LECTURE SCHEDULE 13

MSACCESS: Concept of Database- Units of database, creating database

Database

- A database is a collection of interrelated data that is organized so that it can easily be accessed, managed and updated.
- A database-management system (DBMS) is a collection of interrelated data and a set of programs to access those data.

Characteristics of Database

- Self-describing- a database gives description about itself.
- Multiple users can access the same data.
- Data exists permanently
- Data security protects the data from unauthorized access with the help of the passwords.
- Many software are used as Database Management Systems. Example: MS-Access, ORACLE etc.

Structure of Database Management System
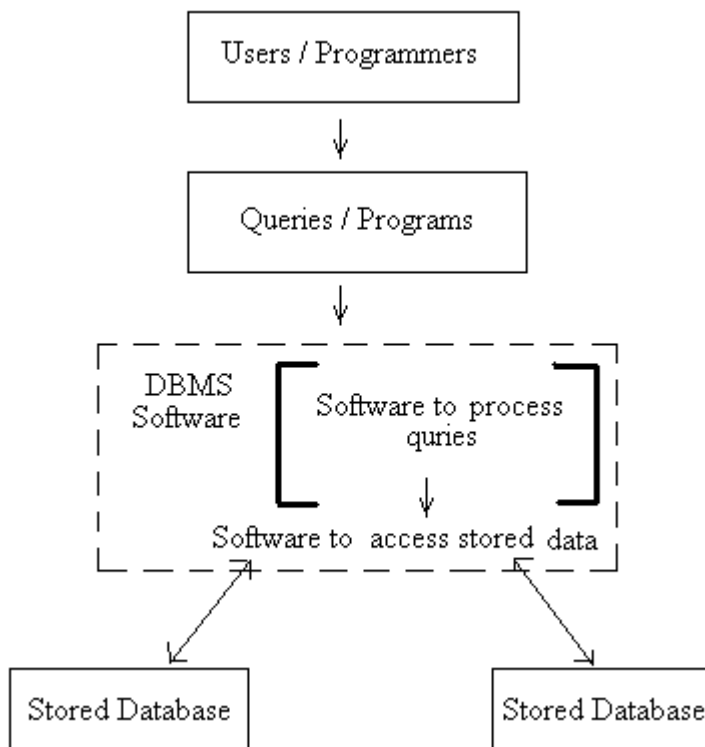
Tables

- Tables contain data
- The main components of tables are:
  - Field
  - Record
- A field is the smallest data item stored in one particular format.
- A record is one complete set of related field.
- Example: Following is Student table in an University database

Student Name	ID	STAM Mark	AGR Mark	PBG Mark
Adithi	BSA-10-001	98	99	95
Bhargavi	BSA-10-002	56	75	67
Natarajan	BSA-10-003	86	70	75
Madhavan	BSA-10-004	78	79	76

- The columns in the table are fields or attributes. Fields store the smallest unit of data.
- The rows in the table are called tuple or record. The record is one complete set of relation.

Database concepts

- Data is a known fact.
- Data may be name of a student or mark scored by a student or age of a student or dat of birth of a student. Thus the type of the data varies, that if it is a name then it will contain only any combination of the alphabets, if it a mark then it will be only a number, if it date of birth then it will only be a date.
- The data types supported by the DBMS are :
    - Numeric   -   numbers
    - Alphanumeric   -   letters and digits
    - Date/Time   -   dates
    - Logical -   logical data
    - Auto number   -   unique value

Numeric

- Numbers only (no letters) includes numbers with decimal points.
- Numeric field can contain:
    - Only the numeric characters of 0 to 9
    - The decimal point

Alphanumeric

- Alphabets (letter), symbols and numbers
- Alphanumeric data can be made up of the following characters:
    - Numbers 0 to 9
    - Alphabets   A to Z, a to z
    - Special characters   #, /, $, * etc.

Data/Time

- Used to specify the field contains date

Logical

- Logical data type used to store Yes or No and True or False

Auto number

- A unique value generated for each record.

Components of database

- Tables   - contains data
- Queries   - selected information is displayed on the screen
- Reports   - formatted printed information
- Forms   - screen created to add, modify, and delete records

Primary Key

- The primary key is a field in the table which uniquely identifies that particular record in the table.

- The primary key cannot have a duplicate value in the table.

- Every table should have a primary key associated with it.

Tasks associated with the tables

- Creating a table

  o Specifying field names, data types, field sizes

- Adding records to the table

- Modifying data in the table

- Deleting records from the table

- Creating relationship between tables

Tasks associated with the queries

- Creating queries to obtain information

- Creating queries to update data

- Creating queries to update data

MS-Access

- MS-Access is a Relational Database Management System (RDBMS) developed by Microsoft Corporation.

- It provides the software tools to organize the data in a flexible manner.

- It provides facilities to add, modify or delete data from the database, ask questions or queries about the data stored in the database and produce reports summarizing selected contents.

Creating Database

- Click on Start button → Select All Programs → Click Microsoft Access

- The opening screen of the MS-Access will get displayed
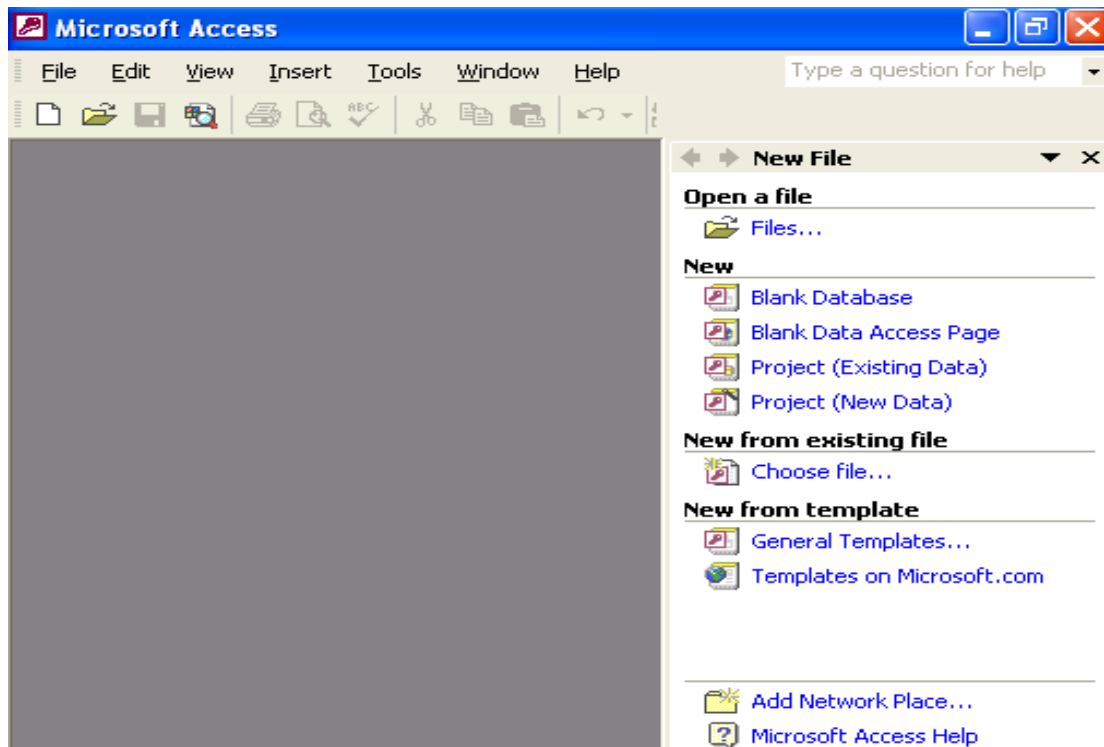
- As we are going to create a new database, in the New File window click blank database.
- File New Database dialog box will get displayed asking us to choose the location of the database and the name of the database. Enter the name of the database as crop.
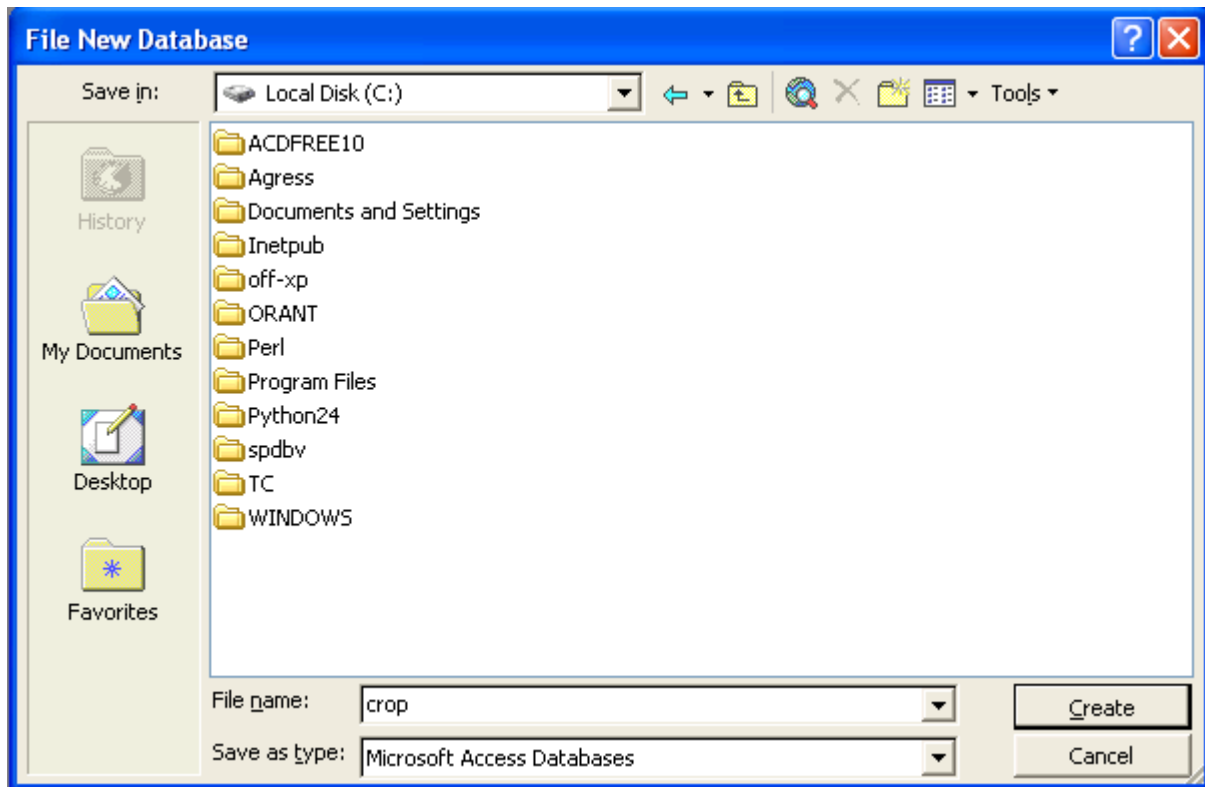
- Click Create button.

- Crop database is created and crop database window will get displayed as shown below:
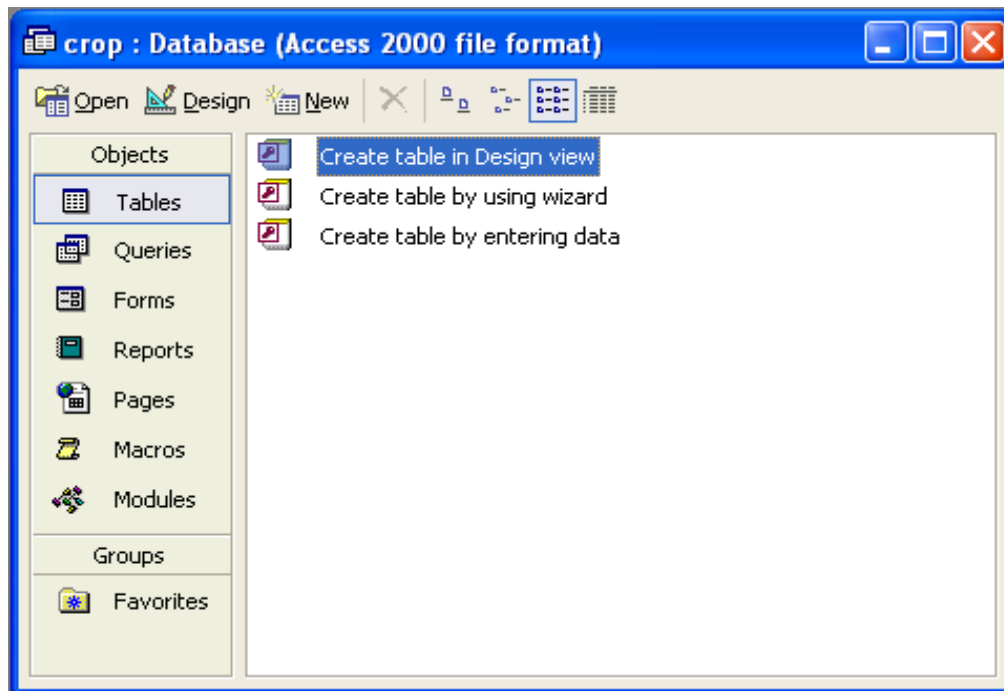

- Choose create in Design view option.

- Default name of the table is Table1 will get displayed in the title bar of the Table window.
- Enter the field name under Field Name column.
- Data type can be selected with by clicking the down arrow key in the Data Type column as shown below.
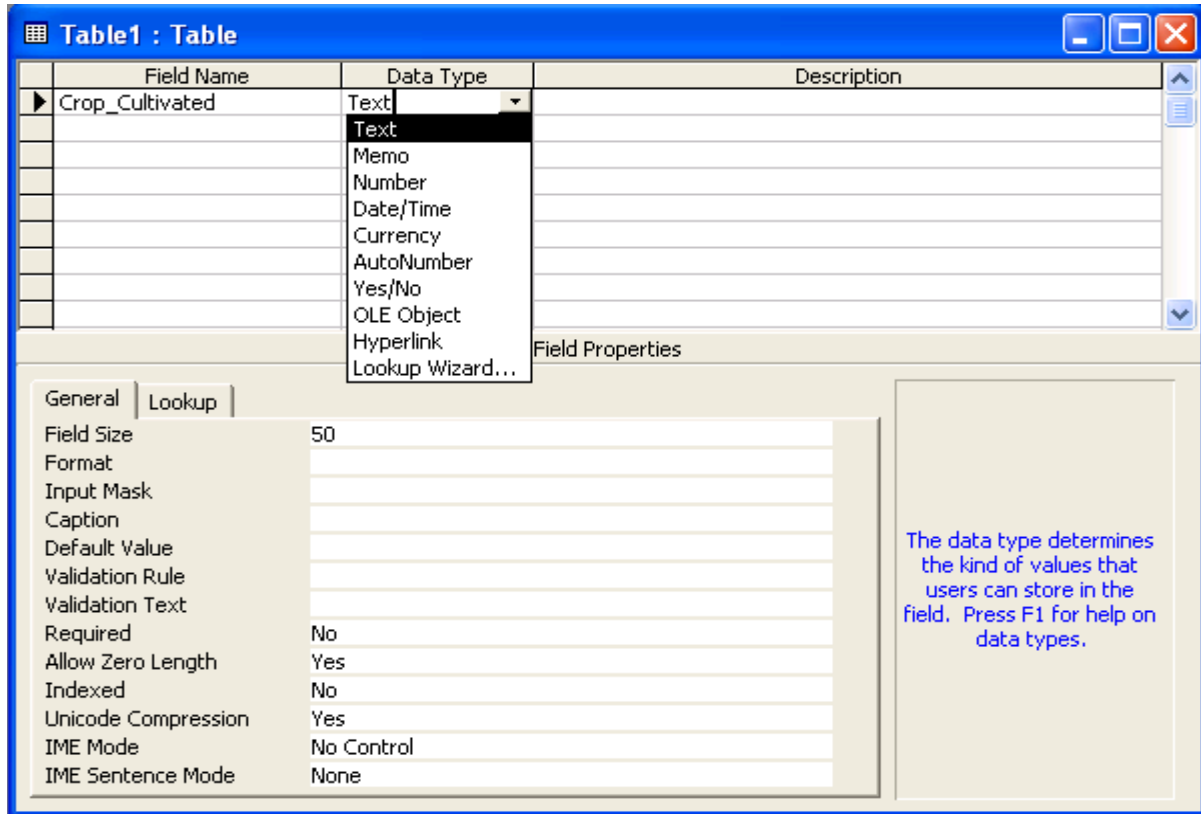
- After choosing the data type of the field set the required field size in the field size tab.
- Enter the description of the field in the Description column.
- Following the above said instructions enter the other fields in the table.
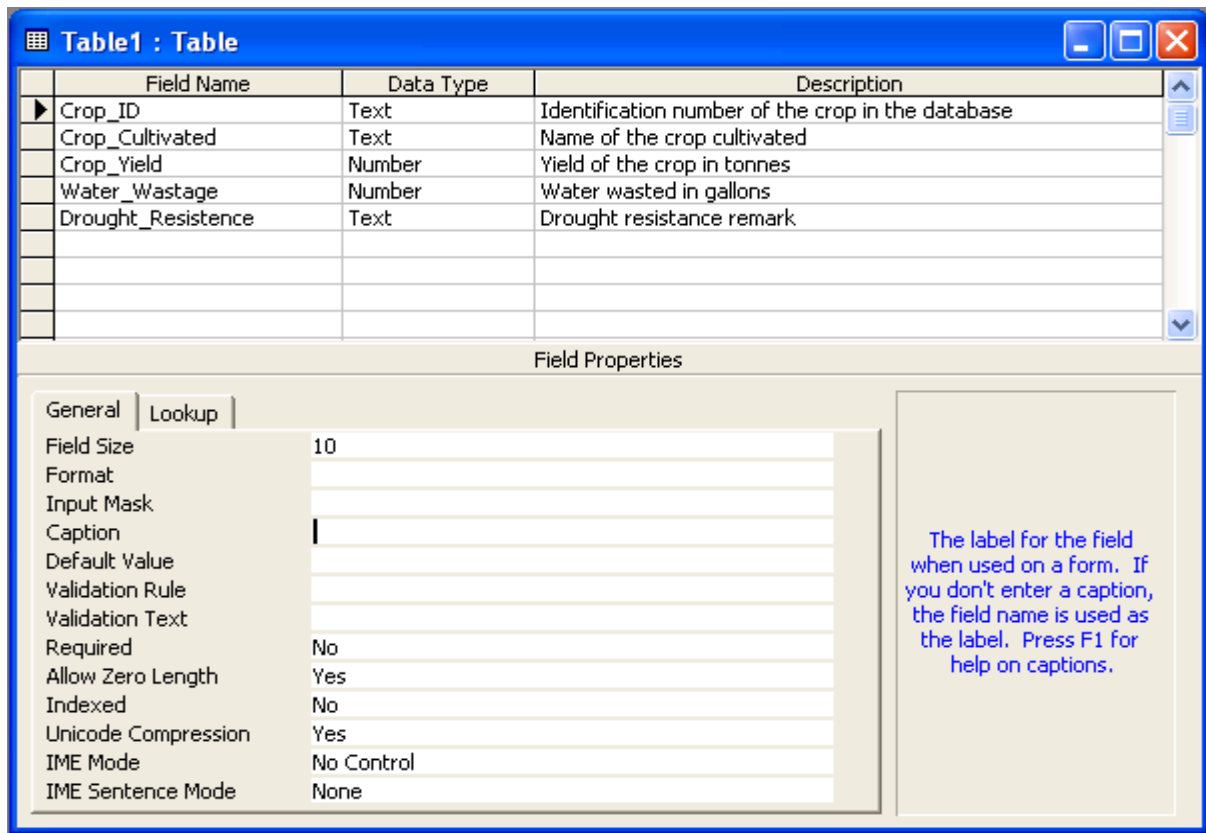
- To set Crop_ID as the primary key of the table right click the field Crop_ID.

- From the right context menu choose Primary Key option.
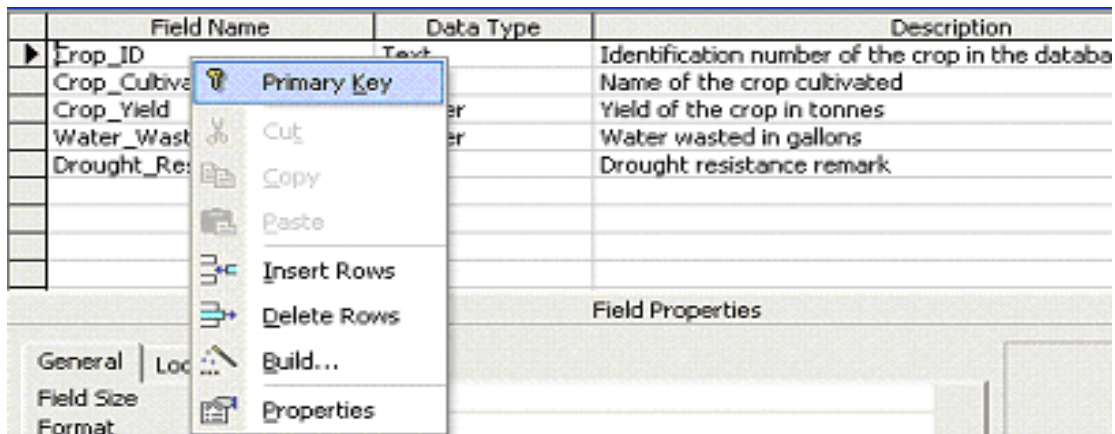
- A small picture of a key appears next to Crop_ID.

- Now the definition of the table structure is complete.
- To save the table click the File menu and Save.
- In the Save As dialog box specify the name of the table.
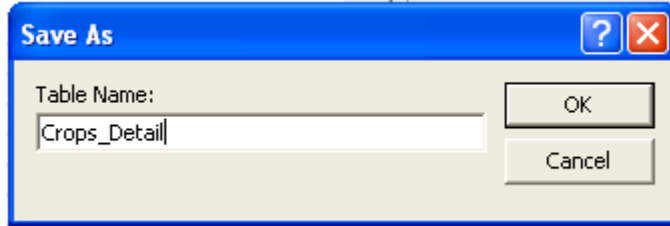
- Close the table by clicking on File menu and Close option.
- The Crop_detail table is displayed in the 'Tables' tab as shown below:
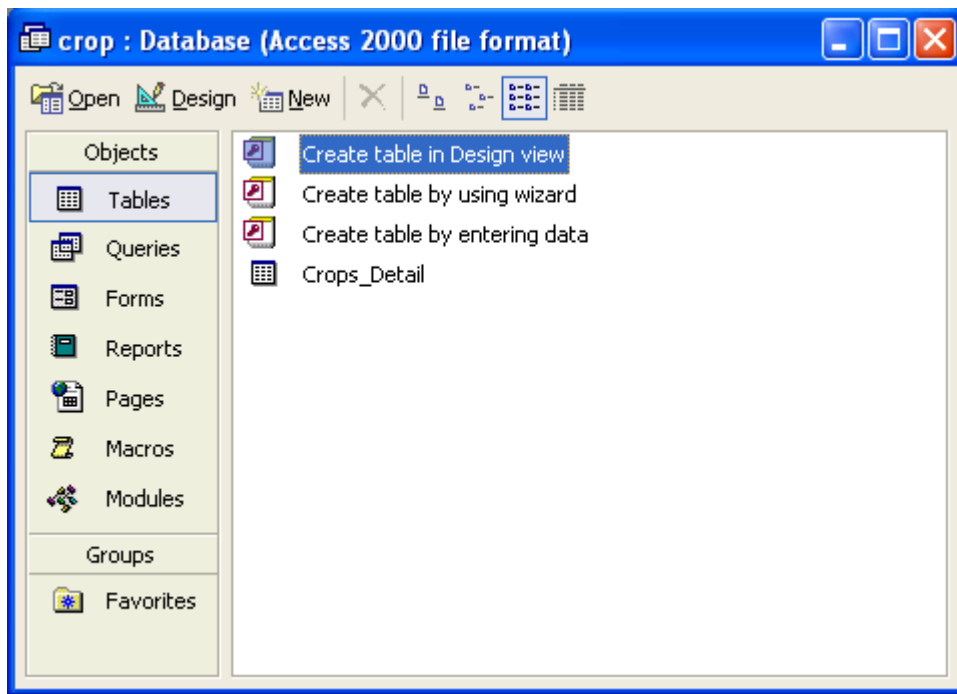
Adding Records to the Table

- In the design view under the Crop database we have created the table Crop_Detail and assigned Crop_ID as the primary key.
- To add the records right click the table Crop_Detail and select Open option.
- The datasheet view of the Crop_Detail table will get opened.

- The field names are displayed as headings and a blank row is provided to enter data.
- Enter the data in the corresponding fields. When all the records are added the screen will be as shown below:

To Delete a Record from the table

- To remove the 5th record with Crop_ID CR-005 and Crop_name as aize right click on the arrow (▶) tabin front of the record and choose Dekete option as shown below:

- Access prompts the user for the final confirmation because the record once deleted cannot be recalled back.
- Click on 'Yes' if you are sure to delete it.

Crops_Detail : Table

Crop_ID	Crop_Cultivated	Crop_Yield	Water_Wastage	Drought_Resistence
CR-001	Bhendi	567	24536	Partial
CR-002	Paddy	1896	29623	Less
CR-003	Bajra	289	12658	Exterme
CR-004	Sesame	143	10467	Extreme
CR-006	Groundnut	952	15489	Less
CR-007	Cowpea	1045	20567	Moderate
CR-008	An			
CR-009	So			
CR-010	To			

Microsoft Access

⚠ **You are about to delete 1 record(s).**

If you click Yes, you won't be able to undo this Delete operation.
Are you sure you want to delete these records?

[Yes]   [No]

Record: |◀ ◀ 5 ▶ ▶| ▶* of 9