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

Date	06 February 2026
Team ID	LTVIP2026TMIDS49957
Project Name	Translingua: Ai-Powered Multi-Language Translator
Maximum Marks	4 Marks

Technical Architecture:

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

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web-based interface where users enter text and select translation languages	Streamlit (Python Web Framework)
2.	Application Logic-1	Input validation and prompt construction logic	Python
3.	Application Logic-2	AI request handling and response processing	Google Generative AI API
4.	Application Logic-3	output formatting and output structuring	Python
5.	File Storage	Local environment for source code and logs	Local File System
6.	External API-1	Generative AI service for real-time language translation	Google Generative AI API / Google Translate API
7.	Machine Learning Model	Pre-trained generative AI model for multi-language translation	Gemini Flash Lite Model
8.	Infrastructure (Server / Cloud)	Deployment of application	Streamlit Cloud / Local Deployment

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Web framework and development tools used	Streamlit, Python
2.	Security Implementations	Secure storage of API keys and environment variables	Environment Variables (.env), Streamlit Secrets
3.	Scalable Architecture	Web-based architecture supporting multiple users	Cloud-based deployment (Streamlit Cloud)
4.	Availability	Application accessible online after deployment	Streamlit Cloud Hosting
5.	Performance	Fast response generation using lightweight AI model	Gemini Flash Lite (optimized for low latency)