**File Base system**

A file-based system is a method of organizing and storing computer data in which files are the primary organizational unit. In this system, data is stored in separate files, and relationships between the files are established through the use of unique identifiers or pointers. Here are some advantages and disadvantages of a file-based system:

Advantages of file base system

**Simplicity:** File-based systems are relatively simple to understand and implement. They provide a straightforward way of storing and accessing data.

**Flexibility:** Files can be of different types, such as text files, image files, or multimedia files. This allows for storing diverse types of data in a single system.

**Independence:** Each file can be accessed independently, making it easy to modify or delete specific data without affecting the entire system.

**Performance:** File-based systems can offer good performance for small-scale applications with limited data and user interactions.

**Disadvantages of file base system**

**Data Redundancy:** In a file-based system, data redundancy is common. If the same data is stored in multiple files, it can lead to inconsistencies and data integrity issues.

**Data Inconsistency:** Since data is distributed across multiple files, maintaining consistency becomes a challenge. A change in one file might not be reflected in all related files, leading to data inconsistencies.

**Limited Data Sharing:** File-based systems lack the ability to easily share and access data across different applications or users. This makes data sharing and collaboration difficult.

**Lack of Data Integrity:** File-based systems do not have built-in mechanisms for ensuring data integrity. There is no way to enforce constraints or rules on the data stored in the files.

**Difficult Data Retrieval:** Searching for specific data or generating complex reports can be cumbersome in a file-based system. There is no structured querying or indexing mechanism available.

In conclusion, while file-based systems offer simplicity and flexibility, they suffer from data redundancy, inconsistency, limited data sharing, and lack of data integrity. As technology has advanced, relational databases and other more sophisticated data management systems have largely replaced file-based systems in most applications.

**Introduction of the database system**

Database system refers to database management system. Where database system is a computer-based system that maintains records is called a database system. An structured collection of data for simple management, updating, and access is called a database. To facilitate finding pertinent information, data is indexed and arranged into tables, columns, and rows. Database systems manage databases primarily for inserting, deleting, and updating data.

Also, Database Management Systems (DBMS) are software systems used to store, retrieve, and run queries on data. A DBMS serves as an interface between an end-user and a database, allowing users to create, read, update, and delete data in the database. In another word DBMS help to do CURD and ACID Operation.

Examples of Database management system are:

Oracle, MySQL, MySQL, SQL Server, etc.

Database system replace the file base system:

**Business Rules For E-BOOK Store**

1. **Member Registration:**
   1. A person must provide valid identification and contact information to register as a library member.
   2. Each member is assigned a unique library card number upon registration.
2. **Borrowing Books:**
   1. A member must present a valid library card to borrow books.
   2. A member can borrow a maximum of five books at a time.
   3. The borrowing period is two weeks, with the option to renew for an additional two weeks if there are no holds on the book.
3. **Book Returns:**
   1. Books must be returned by the due date to avoid late fees.
   2. A member with overdue books cannot borrow additional items until the overdue items are returned.
4. **Book Reservations:**
   1. Members can reserve a book that is currently checked out by another member.
   2. Reserved books must be picked up within three days of notification; otherwise, the reservation is canceled.
5. **Book Catalog:**
   1. Each book is uniquely identified by an ISBN number.
   2. The catalog includes information such as title, author, genre, and availability status.
6. **Late Fees:**
   1. Late fees accrue for each overdue day at a fixed rate.
   2. Members with outstanding late fees exceeding a specified limit are temporarily suspended from borrowing until fees are paid.
7. **Lost or Damaged Books:**
   1. Members are responsible for the safe return of borrowed books.
   2. In case of lost or damaged books, the member is charged the current replacement cost of the item.
8. **Library Events:**
   1. The library system may organize events such as book readings, workshops, or seminars.
   2. Members receive notifications about upcoming events, and they can register to attend.
9. **System Security:**
   1. Access to the library database is restricted to authorized personnel.
   2. Regular backups of the database are performed to prevent data loss.
10. **Interlibrary Loans:**
    1. Members may request books from other libraries through interlibrary loan services.
    2. Interlibrary loan requests are subject to approval and may have associated fees.
11. **Privacy and Confidentiality:**
    1. Member information, including borrowing history, is confidential and should not be disclosed without the member's explicit consent.
    2. The system complies with relevant privacy regulations and laws.