Project Design Phase-II
Technology Stack

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Technical Architecture

Project Context: The system follows a 3-tier architecture where the **Data Layer** (MySQL) feeds into the **Visualization Layer** (Tableau), which is then embedded into the **Presentation Layer** (Flask Web App).

S.No	Component	Description	Technology
1.	User Interface	Web-based dashboard wrapper for user interaction.	HTML5, CSS3, Bootstrap
2.	Application Logic	Backend server to render templates and serve the application.	Python (Flask Framework)
3.	Visualization Engine	Core logic for generating interactive charts and dashboards.	Tableau Public
4.	Database	Structured storage for Union Budget data (Actuals & Estimates).	MySQL 8.0
5.	Web Server	Local server for development and testing.	Flask Development Server (Werkzeug)
6.	Hosting	Platform for hosting the interactive visualizations.	Tableau Public Server

Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Backend logic is built on open-source Python libraries.	Flask, Jinja2
2.	Scalability	The visualization layer can handle millions of rows without performance lag.	Tableau Hyper Engine
3.	Availability	The dashboard is hosted on the cloud, ensuring 24/7 uptime.	Tableau Public Cloud
4.	Performance	Data aggregation is precalculated to ensure fast load times.	SQL Aggregation Queries