

COBOL - File Access Mode

Till now, file organization schemes have been discussed. For each file organization scheme, different access modes can be used. Following are the types of file access modes –

- Sequential Access
- Random Access
- Dynamic Access

The syntaxes in this module, mentioned along with their respective terms, only refer to their usage in the program. The complete programs using these syntaxes would be discussed in the next chapter.

Sequential Access

When the access mode is sequential, the method of record retrieval changes as per the selected file organization.

- For **sequential files**, records are accessed in the same order in which they were inserted.
- For **indexed files**, the parameter used to fetch the records are the record key values.
- For **relative files**, relative record keys are used to retrieve the records.

Syntax

Following is the syntax of sequential access mode –

```

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT file-name ASSIGN TO dd-name
    ORGANIZATION IS SEQUENTIAL
    ACCESS MODE IS SEQUENTIAL

```

```

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT file-name ASSIGN TO dd-name
        ORGANIZATION IS INDEXED
        ACCESS MODE IS SEQUENTIAL
        RECORD KEY IS rec-key1
        ALTERNATE RECORD KEY IS rec-key2

```

```

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT file-name ASSIGN TO dd-name
        ORGANIZATION IS RELATIVE
        ACCESS MODE IS SEQUENTIAL
        RELATIVE KEY IS rec-key1

```

Random Access

When the access mode is **RANDOM**, the method of record retrieval changes as per the selected file organization.

- For **indexed files**, records are accessed according to the value placed in a key field which can be primary or alternate key. There can be one or more alternate indexes.
- For **relative files**, records are retrieved through relative record keys.

Syntax

Following is the syntax of random access mode –

```

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT file-name ASSIGN TO dd-name
        ORGANIZATION IS INDEXED
        ACCESS MODE IS RANDOM
        RECORD KEY IS rec-key1
        ALTERNATE RECORD KEY IS rec-key2

```

```

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT file-name ASSIGN TO dd-name
        ORGANIZATION IS RELATIVE
        ACCESS MODE IS RANDOM
        RELATIVE KEY IS rec-key1

```

Dynamic Access

Dynamic access supports both sequential and random access in the same program. With dynamic access, one file definition is used to perform both sequential and random processing like accessing some records in sequential order and other records by their keys.

With relative and indexed files, the dynamic access mode allows you to switch back and forth between sequential access mode and random access mode while reading a file by using the NEXT phrase on the READ statement. NEXT and READ functionalities will be discussed in the next chapter.

Syntax

Following is the syntax of dynamic access mode –

```

ENVIRONMENT DIVISION.
INPUT-OUTPUT SECTION.
    FILE-CONTROL.
        SELECT file-name ASSIGN TO dd-name
        ORGANIZATION IS SEQUENTIAL
        ACCESS MODE IS DYNAMIC
        RECORD KEY IS rec-key1
        ALTERNATE RECORD KEY IS rec-key2

```



INPUT-OUTPUT SECTION.

FILE-CONTROL.

SELECT file-name ASSIGN TO dd-name

ORGANIZATION IS **RELATIVE**

ACCESS MODE IS **DYNAMIC**

RELATIVE KEY IS rec-key1

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