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Effective Query Evaluation in Xml Using Minimal Cost Tree Based Approach

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Abstract: The Efficient state of the art query retrieval systems cannot be implemented on the XML based storage but can implement on the RDBMS databases. Fuzzy type-ahead search is a new information access paradigm for XML based systems though not a new concept for RDBMS based systems. Operations involving the system searching the XML repositories on the fly as the user types in query keywords for producing results. In the XML storage fast querying and result generation is the vital aspect. Prior systems used LCA-based (Lowest Common Ancestors) algorithms for implementing fuzzy type-ahead search and Minimal-Cost Tree based techniques for top-k results over xml data. The minimal-cost tree based approaches are efficient as long as the query keywords are singular or dual utmost. No. of attributes in the keyword for fuzzy query increases Minimal-Cost Tree construction is a computationally expensive process. We propose to use Fuzzy Multiple Attribute Decision Making (FMADM) algorithm involving data conflict resolution based on subjective and objective weighting methods. We intend to support multi attribute based queries over xml data with reduced computations based on the FMADM algorithm. A practical implementation of the proposed system validates our claim.

Index Terms: Fuzzy, LCA-based, XML

I. INTRODUCTION

The extreme success of web search engines makes keyword search the most popular search model for ordinary users. XML is becoming a standard in data representation, it is desirable to support keyword search in XML database. XML data extraction from multi-dimensional [1][2]. It is a user friendly way to query XML databases since it allows users to pose queries without the knowledge of complex query languages and the database schema[2]. In most systems that incorporate keyword search into relational or XML data, the sole criterion is proximity.

It is argued that in a tree document that the keywords are semantically related if they appeared in a uniquely labeled sub tree of the document. In the work it is improved by introducing an approach that avoids some cases of incorrect results. A result snippet should represent a semantic unit to be self-contained[3]. The fragment between keyword matches in the corresponding XML document as the snippet of this query result that the users will not be able to see that both matches are nested in the tag retailer and thus not able to easily understand that this query result is about an apparel retailer in Texas.

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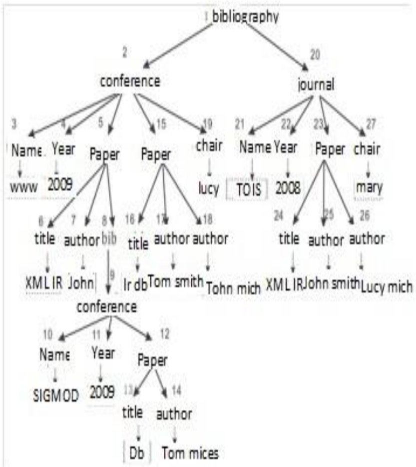

Figure 1: XML Document representation.

To achieve this in text document search, result snippets often include the document titles. Numerous search tools have been developed to perform keyword searches and locate personal information stored in file systems [1][3]. Tools usually support some form of ranking for the textual part of the query—similar to what has been done in the Information Retrieval (IR) community—but only consider structure and metadata as filtering conditions[4]. The research community has turned its focus on search over to Personal Information and Data spaces that consist of heterogeneous data collections.

These works focus on IR-style keyword queries and use other system information only to guide the keyword-based search. The contributions of our work include:

a. The problem of generating query result snippets for XML search.
b. Four goals are identified to meet the good query result snippets
c. To address the goals, we identify the significant information in a query result to be selected into the snippet.
d. We can construct a snippet of a given size limit that contains all the significant information, we prove that the decision problem.
e. Generating snippet for XML search has been implemented and tested for its efficiency and effectiveness through experimental studies.

Fuzzy Multi-Attribute Decision Making is a method used to find the optimal alternative from a number of alternatives to certain criteria. It is the core of determining the value of the weights for each attribute[5]. There are three approaches to find the weights of attributes, namely:

- *Approach of subjective*

  The weights are determined based on the subjectivity of decision-makers par.
- *Objective approach*

  The weights are calculated mathematically that ignoring the subjectivity of the decision makers.
- *Approach to the integration between the subjective and objective*

Unified Multi-Dimensional Scoring: We present our unified framework for assigning scores to files based on how closely they match query conditions within different query dimensions. We distinguish three scoring dimensions: content for conditions on the textual content of the files, metadata for conditions on the system information related to the files, and structure for conditions on the directory path to access the file. We use a simplified version of XQuery to express metadata and structure conditions in addition to keyword-based content conditions[4]. Scores across multiple dimensions are unified into a single overall score for ranking of answers. For each query condition, we score files based on the least relaxed form of the condition that each file matches. The scoring along all dimensions is uniformly IDF-based which permits us to meaningfully aggregate multiple single-dimensional scores into a unified multi-dimensional score.

II. RELATED WORK

Inspired by the great success of IR approach on web search, we aim to achieve similar success on XML keyword search, to solve the above three issues without using any schema knowledge. Main challenge we are going to solve is how to extend the keyword search techniques in text databases (IR) to XML databases[6]. The basic data units in text databases searched by users are flat documents. IR systems compute a numeric score for each document and rank the document by this score. In XML databases information is stored in hierarchical tree structures. The statistics is a mathematical science pertaining to the collection, analysis, interpretation or explanation of data[7][9]. Although keyword search is a subjective problem that different people may have different interpretations on the same keyword query, statistics provides an objective way to distinguish the major search intention(s).

FMADM methods basically involve two phases before to achieve a decision: aggregation and exploitation. Aggregation phase combines the performance ratings for all attributes with respect to each alternative. Exploitation phase ranks the alternatives with respect to the global aggregated performance ratings[10]. The literature contains numerous applications of FMADM to different aspects of selection problems with vague data, propulsion system selection, and advanced manufacturing systems selection.

III. EXISTING SYSTEM

Efficient query retrieval systems are for RDBMS systems solely and not for XML based mostly systems. Uses keyword-search system over XML information. A user composes a keyword query, submits it to the system, and retrieves relevant answers [9]. This is often known as try-and-see approach wherever user's limited information regarding the data forces them to be content with limited query results. The try-and-see approach systems don't support users enlarged information domains.

Query results are influenced by minor errors in keywords. Thus an improved system is required that supports users enlarged information domains and additionally robust to minor errors in keywords[8]. Even though this concept is nothing new for RDBMS based systems, this is a new information-access paradigm for XML based systems.

Here, the system searches XML data on the fly as the user types in query keywords. Benefits of the proposed system includes the following

- Auto complete features
- Supports Fuzzy Search over XML Data
- Effective index structures and searching algorithms over XML drives top-k results

Uses the following algorithms and techniques

- LCA-based(Lowest Common Ancestors) or MCT-based(minimum connecting trees) fuzzy type-ahead search algorithms[9][10].
- Ranking Minimal-Cost Tree based techniques for top-k results

Produces high search efficiency and result quality over XML data storages.

IV. PROPOSED SYSTEM

Past Systems Use Minimal-Cost Tree based techniques for producing top-k results. The efficient approach is Minimal-Cost Tree based approach. It is used as long as the query keywords are singular or dual utmost. The number of attributes in the keyword for fuzzy query increases Minimal-Cost[8][9]. Tree construction is a computationally expensive process. So we propose to use Fuzzy Multiple Attribute Decision Making (FMADM) algorithm to support multi attribute based queries at a significantly lesser computations.

Fuzzy multi attribute decision making (FMADM) has been used to find the value of attribute weights. The value is searched through individual approach[6][8]. After the weight of every alternative has been found, the grades were processed to determine optimal alternatives; Fuzzy model is also used to select a project for research and development (R & D) with multi-criteria decision making.

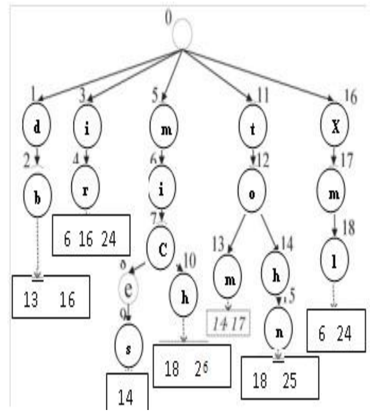

Figure 2: Index based arrangement of xml data representation.

To make decisions on the process of multi criteria robot selection, fuzzy analytical hierarchy process is also used. Examiners have described several procedures on a modified technique for order preference by similarity to ideal solution (TOPSIS) method so that the TOPSIS can also be used for a case of decision made in group or multi-criteria group decision making (MCGDM)[7][9]. To assess the eligibility of scholarship recipients and helping the decision maker to make a quick, accurate and objective decision, TOPSIS algorithm is used in FMADM.

We propose Decision Making (FMADM) algorithm to support multi attribute based queries over xml data with reduced computations.

V. FUZZY MULTIPLE ATTRIBUTE DECISION MAKING

To develop a unified modeling language (UML) for Fuzzy TOPSIS multiple attribute decision making

(FMADM) is needed to assess the decision maker to make a accurate, objective and quick decision[10].

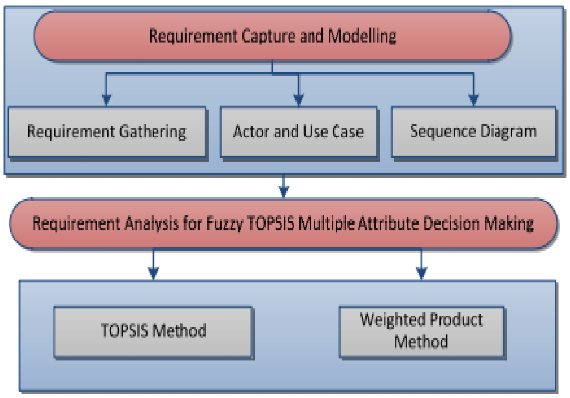

Figure 3: Multiple attribute decision making process between each attributes.

The process of analyzing system requirement based on the list of needs collected in previous activities is come under the Requirement analysis activity. TOPSIS and Weighted Product are the methods which are used to access the suitable candidates for FMADM. Weighted product (WP) is a standard form of FMADM.

FMADM

The FMADM has following steps:

Step 1: Set a number of alternatives and some attributes. Decision-makers determine some alternatives that will be selected following several attributes[5][6]. For example S = {S1, S2, ..., Sm} is the set of alternative; K = {K1,K2, ..., Kn} is the set of attribute, and A = {aij | i=1,2,...,m; j=1,2,...,n} is the matrix decision where aij is the numerical value of alternative i for attribute j.

Step 2: Evaluation of Fuzzy Set we have two activities to follow:

a) Choosing a set of rating for the degrees of suitability and the weight of criteria for each alternative with the criteria.

b) Evaluating the degree of suitability and weight of criteria for each alternative with the criteria.

WP METHOD

The FMADM weighted product procedure has following steps:

Step 1: The Normalized fuzzy decision matrix

The WP method uses multiply to relate attribute rating, in which each of it has to be powered with its associated weight.

Step 2: The performance of each alternative in WP Ai needs to be grading with equation 8.

$$S_i = \prod_{j=1}^{n} x_{ij}^{w_j}\ ; \text{with } i = 1,2,\ldots,m. \quad (8)$$

where ∑wj = 1. wj is the power with positive value for advantage attribute, and with negative value for cost attribute.

Step 3: The comparative preference for each alternative is given as:

$$V_i = \frac{\prod_{j=1}^{n} x_{ij}^{w_j}}{\prod_{j=1}^{n} (x_j^{*})^{w_j}}\ ; \text{with } i = 1, 2, \ldots, m. \quad (9)$$

This equation presents comparative analysis of the every attribute selection with query submission.

VI. EXPERIMENTAL RESULTS

In this section we describe the result analysis of the xml search data and fuzzy multi attribute decision making algorithm. We define the keyword submission of keyword with relevant to the systematic execution environment in real time applications[6][7]. For example we are creating a data base for different keywords with systematic way representation of xml data process. Enter android keyword then it specifies android related results to displaying on the user interface design. This process can be developing using normal database setup in real time applications.

Table1: Comparison results between both XML search and FMADM operations.

Then we convert that database into XML document representation, further step we analyze these requirement analysis with different keyword then subscribed results are as shown in below.

Considering these requirements of the keyword search analysis with multi attribute representation[9][10]. We analyze the time efficiency of xml search data representation and FMADM (Fuzzy Multi Attribute Decision Making algorithm). When increasing the multi attribute representation for each keyword submission, then FMADM performs efficient process generation. FMADM specifies different attribute generation with keyword search from XML data representation.

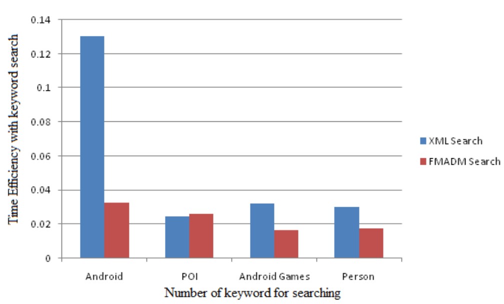

Figure 4: Comparison results of XML Search and FMADM algorithm.

If number of keywords increased in the user interface present in XML document representation, we store that data in storage of our computer application. Consider this example android keyword can give results within 0.130 secs in XML data representation [1][2]. If we convert this document format into multi attribute keyword then same android keyword may give sufficient results within

keyword	XML Search Process (secs)	FMADM Process(Secs)
Android	0.130292698	0.032832409
Person of Interest	0.028458581	0.026101935
Android Games	0.03226162	0.016383133
Person	0.03003586	0.017426021

0.0325 secs. We repeat this process on different keywords, then FMADM gives sufficient results when compared to XML Data representation.

VII.CONCLUSION

Operations involving the system searching the XML repositories on the fly as the user types in query keywords for producing results. Prior systems used LCA-based algorithms for implementing fuzzy type-ahead search and Minimal-Cost Tree based techniques for top-k results over xml data. As the number of attributes in the keyword for fuzzy query increases Minimal-Cost Tree construction is a computationally expensive process. We propose to use Fuzzy Multiple Attribute Decision Making (FMADM) algorithm involving data conflict resolution based on subjective and objective weighting methods. Our experimental result shows efficient data retrieval techniques on data efficiency. A fuzzy multiple attributes decision-making scenario was modeled to solve the AMT evaluation problem. We also present a new fusion approach of fuzzy information. According to decision-makers' attitude a linguistic fuzzy quantifier chosen by the manager of the decision problem. The proposed method enables the decision-makers to incorporate and aggregate fuzzy information provided for multiple attributes. As further improvement our proposed work it will be provide more accessing device specification through data aggregations present in data extraction.

VIII. REFERENCES

[1] S Jianhua Feng, Guoliang Li, "Efficient Fuzzy Type-Ahead Search in XML Data," Proc. IEEE transactions on Knowledge and Data Engineering, VOL. 24, NO. 5, MAY 2012.

[2] Shian-Jong Chuu., 2001, "A Fuzzy Multiple attributes Decision-Making for the Evaluation of Advanced Manufacturing Technology", pp.217-242.

[3] Widayanti-Deni, Oka-Sudana and Arya-Sasmita , "Analysis and Implementation Fuzzy Multi-Attribute Decision Making SAW Method for Selection of High Achieving Students in Faculty Level," Proc. IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 1, No 2, January 2013.

[4] P.Santhi, K.Kiran Kumar, "Data Extraction Based on Multi Dimensional Data Attributes Using Top-K Results," Proc. NTERNATIONAL JOURNAL FOR DEVELOPMENT OF COMPUTER SCIENCE & TECHNOLOGY , October Issue- V-1, I-6, 2013.

[5] Buckley J.J. (1984) Fuzzy Sets and Systems, 13 (1), 25-37.

[6] Feng C.-M. and Wang R.T. (2001) Transport Reviews, 21 (4), 449-467.

[7] D. Zhang, Y.M. Chee, A. Mondal, A.K.H. Tung, and M. Kitsuregawa, "Keyword Search in Spatial Databases: Towards Searching by Document," Proc. Int'l Conf. Data Eng. (ICDE), pp. 688-699, 2009.

[8] G. Koutrika, Z.M. Zadeh, and H. Garcia-Molina, "Data Clouds: Summarizing Keyword Search Results over Structured Data," Proc. Int'l Conf. Extending Database Technology: Advances in Database Technology (EDBT), pp. 391-402, 2009.

[9] L. Qin, J.X. Yu, and L. Chang, "Keyword Search in Databases: The Power of Rdbms," Proc. ACM SIGMOD Int'l Conf. Management of Data, pp. 681-694, 2009.

[10] T. Tran, H. Wang, S. Rudolph, and P. Cimiano, "Top-k Exploration of Query Candidates for Efficient Keyword Search on Graph-Shaped (RDF) Data," Proc. Int'l Conf. Data Eng. (ICDE), pp. 405-416, 2009.