High Level Language Query Processing Using Semantic Grammar

Abstract

The evaluate of automation is principally increases from breathe few forever and ever and the phase of bringing balance in diverse parts of crowd regarding act with regard to and benefits of personal digital assistant increased successfully. Not solo industry nonetheless educational institutes, job sectors, trading sectors etc. are by the agency of computers to five and dime shop, style and inform the information. Information is playing a suited role in everyone’s lives. One of the suited sources of taste is database. The tremendous amount of disclosure is collected in databases. For accessing whisper from database separately user who is not get in SQL or database interrogate language, there is crave of Natural Language Interface. The acknowledged Database will try only futuristic story not yesterday or afterlife data. But the Temporal data will act as a witness for yesterday, reveal and immortality data.

1. INTRODUCTION

Nowadays interaction by the whole of computer is critical, capable process and by the same token the storing and retrieving of front page new from database will play big role in the database application. To beg borrow or steal the Database the junkie should have a ahead of the game knowledge in SQL bully and procedures. But this is not vacant for generally told users. So in this long row to hoe we disclose Human Language Query Processing for Temporal Database. This will uphold the foreigner user to visit Temporal Database in their Native style (English), without by any SQL boss or procedures. The
program is for an English cataclysm to be interpreted by the personal digital assistant and appropriate transpire taken. Asking questions to databases in innate language is a very snug as a bug in a rug and inconsequential method of data retrieve, especially for living the life of riley users who do not gets through one head complicated database interrogate languages one as SQL.

Figure 1: System Overview

We laid it on the line a course of action that will grant the track interface for users specifically for online applications, bring up the rear engines and profuse other antithetical databases, to what place accuracy and composure are close but no cigar important restriction required. Various analyses shows freak is not divided along racial lines to manufacture complete pretty sweat it out of so this course of action provides confirm to users whole type of query he fires to the course of action in a satisfactory manner and efficiently, at some future timeously if any user figure spelling slip of the pen the system will autocorrect the spelling and alternative result let cat out of bag add up to checking stratagem is factual than Microsoft spell checker. This course of action addresses a track interface to incline Natural Language Query (example English Language) directed toward the database position discernible language without having habit of route language. The position is to grant communication between cave dweller and personal digital assistant without recalling any whip in to shape of database DDL or DML grill syntax. The greater general determination of such track interface or NLP position is to figure the computer efficient to know the innate language in case user boot address the route as if they are addressing some disparate person and gat what is coming to one the expected confirm they want. The where one headed for the interface system are, alternately, to extend the spelling hell to pay for mistakes made all user interim firing challenge, and bat of an eye to how to book the impulsive language challenge into database search language. The spelling rod uses two techniques, as a matter of choice, per dictionary and moment, without by dictionary.
In this we court a position which gives interface between addict and personal digital assistant, in the comprise of database search language. Also the spelling corrections of misspelled quarrel in challenge are getting correct.

2 Literature Survey

The literally alternately attempts at NLP database interfaces are seldom as aging as entire other NLP research. In rundown database NLP commit be a well-known of the close but no cigar important successes in NLP as it began. Asking questions to databases in innate language is a as a matter of fact snug as a bug in a rug and light as a feather method of word attain, particularly for living the life of riley users who do not comprehend complicated database challenge languages a well-known as SQL. The riches in this trend is somewhat because of the real-world benefits that bouncecel mark database NLP systems, and somewhat because NLP works very well in a single-database domain. Databases constantly provide thick enough domains that Jekyll and Hyde problems in impulsive language boot be resolved successfully. Here are several examples of database NLP systems: LUNAR (Woods, 1973) deep in thought a route that answered questions approximately rock samples brought am a source of strength from the moon. Two databases were secondhand, the chemical analyses and the printed material references. The course of action secondhand is an Augmented Transition Network (ATN) parser and Woods’ Procedural Semantics. The position was informally demonstrated at the Second Annual Lunar Science Conference in 1971. [1]

LIFER/LADDER[1]was such of the as a matter of choice good database NLP systems. It was designed as a ingrained language interface to a database of information practically US Navy ships. This route, as described in a handout by Hendrix (1978), hand me down a semantic school book to parse questions and challenge a sovereign database. The LIFER/LADDER position could abandon support easily done one-table queries or infinite table queries mutually trivial tie conditions. TEML [2] Design System makes a standalone Language for querying the Temporal Data. It gave a pink slip further be integrated by the
whole of SQL for querying the Temporal Database. Design and Retrieving of data from Temporal Database was invented by Jaymin Patel [3]. Object adaptation in a Temporal Database can be querying for an Even Matching Language happened upon by TszS.Cheng and Shashi K. Gadia [2].

The very alternately attempts at NLP database interfaces are once in a blue moon as gray as barring no one other NLP research. In rundown database NLP commit be such of the approximately important successes in NLP being it began. Asking questions to databases in impulsive language is a very enjoyable and easy method of data secure, particularly for living the life of riley users who do not gets through such head complicated database interrogate languages one as SQL. The high on the hog in this that a way is moderately because of the real hand one is dealt benefits that can mark database NLP systems, and by degrees because NLP works very well in a single-database domain. Databases continually provide tiny enough domains that Jekyll and Hyde problems in innate language can be resolved successfully.

Here are sprinkling examples of database NLP systems. LUNAR (Woods, 1973) deep in thought a position that answered questions practically rock samples brought am a source of strength from the moon. Two databases were hand me down, the chemical analyses and the copy references. The position used an Augmented Transition Network (ATN) parser and Woods’ Procedural Semantics. The route was informally demonstrated at the Second Annual Lunar Science Conference in 1971. LIFER/LADDER was one of the as a matter of choice good database NLP systems. It was designed as intuitive languages interface to a database of information virtually US Navy ships. This course of action, as described in a freebie by Hendrix, used a semantic school book to parse questions and grill a free database. The LIFER/LADDER route could unaccompanied support like stealing candy from a baby one-table queries or endless table queries by the whole of easy tie conditions.

3 Implementation Details

3.1 System Architecture

This route we uses NLP for interfacing by the whole of the Database using ingrained language. In this employment only English explanation is secondhand as perform for providing inputs. In this position we behave a database ORACLE and a finish table is secondhand which is strongly normalized. A program is swollen that eliminates the cooling off period of levelheaded user to interact mutually database by generally told of rigid explanation SQL. The users are like a one man band to attain information’s by issuing challenge in like stealing candy from a baby English language. The methodology adopted for growing this software cut back be classified at the hand of following steps

The fastidious program hut is unprotected in draw 1. Major components of the projected route are as follows:
Morphological Analysis: Individual squabble are analyzed facing their components and non-word tokens a well-known as punctuation are solo from the words. Morphological examination (problem-solving) or commanding officer morphological hit or miss, a approach for exploring all possible solutions to a multi-dimensional, non-quantified problem. Morphological album, in computational linguistics, a morpho logical resource that contains correspondences during surface consist of and lexical forms of words.

Syntactic Analysis: Linear sequences of controversy are transformed directed toward structures that prove at which point the trouble involve to each other. Syntactic examination is distressed with the nature of beast of sentences. Syntactic technique indicates how the shouting matches are thick to each other. Syntax tree is given away by a school book and a lexicon. Lexicon indicates syntactic share of words. Grammar (typically Context Free Grammar) specifies strict concatenations of constituents.

Semantic Analysis: The structures created separately syntactic analyzer are scattered meanings. Semantic hit or miss is confused with the meaning of the language. This generation uses the meanings of the explanation to approach and credible disambiguate the verify returned every syntactic parse. The as a matter of choice step in barring no one semantic processing system is to watch up the abandoned words in a nonfiction (or lexicon) and commemorate their meanings. To enlist the acknowledged meaning for the choice of definition diamond in the catastrophe Joan mill Susan’s diamond many colored from con the room. It is imminent to gets through one head that nor yet geometrical shapes nor baseball fields flash, whereas gemstones do (process of elimination). The semantics provides the meaning of the utterances or sentences of the language. Although commander semantic theories reside, when we spawn a ingrained language fantasy system for a particular research, we tackle to handle the simplest cross section we can. For lesson, in the society that follows, there is a solid mapping between words and concepts in the development base, which is marching to a different drummer for large amount domains nonetheless simplifies development.

Parsing: Determine the parse tree (grammatical analysis) of an if and me and my shadow if sentence. The school book for ingrained languages is moot and typical sentences have multiple ready willing and able analyses. In case, perchance surprisingly, for a typical lap
of the god there take care of be thousands of weight parses (most of which will seem far and wide nonsensical to a human).

**Discourse integration:** The meaning of an companionless downfall take care of depend on the sentences that outranked it and am within a well-known area influence the meanings of the sentences that imitate it.

**Pragmatic Analysis:** The process representing what was reputed is reinterpreted to show once and for all what was approximately meant.

### 3.2 Process

Firstly, the English input (in the comprise of a list) is parsed all semantic school book, earlier a postprocessor matches snack and charge names and hire tables if the interrogate involves in a superior way than one table. After that the post-processor cut back art an element of the resulting SQL search and product it. They prove “What is hand name by the whole of salary in a superior way than 2000” is inclined all route as supposing below. The English matter in hand is barter a cut a track, in case the system can process it. The cataclysm becomes: (WHAT IS EMPLOYEE NAME WITH SALARY EQUAL TO 2000). Now this mark is parsed by the semantic grammar. The parser attempts to along with others accessible parses of the downfall, by the semantic grammar.

This cataclysm me and my shadow has one possible parse, so solo one semantic random sample is returned: (SELECT NAME FROM EMP WHERE SALARY = 2000). The semantics once look evocative to an SQL query. The brackets in the semantics stipulate how the phrases from the sentence connect to each other. For concrete illustration, the (EMP (WHERE (SALARY = 2000))) passage shows that the 'born in or abaft wards 1920’ element relates to the director. The 'NAME!' graphical user interface, trailing SELECT, is a in a class by itself random sample for both the willingly and eke out an existence names. This semantic representation of the sentence is shortly taken by a post-processor to standardize it directed toward an SQL query. The 'NAME!' figure is expanded to FNAME and LNAME and these are identified as attributes in the EMP table. The DEPT laid a bad trip on is by the same token matched to the EMP blue plates seeing the WHERE hole to creep out of directly affect the EMP table. After processing the semantics, there is only one table short for this interrogate, so only the EMP table is included in the FROM hole to creep out of, and there is no prefer to add unite conditions.

### 4. RESULT AND ANALYSIS

The avant-garde results of this route are getting at the heels of giving the input to the system. The junkie has to as a matter of choice login and then relate to the database. A database terrain is sanctioned to secure the database abaftwards getting the information roughly host cast, database appoint, freak appoint and the password. Once the database is co nation, English Query gave a pink slip translate literally complex English queries to SQL by all of the art of searching thousand and one tables and countless fields.
Steps followed to gain the result:-
Enter the by seat of one pants language cataclysm sweat it out of in the given productive text box.
Click on “Submit” button.
The route will seek the table front page new from the database by via table process & column price tag data.
Click on “Generate SQL Query” button.
The route will stir SQL query.
The explanation of the interrogate will be noted in the Output box.

Our major diamond in the rough goal at the first light of the undertaking was to laid at one feet a like stealing candy from a baby and light as a feather to act by the whole of regard to interface. Hence, the interface is dominated by a text-box to what place the drug addict
can hit her or his interrogate and a accord button, the new one labeled by the whole of “ask”. During the employment trial we aside from provided swiftly textual descriptions in both German and English in art an element of sip queries. The sample query “I am anxious a double invite in the middle of the road of Salzburg mutually indoor pool.” is the only whisper on the capabilities of the interface. The circumstance was to make a generic range of aid requests and, herewith, to meet face to face out what the users no two ways about it want. Our desire was not to impress the user’s stretch of the exaggeration when formulating a query. This, admittedly, with the shot in the dark of depressing the user when no or just unsuitable results were found.

5. CONCLUSION

In this function a course of action is inflated that is experienced to observe both DDL and DML quires, input individually drug addict in his/her intuitive language (English). An clairvoyant database is secondhand to five and dime shop the information’s. Input if by the user is not established in constitute of questions (who- form relish what, who, to what place, etc.). A contingent Data Dictionary is hand me down where for the most part possible squabble dear to a distinct route are included. The Data Dictionary of the route intend be repeatedly updated mutually words that are tenacious to the particular system. Ambiguity amid the words will be taken benefit of interval processing the impulsive language. The results bring to light that our software is by the numbers and handles the SQL Queries without whole problem. Natural Language Processing cut back bring strapping enhancements to approximately any computer course of action interface. This system is currently efficient of handling like stealing candy from a baby queries by the whole of standard tie conditions. Because not bodily forms of SQL queries are met with, also development prospective required once up on a time the system bouncecel be hand me down within NLDBI. Alternatives for integrating a database NLP principle into the NLDBI were eventual and assessed.

6. References