What are the different phases of database development Life cycle (DBMS)?

The different phases of database development life cycle (DDLC) in the Database Management System (DBMS) are explained below –

• Requirement analysis.

• Database design.

• Evaluation and selection.

• Logical database design.

• Physical database design.

• Implementation.

• Data loading.

• Testing and performance tuning.

• Operation.

• Maintenance.

Now, let us understand these phases one by one.

Requirement Analysis

The most important step in implementing a database system is to find out what is needed i.e what type of a database is required for the business organization, daily volume of data, how much data needs to be stored in the master files etc.

In order to collect all this information, a database analyst spends a lot of time within the business organization talking to people, end users and getting acquainted with the day-to-day process.

Database Design

In this phase the database designers will make a decision on the database model that perfectly suits the organization's requirement. The database designers will study the documents prepared by the analysis in the requirement analysis stage and then start development of a system model that fulfils the needs.

Evaluation and selection

In this phase, we evaluate the diverse database management systems and choose the one which perfectly suits the requirements of the organization.

In order to identify the best performing database, end users should be involved.

Logical database design

Once the evaluation and selection phase is completed successfully, the next step is logical database design.

This design is translated into internal model which includes mapping of all objects i.e design of tables, indexes, views, transaction, access privileges etc.,

Physical Database Design

This phase selects and characterizes the data storage and data access of the database.

The data storage depends on the type of devices supported by the hardware, the data access methods.

Physical design is very vital because of bad design which results in poor performance.

Implementation

Database implementation needs the formation of special storage related constructs.

These constructs consist of storage groups, table spaces, data files, tables etc.

Data Loading

Once the database has been created, the data must be loaded into the database.

The data required to be converted, if the loaded date is in a different format.

Operations

In this phase, the database is accessed by the end users and application programs.

This stage includes adding of new data, modifying existing data and deletion of absolute data.

This phase provides useful information and helps management to make a business decision.

Maintenance

It is one of the ongoing phases in DDLC.

The major tasks included are database backup and recovery, access management, hardware maintenance etc.