PROJECT REPORT

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

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Domain: Data Analytics using Tableau

1. INTRODUCTION

1.1 Project Overview

The Housing Market Visualization project is a data analytics solution that analyzes housing market datasets and presents meaningful insights using interactive dashboards and stories created in Tableau. The project uses the dataset **Transformed_Housing_Data2.csv**, which contains information about house sale price, renovation status, age, number of bedrooms, bathrooms, floors, and basement area.

The dataset is processed using Tableau Desktop to generate visualizations such as KPI indicators, bar charts, and pie charts. These visualizations are combined into interactive dashboards and stories to provide clear insights into housing market trends. The dashboards are published and integrated into a web application using Flask for easy access.

Directory Reference:

Project Development Phase/

```
├── Dataset/
│   └── Transformed_Housing_Data2.csv
│
├── Tableau/
│   └── Visualizing Housing Data Trends.twb
│
├── Flask/
│   ├── app.py
│   └── templates/
│       └── index.html
```

1.2 Purpose

The purpose of this project is to transform complex housing data into interactive visual dashboards that help users analyze and understand housing market trends effectively.

Objectives:

- Analyze housing data using Tableau visualization

- Create interactive dashboards and stories

- Publish dashboards for online access

- Integrate dashboards with Flask web application

- Improve data interpretation and presentation

Directory Reference:

Project Development Phase/Reports/

├── Data Visualization Report.pdf

├── Dashboard and Story Report.pdf

├── Project Development Phase.docx

2. IDEATION PHASE

2.1 Problem Statement

Housing datasets contain large amounts of numerical information that are difficult to interpret in raw form. Users face difficulty identifying trends, relationships, and insights from raw data.

The solution uses Tableau dashboards to convert raw data into meaningful visual insights.

Directory Reference:

Ideation Phase/

├── Define Problem Statements Template.docx

├── Define Problem Statements Template.pdf

2.2 Empathy Map Canvas

The empathy map identifies user needs, frustrations, and goals when working with housing datasets.

Directory Reference:

Ideation Phase/

├── Empathy Map Canvas.docx

├── Empathy Map Canvas.pdf

2.3 Brainstorming

Brainstorming was conducted to identify project ideas, visualization strategies, and dashboard features.

Directory Reference:

Ideation Phase/

├── Brainstorming- Idea Generation- Prioritizaation.docx

├── Brainstorming- Idea Generation- Prioritizaation.pdf

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

The customer journey map describes how users interact with the system from dataset loading to dashboard viewing.

Directory Reference:

Requirement Analysis/

├── Customer Journey Map.pdf

3.2 Solution Requirement

Defines functional and non-functional requirements for the system.

Directory Reference:

Requirement Analysis/

├── Solution Requirements.docx

├── Solution Requirements.pdf

3.3 Data Flow Diagram

Shows data flow between dataset, Tableau, Tableau Public, Flask, and users.

Directory Reference:

Requirement Analysis/

├── Data Flow Diagrams and User Stories.docx

├── Data Flow Diagrams and User Stories.pdf

3.4 Technology Stack

Defines technologies used in the project.

Directory Reference:

Requirement Analysis/

├── Technology Stack.docx

├── Technology Stack.pdf

4. PROJECT DESIGN

4.1 Problem Solution Fit

Explains how the solution addresses the identified problem.

Directory Reference:

Project Design Phase/

└── Problem - Solution Fit/

    ├── Problem - Solution Fit Template.docx

    ├── Problem - Solution Fit Template.pdf

4.2 Proposed Solution

Describes the Tableau visualization system and web integration.

Directory Reference:

Project Design Phase/

  ├── Proposed Solution Template.docx

  ├── Proposed Solution Template.pdf

4.3 Solution Architecture

Describes system architecture and data flow.

Directory Reference:

Project Design Phase/

  ├── Solution Architecture.docx

  ├── Solution Architecture.pdf

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Includes product backlog, sprint planning, and scheduling.

Directory Reference:

Project Planning Phase/

  ├── Project Planning.docx

├── Project Planning.pdf

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Evaluates dashboard performance, filter functionality, and visualization accuracy.

Directory Reference:

Performance Testing/

├── Performance Testing.docx

├── Performance Testing.pdf

7. RESULTS

7.1 Output Screenshots

Shows dashboard and story outputs.

Directory Reference:

Project Development Phase/Reports/

├── Dashboard and Story Report.docx

├── Dashboard and Story Report.pdf

├── Data Visualization Report.docx

├── Data Visualization Report.pdf

8. ADVANTAGES & DISADVANTAGES

Advantages

- Provides clear visualization of housing trends

- Interactive and easy-to-use dashboards

- Improves data analysis efficiency

- Accessible through web interface

Disadvantages

- Requires Tableau knowledge

- Limited to available dataset

- Requires internet for Tableau Public access

9. CONCLUSION

The project successfully transformed raw housing data into interactive dashboards and stories using Tableau. The dashboards provide meaningful insights and improve data interpretation. Flask integration enables easy web access and demonstration.

Directory Reference:

Project Development Phase/

├── Reports/

├── Tableau/

├── Flask/

10. FUTURE SCOPE

Future improvements include:

- Integration with real-time housing datasets

- Predictive analytics using machine learning

- Cloud deployment

- Advanced interactive dashboards

Directory Reference:

Project Design Phase/

Project Development Phase/

11. APPENDIX

Source Code

Directory Reference:

Project Development Phase/Flask/

├── app.py

├── templates/

│   └── index.html

Dataset Link

Directory Reference:

Project Development Phase/Dataset/

└── Transformed_Housing_Data2.csv

Tableau File

Directory Reference:

Project Development Phase/Tableau/

└── Visualizing Housing Data Trends.twb

GitHub and Dashboard Link:

GitHub Link: https://github.com/srinu0906/Visualizing-Housing-Market-Trends-Data-Analytics-with-Tableau-Internship-Project

Tableau Public Dashboard Link:
https://public.tableau.com/app/profile/srinu.vakada/viz/Project_17708262031760/Dashboard1?publish=yes

Explanation Link:
https://drive.google.com/file/d/18XSuLKawSvlfp08iNkhWcs1UwL96Ydtf/view?usp=sharing