

AI Data Assistant (Enabling Users to Query University Statistical Indicators via Agent-Based Interaction)

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1. Background

As the University's data governance initiatives continue to advance, the Data Team has accumulated a set of core institutional statistical indicators. At present, these indicators are primarily accessed through the report center. While the visualisations are clear and intuitive, practical usage reveals certain limitations: users can only view indicators based on predefined dimensions and are unable to pose ad hoc, personalised questions in real time, resulting in limited flexibility.

Following the deployment of HiAgent at XJTLU, the natural language processing capabilities of large language models can be leveraged in combination with structured data indicators. This enables users to obtain the information they need at any time through conversational

interaction with an Agent, which led to the introduction of the AI Data Assistant Agent.

2. Solutions

The Data Team first consolidated a series of core data indicators and exposed them for external access through API interfaces. These APIs were registered as plugins on the HiAgent platform and organised into multiple plugin sets according to different business scenarios. For cases where API response payloads were not directly usable, dedicated workflows were designed to decompose and extract relevant information, thereby providing reliable data support for the AI Data Assistant Agent.

Based on user queries, the Agent identifies user intent, matches the most appropriate plugin, retrieves the corresponding indicator data, and outputs the results in the form of easy-to-understand charts or explanatory text, in accordance with predefined prompt rules.

3. Outcomes and Benefits

The Agent enables a fundamental shift from traditional fixed-report browsing to conversational, on-demand data querying, significantly enhancing the convenience and interactivity of data access for users.

4. Replicability and Promotion Value

For academic administration or student service scenarios that require precise querying—such as course timetables, grades, comprehensive evaluation details, or awards and honors—the AI Data Assistant approach follows a similar development pattern. The underlying methodology can be refined and promoted to relevant departments, supporting broader adoption of AI-driven data querying solutions.

5. Next Steps

At present, the preparation of data indicator query APIs requires substantial upfront effort, including interface design, response payload parsing, and the predefinition of domain-specific terminology within the Agent, making early-stage implementation relatively complex.

In the next phase, the Data Team plans to explore direct database connections using intelligent SQL plugins that translate natural language queries into SQL statements for direct table-level querying, thereby simplifying the overall workflow. Alternatively, more AI-oriented data analysis platforms—such as the report center's built-in AI capabilities or dedicated Data Agent platforms—may be adopted to further extend and deepen the AI Data Assistant initiative.