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

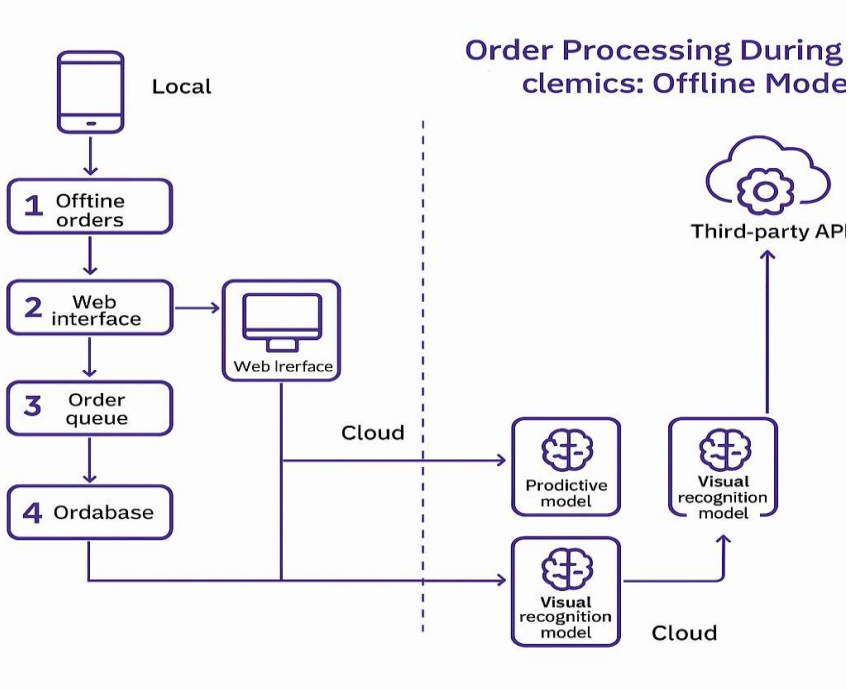
Date	27 June 2025
Team ID	LTVIP2025TMID49194
Project Name	Visualizing housing Market trends:An analysis of sale prices and features using tableau
Maximum Marks	4 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

Example: Order processing during pandemics for offline mode

Reference: https://developer.ibm.com/patterns/ai-powered-backend-system-for-order-processing-during-pandemics/



Guidelines:

Include all the processes (As an application logic / Technology Block)
Provide infrastructural demarcation (Local / Cloud)
Indicate external interfaces (third party API's etc.)
Indicate Data Storage components / services
Indicate interface to machine learning models (if applicable)

S.No	Component	Description	Technology
1	User Interface	End-user interaction through dashboards	Tableau Public / Tableau Desktop
2	Application Logic-1	Data Cleaning, Preprocessing	Python (Pandas, NumPy) / Tableau Prep
3	Application Logic-2	EDA and Feature Engineering	Python / Tableau (Calculated Fields)
4	Application Logic-3	Dashboard Logic & Filters (interactivity)	Tableau Parameters & Filters
5	Database	Structured housing data	CSV / Excel / MySQL (optional)
6	Cloud Database	Cloud backup (if used)	Google Sheets / Google Drive
7	File Storage	Store uploaded datasets, snapshots	Local Filesystem / Cloud Storage

S.No	Component	Description	Technology
8	External API-1	(Optional) Geo-Location for Mapping	Google Maps API / OpenStreetMap API
9	External API-2	(Optional) Real-time housing price index	Zillow / Housing APIs
10	Machine Learning Model	(Optional) Forecasting house price trends	Linear Regression / Time Series Model in Python
11	Infrastructure	Local machine used for development & visualization deployment	Local System / Tableau Online (optional)

Table-2: Application Characteristics:

S.No	Characteristic	Description	Technology
1	Open-Source Frameworks	Python libraries used for data analysis and cleaning	Pandas, NumPy, Matplotlib
2	Security Implementations	File protection, user permission in shared dashboards (if online)	Tableau Privacy Settings, OAuth (API use)
3	Scalable Architecture	Modular: Data cleaning → EDA → Visualization, can scale by integrating live data sources	3-Tier (Data-Logic-UI)
4	Availability	Dashboards can be shared or published online (Tableau Public/Online)	Tableau Server / Public
5	Performance	Optimized using filters, calculated fields, and pre-aggregated data	Tableau Optimization Techniques