

Database Importance & Objectives

A database is a collection of information that is used to organize and access information according to the logical structure of that information. A database supports both online transaction processing (OLTP) and online analytical processing (OLAP). The database that supports OLTP is known as an operational database. It is also called a database management system (DBMS) or modern (DBMS) database management system.

Database

A database management system has three components:

- A data definition language (DDL)
- Data manipulation language (DML)
- And, a data dictionary

Data definition language (DDL)

The database definition language is the formal language program use to specify the structure of the content of the database. The data definition language defines each data element as it appears in the database before the data element translated into the forms required by application programs.

Data manipulation language (DML)

Most DBMS have a specialized language called a data manipulation language ([DML](#)) that used in conjunction with some conventional third or fourth-generation programming languages to manipulate the data in the database. This language contains commands that permit end users and programming specialists to extract data from the database to satisfy an information request and develop an application. The most data prominent data manipulation language is SQL.

Data dictionary

The third element of DBMS is s data dictionary. this is a manual file that stores definitions of data elements and data characteristics such as usage, physical representation, ownership, authorization, and security. Many data dictionaries can produce lists and reports of data use, grouping, program locations, and so on.

Objectives of the database approach or advantages

Some objectives or advantages are as follows:

- Real-world entity
- Relation-based table

- Less redundancy
- Consistency (correctness)
- Query language
- Multi-user and concurrent access
- Multiple views
- Security, etc.

Real-world entity

Modern DBMS is more realistic and uses real-world entities to design its architecture. It uses behavior and attributes too. For e.g. a school database may use the student as entity and age their age as an attribute.

Relation based table

DBMS allows entities and relations among them to form as tables. This eases the concept of data saving. A user can understand the architecture of entire database just by looking at table names, etc.

Less redundancy

DBMS follows rules of normalization, which splits relation when any of its attributes is having redundancy in values. Following normalization, which itself is a mathematically rich and scientific process, make the entire database to contain as less redundancy as possible.

Consistency (correctness)

DBMS always enjoy the state on consistency where the previous form of data storing applications like file processing does not guarantee this. Consistency is a state where every relation in the database remains consistent. There is exist methods and techniques, which can detect attempt of leaving database in inconsistent state.

Query language

DBMS is equipped with the query language, which makes it more efficient to retrieve and manipulate data. A user can apply as many and different filtering options, as he or she wants.

Multi user and concurrent access

DBMS supports multi-user environment and allows them to access and manipulate data in parallel. Though there are restrictions on transactions when they attempt to handle the same data item, but users are always unaware of them.

Multiple views

DBMS offers multiples views for different users. This enables the user to have a concentrated view of the database according to their requirements.

Security

DBMS offers security to the file or information where users are unable to access data of other users and departments. DBMS offers methods to impose constraints while entering data into the database and retrieving data at a later stage.

Thus, a database management system i.e. DBMS is better as compared to the file processing system.

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