Mapping of XML Document and Relational Database (Using Structural Queries)

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Abstract

Now a day's, XML files are most vital facet of code trade. As a core normal, XML provides a solid foundation around that different standards could grow. Making DTD's is possibly what the creators of XML had in mind after they known as it ex-tensile terminology. XML may be a file extension for XML file format accustomed produce common info formats and share each the format and also the information on the globe Wide internet, intranets, et al. victimization normal code text. XML provides regular thanks to describe semi-structured information. We tend to propose the propose methodology uses stemming stopping process in conjunction with tree structure. Performing stemming, stopping and parsing on that file, as per the tag file makes columns in relational database and insert tag information in the respective columns, all files saves in one folder. These embody consistency problems for mappings and schema, additionally as imposing tighter restrictions on mappings and queries to attain tractable question responsive in information exchange. The propose method can achieve better performance in decreasing of time and space complexities.

Keywords- XML, Relational Database, Time and Space Complexity, Stemming Stopping Process, Tree Data Structure

I. INTRODUCTION

Today is an information era, most enterprises and individuals are deploying their businesses on the internet including e-learning, e-commerce and e-library. This will result in an exponential growth in data, which finally forming the so called BIGDATA. XML is an Extensible Markup Language that defines the set of rules for encoding document in both human and machine-readable formats. XML is widely used in web services, especially data transmission or data conversion and storing. XML data can be stored in disks or else in Relational database. A relational database is a collection of data items organized as a set of formally described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables. The standard user and application program interface to a relational database is the structured query language (SQL). SQL statements are used both for interactive queries for information from a relational database and for gathering data for reports. Batch Stream processing can be used to fasten the process, so overall system performance in case of time and space complexity can be reduced. Batch system have an option to allow users to set task processing in automated sequence.

II. RELATED WORK

The objective of proposed system is to provide efficient web service that can use commercially available converting the large XML documents in Relational Database. There are many approaches proposed for XML documents and Relational Database, such as mini-XML [1], s-XML [5], XRel [4]. A recently proposed mapping approach mini-XML, which adopts the path-based technique as the basic technique among the non-leaf nodes [1]. One of the important features of XML documents is that we can perform operations based on their logical structures. XML documents manage to support queries on their logical structures and on their contents. In XRel, there are two approaches to designing database schemas for XML documents, such as Structure-mapping approach and Model-mapping approach. In the structure-mapping approach, a database schema is defined for each XML document structure. In model-mapping approach, a fixed database schema is used to store the structure of all XML documents. In XRecursive, it translate XML documents to relational database according to the proposed storing structure [2].

III. LITERATURE SURVEY

An efficient approach named mini-XML [1] is proposed based on model-mapping approach. The mini-XML adopts the path-based technique as the among the non-leaf nodes. The reorganization of the XML documents tree is achieved via labelling each leaf node with a sequence number. By comparing the time and space spent mapping XML data into a relational database, an effective

evaluation is made and the baseline data is expanded to enhance the authenticity and efficiency of the experiment. Relational databases specialize in relating individual data records grouped by type in tables [2]. Developers can join records together as needed using SQL and present one or more records to end-users as meaningful information. The approach proposed supports efficiently the structural modifications to the XML tree, and achieves lower storage consumption [3]. Also, proposed two powerful algorithms for mapping XML data to relational databases and from relational database to XML data.

Table 1: Merits and Demerits of the Recent Proposed system

No	Title	Year	Advantages	Disadvantages
1	*Mini XML:An e_cient map-ping approach between XML and Relational Database*	*2017*	*The proposed method can achieve better performance in the decreasing of storage time and storage space*	*Used the semi-structural data but does not use the structural queries.*
2	*XMap: A Novel Approach to Store and Re-trieve XML Document In Relational Databases*	*2011*	*The complexity of this algorithm is equal to O (n), its a linear complexity, where n is number of elements and attributes in the XML document. Indeed in our algorithm a search is performed by traversing once the resultSet using a loop statement*	*Future to provide a powerful Framework for XQuery to SQL transla-tion with all queries types (select, in-sert, update, and delete)*
3	*XRecursive: A Storage Method for XML Docume-nt Based on Relational Database*	*2011*	*It can easily retrieve data from relational database.*	*Xrecursive has lower performance ratio as compared to existing techniques*
4	*XRel: A Path-Based Approah ToStorage and Retrieval of XML Docume-nts using Relational Database*	*2009*	*an approach to storage and retrieval of XML documents using (object) relational Databases.*	*Space Complexity and Time complexity required is More.*

IV. PROPOSED SYSTEM

As shown in fig.1, the application involves the web application. The application involves the admin panel and user panel. Both having login and registration access. First step of user is, to register itself on application then access the application. The application involves the process of converting the XML documents into Relational Database. The system first collect the XML documents from user, then store in the system. After storing the document system creates the XML folder of specific document which we want to convert and parse the XML document.
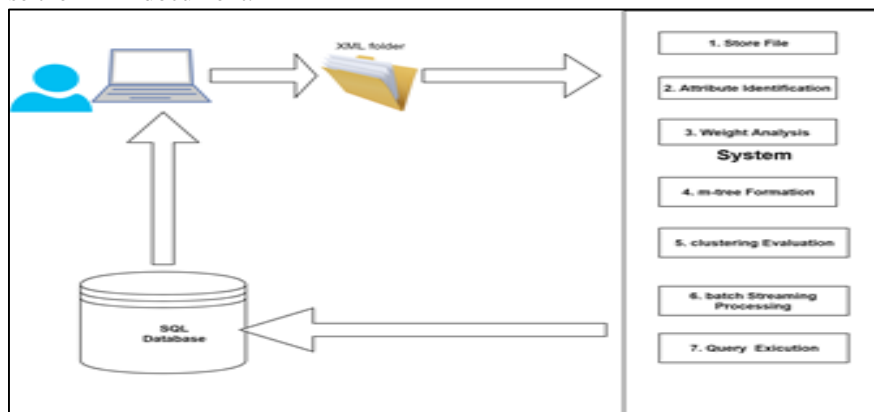

Fig. 1: Architecture of proposed system

After parse the XML document system apply the propose algorithm and SQL queries on XML documents for converting into relational database. Finally, it creates the relational database of given XML documents which store in folder of particular user.

V. ADVANTAGES

The proposed system web service has many quality attribute that are given below:-
1) Adaptability: This service is adaptable by all users.
2) Availability: This service is freely available to all users. The availability of the service is easy for everyone.
3) Maintainability: After the deployment of the project if any error occurs then it can be easily maintained by the software developer.
4) Reliability: The performance of the software is better which will increase the reliability of the Software.
5) User Friendliness: Since, the system is a GUI web service; the output generated is much user friendly in its behavior, So user can easily add, remove, update its documents.
6) Security: Users has its own login access, so many security phases so reliable security is provided.
7) Corrupt File: If the uploaded XML file is corrupt, then system automatically detect the corrupted file.

VI. CONCLUSION

XML is an Extensible Markup Language and can be used for storing and transportation of data. XML document is light weight document but it is not easily understandable by normal human being, so there is need of converting this XML document into Relational Database by using structural queries. A relational database is a collective set of multiple data sets organized by tables, records and columns. It establish a well-defined relationship between database tables. Tables communicate and share information, which facilitates data search ability, organization and reporting. It use Structured Query Language (SQL), which is a standard user application that provides an easy programming interface for database interaction. For fasten processing, there is need of proper conversion of XML to relational database. The paper concludes that the proper parsing of XML data. Batch stream processing along with tree structure can be used to fasten the process. After creating tree, attribute objects can be combined into clusters so, the time complexity of an algorithm can be reduced.

VII. FUTURE SCOPE

The application provides the conversion of XML documents into relational database using structural queries. The propose system takes less time and space for relational database after conversion of XML documents to Relational Database.

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