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# File Based System VS. Database approach

CSI-406 Database Systems



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# Traditional File-based approach

- The term 'file-based approach' refers to the situation where data is stored in one or more separate computer files defined and managed by different application programs.
- Typically, for example, the details of customers may be stored in one file, orders in another, etc.

# Traditional File-based approach cont...

- Computer programs access the stored files to perform the various tasks required by the business.
- Each program, or sometimes a related set of programs, is called a computer application.



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# Traditional File-based approach cont...

- For example, all of the programs associated with processing customers' orders are referred to as the order processing application.
- The file-based approach might have application programs that deal with purchase orders, invoices, sales and marketing, suppliers, customers, employees, and so on.



# File-based approach cont...

## Limitations

- **Data duplication (Redundancy):**
- Each program stores its own separate files.
- If the same data is to be accessed by different programs, then each program must store its own copy of the same data.

# File-based approach cont...

## Limitations

- **Data inconsistency:**
- Data redundancy leads to data inconsistency.
- If the data is kept in different files, there could be problems when an item of data needs updating, as it will need to be updated in all the relevant files; if this is not done, the data will be inconsistent, and this could lead to errors.

# File-based approach cont...

## Limitations

- **Difficult to implement data security:**
- Data is stored in different files by different application programs.
- This makes it difficult and expensive to implement organization-wide security procedures on the data.



# File-based approach vs Database Systems

- The difference between file processing system and database approach is as follow:

<u>File based system</u>	<u>Database system</u>
1. The data and program are inter-dependent.	1. The data and program are independent of each other.
2. File-based system caused data redundancy. The data may be duplicated in different files	2. Database system control data redundancy. The data appeared only once in the system.



# File-based approach vs Database Systems cont....

<u>File based system</u>	<u>Database system</u>
3. File –based system caused data inconsistency. The data in different files may be different that cause data inconsistency.	3. In database system data always consistent. Because data appeared only once.
4. The data cannot be shared because data is distributed in different files.	4. In database data is easily shared because data is stored at one place.
5. In file based system data is widely spread. Due to this reason file based system provides poor security.	5. It provides many methods to maintain data security in the database.

# File-based approach vs Database Systems cont....

<u>File based system</u>	<u>Database system</u>
6. File based system does not provide consistency constrains.	6. Database system provides a different consistency constrains to maintain data integrity in the system.
7. File based system is less complex system.	7. Database system is very complex system.
8. The cost of file processing system is less then database system.	8. The cost of database system is much more than a file processing system.

# File-based approach vs Database Systems cont....

<u>File based system</u>	<u>Database system</u>
9. File based system takes much space in the system, and memory is wasted in this approach.	9. Database approach store data more efficiently it takes less space in the system and memory is not wasted.
10. To generate different report to take a crucial decision is very difficult in file based system.	10. The report can be generated very easily in required format in database system. Because data in database is stored in an organized manner. And easily retrieve to generate report.
11. File based system does not provide concurrency facility.	11. Database system provides concurrency facility.
12. File based system does not provide data atomicity functionality.	12. Database system provides data atomicity functionality.

# File-based approach vs Database Systems cont....

<u>File based system</u>	<u>Database system</u>
13. The cost of file processing system is less than database system.	13. The cost of database system is more than file processing system.
14. It is difficult to maintain as it provides less controlling facility.	14. Database provides many facility to maintain program.
15. If one application fail it does not affects other files in system.	15. If database fail it affects all application that dependent on database
16. Hardware cost is less than database system	16. Hardware cost is high in database than file system.