

QUERYEASE :SIMPLIFIED DATABASE QUERYING WITH NATURAL LANGUAGE USING LLAMAINDEX

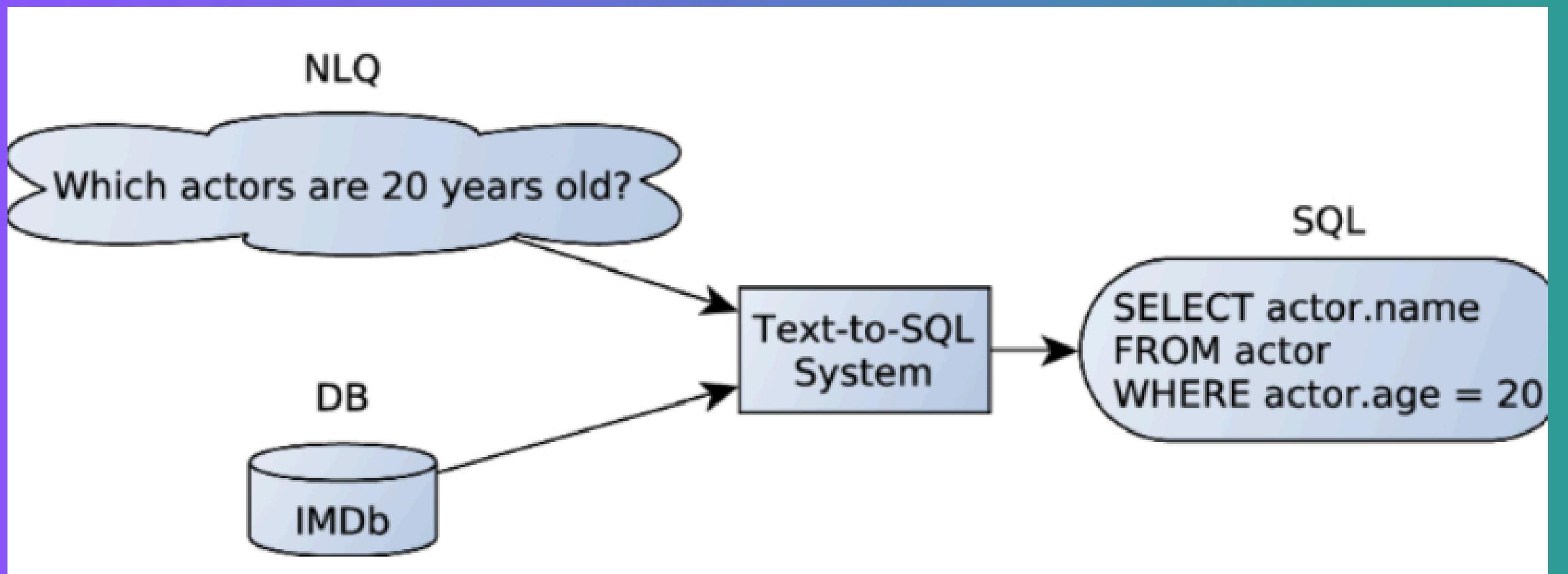
Group 1 : Swetha Srinivasan ss9577

Sagnna DS sd7168

AGENDA

1. Introduction
2. Goals and Objectives
3. Methodology
4. Conclusion

INTRODUCTION



- The QueryEase system helps in translating natural language questions to SQL queries and further provide the query output.
- It provides means for humans to interact with computers (Databases) through the use of natural language

GOALS AND OBJECTIVES



Goal # 1

Bridge the gap
between natural
language queries and
structured databases.



Goal # 2

Simplifying access to
database queries for
users



Goal # 3

Ensuring efficient
performance while
managing large data
volumes and queries

METHODOLOGY



- LlamalIndex, a versatile data framework tailored specifically for LLM-based applications.
- By leveraging LlamalIndex, we have been able to expedite the process both retrieval and synthesis functionalities, enabling us to seamlessly translate natural language queries into SQL queries.

METHODOLOGY

QueryEase - SQL to Text Conversion

SQL Input

```
Return the top 4 cities (along with their population)  
with the highest population
```

Generate Output

Output

```
"[Tokyo, 13960000), (Seoul, 9776000), (Toronto,  
2930000), (Chicago, 2679000)]"
```

```
SELECT city_name, population  
FROM cities  
ORDER BY population DESC  
LIMIT 4;
```

- Integrating the **NLSQLTableQuery Engine algorithm**

METHODOLOGY

QueryEase - SQL to Text Conversion

SQL Input

```
Which city has the highest population density?
```

Generate Output

Output

```
Toronto, 2930000
```

```
SELECT city_name, population / area AS density  
FROM cities  
ORDER BY density DESC  
LIMIT 1;
```

- Incorporated the **SQL retriever algorithm**, which plays a pivotal role in retrieving relevant data from the underlying database

CONCLUSION

- THE OUTPUT OF TEXT TO SQL CONVERSION IS A STRUCTURED SQL QUERY THAT REFLECTS THE USER'S INPUT EXPRESSED IN NATURAL LANGUAGE.
- DATA RETRIVAL AND DATA PREPROCESSING IS INCORPORATED AS AN INTEGRAL PART WITHIN THE CORE LLAMA INDEX MODEL THAT HAS BEEN DEVELOPED .
- THE QUERY OUTPUT IS TYPICALLY FORMATTED ACCORDING TO THE SYNTAX OF THE SQL LANGUAGE.

THANK YOU