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Survey on Sql and NoSql Types of Data Base Management System Software's

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Abstract: A collection of information or data is stored in a database and database management system is a software which is used to handle the database. The main purpose of database management system software is to insert, delete, update, and retrieve the information or data in a secure manner. There exists various database management system software is available such as Oracle, MySql, Mongo etc. therefore it is difficult for user to choose the suitable Database Management System software which benefits for his applications. In this paper the role of Sql and NoSql databases such as Oracle, MySql, and Mongo Database Management System software is discussed also the comparison of above stated database management system software is being carried out to identify the suited software depending upon application for identification which one is beneficial or useful for which applications.

Keywords: Database Management System (DBMS), Structured Query Language (Sql), Not Only Sql (NoSql).

I. INTRODUCTION

Fundamentally all Database Management System software has been used for manipulating, retrieve and admin the information or data from the database. The database management system software journey starts from 1960. 1960s, Navigational Database Management System is come because In 1960 Charles Bachman developed a Integrated Data Store (IDS) by using Network Data Model (CODASYL). Late 1960 IBM developed a Information Management System (IMS) by using Hierarchical Data Model [1]. In 1970, Relational database management system come into existence because in 1970 Edger Codd developed a relational data model[. Late 1970s SQL database management system is produced because Donald D. Chamberlin and Raymond F. Boyce was developed a SQL database management system[2]. SQL database management system softwares are MySql, oracle, postgresql, IBM DB2, maria, sybase etc[3]. In 1990s Object Oriented Model is come because In this database data or information stored as like an objects. In 1998 NOSQL database management system is starts by Carlo Strozzi used the term NOSQL in 1998, then in 2009 Johan Oskarson reestablish the term NOSQL. NOSQL database management system softwares are Mongo, Cassandra, Marklogic etc[4]. There exists various database management system softwares is available from 1960 till today and they are MySql, oracle, postgresql, IBM DB2, maria, Sybase, Mongo, Cassandra, Marklogic, Redis etc. Also there exists various applications such as Banking, Google, Airlines, Amazon, Sales, Facebook, Finance, Social gaming, HR Management, Telecommunication, Warehouses, Universities etc. The main objective of this paper is to identify which Database Management System software is suitable for which applications. In Section II gives brief about in distributed environment how to provides three guarantees and they are consistency, availability, and partition tolerance according to that they used CAP theorem and result comes two types of DBMS Sql and NoSql. In Section III comparison between Sql and NoSql DBMS. Finally, Section IV presents the conclusion.

II. METHODOLOGY

In current scenario there exists various DBMS software is available. In current market there is a trends and also a need of distributed database management system software. In distributed environment three features play important role in DBMS software and they are consistency, availability, and partition tolerance. According to Eric Brewer it is difficult to provides three features simultaneously in distributed environment. For this reason Eric Brewer establish CAP theorem which is also known as brewer's theorem[5].

A. CAP Theorem

CAP stands for Consistency Availability and Partition tolerance. Consistency – It means database always should be in a consistent state in that strictly not allowed for dirty read or write a data. Availability – It means database always should be in a available mode in that no row or column locking system is available due to this user doesn't wait for read and write operation. Partition tolerance – It means in distributed environment database is placing at different geographical area but they are connect each other on internet if internet is loss for sometime and after sometime when internet is available then database should recover the data automatically[6].

CAP Theorem have three features (Consistency, Availability and Partition tolerance) according to Eric Brewer only two features can be choose out of three[7] . In today world there is distributed system environment so it is compulsory for every DBMS software should have partition tolerance feature and remaining two features they can select one of them. If DBMS software choose consistency feature so it is called ACID or SQL DBMS. If DBMS software choose availability feature so it is called BASE or NoSql DBMS.

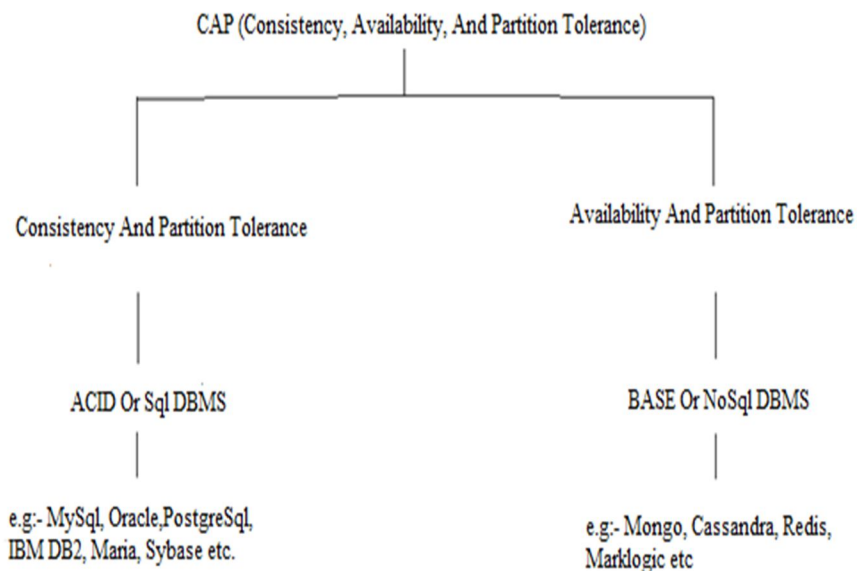


Fig.2.1: SQL And NoSql DBMS Based On CAP

III. COMPARISON BETWEEN

SQL AND NOSQL DBMS The comparison between both Sql and Nosql DBMS are carried out based on two major parameters i).consistency and availability ii).schema oriented and schema less. on behalf of this two parameters it is classified as the difference between Sql and Nosql DBMS and also which application is suitable for which DBMS[8,9].

SQL DBMS	NOSQL DBMS
By CAP theorem Sql dbms choose consistency.	By CAP theorem NoSql dbms choose availability.
To achieve consistency it uses locking system apply on row or column.	To achieve availability it uses unlock system.
By using locking system it is slow.	By using unlocking system it is fast.
It is schema oriented.	It is schema less.
By using static schema it can't update database or application easily.	By using dynamic schema it can update database or application easily.
Sharding is harder	Sharding is easier.
It can't handle large volume of data because sharding concept is harder to implement.	It can handle large volume of data because sharding concept is easy to implement.
SQL DBMS is not applied for making application such as session storage.	NOSQL DBMS is applied for making application such as session storage.
It is usefull for banking application	It is not useful for banking application.
SQL DBMS :- MySQL, Oracle, PostgreSql, IBM DB2, etc.	NOSQL DBMS :- Mongo, Cassandra, Redis, Marklogic etc.

Table.3.1. Comparison Between Sql DBMS And NonSql DBMS

IV. CONCLUSION

There are so much DBMS software's , so which DBMS software is used for which application it is known by the help of CAP theorem. according to CAP theorem it is classified as there are two major classes of DBMS. i).SQL DBMS and ii).NOSQL DBMS.

- 1) *SQL DBMS*: It follow basically consistency feature so it is called ACID databases and it is follow strong schema oriented structure. On behalf of this two parameter we conclude the application of Sql DBMS. Applications of
- 2) *SQL DBMS*: Airlines reservation, Banking system, Sales department, school colleges and universities etc.
- 3) *NOSQL DBMS*: It follow basically availability feature so it is called BASE database and it is follow schema less structure. On behalf of this two parameter we conclude the application of NoSql DBMS. application of NOSQL DBMS: Facebook, Google, Amazon, Session store, Game applications etc.

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