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METHODS TO IMPROVE THE PERFORMANCE ON DATA WAREHOUSING AND ITS TECHNIQUES

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Abstract:

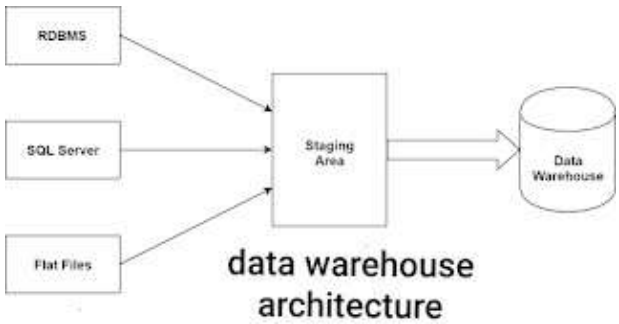
The meaning of warehouse is the collection of information which plays a role in the work to be done for an organization. Its role is that of decision making. In this, along with storing information, they can also be extracted when needed, this is also an important function. Storing database under database management system .Warehouse is specially designed so that the information required by the user can be easily identified. A data warehouse has a large collection of relational data and databases. This collection plays a major role in data management, through networking, it is connected to all the computers of that organization so that the user can use it from any computer. It is a database used for reporting and analysis. Data warehouse is set up for the benefits of business analysts and executives across all functional areas. The primary goal of data warehouse is to free the information locked up in the operational database so that decision makers and business analyst can make queries, analysis and planning regardless of the data changes in operational database In this paper we have tried to present outcome of thorough reference of details of research efforts put up by various research groups in key areas of the technology like data warehouse Data warehouse architecture, data mining, data warehouse maintenance.

Keywords: Data Warehouse, Management System, And Business Analyst

Introduction

Data warehouse architecture:

Data source like relational database. Integration of data from system etc. is done. A data source can transmit information to a data warehouse or send a request for data to a data warehouse source.The data or information received from the data source is stored in a central storage, which is called data warehouse. Different data sources store data in different schemas and may also have different data models. Hence the data warehouse has to perform schema integration. Before storing the data, it is converted into an integrated schema. The process of correcting and pre-processing the data is called data cleansing. It is possible for the data received from the data source to contain minor errors or minor inconsistencies that can be corrected. There may be error like name misspend wrong data etc. The data received from the data source may contain duplicates which are removed. Data is also transformed. Which can be retrieved by query or analysis tools when required. These tools are on the client ute.The raw data generated by a transaction processing system is too large to store online, so it is necessary to summarize the raw data. The process of data warehouse can be expressed in just three words (Extract Transform a Load (TETL). Schena are prepared in the warehouse for data analysis. Two types of schema (start schema a show flake schema) are used. Multi-dimensional data has two attributes dimension and measure. The table in which there is a multi-dimensional camp is called a fack table. Dimension attribute is made foreign key in other tables to reduce storage requirement. This table is called a dimensional table



data warehouse architecture

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Types of data warehouse

1. Dimensional method

2. Normalized method

1. Dimensional Method:

In this matched data is stored in two parts. In this, the data is divided into facts and dimensions.

is done. Arithmetic transaction is called data fact and the information related to it is called dimension. If we take the example of a bank transaction, then it is said that the account number is the deposit or withdrawal amount lacts and the account holder's address is the number of withdrawal or deposit receipt, the account holder's name and date etc. are dimension. This is the simplest and most used method of storing data in a data warehouse because information can be retrieved from it quickly. It is also easy to understand and can be used easily.

2 Normalized method

In this method the data is stored in the form of a table. This method follows the normalization rules of the database to store the data. This is a way to store data properly. It is a bit difficult because it is necessary to know the rules of normalization to use it.

Applications of Data Mining:

1. In the field of healthcare, it is used to find out about the patient's disease. It gives information about such hospitals where the patient can be treated in less money and less time.

2. The behavior of the customer is detected through data mining in the field of market, in this it is seen that if the customer has bought something similar, then what other goods he will buy with it.

3. Predicted student's result using data mining in the field of education goes. It also tells how to teach a student and what to teach

4. Nowadays many frauds are happening in detecting fraud, due to which the money of lakhs of people is wasted. Data mining helps in avoiding this.

Data mining techniques

Data mining involves the use of sophisticated data analysis tools to find previously unknown, valid patterns and relationships in vast data sets. These tools can include statistical models, machine learning techniques and -mathematical algorithms, such as neural networks or decision trees. Thus, data mining includes analysis and prediction. Based on a variety of methods and techniques from the intersection of machine learning database management and statistics, professionals in cycling have dedicated their careers to better understand how to process and extract large amounts of data but which are the ways they are used. to do that they use

Various major data mining techniques have been developed and used in recent data mining projects including association classification, clustering, predicting sequential patterns and regression.

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1. Classification:

This technique is used to obtain important and relevant information about the data and metadata. This data mining technique helps in classifying the data into different classes. Data mining techniques can be classified by various criteria, which are as follows

Classification of Data mining frameworks as per the type of data sources mined:

This classification is according to the type of data handled. For example, multimedia, spatial data, Text data Time-series data. World Wide Web, etc,

Classification of Data Mining Framework according to the database involved:

This classification is based on the data model involved. for example. Object Oriented Database Transactional Database, Relational Database, etc.

Classification of data mining frameworks according to the type of knowledge discovered:

This classification depends on the type of knowledge discovered or the data mining functionalities. For example discrimination, classification, clustering, characterization, etc. Some frameworks are comprehensive frameworks that bundle certain data mining functionalities together. Classification of Data Mining Framework according to the data mining techniques used This classification is according to the data analysis approach used such as Neural Networks, Machine Learning, Genetic Algorithms, Visualization, Statistics Data Warehouse Oriented or Database Oriented etc. Classification can also take into account the level of user interaction involved in the data mining process, such as query driven systems, autonomous systems or interactive exploratory systems

2. Data mining techniques Clustering

Clustering is the division of information into groups of connected objects. Describing the data by some groups mainly loses certain details but meets the correction. It models data by its groups.

Data modeling approaches clustering from a historical perspective rooted in statistics mathematics and numerical analysis. From machine learning point of view clusters are related to hidden patterns, cluster discovery is unsupervised learning and the latter framework represents a data concept. From a practical point of view, clustering serves an exceptional function in data mining applications. For example scientific data exploration, text mining, information retrieval, spatial database applications, CRM, Veda analysis, computational biology, medical diagnostics, and much more. In other words, we can say that clustering analysis is a data mining technique to identify similar data. This technique helps in identifying the differences and similarities between the data. Clustering is similar to classification, but it involves grouping of data based on their similarity.grouping is included.

3. Regression:

Regression analysis is a data mining process used to identify and analyze relationships between variables due to the presence of other factors. It is used to define the probability of a specific house. Regression, primarily a form of planning and modeling. For example, we can use it to project certain costs, based on other factors such as availability, consumer demand and competition. Mainly it gives the exact relationship between two or more variables in the given data set.

4. Association Rules:

This data mining technique helps to find a link between two or more objects. It finds a hidden pattern in the data set. Association rules support if then statements that show the possibility of interactions between data items within large data

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sets in different database types. Association rule mining has many applications and is commonly used to help with sales correlations in data or medical data sets.

Conclusion

Data warehousing is a widely accepted technology for decision making applications for large business organizations. Insight view of the organization's performance in all aspects of business is a crucial requirement in order to enable the organization to identify those aspects of their business where improvements are required for further growth of the organization. Concepts of data maintenance have also been explored by the researchers in the past but with the evolution of unstructured data in huge amounts, newer techniques need to be explored and devised for

managing such data. Technologies like Big data, Map reduce need to be taken into main stream of data warehousing as they support data reduction and parallel processing feature that gives both way improvement in the processing. Work towards standardization of data warehouse solution development methodology is required. Adaptation of data warehousing technology has been done only by the large sized business enterprises due to high costs and proprietary methods of implementation.

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