

Project Design Phase-II
Solution Requirements (Functional & Non-functional)

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| Date | 19 January 2025 |
| Team ID | LTVIP2026TMIDS76399 |
| Project Name | IntelliSQL: Intelligent SQL Querying with LLMs Using Gemini Pro |
| Maximum Marks | 4 Marks |

Functional Requirements:

| FR No. | Non-Functional Requirement | Description |
|--------|----------------------------|---|
| NFR-1 | Usability | The system should provide a simple and user-friendly interface where users can easily enter natural language queries and view results without technical knowledge of SQL. |
| NFR-2 | Security | User data and database credentials must be protected using authentication, encrypted communication (HTTPS), and secure API handling while interacting with Gemini Pro. |
| NFR-3 | Reliability | The system should consistently generate correct SQL queries and handle errors gracefully without crashing, even for complex or invalid user inputs. |

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| NFR-4 | Performance | The system should convert natural language to SQL and display results within a few seconds to ensure smooth user experience. |
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Following are the functional requirements of the proposed solution.

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|--------|-----------------------------------|---|
| FR-1 | User Registration | Registration through Form Registration through Gmail Registration through LinkedIN |
| FR-2 | User Confirmation | Confirmation via Email Confirmation via OTP |
| FR-3 | Natural Language Query Processing | User enters query in natural language Send query to Gemini Pro LLM Convert natural language into SQL query Validate generated SQL syntax |
| FR-4 | Natural Language Query Processing | Execute generated SQL query on database Fetch results from database Display results in tabular format Show error message for invalid queries |
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Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

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| NFR-5 | Availability | The application should be accessible 24/7 with minimal downtime, ensuring users can query the database anytime. |
| NFR-6 | Scalability | The system should support multiple users simultaneously and handle increasing database size or query load without performance degradation. |