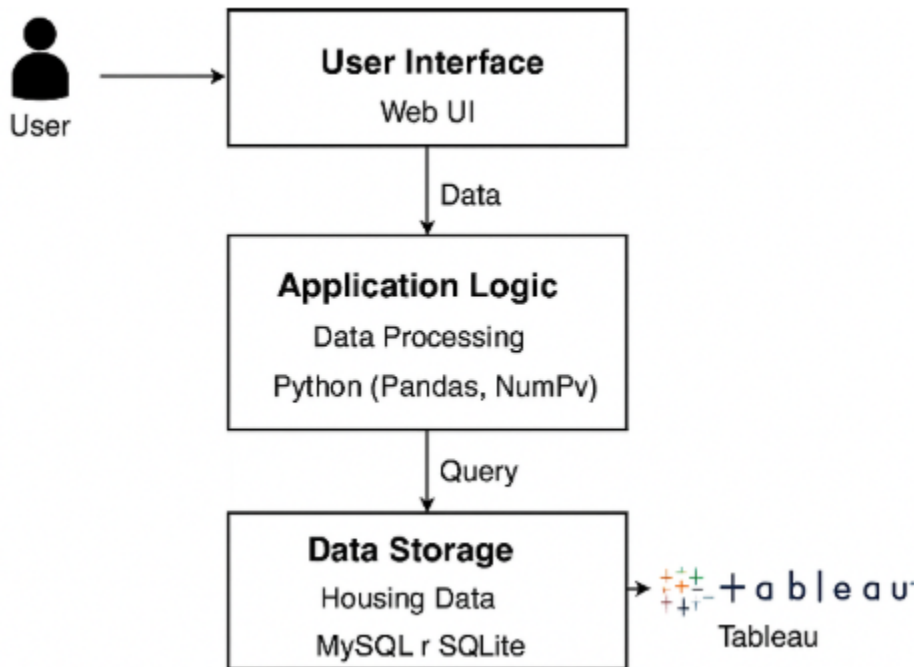


Project Design Phase-II Technology Stack (Architecture & Stack)

Date	23 June 2025
Team ID	LTVIP2025TMID49805
Project Name	Visualizing housing market trends: an analysis of the sale prices and 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



S.No	Component	Description	Technology
1.	User Interface	Web-based dashboard and data upload UI	HTML, CSS, JavaScript
2.	Application Logic-1	Data cleaning, transformation, and processing	Python (Pandas, NumPy)
3.	Application Logic-2	Connecting processed data to Tableau dashboards	Tableau Public / Tableau Server
4.	Application Logic-3	KPI calculation, price trend extraction	Python Scripts
5.	Database	Storing housing data for further querying	MySQL or SQLite
6.	Cloud Database	Cloud backup or shared access of dataset	Google BigQuery or AWS RDS

7.	File Storage	Storing uploaded CSVs or Excel files	AWS S3 or Local Filesystem
8.	External API-1	Geolocation or city-wise analysis	Google Maps API
9.	External API-2	Optional APIs for housing market trends	Zillow API (if accessible)
10	Machine Learning Model	Predict house price based on features (optional)	Scikit-learn Regression Model
11	Infrastructure (Server / Cloud)	Local deployment for development, scalable cloud later	Localhost (dev), AWS EC2 or Heroku (deploy)

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Pandas, NumPy, Flask (for interface), Scikit-learn	Python Ecosystem
2.	Security Implementations	Secure upload (file size/type validation), SHA-256 for login, HTTPS	Flask-Security, OAuth, SSL
3.	Scalable Architecture	3-tier architecture allows independent scaling of frontend/backend/db	Microservices (optional), Tableau Cloud
4.	Availability	Can be hosted with auto-scaling on AWS or Heroku	AWS Load Balancer, Heroku Dynos
5.	Performance	Data caching, limited row querying, pre-aggregated dashboards	Redis (optional), Tableau Extracts, CDN for assets