

# Introduction

## Data:-

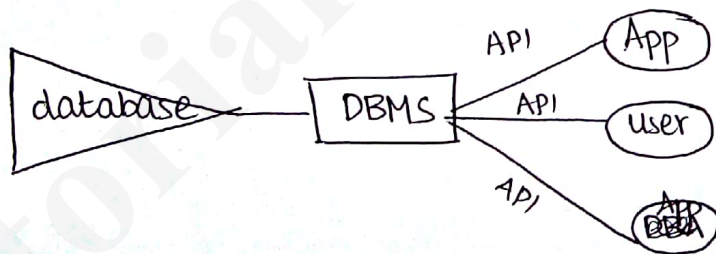
Data is a collection of facts and figures that can be processed to produce information.

## Data Base:-

Data Base is a collection of related data. That related data is organised so that it can be easily accessed, managed and updated.

## Data Base Management Systems:-

database management system is the software that allows a computer to perform database functions of storing, retrieving, adding, deleting and modifying data.



## Main objectives of DBMS:-

1. Provide for mass storage of relevant data.
2. Making easy access to data for the authorized user.
3. providing prompt response to users requests for data
4. Eliminate duplicate data.

5. Allow multiple users to be active at one time.
6. Allow the growth of database system.
7. provide data integrity.
8. protect the data from physical harm and unauthorized access.
9. serving different types of users.
10. provide security with user access privilege.
11. combining interrelated data to generate report.
12. provide multiple views for same data.

# content: File System vs DBMS

1.

## Frequently Asked questions:-

1. List the disadvantages of file processing model - 4M
2. List any four features of that a data base system provides two uses - 3M.
3. Explain in detail about DBMS advantages over file management system. - 8M
4. compare DBMS system with conventional file system - 8M
5. What are the main characteristics of DBMS and how it differ from file system - 8M.
6. Difference between file system vs DBMS - 8M

## ANSWER:-

S.No	Difference factor	File system	DBMS
1.	Definition	A file management system is an abstraction to store, retrieve, management and update a set of files. A file management system keep track on the files and also manage them	Database Management system (DBMS) is a collection of interrelated data and a set of programs to access those data. some of the very well known DBMS are microsoft Access, Microsoft SQL server, Oracle, SAP, Fox pro etc.

2.

Data  
Redundancy

In file system approach, each user defines and implements the needed files for a specific application to run. For ex, in sales department of an enterprise, one user will be maintaining the details of how many sales personnel are there in the sales department and their grades. Another user will be maintaining the sales person salary details.

Although the database approach does not remove redundancy completely, it controls the amount of redundancy in the database because in database approach, a single repository of data is maintained that is defined once and then accessed by many users. The fundamental characteristic of database approach is that the database system not only contains data's but it contains complete definition of the database structure and constraints.

<p>3. sharing of data</p>	<p>file system doesn't allow sharing of data</p>	<p>In DBMS data can be shared very easily due to centralized system.</p>
<p>4 Data consistency</p>	<p>When data is redundant, it is difficult to update. For Ex, if we want to change (or) update employee's address, then we have to make changes at all the places where data of that employee is stored. If by mistake, we forget to change or update the address at one or more place then data inconsistency will occur. i.e., the appearance of same data will differ from each other</p>	<p>In DBMS, as there is no or less data redundancy, data remains consistent.</p>
<p>5. Difficult to search/access data</p>	<p>In conventional file system, if we want to search/retrieve/access some data item, it becomes very difficult because in file system for every</p>	<p>In DBMS searching/retrieval/accessing of data item is very easy and user friendly because of searching &amp; querying</p>

	operation we have to make different programs	operations are already available in the system.
6	<p>Data isolation</p> <p>In file system there is no standard format of data or we can say data is scattered in various formats or files which also make data retrieval difficult.</p>	<p>In DBMS, due to centralized system the format of similar type of data remains same.</p>
7	<p>Data Integrity</p> <p>The value of data in database must follow or satisfy some rules or consistency constraints. For ex, A company has a policy that the age of an employee must be <math>&gt;= 18</math>. The value which is not satisfying this constraint must not be stored in the respective column. In file system, there is no procedure to check</p>	<p>DBMS maintains the data integrity by enforcing the constraints by adding appropriate code.</p>

8.	<p>security Problems</p> <p>In file system there is no or very less security - General security provided by file system are locks, guards etc</p>	<p>DBMs have high level security like Encryption, passwords, biometric security etc.</p>
9.	<p>Atomicity</p> <p>Atomicity means a transaction must be all-or-nothing i.e., the transaction must either fully happen, or not happen at all. It must not complete partially. Eg if A want to transfer 50000 to B's a/c. In this case A's a/c should be debited and B's a/c should be credited with the same amount. Let suppose A's a/c is debited with 50000 and then transaction fails. Now the</p>	<p>Transaction atomicity is a special feature of DBMs. In DBMs either a transaction completed fully or none of the action is performed. For this, DBMs maintains the transaction log in which intermediate values are stored.</p>

	<p>transaction is incomplete because B's are not credited. These type of problems occur in file system because there is no procedure to stop such type of anomalies.</p>	<p>Transaction atomicity is a special feature of DBMS. In DBMS either a transaction completed fully or none of the action is performed. For this, DBMS maintains the transaction log in which intermediate values are stored.</p>
<p>10. concurrent Access Anomalies</p>	<p>Any multi-user database application has to have some method for dealing with concurrent access to data -- when more than one user is accessing the same data at the same time. A problem occurs when user X reads a row for editing, user Y reads the same row for editing, user Z sees changes the user X</p>	



made by user Y are lost unless something prevents user X from blindly overwriting the row.

file system does not provide any procedure to stop such type of anomaly.

-lies.

DBMS along with an appropriate application provides safety towards concurrent access. for this locks are available in DBMS. If 2 or more transaction want to change / update / write a data item, an exclusive lock is issued to one of these transactions. until and unless the transaction release that lock no other transaction can acquire the lock & hence can't update / write the data item.

Concept : DataBase Users (Actors on scene, Workers behind the scene).

FAQ's (4m and 8m)

- 1) What are the activities of database users?
- 2) List different types of database users.
- 3) Explain various types of users and explain about their role in detail. (8m)
- 4) Responsibilities of DBA? (3m)
- 5) What is DBA? Explain the functions of DBA? (4m)
- 6) Role of DBA? (8m)

Answer.

Introduction: These apply to "large" databases, not "personal" databases that are defined, constructed and used by single person via say Microsoft Access.

\*Users may be divided into:

- Those who actually use and control database content and those who design, develop and maintain database application are called "Actors on the Scene".
- Those who design and develop the DBMS software and related tools and computer systems operators (called "Workers behind the scene").