

# ADVANTAGES AND FUNCTIONS OF DBMS

Due to its centralized nature, the database system can overcome the disadvantages of the file system-based system

## 1. **Data independency:**

Application program should not be exposed to details of data representation and storage  
DBMS provides the abstract view that hides these details.

## 2. **Efficient data access.:**

DBMS utilizes a variety of sophisticated techniques to store and retrieve data efficiently.

## 3. **Data integrity and security:**

Data is accessed through DBMS, it can enforce integrity constraints.

E.g.: Inserting salary information for an employee.

## 4. **Data Administration:**

When users share data, centralizing the data is an important task, Experience professionals can minimize data redundancy and perform fine tuning which reduces retrieval time.

## 5. **Concurrent access and Crash recovery:**

DBMS schedules concurrent access to the data. DBMS protects user from the effects of system failure.

## 6. **Reduced application development time.**

DBMS supports important functions that are common to many applications.

## 1.4 Functions of DBMS

- **Data Definition:** The DBMS provides functions to define the structure of the data in the application. These include defining and modifying the record structure, the type and size of fields and the various constraints to be satisfied by the data in each field.
- **Data Manipulation:** Once the data structure is defined, data needs to be inserted, modified or deleted. These functions which perform these operations are part of DBMS. These functions can handle plashud and unplashud data manipulation needs. Plashud queries are those which form part of the application. Unplashud queries are ad-hoc queries which performed on a need basis.
- **Data Security & Integrity:** The DBMS contains modules which handle the security and integrity of data in the application.
- **Data Recovery and Concurrency:** Recovery of the data after system failure and concurrent access of records by multiple users is also handled by DBMS.
- **Data Dictionary Maintenance:** Maintaining the data dictionary which contains the data definition of the application is also one of the functions of DBMS.
- **Performance:** Optimizing the performance of the queries is one of the important functions of DBMS.

## 1.5 Role of Database Administrator.

Typically there are three types of users for a DBMS:

1. The END User who uses the application. Ultimately he is the one who actually puts the data into the system into use in business. This user need not know anything about the organization of data in the physical level.
2. The Application Programmer who develops the application programs. He/She has more knowledge about the data and its structure. He/she can manipulate the data using his/her programs. He/she also need not have access and knowledge of the complete data in the system.
3. The Data base Administrator (DBA) who is like the super-user of the system.

The role of DBA is very important and is defined by the following functions.

- Defining the schema: The DBA defines the schema which contains the structure of the data in the application. The DBA determines what data needs to be present in the system and how this data has to be presented and organized.
- Liaising with users: The DBA needs to interact continuously with the users to understand the data in the system and its use.
- Defining Security & Integrity checks: The DBA finds about the access restrictions to be defined and defines security checks accordingly. Data Integrity checks are defined by the DBA.
- Defining Backup/Recovery Procedures: The DBA also defines procedures for backup and recovery. Defining backup procedure includes specifying what data is to be backed up, the periodicity of taking backups and also the medium and storage place to backup data.
- Monitoring performance: The DBA has to continuously monitor the performance of the queries and take the measures to optimize all the queries in the application.

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