Project Design Phase
Proposed Solution Template

Date	8 February 2026
Team ID	LTVIP2026TMIDS66048
Project Name	IntelliSQL: Intelligent SQL Querying with LLMs Using Gemini Pro
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Non-technical administrators and staff face a "technical barrier" where they cannot retrieve student data (marks, placements) because they lack SQL coding skills. This creates a dependency on IT departments and causes slow reporting workflows.
2.	Idea / Solution description	IntelliSQL is an "intelligent query assistant" that uses **Gemini 1.5 Flash** to translate natural language English into executable SQL queries. It features a professional **Streamlit** dashboard where users type questions and receive structured data tables instantly.
3.	Novelty / Uniqueness	The solution uses **LLM architecture** and **Regex-based sanitization** to bridge the gap between human thought and database logic. Unlike standard SQL editors, it requires zero coding knowledge and cleans AI output to ensure query safety.
4.	Social Impact / Customer Satisfaction	It empowers non-technical users to become self-sufficient, leading to an "effortless and intuitive" experience. Customer satisfaction is increased by removing the "frequent annoyance" of waiting for technical staff for simple data requests.
5.	Business Model (Revenue Model)	The model can follow a **SaaS (Software as a Service)** approach with tiered subscriptions based on the number of database connections or queries per month. It could also be offered as a custom enterprise solution for academic institutions looking to modernize their data accessibility.
6.	Scalability of the Solution	The modular 3-tier architecture allows the system to scale by upgrading the LLM (e.g., from Flash to Pro) or migrating from a local SQLite database to a cloud-based SQL server (like PostgreSQL) with minimal changes to the core logic.