AI-Powered Data Query Interface

1. Introduction

- **Purpose**:
  The purpose of this document is to provide a detailed description of the requirements for developing an AI-powered chat interface that retrieves the client's data efficiently from a database containing records of 50,000 employees within an institution.

- **Scope:**
  A website to be developed will consist of an AI chat interface capable of querying and retrieving employee data from a centralized database. The primary goal is to enhance retrieval speed and user interaction.

2. Overall Description

- **Product Perspective:**
  A website with AI-powered chat interface will interact with an existing database of employee records. It will be designed to handle natural language queries and provide accurate responses in real-time.

- **Product Functions:**

  - **Natural Language Processing (NLP):** Interpret user queries in natural language.
  - **Database Querying:** Retrieve employee data based on user queries.
  - **Response Generation:** Formulate responses based on retrieved data.

3. Specific Requirements

  - **Functional Requirements:**

  - **User Input Processing:**
    - The system shall accept text-based queries from users.
    - It shall utilize NLP techniques to parse and understand user intent.
  - **Data Retrieval:**
    - The system shall query the employee database to fetch relevant information.
    - It shall retrieve data efficiently even with a large dataset (50,000 employees).
  - **Response Generation:**
    - The system shall generate accurate responses based on retrieved data.
    - Responses shall be formatted in a user-friendly manner for easy comprehension.
  - **Security:**
    - User authentication mechanisms shall be implemented to ensure data privacy.
    - Access to sensitive information shall be restricted based on user roles and permissions.

- **Error Handling:**
    - The system shall handle and respond to query errors and exceptions.
    - It shall provide meaningful error messages to users when queries cannot be processed.
- **Non-Functional Requirements:**

- **Performance:**
    - The system shall retrieve and display query results within 2 seconds on average.
    - It shall support concurrent users with minimal impact on response time.
- **Reliability:**
    - The system shall be available 99.9% of the time during standard operating hours.
    - It shall maintain data integrity and consistency during operations.
- **Usability:**
    - The chat interface shall have an intuitive design with clear prompts and feedback.
    - It shall support interactions in multiple languages if required.
- **Scalability:**
    - The system architecture shall support scaling to accommodate future growth in database size and user base.

4. External Interface Requirements

- **User Interfaces:**

    - **Chat Interface:** A web-based or mobile application interface where users can input queries and receive responses.
- **Software Interfaces:**

    - **Database Interface:** APIs for querying and retrieving data from the employee database.
    - **Authentication Interface:** Integration with existing authentication systems for user verification.

5. Other Non-Functional Requirements

- **Legal and Regulatory Requirements:**

    - The system shall comply with data protection regulations (e.g., GDPR) regarding the handling of personal employee information.
- **Documentation Requirements**:

    - Detailed user manuals and technical documentation shall be provided for system administrators and end-users.