1.   Sequential File

[**https://www.pcmag.com/encyclopedia/term/sequential-file**](https://www.pcmag.com/encyclopedia/term/sequential-file)

A file that contains records or other elements that are stored in a chronological order based on account number or some other identifying data. In order to locate the desired data, sequential files must be read starting at the beginning of the file.

A sequential file may be stored on a sequential access device such as magnetic tape or on a direct access device such as magnetic disk.

A **sequential file** is one that contains and stores data in chronological order. The data itself may be ordered or unordered in the **file**. Unlike a random-access **file**, **sequential files** must be read from the beginning, up to the location of the desired data.

2.   Random File or Direct Access File

https://www.pcmag.com/encyclopedia/term/random-file

A file organized via an **index**. Also called a "direct file" or a "direct access file," it enables quick access to specific records or other elements within the file rather than having to read the file sequentially. The index points to a specific location within the file, and the file is read from that point.

Access Via Software First

Data are commonly accessed by first scanning an index or by a direct access computation that determines their storage addresses. See [index](#), [direct access method](#) and [random file](#).

INDEX :   < key field/attribute(e.g. student number), location of the record/tuple>

[**https://www.pcmag.com/encyclopedia/term/index**](https://www.pcmag.com/encyclopedia/term/index)

A database index has an entry for each key field (account number, name, etc.) and the location of the record.

A common method for keeping track of data so that it can be accessed quickly. Like an index in a book, it is a list in which each entry contains **the name of the item and its location**. However, computer-based indexes may point to a

physical location on a disk or to a logical location that points elsewhere to the actual location.

Indexes are used by all types of software, including the operating system, database management system (DBMS) and applications. For example, the file system index in an operating system contains an entry for each file name and the starting location of the file on disk. **A database index has an entry for each key field (account number, name, etc.) and the location of the record**. Search engines use a very sophisticated indexing system to keep track of billions of pages on the Web.

Direct Access Method

[**https://www.pcmag.com/encyclopedia/term/direct-access-method**](https://www.pcmag.com/encyclopedia/term/direct-access-method)

A technique for finding data on a disk by deriving its storage address from an identifying key in the record, such as account number. Using a formula, the account number is converted into a sector address. This is faster than comparing entries in an index, but it only works well when keys are numerically close: 100, 101, 102, etc.

3.   RELATIVE FILE ORGANIZATION

https://www.google.com/search?client=firefox-b-d&q=THE+RELATIVE+FILE+ORGANIZATION

A relative file is a file in which each record is identified by its ordinal position in the file (record 1, record 2 and so on). This means that records can be accessed **randomly** as well as **sequentially**: For sequential access, simply execute a READ or WRITE statement to access the next record in the file

In this file organization, the records of the file are stored one after another both physically and logically.

That is, record with sequence number 16 is located just after the 15th record.

In contrast to SEQ files, records of a RELATIVE file can be accessed by **specifying the record sequence number** in the READ statement (the KEY) and without needing to read all the previous records.

4.   Hashed File Organization

Hashing is an efficient technique to directly search the location of desired data on the disk without using **index structure**. Data is stored at the data blocks whose address is generated by using hash function. The memory location where these records are stored is called as **Data Block or Data Bucket o Hash Tables**

In this method of file organization, **hash function** (**H (Key))** is used to calculate **the address of the block (or a Block Number)** to store the records (or where we can find/locate the records having a Key K). The hash function can be any simple or complex mathematical function.

The hash function is applied on some columns/attributes, **generally Primary Key**, to get the block address.