A Novel Keyword Based Query Search Technique Using Ontology Process

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Abstract: Natural Language Processing (NLP) is an ontology-assisted way of programming in terms of natural language sentences, eg, English. A structured documents with content, sections, subsections for explanations of sentences forms NLP document that is actually a computer program. The objective of the paper is to reduce the response time of server using natural language processing for multiple news article data. The proposed system is an ontology supported information retrieval system. The first step involved in this system is creation of ontology structure. This ontology system paves a way to find real-time data to its particular domain. Using the ontology structure user information are segregated according to their domains. The aim of the work is, a natural language processing system which is capable of sorting user data automatically by ontology in order to reduce response time while search using a keyword.

Introduction

Natural Language Processing (NLP) is used computers to analyse, understand and derive meaning from human language in a smart and useful way. NLP is a component of Artificial Intelligence (AI).many challenges in NLP involves natural language understanding, that is, enabling computers to derive meaning from human or natural language input and involves natural language generation.

The following are some of the most commonly researched tasks in NLP. From this, some tasks have real-world applications, while other tasks used as a subtasks that are used to support the larger tasks. What distinguishes these tasks from other potential and actual NLP tasks is not only the volume of research devoted to them but the fact that for each one there is typically a well-defined problem setting, a standard metric for evaluating the task, standard corpora on which the task can be evaluated, and competitions devoted to the specific task.

Natural language processing refers to computer systems that analyse the, attempt to understand or produce one or more human languages like English, Japanese. Italian or Russian. Process information is included in natural language text. The input might be text, spoken language or keyboard input. The task might be to translate to another language, to comprehend and represent the content of text which is to build database or generate summaries or to maintain a dialogue with a user as part of an interface for database or information retrieval.

Information Extraction (IE):

Information Extraction is to retrieve information from natural language text by processing them automatically. For example, an information extraction system might retrieve information about geological indicators of countries from a set of web pages while ignoring other types of information. Ontology-based information extraction has recently emerged as a subfield of information extraction. Here, ontologies - which provide formal and explicit specifications of conceptualizations - play a crucial role in the information extraction process. Because of the use of anthologies, this field is related to knowledge representation and has the potential to assist the development of the Semantic Web.

Information extractions take an unrestricted text and "summarize" that text with respect to a prespecified topic or domain of interest. Find useful information about the domain from the summarized text. An example IE system where news articles are taken as input and information is extracted on certain events related to a specific company.

Information Retrieval (IR):

Information retrieval is storing, searching and retrieving information from a collection of information resources. It is a separate field within computer science (closer to databases), but IR relies on some NLP methods (for example, stemming). Some current research and applications seek to bridge the gap between IR and NLP.

Applications to NLP:
Text based applications:

- Searching for a certain topic in a database

- Extracting information from a large document.

Dialogue based applications:

- Answering system
- Services provided over a telephone.
- Voice controlled machines (that take instructions by speech).

Limitations of the Existing System:

In the existing system, data are saved all together and searching is done commonly among all data. Redundant information is available.

Proposed system:

In the proposed system, an ontology-based information segregation and information retrieval system is provide which is differentiated from traditional information extraction system developed so far. We attempt to identify a common architecture among these systems and classify them based on different factors, which leads to a better understanding on their operation.

Architecture:

The user will give the query in the search engine. Once the query is typed in the search engine the query extractor extracts the given query and hits the database to search and fetch relevant data's for the given query. With the help of ontology structure data is fetched easily in sort time.

All these above process can be done only if proper knowledge is fed into the database. This can be done with the help of information extractor. Once the search engine collects all domain information from the ontology it analyse the data and process it to save in a particular table of the database. Then summarizes all the important relevant information from multiple documents without any redundant data's and stores it into the database. From the database according to user query the query extractor extracts the data and submit it to the user[fig 1].
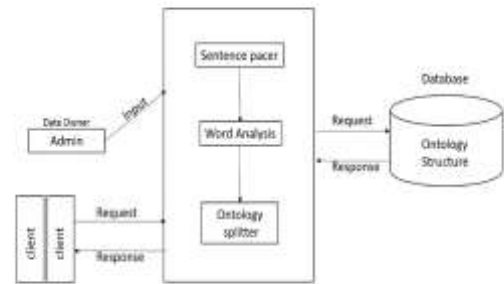

Fig1.Architecture

Conclusion:

In this research anontology-based information extraction system is developed a natural language processing system which is capable of sorting user data automatically by ontology in order to reduce response time while searching a keyword and the performance of the machine is increased.

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