Name: Aftab Khan ID: 12985

Subject: Dataware House

Answer 1:

OLAP:

It Stands for "Online Analytical Processing." OLAP allows users to analyze database information from multiple database systems at one time. While relational databases are considered to be two-dimensional, OLAP data is multidimensional, meaning the information can be compared in many different ways.

Example: a company might compare their computer sales in June with sales in July, then compare those results with the sales from another location, which might be stored in a different database.

In order to process database information using OLAP, an OLAP server is required to organize and compare the information. Clients can analyze different sets of data using functions built into the OLAP server. Some popular OLAP server software programs include Oracle Express Server and Hyperion Solutions Essbase. Because of its powerful data analysis capabilities, OLAP processing is often used for data mining, which aims to discover new relationships between different sets of data.

OLTP:

Online Transactional Processing, or OLTP, is a class of software program capable of supporting transaction-oriented applications on the internet. In computing, a transaction is a sequence of discrete information or data. Many everyday applications involve OLTP, from online banking, shopping, and POS terminals.

Example: An example of the OLTP system is the ATM center.

Assume that a couple has a joint account with a bank. One day both simultaneously reach different ATM centers at precisely the same time and want to withdraw the total amount present in their bank account.

However, the person that completes the authentication process first will be able to get money. In this case, the OLTP system makes sure that the withdrawn amount will be never more than the amount present in the bank. The key to note here is that OLTP systems are optimized for transactional superiority instead of data analysis.

Answer 2:

Data Warehouse Architecture:

DATA WAREHOUSE ARCHITECTURE is complex as it's an information system that contains historical and commutative data from multiple sources.

There are 3 approaches for constructing data-warehouse:

1) Single Tier
2) Two tier
3) Three tier

1)Single-tier architecture:

The objective of a single layer is to minimize the amount of data stored. This goal is to remove data redundancy. This architecture is not frequently used in practice.

2)Two-tier architecture:

Two-layer architecture separates physically available sources and data warehouse. This architecture is not expandable and also not supporting a large number of end-users. It also has connectivity problems because of network limitations.

3)Three-tier architecture:

This is the most widely used architecture.

It consists of the Top, Middle and Bottom Tier.

Bottom Tier: The database of the Data warehouse servers as the bottom tier. It is usually a relational database system. Data is cleansed, transformed, and loaded into this layer using back-end tools.

Middle Tier: The middle tier in Data warehouse is an OLAP server which is implemented using either ROLAP or MOLAP model. For a user, this application tier presents an abstracted view of the database. This layer also acts as a mediator between the end-user and the database.

Top Tier: The top tier is a front-end client layer. Top tier is the tools and API that you connect and get data out from the data warehouse. It could be Query tools, reporting tools, managed query tools, Analysis tools and Data mining tools.