What is the DBMS?

A Database Management System (DBMS) is software designed to store, retrieve, define, and manage data in a database.

DBMS software primarily functions as an interface between the end user and the database, simultaneously managing the data, the database engine, and the database schema in order to facilitate the organization and manipulation of data.

Types of DBMS

There are main Four Types of Database Management System are:

- **Hierarchical database**
- **Network database**
- **Relational database**
- **Object-Oriented database**

Hierarchical DBMS

In a Hierarchical database, model data is organized in a tree-like structure. Data is Stored Hierarchically (top down or bottom up) format. Data is represented using a parent-child relationship. In Hierarchical DBMS parent may have many children, but children have only one parent.

Network Model

The network database model allows each child to have multiple parents. It helps you to address the need to model more complex relationships like as the orders/parts many-to-many relationship. In this model, entities are organized in a graph which can be accessed through several paths.

Relational Model

Relational DBMS is the most widely used DBMS model because it is one of the easiest. This model is based on normalizing data in the rows and columns of the tables. Relational model stored in fixed structures and manipulated using SQL.

Object-Oriented Model

In Object-oriented Model data stored in the form of objects. The structure which is called classes which display data within it. It is one of the components of DBMS that defines a database as a collection of objects which stores both data member's values and operations.

Advantages of DBMS

Faster Data Access

The database management system helps the users to produce quick answers to queries making data accessing accurate and faster.
For any given dataset, dbms can help in solving insightful financial queries like:

1. What is the bonus given to every salesperson in the last two months?

2. How many customers have a credit score or more than 800?

3. What is last year's profit?

Better decision making

Due to DBMS, we now have improved and managed data accessing because of which we can generate better quality information which can hence make better decisions.

Better quality ultimately improves validity, accuracy and time it takes to read data. It doesn't guarantee data quality; it provides a framework to make it easy to enhance data quality.

Simplicity

DBMS allows us to understand data better with a clear and simple logical view. With dbms, many operations like deletion, insertion or creation of file or data, are easy to implement.

Recovery and Backup

DBMS automatically takes care of recovery and backup. The users are not required to take periodical backup as this is taken care of by DBMS. Besides, it also restores a database after a system failure or crash to prevent its previous condition.

Increased end-user productivity

The available data transform into helpful information with the help of combination tools. It helps end users make better, informative and

quick decisions that can make the difference between success and failure in the global economy.

Additionally, today DBMS is also serving as the backbone of several advanced Technology practices like Data Science, Data Modeling and Machine Learning. So, if you are someone looking for a career in analytics or automation then dbms is a must have skill for you.

Minimized Data Inconsistency

Data inconsistency occurs between files when various versions of the same data appear in different places. Data consistency is ensured in the database; there is no data redundancy. Besides, any database changes are immediately reflected by all users, and there is no data inconsistency.

Data Security

Data security is a vital concept in a database. Only users authorized must be allowed to access the database and their identity must be authenticated using username and password. Unauthorized users shouldn't be allowed to access the database under any circumstances as it violets the integrity constraints.

A DBMS provides a better platform for data privacy thus helping companies to offer an improved data security.

Data Integrity

Data integrity means data is consistent and accurate in the database. It is essential as there are multiple databases in DBMS. All these databases contain data which is visible to multiple users. Therefore, it is

essential to ensure that data is consistent and correct in all databases for all users.

What Is The RDBMS?

A relational database management system (RDBMS or just RDB) is a common type of database that stores data in tables, so it can be used in relation to other stored datasets. Relational Database Management System having the ability to provide the Relationship between Two Different Tables. The data is often stored in many tables, also called 'relations'. These tables are divided into rows, also called records and columns (fields). There can be millions of rows in a database. Columns are made up of one specific data type, like name or price.

The tables in the relational database can be linked in several ways:

- Characteristics of one table record may be linked to a record in another table
- A table record could be linked to many records in another table
- Many table records may be related to many records in another table.