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A Database Management System (DBMS) is basically a collection of programs that enables users to store, modify, and extract information from a database as per the requirements. DBMS is an intermediate layer between programs and the data. Programs access the DBMS, which then accesses the data. There are different types of DBMS ranging from small systems that run on personal computers to huge systems that run on mainframes. The following are main examples of database applications:

1. Computerized library systems
2. Automated teller machines
3. Flight reservation systems
4. Computerized parts inventory systems

A database management system is a piece of software that provides services for accessing database, while maintaining all the required features of the data. Commercially available Database management systems in the market are dbase, FoxPro, IMS and Oracle, My SQL, SQL Servers and DB2 etc.

These systems allow users to create update, and extract information from their databases. Compared to a manual filing system, the biggest advantages to a computerized database system are speed, accuracy, and accessibility.

Advantages of DBMS

The database management system has promising potential advantages, which are explained below:

1. **Controlling Redundancy:** In file system, each application has its own private files, which cannot be shared between multiple applications. 1: his can often lead to considerable redundancy in the stored data, which results in wastage of storage space. By having centralized database most of this can be avoided. It is not possible that all redundancy should be eliminated. Sometimes there are sound business and technical reasons for maintaining multiple copies of the same data. In a database system, however this redundancy can be controlled.

For example: In case of college database, there may be the number of applications like

General Office, Library, Account Office, Hostel etc. Each of these applications may maintain the following information into own private file applications:

General Office	Library	Hostel	Account Office
Roll No Name Class Father_Name Date_of_Birth Address Phone No Previous Record Attendance Marks etc.	Roll No Name Class Address Date at Birth Phone No No of books issued Fine etc	Roll No Name Class Father_Name Date of Birth Address Phone No Mess bill RoomNo etc.	Roll No Name Class Address Phone No Fee Installments Discount Balance Total etc.

It is clear from the above file systems, that there is some common data of the student which has to be mentioned in each application, like Roll no, Name, Class, Phone_No, Address etc. This will cause the problem of redundancy which results in wastage of storage space and difficult to maintain, but in case of centralized database, data can be shared by number of applications and the whole college can maintain its computerized data with the following database:

General Office	Library	Hostel	Account Office
Rollno Name Class Father_Name Address Phone - No Date_of_birth Previous_Record Attendance Marks etc.	Rollno No_of_books_issued Fine etc.	Rollno RoomNo Mess_Bill etc.	Rollno Fee Installments Discount Balance Total etc.

It is clear in the above database that Rollno, Name, Class, Father_Name, Address, Phone_No, Date_of_birth which are stored repeatedly in file system in each application, need not best ore repeatedly in case of database, because every other application can access this information by joining of relations on the basis of common column i.e. Rollno. Suppose any user of Library system need the Name, Address of any particular student and by joining of

Library and General Office relations on the basis of column Rollno he/she can easily retrieve this information.

Thus, we can say that centralized system of DBMS reduces the redundancy of data to great extent but cannot eliminate the redundancy because RollNo is still repeated in all the relations.

2. Integrity can be enforced: Integrity of data means that data in database is always accurate, such that in correct information cannot best ordered in database. In order to maintain the integrity of data, some integrity constraints are enforced on the database. A DBMS should provide capabilities for defining and enforcing the constraints.

For Example: Let us consider the case of college database and suppose that college having only B Tech, M Tech, M Sc, BCA, BBA and BCOM classes. But if enters the class MCA, then this in correct information must not be stored in database and must be prompted that this is an invalid data entry. In order to enforce this, the integrity constraint must be applied to the class attribute of the student entity. But, in case of file system tins constraint must been forced on all the application separately (because all applications have a class field).

In case of DBMS, this integrity constraint is applied only once on the class field of the General Office (because class field appears only once in the whole database), and all other applications will get the class information about the student from the General Office tables or the integrity constraint is applied to the whole database. So, we can conclude that integrity constraint can be easily enforced in centralized DBMS system as compared to file system.