COMPUTER SCIENCE
12

CHAPTER 5:

Introduction to Microsoft Access

Topics

- MS Access & its Advantages
- IDE Advantages & Disadvantages
- RDBMS
- Database Wizard
- Creating Database
- MS-Access Application Windows
- Database Window
- Database Object

MS Access

- MS Access is a popular relational database management system
- Store and Process large amount of data
- Easy to learn and use
- Provides GUI helps the user to create tables, queries, forms , reports quickly

Advantages of MS Access

Sample Database	• It includes sample database that helps the users to learn about tables, forms, queries and reports • User can understand the interconnection of these objects to form a database system
Wizards	• It is a set of steps that guides the user to perform a specific task • It provides different wizards to create database applications quickly and efficiently
Understand the Database Structure	• It allows the user to view all relationships in the database graphically • Relationship windows is used to display relationships among relations • It makes the process of specifying relationships easier and quicker

Advantages of MS Access

Microsoft Office Integration	• Database created in MS Access can easily exchange data with Microsoft Office applications • Example is the data stored in Access can be exported to MS Excel
Easier Programming	•It provides the facility of easier programming •The user can use simple code with macros to automate the repeated tasks •User can also write the code with VBA
Common Standard	•It uses the standard SQL to perform different operations on the database •SQL is standard language in different relational database
No Redundancy	• It means duplication of data in multiple files • It wastes the storage media of the computer • It allows the user to store data without redundancy

IDE

- IDE Stands for Integrated Development Environment
- Provides facility to create database application easily
- It has graphical interface
- Details of database creation are hidden to user
- User does not detailed knowledge to create database application
- MS ACESS is an example of IDE

IDE Advantages

- Easy to use
- Simplifies the creation of database applications
- Does not require a detailed knowledge of database
- Provides predefined facilities to search, sort, retrieve etc.
- Provides facility to create interface with menus, buttons etc.

IDE Disadvantages

- Graphical interface require more memory
- Graphical interface need more processing power
- Does not allow user to interact with database directly

Relational Database Management System(RDBMS)

- Collection of programs that are used to create and maintain relational database
- Data is stored in relations
- Relation is another term used for table
- A table in database has a unique name that identifies its contents

Facilities Provided by RDBMS

Starting MS Access

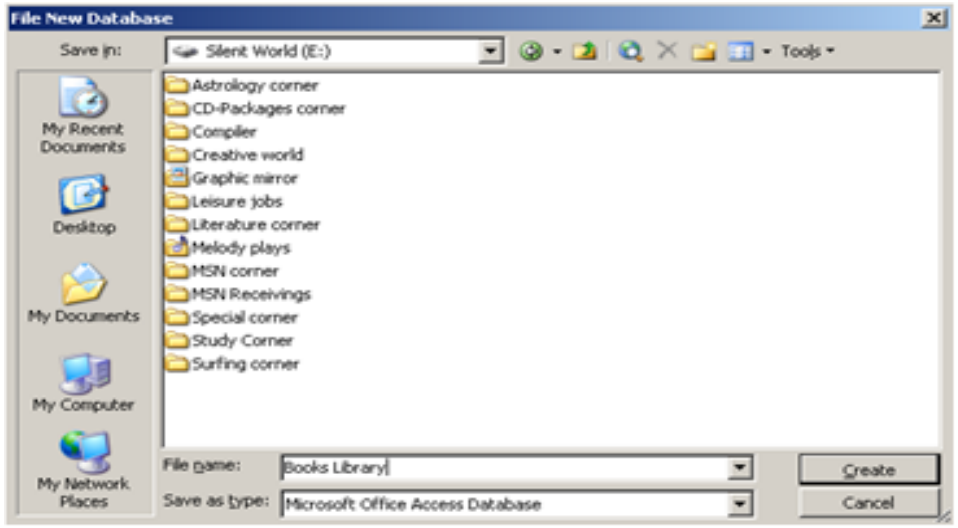
Following procedure can be used to start MS Access

- Click start button on taskbar and select **programs** menu item
- The programs submenu will appear
- Click **Microsoft Access program** item. MS Access will start

Create Database using Wizards

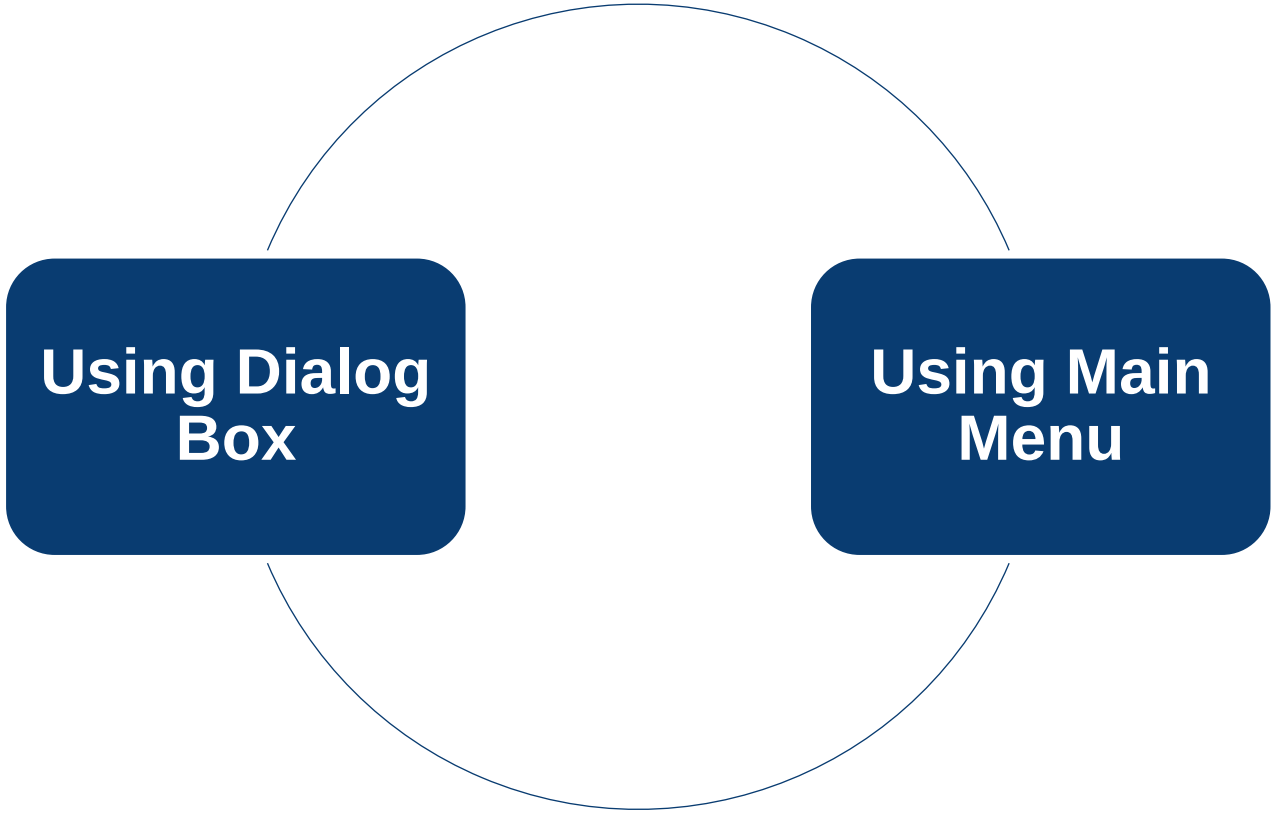
Set of steps that guide the user to create database easily

- Start Microsoft Access
- Select **Access database wizards, pages and project** option and click **OK**
- Select the database type in **Database** tab
- Click **OK**. The **Files New Database** will appear
- Type the name and location for the database
- Type name of database and press **Create.**
- The database will be created and **Database Wizard** will start



Creating Database

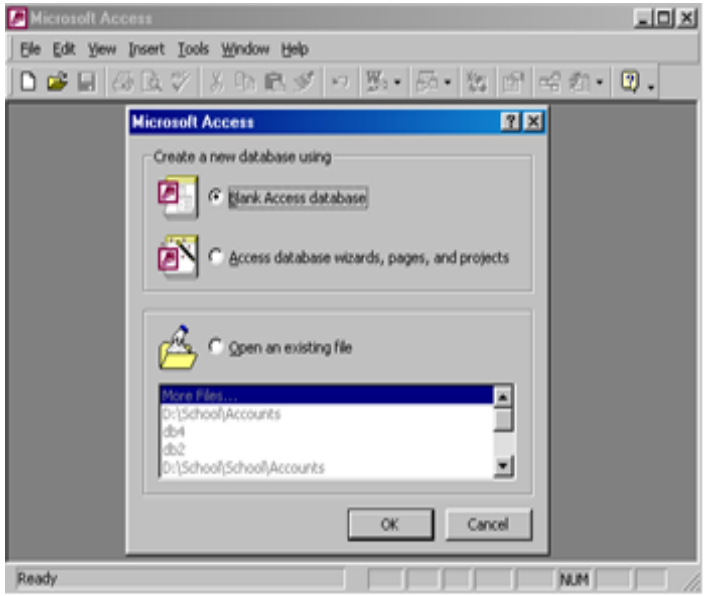
- A new database in MS Access can be created in two ways

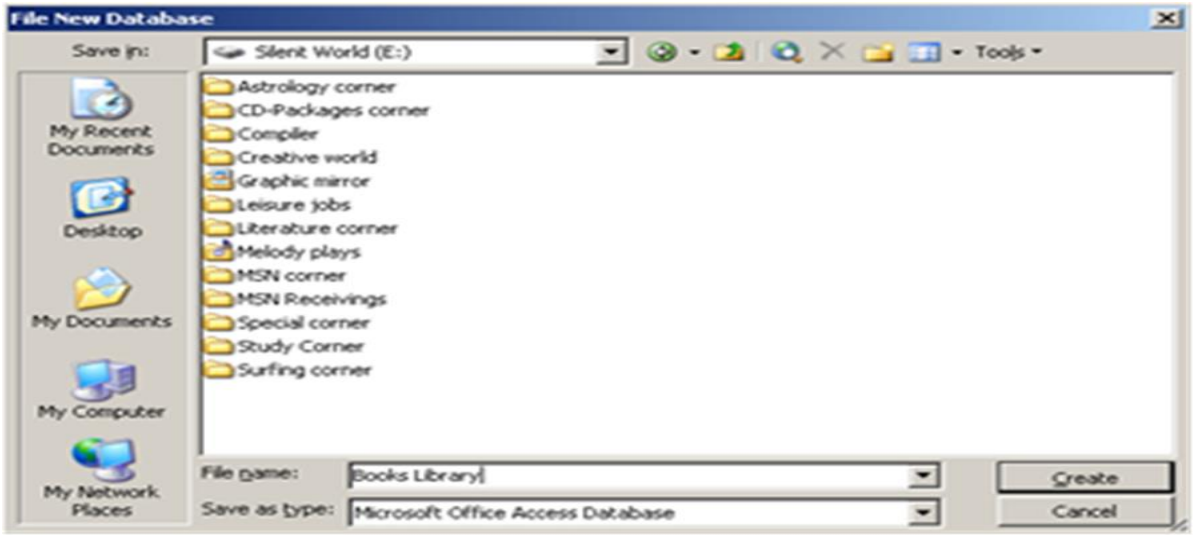


Creating Database using Dialog Box

Following procedure used to create a new database

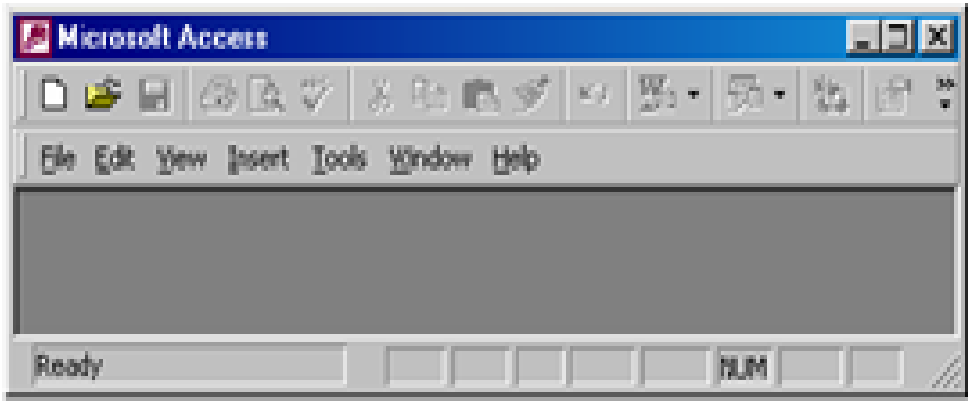
- Start **Microsoft Access.** It will display a dialog box with three option
- Select **Blank Access Database** option
- Click **OK**. The **File New Database** dialog box will appear
- Type the name of the database in **File Name** Box
- Select location to **SAVE in** option
- Click **create** Button. The database will be created



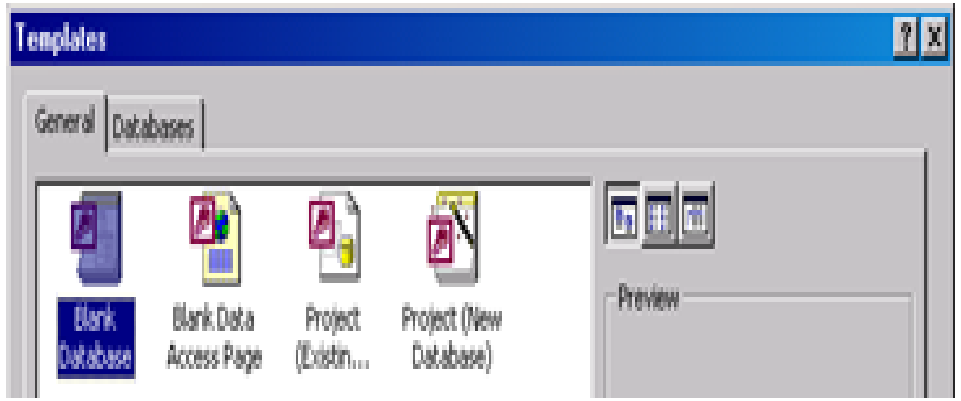


Creating Database using Main Menu

Following procedure used to create a new database



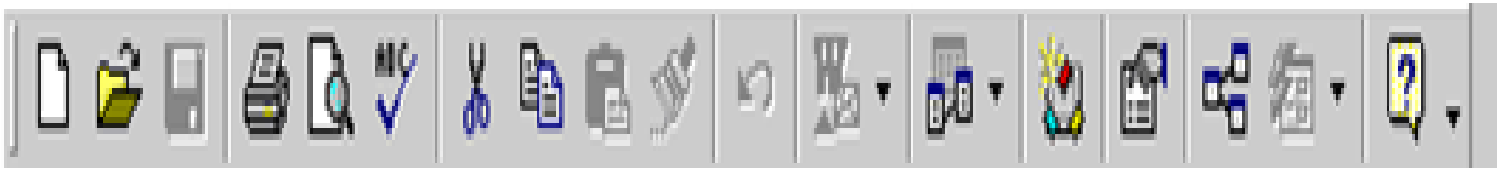
- Start **Microsoft Access.** It will display a dialog box with three option
- Click **Cancel** Button. The main window will appear follows
- Select **File>New.** The **New** dialog box will appear
- Select **General** tab
- Choose **Blank Database**
- Click **OK**. The **File New Database** dialog box will appear
- Type the name of the database in File name box
- Select any location from **Save in** option
- Click **create** button. The database will be created



Parts of Application Windows

- **Title Bar**
- Top most bar of Microsoft Access windows is called title bar
- It displays the name of database currently opened

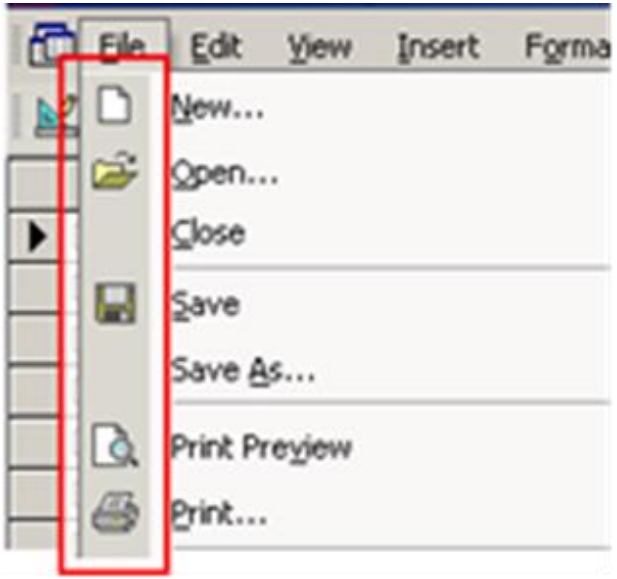
- **Tool Bar**
- Toolbar contains the icons that are quick and easy shortcuts
- User can execute different commands easily and quickly
- It normally appears below the menu bar



Parts of Application Windows (Cont.)

- **Menu Bar**
- It contains different menus that are used to issue commands
- Each word on menu bar represents a different menu
- Menu provide groups of related command to perform different functions

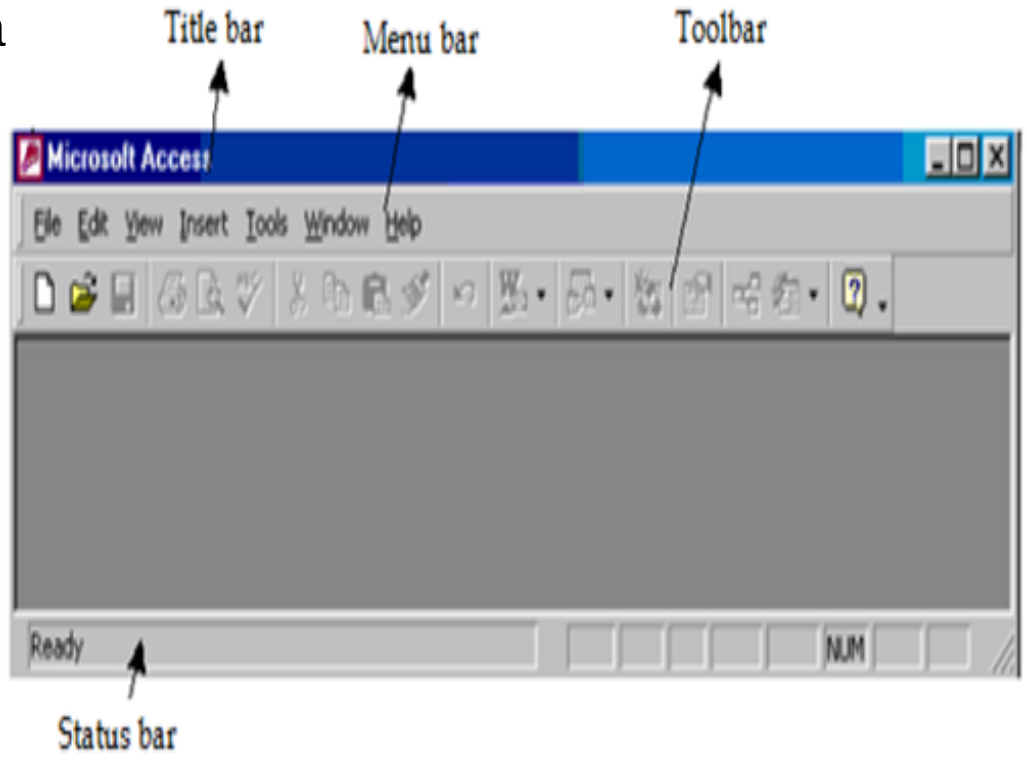
- **Menu**
- Text on menu bar represents the groups of related commands
- A dropdown list of commands appears when a menu is activated
- Menu is closed when a command is selected from the list



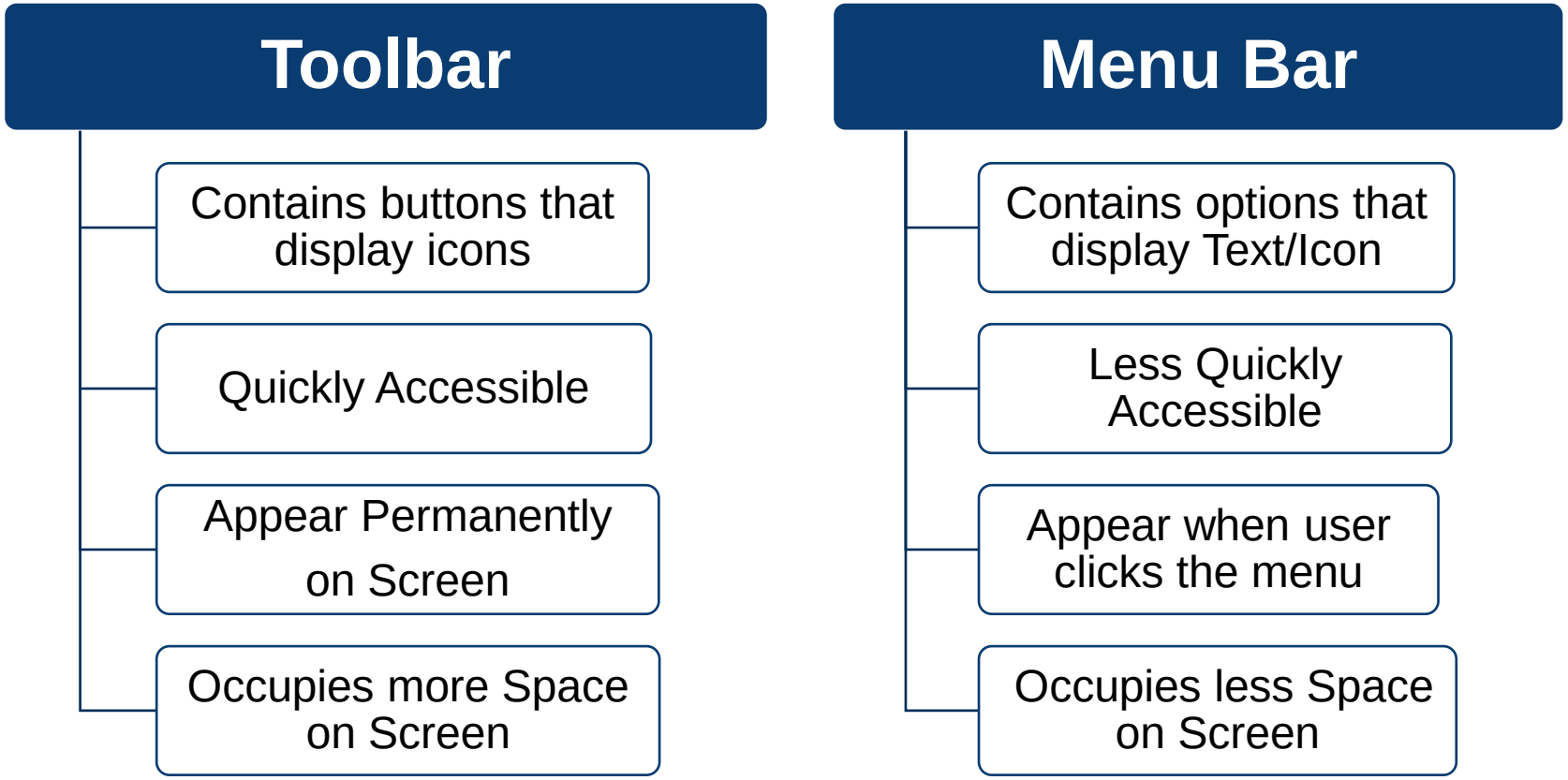
Parts of Application Windows (Cont.)

- **Scroll Bars**
- Scroll Bars are used to move around the window if its contents do not fit on screen
- Scrolling is performed the clicking arrows at the either end of scroll bar
- The user can also drag the scroll button on scroll ba
- **Status Bar**
- It appears the bottom of MS Access window
- It displays different information while user is working on an object
- It also shows the status of some special keys

  Example of keys **Num Lock**, **Caps Lock**



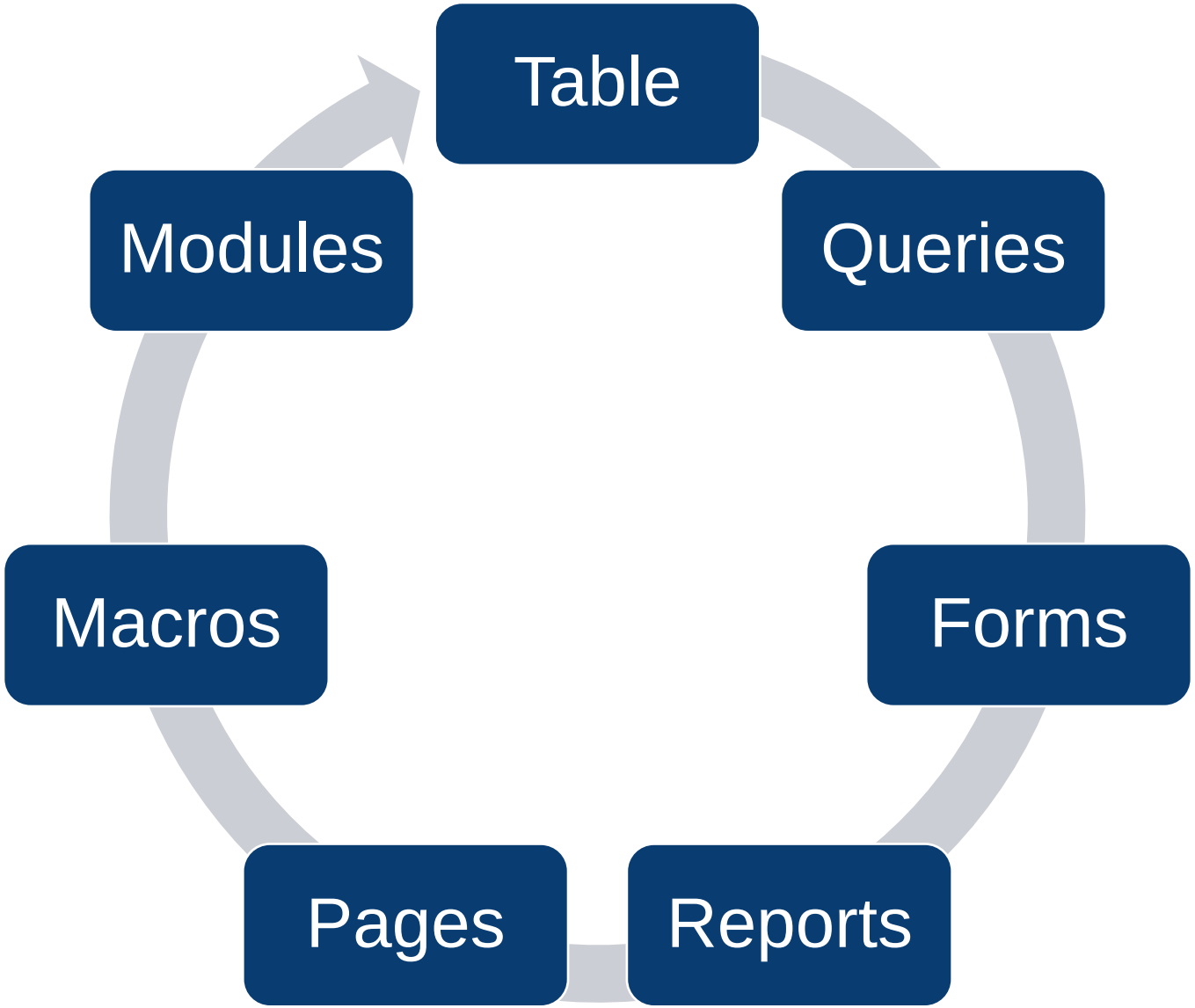
Tool Bar & Menu Bar



Database Windows

- Database windows is used to organize all objects in the database
- It contains own title bar and toolbar
- Divided into two parts
- Left side contains seven buttons
- Each button indicates different type of object
- Right side display list of different objects

Buttons in Database Windows



Database Windows

1. Tables

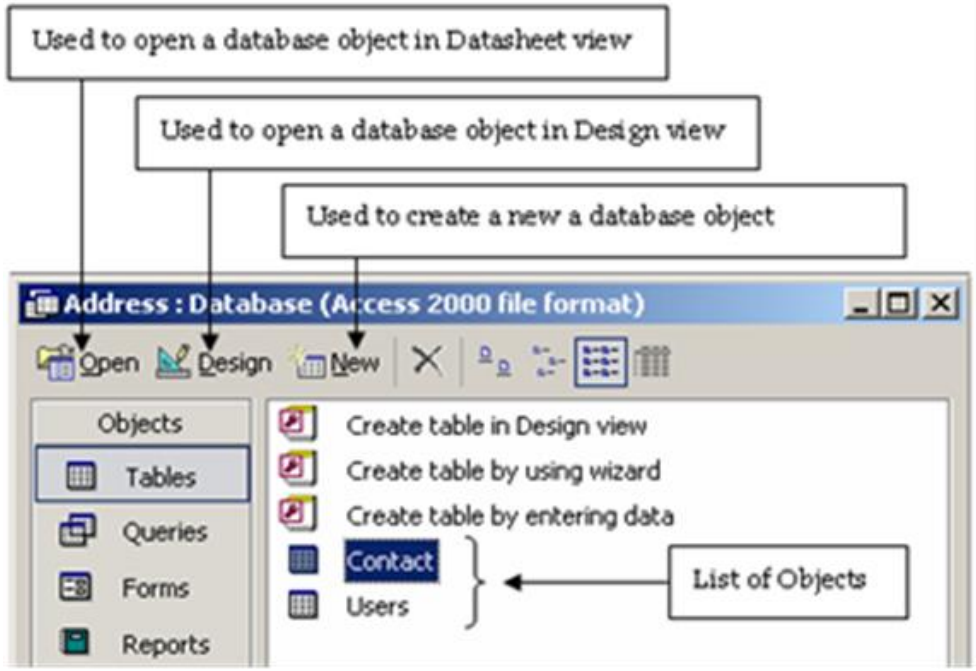
- It is used to create, modify and manipulate tables
- The tables are used to store data in the database

2. Queries

- It is used to create queries
- Queries are used to retrieve data from database

3. Forms

- It is used to create forms
- Forms are used to enter data in tables easily using graphical user interface
- Form consists of buttons, textboxes and list etc.



Database Windows (Cont.)

4. Reports

- It is used to create reports
- Reports are used to display information from database in different ways
- Reports are used to make important decisions
- Reports can be based on tables or queries

5. Pages

- It is used to design data access pages
- Data access pages are used to display the Access data on the web

6. Macros

- It is used to create macros
- Macros are used to perform same sequence of steps quickly and automatically
- It automates different tasks repeatedly

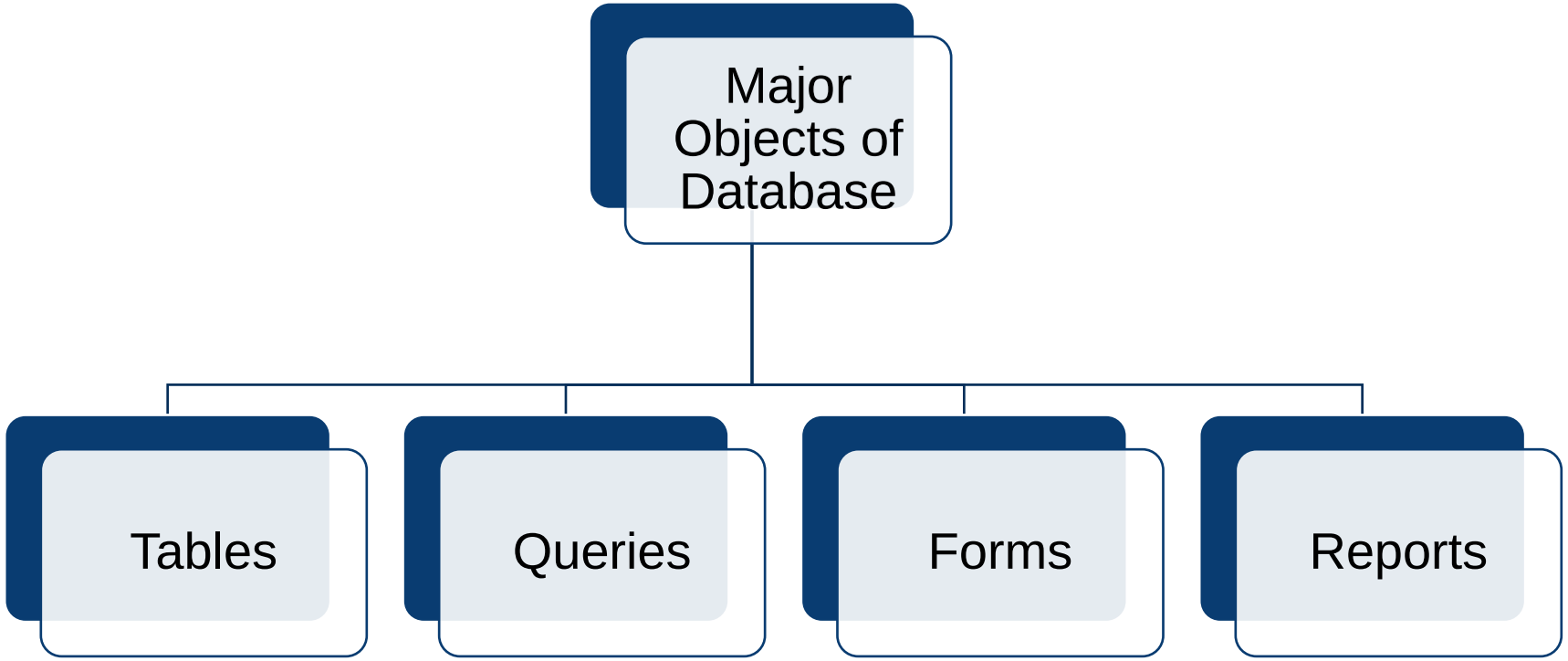
Database Windows (Cont.)

7. Modules

- It is used to create modules
- A module contains an object that stores the code of **VBA**
- **VBA** stands for Visual Basic for Applications

Database Object

- A component of a database system



Database Object (Cont.)

1. Tables

- Collection of related data organized in rows and column
- Rows are also called records
- Columns are also called fields
- Central concept of relational database
- All data is stored in tables in a relational database
- A relational database normally consists of many tables
  - Each table is identified by separate name
- Table is also called relation

Example

RegNo	Name	Class
10	Nadeem Khalil	MSc
20	Muhammad Usman	BSc
30	Noman Qadir	FSc

Database Object (Cont.)

2. Queries

- A statement that extracts specific information from database
- Queries are used to retrieve data from database
- Data is retrieved according to criteria given by user
- More flexible way of selecting, filtering and sorting records
- Query is written in database language
- Most commonly database language is SQL
- **SQL** stands for Structured Query Language
- Queries are used to perform calculations on different fields
- Output of a query can be used as source of records for forms and reports

Database Object (Cont.)

Example of Queries

Suppose a table **Students** contains the following rows

Roll No	Name	Marks	Grade
1	Usman	730	A
2	Nadeem	662	B
3	Abdullah	685	B
4	Adnan	531	C

After applying the query, result shows data of students who got more than 600 marks

Roll No	Name	Marks	Grade
1	Usman	730	A
2	Nadeem	662	B
3	Abdullah	685	B

Database Object (Cont.)

3. Form

- A graphical interface used to interact with the database
- Forms are used to enter data in database
- A form consists of textboxes, labels, buttons etc.
- User can also retrieve, change, delete and update data using forms
- Programmers create user interface by designing forms

Database Object (Cont.)

Advantages of Form

- Forms are easy to use
- Forms use graphical interface that is attractive
- User can interact with database without technical knowledge

Disadvantages of Form

- Data in the form cannot be formatted
- Forms are only used on computer screen

Database Object (Cont.)

4. Report

- Reports are the outputs of database application
- Reports are used to retrieve and present data in formatted way
- A report may contains graphs, charts and tables
- Reports are important in making key decisions
- User can print reports to send different people
- Output of a query can be used as source of reports

Database Object (Cont.)

Advantages of Report

- Reports provide quick result from database
- Reports help in making important decision
- Reports can display processed data using graphs and charts
- Reports can be printed or emailed easily

Disadvantages of Report

- Data in the report cannot be modified
- User cannot add new data using report
- Data in the report cannot be deleted

Thank you!