Project Documentation

Visualizing Housing Market Trends

Project Title:

Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau

Objective:

The main goal of this project is to analyze and visualize key trends in the housing market using Tableau. This includes identifying how renovation, house age, and features like number of bedrooms and bathrooms impact sale prices. The insights support real estate analysts, marketers, and decision-makers in making informed business choices.

Tools Used:

- Tableau Public – For creating dashboards and stories

- Python Flask – For building the interactive web interface

- HTML/CSS – For designing the frontend

Dataset:

- **File Name:** housing_market_2000_records.csv

- **Records:** 2000 rows

- **Key Fields:**

  - SalePrice

  - YearsSinceRenovation

  - HouseAge

  - Bedrooms, Bathrooms, Floors

  - BasementArea

  - Renovated (Yes/No)

Project Flow:

1. Data Collection and Preparation

- Dataset loaded and inspected for missing/null values.

- Derived fields like HouseAge and YearsSinceRenovation were added.

- Cleaned dataset imported into Tableau.

2. Data Visualization in Tableau

Created and published the following visualizations:

1. Count of Records – Bar Chart (Measure)

2. Average Sale Price – KPI (Measure)

3. Basement Area – KPI (Measure)

4. Total Sales by Years Since Renovation – Histogram (Dimension: YearsSinceRenovation, Measure: SalePrice)

5. House Age by Renovation Status – Pie Chart (Dimension: Renovated, Measure: Count)

6. House Age Distribution by Number of Bedrooms, Bathrooms, and Floors – Grouped Bar Chart

3. Dashboard Development

- Integrated all six visualizations into a single dashboard.

- Filters added: Top N for Sale Price and House Age.

- Dashboard published to Tableau Public.

4. Story Creation

- Built a Tableau story with four scenes:

  1. Overview of dataset metrics

  2. Sale Price vs. Renovation

  3. House Age Trends

  4. Summary Insights

- Each scene provides narrative-driven visuals.

- Story published on Tableau Public.

5. Performance Optimization

- Optimized for fast loading using light dataset and appropriate filters.

- Minimal visual clutter to enhance readability.

6. Web Integration Using Flask

- Flask used to create a structured web application.

- Navigation includes:

  o Home: Project overview with CTA button

  o About: Project purpose and objectives

  o Dashboard: Embedded Tableau dashboard

  o Story: Embedded Tableau story

- CSS styling applied to enhance appearance and responsiveness.

- Background images aligned with each page theme.

Website Structure and Design:

Pages:

1. **Home Page**
   - Short intro and CTA button

2. **About Page**
   - Purpose and description of the project

3. **Dashboard Page**
   - Embedded Tableau dashboard

4. **Story Page**
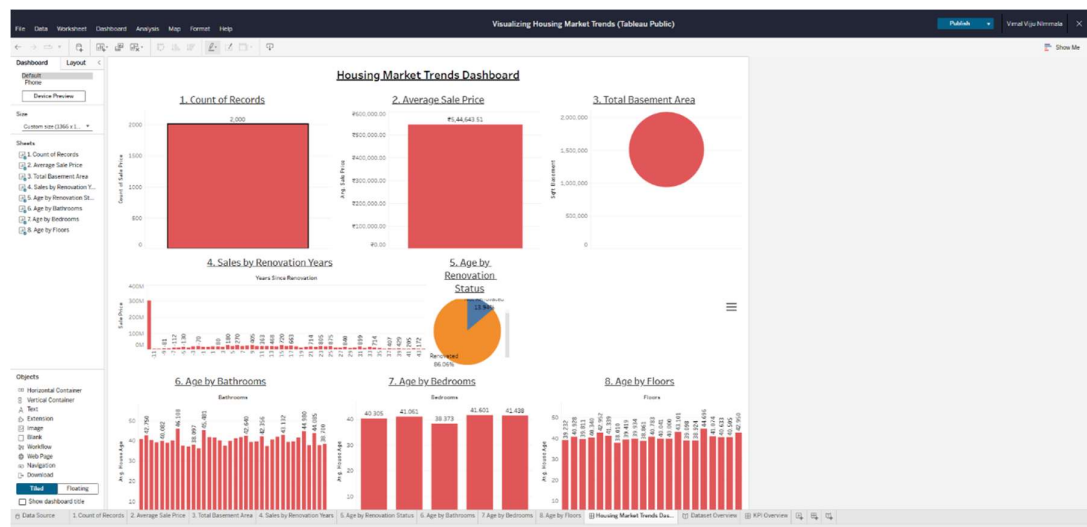   - Embedded Tableau story with narrative scenes
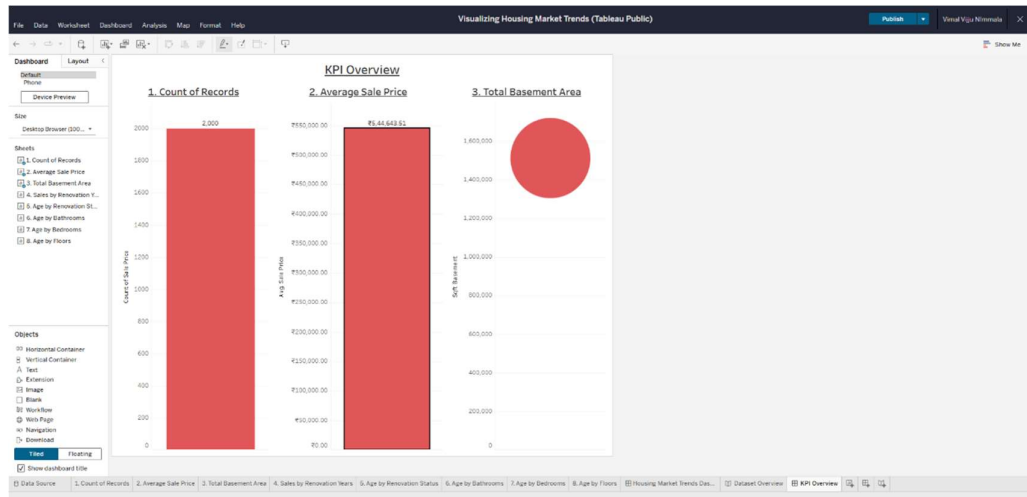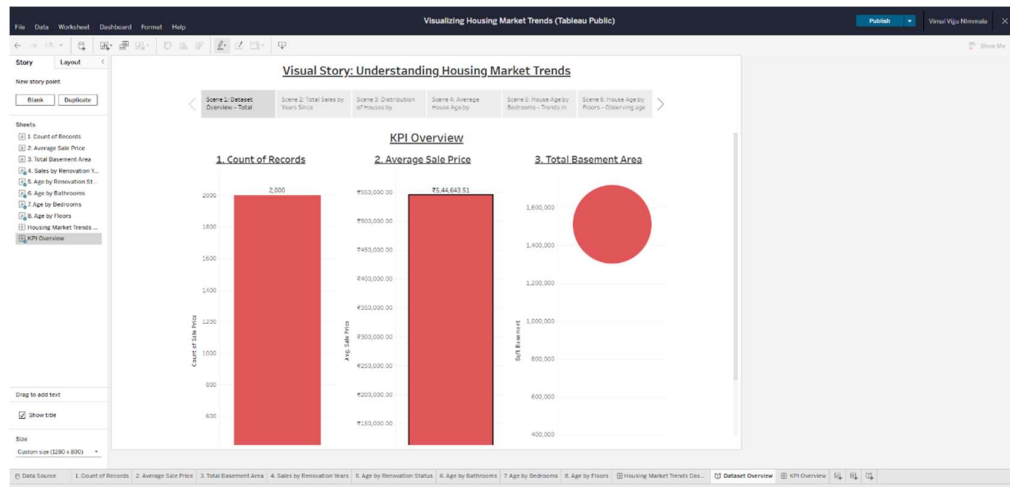
Technology Stack:

- Flask (Routing and server)
- HTML5/CSS3 (Web templates)
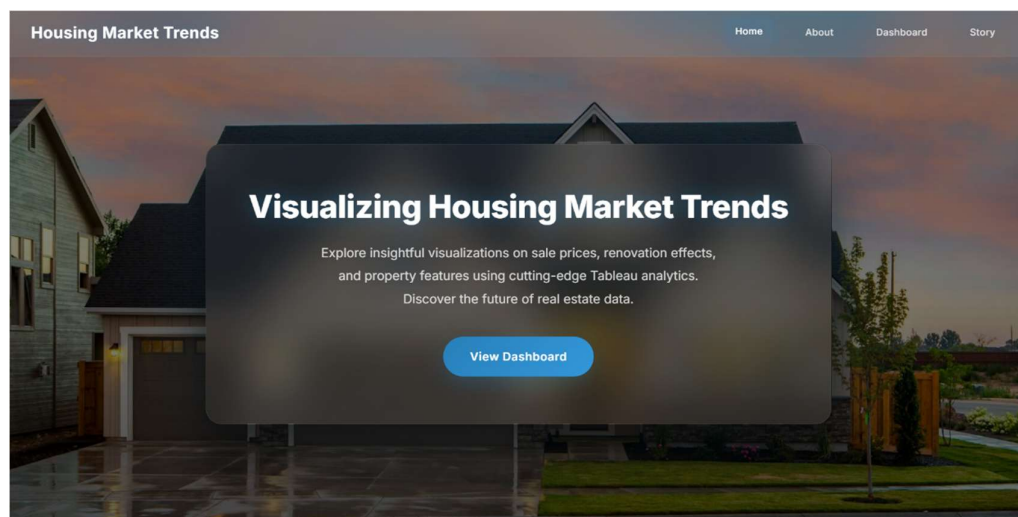- Tableau Public (Data visualizations)

Screenshots:

- Homepage with CTA
- About Page description
- Dashboard embedded with all charts
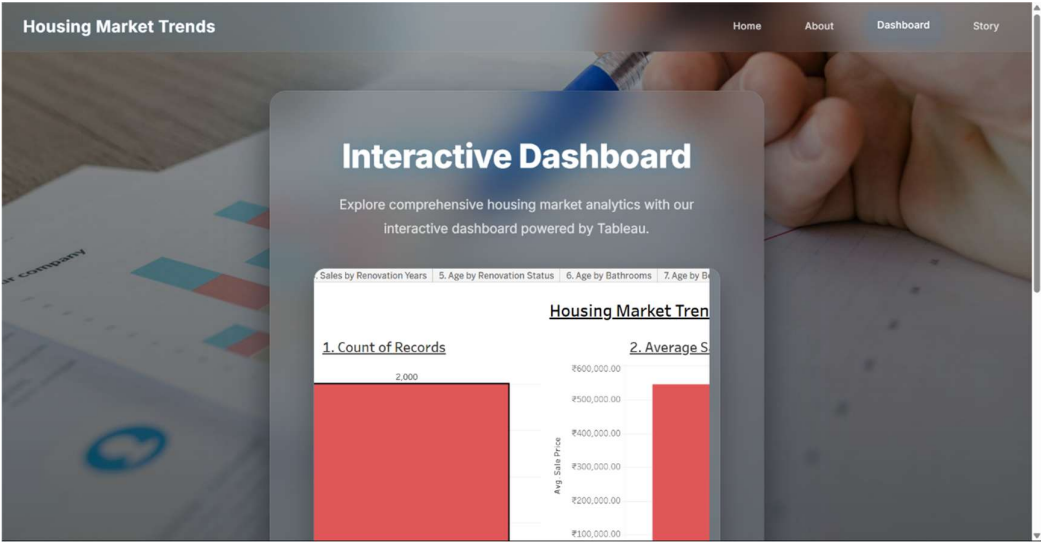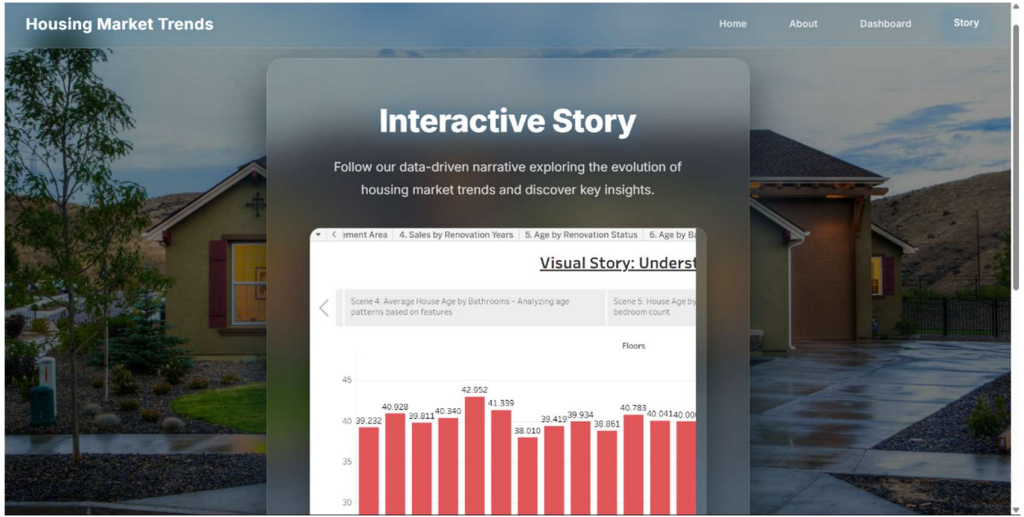- Story section with scenes

Tableau Screenshots:

Webpage Screenshots:

About This Project

This project analyzes housing market trends using advanced Tableau visualizations. It highlights complex relationships between renovations, house features, and sale prices through interactive data storytelling. Our mission is to empower real estate stakeholders with actionable insights and data-driven decision making tools.

Interactive Story

Follow our data-driven narrative exploring the evolution of housing market trends and discover key insights.

ement Area | 4. Sales by Renovation Years | 5. Age by Renovation Status | 6. Age by B

Visual Story: Underst

Scene 4: Average House Age by Bathrooms – Analyzing age patterns based on features

Scene 5: House Age by bedroom count

Floors

45

40   39.232   40.928   39.811   40.340   42.952   41.339   38.010   39.419   39.934   38.861   40.783   40.041   40.006

35

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Interactive Dashboard

Explore comprehensive housing market analytics with our interactive dashboard powered by Tableau.

Sales by Renovation Years | 5. Age by Renovation Status | 6. Age by Bathrooms | 7. Age by B

Housing Market Tren

1. Count of Records   **2. Average S**

2,000   ₹600,000.00

                                     ₹500,000.00

                                     ₹400,000.00
                              Avg. Sale Price
                                     ₹300,000.00
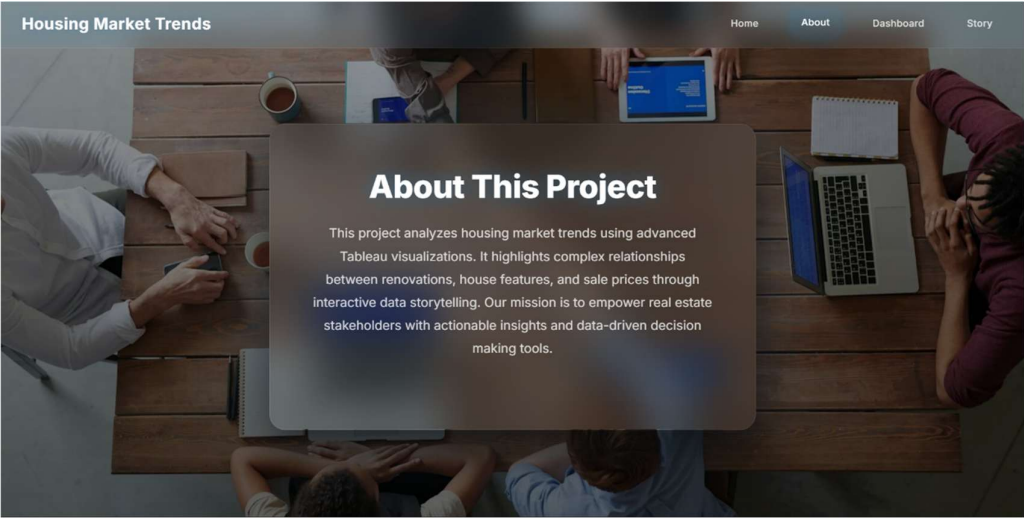
                                     ₹200,000.00

                                     ₹100,000.00

Outcome:

- Successfully visualized housing trends using Tableau.

- Built a responsive web interface to present the visual insights.

- Embedded dashboard and story for user interactivity.

- Insights include renovation effects, basement size correlations, and multi-feature house age comparisons.

Deployment:

- Tableau views published to Tableau Public.

- Flask app structured and tested locally.

- Deployed in Service Like Versal

Conclusion:

This project demonstrates how data visualization combined with a clean, functional web interface can make housing market trends easy to explore. Stakeholders benefit from interactive visuals and storytelling, transforming raw data into actionable insights.