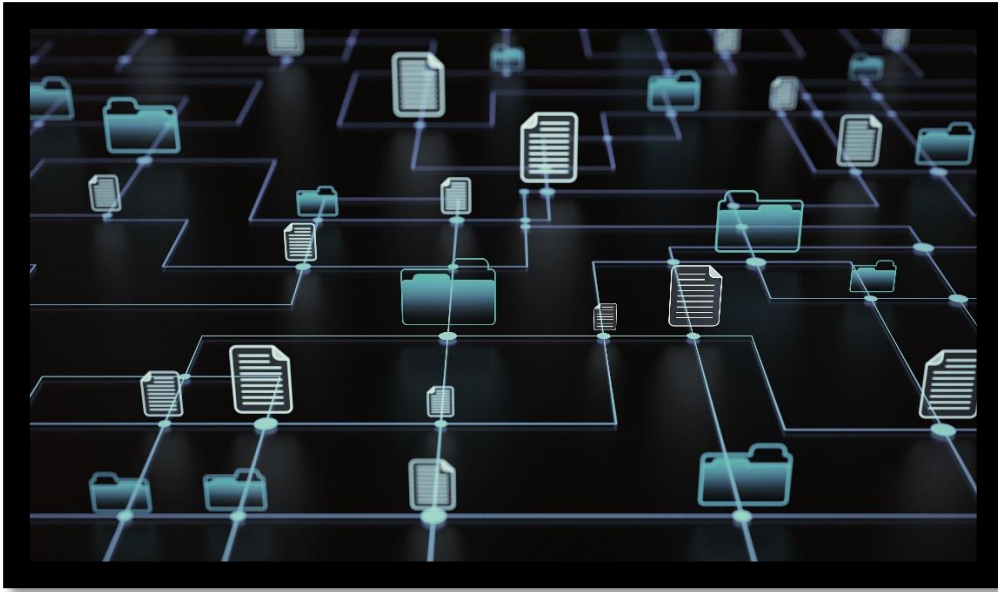# CONCEPT-*FILE ORGANISATION*

SUB CONCEPT:

- DIRECT (OR RANDOM) FILE ORGANISATION

- INDEXED SEQUENTIAL FILE ORGANISATION (ISAM)

- CHOICES OF FILE ORGANISATION

TABLE OF CONTENTS:

EXECUTIVE SUMMARY

The logical relationships among the many records that make up the file, particularly in terms of means of identification and access to any given record, are referred to as file organization. Simply put, file organization is the process of storing files in a specific order.

File organisation are of two type:

- DIRECT (OR RANDOM) FILE ORGANISATION
- INDEXED SEQUENTIAL FILE ORGANISATION (ISAM)

There are file organisation methods such as:

- Sequential or random processing
- Access type
- Volatility
- File size

Etc.

Direct (or random) File Organisation was discovered By Microsoft and Indexed sequential file Organisation (ISAM) is discovered by IBM

INTRODUCTION

DIRECT (OR RANDOM) FILE ORGANISATION:

It offers an effective way to organize data when there is a need to access individual records directly. In a direct file, a transformation or mapping is made from the key of a record to the address of the storage location. One mechanism used. for generation this transformation is called a hashing algorithm In the previous section, we studied the hashing algorithm and collision resolution techniques. Direct files are stored on DASD (Direct Access storage Devices)

INDEXED SEQUENTIAL FILE ORGANISATION (ISAM):

ISAM (Indexed sequential access method) is an advanced sequential file organization method. In this case, records are stored in the file with the help of the primary key. For each primary key, an index value is created and mapped to the record. This index contains the address of the record in the file.

If a record has to be obtained based on its index value, the data block's address is retrieved, and the record is retrieved from memory.

CHOICES OF FILE ORGANISATION:

Access type-The order in which records are accessed is very important. If the file activity ratio is high and the order of processing is random, then the sequential access method is of no use. Only direct access files can give good performance.

Frequency of reference-In many applications, only a very small percent of records is referenced frequently. For example, in an airline reservation system. Most activities such as cancellation of seats, bookings, enquiries involve only 5% records of next day flights. Here, direct access files should be used.

Response time-If records are referenced frequently it is desirable that they should be located quickly. If the application is such that quick response to queries is required then again the relevant records should be located quickly. Thus, in both cases fast response is required. Since the storage device and file organization affect the response time, high speed direct access storage devices with direct access files should be used.

Future relevance:

As we are heading towards the new era of A.I. Artificial intelligence (AI) will play a pivotal role in the future of file management. AI-powered algorithms will help automate file organization, making finding and categorizing files based on content, context, and user preferences easier. Imagine a file management system that automatically tags and organizes your documents, photos, and videos, saving you precious time and effort.

AI will also enable predictive file management, where the system anticipates your needs and presents relevant files based on your usage patterns. This intelligent file organization will revolutionize productivity and streamline our digital workflows.

APPLICATIONS:

1. direct access file organisation method helps in online transection processing system (OLTP) like online railway reservation system.
2. it require a short spam of time in updating any record or group of records does not require to re-writing of the entire file.
3. It is very suitable

4. Indexed sequential file organisation can easily process both random as well as sequentially.
5. It support two external storage devices, magnetic drums and magnetic disk.
6. In this we can retrieve data very easily.

LIMITATIONS:

1. Poor performance with large datasets: As the file size grows, the time required to search for records increases proportionally, leading to decreased performance.
2. Inefficient for random access: Direct file organization is not efficient for random access of records, as it requires scanning through the entire file to locate a specific record.
3. Limited search capabilities: Without an index or key, searching for specific records can be slow and inefficient.
4. Takes additional storage space for index files i.e. less efficient in use of storage space.
5. indices need to be designed carefully.
6. Slower than direct access.

REFERENCES:

➤ Direct (or random) file organization:
   chatgpt.ai
➤ Indexed sequential:
   Byju's.com
➤ Future relevance:
   https://nayab-tariq.medium.com
➤ Rest from the book-Data structure.

REFLECTION

As a team of three members , our goal is to make people aware about file organization type , its methods ,their future relevance , advantages and limitations

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