**DBMS (Database Management System):**

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What is DBMS?

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-> DBMS is abbreviated as "Database Management System".

-> DBMS is a software or process or technique can provide an interface to the user layer and database layer for performing:

 1) create storage

 2) access storage

 3) update storage

 4) delete storage etc.

Features of DBMS:

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1) DBMS can be for storage and for access control

2) Accuracy

3) redundant

4) Secure access

How DBMS can work?

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DBMS has different functional blocks:



1) DBMS Engine:

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-> can check and read the query/statement is in the correct format or not for the execution.

2) Processor:

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-> can provide the priority for each query before the execution.

3) Storage processor:

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-> can maintain the next query which want to execute.

4) Transaction Processor:

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-> can apply the ACID (Atomicity, Consistency, Isolation and Durability) before the execution.

5) Database Schema:

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There are four types of DBMS:

 1) Hierarchical DBMS

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 -> This can maintain the data in tree format

 Ex: File Management System

 2) Network DBMS

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 -> can maintain the data in the format of links.

 Ex: routers etc.

 3) Relational DBMS

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 -> The data can be maintained in the format of some relations like tables.

 -> table consists of rows and columns to manage the data.

 Ex: Oracle, MySQL, Sql Server, DB2 etc.

 4) Object DBMS

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 -> The data can store and manage in the object format.

 Ex: Neo4j

 -> according to the type of DBMS, the database schema can decide the format or structure of data to store.

ACID Properties:

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->There are four ACID properties:

 1) Atomicity

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 -> Ensures that a transaction is either fully completed or not executed at all.

 Ex: user1 -------------> sending money ----------------> user2

 10000

 user1 ==> sufficient funds

 10000 can be deducted from user1

 add to user2

 transaction successful/Failure

 2) Consistency

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 -> Ensures that a transaction is either fully completed or not executed at all.

 user1 ====> 10000 ===> user2

 user1 have 5000 only

 3) Isolation

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 -> Ensures that concurrent transactions do not interfere with each other.

 Ex: IRCTC

 user1 & user2 ==> logged in

 vizag ==> 11pm ==> 1 ticket

 4) Durability

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 -> Ensures that once a transaction is committed, it remains permanent, even if there is a system failure.

 -> Bank application

 history can be maintained after the restart the system also.