**What is RDBMS?**

RDBMS stands for Relational Database Management System. RDBMS is a program used to maintain a relational database. RDBMS is the basis for all modern database systems such as MySQL, Microsoft SQL Server, Oracle, and Microsoft Access. RDBMS uses SQL queries to access the data in the database.

**Who is the market leader in database?**

MySQL has market share of 42.14% in relational-databases market. MySQL competes with 40 competitor tools in relational-databases category. The top alternatives for MySQL relational-databases tool are PostgreSQL with 16.67%, Oracle Database with 11.53%, DB2 with 5.28% market share.

**What is SQL?**

Structured Query Language (SQL) is a programming language used to manage and manipulate data stored in relational databases.

**Why MySQL?**

* MySQL is open-source software, meaning it's freely available for use, modification, and distribution. This makes it cost-effective and accessible for a wide range of applications. It has a large and active community of developers and users.
* MySQL is compatible with various operating systems, including Windows, Linux, and macOS. This flexibility allows developers to choose the environment that best suits their needs.
* MySQL is designed for high performance. It provides good scalability, allowing applications to grow in terms of data volume and user load.
* MySQL is known for its reliability and stability. It has been used in production environments for many years, and its robustness makes it a trusted choice for critical applications.
* MySQL supports ACID (ACID is an acronym that stands for atomicity, consistency, isolation, and durability. It's a set of properties that ensure database transactions are processed reliably and leave the database in a valid state, even in the event of errors.) properties, making it suitable for applications that require reliable and transactional data processing.
* MySQL integrates well with various programming languages, web development frameworks, and application stacks. This makes it a versatile choice for developers working with different technologies.

**Features of MySQL**

* MySQL uses only just under 1 MB of RAM on your laptop while Oracle 9i installation uses 128 MB.
* MySQL is portable.
* MySQL default port number is 3306.
* MySQL is written in C and C++ and its SQL parser is written in yacc (Yet Another Compiler Compiler).

**Data Warehousing**

Data warehousing involves the collection, storage, and management of data from various sources in a centralized repository called a data warehouse. The primary goal of data warehousing is to provide a unified and consistent view of an organization's data for analytical and reporting purposes.

**Data Warehouse**

data warehouse is a subject oriented, integrated, time variant, non-volatile collection of data in support of management's system. It is a collection of data designed to support management decision making by presenting a coherent picture of business conditions at a single point of time.

**Features of Data Warehouse:**

1) Subject-Oriented:

A data warehouse is subject-oriented, meaning it is designed to provide information around specific subject areas or topics that are relevant to the organization's business. Instead of being transaction-focused, it focuses on key business subjects, such as customers, products, sales, etc.

2) Integrated:

Integration is a key feature of a data warehouse. It involves combining data from various sources into a unified and consistent format. This integration ensures that data from different systems is transformed and standardized to provide a coherent view across the organization.

3) Time-Variant:

Time-variant means that the data in a data warehouse is stored with a focus on time, allowing for the analysis of historical trends and changes over specific periods. Historical data is preserved, and users can perform analyses that span different time intervals.

4) Non-Volatile:

Non-volatile indicates that once data is stored in the data warehouse, it does not change. It is not subject to frequent updates, inserts, or deletions as in transactional databases. Instead, the data warehouse retains historical information, providing a stable and consistent data environment for analysis.

**OLTP (Online Transaction Processing)**

● OLTP stands for Online Transaction Processing

● Online Transaction Processing is a type of data processing that consists of executing a number of transactions occurring concurrently.

●It refers to systems that facilitate and manage transaction-oriented applications, typically for data entry and retrieval transaction processing.

●Usually run simple queries involving just one or a few records

●OLTP systems implement concurrency control mechanisms to manage multiple transactions happening simultaneously and ensure data consistency.

●Examples include order processing, inventory management, and online banking.

**OLAP (Online Analytical Processing) Architecture**

●OLAP stands for Online Analytical Processing.

●It is based on the multidimensional data model.

●It is a technology that enables analysts to extract and view business data from different points of view.

●OLAP data is typically stored in a Star Schema, which is a combination of dimensions and fact tables.

●OLAP systems handle a lower volume of transactions compared to OLTP. They are optimized for read-intensive operations and complex analytical queries.

●OLAP systems are generally not as concerned with concurrent write operations as OLTP systems. The focus is on supporting simultaneous read-intensive analytical queries.