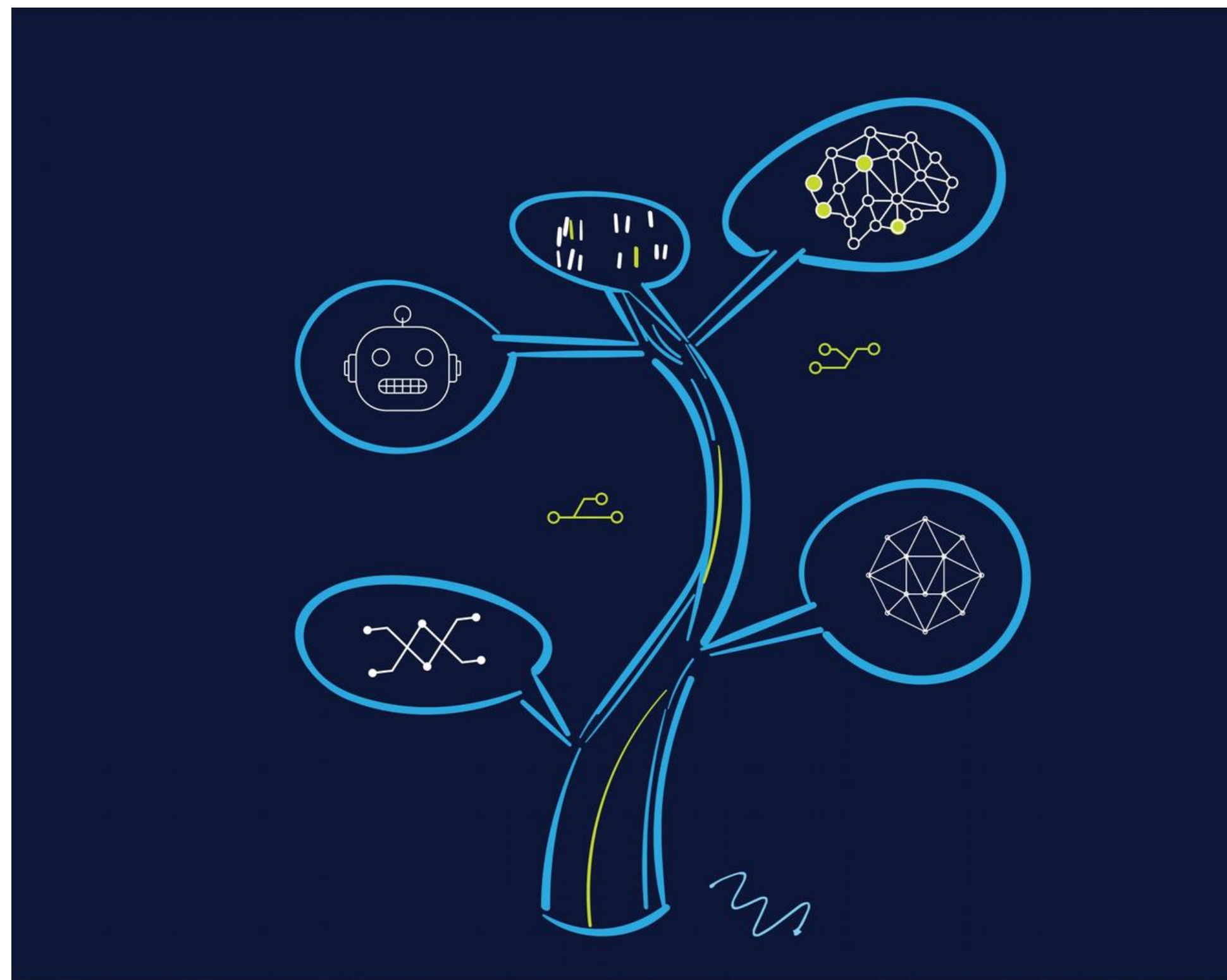




GCRIS AI

Our Purpose

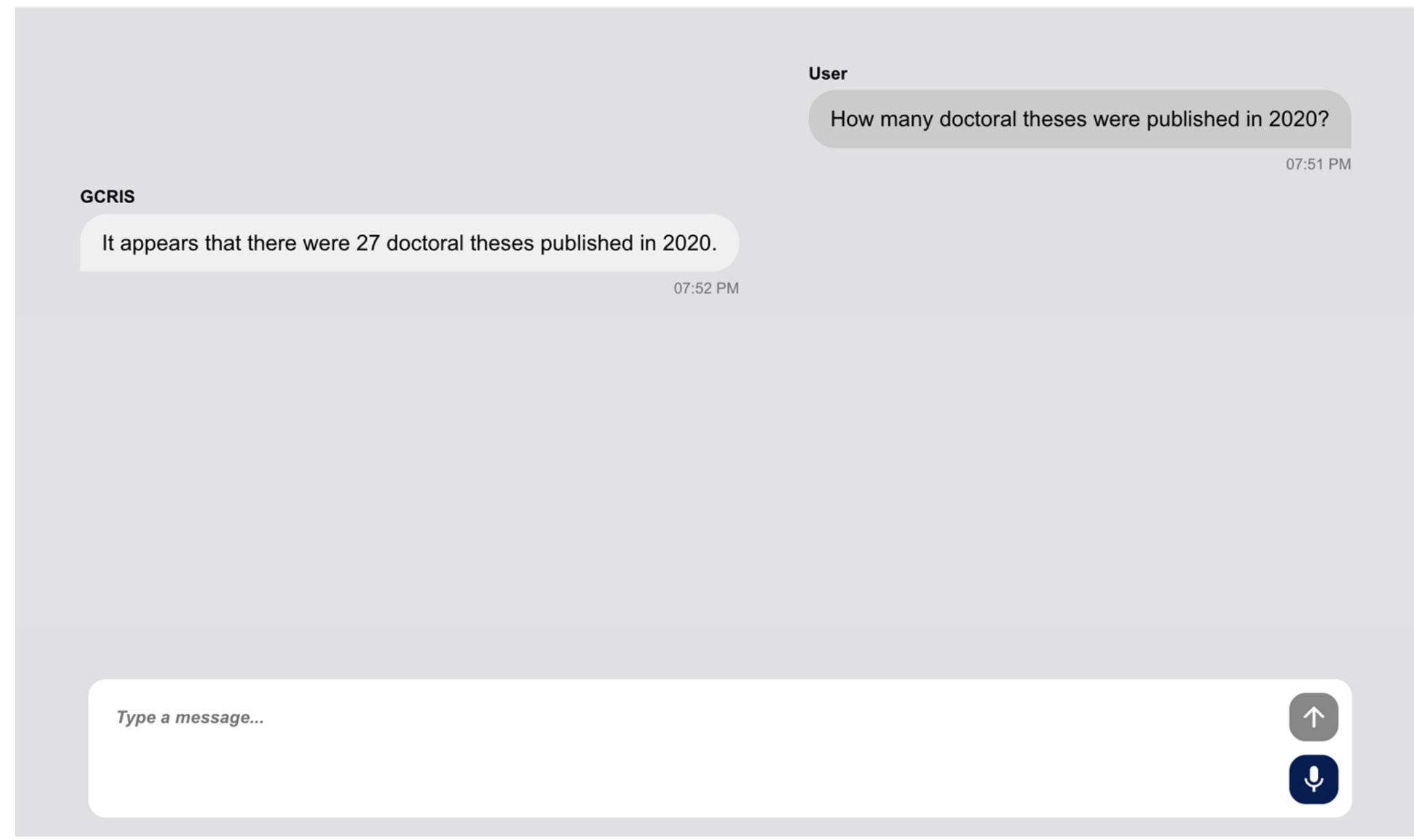
- Developing a chatbot that works on the GCRIS database, is supported by large language models, and functions as a user-oriented and intelligent search engine.



Where Are We Now?

%94.17

Accuracy Rate



01

IZTECH accurately retrieves and analyzes researcher, department, faculty, university statistics and publication data from the GCRIS database.

02

It performs dynamic and contextual searches based on user queries.

03

It provides accurate answers using multi-agent architecture to extract sensitive information from different database fields.

Expansion of Scope and Increased Accuracy

- **Feedback mechanism** to guide the user to ask the right question.
- Ability to address questions related to the user's previous questions with **History**



%88

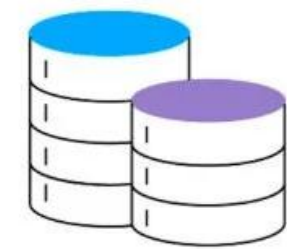
Previous Accuracy Rate

%94.1

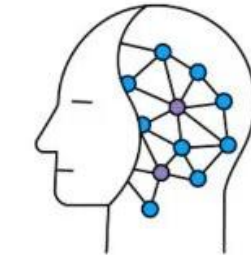
Current Accuracy Rate

Ongoing Developments

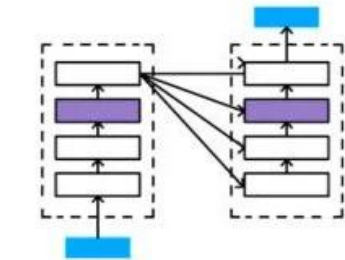
Large Language Models (LLM)



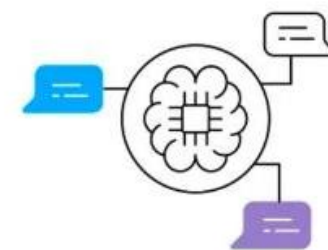
Massive Dataset



Deep Learning



Transformer Architecture



Self-supervised Learning



Fine-tuning

01

Improving accuracy and response quality through continuous testing.

02

Expanding query capabilities to cover a broader range of investigations.

03

Improving performance through error analysis and optimization studies.



Technical Details

01

LangGraph & LangChain

Managing multi-agent architecture and intelligent routing

02

Python

Chatbot development and OpenAI integration

03

PostgreSQL

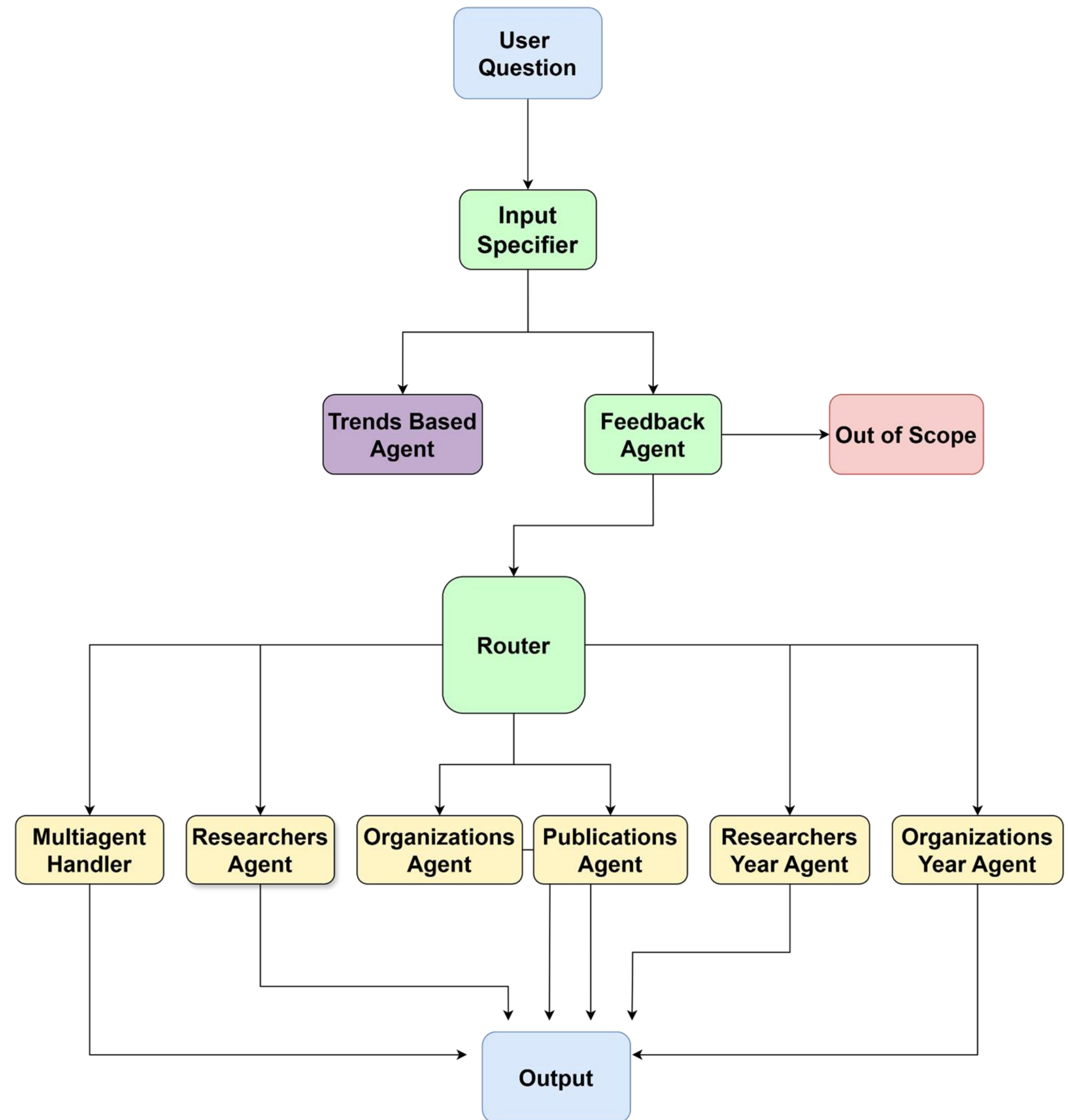
Robust and scalable data management with the GCRIS database

04

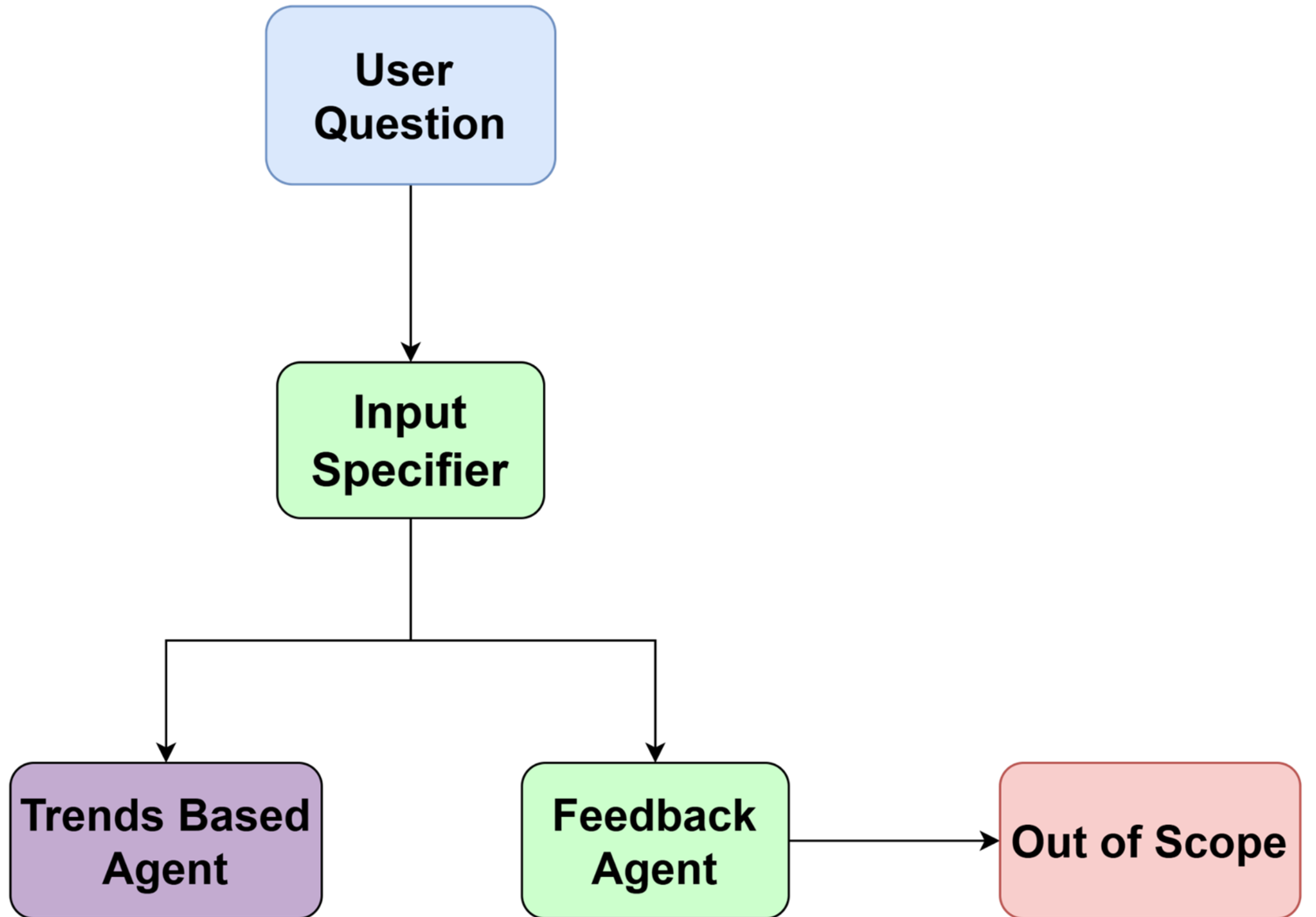
OpenAI API

Advanced response generation and natural language processing

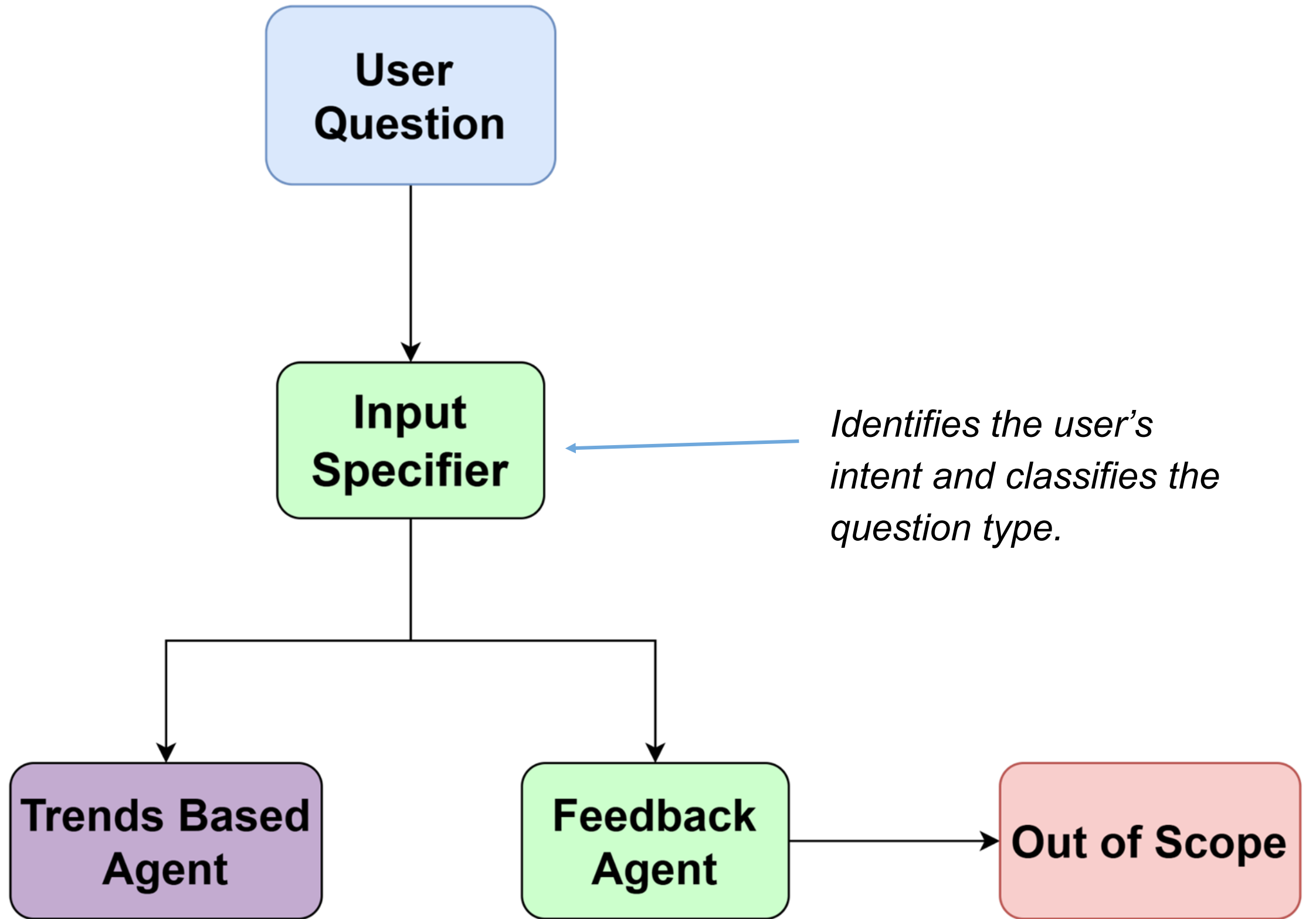
Multi-Agent Chatbot Structure



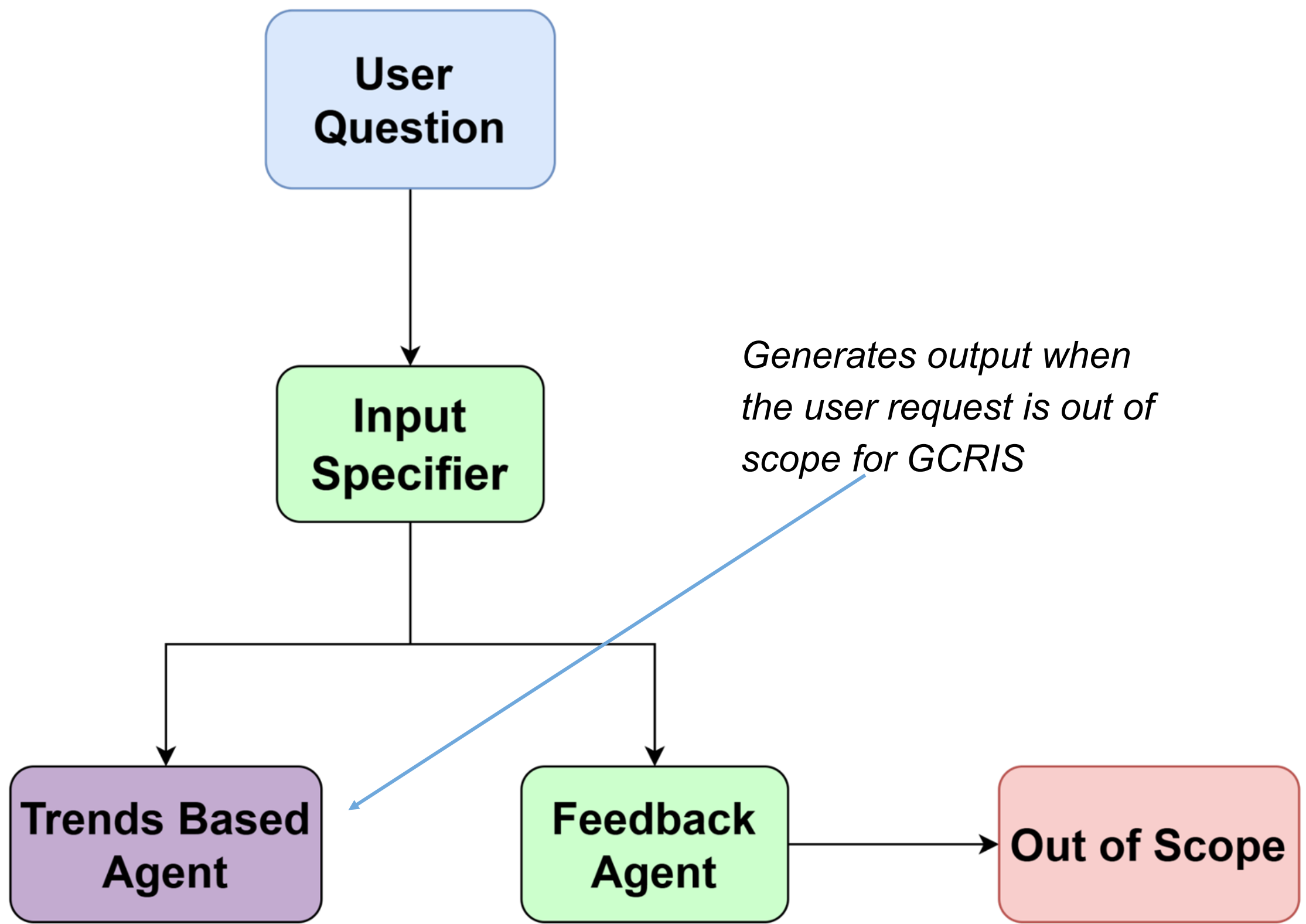
Stage 1: Input Classification Flow



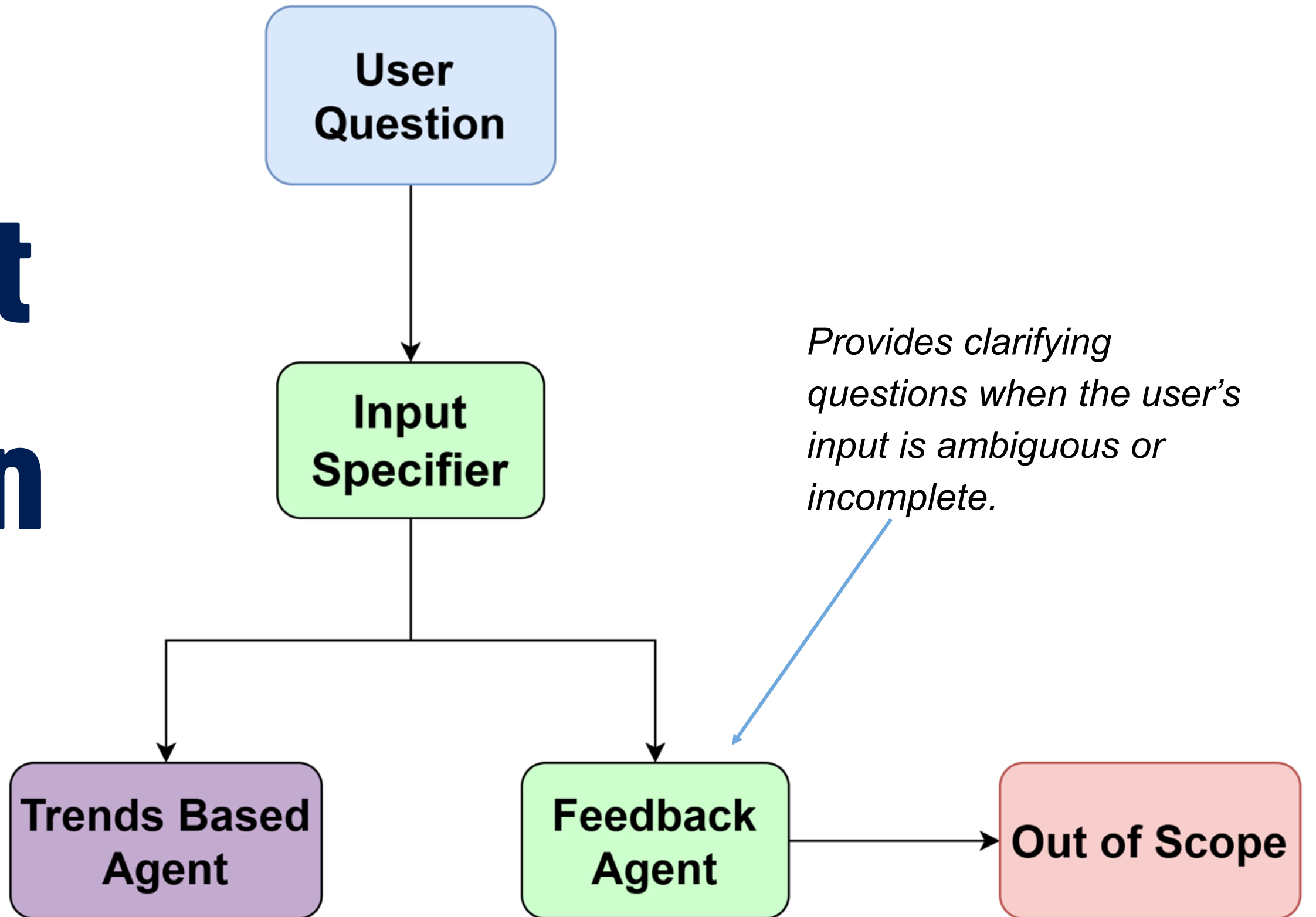
Stage 1: Input Classification Flow



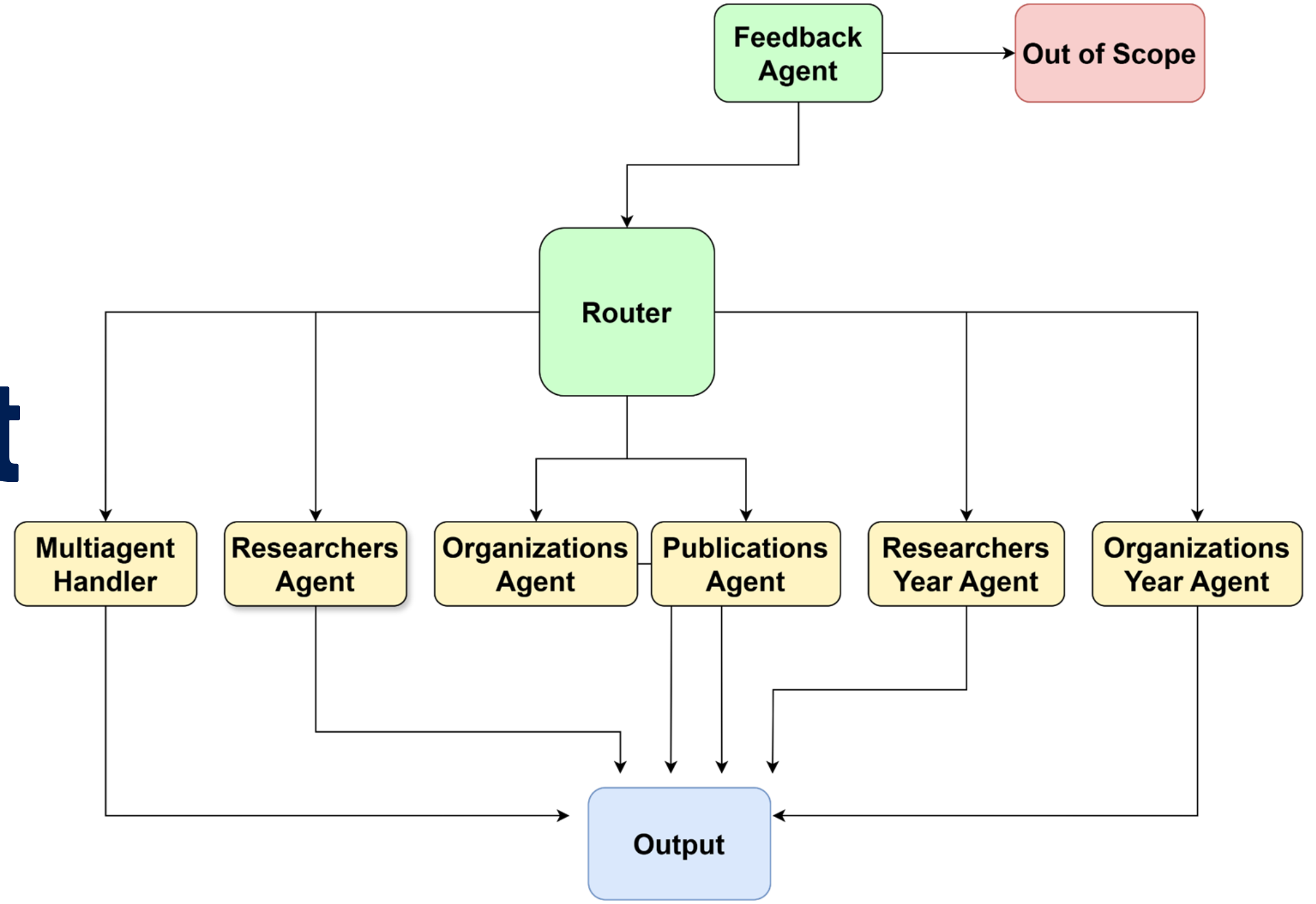
Stage 1: Input Classification Flow



Stage 1: Input Classification Flow

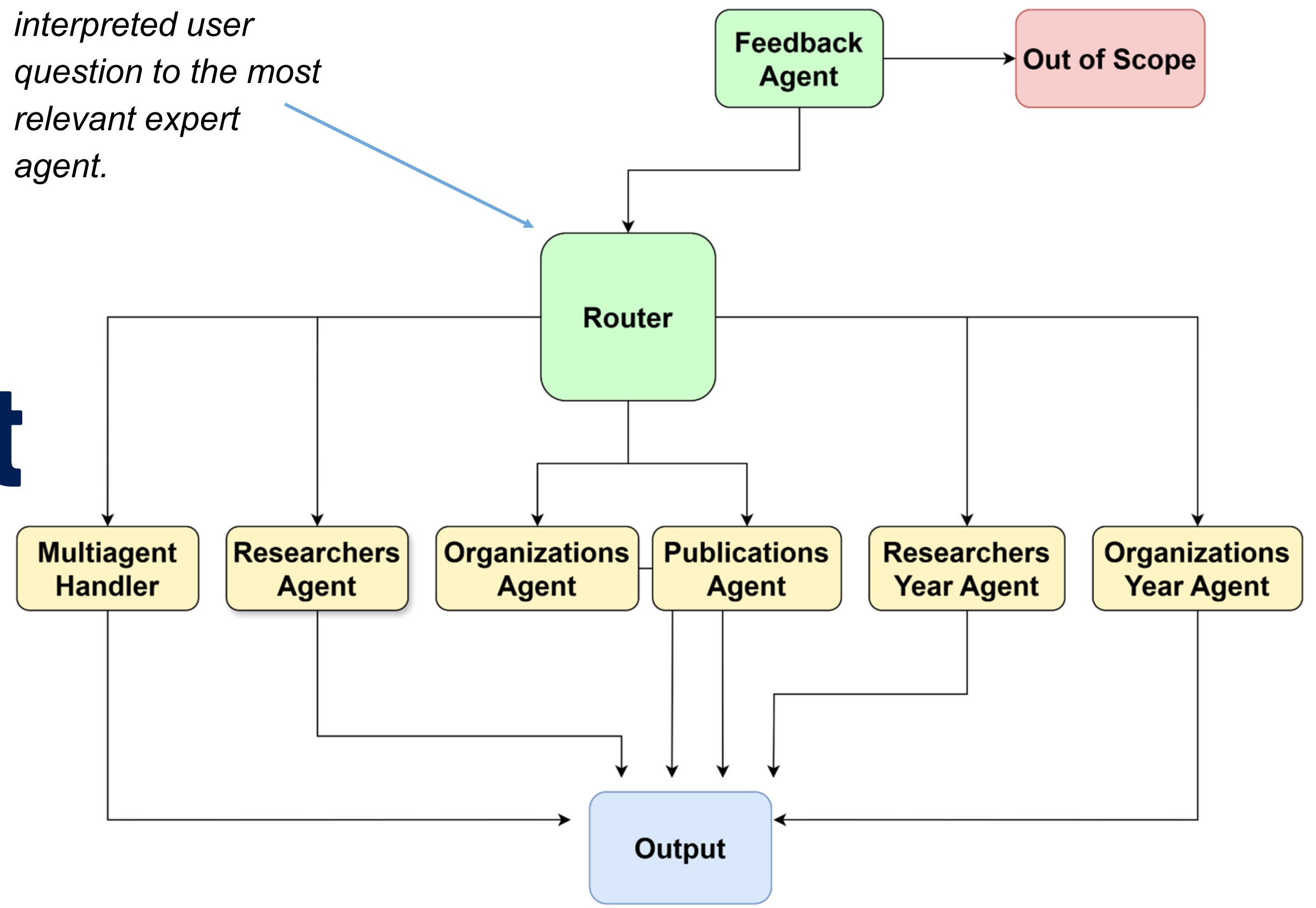


Stage 2: Expert Agent Routing



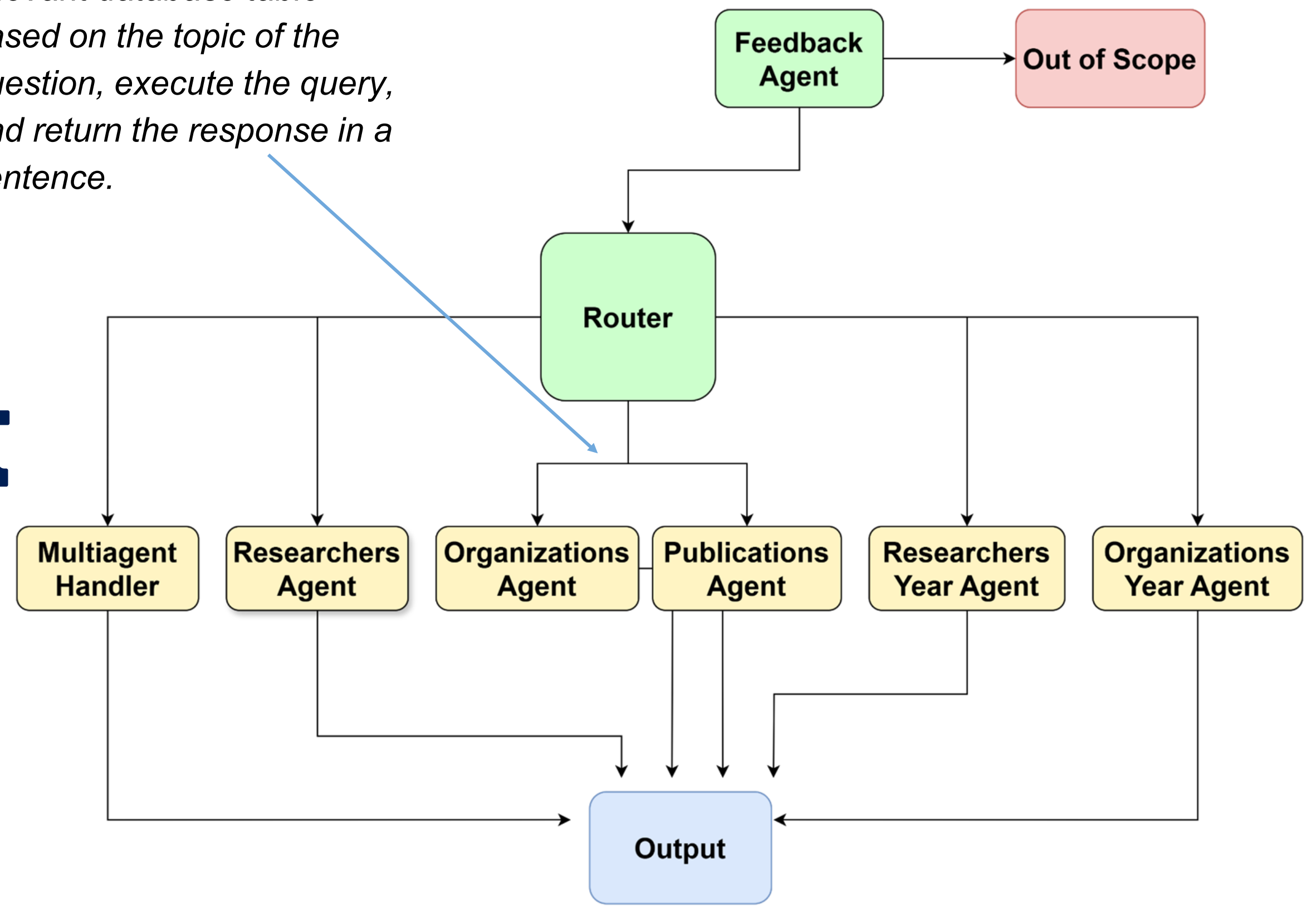
Stage 2: Expert Agent Routing

Routes the interpreted user question to the most relevant expert agent.



Stage 2: Expert Agent Routing

Expert Agents navigate to the relevant database table based on the topic of the question, execute the query, and return the response in a sentence.



Turning Large-Scale Data into Actionable Insights

Scholarly Output
11998



Organisations
31

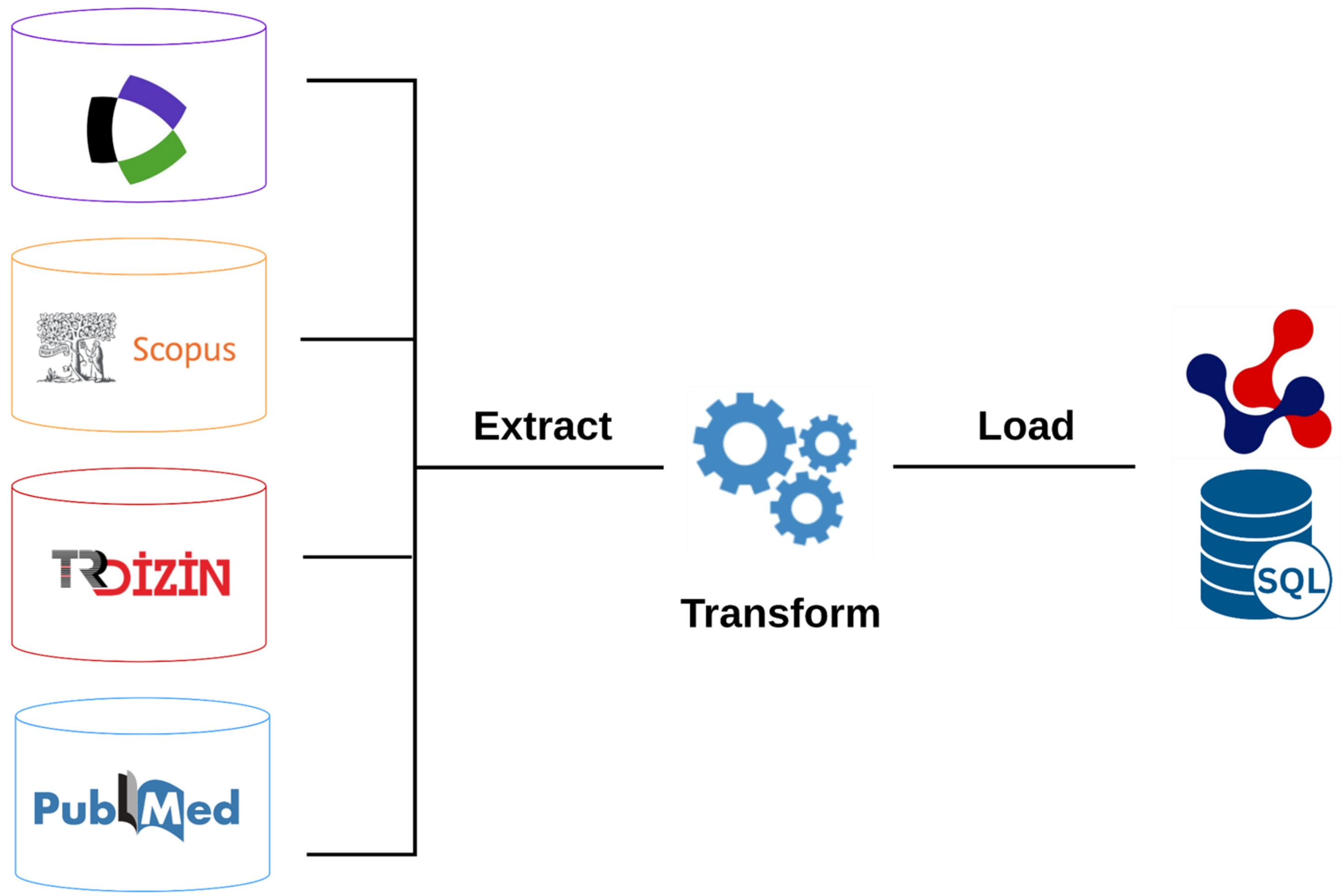


Current
Researchers
304



Projects
1353







Questions We Successfully Addressed

Are Highly Cited Publications Mostly from Q1 Journals?

User

Are highly cited publications mostly from Q1 journals?

11:32 AM

GCRIS

Highly cited publications are often found in Q1 journals, which are in the top quartile based on impact factor or other metrics. These journals typically have a wider readership and greater visibility, contributing to higher citation rates. However, it's important to note that highly cited papers can also come from Q2, Q3, or even Q4 journals, especially if the research is groundbreaking or particularly relevant to a specific field.

In summary, while there is a strong correlation between high citation counts and Q1 journals, it is not exclusive, and many factors influence citation rates beyond the journal's ranking.

11:32 AM

Can You Analyze This Question in the IZTECH GCRIS Database?

User

Can you analyze this question in the IZTECH GCRIS database?

12:11 PM

GCRIS

The analysis of whether highly cited publications are primarily from Q1 journals in the IZTECH GCRIS database indicates the following:

- Among the highly cited publications (totaling 866), 682 are from Q1 journals, which accounts for approximately 78.75% of this group.
- In contrast, for other publications (totaling 5,894), 2,505 are from Q1 journals, making up about 42.50%.

This suggests that a significant proportion of highly cited publications are indeed from Q1 journals.

12:11 PM

Give information about Tugkan Tuğlular.

User

Give information about Tuğkan Tuğlular.

12:04 PM

GCRIS

Tuğkan Tuğlular is a faculty member in the Department of Computer Engineering. Here are some details about him:

- **Email:** tugkantuglular@gmail.com
- **Total Outputs:** 106
- **Total Articles:** 21
- **Open Access Outputs:** 93
- **Total Patents:** 1
- **Masters Theses Supervised:** 35
- **PhD Theses Supervised:** 2
- **Scopus Citations:** 222
- **WoS Citations:** 130

12:05 PM

Who is the most cited researcher?

User

Who is the most cited researcher?

12:06 PM

GCRIS

The most cited researcher is Güler Karapınar, with a total of 61,631 citations.

12:07 PM

**Thank You For
Your Interest**

