International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438

Efficient Query Evaluation over Wide Sparse Table

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Abstract: ***This paper presents how efficiently the data can beretrieved from wide sparse table.The term wide sparse table refers to database table which consists of several attribute values.In traditional database we useSQLqueries to retrieve the data.There are several existing mapping techniques that deliver satisfactory query performance. Here the concept of indexing is used to map XML data to widesparse database.Also we translate XML queries into SQL queries.***

Keywords: indexing, query, SQL, Wide sparse Table, XML.

1. Introduction

Internet is an important media used by humans as part of their life. XML(Extensible Markup Language) is recently used as standard to represent data over internet. Usually we use relational database to store data.Relational databaseis collection of multiple dataset organized in the form of tables. Normally table is made up of rows and columns.XML data can be mapped to rows and columns of relational table ie called as shredding. In case sparse database is table which contains several attributes values such ase-commerce database, storing and retrieving sparse data in traditional database can be done. There are several issues with relational database approach for sparse database storage and retrieval,they are storage space, time consumption.

In traditional database during normal retrieval of sparse data from database SQL(Structured Query Language) queries are used which needs to scan entire sparse database which is not efficient.Writing SQL queries for sparse,database table is challenging task since there are several attributes. To overcome this problem the concept of mapping of xml data to sparse database is used. Theadvantage of this approach is data storage, retrieval is optimised and it is time efficient.The rest of the paper is organized as follows: Section II presents literature survey, section III presents methodology IV provides the expected outcome, and section V concludes the paper.

2. Literature Survey

Liang Jeff Chen proposed [1] XML data is mainly supported by SQL database system. It explains about sparse mapping and selective sparse mapping. Sparse mapping is entire xml document is mapped to sparse columns. Selective sparse mapping is an index mechanism that maps interested part of xml document to sparse table.The main disadvantage of this approach is data which is relevant cannot be retrieved.D. Chamberlin and D. Florescu proposed that [2] how XML functionality fits into relational database management systems.It also explains storing XML in relational database system, querying and manupulating XML data, XML typing and validation

L.Beckmann, A. Halverson proposed [3] in relationaldatabase tuple may have nullvalues for several attributes. This acts as challenging task for relational database. Supposehorizontal schema is used to store such data set in database, then it might require large storage space .In this proposed approach vertical schema is used so that storage of dataset can be done in better way.

I.Tatarinov,S.Viglas,K.S.Beyer,J.Shanmugasundara, E. J.Shekita and C. Zhang proposes [4] that XML is mainly used exchange data over internet. Storing and querying these Xml document is challenging task. It also specifies that researches have proposed that relational database systems can be used to satisfy these requirements by shredding XML documents into relations, and translate XML queries into SQL queries over these relations. It also specifies the order encoding method that is normally used to represent XML order.It also describes algorithm to translate ordered XML queries to SQL.The disadvantage of this approach is relational optimizer may not understand XML hierarchical structure.

3. Methodology

We considered an example related to student database for University. Every University will have student database consisting large amount of student detailsretrieving these data using SQL queries is time consuming.Here the numerical indexing technique is used.Figure1 shows the block diagram of proposed system.The proposed system consists of two modules

1) Admin
2) User

Here registered user login first selects attribute, searches the attribute values. The data is retrieved from the sparse database along with it time is displayed if data is not present in xml files. Now admin login with valid username and password. Admin similarly searches the attribute value, selects and map the data to xml files. Now when again login and searches for data, now the data is present in the xml files, time is displayed. Here the concept of translation of XML queries in to SQL is used.

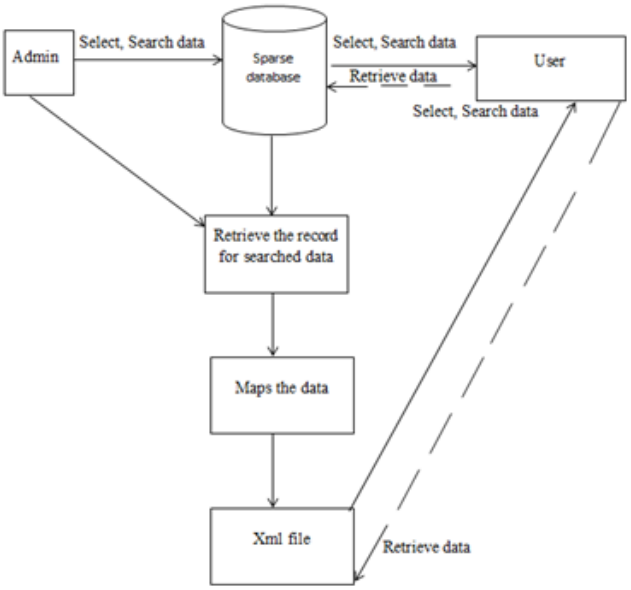

Figure 1: Block diagram

4. Expected Outcome

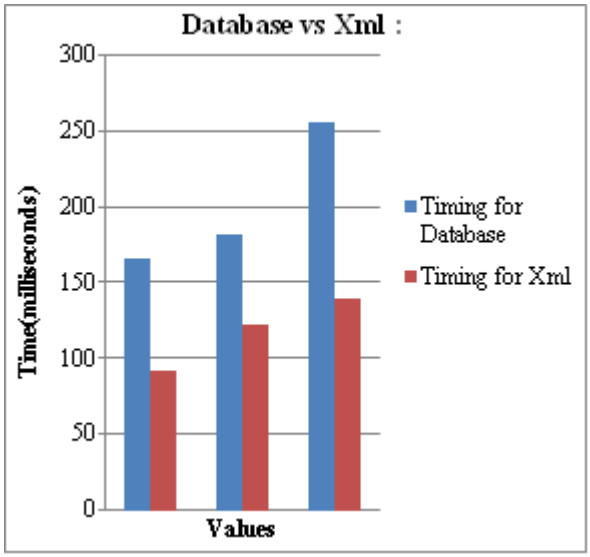

Figure 2: Comparison graph

The above Figure2 shows the expected resultswhichis represented graphically. It shows time taken to retrieve data from xml mapping approach is less compared to time taken to retrieve data from database.

5. Conclusion

The proposed system mainly focuses on the efficiency of data retrieval.XML data is mapped to sparse table and queried. It also measures time taken to retrieve data using XML and SQL queries from sparse table is calculated and compared.

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