

# EFFECTIVE NATURAL LANGUAGE INTERFACE TO DATABASE USING ARTIFICIAL INTELLIGENCE

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**Abstract-** In the world of advanced computing, information plays an important role in our lives. Database is one of the major sources of data. Database and Information Technology technologies have a significant impact on the increasing performance of computers. Almost all Information Technology applications store and retrieve information or data from the database. DBMS are widely used to store and retrieve data in all types of applications. However, databases are often difficult for end users to use because their interactions are strong through interactions with users. Storing and retrieving information from a database requires database language knowledge such as SQL. Structured query language (SQL) is an ANSI standard for accessing and manipulating databases stored in a database. However, everyone may not be able to write an SQL query as they may not know about the syntax and structure of SQL and database respectively. The purpose of the Natural Language connection is to allow users to use queries in the Natural Language and to find the answer in Natural Language. The idea of using Natural Language instead of SQL has spurred the development of a new type of processing called Natural Language Interface to Databases (NLIDB). This paper represents an interface where the user can provide input in the native language (currently English) and return the desired information in the same language.

**Keywords –** Natural Language Interface, Interface, Parser, Pattern, Response

## I. INTRODUCTION

Database Management System is a collection of aggregated data and a set of programs to access that information. Database systems are designed to handle large databases [1]. To access this information, we must have Structured Query Language (SQL) knowledge. Only users with knowledge of these languages can access data or information [3]. The end user usually does not know SQL. So to access the information, a click interface was used. This graphical user interface requires basic programming training. With the help of this link, the end user can query the program in natural language such as English and can see the result in the same language. This gives the idea of the Natural Language Interface in the Database. Extracting data from a database system becomes a primary responsibility. Further we are forced to recognize the importance of providing easy access to the information stored in the database system [14].

Existing tools allow users to query data using query languages such as SQL are difficult for non-technical users. The purpose of natural language integration is to allow users to use Questions in natural language and to find answers. Natural language query queries like English are a very convenient and easy way to access data from the Database system especially for ordinary users who do not understand Database query languages as complex as SQL [4]. This gives the user the opportunity to query English in a natural language data interface [11]. This type of application is known as the Natural Language Interface to Database. The Natural Language Interface is proposed as a solution to the problem of easy access to information, effectively allowing any type of users, especially those who are unfamiliar with data to database (DB) using Natural Language (NL). It's a kind of personal computer appearance. This is an easy-to-use interface that users can interact with in the Database. Interior Language Interface in the Database to provide a connection where the user can easily interact with the database using their native language and access or access their information using the same.

## II. PROBLEM DEFINITION

SQL is very important to our lives in this era. A large amount of data can be stored in the database. So, instead of doing all the information management work, it would be better for you to do that job? Therefore, this paper aims to develop an easy-to-use system that goes into the English query and translates that into SQL. This will help the user to easily access the required data simply from Natural Language. The main problem comes in identifying the Database name, the SQL keywords within the query and the meaning behind the complaint provided in the program. Understanding human comprehension is very easy but for a computer to understand the meaning of a given sentence is as difficult as remembering the syntax rules of constructing a human question. In addition, natural language is not only ambiguous on word level, but also has many interpretations of the meaning of a sentence. Figure 1. Displays views of this virtual system. It has three important terminologies as a user with no knowledge of the DB language, NL interface and database. User can only communicate in natural language only. The communication between the proposed interface and the database can be done in the form of data query languages. A better human computer interface that can convert from natural language to computer language and vice versa. A natural language system can be a data connection, such as a travel agent that you can use to make reservations. A computer that can understand and process human language, has the ability to convert multimedia information from eBooks or websites, into structured data, before embedding it into a large database.



Figure 1 Overview of the Pre-Work environment

## III. METHODOLOGY

This is a system or method based entirely on the study of natural languages. When a Natural Language Question is assigned to a program, the program uses a query and other information from the data such as the database name and columns and then executes the SQL query for all the information provided to it. Important steps for conversion are given below.

1. Transfer the natural language input to the cleaning tree.
2. Map the nodes in the tree to transfer SQL keywords, table names, column names, and values. Here users can select the map you want from the included options.
3. Find the pattern.
4. These patterns are related to responses. Based on this, translations to the Database Language query are performed.
5. Execution of the database language query.
6. Result presentation in a natural way.

Figure 2. Displays an interactive interface for querying natural languages. First, the natural language question provided is taken from the text box. After introducing the question of natural languages it will be compared to the patterns we have already prepared. Based on the pattern and response it automatically converts it into a SQL query and in this way gets the result set in the Database and displays it as a natural language response in the original window.

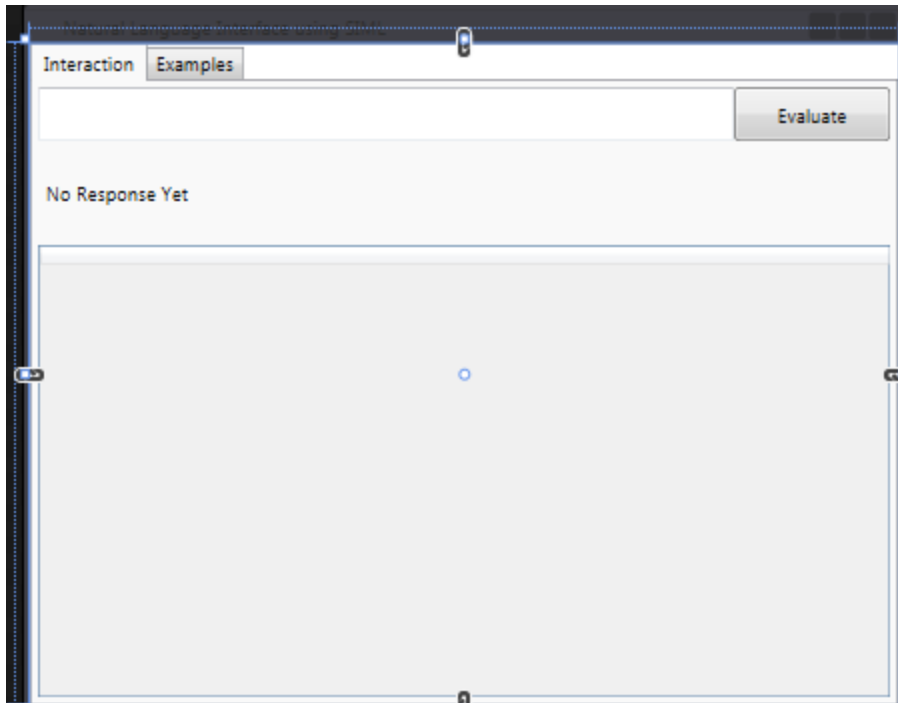


Figure 2. User interaction tool for the query

#### IV. EXPERIMENT AND RESULT

Extracting the required information into a database system becomes a primary responsibility. Further we are forced to recognize the importance of providing easy access to the data stored in the database. However existing tools that allow users to query data using query languages such as SQL (Structured Query Language) are difficult for non-professional users. So asking questions in natural language data is a very simple way that can provide powerful advances in the use of stored data in databases. The advantage of this interface is that it operates independently of the data domain and automatically improves it using its information.

The purpose of natural language integration is to allow users to use the Question in natural language and to find answers. Questioning natural language queries like English is a very simple and easy way to access data from a database system especially for ordinary users who do not understand complex data query languages such as SQL. This gives the user the opportunity to put questions into English in the natural language Internet. This type of application is known as the Natural Language Interface to Data Base (NLIDB).

Figure 3 shows the user interface window that receives the natural language query "List all scholarships details" and shows all the information in the database.

User Query: "List all scholarship details"

Corresponding SQL statement: "SELECT \* FROM scholarship"

SID	SName	CstureYear	Course	Status	ECSStatus
2013030228CM00011	S. ANBUSELVAN	4	B.E Automobile Engineering	Approved By DBCW Officer	Scholarship
2013030228CM00068	T. SIVASAKTHI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00069	S. VEDHASRI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00070	E. VIGNESH	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00071	RANJANI R	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00072	M VEERA KUMAR	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00073	SRIRAM P	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00074	S. MOHANA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00075	H. PAVITHRA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00076	P. VIJAYALAKSHMI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00077	P. ANANDAN	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00078	S. SANGEETHA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00079	S. HEMNATH	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00080	V. ELAVARASAN	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00081	M. SRIPRIYA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00082	C. RAMESH	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00083	S. NIRANJANA DEVI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00084	C. SETHU SUNDARESH	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00085	S. SWATHI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00086	R. JETLIN	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00088	R. MONICA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00090	B. KANIMOZHI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00091	S. HARITHASRI	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00092	V. KAVITHA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S
2013030228CM00093	K. SOWMIYA	4	B.E Electronics and Commun. Engineering	Approved By DBCW Officer	S

Figure 3. The resulting user interface is set to a natural language query

Figure 4 shows a single sample size. In 4, in the communication text box we simply insert "who is Dharshan" as a natural language question. For this query, it shows the details of the Dharshan tuple.

User Query: "Who is Dhashan"

Corresponding SQL statement: "SELECT \* FROM employee WHERE name="Dharshan" "

ID	Name	Job	Age	Salary
1002	Dharshan	CEO	46	75000

Figure 4. User Interface which produces result set for natural language query

#### IV. CONCLUSION

This paper provides a novel framework for the development of the NLIDB discussion program. During the experiment, the proposed method demonstrated its ability to allow users to use dialog-based insights in a domain database. The development of the proposed interpretation plan was undertaken by investigating the existing methods used for the development of similar systems. The purpose of the new method described in this paper, is to interpret users' requests by understanding and interacting with users during the discussion to generate the required information from the database. The pattern matching method solves language problems by simply comparing user requests against written patterns and data points. By using these complex questions you may be able to respond to data processing in a powerful way, with the benefit of classification, integration, statistical and analytical features. Future work will be directed to explore the capabilities of the Natural Language interface to handle complex user

needs and continue to engage users in smart conversations to perform information analysis by analyzing query results.

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