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Data Mining For Intensional Query Answering Support

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Abstract-*The database research field has concentrated on the Extensible Markup Language (XML) due to its flexible hierarchical nature which can use to represent huge amounts of data, also it doesn't have absolute and fixed schema, but having possibly irregular and incomplete structure. Extracting information from semi-structured documents is a very hard task, and is going to become more and more critical as the amount of digital information available on the internet grows. Indeed, documents are often so large that the dataset returned as answer to a query may be too big to convey interpretable knowledge. Since query languages for semi structured data rely the one document structure to convey its semantics, in order for query formulation to be effective users need to know this structure in advance, which is often not the case. When users specify queries without knowing the document structure, they may fail to retrieve information which was there, but under a different structure. An approach based on Tree- Based Association Rules (TARs), which provide approximate, intentional information about the structure and the contents of XML documents both, as well as it can be stored in XML format. This mined knowledge is used to provide, a concise idea of both the structure and the content of the XML document and quick, approximate answers to queries whenever required.*

Keywords- *Extensible markup Language (XML), approximate query answering, data mining, intentional Information, Tree-Based Association Rules (TARs).*

1. INTRODUCTION

The data over the internet is not structured. It is thus not very easy to store and parse the stored data using databases. The database research field has concentrated on the Extensible Markup Language (XML) as a flexible hierarchical model suitable to represent huge amounts of data with no absolute and fixed schema, and a possibly irregular and incomplete structure.XML is used to represent huge amount of data without any absolute schema and structure. To retrieve information from XML document two techniques are used keyword search and query retrieval. Keyword search is used when we have to match exact desired word. Query retrieval is used whenever document is following certain schema but its availability of documents with schema is partially fulfilled. So when we search the desired query over document when we are unknown of the schema it fails.

Unstructured document causes excess of information to be included in answer which is not essential and formulation of query becomes difficult. If at all your formulation of query goes wrong the resultant system will thus fail to give exact expected answer. Mining of XML documents is quite different from structured data mining and text mining. The structure of an XML document is indicated by element tags and their nesting. It allows the representation of semi-structured and hierarchal data containing the values of individual items and the relationships between data items. Mining of contents along with structure provides new means into the process of knowledge discovery.

The idea of mining association rules to provide summarized representations of XML documents has been focused in many proposals either by using languages (e.g., XQuery) and techniques developed in the XML context, or by implementing graph- or tree-based algorithms. The technique of mining and storing Tree-Based Association Rules (TARs) as a means to represent intentional knowledge in original XML is used here. TARs are extracted for two main purposes to get a little idea of both the structure and content of an XML document and to use them for intentional query-answering, which allows the user to query the extracted TARs rather than the original document.

2. REVIEW OF RELATED WORKS

There are number of researches available in the literature for XML document mining to efficiently store, index and search on XML data. In the recent years, several researchers are focused on mining based encoding the XML nodes. The following explanation gives some of the recent researches to mine information from the XML documents. Apriori [10] algorithm and AprioriTid [10] algorithm uses multiple passes over data present in the databases for finding the frequent pattern from the data. The support values of each data were counted and the

items were determined which have minimum support count given by the user. In succeeding passes, it proceeds with items passed in the previous passes. The items were stored into new large itemsets are called candidate itemsets. This process continues until no large itemsets were retrieved.

XMINE RULE [8] operator is used for mining association rules with the relational data. This intends that, after dropping of unneeded data, XML document is converted into relational form. XQuery along with Apriori [1], [7] extracts association rulesand Query Answering system made by XQuery used only in simple XML documents. XML document can be mined using XQuery language without pre-processing or post-processing for association rules.

XPATH [5], the most important component of XQuery was used in the field of mining association rules. It allows the user to specify the rules. It retrieves the answers for the queries made. Frequent subtree mining [5] technique was used in the discovery process which does not ignore the structure of the tree in the rules. The frequent subtree is splitted into several subtrees based on the value of support provided by the user.

DRYADEPARENT [11], tree mining algorithm that illustrates the depth of the frequent patterns to identify and branching factor were the key factors. It retrieves the embedded subtrees that sustain the relationships between the node pairs. But it does not distinguish the pairs. DataGuides [12] provides very short and correct formulation of queries in semi structured databases. This gives the usefulness of schemas in semi structured databases. Where there is no specific or fixed schema. By the schemas this method contributes the query formulation to the user and query optimization to the query processor.

3. EXISTING APPROACH

There is no existing approach has yet studied the problem of relevance oriented result ranking in depth. The search intention for a keyword based query is not easy to determine and can be equivocal, because the search through condition is not unique; hence, to measure the confidence of each search intention candidate, and to rank the individual matches of all these candidates is a challenging task. Subsisting methods cannot resolve this ranking strategy to rank the individual matches challenge, thus it return low quality result in term of query relevance. Disadvantages of Existing System: Search intention for a keyword query is not easy to determine. It returns low result quality in term of query relevance. Rank the individual matches of all these queries are challenging.

Drawbacks

Search intention for a keyword query is not easy to determine.

It returns low result quality in term of query relevance.

Rank the individual matches of all these queries are challenging

4. PROPOSED APPROACH

The proposed XML query answering support framework is to perform data mining on XML and obtain intentional knowledge. The intentional knowledge mined is also in the form of XML. This is nothing but rules with support and confidence. In other words, the result of data mined is TARs(Tree-based Association Rules).

As can be seen in fig. 4.1, the framework is to have data mining for XML query answering support. When XML file is given as input to the DOM parser, it will parse until it is well formed and validness. If the XML document is valid, it is parsed and loaded into a DOM object which can be navigated easily. The parsed XML file is given to data mining sub system which is responsible for sub tree generation and also TAR extraction. The generated TARs are used by query processor sub system. This module takes XML query from the end user and makes use of mined knowledge to answer the query quickly.

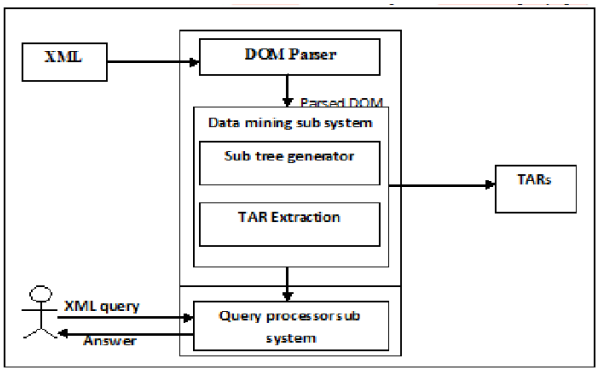


Fig 1: XML query answering support framework

Advantages of proposed system:

Resolve keyword ambiguity Problems.

To effectively identify the type of target node, i.e. search for node.

To effectively infer the types of condition nodes, i.e. search via node.

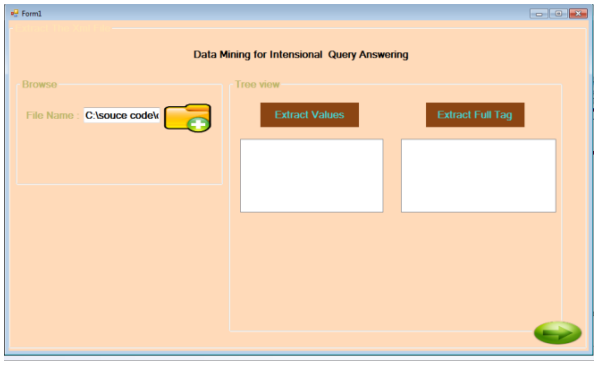
Rank the individual matches of all possible search intentions.

5.RESULTS AND DISCUSSION

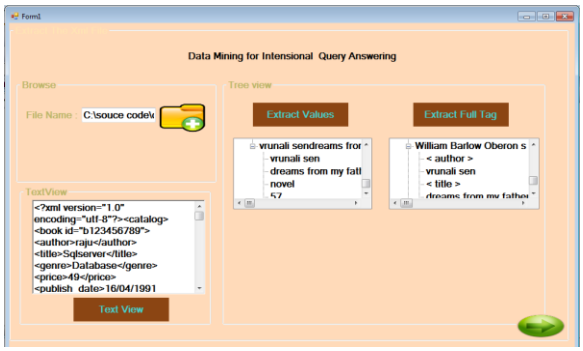
Since data content in the internet is increasing day by day the retrieval of data is easy by using XML Query

answering. The following screenshots shows a simple example of this.

Uploading XML file



Getting extracted values and tags



6.CONCLUSION

The main goals achieved in this work are:

Mine all frequent association rules without imposing any a-priori restriction on the structure and the content of the rules;

Store mined information in XML format;

Use extracted knowledge to gain information about the original datasets.

We have not discussed the updatability of both the document storing TARs and their index .As an ongoing work, we are studying how to incrementally update mined TARs when the original XML datasets change and how to further optimize our mining algorithm; moreover, for the moment we deal with a (substantial) fragment of XQuery; we would like to find the exact fragment of XQuery which lends itself to translation into intensional queries.

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