

IntelliSQL: Intelligent SQL Querying with LLMs using Gemini Pro

Date	27 February 2026
Team ID	LTVIP2026TMIDS66231
Project Name	IntelliSQL: Intelligent SQL Querying with LLMs using Gemini Pro
Maximum Marks	2 marks

Proposed Solution Template:

Project team shall fill the following modules in the IntelliSQL system design.

S.No.	Parameter	Description
1.	Natural Language Input Module	Accept natural language questions from users via a web or CLI interface Parse and pre-process user queries before passing them to the LLM for SQL generation
2.	Gemini Pro LLM Integration	Send parsed natural language queries to the Gemini Pro API for SQL generation Receive SQL statements from the LLM and validate them for correctness and safety
3.	Database Schema Manager	Store and manage database schema metadata including table names, column types, and relationships Provide schema context to Gemini Pro for accurate and context-aware SQL query generation
4.	SQL Query Execution Engine	Translate user questions into optimized SQL queries using prompt engineering Ensure generated queries are syntactically correct and logically accurate
5.	Results Display and Visualization	User interface to display generated SQL queries and corresponding result sets Show query output in tabular format with options to export results as CSV or JSON
6.	User Authentication and Access Control	Manage users such as data analysts, developers, and administrators Control database access levels and ensure system security and query audit logging

7.	Query History and Performance Monitor	Track all previously executed queries and their execution times Help users refine queries and monitor system performance and LLM response accuracy
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