

Project Design Phase

Solution Architecture

Date	28 January 2026
Team ID	LTVIP2026TMIDS66669
Project Name	Visualization of Housing Market Trends
Maximum Marks	4 Marks

Solution Architecture:

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

- **Structural Components:** The system is built on a **3-tier architecture**:

- **Presentation Layer:** Tableau Public embedded dashboards and stories served through an HTML5/Bootstrap 5 Flask web interface.

- **Logic Layer:** Flask server (**app.py**) managing routing and rendering of Tableau Public embed codes within HTML templates.

- **Data/Visualization Layer:** Tableau Desktop workbook connected to the Kaggle housing CSV dataset, published to Tableau Public for cloud hosting.

- **Behavior:** Housing transaction data from the Kaggle CSV is connected to Tableau Desktop. Calculated fields (Years Since Renovation, House Age Category, Renovation Status) are created and four visualizations assembled into an interactive dashboard with Top-N filters. The published Tableau Public dashboard is embedded in the Flask web application via iframe, enabling browser-based access for all stakeholders.

- **Specifications:** The solution is delivered as a local Flask web application running on port **5000**, requiring Tableau Desktop (or Tableau Public free account) for visualization development, and Python packages including **Flask** for web serving. Tableau Public provides the hosted embed endpoint.

Example - Solution Architecture Diagram:

Project Design Phase-II House Market Trends: Solution Architecture Overview

Presentation Layer HTML5 / BOOTSTRAP 5 — FLASK WEB APPLICATION WEB BROWSER (User Interface) Embedded Tableau Public Dashboard Embedded Tableau Story
Logic Layer FLASK WEB SERVER (app.py) REQUEST ROUTING ↓ HTML TEMPLATE RENDERING Tableau Public Embed Code (iframe) → DASHBOARD / STORY VIEW
Data / Visualization Layer Kaggle Housing CSV Dataset → TABLEAU DESKTOP Calculated Fields (Renovation Status, House Age Category, Years Since Renovation) 4 WORKSHEETS + DASHBOARD + 3-SCENE STORY → Published to TABLEAU PUBLIC
EXTERNAL INTERFACES TABLEAU PUBLIC CDN (Dashboard Hosting & Embed) BOOTSTRAP CDN (Responsive UI Styles)

Fig. 6: House Market Trends – Solution Architecture Diagram. This diagram illustrates the 3-tier architecture, data flow, and technology stack for the housing market visualization system, from Kaggle data connection to browser-based Tableau dashboard access.