Project Design Phase-II
Technology Stack (Architecture & Stack)

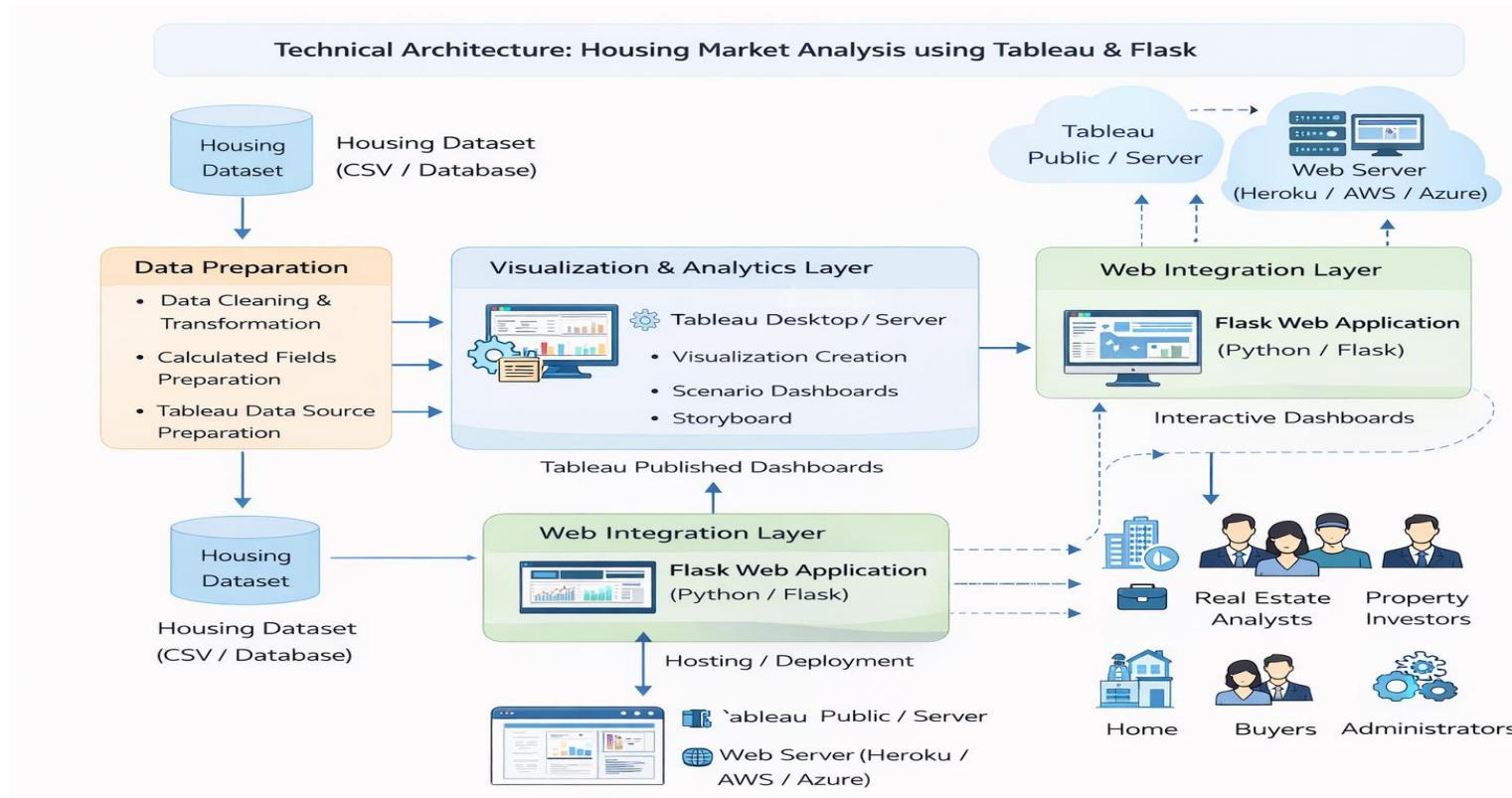| Date	03 February 2026
Team ID	LTVIP2026TMIDS38402
Project Name	Visualizing Housing Market Trends: An Analysis of Sale Prices and Features using Tableau
Maximum Marks	4 Marks

Technical Architecture:

Table - 1: Technical Architecture Components:

S. No	Component	Description	Technology
1.	User Interface	Web-based dashboard interface where users interact with visualizations and filters	HTML, CSS, JavaScript (Flask Templates)
2.	Application Logic-1	Backend logic for handling web requests and rendering dashboards	Python (Flask Framework)
3.	Application Logic-2	Data processing, cleaning, and calculated field preparation	Tableau Desktop / Tableau Prep
4.	Application Logic-3	Data visualization and dashboard creation logic	Tableau Desktop / Tableau Server
5.	Database	Housing dataset storage and management (CSV or Database)	CSV File / MySQL (Optional)
6.	Cloud Database	Optional cloud-based data storage for scalability	AWS RDS / Azure SQL (Optional)
7.	File Storage	Storage of dataset files and project resources	Local File System / Cloud Storage
8.	External API-1	(Optional) API integration for real-time housing or market data	Public Real Estate API (Optional)
9.	External API-2	(Optional) Integration for additional data sources	Open Data APIs (Optional)
10.	Machine Learning Model	Data analysis and calculated metrics for price trends and insights	Tableau Calculated Fields
11.	Infrastructure (Server / Cloud)	Deployment of Flask web app and Tableau dashboards	Local Server / Tableau Public / AWS / Heroku

Table-2: Application Characteristics:

S. No	Characteristics	Description	Technology
1.	Open-Source Frameworks	The application uses open-source technologies for backend development and web integration of dashboards.	Python, Flask, HTML, CSS, JavaScript
2.	Security Implementations	The system restricts unauthorized access to the web application. Dataset files are protected locally. Deployment can include authentication and HTTPS for secure access.	Flask Security (Basic Authentication), HTTPS, Role-Based Access (Optional)
3.	Scalable Architecture	The architecture follows a layered approach (Data Layer, Visualization Layer, Web Layer). It can handle increased dataset size and additional dashboards without major changes.	Tableau Server / Tableau Public, Flask (Modular Structure)
4.	Availability	The application can be hosted on cloud platforms to ensure 24/7 availability. Tableau dashboards remain accessible when deployed on server/cloud.	Tableau Public / AWS / Heroku / Local Server
5.	Performance	The application is optimized to handle moderate data loads efficiently. Tableau dashboards use optimized queries, filters, and calculated fields to reduce load time. Data caching and lightweight web deployment ensure faster response.	Tableau Optimized Extracts, Flask, Local Hosting / Cloud Hosting