Course: US02EBCA02
(Working with RDBMS for Small Scale Organizations)
Effective from June - 2010

Credits: 2 **Question Bank** **Lectures per week: 2 Hours**

Unit : 1

Marks: 2 (Short Questions)

Q – 1: What is RDBMS?

Ans:- The Full form of RDBMS is " Relational database management system".

A database is an organized collection of related information used for a specific purpose. When you use a computerized database management system such as Access, the database is called relational database. The principle behind a relational database is this: The information is divided into separate stacks of logically related data, each of which is stored in a separate table in the file. Tables are the fundamental objects at the heart of a relational database. They form the active basis for the information storage and retrieval system.

Q – 2: What is Relational Database?

Ans:- As Above.

Q – 3: Explain steps to starting access and opening a database.

Ans:- By clicking the Start button and pointing to Programs in the Start menu. Depending on how you installed Access 2003, the name might appear as a separate item in the Programs (or All Programs, if you're using Windows XP) list or as one of the programs in the Microsoft Office menu. If you don't see Microsoft Access in the Programs list, choose Microsoft Office, and then click Microsoft Access 2003.

The Getting Started task pane shown in Figure 1-1 appears automatically when Access first starts or when you choose File | New. Several other task panes are available to help.with other activities. For now, click the Close button (the x in the upper-right corner) to close the task pane and leave the Access window empty for a tour of the window.
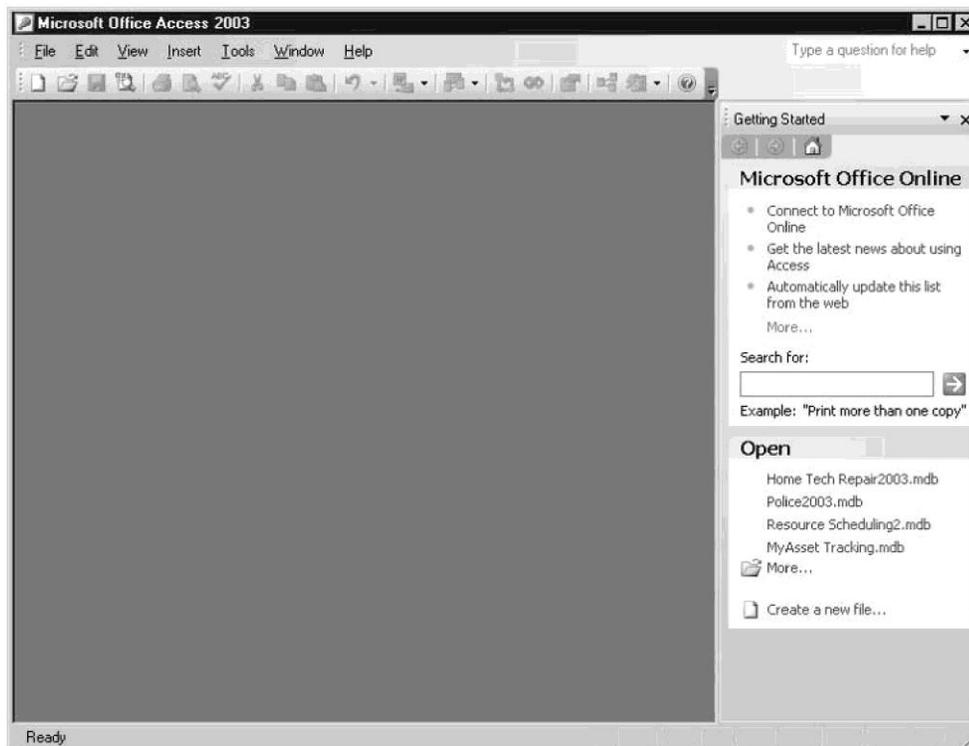
To open A database:-

If the database you want to open is listed in the Getting Started task pane that appears when Access starts, you can open it by simply clicking the filename. If the one you want isn't on the list, click More. The Open dialog box appears, as shown in Figure 1-2. (Your list of folders and files will be different.) The same dialog box appears if Access is already running when you choose File | Open or click the Open toolbar button.
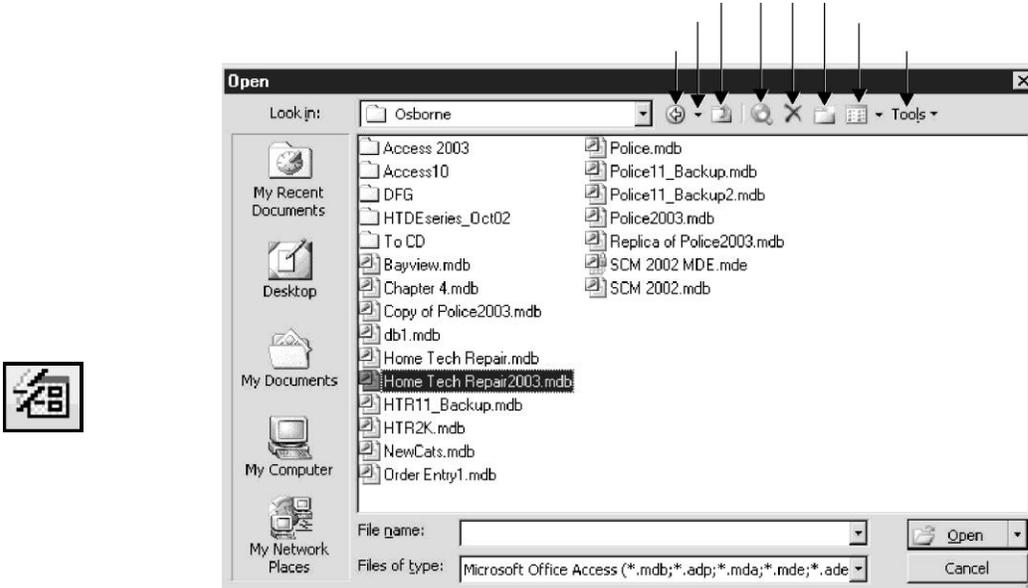
Q – 4:   How many methods are available to create table in access.
        Creating a new table is no different. The quickest way to start the Table Wizard is to double-click the Create Table by Using Wizard item in the Tables page of the Database window.
    You can also begin a new table structure with the Table Wizard by choosing from the New Table dialog box.
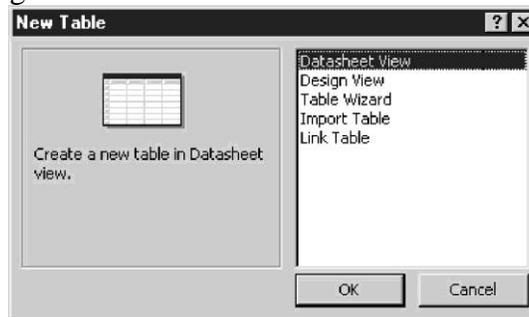
        To start the Table Wizard, do the following:

    1. Open the New Table dialog box with one of the following actions:
        • Click the New button in the Tables page of the Database window.
        • Click the arrow on the New Object button on the Database toolbar and choose Table from the list.
        • Choose Insert | Table.

    2. Double-click Table Wizard in the New Table dialog box or select the option and click OK.

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3. The first Table Wizard dialog box (see Figure 4-1) contains two lists of sample tables: one with the names of 25 common business tables and the other with 20 tables for storing data with more personal applications. Each sample table in the list contains a list of appropriate sample fields. You use this dialog box to build the basis for your new table by selecting the fields you want in the table.

4. Choose the category of table and the fields you want by clicking the Business or Personal radio button, and then scroll down the list of sample tables until you see the one that most closely matches your requirements. When you select a table in the list, the sample fields available for that table appear in the middle box.

(Long Questions)

Marks

Q – 1:   Explain use of RDBMS for small scale organization.   [3-4]

Small Scale organization is characterized by some or all of following attributes:

1.   Small IT related department has few people.
2.   Absence of professional developers/ programmers.
3.   Presence of only few computers or small networked Computers
4.   Low volume of data handling

To fulfill the computer needs of small organizations we may go for RDBMS package which must be user friendly so that any person having familiarity with computer may comfortably operate the package.

The applications of package may be easily deployed without the need of specialized computer professionals like programmer, System Analyst.

The package should efficiently handle small volume of data where security aspect related with use of RDBMS is not severe.

One of the RDBMS package is Microsoft Access 2003.

Microsoft Access is used to create simple as well as complex database solution.

Access is popular among non -programmers and professional developer alike.

 -programmers   can create visually pleasing relatively advanced solution with very little or no code.

Microsoft offers a wide range of template databases within the program and allow for download from their website. Access supports solution with data up to 2 GB and performs quite well with 20 or fewer simultaneous connections.

In enterprise environment Microsoft Access is particular appropriate for meeting end user database needs and rapid application development. Users can create tables, queries, forms & reports and connect them together with macros. Advance users can use VBA to write such solutions with advance data manipulation and user control.

Original concept of Access is to "access" data from any source. Other users include the import and export of data to many formats including excel, outlook, ASCII, dBase, Oracle, Sql Server, ODBC etc.

It also has the ability to link to data in its existing location and use it for viewing, querying, editing & reporting. This allows the existing data to change and the access platform to always use the latest data.

It can perform heterogeneous joins between data set stored across different platforms.

Access is often used by people downloading data from enterprise level database for manipulation, analysis, reporting locally.

One of the benefits of the access is its relative compatibility with SQL - queries can be viewed graphically are edited as SQL statements. & Sql statements can be used directly in Macros & VBA module to manipulate access table.

Microsoft Access offers parameterized queries. These queries & Access tables can be referenced from other programs like VB6 & .Net through DAO or ADO.

Advance users can mix & use both VBA Macros for programming forms & logic and offers object oriented possibilities. VBA can also be included in queries.

Latest Inclusions

Microsoft offers a runtime version of Microsoft Access 2007 for download. This allows people to create Access solutions and distribute it for use by non Microsoft Access owners.

Runtime versions allow users to use Access Applications but they cannot use its design surfaces.

There is also the Jet Database Format (MDB OR ACCDB in Access 2007, which can contain application & data in one file.

Microsoft is file server based database. Microsoft Access does not implement database triggers, stored procedures or transaction logging. Access 2010 includes table level triggers & stored procedures built into ACE data engine.

Q – 2:   Explain one of the RDBMS package in detail.   [3-4]
          Ans is same as above but write down for Microsoft Office Access and advantages & Disadvantages.

Q – 3:   Explain Relational Database in detail.   [3]
     Ans:-   A database is an organized collection of related information used for a specific purpose. When you use a computerized database management system such as Access, the database is called relational database. The principle behind a relational database is this: The information is divided into separate stacks of logically related data, each of which is stored in a separate table in the file. Tables are the fundamental objects at the heart of a relational database. They form the active basis for the information storage and retrieval system.

   Purpose of Relationships
   Many advantages exist to distributing data among individual tables, rather than storing it all in one large two-dimensional table, called aflat file, such as you might find in a Word
   document or an Excel spreadsheet. Topping the list of advantages of using a relational database structure is the reduction of data redundancy, which not only reduces the required disk storage space, but also speeds processing. Other important advantages gained by implementing
   a relational database are the following:

   - Flexibility If your data changes, you need to update the value in only one place. All the queries, forms, and reports look in that place for the current values.

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- Simplicity The flat-file model used as the basis for a relational system dictates a simple, nonredundant method of data storage. Each table in the relational design is a single object containing data pertinent to a particular aspect of the database, such as an employee, a product, or an order.
- Power Storing the data in separate related tables allows grouping, searching, and retrieving the information in almost unlimited ways.
- Ease of management With smaller, less-complicated tables, the information is much easier to locate and manage.

Types of Relationships

Tables can be related in three different ways: one-to-many, one-to-one, and many-to-many.

The most commonly used type of relationship is the **one-to-many relationship**, in which one record in one table can have one or many matching records in another table or maybe none at all. The table on "one" side is often called the parent table and the other is called the child table.

The **one-to-one relationship** is sometimes used as a form of lookup, in which each record in one of the tables has a matching record in the other table. Neither table is designated as the parent. The key fields in both tables are the primary keys. One use for this type of relationship is to store additional, seldom-accessed information about an item in the first table, such as an abstract of a book or the details of a work order.

The **many-to-many relationship** isn't permitted as such in a relational database. Many records in one table have the same values in the key field as many records in the second table. To implement this in Access, you must create a third table, called a junction table, to place between the first two, converting the many-to-many to two one-to-many relationships.

Q – 4: Explain Advantages of relational database.   [4]

Write down advantages at your own. Here Referential integrity is the one of the advantages.

Referential integrity is an optional system of rules that guarantees the relationships are valid and the database will remain intact as data is entered, edited, or deleted.

The basic rule of referential integrity is this: For every record in a child table (the "many" side), one and only one matching record must be in the parent table (the "one" side). For example, in the relationship between the Customers table (parent) and the Workorders table (child), every current work order must have a reference to a customer. You cannot have a work order without a customer. The referential integrity rules also prevent you from deleting a customer record if work orders are still in progress.

To summarize the referential integrity rules that Access can enforce

- You cannot enter a child record for which no parent exists (start a work order without a customer).

- You cannot delete a parent record if related child records still exist (remove a customer before the job is completed).

- You cannot change a child record so its foreign key doesn't have a match in the parent
table (change the customer field in a work order record to a nonexistent customer).

- You cannot change the primary key value in a parent table as long as related records
are in the child table (change a customer link before the work order is finished

Q – 5:   Explain Objects of access.   [4]

Ans:-   When you create a database, Access offers you Tables, Queries, Forms, Reports, Macros, and Modules.

Tables. All data is stored in tables. When you create a new table, Access asks you define fields (column headings), giving each a unique name, and telling Access the data type. Use the "Text" type for most data, including numbers that don't need to be added e.g. phone numbers or postal codes. Using Wizards, Access will walk you through the process of creating common tables such as lists of names and addresses. Once you have defined a table's structure, you can enter data. Each new row that you add to the table is called a record. To define relationships between tables:

- in Access 2007 or later: Database Tools | Relationships,
- in Access 95 — 2003: Tools | Relationships,
- in Access 1 — 2: Edit | Relationships.

Queries. Use a query to find or operate on the data in your tables. With a query, you can display the records that match certain criteria (e.g. all the members called "Barry"), sort the data as you please (e.g. by Surname), and even combine data from different tables. You can edit the data displayed in a query (in most cases), and the data in the underlying table will change. Special queries can also be defined to make wholesale changes to your data, e.g. delete all members whose subscriptions are 2 years overdue, or set a "State" field to "WA" wherever postcode begins with 6.

Forms. These are screens for displaying data from and inputting data into your tables. The basic form has an appearance similar to an index card: it shows only one record at a time, with a different field on each line. If you want to control how the records are sorted, define a query first, and then create a form based on the query. If you have defined a one-to-many relationship between two tables, use the "Subform" Wizard to create a form which contains another form. The subform will then display only the records matching the one on the main form.

Reports. If forms are for input, then reports are for output. Anything you plan to print deserves a report, whether it is a list of names and addresses, a financial summary for a period, or a set of mailing labels. Again the Access Wizards walk you through the process of defining reports.

Pages (Access 2000 - 2003). Use pages to enter or display data via Internet. Pages are stored as HTML files, with data read from and written to the database. Michael Kaplan has published a free utility to convert Access forms and reports into Data Access Pages. (Pages were deprecated in Access 2007.)

Macros. An Access Macro is a script for doing some job. For example, to create a button which opens a report, you could use a macro which fires off the "OpenReport" action. Macros can also be used to set one field based on the value of another (the "SetValue" action), to validate that certain conditions are met before a record saved (the "CancelEvent" action) etc.

Modules. This is where you write your own functions and programs if you want to. Everything that can be done in a macro can also be done in a module, but you don't get the Macro interface that prompts you what is needed for each action. Modules are far more powerful, and are essential if you plan to write code for a multi-user environment, since macros cannot include error handling. Most serious Access users start out with macros to get a feel for things, but end up using modules almost exclusively. On the other hand, if your needs are simple, you may never need to delve into the depths of Access modules.

Q – 6: Explain datatypes in access.   [4]

Ans:-

Data Type	Use For	Size
Text	Text or combinations of text and numbers, such as addresses. Also numbers that do not require calculations, such as phone numbers, part numbers, or postal codes.	Up to 255 characters. Microsoft Access only stores the characters entered in a field; it does not store space characters for unused positions in a Text field. To control the maximum number of characters that can be entered, set the FieldSize property.
Memo	Lengthy text and numbers, such as notes or descriptions.	Up to 64,000 characters.
Number	Numeric data to be used for mathematical calculations, except calculations involving money (use Currency type). Set the FieldSize property to define the specific Number type.	1, 2, 4, or 8 bytes. 16 bytes for Replication ID (GUID) only. Click here for more information on changing Number field sizes.
Date/Time	Dates and times.	8 bytes.
Currency	Currency values. Use the Currency data type to prevent rounding off during calculations. Accurate to 15 digits to the left of the decimal point and 4 digits to the right.	8 bytes.
AutoNumber	Unique sequential (incrementing by 1) or random numbers automatically inserted when a record is added.	4 bytes. 16 bytes for Replication ID (GUID) only.

Yes/No	Fields that will contain only one of two values, such as Yes/No, True/False, On/Off.	1 bit.
OLE Object	Objects (such as Microsoft Word documents, Microsoft Excel spreadsheets, pictures, sounds, or other binary data), created in other programs using the OLE protocol, that can be linked to or embedded in a Microsoft Access table. You must use a bound object frame in a form or report to display the OLE object.	Up to 1 gigabyte (limited by disk space).
Hyperlink	Field that will store hyperlinks. A hyperlink can be a UNC path or a URL.	Up to 64,000 characters.
Lookup Wizard	Creates a field that allows you to choose a value from another table or from a list of values using a combo box. Choosing this option in the data type list starts a wizard to define this for you.	The same size as the primary key field that is also the Lookup field; typically 4 bytes.

Q – 7:   Explain steps to create a table by using the table wizard.   [3]
Ans:-

Creating a Table Using the Table Wizard

Figure 2-7. The Table Wizard

If you're new to Access, the easiest way to add a table to an existing database is with the Table Wizard. The Table Wizard asks you a series of questions about which fields you want to appear in your table, and then it does all the dirty work of creating a new table for you. The Table Wizard can create a variety of different tables to store mailing lists, inventory, catalogs, and more.

1. Make sure that you have a blank database open.
   If you don't have a blank database open, you can create one by clicking the New button on the toolbar, double-clicking Blank Database, entering a name for your database, and clicking Create.
2. Click the Tables icon in the Objects bar if it is not already selected.
   Access lists all the tables in the current database.
3. Double-click Create table by using wizard.
   The Table Wizard dialog box appears, as shown in Figure 2-7. This is definitely one of the more confusing dialog boxes in Access. The list in the far left of the dialog box contains the sample tables from which you can choose. See Table 2-2 for useful sample tables and their descriptions.
   Start the Table Wizard by selecting the sample table you want to use.
4. Click Contacts from the Sample Tables list.
   The Table Wizard displays the ready-made fields that you can incorporate into your table in the Sample Fields list. To add a field to your table, double-click the field or select the field and click the [>] button. Click the [>>] button to add all the sample fields to your table.
5. Double-click ContactID in the Sample Fields list.
   The ContactID field appears in the "Fields in my new table" list. If you accidentally add a field to the "Fields in my new table" list, you can remove it by double-clicking it or by selecting it and clicking the [<] button.
6. Add the following fields to your table by double-clicking them: FirstName, LastName, Address, City, StateOrProvince, and PostalCode.
   You can easily change the field names in your new table if you don't like the default names given to them by the Table Wizard. Here's how to rename a field:
7. Select StateOrProvince from the "Fields in my new table" list and click Rename Field.
   The appears. From here, a field is pretty much self-explanatory.
8. Replace the StateOrProvince text with State and click OK.
   Once you have finished adding the fields to your table, you can move on to the next step in the Table Wizard.
9. Click Next.
   The Table Wizard asks you to give your table a name and asks if you want to have Access set a primary key for you. You will learn more about primary keys later on, so for now let's accept the Table Wizard's default settings and create the table.
10. Click Finish to create the new table.
    The builds the table using the fields you selected, then opens the new tableready for your data input.
11. Close the Contacts table.

Q – 8:   Explain steps to create a table in design view.   [5-6]

Ans:-   "Design View" enables you to create your database tables and specify the columns and their data types etc. The following steps demonstrate how to switch to Design View and create a table.

1. Ensuring you have your blank database open and you're on the following screen (with the "Tables" tab selected), click "New":
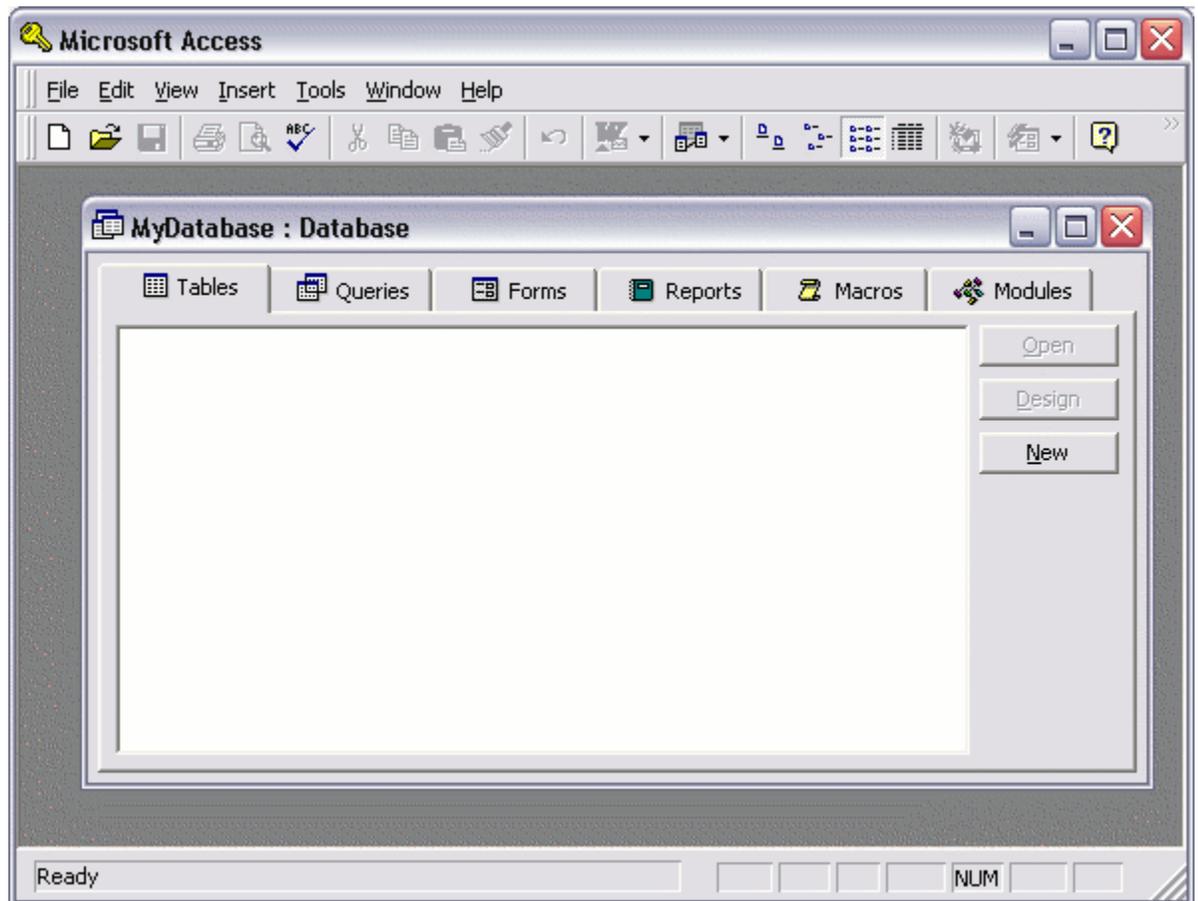

2. Select "Design View" and click "OK":

3. Fill out the details in the "Field Name" column and the "Data Type" column. Here, we are creating the column names and specifying the type of data that can be entered into them. Restricting the data type for each column is very important and helps maintain data integrity. For example, it can prevent us from accidentally entering an email address into a field for storing the current date. Other options for each column include restricting the length of data (under "Field Size"), setting a default value (this is used if someone leaves the field blank), specifying whether the data is required, and more. Leave these options with their default value for now.
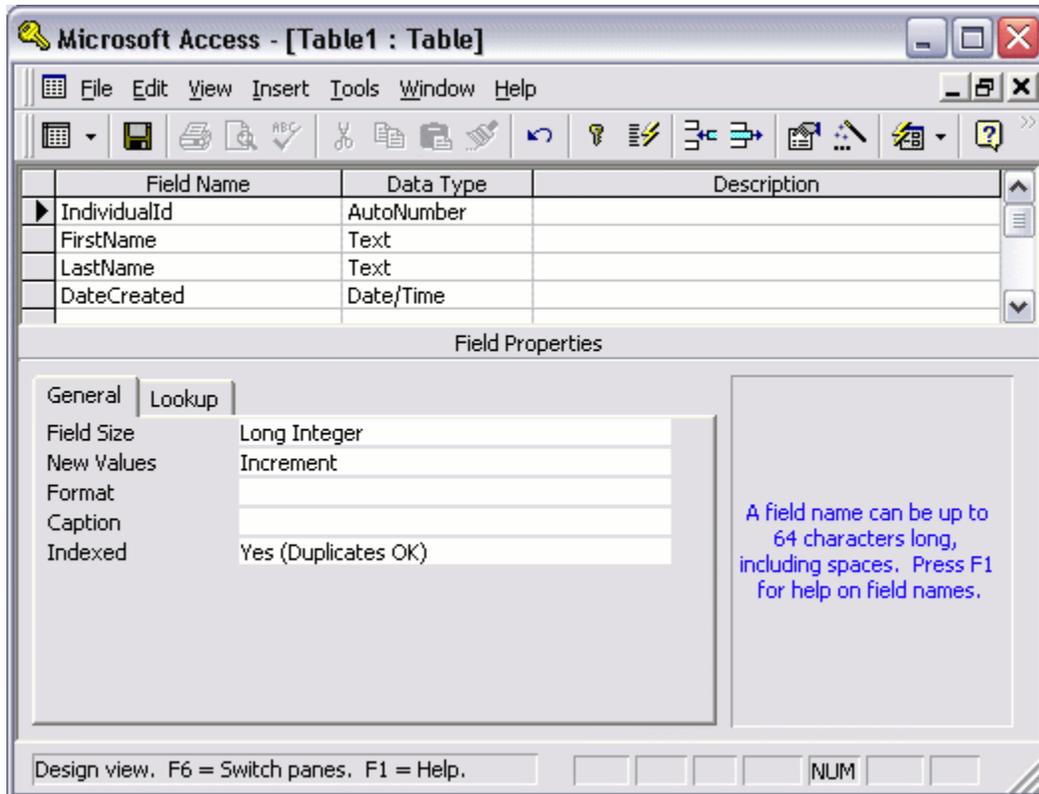
4. Click the "Save" icon, enter the table name ("Individual"), and click "OK":
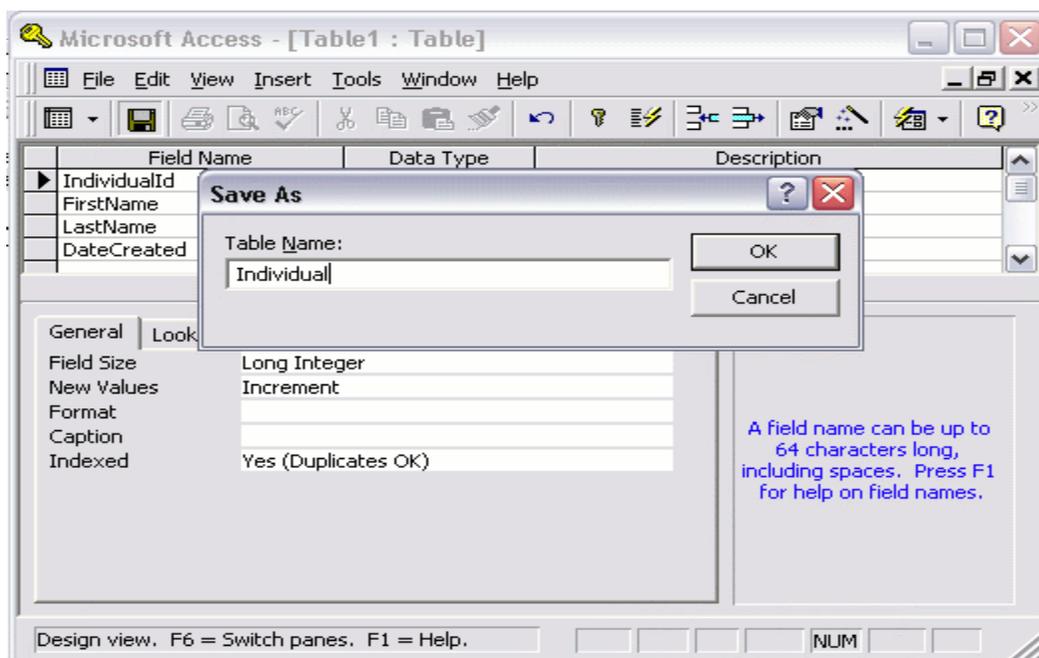
5. When prompted to set a primary key, click "Yes". (A primary key ensures that the data in this column is unique - no two values can be the same. This is important for when you need to select or reference data from this column):
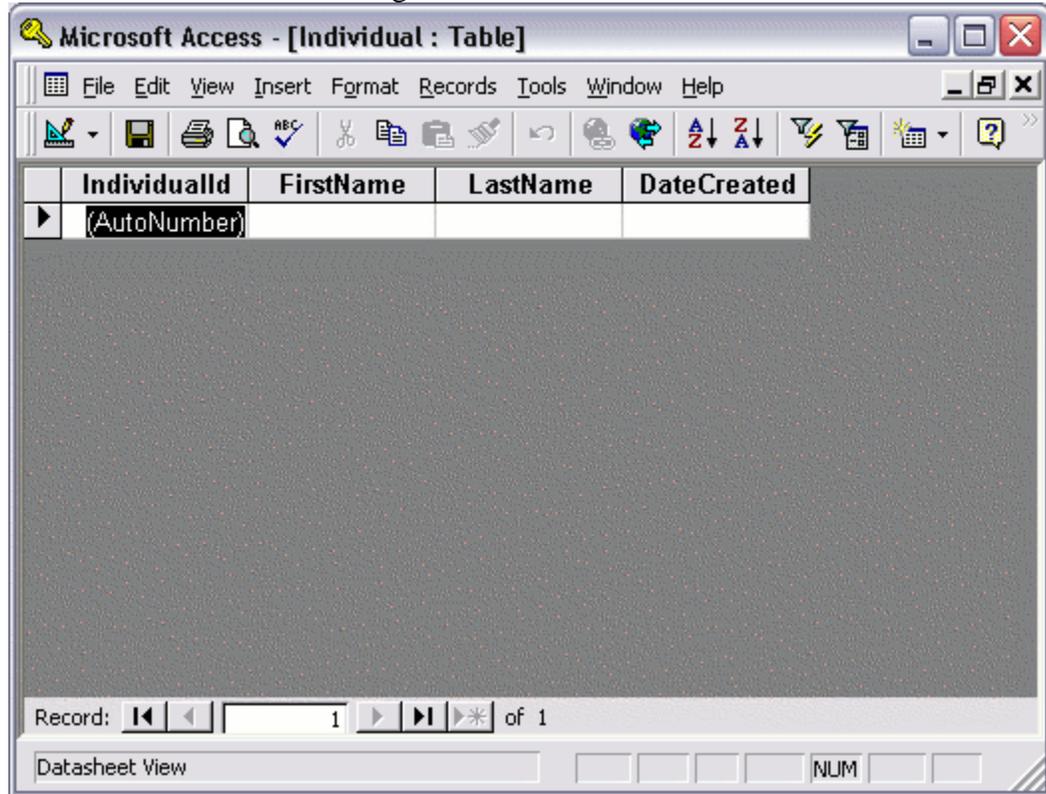

Datasheet View

You have now created a database table called "Individual". You can now switch between "Design View" and "Datasheet View" as you wish. Datasheet View allows you to see any data that has been entered into the table.

1. From the "View" dropdown icon, click "Datasheet View" (this changes the view from Design View, to Datasheet View):
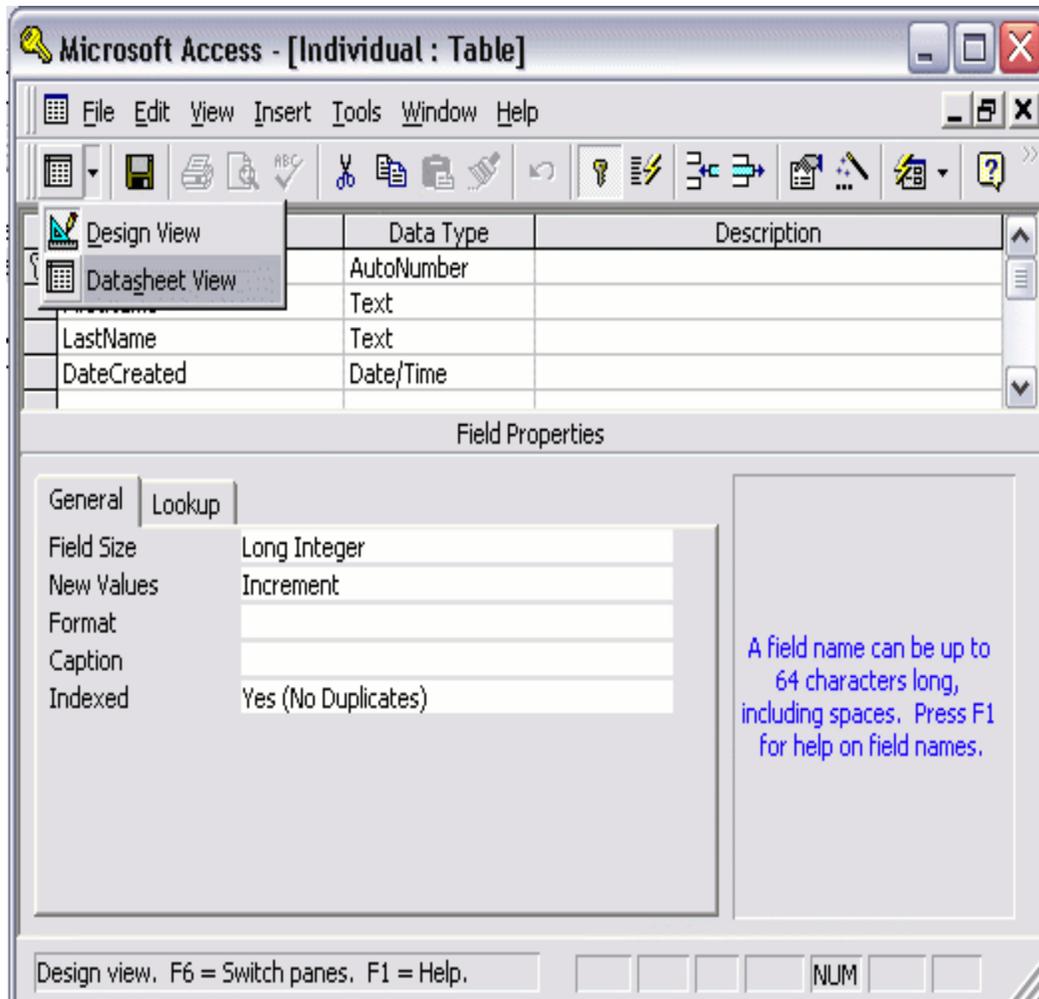
2. You should now see something like this:

We have just created a database table. This table doesn't have any data yet, but we have created the columns that are required before any data is entered.

Q – 9:   Explain steps to create a table by entering data by entering data in a   [4-5]
         datasheet.
Ans:-   as per the class lecture.

Unit : 2

Marks: 2 (Short Questions)

Q – 1:   Explain How to entering data in table.

1. Double-click the Access file on your hard drive. This opens the Access database automatically and loads the software.

2.Click the "Tables" menu item on the left side of the window pane. This opens a list of tables available in the Microsoft Access database.

3.Right-click the table in which you want to enter information. Select "Datasheet View" from the list of options. This opens the table's current data. The bottom row in the list of data is where you enter new information.

4.Enter the data in each field at the bottom row. The field's column is located at the top, so make sure you enter the right data into the right column.

5. Click "Enter" when you are finished. The cursor moves to the next record in the datasheet and automatically saves the data you've entered. You can test it by closing the datasheet and reopening it. You'll notice the new record at the bottom of the datasheet.

Q – 2:   Explain editing and deleting records from tables.

Ans:-   **Add a record**

1.   To add a record, do one of the following:
   - If you are working with a form, open the corresponding form in Form view.
   - If you are working with a data access page, open the corresponding page in Page view. If Access is not installed on your computer, open the page in your Web browser.
   - If you are working with a table, open the corresponding table in Datasheet view.
2.   In Datasheet or Form view, click the New button on the navigation toolbar. To add a record to a subform, click New on the subform's navigation toolbar. If you don't see the navigation toolbar inside the subform, or if the button is disabled, you will not be able to add records to the subform. In a data access page, click New on the record navigation toolbar.

   Note   If the New button appears disabled on a page, it means that you do not have permissions to add new records. Contact the owner of the database. If you don't see the New button on a data access page, it either means that the page is read-only, or that the designer of the page has customized the appearance of the button. Look for custom instructions about using the page, or contact the page's designer.

3.   Enter your data, and then press TAB to go to the next field.

   Tips

   - To start a new line in a field that supports multiple lines of text, press CTRL+ENTER.
   - To prevent Access from automatically completing the value as you type in a combo box, set the control's AutoExpand property to No.

     When you try to move out of a field after entering data, Access validates the data, making sure that the value you entered is allowed in that field. If the value isn't allowed, Access alerts you with a validation message.

     For more information, see Troubleshoot editing data in a field.

     To move out of a field after you see a validation message, you must either change the data to an acceptable value or undo your changes by pressing the ESC key. This is known as field-level validation.

4.   When you have finished entering data in each of the fields in the record, click New to add another record, or move to a different record.

   Note   You cannot insert a new record between two existing records. However, you can rearrange the order of records by sorting them.

When you move to a different record, Access first tests whether the entire record can be saved (record-level validation), and then saves your changes. If the record can't be saved, you must either make any necessary corrections or undo your changes.

Edit a record

You can change the data in one or more fields in a record. For example, if you want to correct the spelling of a customer name, you can open the Customers form in Form view, move to the record that corresponds to the customer, and edit the Name field in the form. When you move to a different record, Access will automatically update the field in the underlying table.

1.   Open the form (in Form view), page (in your Web browser or in Page view), or table (in Datasheet view) that has the record that you want to edit.
2.   Move to the record by using the buttons on the navigation toolbar.
3.   Use the mouse or the TAB or arrow keys to move to the field that you want to edit.

To replace the entire contents of a field in a datasheet, click near the left edge of the field when the pointer turns to a plus, as shown in the following example. In a form, click the field's label.

To add to the existing contents of a field, place the insertion point where you want to enter the new characters. You can move the insertion point by using the arrow keys. In the following example, the insertion point is at the end of the current contents of the field, so anything that you type will be appended to the string "Alfreds FutterKiste".

Insertion Point

4.   Enter your text in the field. If text in the field was selected before you started typing, the characters that you type will replace that text.

   Note   If you make a typing mistake, press the BACKSPACE key. If you want to cancel all editing changes to a field, press the ESC key.

When you try to move out of a field after entering data, Access validates the data, making sure that the value you entered is allowed in that field. If the value isn't allowed, Access alerts you with a validation message. For more information, see Troubleshoot editing data in a field.

To move out of the field, you must either change the data to an acceptable value or undo your changes by pressing the ESC key.

When you move to another record, Access performs record-level validation, and then saves your changes. If the record can't be saved, you must either make any necessary corrections or undo your changes.

Delete the contents of a field or an entire record

You can delete the text in a field to either leave the field blank (if the field supports Null values), or to replace the text with another value. You can also permanently delete one or more records in a table:

- To delete text in a field, select the text and then press DEL.

  For information on how to select a field, see Select fields and records.

- To delete one or more records in a datasheet or a form, select the records and then press DEL.
- To delete a record on a data access page, click the Delete button on the record navigation toolbar.

Q – 3:   Explain Sorting records in detail.

Ans:-   Sorting on a Single Field
To sort by a single field in a datasheet or form, click within the field you want to sort by, and then do one of the following:

Click Sort Ascending.

Click Sort Descending.

- Choose Records | Sort | Sort Ascending.
- Choose Records | Sort | Sort Descending.
- Right-click in the field and choose Sort Ascending from the shortcut menu.

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- Right-click in the field and choose Sort Descending from the shortcut menu.

To restore the records to their original order, choose Records | Remove Filter/Sort or right-click in the datasheet or form, and then choose Remove Filter/Sort from the shortcut menu.

Q – 4:   How many ways for sorting on a single field.
Ans:-   Same ans as above.
Q – 5:   What is relationship?
Ans:-   A database is an organized collection of related information used for a specific purpose. When you use a computerized database management system such as Access, the database is called relational database. The principle behind a relational database is this: The information is divided into separate stacks of logically related data, each of which is stored in a separate table in the file. Tables are the fundamental objects at the heart of a relational database. They form the active basis for the information storage and retrieval system.

Q – 6:   Define One-to-Many relationship
The most commonly used type of relationship is the **one-to-many relationship**, in which one record in one table can have one or many matching records in another table or maybe none at all. The table on "one" side is often called the parent table and the other is called the child table.
Q – 7:   Define Many-to-Many relationship
The **many-to-many relationship** isn't permitted as such in a relational database. Many records in one table have the same values in the key field as many records in the second table. To implement this in Access, you must create a third table, called a junction table, to place between the first two, converting the many-to-many to two one-to-many relationships.

Q – 8:   Define One-to-One relationship
The **one-to-one relationship** is sometimes used as a form of lookup, in which each record in one of the tables has a matching record in the other table. Neither table is designated as the parent. The key fields in both tables are the primary keys. One use for this type of relationship is to store additional, seldom-accessed information about an item in the first table, such as an abstract of a book or the details of a work order.

(Long Questions)

Marks
Q – 1:   What is Primary Key? Explain in detail.   [4]
Ans:-
Definition: The primary key of a relational table uniquely identifies each record in the table. It can either be a normal attribute that is guaranteed to be unique (such as Social Security Number in a table with no more than one record per person) or it can be generated by the DBMS (such as a globally unique identifier, or GUID, in Microsoft SQL Server). Primary keys may consist of a single attribute or multiple attributes in combination. **OR**

Primary Key:

A **primary key** is a field or combination of fields that uniquely identify a record in a table, so that an individual record can be located without confusion.

Foreign Key:

A **foreign key** (sometimes called a referencing key) is a key used to link two tables together. Typically you take the primary key field from one table and insert it into the other table where it becomes a foreign key (it remains a primary key in the original table).

Q – 2:   Explain steps to define relationship between tables.   [4-5]
Ans:-

How to Define Relationships between Tables

When you create a relationship between tables, the related fields do not have to have the same names. However, related fields must have the same data type unless the primary key field is an AutoNumber field. You can match an AutoNumber field with a Number field only if the FieldSize property of both of the matching fields is the same. For example, you can match an AutoNumber field and a Number field if the FieldSize property of both fields is Long Integer. Even when both matching fields are Number fields, they must have the same FieldSize property setting.

How to Define a One-To-Many or One-To-One Relationships

To create a one-to-many or a one-to-one relationship, follow these steps:

1. Close any tables that you have open. You cannot create or modify relationships between open tables.
2. In Access 2002 or in Access 2003, follow these steps:
    a. Press F11 to switch to the Database window.
    b. On the **Tools** menu, click **Relationships**.
    In Access 2007, click **Relationships** in the **Show/Hide** group on the **Database Tools** tab.
3. If you have not yet defined any relationships in your database, the Show Table dialog box is automatically displayed. If you want to add the tables that you want to relate, but the Show Table dialog box is not displayed, click Show Table on the Relationships menu.
4. Double-click the names of the tables that you want to relate, and then close the Show Table dialog box. To create a relationship between a table and itself, add that table twice.
5. Drag the field that you want to relate from one table to the related field in the other table. To drag multiple fields, press CTRL, click each field, and then drag them.

    In most cases, you drag the primary key field (which is displayed in bold text) from one table to a similar field (often with the same name) called the foreign key in the other table.
6. The Edit Relationships dialog box is displayed. Ensure that the field names displayed in the two columns are correct. You can change them if necessary.

    Set the relationship options if necessary. If you need information about a specific item in the Edit Relationships dialog box, click the question mark button, and then click the item. These options will be explained in detail later in this article.
7. Click Create to create the relationship.
8. Repeat steps 5 through 8 for each pair of tables that you want to relate.

When you close the Edit Relationships dialog box, Microsoft Access asks if you want to save the layout. Whether you save the layout or not, the relationships that you create are saved in the database.

NOTE: You can create relationships in queries as well as tables. However, referential integrity is not enforced with queries.

How to Define Many-To-Many Relationships

To create a many-to-many relationship, follow these steps:

1. Create the two tables that will have a many-to-many relationship.
2. Create a third table, called a junction table, and then add to the junction table new fields with the same definitions as the primary key fields from each of the other two tables. In the junction table, the primary key fields function as foreign keys. You can add other fields to the junction table, just as you can to any other table.
3. In the junction table, set the primary key to include the primary key fields from the other two tables. For example, in an TitleAuthors junction table, the primary key would be made up of the OrderID and ProductID fields.

   NOTE: To create a primary key, follow these steps:
   a. Open a table in Design view.
   b. Select the field or fields that you want to define as the primary key. To select one field, click the row selector for the desired field.

      To select multiple fields, hold down the CTRL key, and then click the row selector for each field.
   c. In Access 2002 or in Access 2003, click **Primary Key** on the toolbar.
      In Access 2007, click **Primary Key** in the **Tools** group on the **Design** tab.

      Note If you want the order of the fields in a multiple-field primary key to be different from the order of those fields in the table, click Indexes on the toolbar to display the Indexes dialog box, and then reorder the field names for the index named PrimaryKey.
4. Define a one-to-many relationship between each of the two primary tables and the junction table.

Q – 3:   Explain in detail types of relationships.   [5-6]
          Already given as above.
Q – 4:   Explain in detail Referential integrity.   [4]

Referential integrity is an optional system of rules that guarantees the relationships are valid and the database will remain intact as data is entered, edited, or deleted.
The basic rule of referential integrity is this: For every record in a child table (the "many" side), one and only one matching record must be in the parent table (the "one" side).
Definition: Referential integrity is a database concept that ensures that relationships between tables remain consistent. When one table has a foreign key to another table, the concept of referential integrity states that you may not add a record to the table that contains the foreign key unless there is a corresponding record in the linked table. It also includes the techniques known as cascading update and cascading delete, which ensure that changes made to the linked table are reflected in the primary table.

OR

Referential Integrity

Referential integrity is a system of rules that Microsoft Access uses to ensure that relationships between records in related tables are valid, and that you do not accidentally

delete or change related data. You can set referential integrity when all of the following conditions are met:

- The matching field from the primary table is a primary key or has a unique index.
- The related fields have the same data type. There are two exceptions. An AutoNumber field can be related to a Number field with a FieldSize property setting of Long Integer, and an AutoNumber field with a FieldSize property setting of Replication ID can be related to a Number field with a FieldSize property setting of Replication ID.
- Both tables belong to the same Microsoft Access database. If the tables are linked tables, they must be tables in Microsoft Access format, and you must open the database in which they are stored to set referential integrity. Referential integrity cannot be enforced for linked tables from databases in other formats.

The following rules apply when you use referential integrity:

- You cannot enter a value in the foreign key field of the related table that does not exist in the primary key of the primary table. However, you can enter a Null value in the foreign key, specifying that the records are unrelated. For example, you cannot have an order that is assigned to a customer that does not exist, but you can have an order that is assigned to no one by entering a Null value in the CustomerID field.
- You cannot delete a record from a primary table if matching records exist in a related table. For example, you cannot delete an employee record from the Employees table if there are orders assigned to the employee in the Orders table.
- You cannot change a primary key value in the primary table, if that record has related records. For example, you cannot change an employee's ID in the Employees table if there are orders assigned to that employee in the Orders table.