11/26/2025

Text-to-SQL Platform

Role-Based Access Control Enhancement

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1. Executive Summary

This Product Requirements Document outlines the enhancement plan for the Text-to-SQL platform, specifically focusing on implementing comprehensive Role-Based Access Control (RBAC) and Admin Management capabilities. This document covers platform overview, features, technical requirements, deployment specifications, and commercial terms.

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2. Platform Overview

Our platform enables users to ask any question about their data and receive instant, actionable insights. Powered by advanced Large Language Models (LLMs) such as OpenAI's GPT, the system automatically generates the required SQL queries, executes them on your database, and presents the results through clear, intuitive visualizations.

Privacy & Security: The platform uses only your database schema (table names, column names, and structural metadata) to generate queries. No actual data is ever sent to the LLM, ensuring complete data privacy and security. Your data stays within your environment at all times, while the platform delivers intelligent, accurate, and beautifully visualized answers in seconds.

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3. Core Features

3.1 Role-Based Admin Panel

A dedicated admin interface with full user management capabilities. Admins can create new user accounts, assign access limits, and manage user privileges with ease.

3.2 Granular Table-Level Access Control

Admins can define which tables each user or user group is allowed to access. Permissions can be granted or revoked at any time, ensuring precise control over data visibility and security.

3.3 Comprehensive Audit Logging

The platform records detailed logs of all user activities including questions asked, generated SQL queries, and associated metadata. This allows administrators to audit system usage, track anomalies, and ensure full transparency and compliance.

3.4 Table Schema Management

The platform provides administrators with the ability to manage database table schemas directly. Admins can easily add, update, or remove table schema information, ensuring that the system always reflects the latest structure of the underlying database.

3.5 Old + New Data Fetching

The platform allows users to choose how they want to retrieve data. They can fetch information from the old database, the new database, or a combined view of both. Based on the selected option, the system automatically retrieves and processes the relevant data, ensuring flexibility and seamless access across versions.

3.6. User Roles and Access

Admin

- Full access
- Manage users, permissions, schema, logs, and configurations

Standard User

- Ask questions
- View results based on allowed tables

4. Technology Stack

Component	Technology	Purpose
Database	PostgreSQL or Microsoft SQL	Primary data storage where all client data is securely maintained
Search Engine	Elasticsearch	Used for indexing database schema and metadata to ensure fast and efficient search operations. Open source with no licensing concerns
Backend	Python / FastAPI	High-performance backend framework enabling reliable API development and seamless integration
Frontend	React.js	Modern, responsive user interface
LLM Integration	OpenAI GPT-4o Mini	Intelligent SQL generation and natural language understanding
Deployment	Docker	Containerized environment ensuring scalable, portable, and consistent deployments

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5. Pre-Requisites from Client

To ensure smooth setup and integration of the platform, we require the following information and access from the client:

5.1 Database Access

- Secure access to credentials to the database (read-only or as required)
- This access is essential for executing SQL queries and retrieving results

5.2 Database Schema Details

- Complete list of all tables in the database along with descriptions
- Column-level details for each table, including:
    - Column names
    - Data types

    - Column descriptions
    - Sample values for each column (for better understanding and accurate LLM-driven query generation)

5.3 Database Infrastructure Information

- Details of the old and new databases
- Information on how data flows between them
- Frequency of data updates or migration from old to new database

5.4 OpenAI API Key

- A valid OpenAI API key for enabling GPT model integration within the platform

5.5 Default Admin Credentials

- A default admin username and password to configure and access the administrative dashboard initially

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6. System Configuration & Deployment

6.1 Deployment Architecture

This application uses Docker to maintain smooth deployment and access. The platform can be deployed on:

- Windows
- macOS
- Linux
- Any cloud environment (AWS, Azure, GCP)

6.2 System Requirements

- **Prerequisite:** Docker installed on the target system
- **RAM:** 12GB minimum
- **Storage:** 64GB to 256GB for smooth operation
- **Note:** These are the only requirements needed to run the application

7. Commercial Terms

7.1 Cost Structure

Component	Description	Cost (INR)
Backend + Frontend	Complete full-stack solution with admin dashboard	₹2,35,000

Notes:

- All costs mentioned are exclusive of applicable taxes (if any)
- Any major change in scope or additional features beyond this agreement will be estimated and approved separately

7.2 Payment Terms

Payment Schedule:

- **30% Advance:** Payable upon project initiation and contract signing
- **70% Final Payment:** Payable upon successful delivery and UAT completion

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8. Support & Maintenance

8.1 Support Period

Duration: 15 days post-deployment

Coverage:

- Bug fixes related to newly implemented features
- Minor configuration adjustments
- Performance optimization
- Documentation updates
- Email/chat support during business hours

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9. Next Steps

Upon approval of this document, the following steps will be initiated:

1. Contract signing and advance payment
2. Kickoff meeting to finalize requirements
3. Development phase commencement
4. Regular progress updates
5. UAT and deployment
6. Documentation handover