Sorting and Indexing Database Files

Sorting in FoxPro

Sorting is the process of arranging records of a table in a specific order (Ascending or Descending) based on one or more fields.

Sorting creates a new table (file) with records arranged in the desired order. The original table remains unchanged.

Purpose of Sorting

1. To arrange records alphabetically (A–Z / Z–A)
2. To arrange records numerically (Lowest to Highest / Highest to Lowest)
3. To prepare reports
4. To analyze data easily

Syntax

```
SORT TO <newfile> ON <fieldname> [/A] [/D]
```

Where:

<newfile> = Name of new sorted file

<fieldname> = Field on which sorting is done

/A = Ascending order (Default)

/D = Descending order

Example

Step 1: Create a Table

```
CREATE TABLE BCA_Student ;
(Roll N(3), Name C(20), Marks N(3))
```

Step 2: Insert Records

APPEND BLANK
REPLACE Roll WITH 3, Name WITH "Ali", Marks WITH 65

APPEND BLANK
REPLACE Roll WITH 1, Name WITH "Sagar", Marks WITH 85

APPEND BLANK
REPLACE Roll WITH 2, Name WITH "Sahil", Marks WITH 75

Step 3: Sort by Roll Number

SORT TO Studentsort ON Roll

Now a new file Studentsort.dbf is created with records arranged as:

Roll	Name	Marks
1	Ali	85
2	Sagar	75
3	Sahil	65

Sort by Marks in Descending Order

SORT TO Studentmark ON Marks /D
Records will be arranged from highest marks to lowest marks

Important Points about Sorting

1. Sorting creates a new file.
2. Original table is not changed.
3. Sorting takes more disk space.
4. Useful for report preparation.

Indexing in FoxPro

Indexing is a technique used to arrange records logically without physically changing the table order.

Index file stores the order of records separately. It helps in fast searching and quick data retrieval.

Purpose of Indexing

1. To search records quickly
2. To maintain order automatically
3. To avoid creating duplicate values
4. To improve database performance

Syntax

Create Index

INDEX ON <fieldname> TO <indexfile>

Open Index

SET INDEX TO <indexfile>

Example

Using the same BCA_Student table:

Create Index on Roll

```
USE BCA_Student
INDEX ON Roll TO Studentroll
SET INDEX TO Studentroll
```

Now records will appear in Roll number order automatically.

Create Index on Name

INDEX ON Name TO Studentname

SET INDEX TO Studentname

Records will appear alphabetically by Name.

Unique Index

To prevent duplicate values:

INDEX ON Roll TO Studentroll UNIQUE

This allows only unique Roll numbers.

Difference between Sorting and Indexing

Sorting	Indexing
Creates a new file	Creates an index file
Changes physical order	Changes logical order
Takes more disk space	Uses less space
Slower for repeated use	Faster searching
Used for reports	Used for fast data retrieval