Requirement Analysis Document

Project Title: Visualizing Housing Market Trends: An Analysis of Sale Prices and Features Using Tableau

Team ID: LTVIP2025TMID51194

# 1. User Requirements

- Users should be able to upload housing datasets.  
- Users should visualize housing sale prices and feature trends.  
- Users need intuitive filters and interactive dashboards.  
- Users should be able to understand insights like price trends, impact of quality, year built, etc.

# 2. Solution Requirements

- System should preprocess and clean uploaded datasets.  
- Tableau dashboard must visualize key trends.  
- Optional ML integration for prediction/forecasting.  
- Must support CSV uploads with dynamic data binding.

# 3. Technology Stack

|  |  |
| --- | --- |
| Component | Technology Used |
| Frontend UI | HTML5, CSS3 (index.html, result.html) |
| Backend Processing | Python (Flask) |
| Visualization | Tableau |
| ML/AI (Optional) | Scikit-learn, pandas |
| Data Storage | CSV Files / Local System |
| Hosting (Optional) | Flask local server or cloud (Heroku) |

# 4. Solution Architecture

The architecture involves:  
- User uploads a housing dataset via web interface.  
- Backend Flask application processes the data.  
- Cleaned data is imported into Tableau for visualization.  
- Insights are rendered in dashboards and displayed to the user.

# 5. Data Flow Diagram Description

The DFD describes how data moves across the system:  
1. User uploads raw housing CSV file.  
2. Backend validates and cleans the data.  
3. Cleaned data is passed to Tableau.  
4. Tableau visualizes the data with interactive filters.  
5. Users view results via rendered dashboards.

# 6. Sample Architecture Screenshot

Below is a placeholder or reference image for the project architecture (mock image if available).

