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A Smart Edu-Analysis using Ontology based Framework

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Abstract— Information available in web is growing drastically which leads to information retrieval a challenging task. It also decreases the efficiency and waste of surfer time. Presently, search on web is keyword based i.e., information is retrieved on the basis of text search of all available matching URL's / hyperlinks. This may result in the presentation of irrelevant information to the user. In the current web, resources are accessible through hyperlinks to web content spread throughout the world. These links make the physical connections and are not understood by the machines. So there is a lack of relationships which captures the meaning of the links for the machines to understand. To ease this work of information retrieval we implement semantic web. We propose Ontology-based framework which deals with semi-automatic process for information retrieval used in domain like Medicine, Tourism, Agriculture and Education etc., hence we use it in education here.

Keywords - *Semantic web, ontology, information retrieval, qos.*

I. INTRODUCTION

Latifur Khan, Dennis McLeod, Eduard Hovy [1] worked on the key problem in achieving efficient and user friendly retrieval is the development of a search mechanism to guarantee delivery of minimal irrelevant information (high precision) while insuring relevant information is not overlooked (high recall). To achieve this, they proposed a potentially powerful and novel approach for the retrieval of audio information. In their research they explained the development of an ontology-based model for the generation of metadata for audio, and the selection of audio information in a user customized manner. Also conclude how the ontology they proposed can be used to generate information selection requests in database queries. Vaclav Snasel, Pavel Moravec, Jaroslav Pokorny [2] presented a basic method of mapping LSI concepts on given ontology (WordNet), used both for retrieval recall improvement and dimension reduction. They offered experimental results for this method on a subset of TREC collection, consisting of Los Angeles Times articles. In their research they had shown, that mapping terms on WordNet hypernyms improves recall, bringing more relevant documents. The LSI filtration enhances recall even more, producing smaller index, too. The question is, whether use expensive method as LSI just for the term filtration. The third approach – using LSI on generated hypernym-by-document matrix has yet to be tested.

Sofia Stamou [3] had discussed keyword-based searching does not always result to the retrieval of qualitative data, basically due to the variety in the vocabulary used to convey alike information. In this paper, introduce a concept-based retrieval model, which tackles vocabulary mismatches through the use of domain-dependent ontologies. In particular, our model explores the information encoded in domain ontologies for indexing documents according to their semantics rather than word forms. To demonstrate the potential of proposed model built an experimental prototype which employs the topical ontologies for indexing Web documents in terms of their semantics. Zeng Dan [4] worked on Semantic Information Retrieval Based on Ontology to resolve the problem of the accuracy on traditional information retrieval, which brings ontology-based semantic information retrieval. The anthor wlilized the method of establishing the domain semantic model with ontology technology, the membership of concept added to the process of semantic modeling, and to provide semantic annotation to facilitate computer calculation processing. Qin Zhana Xia Zhang, Deren Li [5], proposed a approach to overcome the problems of semantic

heterogeneity, the explication of knowledge by means of ontology, which can be used for the identification and association of semantically corresponding concepts.

II. EXISTING SYSTEM

The voluminous amount of information available in the web makes difficult for information retrieval. This lead to information overload due to this search engine finds it very difficult to index the web pages. It reduces the efficiency. Information overload is based on the problem of ranking irrelevant document as relevant. The existing search engine is keyword- based, which leads to poor quality of search results. In this paper, they have implemented a web widget providing query expansion functionality to web-based systems as an easily integral service with no need to change the underlying system. The widget uses ontologies to expand the query terms with semantically related concepts. The widget extends the previously developed ONKI Selector widget, which is used for selecting concepts especially for annotation purposes. There are various Ontology based information retrieval methods [8] to search information with enhanced semantics from the user query input to retrieve high relevant information: Vector Space Based Information Retrieval. Pablo Castells, Miriam Fernández, and David Vallet [6], proposed an approach for the adaptation of the Vector-Space Model for Ontology-Based Information Retrieval". Approach could be seen as an evolution of the classic vector-space model, where keyword-based indices are replaced by an ontology-based KB, and a semi-automatic document annotation and weighting procedure is the equivalent of the keyword extraction and indexing process. In this model, shows that it is possible to develop a consistent ranking algorithm on this basis, yielding measurable improvements with respect to keyword-based search, subject to the quality and critical mass of metadata. Jouni Tuominen, Tomi Kauppinen, Kim Viljanen, and Eero Hyvonen [7], proposed an approach on Ontology-Based Query Expansion Widget for Information Retrieval. Axel Reymonet, Jerome Thomas, Nathalie Aussenac-Gilles [9], presented a semantic search engine designed to handle within two separate tools both aspects of semantic IR: semantic indexing and semantic search. search engine only exploits knowledge explicitly mentioned in each request/document, the ability to express causal information in OWL could be taken into account in order to bring closer two symptoms apparently different but which share one (or more) fault(s) as potential origin for a given breakdown.

III. PROPOSED SYSTEM

The information overload problem could be overcome by the usage of metadata information available in semantic web in the form of ontology. It is an intelligent retrieval system which provides intelligent access to find, share, combining information on the web. Dongpo Deng [31], in this study, author reported the experience of creating the ontology of place name serving as a specification of domain knowledge, as well as used the ontology of place-name to information retrieval. The results show the geographic ontology can to rid of ambiguous of geospatial data. It is a common situation that a place name refers to different places and a place has different names. The ontology of place name might be a useful solution to provide exact result in the Web application. However, the ontology of place name built by feature type might solve the terminology problem of place name, but doesn't figure out the spatial nature of place name. Christopher S.G. Khoo, Jin-Cheon Na, Vivian Wei Wang, and Syin Chan [32], in this a disease-treatment ontology developed to model and represent treatment information found in the abstracts of medical articles.

3.1. Region creation

The information of web service system users usually provide QoS values on a small number of web services. Traditional memory-based CF algorithms suffer from the user's time it's hard to find similar users without enough knowledge of their service experience. Different from existing methods, the correlation between user's physical locations and educational properties QoS properties that are prone to change and can be easily obtained and objectively measured by individual users,

such as response time and availability. To simplify the description of our approach, response time (also called round-trip time (RTT)) to describe our approach.

3.2. Qos Value Prediction

In Web service region of aggregation, thousands of users are clustered into a certain number of regions based on their physical locations and educational similarities. Web service experience of users in a region is represented by the region center. With the compressed QoS data, searching neighbors and making predictions for an active user can be computed quickly. Traditionally, the QoS prediction methods need to search the entire data which is rather inefficient. In our approach, similarity between the active user and users of a region is computed by the region center. QoS value for active users based on their regions, for users in the same region are more like to the same web service, especially on those region-sensitive ones

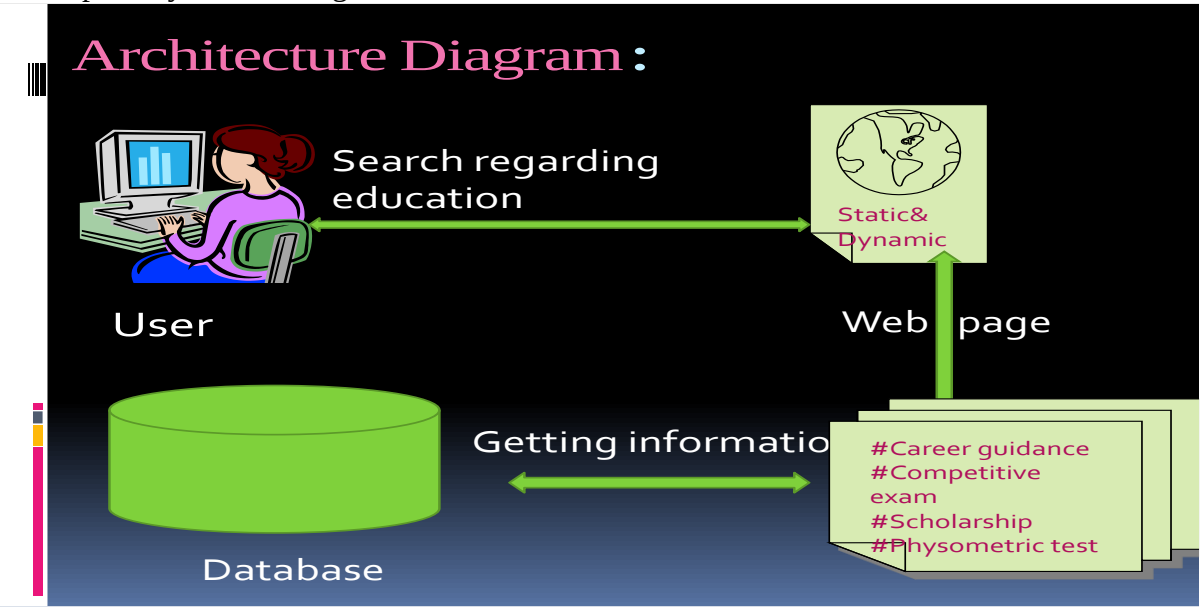

Fig: 1.1. System Architecture

3.3. User collaboration idea

Inspired by the success of Web that emphasize information sharing, collaboration, and interaction, we employ the idea of user-collaboration in our ontology based framework model. Different from sharing information or knowledge on blogs or wikis, users are encouraged to know their skill by physcometric test with QoS performance in our ontology framework model. The more QoS information the user contributes, the more accurate suggestion the user can obtain, since more user characteristics can be analyzed from the user contributed information.

3.4. Time complexity Analysis

The time complexity can be reduced in an efficient way by ontology based framework model. Our framework model discuss about efficient way of information retrieval to the user, By providing different kinds of link about education, scholarships and competitive exams in a single framework model. Therefore, the total time complexity is avoided in an efficient way.

IV. CONCLUSION

As per literature studied, Semantic Web and Ontology development have many benefits in the information retrieval area. Many researchers have worked on different technologies of Semantic Web and implemented on particular domain. In this paper, various approaches of Ontology Based Information Retrieval Model have been discussed. A new model can be defined with the use of Mining in Ontology with Multi Agent system for information retrieval, whereas ontology can be use

as a repository, mining for data extraction and multi agent system can be use for data representation. This paper will also helpful to other researchers, who would like to do work in this area.Our paper describe about quality analysis of education to the students regarding education scholarship and competitive exams.

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