SQL SERVER TRAINING

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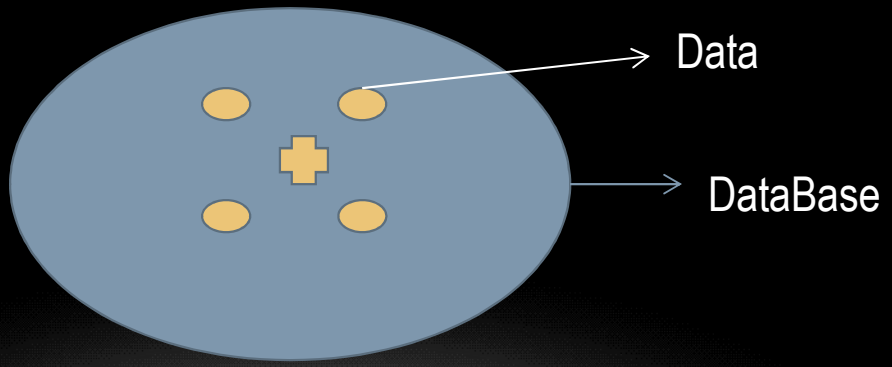
INTRODUCTION TO SQL

- What is SQL?.
- SQL stands for Structured Query Language. It is the standard language used for interacting with relational databases.
- Definition: SQL is a language use to communicate and manage databases. It allows you to store, retrive and manipulate data.
- Definition: SQL (Structured Query Language) is a standardized programming language used for managing and manipulating relational databases. Purpose: To query, insert, update, and delete data in a database..

WHAT IS DATA AND DATABASE ?

- Data is a collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.
- Collection of the data leads to Database i.e. for example, the complete data of a company leads to a database for that company.
- Database should be saved in such a organized format so that the user/computer can retrieve a piece of information from the database, so to achieve that DBMS come into the picture.



DATABASE COSISTS OF TABLE:

- **A table** is set of data elements using a model of vertical columns and horizontal rows where each columns are identified by its unique name .
- **A cell** in a table is a unit where the row and a column intersect also called as **field**.
- **A table** can have specified number of column but n number of rows.
- A row of a table is also called as **tuple**.
- When a data is filled in the table as per the **column** in an row then that particular data is called as a **record** of that **table**.

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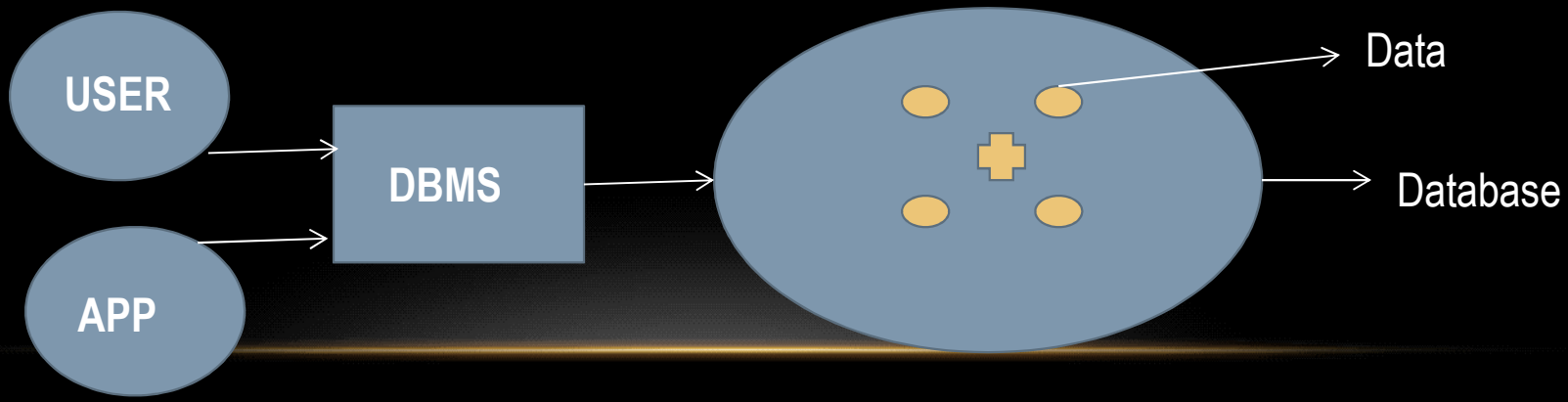
DATABASE MANAGEMENT SYSTEM (DBMS)

- DBMS is a software which is used to manage database. It is define as the software system that allows user to define create, maintain and control access to the database.
- DBMS is that it lets end users and application programmers access and use the same data while managing data integrity. Data is better protected and maintained when it can be shared using a DBMS instead of creating new iterations of the same data stored in new files for every new application. The DBMS provides a central store of data that can be accessed by multiple users in a controlled manner.



TYPES OF DBMS:

- **Hierarchical database**: In a hierarchical database, records contain information about there groups of parent/child relationships, just like as a tree structure. The structure implies that a record can have also a repeating information. In this structure Data follows a series of records, It is a set of field values attached to it.
- **Network database**: A network databases are mainly used on a large digital computers. It more connections can be made between different types of data, network databases are considered more efficiency It contains limitations must be considered when we have to use this kind of database.
- **Relational database**: In relational databases, the relationship between data files is relational. These databases connect to the data in different files by using common data numbers or a key field.
- **Object-oriented database**: It takes more than storage of programming language objects. Object DBMS's increase the semantics of the C++ and Java .It provides full-featured database programming capability, while containing native language compatibility.

IMPORTANTS OF SQL

- SQL (Structured Query Language) is essential for several reasons:
- **Security**: SQL provides various features for securing data, including user authentication and role-based access control.
- **Scalability**: SQL databases can handle large volumes of data and support complex transactions, making them suitable for growing businesses.
- **Data Integrity**: SQL supports constraints and relationships, ensuring data integrity and consistency within the database.
- **Standardization**: SQL is an ANSI (American National Standards Institute) standard, promoting consistency in how data is managed across different platforms.
- **Data Management**: SQL is the standard language for interacting with relational databases, allowing users to create, read, update, and delete data efficiently.

WHAT IS RDBMS?

- **RDBMS (Relational Database Management System)** is a type of database management system that stores data in structured tables (relations) and allows for relationships between those tables. It uses SQL (Structured Query Language) for querying and managing the data. Key features include data integrity, support for transactions, and the ability to enforce constraints.
- An **RDBMS (Relational Database Management System)** is a type of database management system that stores and organizes data in a **tabular form** (rows and columns) and allows for relationships between tables using primary and foreign keys.
- Examples of RDBMS include
- MySQL,
- PostgreSQL,
- Oracle, and
- Microsoft SQL Server.