Data Structures Assignment-2
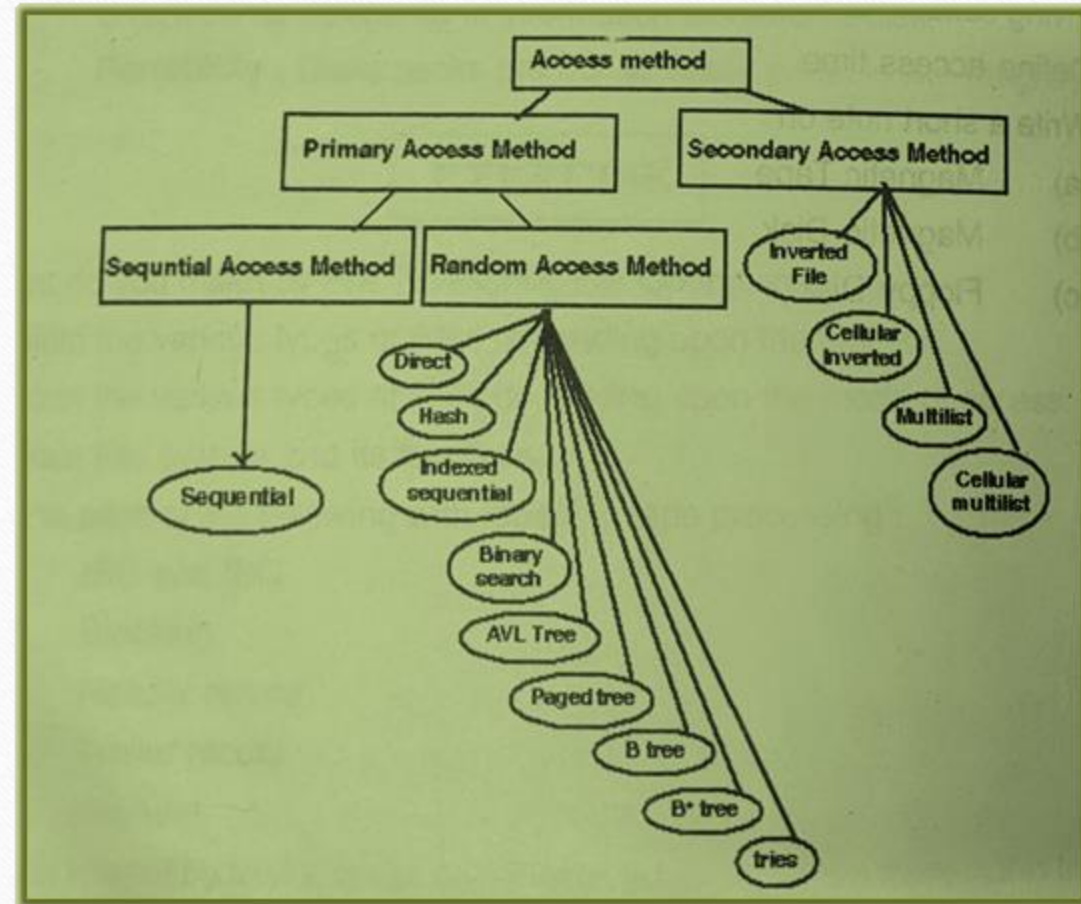
Topic:-**File organisation**

FILE ORGANISATION

- File organisation refers to the ways or methods used to store and access records of the file on storage medium. **File access** refers to the way records are found. If every operation associated with the records of a file , that is , retrieval, update , insertion and deletion is based on the primary key value , then the associated access method is called primary access method.

- Otherwise ,if some operations involves accessing records based on secondary key values, then the associated access method is called a secondary access method.

File organisation selection

Selection depends primarily on the type of operation that are to be allowed . We give a chart of file organisation selection, which shows the classification of access methods of the file organisation. The primary access method includes:-

(1)Serial file organisation

(2)Sequential file organisation

Serial file organisation

- In serial file organisation , records are stored in order of their occurrence. In this organisation, records are not stored according to specified primary key value. To access any record, we start with first record and go on searching to second record and so on until we get the required record.

- Generally, magnetic tape is used as storage media for this organisation. This file organisation is not of much importance and is generally not considered.

Sequential file organisation

- Under sequential file organisation, records are written in the same sequence in which they are collected but they are written on the disk according to the ascending or descending order of the record key. To access records in sequential files, it is descending order of the record key. To access records in sequential files, it is necessary to read the file from beginning to examine each record in sequence until the desired record is located.

- In sequentially organised file , the records are written consecutively when the file is created and must be accessed consecutively when the file is later used for input.

All types of external storage devices support a sequential file organisation. Devices which are strictly sequential in nature are magnetic tape , paper tape, readers , card readers, tape cassettes & line printers. A sequential file is physically places on disk by storing the sequence of records in adjacent locations on track.
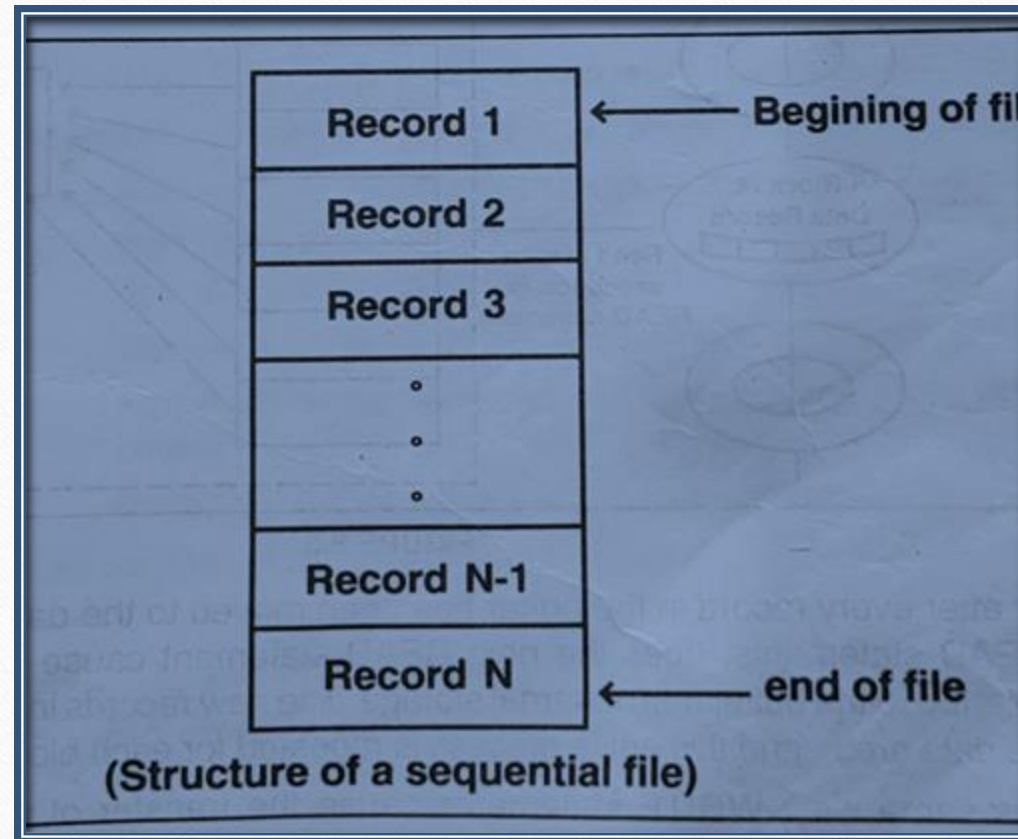

Record 1	← Begining of file
Record 2	
Record 3	
. . .	
Record N-1	
Record N	← end of file

(Structure of a sequential file)

Illustration of sequential file organisation
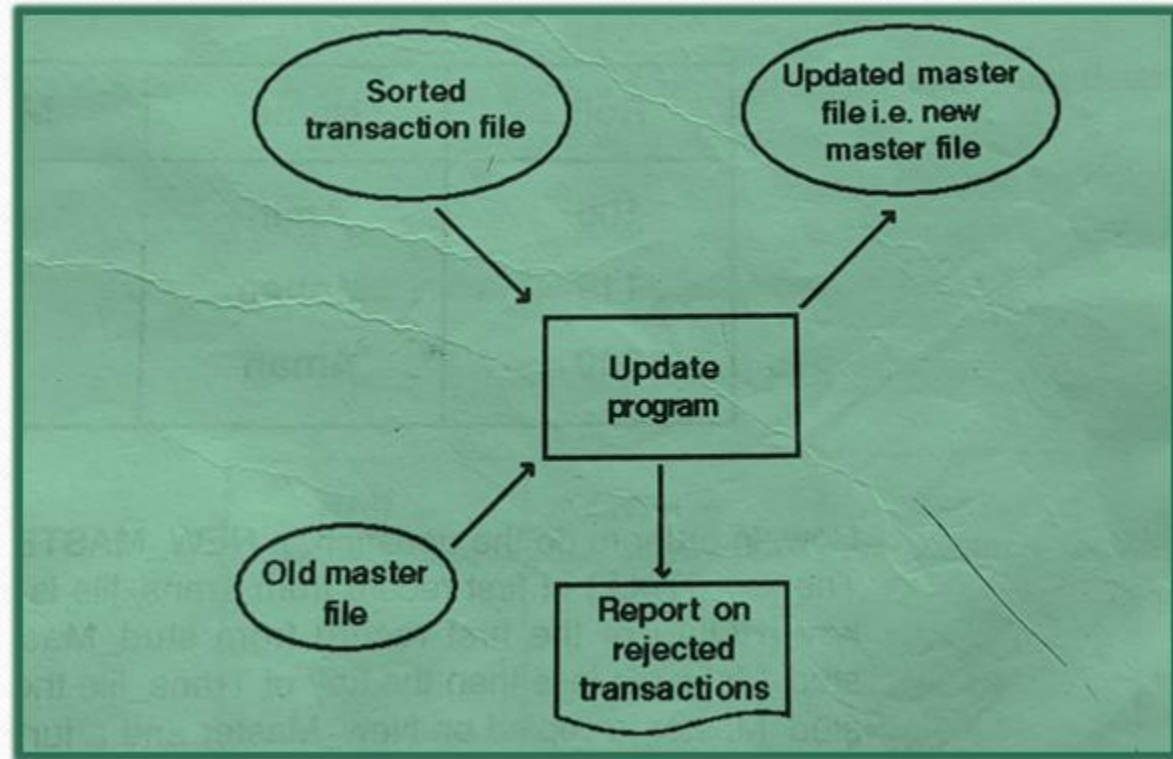
Sequential file operations

- **Creation of sequentially organised files:-** The basic procedure in creating a sequential file is to input records into main memory and then write them onto a storage medium. The sequence of records written into the storage medium is the same as the sequence of inputting them. Thus for creation of a file, the input records may or may not be in any specific order. However ,in practice, the records must be sorted using some key field have been input to the program for file creation.

- **Opening a file:-** When a new file is to be created or an existing file is to be used, it must be prepared for accessing. With the opening of a file, several activities are associated which include allocation of buffer space in memory for copying a record from file to memory or from memory to file.

- **Closing a file:-**When the use of file is over, it is closed . No further input/output operations on file are possible. The buffer space allocated in the main memory is also deallocated in the main memory is also deallocated. If the files are not closed explicitly, then at the end of the program, all files are closed automatically.

- **Retrieving from sequential file:-**To access records, it is necessary to read file from the beginning to examine each records in sequence until the desired each record in sequence until the desired record is located. A binary search technique may be used to search for a record.

- **Appending a sequential file:-**The append operation refer to adding more records to an existing files. In this operation, the file is opened and is read record till EOF is encountered . The new records have been added, the file is closed.

- **Updating a sequential file:-**The updation of file means that the file is made up-to-date with the latest changes relating to it. The original file is known as Master file or **Old Master file** and the temporarily file which contains the changes known as transaction file.

The process of updation may involve the following three processes:

(1) Insertion of new records.

(2) Deletion of records.

(3) Modification in existing records.

Thankyou.