Chapter 5

INTRODUCTION TO MICROSOFT ACCESS

5.1 OVERVIEW

Microsoft Access is one of the most popular and powerful DBMS. It has many built in features to assist you in constructing database and viewing information. MS-Access is much more involved and is a more genuine DBMS than other programs such as Microsoft Works. Microsoft Access is a Relational Database Management System (RDBMS) that you can use to store and manipulate large amount of information. It is easy to understand and its graphical interface helps to create queries, forms, and reports. In other words, even inexperienced programmers can use *Access* to turn a stack of invoices, a card file of customer names, a ledger, and an inventory list into a relational database that makes entering, updating, and reporting information as easy as clicking a button.

MS-Access offers more than just pretty interface for learning how to manage data. You' ll find following benefits and more from using Access:

- **Sample databases:** It includes sample database applications to assist you learn about real-world tables, forms, queries, and reports, and how they are interconnected to form a database management system.
- **Wizard:** It makes very easy to create a database. You can choose from several examples of databases in the *Database Wizard* for such storage uses as contact information, inventory control, a ledger, and so on. You can create and then modify these databases to meet your own needs.
- **Keys to understand the structure:** After you have decided how to create and relate tables, you can easily view all the relationships in the database with the graphical interface in the Relationship Window. This makes one of the toughest parts of relational database design much easier and more manageable.
- **Microsoft Office integration:** You can use access with Word, Excel, and other office application to create mail merges, charts, and other helpful uses for your data.
- **Easier programming:** You can use relatively simple code with macros to automate repeated tasks, or you can try more complex and flexible code

with VBA. Access provides graphical shortcuts and hints to help writing easier code.

- **Common Standards:** It uses standards that help applications scale up to work within larger environments. Access uses objects and SQL (Structure Query Language) to make its code from the adaptable to other applications.

- **Redundancy:** *MS-Access* allows you to store, retrieve, sort, analyze, and print information contained in the database. Data may be manipulated without data *redundancy* by defining relationships between sets of data. Databases are often used for product data. *Redundancy* means duplication of data in multiple files. It wastes the storage media of computer.

5.1.1 Creating New Database

Once Access has been accessed, choose the File New Database command from the menu at the top of the screen in order to create a new database. The database window is displayed. Choose the appropriate directory and drive. Then enter an eight-character name for the new database file and click "OK".

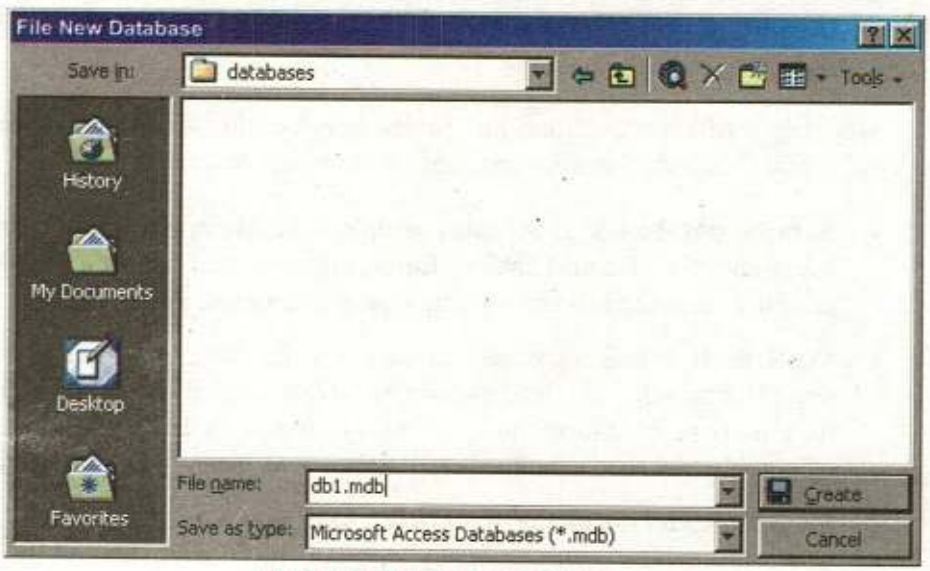


Fig.5.1 Defining the File name a Database

When you start up Ms-Access, you get a dialog box asking if you want to open an existing database or create a new one.

- Create a New Database.
- Create a File New Database using wizard
- Open an existing database

Warning - If you have previously created a database, and then create it again using the same name, you will overwrite any work you have done.

5.1.2 Create a database using the Database Wizard

The *Database Wizard* guides you through process of the creation a database; it includes choosing a database template, selecting fields, making customizations, adding pictures, and the database.

(i) When Microsoft Access first starts up, a dialog box is displayed with options to create a new database or to open an existing one. When this dialog box appears, select *Access Database Wizards*, *pages*, and *projects* and then click *OK*. Microsoft Access starts up, when you click the *New Database* on the toolbar.

Fig.52 Creating a database using database wizard

(ii) On the *Databases* tab, double-click the icon for the kind of database you want to create.

(iii) Specify a name and location for the database.

(iv) Click *Create* to start defining the new database

5.1.3 Create a database without using the Database Wizard

(i) If you don't want to use the database wizard, you can create a database, you first start the Microsoft Access, a dialog box is displayed with options to create a new database or open an existing one. when this dialog box is displayed.

(ii) Click on the *Blank Access Database*, and then click *OK*.

Fig.5.3 Creating a Database without using Database wizard

(iii) Specify a name and location for the database and click **Create**.

5.1.4 Opening Existing Databases

(i) The white box gives you the most existing databases you have used. If you do not see the one you had created, choose the More Files option and click *OK*. Otherwise choose the database you had previously used and click *OK*.

Fig. 5.4 Opening a existing Database

5.1.5 Exiting Microsoft Access

When you finish working in Access, be sure to exit the program properly to avoid damaging your database.

(i) *Click* on *File*. The File menu will appear.

(ii) *Click* on *Exit*. Access will close and you will return to the Widows desktop.

OR

Click on the *Close button* as an alternate way to exit Access in only one step.

5.2 MS-ACCESS APPLICATION WINDOW

The *Access Application Window* follows the standard layout of all Microsoft Application .

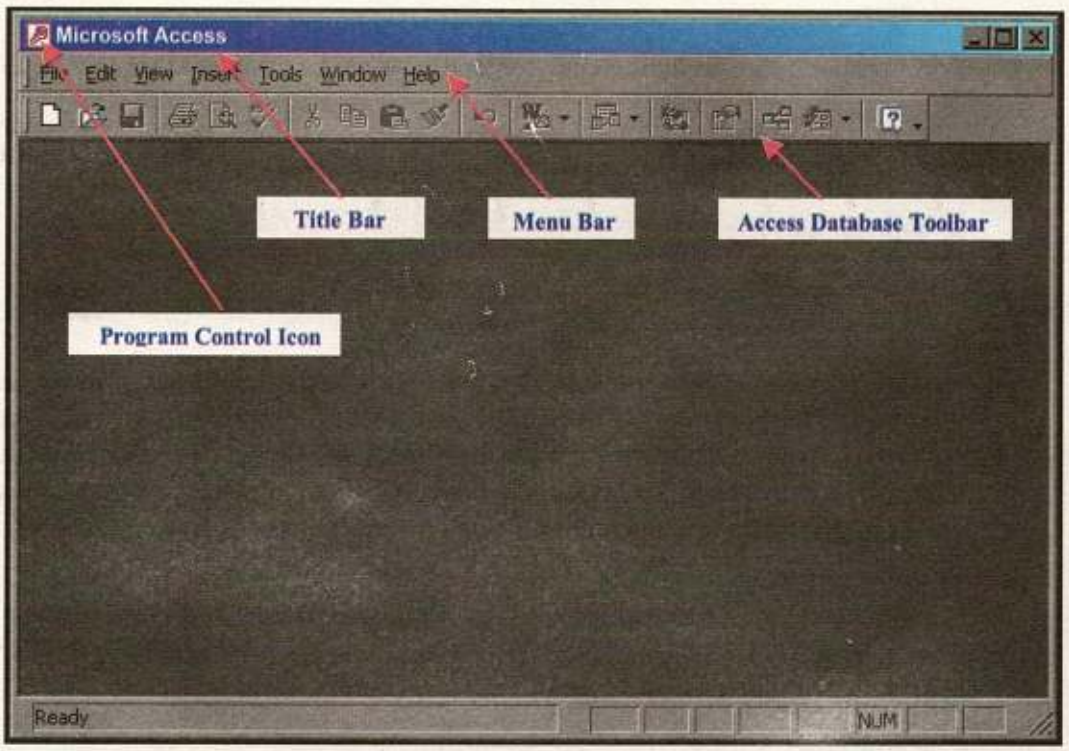


Fig.5.5. Defining Ms-Access Application Windows

Title Bar

The Title bar identifies the database application you are running in *Microsoft Access*. On the left side of the title bar is program *Control Icon* . If you

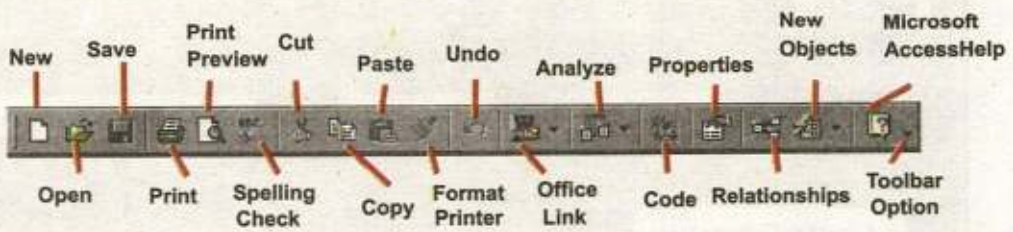
click this, a menu of the commands to control the Access window is displayed. You can also use the minimize *Maximize* *Restore* *close* buttons on the right side of the Title bar to control the *MS-Access* Window.

Menu Bar

Each word on the menu bar represents a different menu. Each menu contains the commands you use to activate features of Access. If a command is also found on a toolbar then the icon representing the command is displayed in the menu too. This make recognizing commands easier.

Toolbars

Toolbars contain icon button that are shortcuts to the commands in the menu.



Toolbars make it easy to use the program's most common features and functions. The buttons on the toolbar can change depending on the objects selected. When you click on a button on the toolbar, as you open individual tables, queries, forms, and reports within that database, the toolbars change. For example, when you open a table, the table datasheet toolbar appears.

Scroll Bar

Scroll bars are used to move around the window if its contents do not fit on-screen. You can scroll around the sheet by clicking the scroll arrows at either end of the scroll bar or by dragging the scroll button in the scroll bar.

Status Bar

The status bar display while you are working on an object within a database. CAPS and NUM buttons on keyboard show whether and respectively are on.

5.3 DATABASE WINDOW

The Database Window organizes all of the objects in the database. The default table Listing provides ways to create tables and lists all of the tables in the database. The left side of the *MS-Access* database window includes seven buttons, each corresponding to one of the seven objects that make up an Access database. A database is essentially an organized collection of data. In an Access database, you collect data into the tables by using forms, query tables to analyze their content, create report based on the tables and queries, and design data access page to view your Access data from the web. As an advanced user, you may create macros *(A macro is used to perform the same sequence of steps or automating tasks repeatedly.)* to automate takes or modules (A *module contains an object that stores VBA code.*) to create database applications using Access.

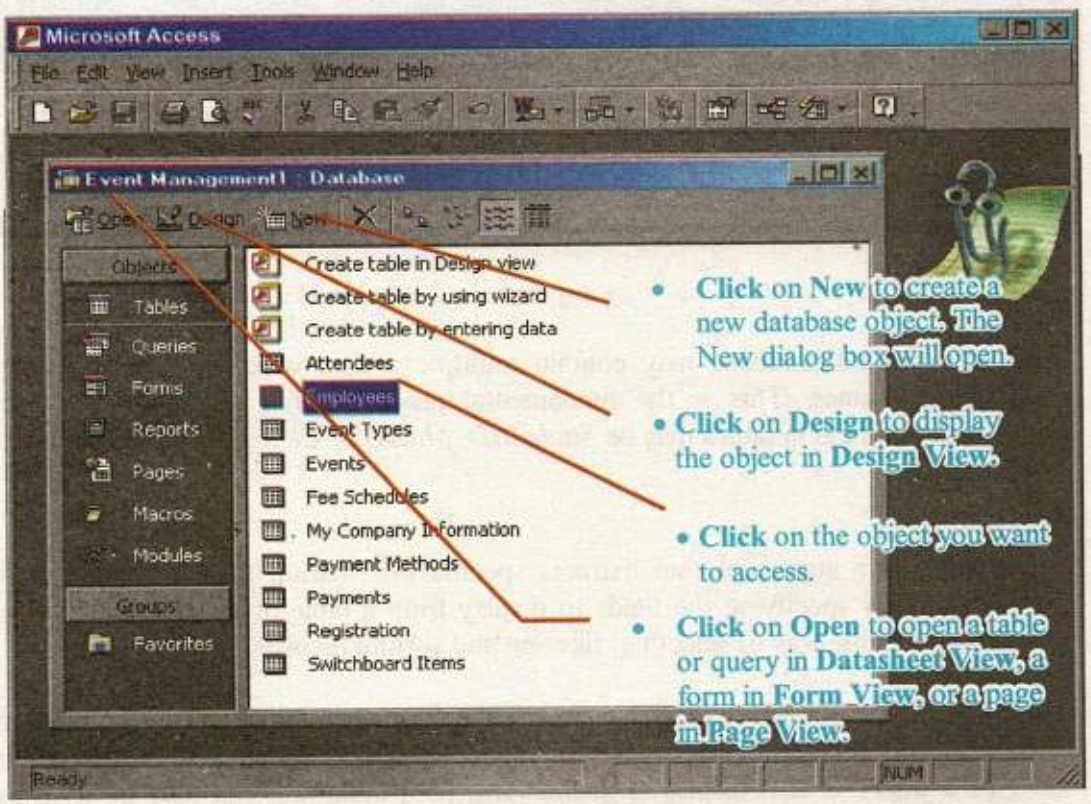


Fig.5.6 Defining the Database window

5.4 DATABASE OBJECTS

A Ms-Access database consists of various components called the objects. The database objects are used to store data and to retrieve data from database. The major database objects are:

(i) Tables (ii) Queries
(iii) Forms (iv) Reports

Tables

The most important object of a database is a Table. The data is stored in tables of database. A table is a collection of related data organized in rows and columns. Each row consist a record, and each record consists of columns. The row is divided into columns called field containing different data values of a particular record. A table having recodes of students is given blow. Each record contains fields; *StudentID*, First Name, Parents *Name*, *Address*, *City*, *MajorID*, and *ClassID*.

Students : Table

	Student ID	First Name	Last Name	Parents Name	Address	City	MajorID	Class ID
	1	Ali	Azmat	Azmat Hasan	345, street #56	Islamabad	56	1
	2	Rashid	Ahmed	Ahmed Butt	78, Gali 5-D	Lahore	56	2
	3	Zain-ul-Abid	Khan	M.R.Khan	567, D-cat	Rawalpindi	52	1
*	(AutoNumber)							

Fig.5.7 Creating a Database without using Database wizard

A relational database may contain multiple tables, which are identified by unique names. This is the fundamental property of a relational database. Common field in tables may be *StudentID, MajorID, ClassID* etc.

Queries

Query is a statement that extracts specific information from database. It is created by specifying the fields to display from a table or another query. It is more flexible way of selecting, filtering and sorting records.

The user can also change data in the database that fulfils certain criteria. In addition, queries allow to perform calculations of different fields. The output of a query is also displayed in the form of a table and can also be used as source of records for Forms and Reports.

The query allows you to view and analyse data in many different ways. Technically, a query is a stored question or request. You design a query in design view to extract certain information from the database.

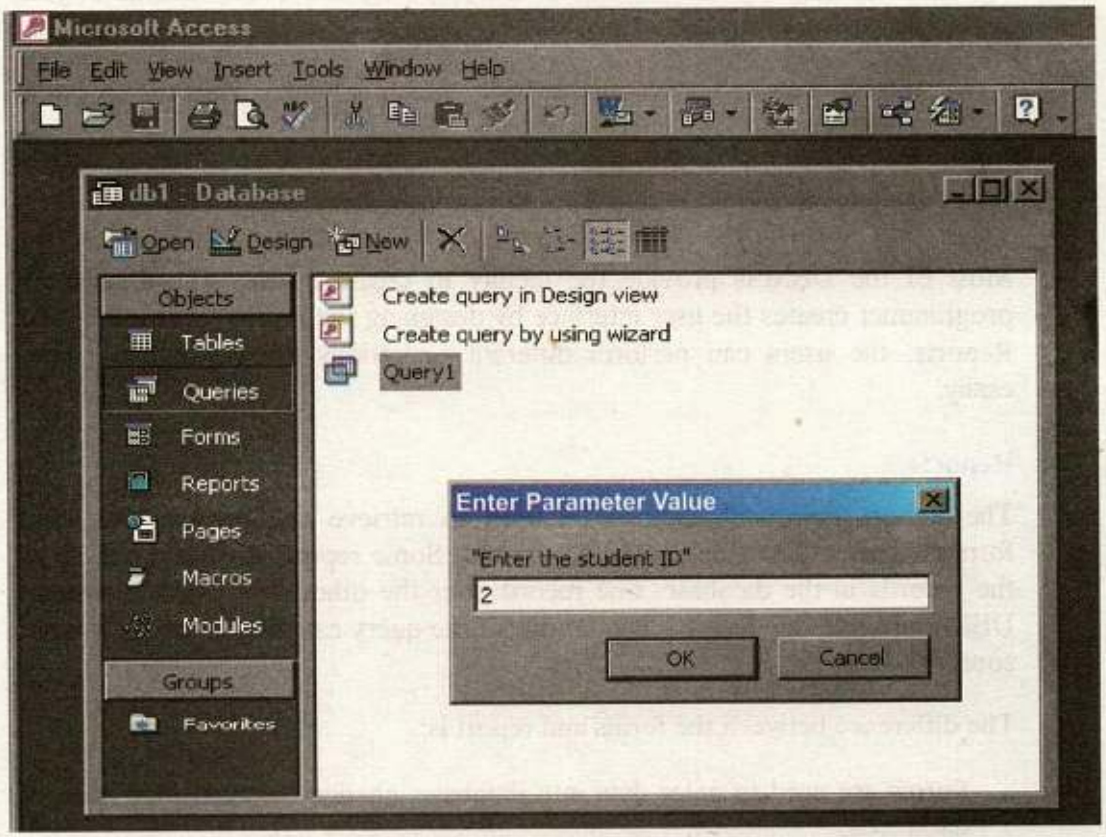


Fig.5.8 Creating query in a Database

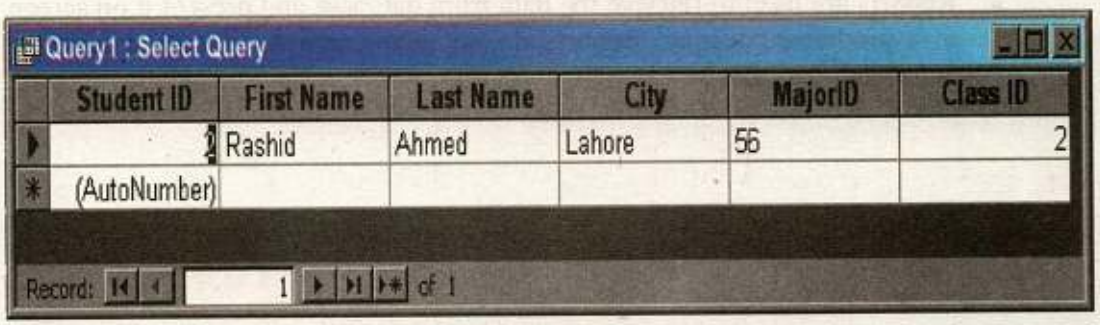


Fig.5.9 Select Query

The information appears in Datasheet view, which looks exactly like Datasheet view for a table. The difference between a datasheet for a table and a datasheet for a query is that the query's datasheet can combine information from multiple tables.

Forms

The Form object of database is used to enter data into databases, edit data and view data from database. You can add, update, and delete records in your table by using a form. Form provide:

- an easy method for entering and editing data in tables. Thus the user does not have to work directly with tables.
- facilities to display data retrieved from database tables.

Most of the DBMSs provide the facility to create Forms. The application programmer creates the user interface by designing the Forms. In this way and Reports, the users can perform different operations on the database very easily.

Reports

The Report object of database is used to retrieve and present data in a formatted way. The Report can be printed. Some reports are simply a list of the records in the database, one record after the other. Most of the popular DBMS provide this facility. The output of the query can also be given as input source to Reports.

The difference between the forms and report is:

- Forms are used to enter data into database, change data and view data of databases.
- Reports are used to retrieve the data from database and present it on screen in a predefined format. Reports do not allow user to change data or to enter data into database.

Exercise 5c

1. Fill in the blank:
   (i) IDE stands for _____.
   (ii) _____ is basically a computerized record keeping system.
   (iii) RDBMS stands for _____.
   (iv) The _____ object is used to store data in a database.
   (v) The _____ object is used to retrieve data from a database.
   (vi) A field with _____ data type is automatically incremented by Access each time a new record is entered.
   (vii) Each row of a table is divided into columns called _____.
   (viii) Each row of a table representing a set of information is called _____.
   (ix) The window that is used to display, enter and edit data on the screen is called_____.
   (x) A database consists of _____ major database objects, which are used to store and retrieve data to and from the database.

2. Multiple Choice questions:

   (i) A database consists of various components called the:
   a) Tool. b) Properties.
   c) Entities d) Object

   (ii) Which of the following object of database is used to retrieve data from database?
   a) Queries b) Forms
   c) Reports d) Tables

   (iii) The output of a query is in the form of a:
   a) Table b) Form
   c) Report d) Query

   (iv) Which of the following object is used to retrieve data from database and present in a formatted way?
   a) Report b) Form
   c) Table d) Query

   (v) Microsoft Access saves the database with the extension:
   a) .mdb b) .msdb
   c) .madb d) None of them

   (vi) A record is a complete set of _____ field.

a) Distinct
b) Related
c) Designed
d) All of them

(vii) In Access, the structure of a table is created in _____ view.
a) Design View
b) Datasheet View
c) a and b both
d) None of them

3. Write T for true and F for false statement.
(i) An IDE simplifies the tasks of creating and using a database.
(ii) The major objects of database are five.
(iii) Forms are provided by database management system to generate reports.
(iv) An integrated development environment is an interface that is used by database designers and application programmers to create database applications.
(v) To view data in an Access table, the table is displayed in design view.
(vi) RDBMS stands for Relational Database Management System.
(vii) A request to extract data from a database is called report.
(viii) Database design plays an important role in achieving the goals of efficiency, speed and consistency.
(ix) The table can be displayed in two views in Access. There are Design view and Datasheet view.
(x) The Window in a database IDE that is used to display, enter and edit data on the screen is called form.

4. Define the database objects are used to store and retrieve data.
5. Explain the procedure for creating a new database in Access.
6. Differentiate between Toolbar and Menu bar.
7. What is meant by RDBMS?
8. What is an IDE?
9. Define the use of Toolbar in Microsoft Access.
10. What are the advantages of using a Microsoft Access IDE?
11. Write a procedure to open an existing database file.
12. How is Microsoft Access started or loaded?
13. Differentiate between Form and Report.
14. Define the use of status bar and title bar in Microsoft Access.
15. Describe the Database Window in Microsoft Access