FILE ORGANIZATION:

This term describes how to set up the information in a file so that it may be accessed more quickly.

. These factors are taken into account while selecting a file organisation:

1) Quick access to a single record or group of connected records

2) Simple record addition, update, and removal without interference.

3) Storage effectiveness

4) Redundancy as a guarantee against corrupt data.

The way that files are typically seen is as follows:

• Logical File organisation: logical records are made up of groupings of fields that can conduct various actions on the file.

• Physical file organisation: Records that contain data can be stored in any type of storage device, including main memory, secondary memory, etc.

Explain types of File Organization:

1) Sequential Access File Organization

2) Direct Access File Organization

3) Index Sequential Access File Organization

Organization of sequential access files:

1) Records are kept in sequential sequence.

2) In other words, the records are sorted according to how high or low a key field is in the list.

3. For instance: a) In a student information system, the file would include the student's roll number, name, division, and exam score.

b) In a payroll application, the employee number is used as a key field to keep the entries.

4) In such a file arrangement, we must search from the file's beginning all the way through to the end in order to find a certain record.

5) The process is time-consuming.

6) Magnetic tapes are typically used for creation and maintenance. Consider audio cassettes.

7) No storage space identification is required.

Advantages:

1) Easy to use

2) Simpler to organise and maintain

3) Cheap

4) Localized errors in files

Disadvantages:

1) The entire file must be processed

2) Prior to processing, transactions must be arranged in a specific order

3) Prolonged searching

4) Significant data redundant

5) It is not possible to respond to random inquiries

Direct Access File Organization (Random Access or relative file organization).:

1) Also known as relative file organisation or random access.

2) Direct Access Storage Devices are used to store records (DASD). include a magnetic disc (Hard disks).

3) The file is shown as a numbered list of records or blocks for immediate access.

4) These records or blocks are used as the keys to access the desired data at random.

5) It permits the reading or writing of arbitrary (random) blocks.

6) It is practical for quick access to a lot of information. They are frequently used to access enormous databases.

7) This method is known as hashing.

Advantage

Advantage

2) There is no need to sort the records.

3) Quicker updating of several files

4) Assists online reservation systems and other transaction processing systems.

Disadvantages:

1) If particular care is not taken, data may be mistakenly overwritten or erased.

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3) Expensive: The records must be stored on pricey hard discs, which is expensive.

4) Use of storage space is less effective than sequential file structure.

5) One key is required

6) Access cannot be made sequentially

Index Sequential access file organization(ISAM)

1) The two file groups mentioned above were combined to create this file organisation.

2) It combines the advantages of sequential file organisation and direct access file organisation.

Here, a primary key uses a direct access device, like a magnetic disc, to store records at random.

As a result, we can use the index to access data either sequentially or randomly. When a file is opened, the index is read from storage into memory.

4) It might have several keys. They might have alphanumeric keys.

5) The primary key is the one used to determine the order of the data records.

6) Additional keys are known as alternative keys.

Benefits include:

1) The existence of the Index necessitates more storage space.

2) It is feasible to use sequential and random access

3) Quick record access is possible provided the index table is well-structured.

Drawbacks:

1) The existence of the Index necessitates more storage space.

2) Less effective than other file groups at using storage space

3. It is pricey and requires specialised software.