Text2Query (Team - 17)

A web app for converting english statement to SQL query for fetching data

Team Details

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Scope

1. The project aims to create a web app that converts natural language text into MySQL queries.
2. It executes them on a relational database, and returns the table results.
3. We use Rule based model to convert the English text to SQL query and validate it.
4. Export the data in a CSV or Excel format.
5. Query history of the user need to maintained.
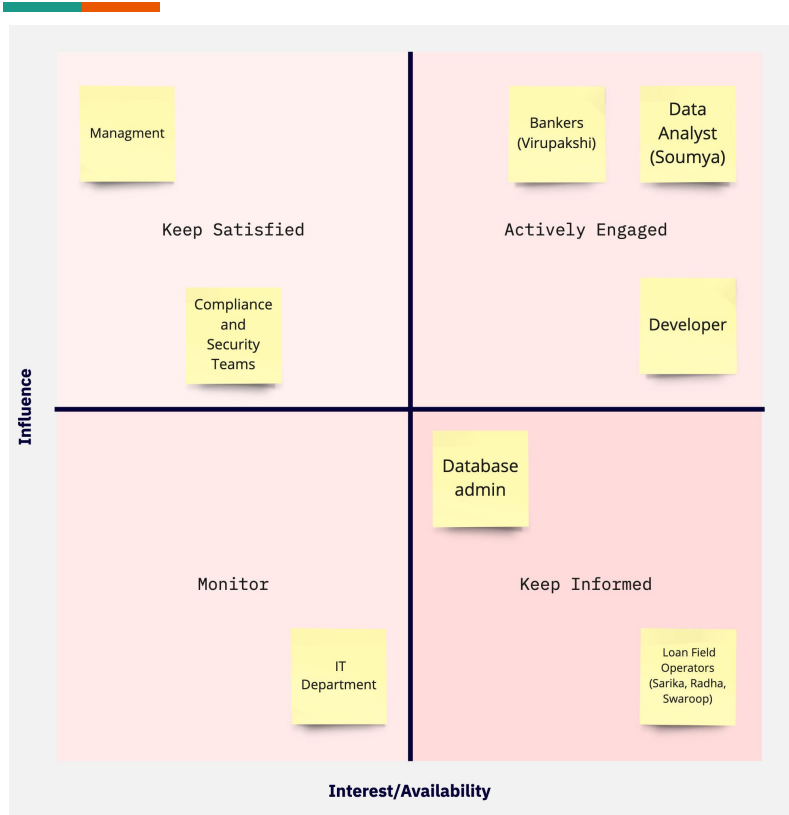
Scope

Input(s):
- Natural language text query, e.g., "Provide me the list of users who used the ATM on January 1, 2024, between 9:00 am to 12 noon and withdrew money less than 1000 rupees."

Step-by-Step Control/Data Flow:
- User inputs a query in plain English through a chat interface.
- System interprets the input and converts it into an SQL query using a predefined meta-model.
- The SQL query is sent to the relational database and executed.
- The results file is sent back to the user via the chat interface.
- Results are generated in Excel or CSV format.

Output(s):
- CSV or Excel file containing the requested data (e.g., a list of users who defaulted on loan payments, top 10 transactions of a specific account).

Influence

Keep Satisfied

Managment

Compliance and Security Teams

Actively Engaged

Bankers (Virupakshi)

Data Analyst (Soumya)

Developer

Monitor

IT Department

Keep Informed

Database admin

Loan Field Operators (Sarika, Radha, Swaroop)

Interest/Availability

Stake holders map

Use Case

1. Customer Credit Score Report
2. Retrieve transactions for a given account number and time period
3. List users who used ATM within a specific time frame and withdrawal amount
4. Generate monthly report of new loan applications
5. Branch-wise Loan Issuance Summary
6. Track loan disbursements over a specified period
7. Monthly Loan Recovery Success Rates and Other metrics
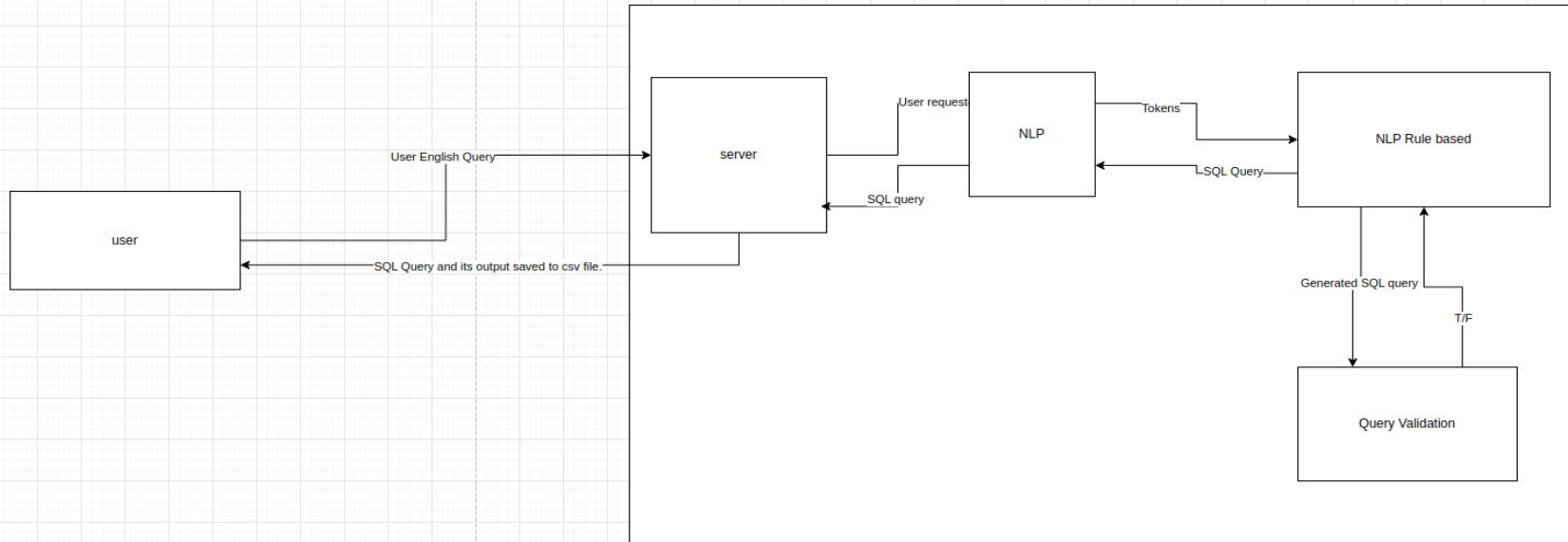
Few Generic Use cases :
- Data Summarizer
- Meta-Model Update
- Extract Transform Load

Technology Stack

1. Frontend : React.js

2. Backend : Flask Python

3. DB : MySql

4. NLP

System Architecture Design

UI/UX

1. Chat GUI for query input

2. Results display and download interface

3. Meta-model updater interface for Soumya

Delivery Timeline

1. Phase 1 : Monday, 16 September 2024, 10:00 AM
    a. Define scope, Gather requirements
    b. Create system design and use case
2. Phase 2 : Tuesday, 15 October 2024, 8:00 PM
    a. Screen design and wireframe
    b. Setup development environment setup and work on the prototype
3. Final : Friday, 29 November 2024, 10:00 AM
    a. Finalize the system
    b. Do the unit and integration testing
    c. Prepare the final presentation and documentation

Phase	Week	Dates	Tasks
Phase 1: Initiation & Planning	Week 1	1 Sep – 7 Sep 2024	- Define scope - Gather requirements - Assign roles
	Week 2	8 Sep – 14 Sep 2024	- Draft system design - Develop user cases
Phase 2: Design & devlopment	Week 3	15 Sep – 21 Sep 2024	- Finalize architecture - Create wireframes
	Week 4	22 Sep – 28 Sep 2024	- Develop user stories - Prototype features
	Week 5	29 Sep – 5 Oct 2024	- Set up environment - Start frontend development
	Week 6	6 Oct – 12 Oct 2024	- Continue frontend - Begin backend development
Phase 4: Finalization & Presentation	Week 7	13 Oct – 19 Oct 2024	- Integrate components - Implement features
	Week 8	20 Oct – 26 Oct 2024	- Complete development - Prepare for testing
	Week 9	27 Oct – 2 Nov 2024	- Conduct testing - Fix bugs
	Week 10	3 Nov – 9 Nov 2024	- Optimize performance - Refine UI/UX
	Week 11	10 Nov – 16 Nov 2024	- Prepare documentation - Rehearse presentation
	Week 12	17 Nov – 23 Nov 2024	- Finalize presentation - Conduct demo
	Week 13	24 Nov – 29 Nov 2024	- Submit project - Final presentation

Work Breakdown

1. Aditya Singh
   a. Project planning and management
   b. System design and presentation
   c. Integration Testing and debugging
2. Aditya Sangana
   a. User interface design
   b. Fronted development
3. M. L. Raghurama Datta
   a. NLP (Text Processing)
   b. Validation Testing
4. Sandeep Nagalli
   a. Database Integration and management
   b. Backend Application Server Implementation

Thank you