# Query Wizard

AI-Driven Ticket Filtering System

## METHODOLOGY:

A number of crucial stages were involved in the creation of the AI-driven ticket filtering system: comprehending user questions using natural language, converting those queries into technical requirements, locating pertinent tickets in the database, and offering feedback on how to interpret the queries. Here is a quick synopsis of every element:

1. Natural Language Understanding (NLU) Module:
   The goal is to decipher user queries and organize them into coherent parts.
   Approach: For natural language interpretation, we used GenAI's Gemini-Pro model. This model was selected due to its superior semantic interpretation and context comprehension skills. By examining different wordings and synonyms, the system determines ticket properties including status, assignees, priorities, and time-related data.
   Implementation: To efficiently parse requests, the NLU module employs specially trained prompts. An example of a query that is parsed to determine the assignee (John), the ticket status (overdue), and the necessary action (show tickets) is "Show me all tickets assigned to John that are overdue."
2. Query Translation Engine:
   Goal: Effectively run the translated query and obtain the tickets that match.
   Method: In order to guarantee quick and precise ticket retrieval based on the specified criteria, the system makes use of efficient database searches.
   Implementation: To handle huge datasets and deliver results quickly, the retrieval method makes use of indexing and query optimization techniques.
3. Interpretation Feedback Mechanism:
   Goal: To provide users with information about how their query was handled and to enable them to make changes.
   Approach: The system shows the interpreted components and the equivalent technical filter criteria after processing the query. Users may better comprehend the system's interpretation and, if necessary, hone their questions thanks to this transparency.
   Implementation: The technical requirements and the natural language interpretation are displayed simultaneously via the feedback system that is incorporated into the user interface.

## FINDINGS:

1. Interpretation Accuracy: The Gemini-Pro model showed excellent interpretation accuracy when it came to comprehending and organizing user inquiries. The resilience of the system was greatly enhanced by its capacity to handle different phrasings and synonyms.
2. Translation Efficiency: To ensure interoperability with the ticket database, the query translation engine successfully translated natural language inputs into the proper technical filter criteria.
3. Performance: Optimal query techniques and indexing allowed the query execution module to extract pertinent tickets quickly, even with enormous amounts of data.

## RECOMMENDATIONS:

1. Constant NLU Model Improvement: The accuracy and adaptability of the Gemini-Pro model can be improved by routinely updating and training it with fresh data and a variety of query instances.
2. Improved User Input: Including more thorough feedback options, including recommendations for improving queries, could enhance user happiness and experience even more.
3. Aspects of Scalability: Maintaining performance will require introducing advanced indexing algorithms and scalable database solutions as the user base and data volume increase.
4. Mock Platform Growth: A more thorough demonstration of the system's capabilities might be achieved by adding functions like user authentication and access control to the dummy ticket management platform.

## CONCLUSION:

With the help of artificial intelligence (AI), the ticket filtering system efficiently converts natural language requests into technical standards for precise and quick ticket retrieval. System performance and user experience will be further optimized by further improving the feedback and scalability features and refining the NLU architecture.