SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE NAME : 23CST207 - DATABASE MANAGEMENT SYSTEMS

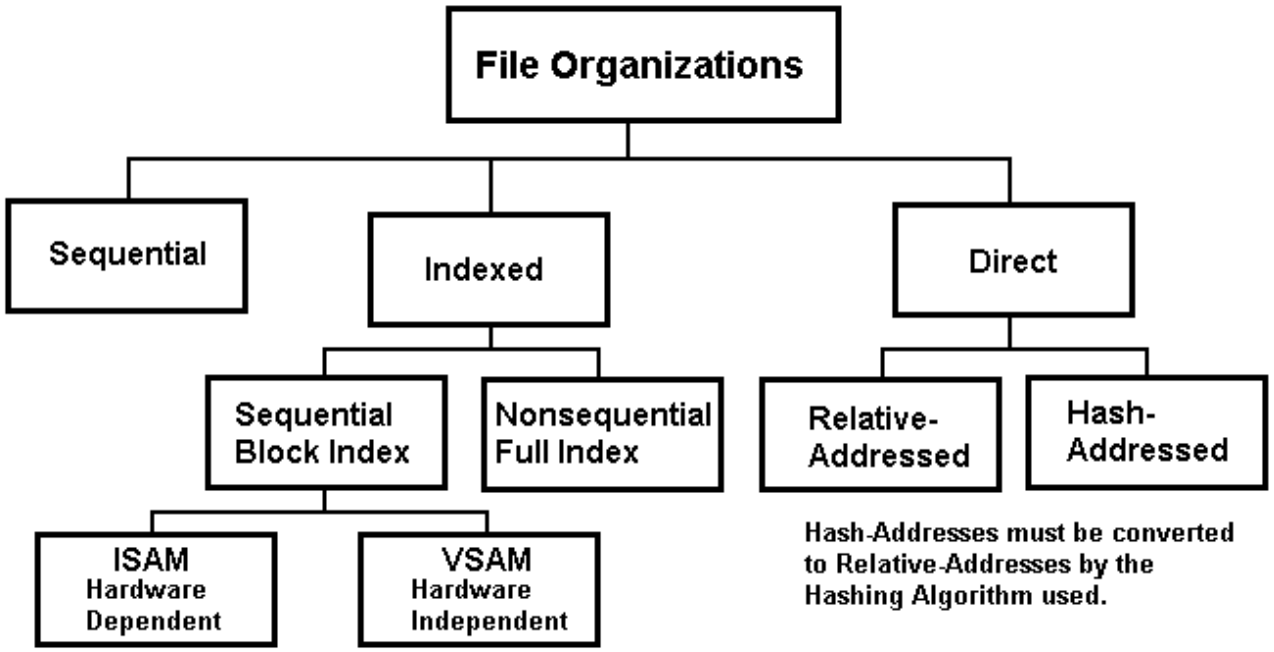
II YEAR / IV SEMESTER

Unit 5- Physical Storage and MongoDB
Topic 3 : FILE SYSTEM ORGANIZATION

OBJECTIVE

- Optimal selection of records i.e.; records should be accessed as fast as possible.
- Any insert, update or delete transaction on records should be easy, quick and should not harm other records.
- No duplicate records should be induced as a result of insert, update or delete
- Records should be stored efficiently so that cost of storage is minimal.

FILE SYSTEM ORGANIZATION



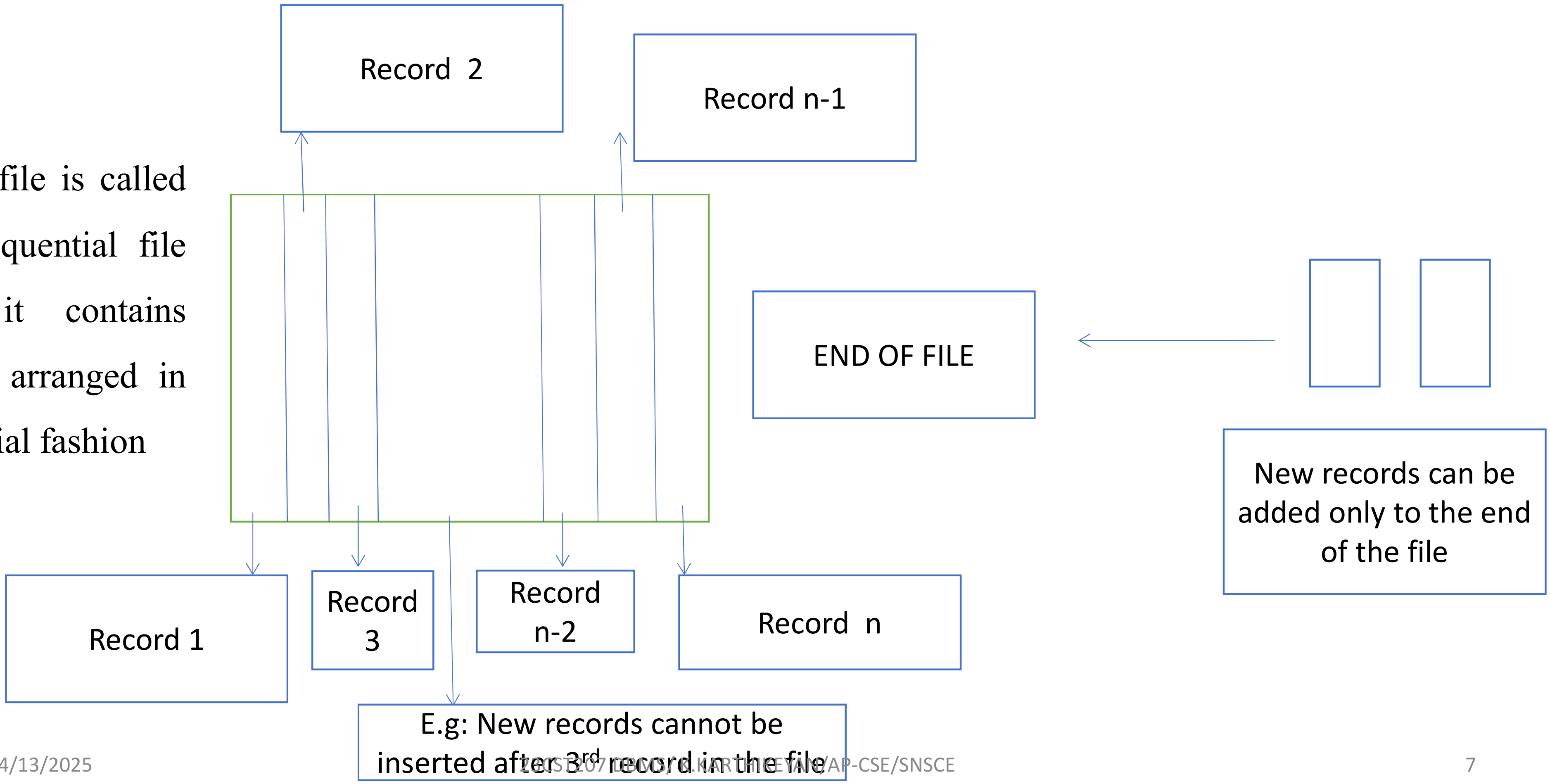
- **Sequential File Organization**. The sequential file organization is that typically used in procedural programming such as the COBOL language .
- **Direct File Organization**. This organization permits direct access to individual records without scanning any other records. There are two types of Direct File Organization - **Hashed-Addressed** and **Relative-Addressed**.
  - **Hashed-Addressed**. Individual records are accessed by converting the logical key value into a relative record number.
- **Relative-Addressed**. Individual records are accessed by using a logical key value that is equivalent to the relative record number

- **Indexed File Organization**. This organization is a hybrid approach allowing both sequential processing (though not as efficiently as a sequential file organization) and individual record processing (though not as efficiently as a direct file organization).
  - **Nonsequential Full Index**. This index approach has an index entry for every record in the file (or table).
  - **Sequential Block Index**. This index approach allows an index entry to represent a block of records by sorting the index values and because multiple logical records may fit into a single physical record (sector or block).

- An **Indexed Sequential Access Method (ISAM)** indexed approach is one where the index structure is linked directly to the actual architecture of the disk drive in terms of the number of volumes, cylinders, tracks per cylinder, and sectors per track.
- A **Virtual Sequential Access Method (VSAM)** indexed approach is one where the index structure is independent of the disk drive architecture and is, therefore, more flexible, though it tends to be slower in processing.

SEQUENTIAL ORGANIZATION

A file is called as a sequential file when it contains records arranged in sequential fashion

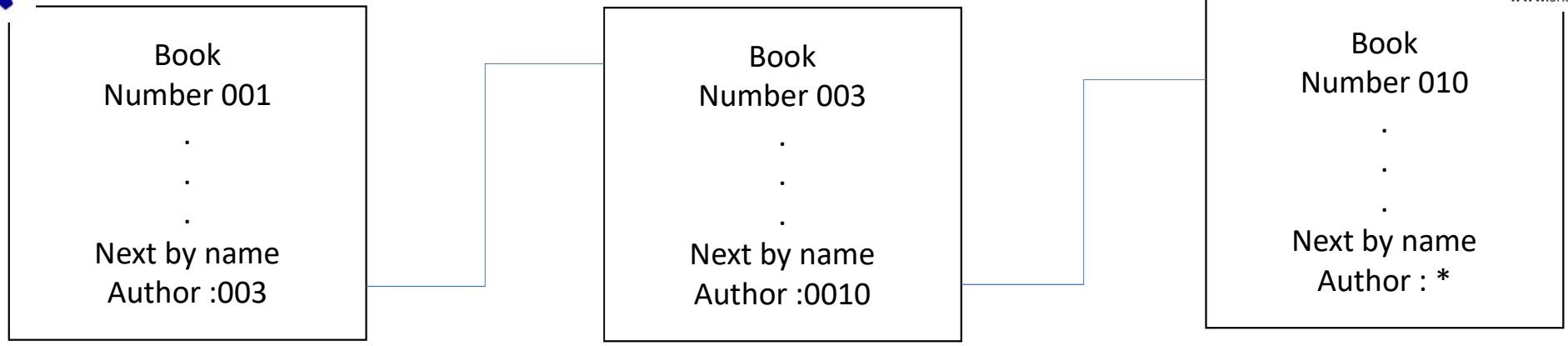


❖ **Advantages**

- Simplicity
- Less overheads

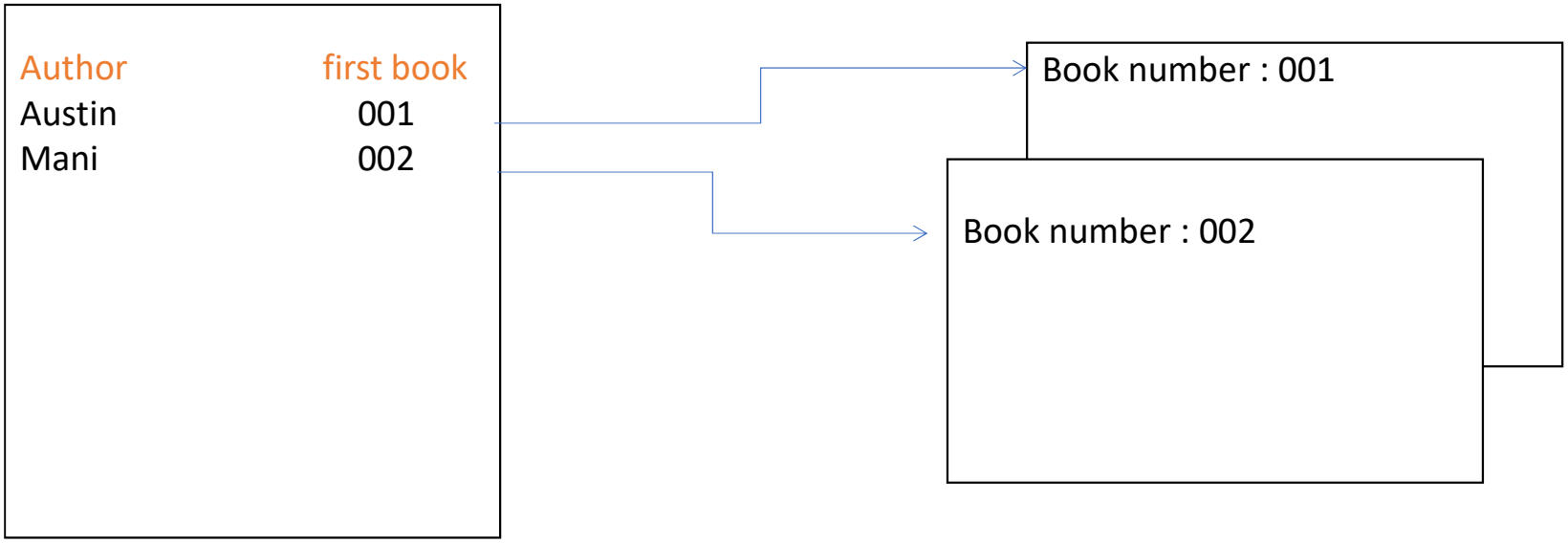
❖ **Disadvantages**

- Difficulties in searching
- Lack of support for queries
- Problem with record deletion



Pointer organization

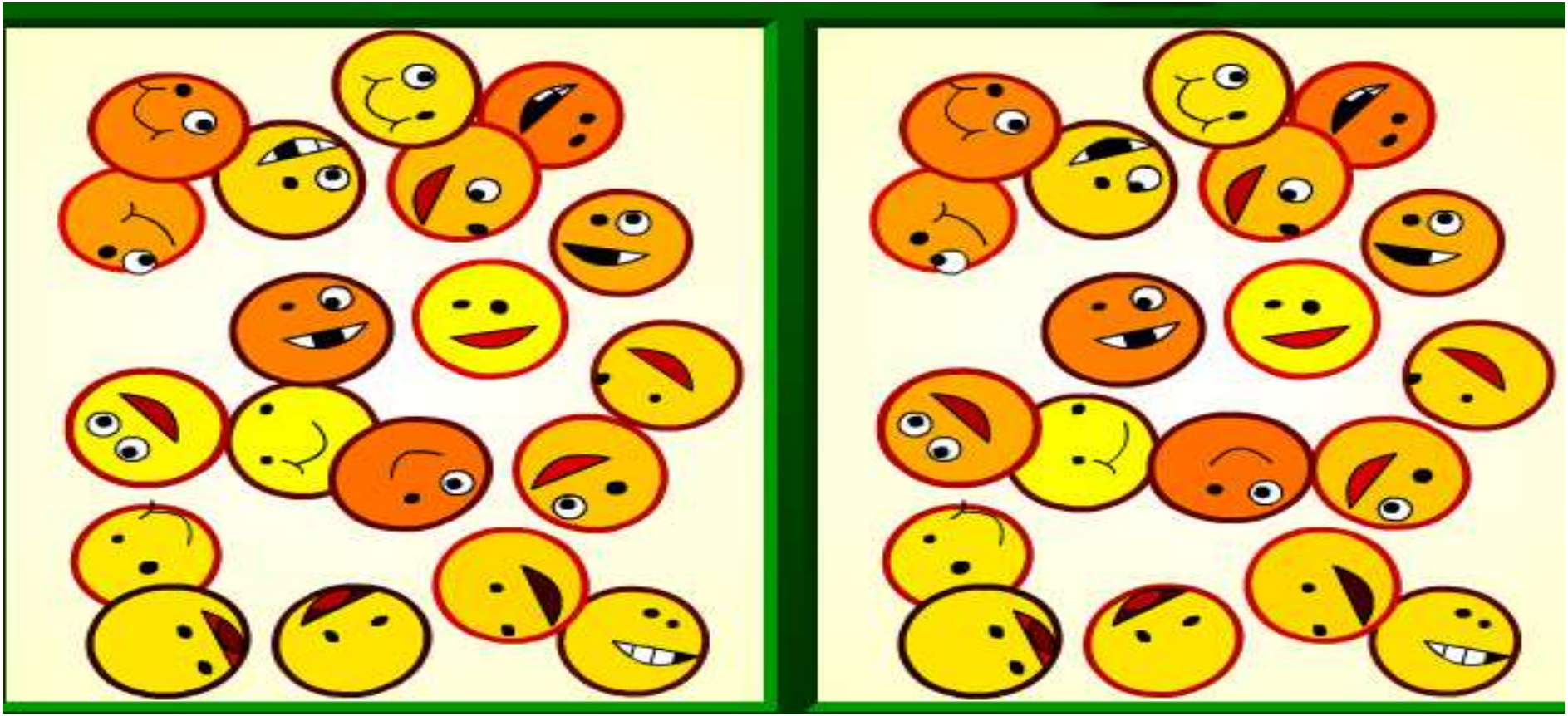
A pointer in a record is a special filed, whose value is the address / reference of another record in the same file.



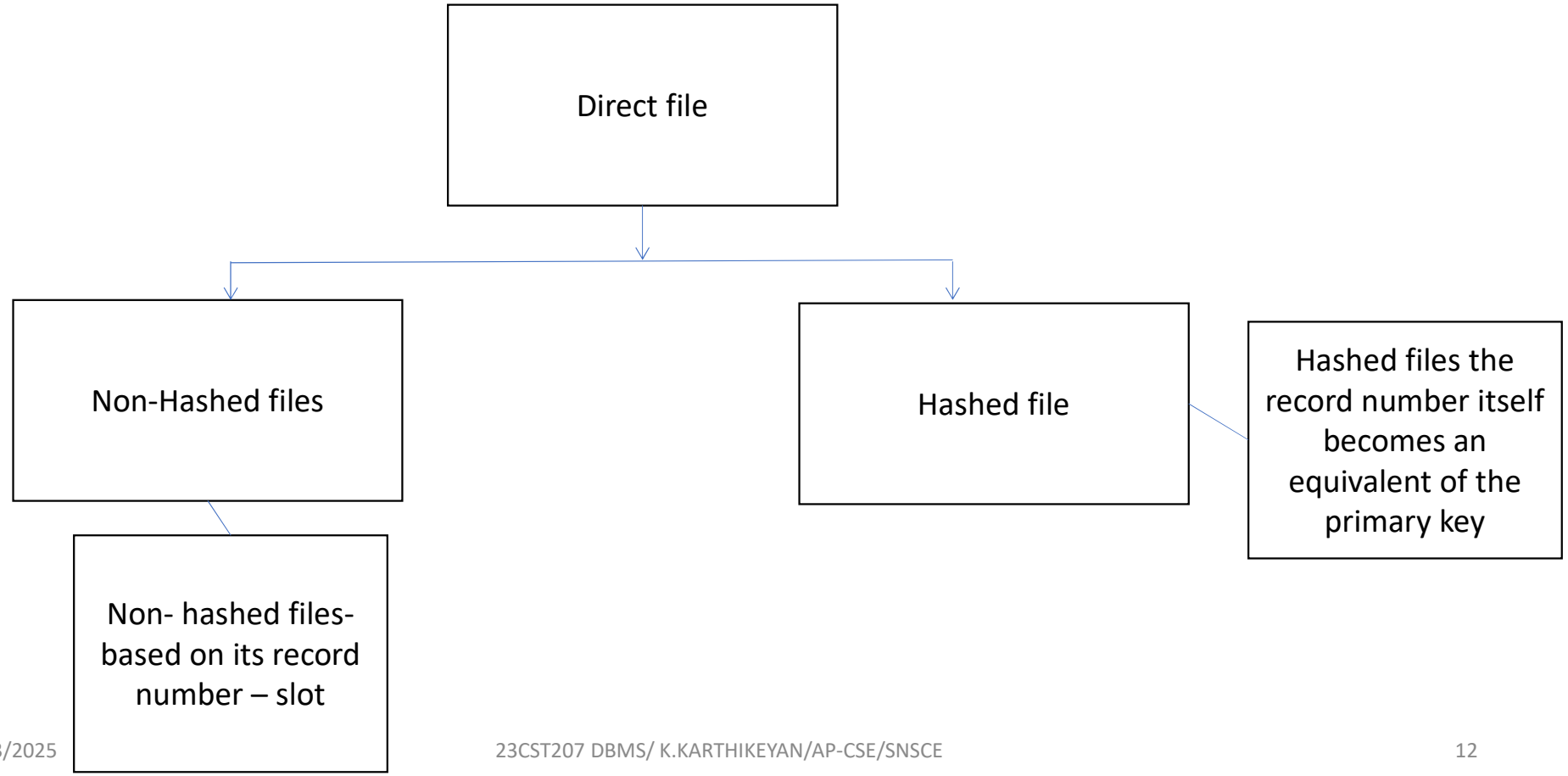
Indexed organization

An index is a table of record, arranged in a particular fashion for quick access t o data.

BREAK
Find the difference



Direct organization



Direct organization

This organization permits direct access to individual records without scanning any other records.

All records in direct file are of the same size.

Every record has an associated record number. The record number serves the same purpose as primary key in an index file.

Evaluation

List out the types of file organization

a)_____

b)_____

C)_____

ANSWER

a) Sequence

b) Index

c) Direct

THANK YOU