

Project Design Phase-II

Technology Stack (Architecture & Stack)

Date	20 Feb 2026
Team ID	LTVIP2026TMIDS66288
Project Name	Gemini Pro Financial Decoder: Transforming Complex Data into Actionable Insights
Maximum Marks	4 Marks

Technical Architecture Overview

The technical architecture of **Gemini Pro Financial Decoder** defines how financial data is collected, processed, analyzed using AI, and transformed into actionable insights. The architecture bridges business needs and technical implementation, ensuring scalability, security, and performance.

Table-1: Application Components

S.No	Component	Description	Technology
1	Financial Data Input & Upload	Allows users to upload financial documents such as balance sheets, income statements, PDFs, and Excel files	Web Upload, PDF / Excel / CSV Parsers
2	Frontend (User Interface)	Provides an interface for users to upload documents, ask queries, and view insights	React.js / Vue.js, Tailwind CSS
3	Backend API	Handles requests from frontend and manages application workflow	FastAPI / Flask (Python)
4	Data Preprocessing	Cleans, structures, and normalizes financial data	Pandas, NumPy
5	AI Intelligence Engine	Analyzes financial data and generates summaries and insights	Gemini Pro (LLM)
6	Model Integration & Serving	Connects Gemini Pro API for real-time financial analysis	Google Generative AI SDK
7	Insight Extraction & Risk Detection	Identifies financial trends, anomalies, and risks	Prompt Engineering, Rule-based Logic
8	Visualization & Reporting	Generates charts, summaries, and downloadable reports	Plotly / Matplotlib, ReportLab / PDF Generator
9	Database	Stores uploaded documents, insights, logs, and user activity	PostgreSQL / MongoDB
10	Authentication & Security	Manages user access, authentication, and data protection	JWT / OAuth2, HTTPS / SSL

Table-2: Application Characteristics

S.No	Characteristics	Description	Technology
1	Secure & Data-Driven	Handles sensitive financial data with encryption and secure access	HTTPS, JWT Authentication
2	Lightweight & Fast	Ensures quick processing and fast response time for financial analysis	FastAPI, Async Processing
3	Automated & Intelligent	Automatically converts raw financial data into meaningful insights	Gemini Pro, Pandas
4	Scalable & Cloud-Ready	Supports multiple users and large datasets	Cloud Deployment, Containerization

References

- <https://proceedings.mlr.press/>
- <https://ai.google.dev/>
- <https://in.search.yahoo.com/>