

1. Intro to DBMS

8.1 Differentiate between file system and database system.

DBMS System	File System
1) Computerized record-keeping system is used in DBMS.	1) Collection of individual files accessed by application programs is called file processing system.
2) DBMS allows flexible access to data.	2) File-processing system is designed to allow predetermined access to data.
3) It co-ordinates in both physical and logical.	3) It co-ordinates in only physical access to data.
4) DBMS provide multiple user interface.	4) Data is isolated in the file system.
5) Unauthorized access is restricted in DBMS.	5) Unauthorized access cannot be restricted.
6) Redundancy can be controlled.	6) Redundancy cannot be controlled.

- Q.2 Write short note on data independence
- ⇒ i) Data independence can be defined as the capacity to change the one level of schema without changing the schema at next higher level.

Types of data independence

- Logical data independence
- Physical data independence.

1) Logical Data Independence.

⇒ It is a capacity to change the conceptual schema without having any change to external schemas.

- Separating the external views from conceptual view enables us to change the conceptual view without affecting external view.
- This separation is called as logical data independence.

2) Physical data independence

⇒ It is a capacity to change the internal schema without having any changes to conceptual schema.

- The separation of conceptual view from internal view enables us to change the internal view without affecting conceptual view.
- This separation is called as physical data independence.

Q.3 Define DBA. Explain roles of DBA.

⇒ i) A DBA is a person responsible for the installation, configuration, upgradation, maintenance and monitoring database in an organization.

• Roles of DBA

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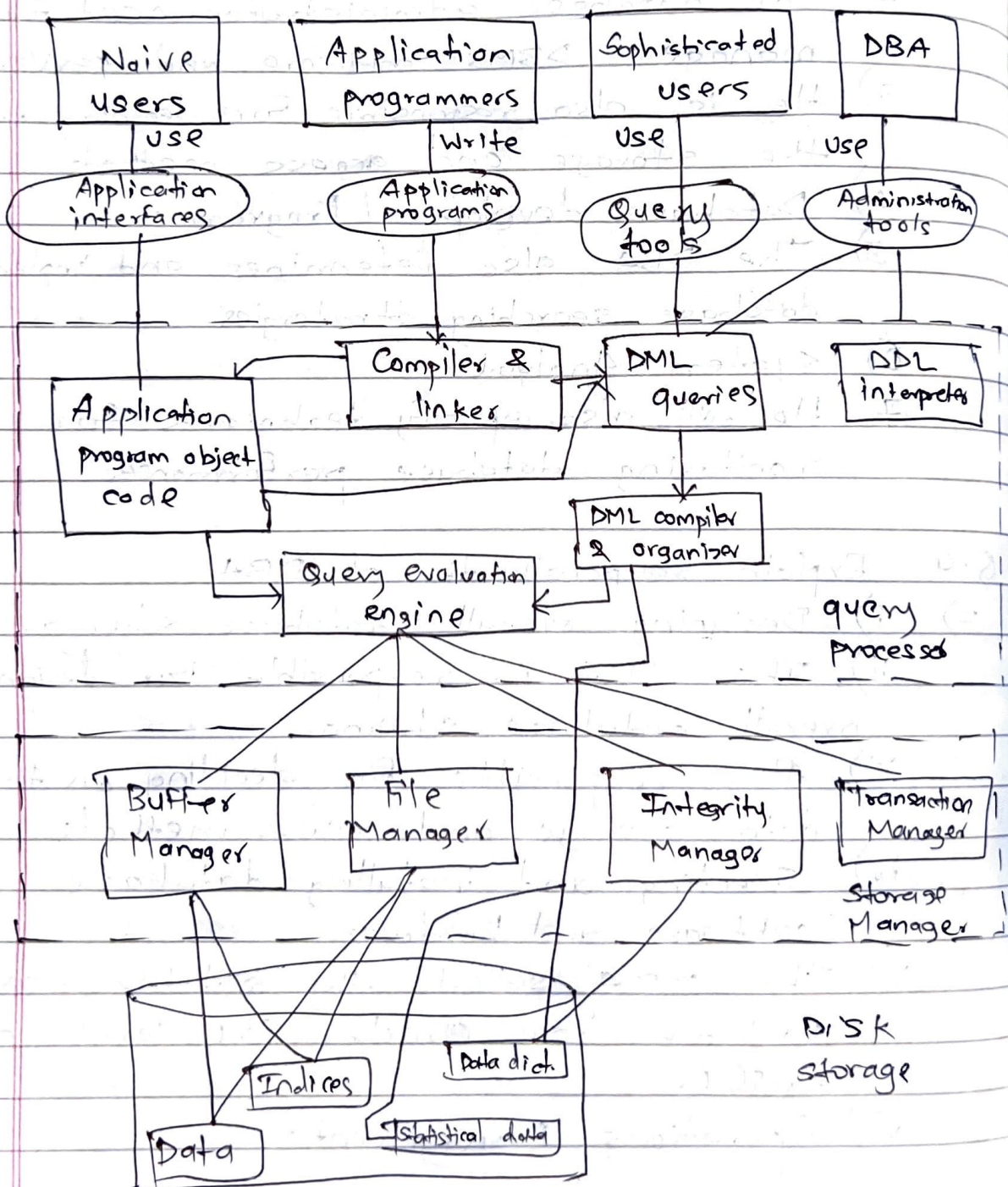
- 1) System Administrator / Designer
- 2) The database administrator need to manage DBMS software and server.
- 3) He is also responsible for deciding on the storage and access methods.
- 4) Database developer / Programmer.
- 5) The DBA also determines and implement database searching strategies.
- 6) System Analyst.
- 7) He will also specify techniques for monitoring database performance.

Q.4 Explain responsibilities of DBA

- ⇒
- i) Designing overall database schema.
 - ii) The DBA is responsible for designing overall database schema.
 - iii) Also responsible for deciding on the data storage and access methods.
 - iv) Selecting and installing database software and hardware.
 - v) The DBA selects the suitable DBMS software like Oracle, SQL Server or MySQL.
 - vi) Operations Management.

- vii) The DBA will also decide the user levels access and security checks for access and data manipulations.
- viii) Designing Recovery Procedure.

Q.5 Explain Overall Architecture of DBMS.



1) Users :

i) Naïve Users

⇒ Unsophisticated users who can interact with system using the application interface.

ii) Application Programmers

⇒ Computer professionals who write application programs to develop user interface.

iii) Sophisticated User

⇒ Sophisticated users interact with application without writing programs by using database query language.

iv) DBA

⇒ DBA co-ordinates all the database activities, create the database, manages it and monitors its performance.

2) Query Processor

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i) DDL Interpreter

⇒ This will interpret DDL statements and fetch the definition in the data dictionary.

ii) DML Compiler

⇒ This will translates DML statements in a query language into low level instructions that the query evaluation engine understand.

iii) Query Evaluation Engine

⇒ This will execute low level instructions.

3) Storage Manager

⇒ A storage manager is a program module which acts as interface between the data stored in the DB and the application programs and queries submitted to the system.

- Buffer Manager

⇒ Responsible for retrieving data from disk storage to MM.

- File Manager

⇒ Manages the allocation of space on disk storage.

- Authorization & integrity Manager

⇒ Check for integrity constraints and authority of user access to data.

- Transaction Manager

⇒ Ensures DB remain in consistent state although there is system failures.

4) Data Structure Implemented

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- Data Files

⇒ Stored in the database itself.

- Data dictionary

⇒ Stores metadata about DB structure.

- Indices

⇒ Provides fast access to data items.