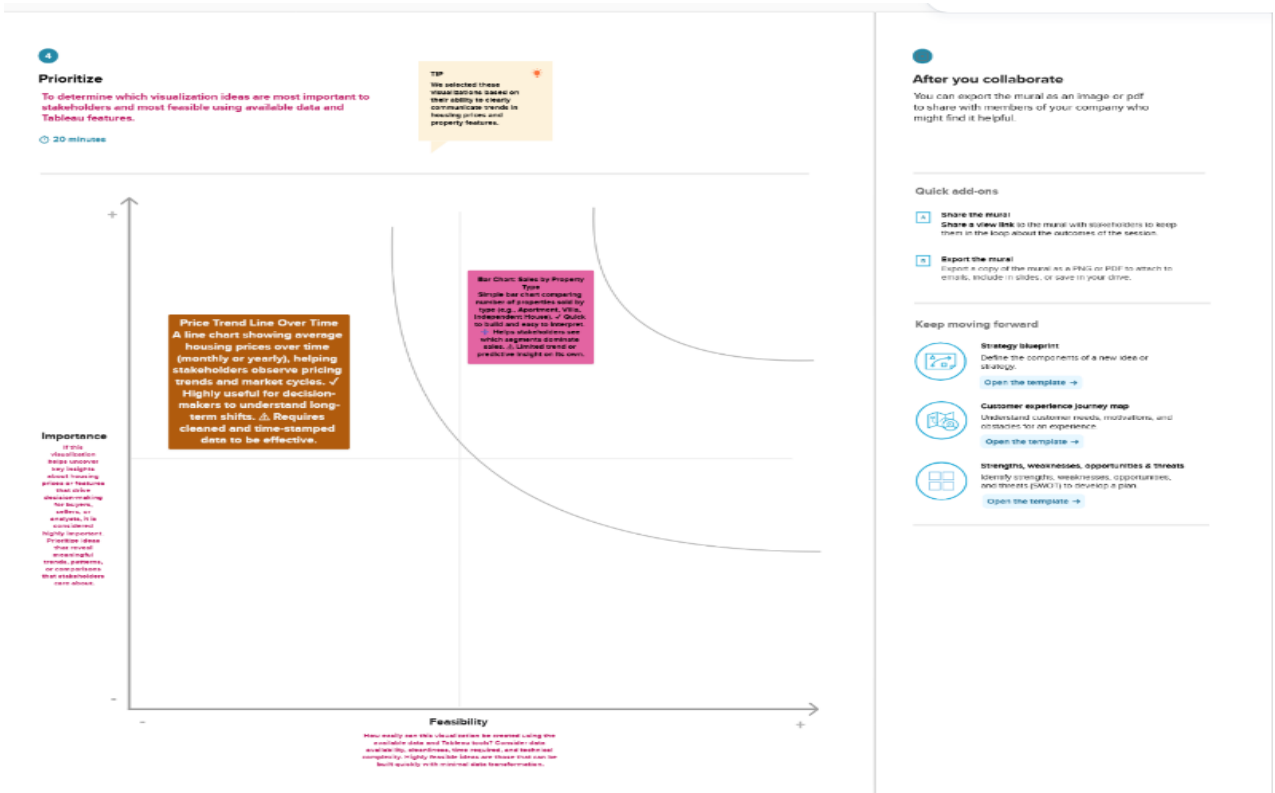
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping

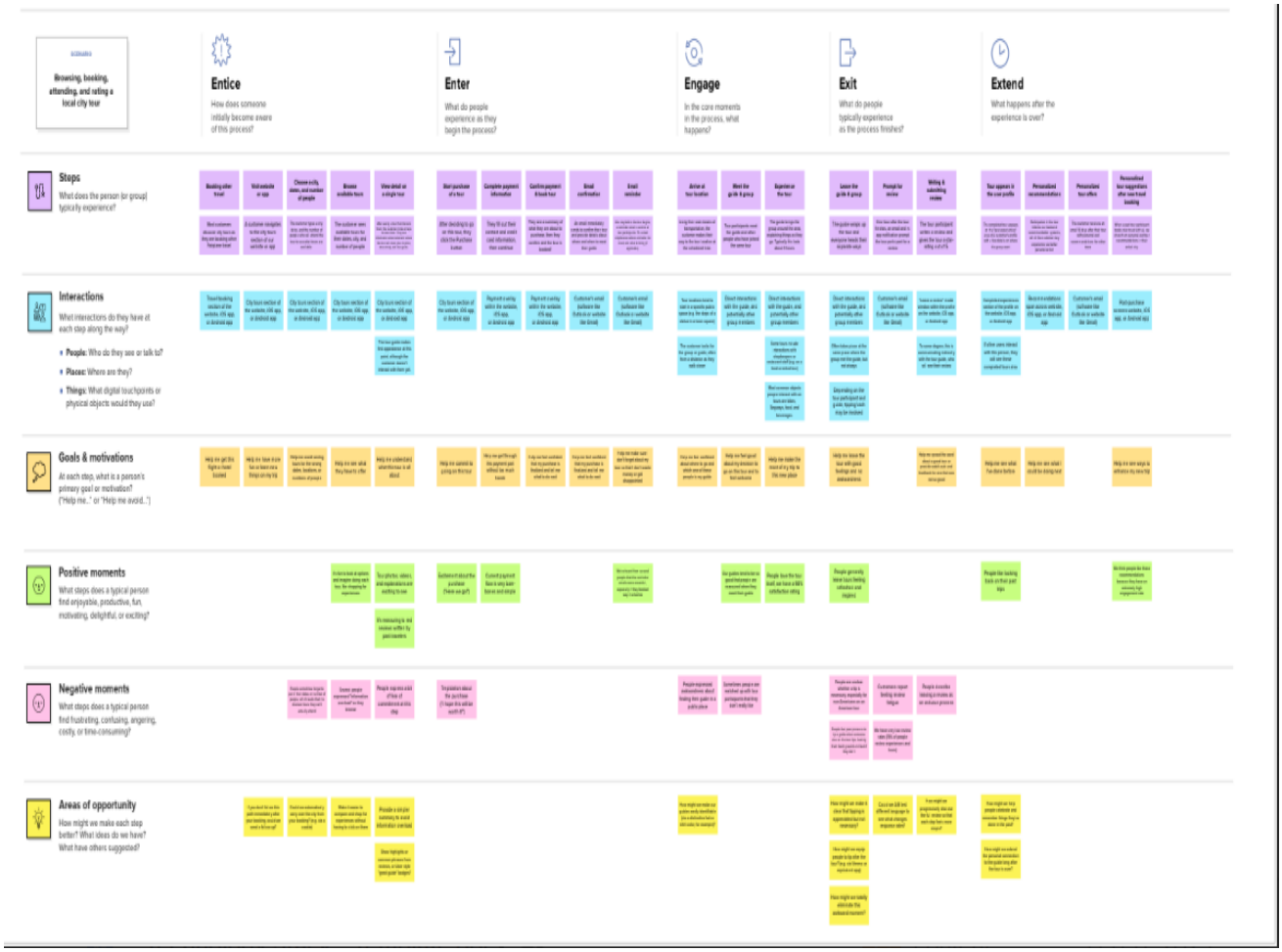


Step-3: Idea Prioritization



3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map



3.2 Solution Requirement

Date	17 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
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 Cleaning and Preparation	▪ Handle missing values in key analytical column ▪ Remove duplicate records from the dataset. ▪ Create necessary calculated fields
FR-2	Display Core Market Trends	▪ Visualize historical average sale prices over time using **Line Charts**. ▪ Visualize total sales volume over time using **Line Charts.** ▪ Show trends in median price per square foot using **Line/Area Charts**. ▪ Highlight seasonal patterns in sales and prices using **Line/Area Charts or Comparison Charts.**
FR-3	Enable Geographic Market Analysis	▪ Display average sale prices on an interactive **Map Visualization** by zip region. ▪ Visualize sales volume on an interactive **Map Visualization** by zip code/region. ▪ Allow users to select and filter data by specific geographical areas. ▪ Highlight areas of high vs. low appreciation or sales activity on the map.
FR-4	Provide Property-Specific Insights	▪ Compare average prices across different numbers of bedrooms/bathrooms using **Bar Charts.**

		▪ Analyze price distribution based on living square footage using **Histograms or Box Plots.** ▪ Show the impact of property attributes on price using **Bar Charts or Scatter Plots**. ▪ Analyze average 'Days on Market' (if derivable) by property type or location using **Bar Charts**.
FR-5	Allow User Interaction and Filtering	▪ Implement dynamic date range filters. ▪ Provide filters for specific property characteristics.
FR-6	Dashboard Creation	▪ Integrate multiple related visualizations into a single, cohesive dashboard layout.
FR-7	Story Creation	▪ Develop a narrative flow using a sequence of interactive story points. ▪ Highlight key insights and trends from various visualizations within the story. ▪ Provide context and explanations for the data points and trends presented in each story point.

- **Non-functional Requirements:**

Following are the non-functional requirements of the proposed solution.

FR No.	**Non-Functional Requirement**	**Description**
NFR-1	Usability	The dashboard must be intuitive and easy to navigate for all users.
NFR-2	Security	Ensure secure access and data integrity for the dashboard and its data.
NFR-3	Reliability	The dashboard must consistently display accurate data and function without errors.
NFR-4	Performance	The dashboard should load quickly and respond rapidly to user interactions.

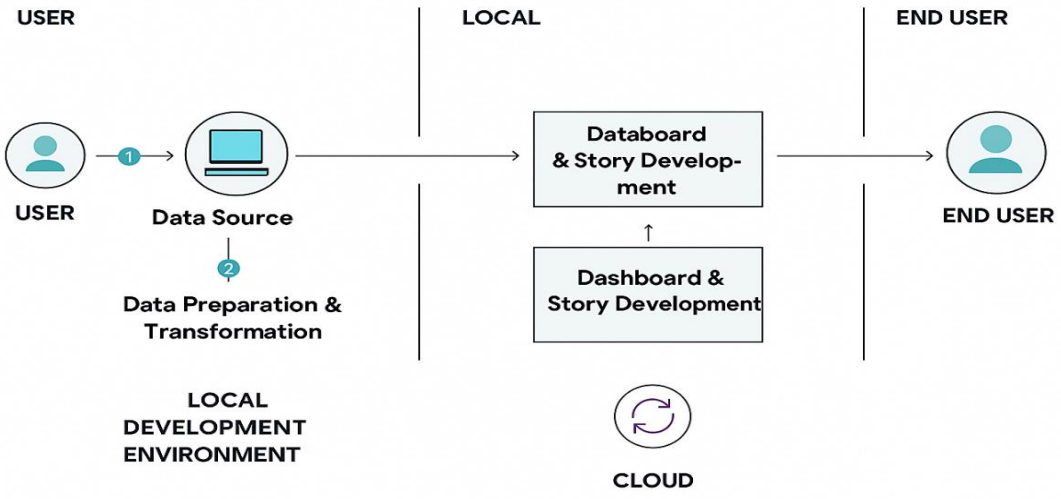
NFR-5	Availability	The dashboard must be consistently accessible to authorized users during operational hours.
NFR-6	Scalability	The solution should handle increased data volume and user load efficiently.

3.3 Data Flow Diagram

Date	17 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	4 Marks

3.3.1 Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



3.3.2 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story/Task	Acceptance criteria	Priority	Release
Data Analyst	Data Acquisition, Cleaning & Preparation	USN-1	As a data analyst, I need to clean the raw housing sales data so that it is accurate and consistent for analysis.	All specified missing values are handled. All columns have correct data types. Duplicate records are removed.	High	Sprint-1
Data Analyst	Data Acquisition, Cleaning & Preparation	USN-2	As a data analyst, I need to create calculated fields like 'Price per Square Foot' so that I can derive additional insights for analysis	'Price per Square Foot' is accurately calculated. Other necessary calculated fields are present and correct.	High	Sprint-1
Potential Homebuyer	Comprehensive Market Trend & Value Analysis	USN-3	As a potential buyer, I want to see historical average sale prices over time so I can understand overall market trends.	A line chart displays monthly/quarterly average sale prices. The chart is clearly labeled and easy to read.	High	Sprint-1
Real Estate Professional	Comprehensive Market Trend & Value Analysis	USN-4	As a real estate professional, I want to identify seasonal patterns in sales so I can advise clients on optimal buying/selling times.	Seasonal peaks and troughs in sales volume are clearly visible on charts. Comparison charts show year-over-year seasonal trends.	High	Sprint-1
Real Estate investors	Comprehensive Market Trend & Value Analysis	USN-5	As an investor, I want to understand how different	Bar charts/scatter plots visualize the relationship between features and price.	Medium	Sprint-2

			property features (e.g., bedrooms, sqft, grade) influence price so I can identify value drivers.	Correlations are visually evident.		
Potential Homebuyer	Interactive Geographic Market Exploration	USN-6	As a potential homebuyer, I want to see average housing prices on a map so I can identify affordable or high-value neighbourhoods	An interactive map displays average prices by zip code/region. The map is color-coded for easy interpretation.	High	Sprint-1
Real Estate Professional	Interactive Geographic Market Exploration	USN-7	As an agent, I want to visualize sales volume by region on a map so I can identify active markets for targeted marketing.	A map shows sales volume density by zip code/region. The map allows selection of specific areas.	Medium	Sprint-2
Potential Homebuyer	Interactive Dashboard Development	USN-8	As a user, I want to filter data by date range (e.g., year, quarter) so I can focus on specific periods of market activity.	Date range filters are present and functional. Visualizations update dynamically based on filter selections.	High	Sprint-1
Real Estate investors	Interactive Dashboard Development	USN-9	As a user, I want to interact with charts (e.g., click on a bar) to filter related data so I can explore details seamlessly.	Cross-filtering works across all relevant visualizations. Selections clearly highlight relevant data points.	High	Sprint-2

Real Estate Professional		USN-10	As a user, I want the dashboard to be logically organized and easy to navigate so I can quickly find the information I need.	Dashboard layout is clean and uncluttered. All components are clearly labled and intuitive.	High	Sprint-1
Real Estate Professional	Narrative Storytelling and Key Insights Presentation	USN-11	As a presenter, I want to guide my audience through key market trends and findings so I can effectively communicate project insights.	A Tableau Story is created with sequential points. Each story point highlights a distinct insight or trend.	Medium	Sprint-2
Real Estate Professional	Narrative Storytelling and Key Insights Presentation	USN-12	As an audience member, I want to understand the context and implications of the presented data so I can grasp the full meaning of the trends.	Each story point includes clear textual explanations and annotations. The story effectively conveys actionable insights.	Medium	Sprint-2

3.4 Technology Stack

Date	17 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	4 Marks

3.4.1 Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

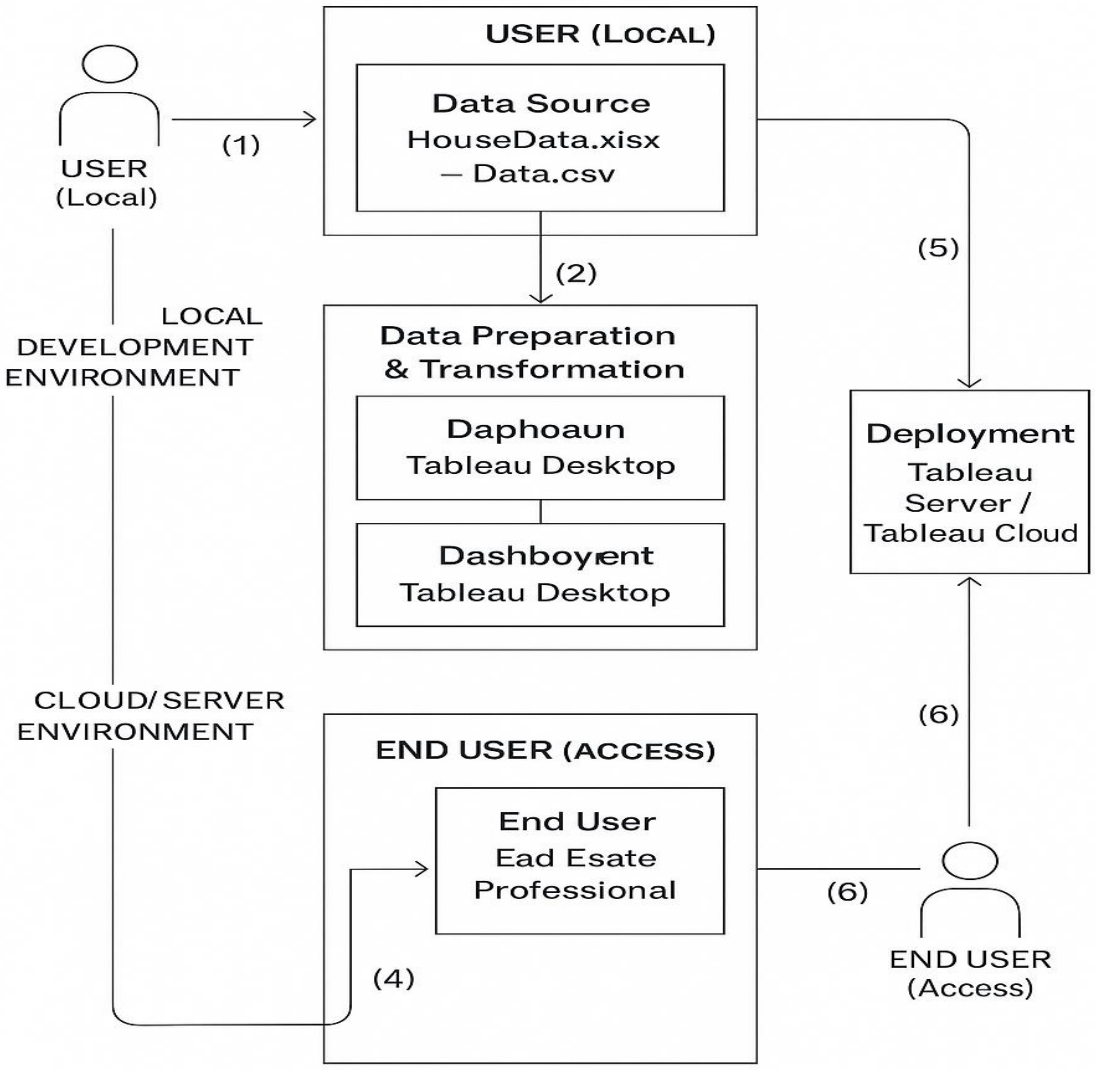


Table1: Components & Technologies

S.NO.	Component	Description	Technology
1.	User Interface	How users interact with the solution.	Tableau Dashboard / Story
2.	Application Logic-1	Core data processing and calculations.	Tableau Desktop
3.	Application Logic-2	Data preparation	Tableau prep
4.	Application Logic-3	analytics/scripting.	Integration within Tableau
5.	Database	Where primary data is stored.	Local CSV File(s) / Tableau Data Extracts
6.	Cloud Database	Cloud-based data storage (if used).	N/A (Not applicable for current CSV source)
7.	File Storage	Storage for source files.	Local File system
8.	External API-1	Any external data integrations.	None
9.	External API-2	Additional external integrations.	None
10.	Machine Learning Model	Any ML models utilized.	None
11.	Infrastructure	Environment for development and deployment.	Tableau Desktop / Tableau Public / Tableau Server / Tableau Cloud

Table-2: Application Characteristics

S.NO.	Characteristics	Short Description	Technology
1.	Open-Source Frameworks	Used for data cleaning and extended analysis.	Tableau prep
2.	Security Implementations	Secure user access, roles, and data integrity.	Tableau Server/Cloud Security (Auth, RBAC, RLS)
3.	Scalable Architecture	Designed to handle growing data and users.	Tableau Server/Cloud (Multi-node, Hyper)
4.	Availability	Ensures dashboard is consistently accessible.	Tableau Server/Cloud HA**,** Scheduled Refreshes
5.		Fast loading and responsive interactions.	Tableau Optimizations (Hyper, efficient design, server resources)

4. PROJECT DESIGN

4.1 Problem Solution Fit

Date	18 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	2 Marks

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioural patterns and recognize what would work and why.

Purpose:

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behaviour.
- Sharpen your communication and marketing strategy with the right triggers and messaging.
- Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- Understand the existing situation in order to improve it for your target group.

Template:

4.2 Proposed Solution

Date	18 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Lack of clear visual correlations for property pricing factors (e.g., bedrooms, area, condition). Difficulty identifying and understanding seasonal patterns in housing sales and prices.
2	Idea / Solution description	An interactive Tableau Dashboard and Story. It visually analyzes housing sales data to reveal market trends, price influencing factors, and seasonal patterns, offering dynamic exploration.
3	Novelty / Uniqueness	Provides a unified, highly interactive visual platform for comprehensive market analysis. Directly addresses specific visual correlation and seasonal pattern identification gaps in existing fragmented tools.
4	Social Impact / Customer Satisfaction	Empowers real estate professionals, homebuyers, and investors with data-driven insights, leading to more informed and confident decisions. Reduces uncertainty and improves efficiency in real estate transactions.
5	Business Model (Revenue Model)	Primarily an analytical tool for internal use or open access. Value is generated through increased efficiency, better strategic planning, and improved decision-making for stakeholders rather than direct revenue.
6	Scalability of the Solution	Leverages Tableau's robust architecture for multi-node deployments and large data volumes (Hyper extracts). Can be scaled by adding more server resources or distributing processes.

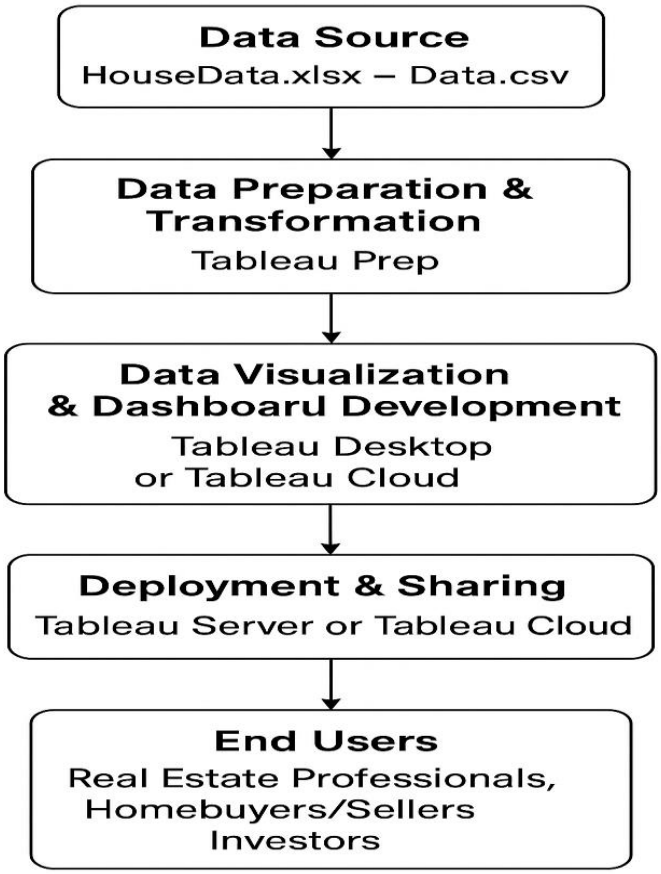
4.3 Solution Architecture

Date	19 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	5 Marks

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behaviour, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Solution Architecture Diagram:



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Date	19 June 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	5 Marks

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

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Acquisition, Cleaning & Preparation	USN-1	As a data analyst, I need to clean the raw housing sales data so that it is accurate and consistent for analysis.	3	High	Data analyst
Sprint-1	Data Acquisition, Cleaning & Preparation	USN-2	As a data analyst, I need to create calculated fields like 'Price per Square Foot' so that I can derive additional insights for analysis.	1	High	Data analyst
Sprint-1	Comprehensive Market Trend & Value Analysis	USN-3	As a potential buyer, I want to see historical average sale prices over time so I can understand overall market trends.	3	High	Trend Analysis Specialist
Sprint-1	Comprehensive Market Trend & Value Analysis	USN-4	As a real estate professional, I want to identify seasonal patterns in sales so I can advise clients on optimal buying/selling times.	3	High	Trend Analysis Specialist
Sprint-1	Interactive Geographic	USN-6	As a potential homebuyer, I want	4	High	Geographic Insights Lead

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
	Market Exploration		to see average housing prices on a map so I can identify affordable or high-value neighbourhoods.			
Sprint-1	Interactive Dashboard Development	USN-8	As a user, I want to filter data by date range (e.g., year, quarter) so I can focus As a user, I want the dashboard to be logically organized and easy to navigate so I can quickly find the information I need.	2	High	Dashboard Design Lead
Sprint-1	Interactive Dashboard Development	USN-10	As a user, I want the dashboard to be logically organized and easy to navigate so I can quickly find the information I need.	2	High	Dashboard Design Lead
Total Sprint-1 Story Points:	**19**					
Sprint-2	Comprehensive Market Trend & Value Analysis	USN-5	As an investor, I want to understand how different property features (e.g., bedrooms, sqft, grade) influence price so I can identify value drivers.	4	Medium	Geographic Insights Lead
Sprint-2	Interactive Geographic Market Exploration	USN-7	As an agent, I want to visualize sales volume by region on a map so I can identify active markets for targeted marketing.	3	Medium	Geographic Insights Lead

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2	Interactive Dashboard Development	USN-9	As a user, I want to interact with charts (e.g., click on a bar) to filter related data so I can explore details seamlessly.	3	Medium	Dashboard Design Lead
Sprint-2	Narrative Storytelling and Key Insights Presentation	USN-11	As a presenter, I want to guide my audience through key market trends and findings so I can effectively communicate project insights.	2	Medium	Dashboard Design Lead
Sprint-2	Narrative Storytelling and Key Insights Presentation	USN-12	As an audience member, I want to understand the context and implications of the presented data so I can grasp the full meaning of the trends.	2	Medium	Dashboard Design Lead
Total Sprint-2 Story Points:	14					

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	19	8 Days	16 Jun 2025	23 Jun 2025	19	23 Jun 2025
Sprint-2	14	7 Days	24 Jun 2025	05 Nov 2022		
Total Project Story Points (Planned):	33					

Velocity:

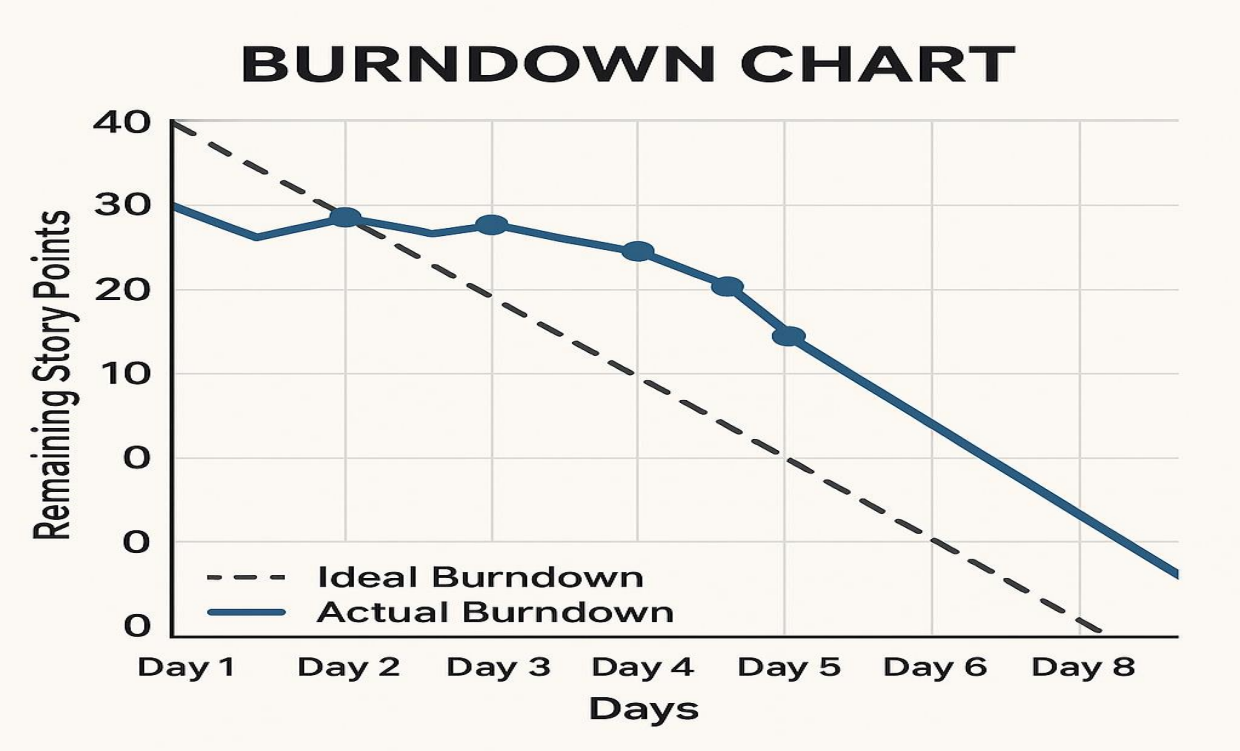
Average Velocity (per Day for the Entire Team - Planned):

Total Story Points / Total Project Days = 33 Story Points / 15 Days =

2.2 Story Points per Day

Burndown Chart:

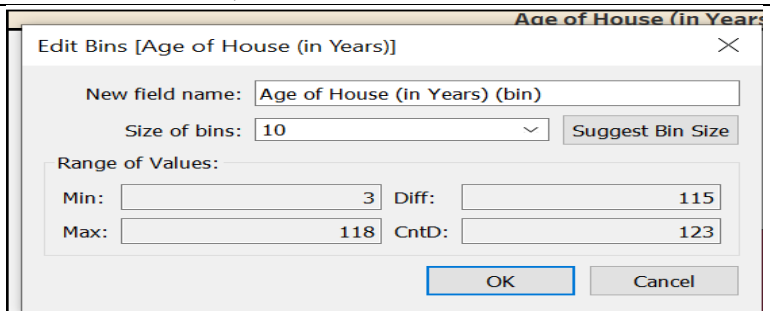
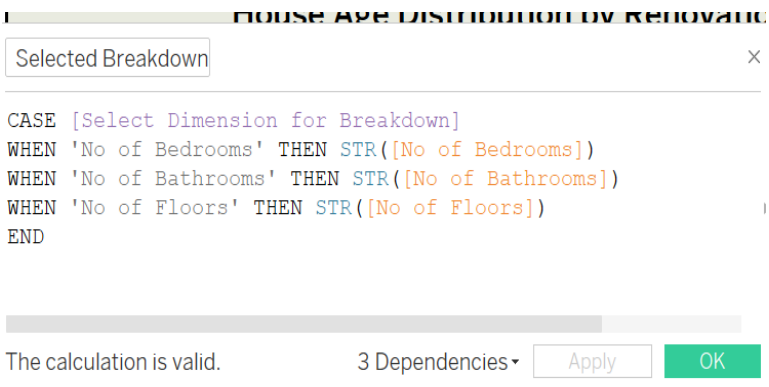
A burn down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

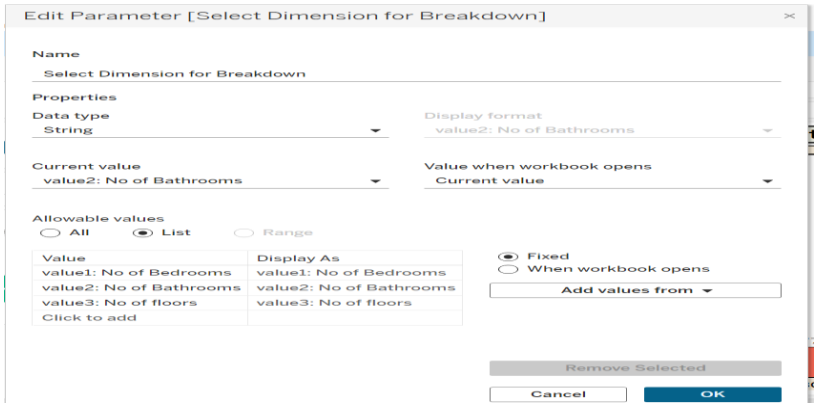
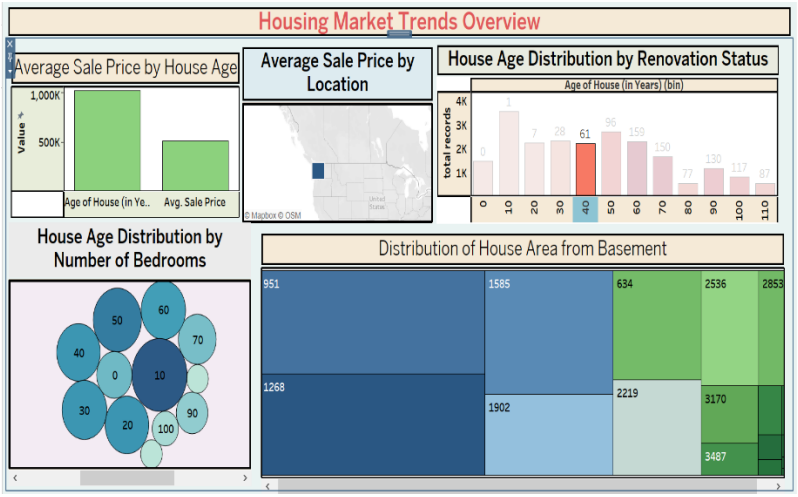


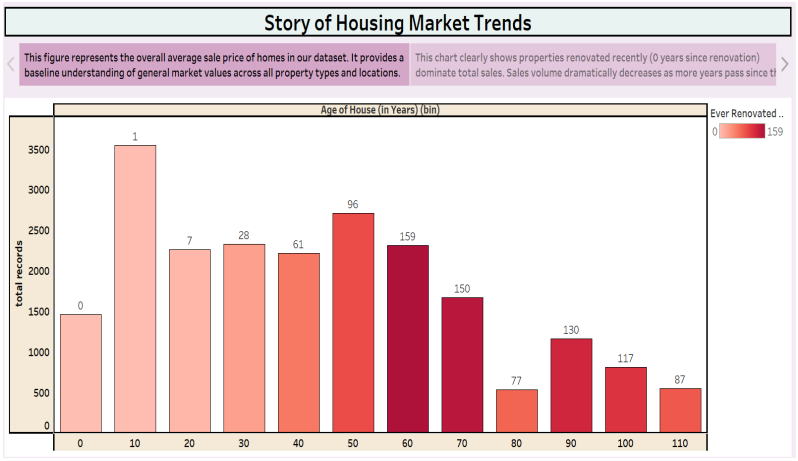
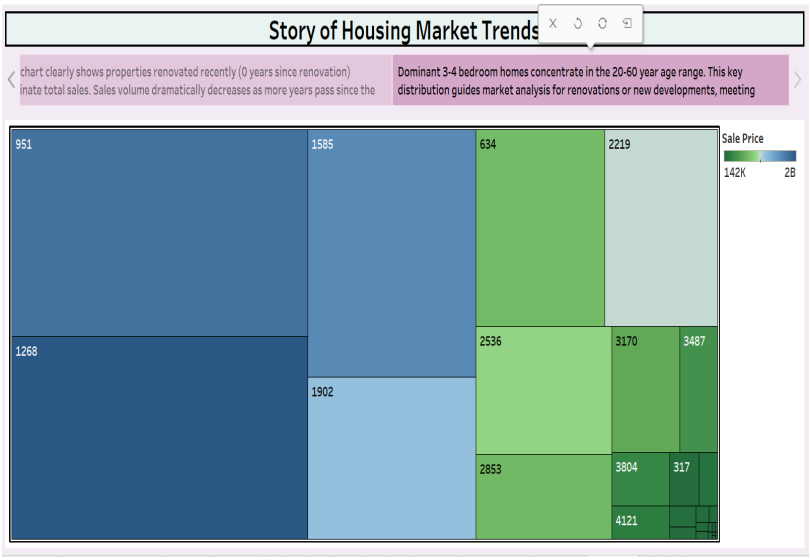
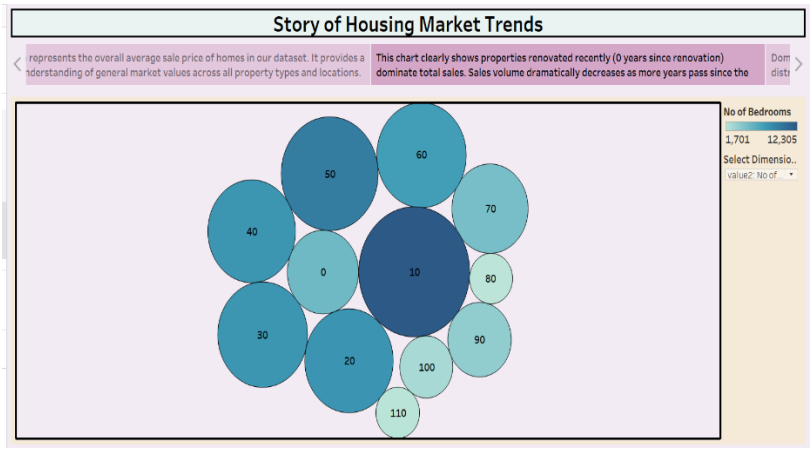
6. FUNCTIONAL AND PERFORMANCE TESTING

Date	10 February 2025
Team ID	LTVIP2025TMID51556
Project Name	Visualizing Housing Market Trends: An Analysis of Sales
Maximum Marks	

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

S.No.	Parameter	Screenshot / Values
	Data Rendered	The cleaned dataset, containing 21,598 records after initial processing and duplicate removal. This dataset is the sole source for all visualizations.
	Data Preprocessing	• **Duplicate Removal:** Identical rows (11 duplicates) were identified and removed, ensuring unique records for analysis. • **Outlier Treatment:** Outliers in Sale_Price and Flat Area were handled to prevent skewing analysis. New insightful features like Age of House (in Years), Years Since Renovation, and Overall Grade were derived.
3.	Utilization of Filters	
4.	Calculation fields Used	

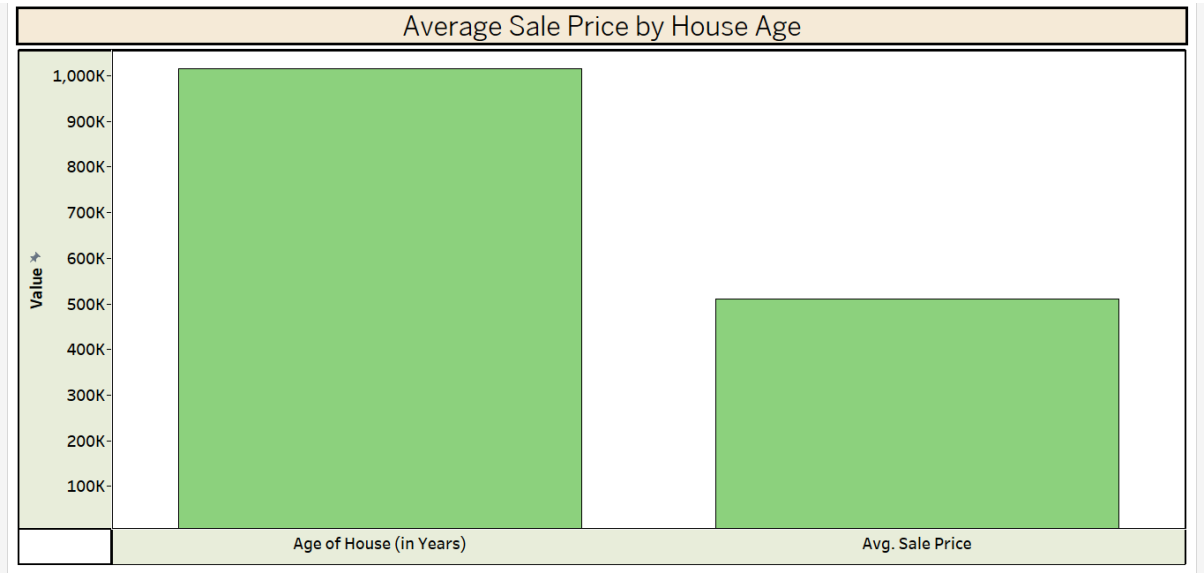
		
5.	Dashboard design	No of Visualizations / Graphs – 1 

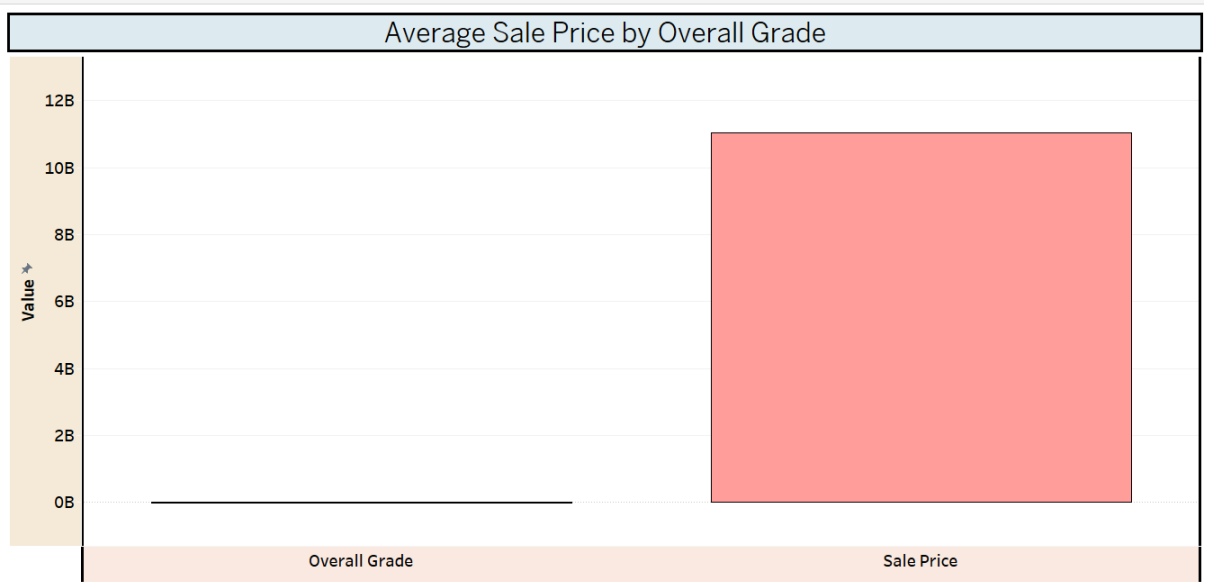
6	Story Design	No of Visualizations / Graphs – 3   

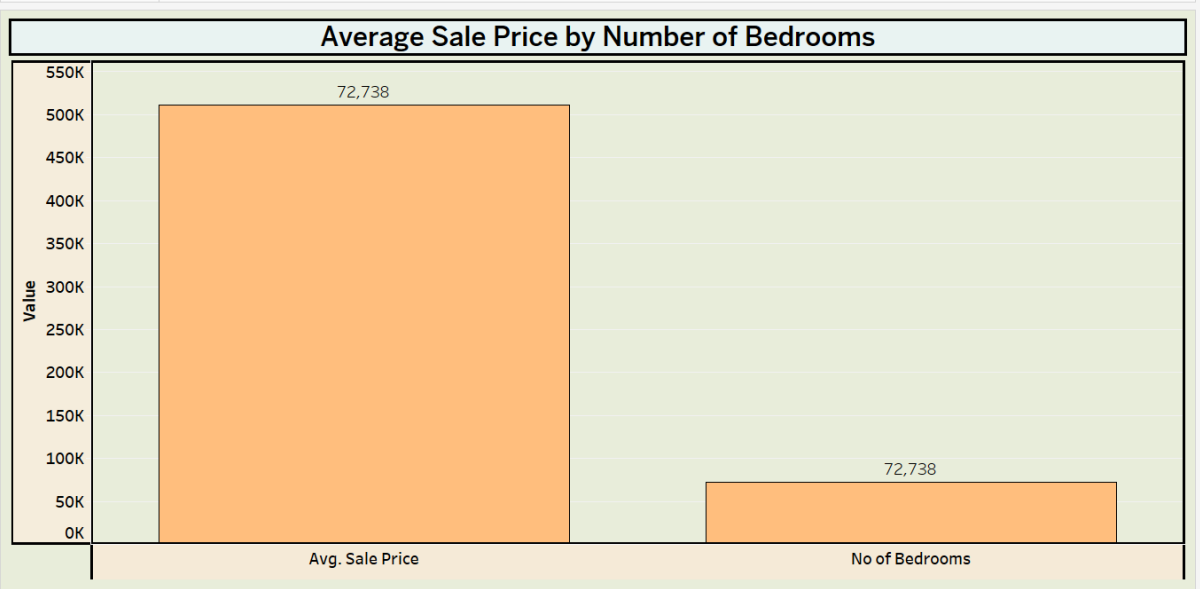
7. RESULTS

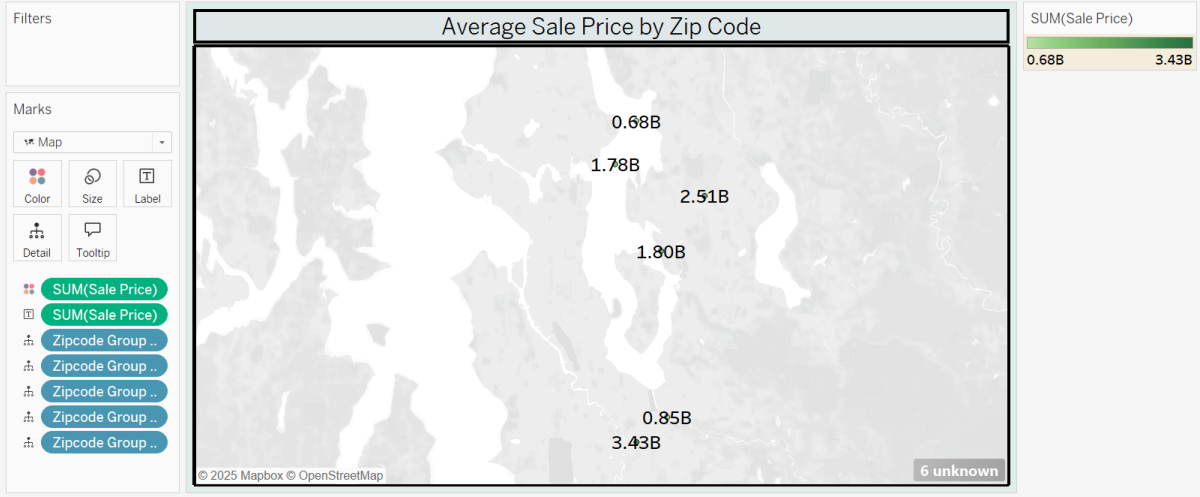
7.1 Output Screenshots

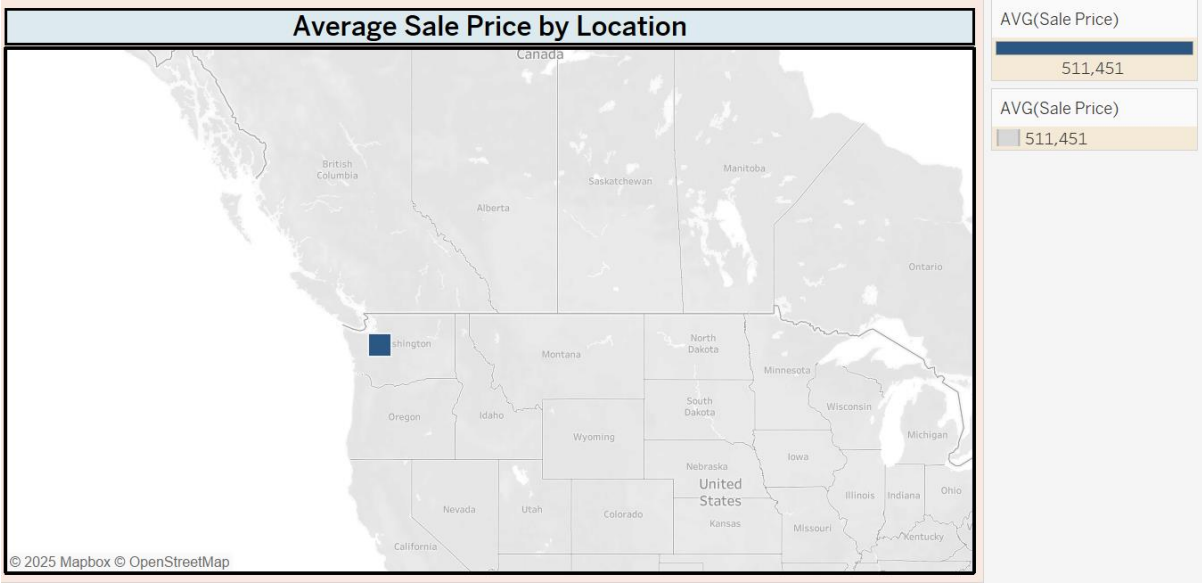
Screenshots of charts






Average Sale Price by Number of Bedrooms
550K
500K
450K
400K
350K
300K
250K
200K
150K
100K
50K
0K
Value
72,738
72,738
Avg. Sale Price
No of Bedrooms


Filters
Marks
Map
Color
Size
Label
Detail
Tooltip
SUM(Sale Price)
SUM(Sale Price)
Zipcode Group ..
Zipcode Group ..
Zipcode Group ..
Zipcode Group ..
Zipcode Group ..
Average Sale Price by Zip Code
0.68B
1.78B
2.51B
1.80B
0.85B
3.43B
© 2025 Mapbox © OpenStreetMap
6 unknown
SUM(Sale Price)
0.68B
3.43B


Average Sale Price by Location
Canada
British Columbia
Alberta
Saskatchewan
Manitoba
Ontario
Montana
North Dakota
Minnesota
Oregon
Idaho
Wyoming
South Dakota
Wisconsin
Michigan
Nebraska
Iowa
United States
Nevada
Utah
Colorado
Kansas
Missouri
Illinois
Indiana
Ohio
Kentucky
California
© 2025 Mapbox © OpenStreetMap
AVG(Sale Price)
511,451
AVG(Sale Price)
511,451

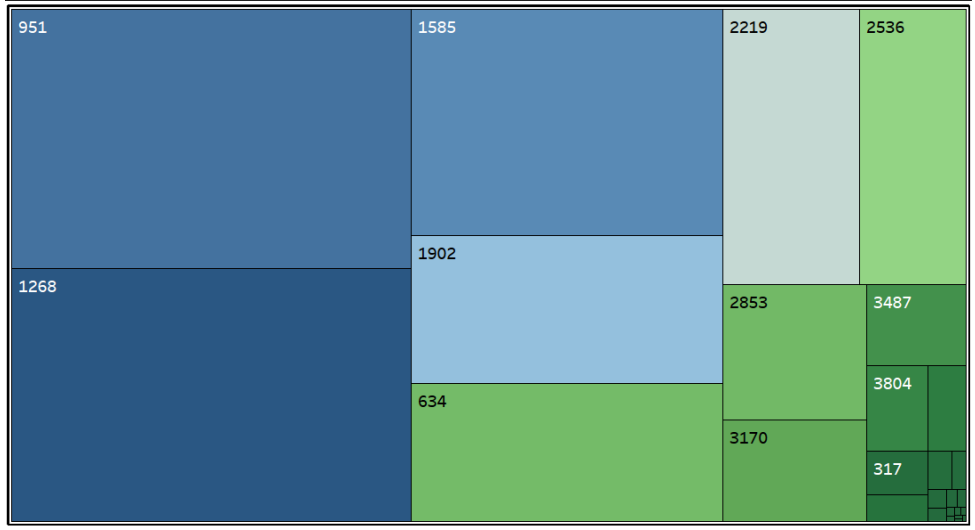
Total Number of Houses

count of transformed housing data	21,609

overall Average sales

AVG(Sale Price)	511541

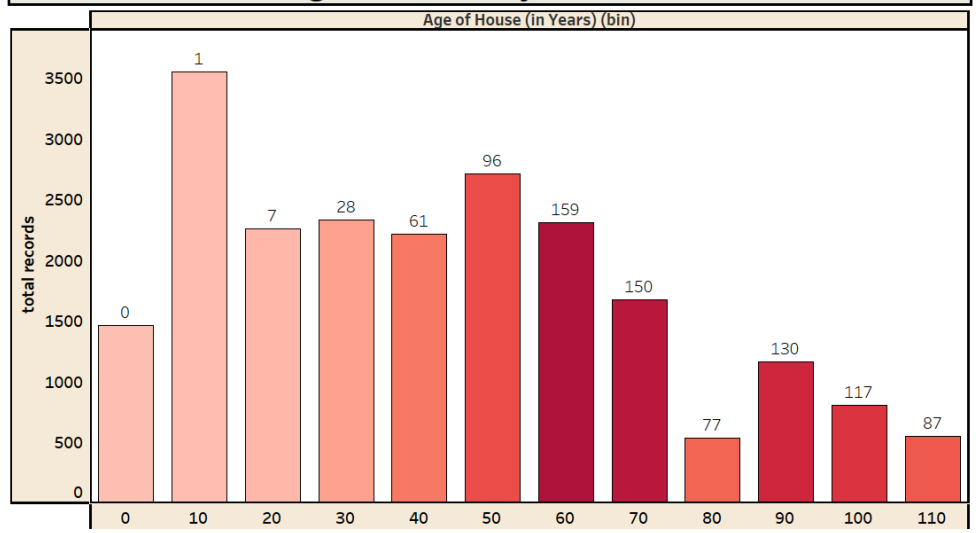
Distribution of House Area from Basement



SUM(Sale Price)

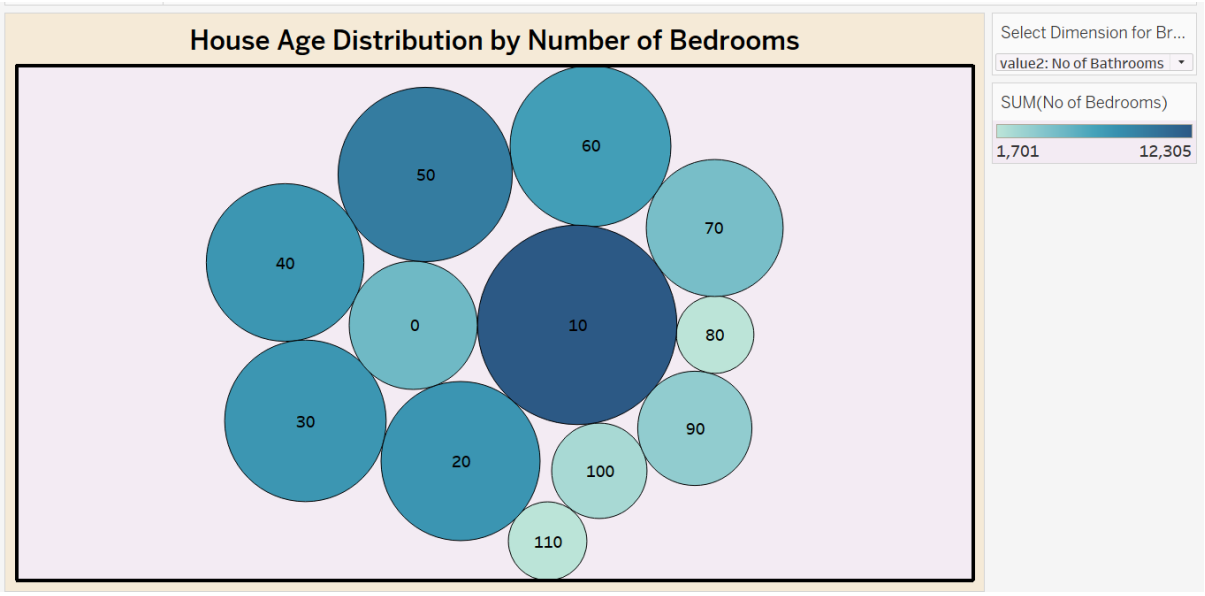
1,42,000 2B

House Age Distribution by Renovation Status

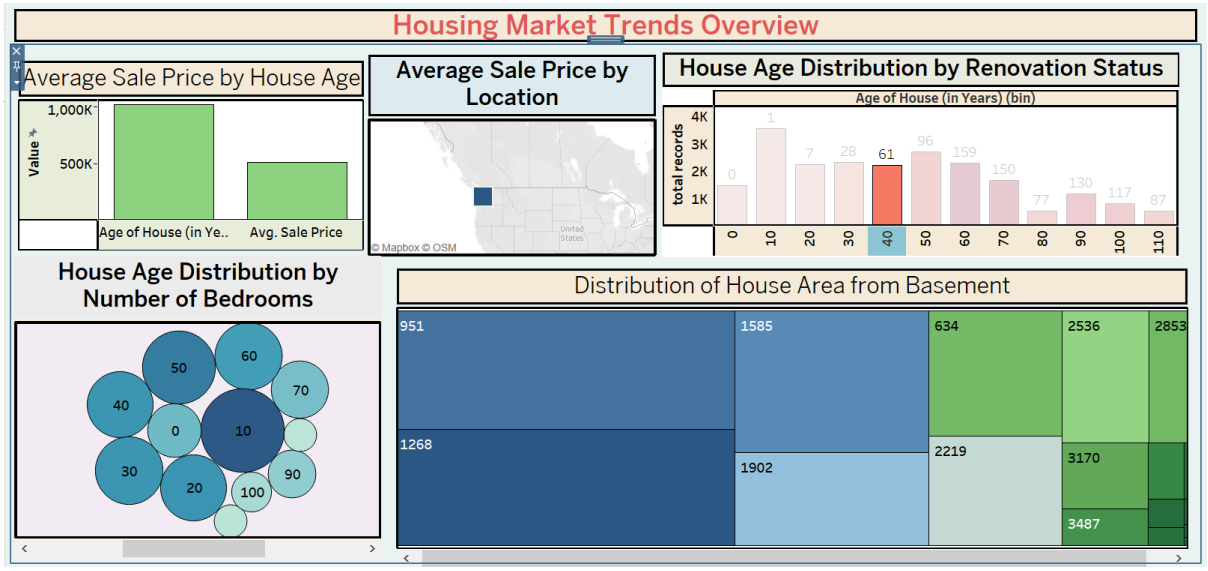


SUM(Ever Renovated Y...

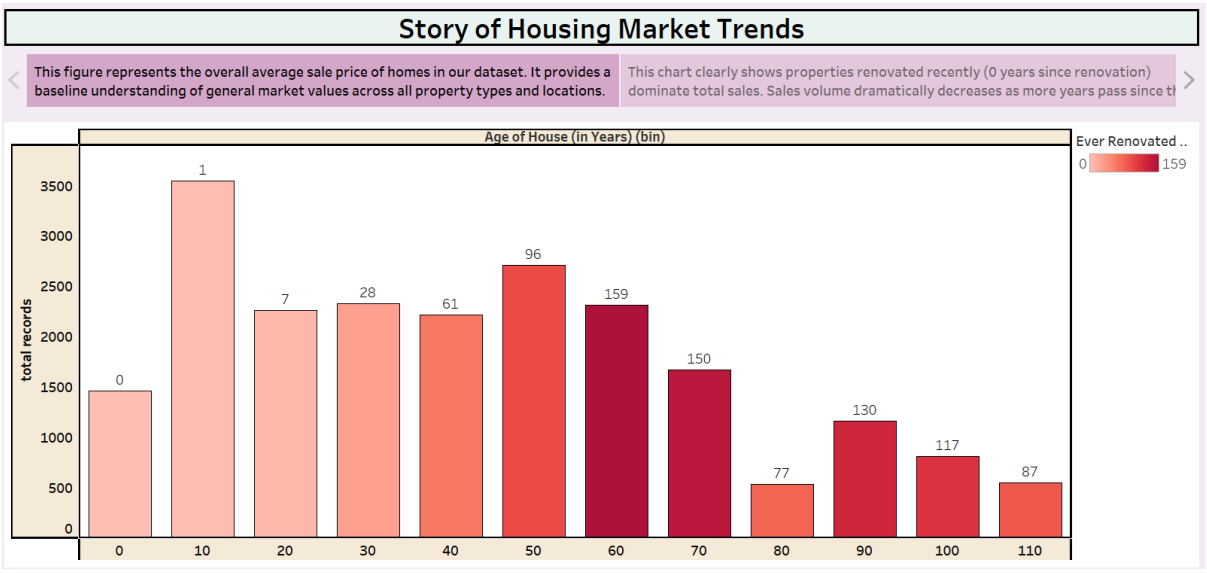
0 159

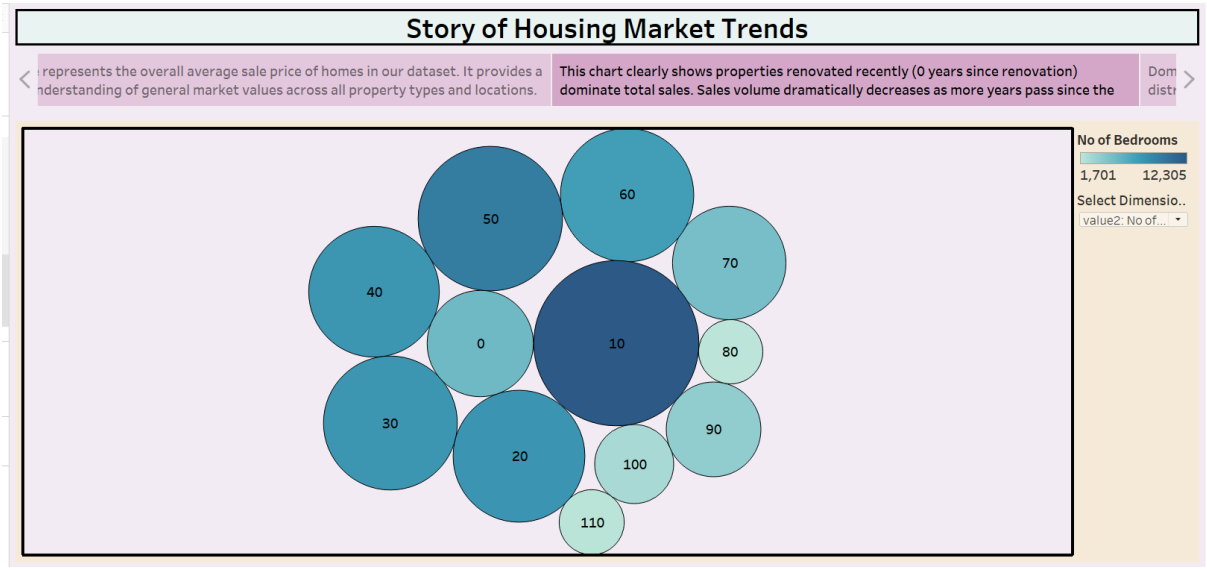


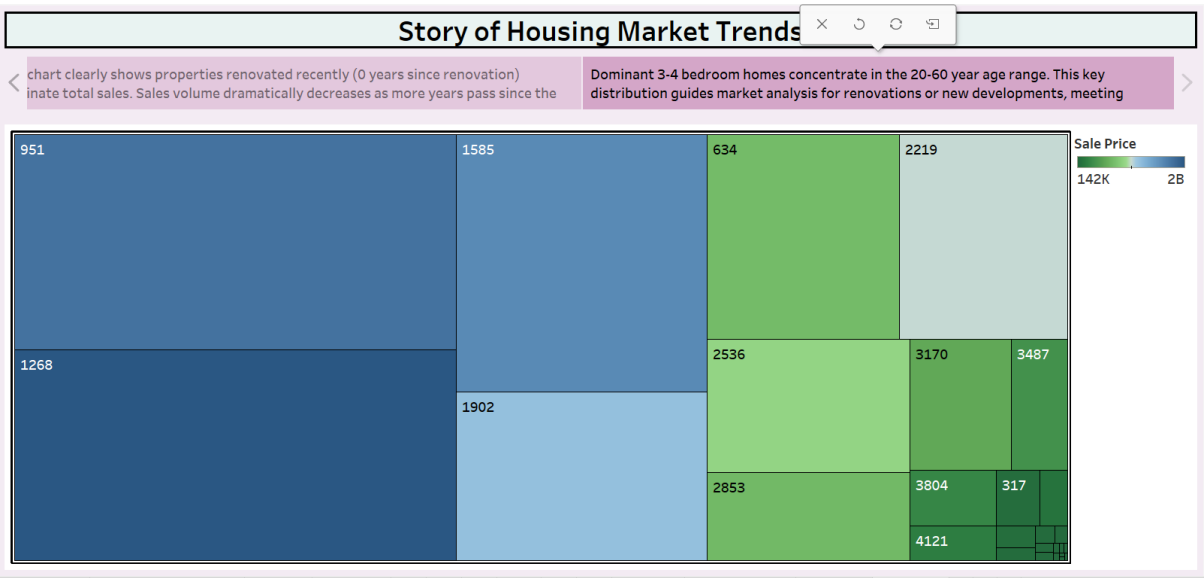
Screenshot of dashboard



Screenshots of story







Dashboard link

https://public.tableau.com/views/housingmarketdashboard/Dashboard1?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

Story link

https://public.tableau.com/views/housingmarketstory/Story2?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link

8. ADVANTAGES & DISADVANTAGES

Advantages

- **Enhanced Data Comprehension:** Visualizations transform raw data into clear insights, enabling quicker, deeper understanding of housing trends and relationships. This leads to better interpretation and analysis.
- **Interactive Exploration:** Tableau's filters and dashboard actions allow users to dynamically explore data segments, answer their own questions, and drill down into specific details effortlessly. This empowers user-driven analysis.
- **Improved Decision-Making:** By providing clear visual evidence of market trends and property impacts, the project offers a strong foundation for informed decisions by real estate professionals, buyers, and sellers. Data-driven choices are supported.
- **Effective Communication of Insights:** Complex data patterns are communicated clearly and engagingly to non-technical stakeholders through intuitive dashboards and a guided story. This fosters better collaboration and understanding.
- **Identification of Key Drivers:** The analysis highlights key factors influencing house prices and sales, such as age, bedrooms/bathrooms, and renovation status. These insights are crucial for strategic planning.

Disadvantages

- **Reliance on Data Quality:** The accuracy of insights directly depends on the input data's quality and completeness.
- **Descriptive, Not Predictive:** This project primarily performs descriptive analytics, showing past trends. It does not offer predictive capabilities like forecasting future house prices without integrating advanced modeling.
- **Tool Dependency & Cost:** Using professional visualization software like Tableau Desktop involves a learning curve and licensing costs. This can pose a barrier for smaller users or organizations.
- **Potential for Misinterpretation:** Despite efforts for clarity, complex charts or improper scaling can sometimes lead to misinterpretations by end-users. Careful design is essential to mitigate this risk.

9. CONCLUSION

In conclusion, this project successfully transformed raw housing data into actionable insights through robust preprocessing and interactive Tableau visualizations. We developed dynamic dashboards and a compelling story to reveal key market trends, such as the relationship between house age, renovations, property features, and sale prices. This comprehensive solution provides an intuitive tool for real estate professionals and stakeholders to make data-driven decisions based on historical trends.

10. FUTURE SCOPE.

The project's future scope involves advancing beyond descriptive analytics to include predictive analytics for sale price forecasting using machine learning. This also entails integrating external and real-time data sources for a more holistic market view. Furthermore, enhancing geospatial analysis and deploying the solution as a web application would improve accessibility and offer more dynamic, user-driven scenario analyses.

11. APPENDEX

Dataset link:

https://docs.google.com/document/d/1eYOrtRrod_f-ye7s7kOyZ0X3Lsne2cJzIgScDWdVDr4/edit?usp=drivesdk

Video demo link:

https://drive.google.com/file/d/1-pbsdiIT-5YMeKeQgf0qvEwKD2dop3i5/view?usp=drivesdk