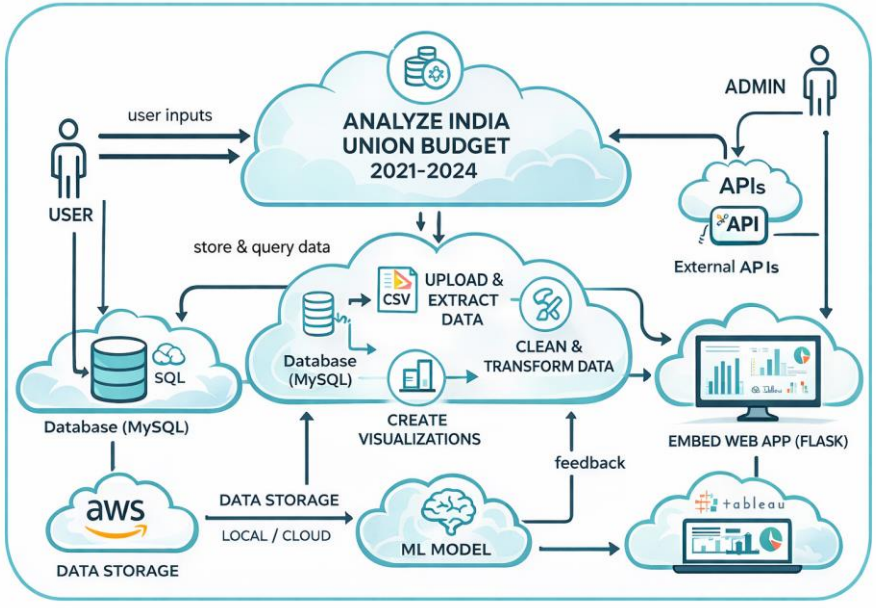
Project Design Phase-II
Technology Stack (Architecture & Stack)

Date	1 February 2026
Team ID	LTVIP2026TMIDS89610
Project Name	Empowering India : Analysing the evolution of union budget allocations for sustainable growth
Marks	3 Marks

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table2



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)

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interactive dashboards and story to visualize Union Budget insights	Tableau Public, HTML, CSS (for embedding)
2.	Data Preparation Logic	Cleaning, filtering, transforming Union Budget dataset before analysis	Python (Pandas, NumPy) / Tableau Data Prep
3.	Data Analysis Logic	KPI calculations such as total budget, growth %, revenue vs capital analysis	Tableau Calculated Fields, SQL Queries
4.	Data Source	Government Union Budget dataset (2021–2024)	CSV Files (Kaggle Dataset)
5.	Database	Structured storage of cleaned Union Budget data	MySQL
6.	Cloud Storage (optional)	Backup and hosting of dashboards and reports	Tableau Public Cloud
7.	File Storage	Local storage for dataset, project files, documentation	Local Filesystem
8.	External API(Optional)	Government open data portals for extended economic data (if integrated)	data.gov.in API (Optional)
9.	Machine Learning Interface (Optional)	Budget trend prediction or growth forecasting	Python (Scikit-learn – Optional)
10.	Infrastructure	Development and deployment environment	Local System + Tableau Public Cloud + Flask Web Server

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Tools used for data cleaning, analysis, and visualization	Python (Pandas, NumPy), MySQL, Tableau Public, Flask
2.	Security Implementations	Secure database credentials, limited public exposure via Tableau Public	MySQL Authentication, Environment Variables
3.	Scalable Architecture	Can scale by adding more fiscal years or integrating economic indicators	MySQL (Scalable DB), Tableau Public Cloud
4.	Availability	Accessible online via Tableau Public and Flask Web App	Tableau Public Cloud, Localhost Deployment
5.	Performance Optimization	Optimized SQL queries, filtered data extracts, minimal heavy joins	MySQL Indexing, Tableau Extract Mode