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ISSN 2455-2488
Page No. 175-180

"CREATING HETEROGENEOUS DATABASES REPLICATION TO SOLVE BACKUP AND RESTORE PROBLEMS USING XML AND .NET TECHNOLOGIES"

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ABSTRACT:
Currently, the application software and the variety of the (DBMS) are in escalating growth, and the replications among different database systems because of distinct infrastructures are more than needed. Due to the fact, the replication of data between different DBMS is not always feasible. We propose in this paper, a different design to solve the replication problem and to backup and restore DBMS systems using XML technology and .NET Technologies. With these Solution, users data will be safely protected from accidental delete, overwrite and viruses. This proposed technique is compatible with both oracle and SQL Servers. Database structure and metadata of the documents are stored within XML format i.e. all the files and folders are stored using Extensible Mark-up language (XML) instead of data base. The principle advantage with anticipated work is database administrator can utilize basic XML encoded documents to make and backup information from distinct databases (oracle, SQL and so forth.) at wherever as opposed to utilizing complex tools and interfaces.

Keywords: *Database Management Systems (DBMS), Replication, eXtensible Markup Language (XML), .NET, DBMS Backup and Restore.*

INTRODUCTION

Backup is defined as a copy of data that can reconstruct from database. All DBMS permit a full backup which take the entirety database, spared it as a duplicate, and store in a particular area on the hard disk or on some other secondary memory (CD, DVD, Tapes…). Data backup and recovery consists of set of procedures to protect database against data loss and reconstruct the database after any kind of data loss. Backup can be stored at a specific folder where the file may be either in coded form or in normal form(namely automatic and manual approach). Backups are divided into physical backups and logical backups. Physical backups are those which are copies of physical database files. In contrast, logical backups contain data that you extract using the Oracle Export utility and store in a binary file. You can use logical backups to supplement physical backups.

The fundamental inquiries that ought to be asked are:

1. How would we be able to save some specific things of the database?
2. How would we be able to backup any of the one table of a major database?

Then again, most organizations, and because of the distinctive wellspring of uses, they utilize more than one DBMS, as SQL Server, Oracle, Sybase, DB2 and others. Every one

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of these has a particular tools and instrument for backup and restore. To take care of the issue, we propose another method utilizes just a bound together and amicable client interface, which permits a solution backup and restore the database. The administrator can choose a specific article for Backup/Restore instead of the Backup/Restore the whole DBMS, and to avoid them to master any DBMS tool for Backup/Restore.

In the perpetually developing universe of programming, it turns out to be all the more difficult to make programming less demanding, speedier and more proficient. XML (eXtensible Markup Language) is a meta-dialect in which different dialects are made. XSL (eXtensible Style sheet Language) is utilized for organizing XML document . The objective of this paper is to plan and actualize a parser for XML, and a Graphical Interface to alter XSL documents utilizing .NET innovation.

Replication is a "set of technologies" that can move and duplicate information and database objects from one DBMS to one more of the same sort or distinctive, crosswise over distinctive stages and geographic areas. This permits clients to work with a nearby duplicate of the database, and any progressions made are exchanged to one or more remote servers or portable clients over the system.

RELATED WORK

Entire known DBMS permits to backup and restore the accessible databases. By and large, three sorts of backup are accessible to be specific full Backups, differential Backups and exchange log Backups. Keeping in mind the end goal to store and recover database, a large portion of the organization utilize more than one database management framework (DBMS) like as SQL Server, Oracle, Sybase, DB2 and others. In addition, each of these servers has particular tools and interfaces to backup and recover the client information. Along these, basic, dependable, vigorous and cost proficient back framework are expected to reinforcement information from numerous sources. This paper proposes XML and .NET GUI based backup and recovery framework for heterogeneous database backup frameworks.

BACKUP TYPES

In DBMS, Backup is defined as a copy of data that can reconstruct from database to restore after data loss as original. These additional multiple copies are called "backups". Backups are divided into two: physical backups and logical backups. The backups are primarily designed for two purposes:

1. Disaster recovery
2. Data recovery

For eg: Oracle 11g Database has 2 types of backup, SQL Server 2008 has three types of backup.

REPLICATION:

Replication is a "set of technologies" that can move and duplicate information and database objects from one DBMS to one more of the same sort or distinctive, crosswise over distinctive stages and geographic areas. There are different modules for replication between
SQL Server and SQL Server, Oracle and Oracle but there are no any replication software between two DBMSs. There are two types of replication they are Lazy replication and eager Replication.

TECHNOLOGIES AND TECHNIQUES USED IN OUR SOLUTION

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XML stands for eXtensible Markup Language defined by World Wide Web Consortium. eXtensible Markup Language (XML) is considered as one of the most important new technique in stream of technologies to support the World Wide Web Consortium. XML is originally designed to fulfill the challenges of large-scale electronic publishing. It gives a standard approach to represent data, which permits that data to be stored and exchanged among any Internet-associated devices. It moreover permits any number of diverse software frameworks to change and control that data. XML is not a programming language, it is a grammar used to define and describe data structures. The XML is the way of describing how the content of the document should be interpreted.

The XML programmer can design his own tags, elements and Markup Language that can fulfill his needs. XML would adopt a very strict syntax which results in smaller, faster, and lighter browser. XML is popular because of

- Easy Data Exchange,
- Self-Describing Data,
- Customizing Markup Languages,
- Structured and Integrated Data

The XML answer for replicating information between, for instance, SQL Server and Oracle, is accomplished in the event if it gives-

1. Solution for Offline Backup Replication:-
    a. A row or an entire table, saved as XML file, it will be replicated asynchronously as a backup operation to a database server. The offline row replication will help to check the data consistency
2. Solution for Online Backup Replication:-
    a. In online backup replication, a row is triggered for each DML (Data Manipulation Language) query that allow insertion, deletion and manipulation query, as XML document in a repository folder, and a process **(JOB**) from other server side check the changes to upload the data **synchronously**.
3. Data Consistency, Concurrency, Recovery Solution.

First server side scripting engine developed by Microsoft known as Active Server Pages (ASP) in 1998. It is also known as Classic ASP. Pages of ASP have the .asp extension. It can be coded in VBScript. ASP.NET files have the file extension .aspx. This technology supports scripts (embedded in web pages) in webpage to be executed by an Internet server. ASP.NET is a server side scripting technology that enables scripts to be executed by an internet or web server. ASP.NET Programming Languages: Visual Basic (VB.NET) and C# (Pronounced C sharp). ASP.NET supports the following development tools: Visual Web Developer, Web Matrix, and Visual Studio.

Because of the standardized, simplicity, exacting rules for structure, syntax, flexible of interaction between ASP.Net technology and XML, we use XML technology to hold our backup files. We have used .NET Technology in our proposed technique, because, one of the most important ASP.Net classes is the "Dataset" class which can hold your database tables and can read/write from/into XML documents.

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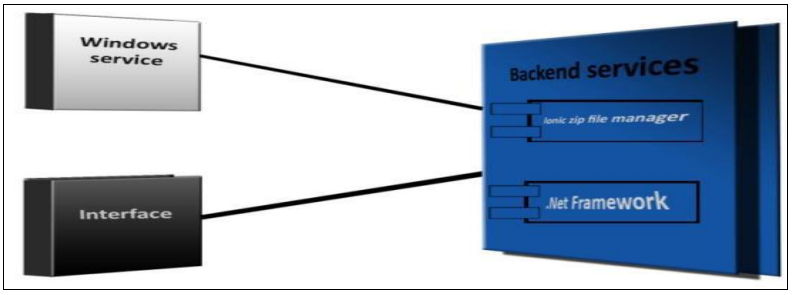
THE PROPOSED TECHNIQUE

Today, the greater part of the business organizations have more than one software to deal with the entirety business process. For instance, we find in the Bank one software for the center business (accounts, exchanges, equalization,…), one software for the HR division (workers records, compensations, reward,…), and another programming for the Private Banking office (Bonds, treasury, …) … and so on.

We generally need to create a bound together report between these distinctive frameworks which utilize diverse database management systems (DB2, Oracle, Sybase, SQL Server…). The replication is one of the significant answers for creating this report and stay away from the import/send out mistake in return information between distinctive frameworks. We do regularly confront issues in the replication situation because of the heterogeneous (i.e., inside diverse) database frameworks.

As discussed before the XML is the most appropriate language for data exchange. Our design to solve the replication problem is based on the XML technologies. Our new idea is to use the XML as middleware between different databases, and .NET as interface.

The proposed new technique using Extensible mark-up Language (XML) that is GUI based is compatible with different types of servers.



Backup and restoring service

A new design and implementation for backing up different DBMS is developed. The idea is based on the creation of a unified interface using ASP.NET and XML technology.

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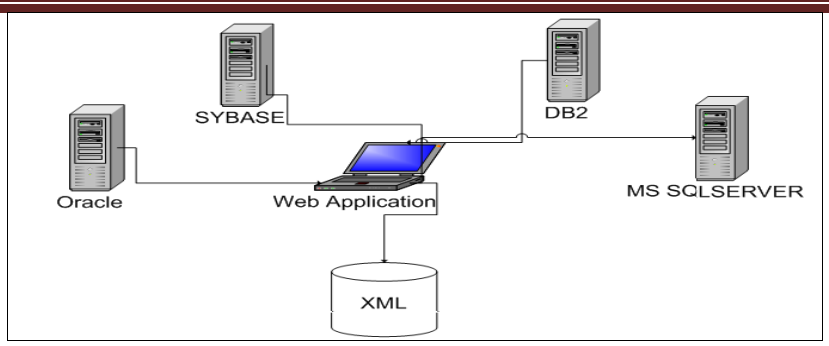

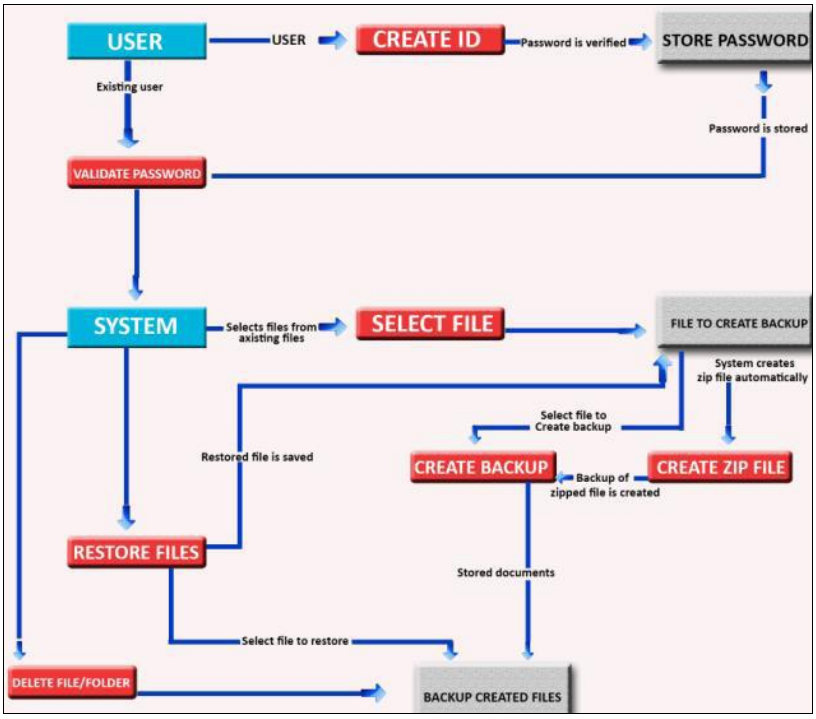

With each put away record, we appended a recurrence data XML document which permits answer reinforcement and restore the database by picking particular data without figuring out how every DBMS works, furthermore without opening them. The manager can pick a particular content for Backup/Restore rather than the Backup/Restore the entire DBMS. Figure Clarifies about restore and backup window administrations through compacted structure. These administrations are additionally used to store continuous data i.e. postfix or prefix is put away as some predefined codes at designated position of the stockpiling gadget. The principle advantage with this is clients can without much of a stretch see every reinforcement duplicate of information with procedure code number.

Figure clarifies about information stream chart for proposed reinforcement and recuperation framework. Firstly, client verification and approval will be checked through certifications like username and secret

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word. Furthermore, chosen reinforcement records will be compacted through ZIP and store in "Make Backup records". At last, restore records are put away in chose stockpiling restore devices. The solution to solve the problem of restore and backup can be solved by using the internet by storing data to internet.

CONCLUSION

In this paper, we have configuration of XML-based GUI for heterogeneous database backup framework and also designed and implement a new technique for Backup and Restore for specific content using .NET and XML technology.

The design of XML-based GUI for heterogeneous database backup framework which assists client with creating, store and recover information from different numerous database with basic XML documents. Also, client doesn't require a different apparatus for every last database to make and store the information.

This paper has a new design to solve the replication problem between heterogeneous DBMS systems using XML and ASP.net technology as Middleware.

The important points that we have achieved are as follows:

1. The data can be backup and restore partially from different DBMS.
2. It also allow full data backup and restore
3. The data can be whenever, whatever and wherever be restore according to DBMS.

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