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

Date	31 January 2025
Team ID	LTVIP2026TMIDS87048
Project Name	Intelligent SQL Querying with LLMs Using Gemini
Maximum Marks	4 Marks

Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Interface where user enters natural language questions and views SQL/results	**Streamlit (Python Web UI)**
2.	Application Logic-1	Handles user input, prompt creation, and response processing	**Python**
3.	Application Logic-2	Generates SQL queries from natural language questions	**Google Gemini API (LLM)**
4.	Application Logic-3	Executes generated SQL queries and fetches results	**SQLite3 (Python DB Connector)**
5.	Database	Stores structured student data used for querying	**SQLite (data.db)**
6.	File Storage	Stores database file locally	**Local File System**
7.	External API-1	Converts English questions into SQL queries	**Google Gemini API**
8.	Infrastructure (Server / Cloud)	Runs application locally via browser	**Local System (VS Code + Streamlit Server)**

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Frameworks used to build application UI and logic	**Streamlit, Python, SQLite**
2.	Security Implementations	Protects API keys and prevents direct exposure	**Environment Variables (.env), API Key Handling**
3.	Scalable Architecture	System can be extended to larger databases / models	**Modular Python Design**
4.	Availabilit y	App accessible whenever local server is running	**Streamlit Local Server**
5.	Performanc e	Lightweight queries and fast response for small datasets	**SQLite + Gemini Flash Model**