An Ontology Based Falcons Conceptual Search

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Abstract - Semantic interoperability between applications are provided by web ontology. They provide the shared concepts for describing domain entities. An ontology based Conceptual Search engine, a novel keyword-based ontology search engine is been developed for ontology reusing and sharing the concepts. It describes the proposed work helps the user in finding ontologies that are needed by the user. A new methodology for creating virtual documents for the purpose of keyword search, rank concepts based on popularity – based and ontology, and structured snippets that are query relevant will be generated. They are also used for preparing the feedbacks and how much the retrieved data is relevant to the user needs. The textual descriptions are matched with the query keyword. The result will be generated based on popularity and relevance of concepts. The popularity is measured for large set of data that are extracted from web. According to the query relevant structured snippet the associated concept is returned. This system is based on many famous query relevant ontology techniques, which can be utilized by the users to control the final result to the one of the best specific ontology techniques. Based on this comparison, it is very easy for the users to determine whether the ontology technique will compromise the needs of users by checking queries concepts and contexts that are relevant. This system will also give the RDF description for concepts and summarization of each and every technique on ontology.

Keywords - Indexing, ontology ranking, ontology search, snippet generation, virtual document.

I. INTRODUCTION

The semantic Web is facilitated with integrating data among the various applications on web. Semantic Web is formatted based upon the Resource Description Framework (RDF), it is graph based representation of information. And also Web ontology's are elaborated in RDF Vocabulary Language(RDFS) and Web Ontology Language(OWL) which will give a shared concepts. Semantic interoperability for new applications depends on reusing or extending the exisiting ontologies. The application developers while developing the applications it is necessary to keep ontology search as a fundamental service. Ontology search engines are similar to traditional Web search engines where both of these will require keyword as a query and in return they will display the matched concepts as a result or ontologies.. This result provide both the basic meta data and all related RDF description, but both of it cannot be more useful to the user needs. So we introduce Falcons system search, a noval based keyword based description which results both the query relevance and popularity of concepts. Popularity is measured from huge data set that is collected from web. All the concepts which are returned are associated with the query relevant structured snippet which will tell how the concepts are matched with the keywords query and it will also provide clear clarification for the meanings. The system will also provides the detailed RDF description of each and every concepts and a overview of each ontology on demand.

II. SYSTEM ARCHITECTURE

The proposed architecture of user interaction is to filter the concept which is recommended to selected and return. We have the detailed concept called ranking method. The ontologies will be ordered based on their rank. For the keyword query, the candidates which are returned by the ontology concept are recommended. For ontology candidate, their ranking score is determined by summing the rank score of the returned concepts and their ontology. As a conclusion, nearly 9 top ranked ontology techniques will be taken. The underlying concept is that the ontology is recommended strongly for the ontology which are matched perfectly with the keyword query on the semantic Web.

The figure 1.1 represents the architecture of the search engine system. The multithreading crawler is used for dereferencing URI with negotiation of content and RDF documents will be downloaded, which in turn parsed by jena. The newly discovered URI's will be submitted in URI repository for crawling the data.URI repository will be having the seed URI which are collected from ontology repositories that are in online. RDF document URI which contains RDF triple is placed in the quadruple store and which in turn will be implemented using MySQL database. The updated information from the metadata database will be computed periodically by meta analysis component. The user interaction will be provided by the indexer and its updates will be in combined inverted

index.i.e., ontology restricted keyword search.[11]. The overview of searching a documents related to particular ontology has several steps. They are pointed out as,

- Search Engine Home page design
- Quadruple storage preparation
- Metadata and Analysis
- Index and invert index update
- Keyword query by user
- Constructing virtual Document
- Concept return for query
- Constructing structures snippet

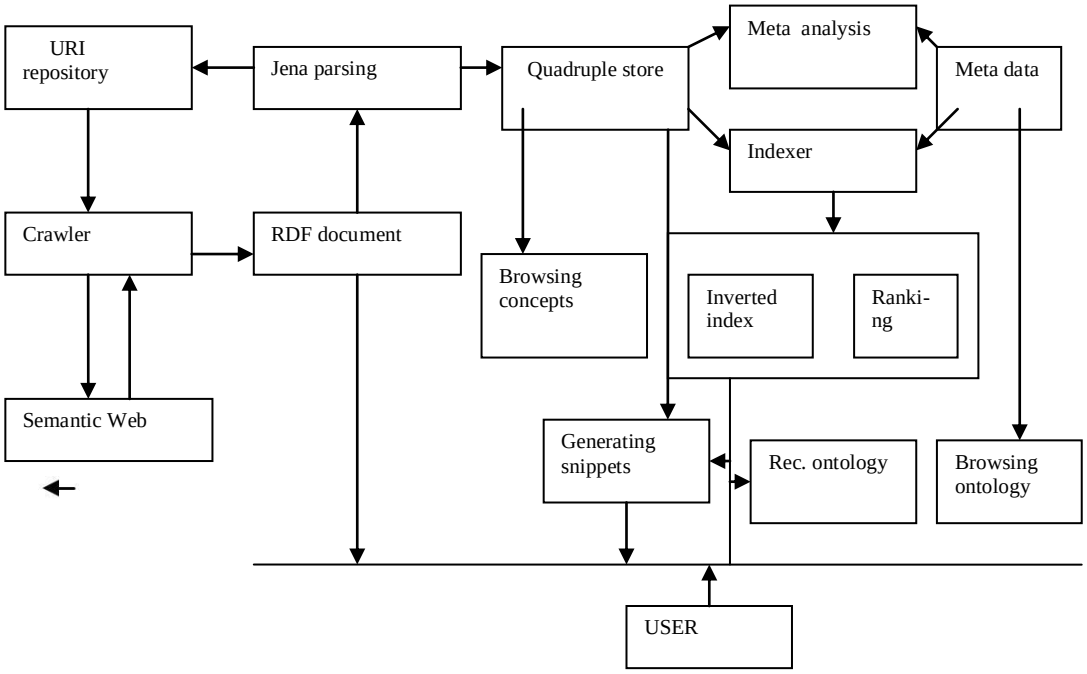

Fig. 1.1 Architecture of the search engine

A. Search Engine Home page design

The design of a home page is essential for every website to provide a better interface to the user. These search engines have a home page to get query from user as keyword for search and display session about the return concept and structured snippet.

Quadruple storage preparation

As per the SQL database RDF triple which is in the RDF document and the document URI which is in the form of quadruple store are implemented. The data are stored in the database for the future use of search.

B. Metadata and Analysis

The Meta- data database are updated by periodical computation of global information by the meta analysis component, e.g., kind of entities either a class, property or an individual for which a URI identifies and which concepts ontology contains.[3]

Index and invert index update

The index is very import role in database data maintenance to avoid duplicates. Here we use index is updated as per the user interaction in a page content. Ranking process takes place as per the browsing ontology. Ranking proceeds by Query Relevance, Popularity technique.

C. Keyword Query by User

The query is given as a keyword. A keyword query, the ontology's concepts which is returned from are considered as the recommended candidates. For each and every candidate, the ranking score is calculated by summing up the ranking scores of returned concepts which is available in the ontology. As a conclusion, nearly 9 top ranked ontology techniques are recommended. The underlying criterion is that this ontology is perfect if the concepts which are matched with the query are very popular in Semantic Web.

D. Constructing virtual Document

Description graph has a extracted term virtual document, each and every entities are identified by URI in the graph, and it extracts the local name and label. Virtual document are literally constructed in graph for which it is in lexical form, in which it consist of the term RDF description. An inverted index is a classical information of retrieved data structure, which is constructed using the virtual document to serve as keyword to search. Second is based upon the metadata database, which is built from ontology concepts and it contains serve ontology based result filtering. Therefore there is an restriction in the keyword query, finally operation is performed by the intersection operation of two result sets which are separated returned from the inverted index.

E. Concept return for query

According to the proposed system of user interaction, several ontologism are recommended to be selected to filter the concepts which are returned and displayed at the bottom of the name and label. The detailed RDF description of the name can be browsed and clicked over the name by the user.

F. Constructing structures snippet

The proposed system will have a query relevant structured snippet to describe how the query are matched with query keyword. The snippet will guide users to easily find the relevance of concepts which they need. Here we propose a notation of property description thread (PD-thread) as the basic part of snippet and then introduce a method of ranking PD -Thread and select the top most ranking ones into the snippet.

A structured snippet of a concept consists has three PD-threads. The ranking algorithm is outlined as follows:

- Assigning a ranking score to each and every PD-thread candidate.
- Select the top-ranking candidate from the snippet.
- f the desired number of the PD-thread is not reached, go back to Step 1) ranking PD-thread and then again select the top-ranking ones into the snippet.

III. CONCLUSION

This search engine has been introduced for searching ontologies with Falcons Concept Search and they have detailed description about the design and their implementation. This search engine system collaborate the two levels of search one is concept-level search and another is ontology-level search which are used for filtering the ontology based concepts. For each and every concepts returned, their label, type, and a query-relevant structured snippet are given to help the users to quickly find the relevance to their basic needs. User can easily compare ontology and characterize the relevance quickly based on the returned structured snippets.

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