CL1000-INTRODUCTION TO INFORMATION
AND COMMUNICATION TECHNOLOGIES

Lab Task # 7 MS ACCESS Manual

MICROSOFT ACCESS is a Database Management System offered by Microsoft. It uses the Microsoft Jet Database Engine and comes as a part of the Microsoft Office suite of application.

Microsoft Access offers the functionality of a database and the programming capabilities to create easy to navigate screens (forms). It helps you analyze large amounts of information, and manage data efficiently.

Important Terms and Basic ObjectsDatabase File:

It is a file that stores the entire database. The database file is saved to your hard drive or otherstorage devices.

Datatypes:

Datatypes are the properties of each field. Every field has one datatype like text, number, date,etc.

Table

- A Table is an object which stores data in Row & Column format to store data.
- A Table is usually related to other tables in the database file.
- Each column must have Unique name
- We can also define Primary Key in a table.

Query

- Queries answer a question by selecting and sorting and filtering data based on searchcriteria.
- Queries show a selection of data based on criteria (limitations) you provide.
- Queries can pull from one or more related Tables and other Queries.
- Types of Query can be SELECT, INSERT, UPDATE,

DELETE. Form

- A form is a database object that you can use to create a user interface for a databaseapplication.
- Forms help you to display live data from the table. It mainly used to ease the process ofdata entry or editing.

Report

- A report is an object in desktop databases primarily used for formatting, calculating,printing, and summarizing selected data
- You can even customize the report's look and feel.

MS Access Datatypes:
MS Access common data types are listed below:

Type of Data	Description	Size
Short Text	Text, including numbers which does not need calculation. (e.g., Mobile numbers).	Up to 255 characters.
Long Text	This data type is used for lengthy text or alphanumeric data.	Maximum 63, 999 characters.
Number	Numeric data type used for storing mathematical calculations.	1, 2, 4, 8, and 16 bytes.
Date/Time	Store Date/time for the years 100 through 9999.	8 bytes.
Currency	It allows you to store currency values and numeric data with one to four decimal places.	8 bytes.
Auto Number	Assign a unique number or assigned by Microsoft Access when any new record is created. Usually used as the primary key	Four bytes (16 bytes if it is set as a Replication ID).
Yes/No	It only stores logical values Yes and No.	1 bit
Attachment	It stores files, such as digital photos. Multiple files can be attached per record.	Up to 2 GB Data can be stored.
OLE objects	OLE objects can store audio, video, other Binary Large Objects.	Up to 2 GB data can be stored.
Hyperlink	Text or combinations of text and numbers stored. That text is used as hyperlink address.	Each part of a Hyperlink data type allows you to store a maximum 2048 characters.
Calculated	Helps you to create an expression that uses data from one or more fields.	You can create an expression which uses data from one or more fields.

How to Start Microsoft Access

Note: We assume you have the latest Microsoft Access installed which comes bundled withMicrosoft Office 365 package.

There are two ways to Start MS Access.

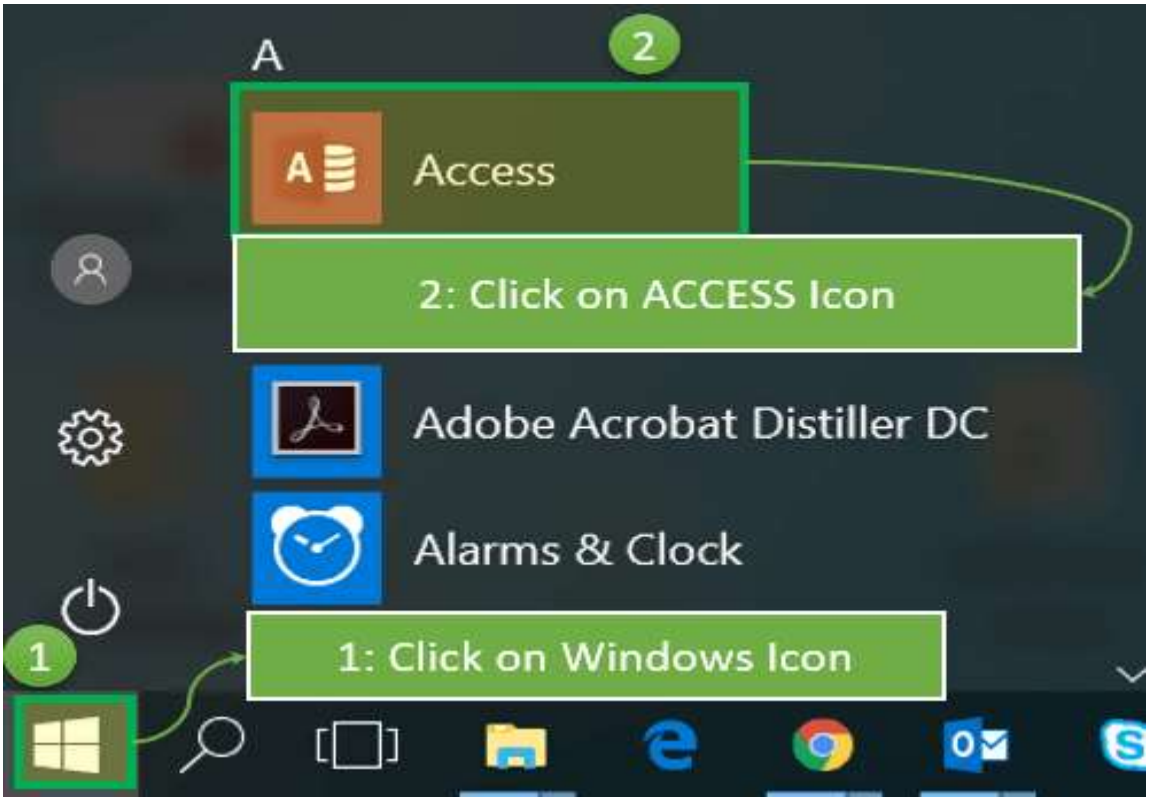
1. From Windows, 'Start' button.
2. From Desktop, Right Click> 'New' option.

Let's have a look of starting MS ACCESS using both

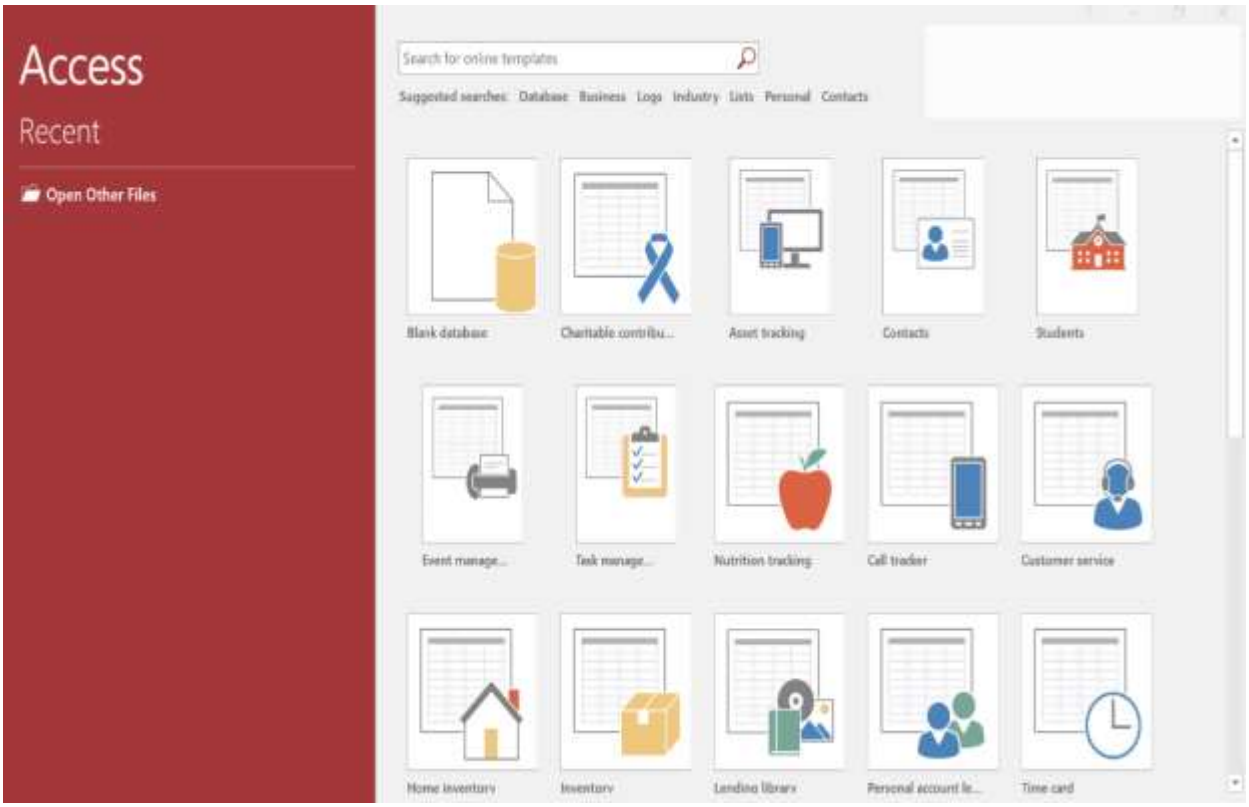
the ways:Option 1) From Windows, Start button.

Step 1) Click on the 'Windows' icon. You will find the list of installed programs.

Step 2) Check and click on Access Icon.

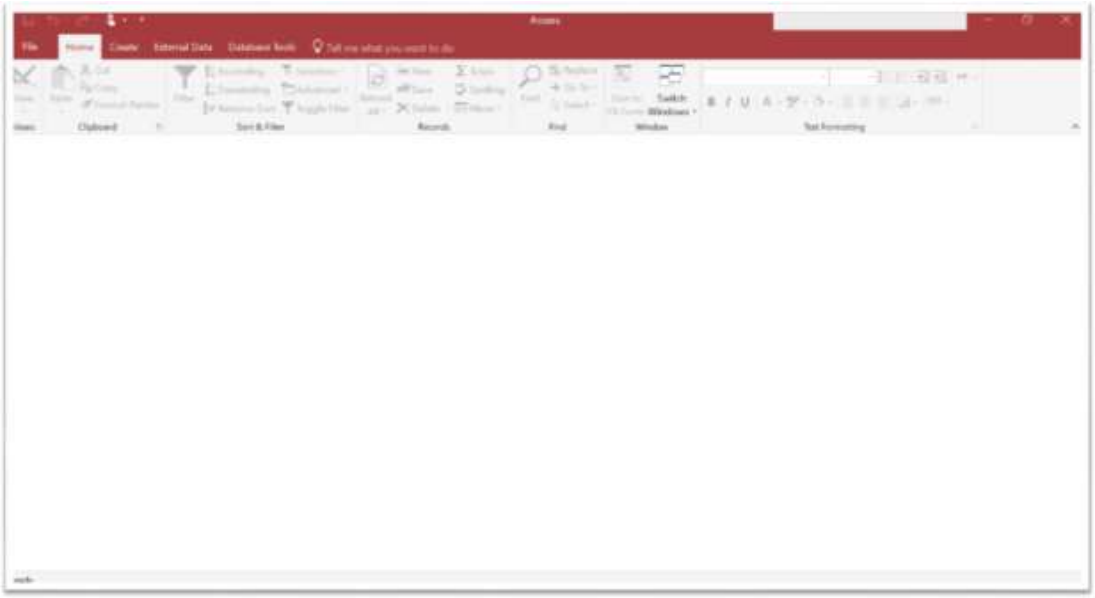


Step 3) MS Access Application window will appear.



Steps 4) Press 'Esc'.

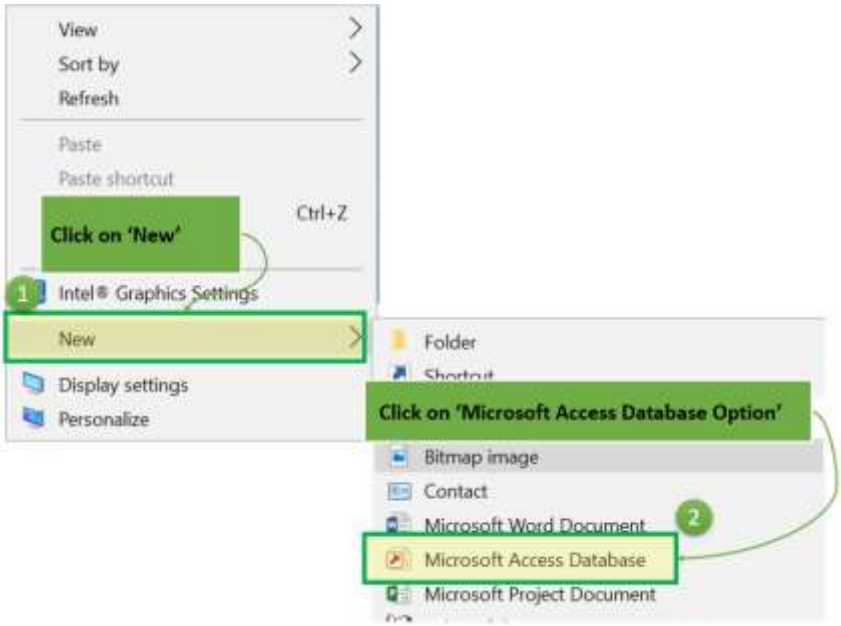
Result: This will open the MS ACCESS windows application



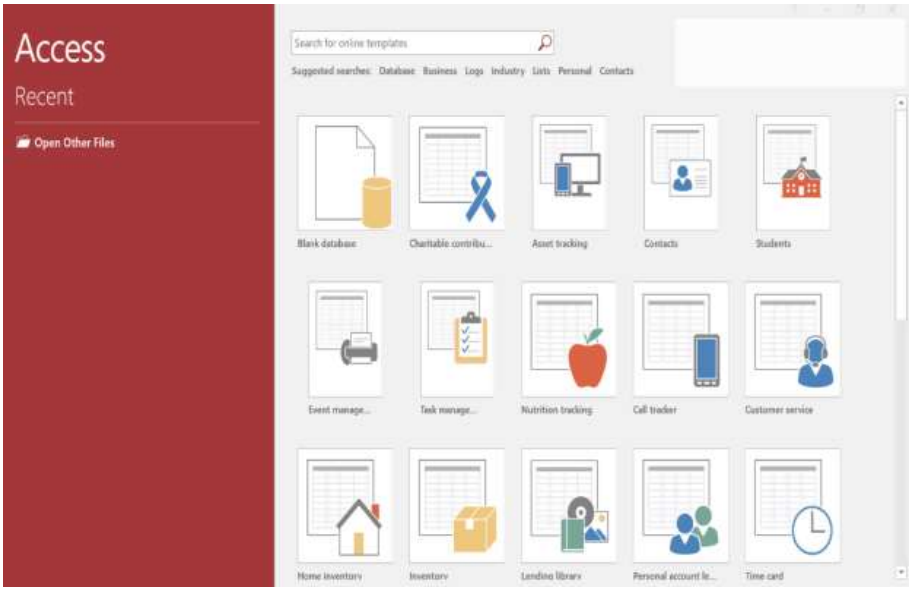
Option 2) From Desktop, 'New' option.

Step 1) Right Click from Desktop and Click 'New'

Step 2) Click on 'Microsoft Access Database Option'

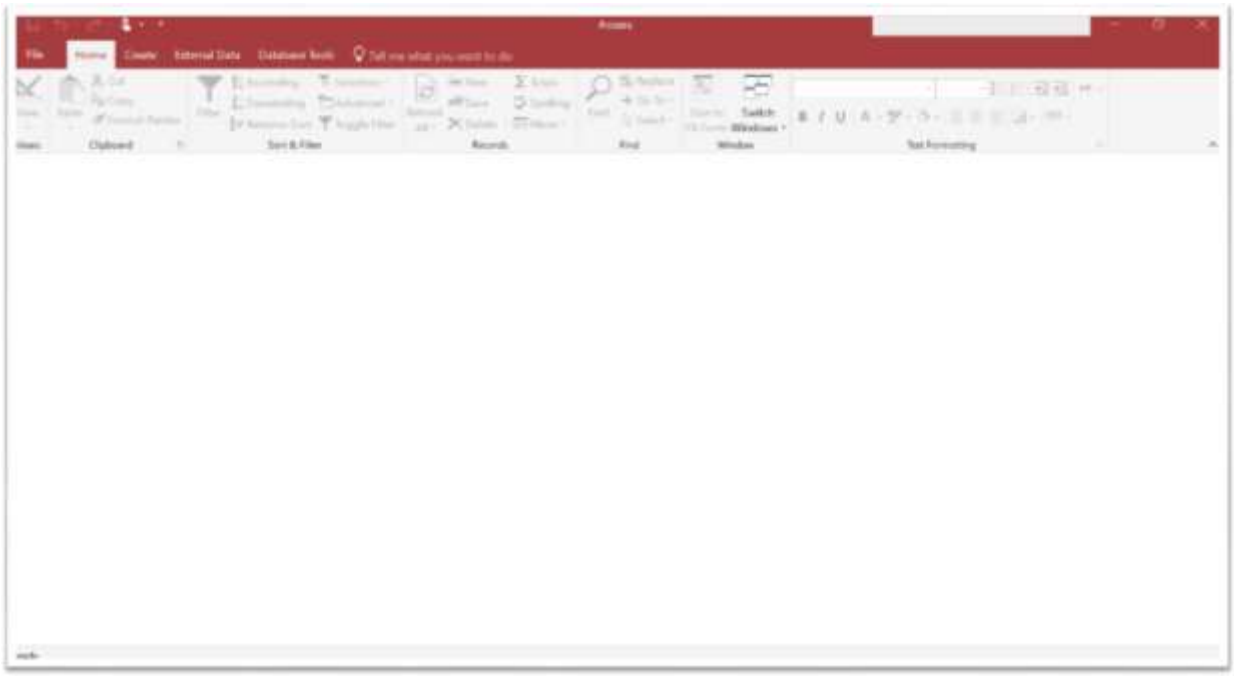


Step 3) Below MS Access Application window will appear



Step 4) Press 'Esc'

Result: This will open the MS ACCESS windows application



How to Create a Database

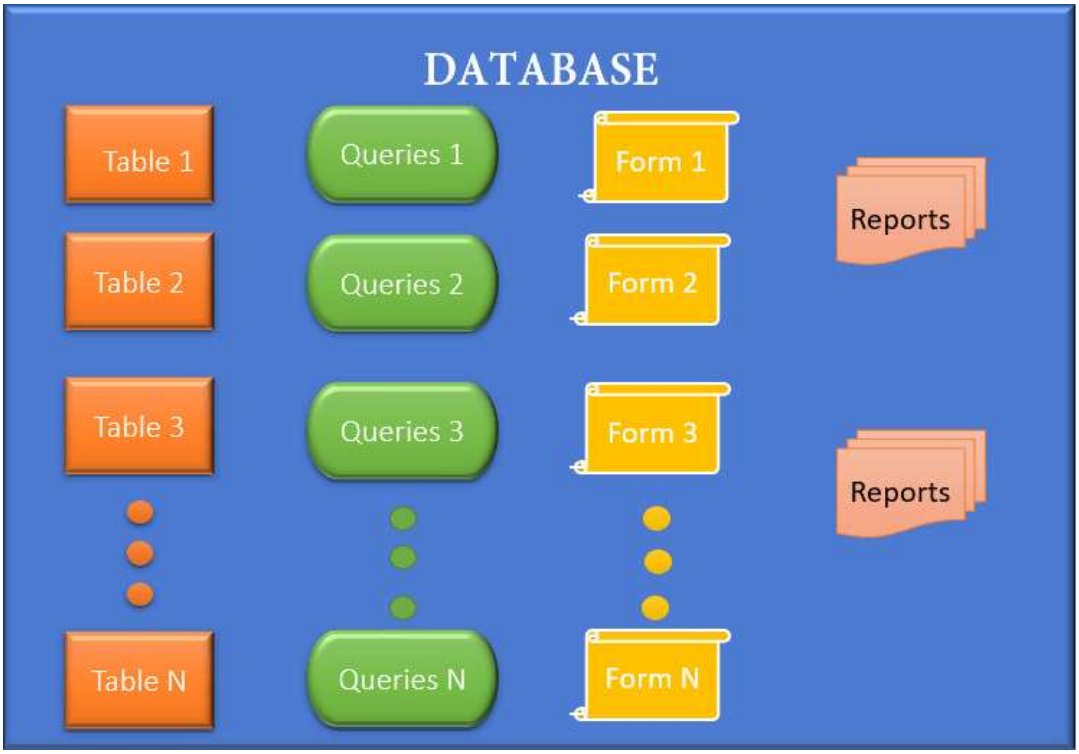
Before we create Database, lets quickly understand the holistic picture of what Database is, withparticular reference to MS ACCESS.

Let's, start with a few examples in real life:

- We have Bookcase where Books resides,
- We have i-pods where we have a collection of music & cases are countless.

Similarly, we have MS Access Database is a kind of home for all your tables, queries, Forms,Reports, etc. in MS-ACCESS which are interlinked.

Technically, Database store the data in a well-organized manner for easy access and retrieval.



There are two ways to create Database in SQL ACCESS:

1. Create Database from Template
2. Create a Blank

DatabaseLet's go into

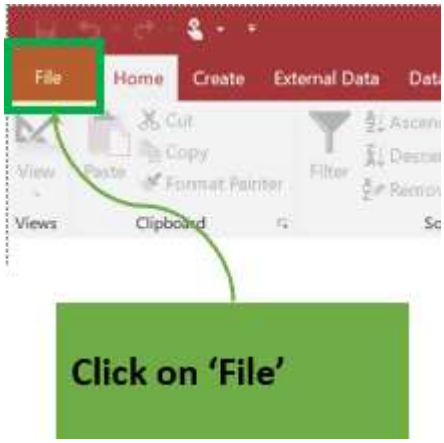
the detail of each:

Create Database from Template

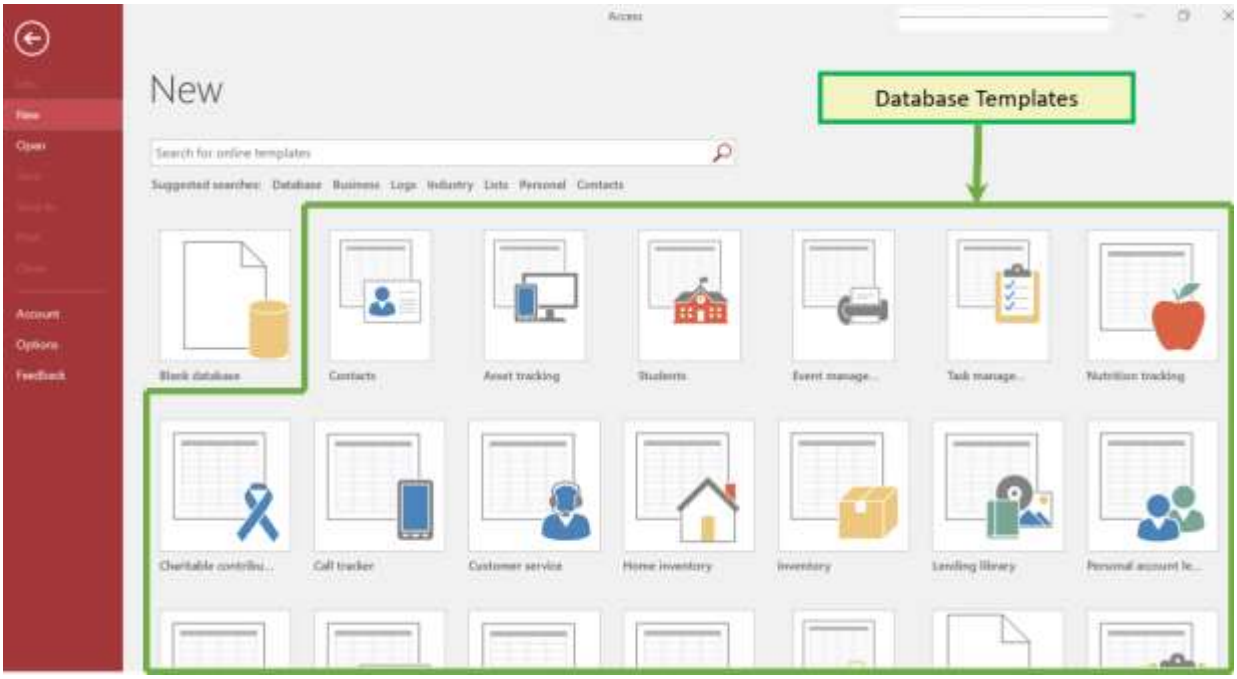
- There are many situations where we need to start with some readymade databasetemplate for given requirements.
- MS Access provides many ready to use templates for such types of databasesrequirements where the data structure is already defined.
- You can keep customizing the template structure further as per our requirement.
- MS ACCESS Database template example includes Contacts, Student, Time tracking, etc.

Steps to create Database from Template

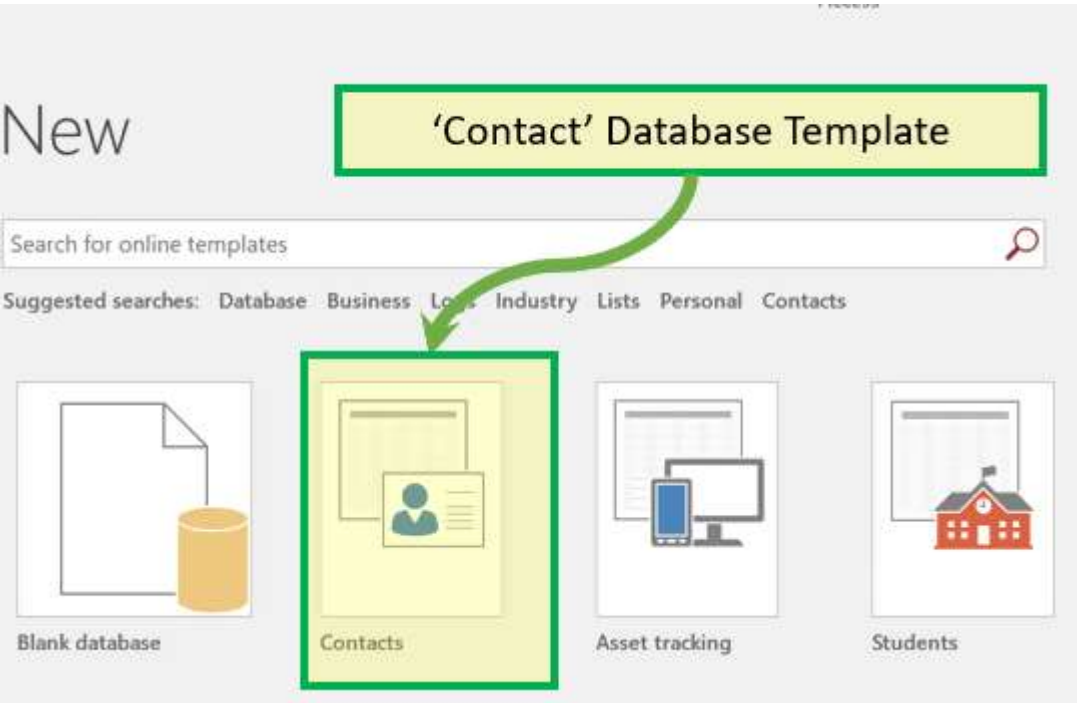
Step 1) With MS ACCESS application open, Click on File**.**



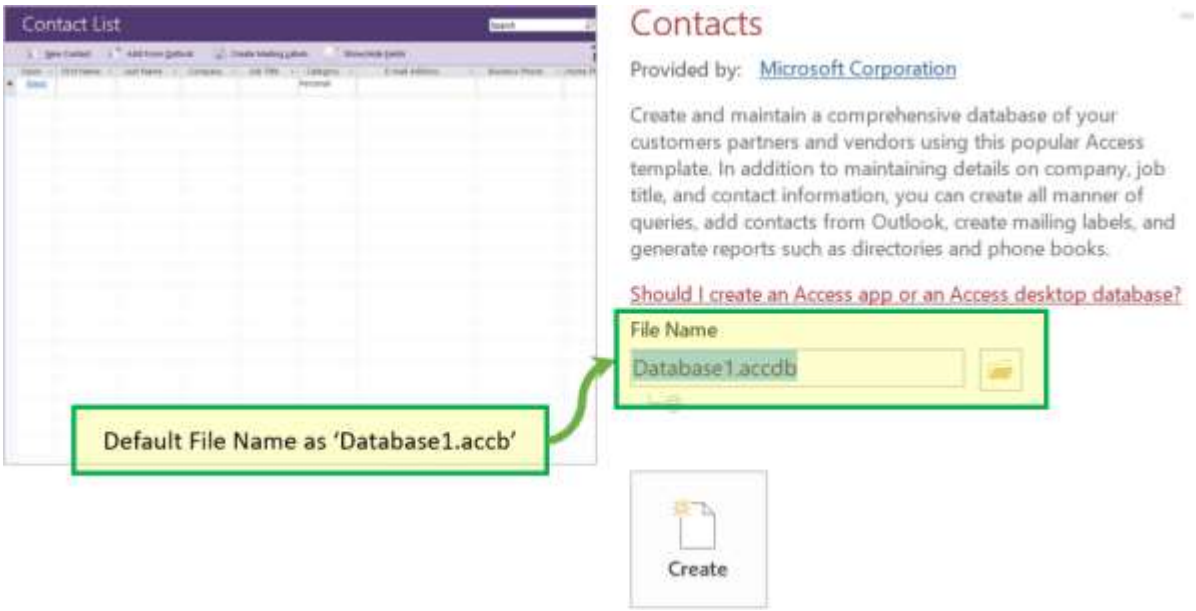
Result**:** The below window will appear. All the **Database templates** are displayed below.



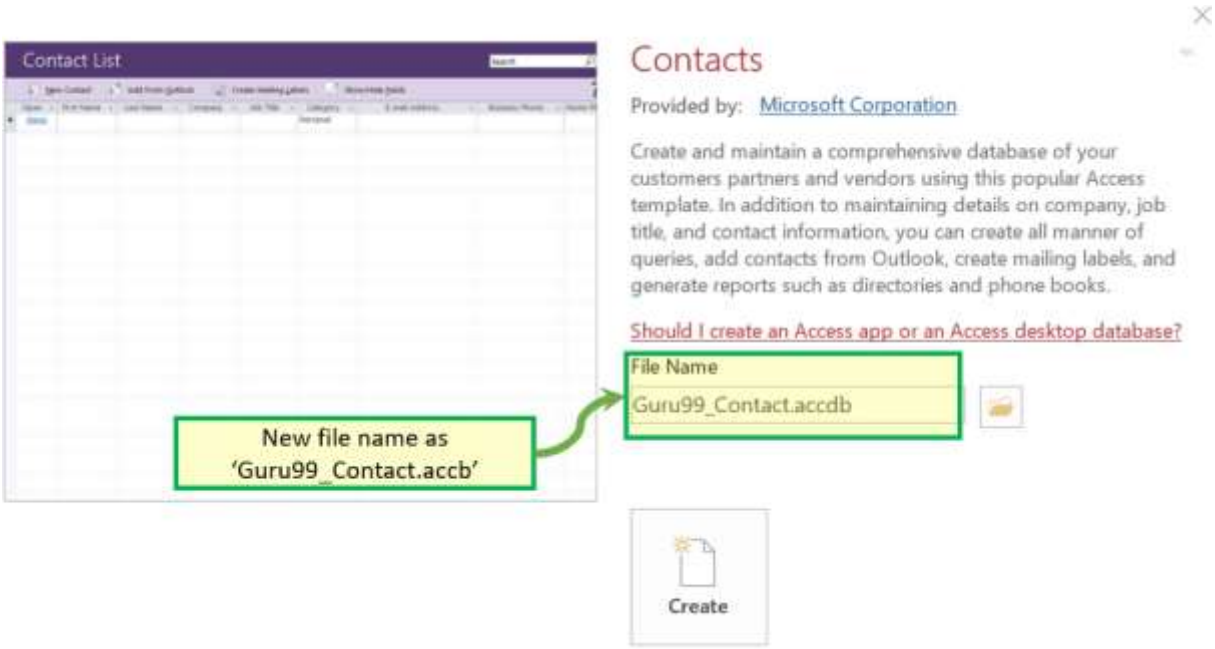
Step 2) We can select any template by clicking on it. Click on **Contact Template** for furtherreverence.



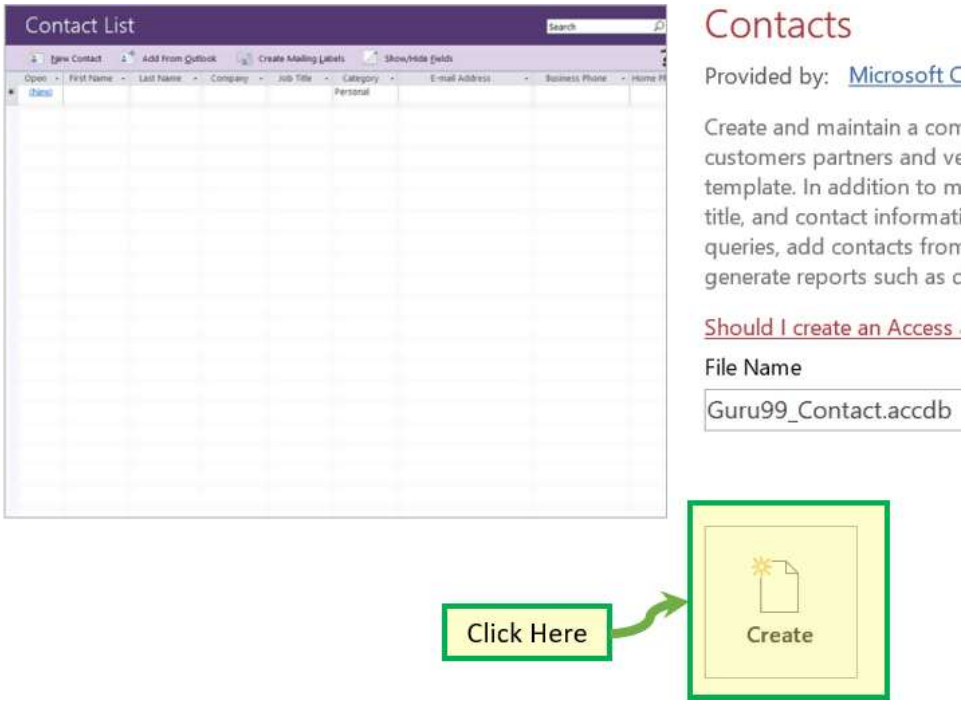
Step 3) File name box will appear with the default file name.



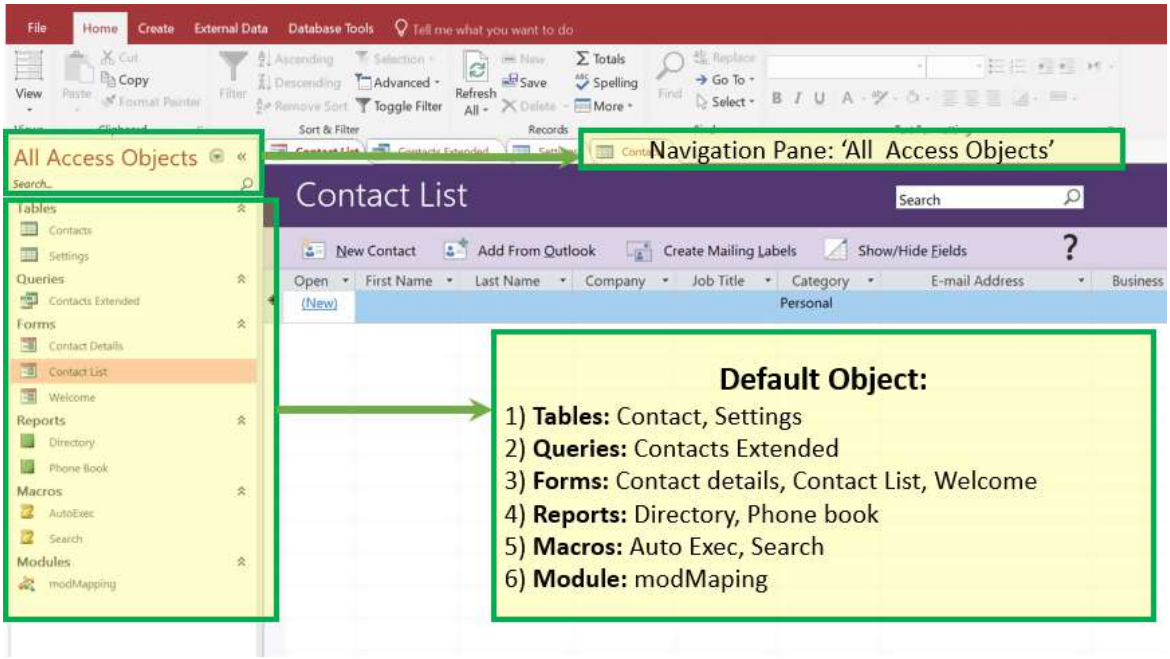
Step 4) Enter the new **Name.**



Step 5) Click on **'Create.'**

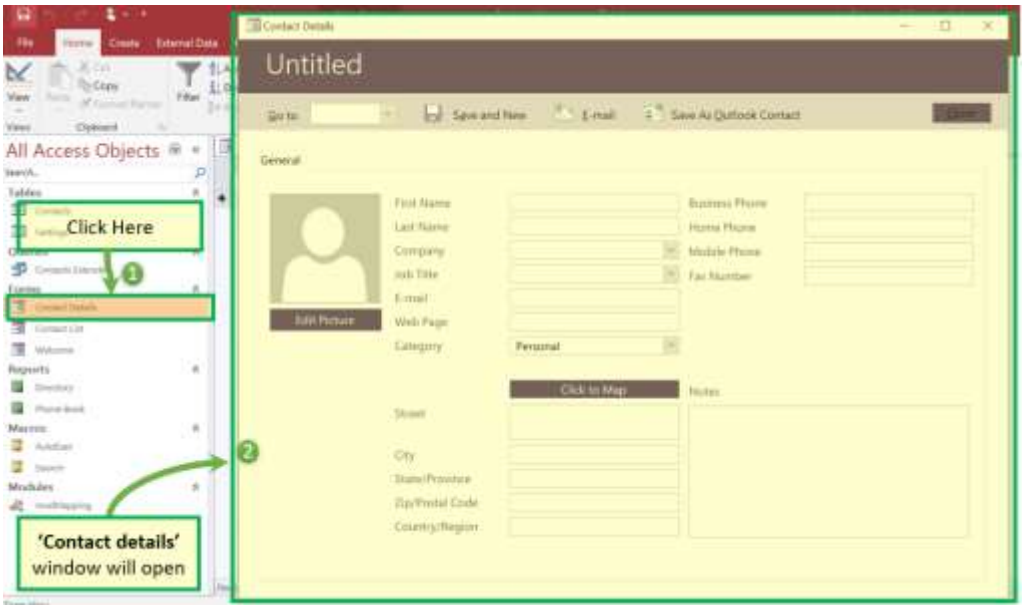


Result: Guru99_Contact Database created and below window will appear.



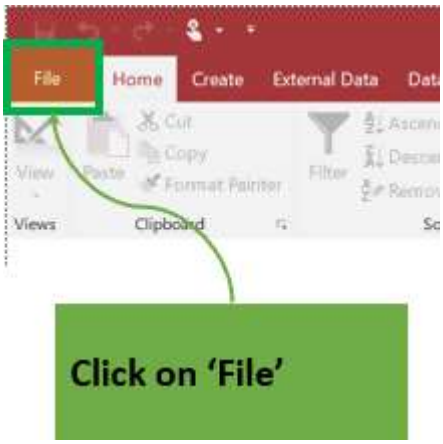
Step 6) optionally, you can click on any of the objects from left navigation pane and open that object for further references and work.

For, E.g., Clicking on 'Contact Detail' form will open 'Contact Detail' form as displayed below.

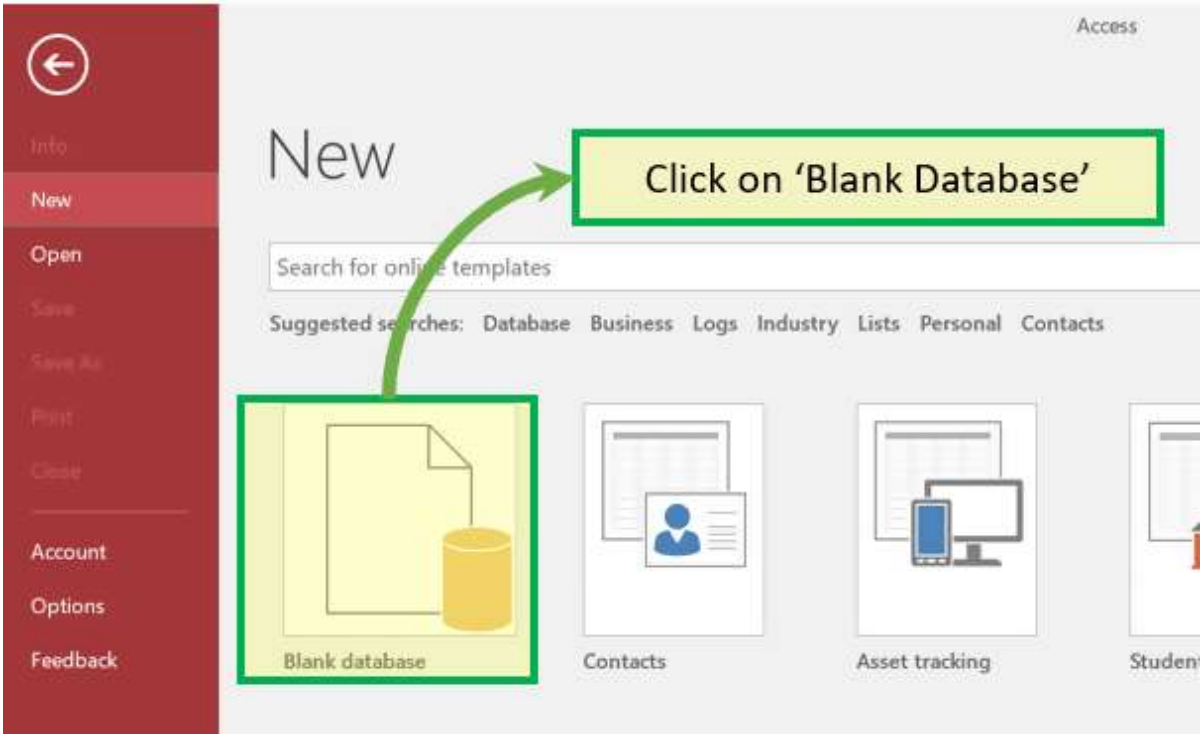


Create a Blank Database

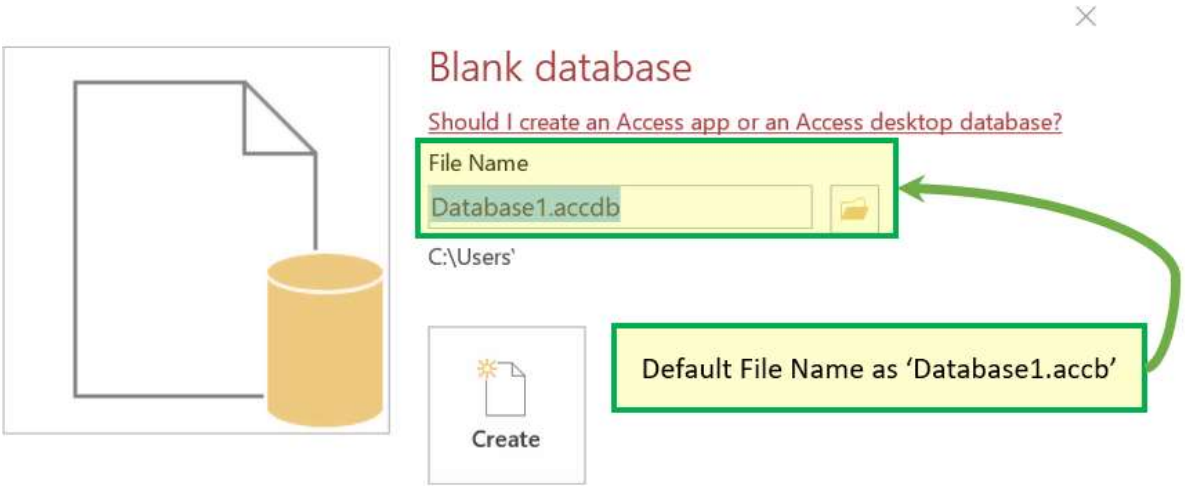
Step 1) With MS ACCESS application open, Click on File > New



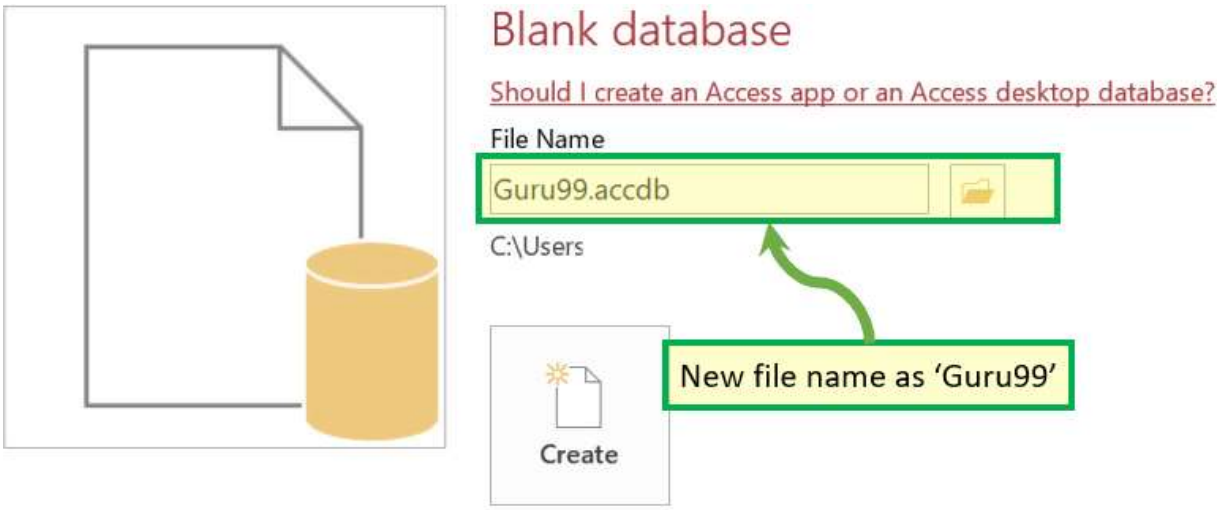
Step 2) Click on 'Blank Database.'



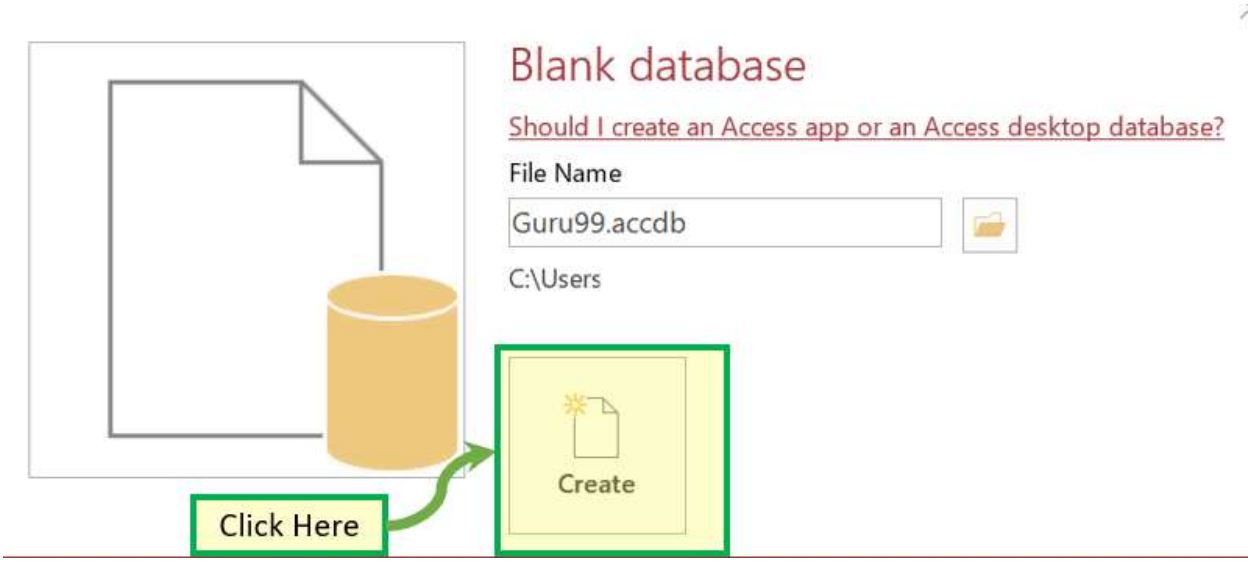
Step 3) File name box will appear with the default file name.



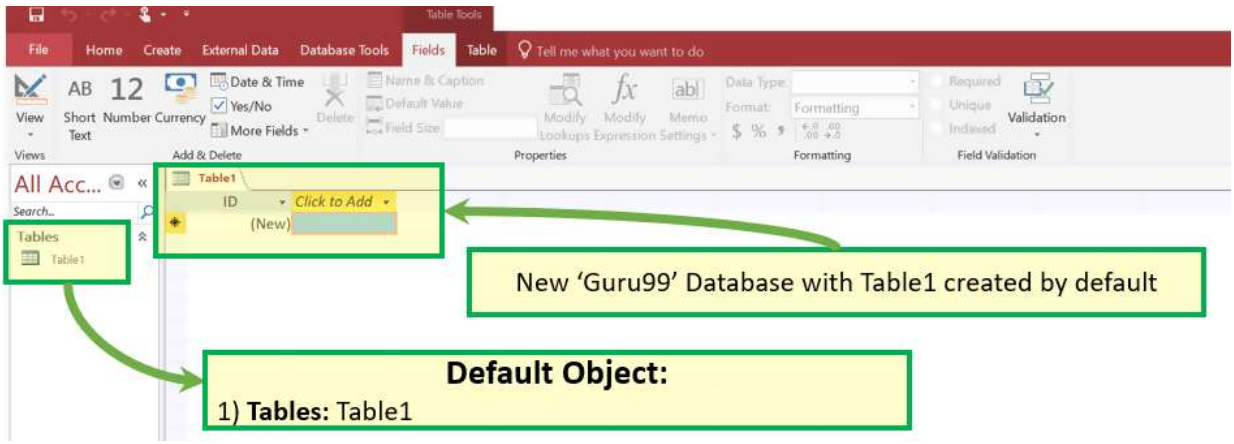
Step 4) Enter the new name**.**



Step 5) Click on **'Create.'**

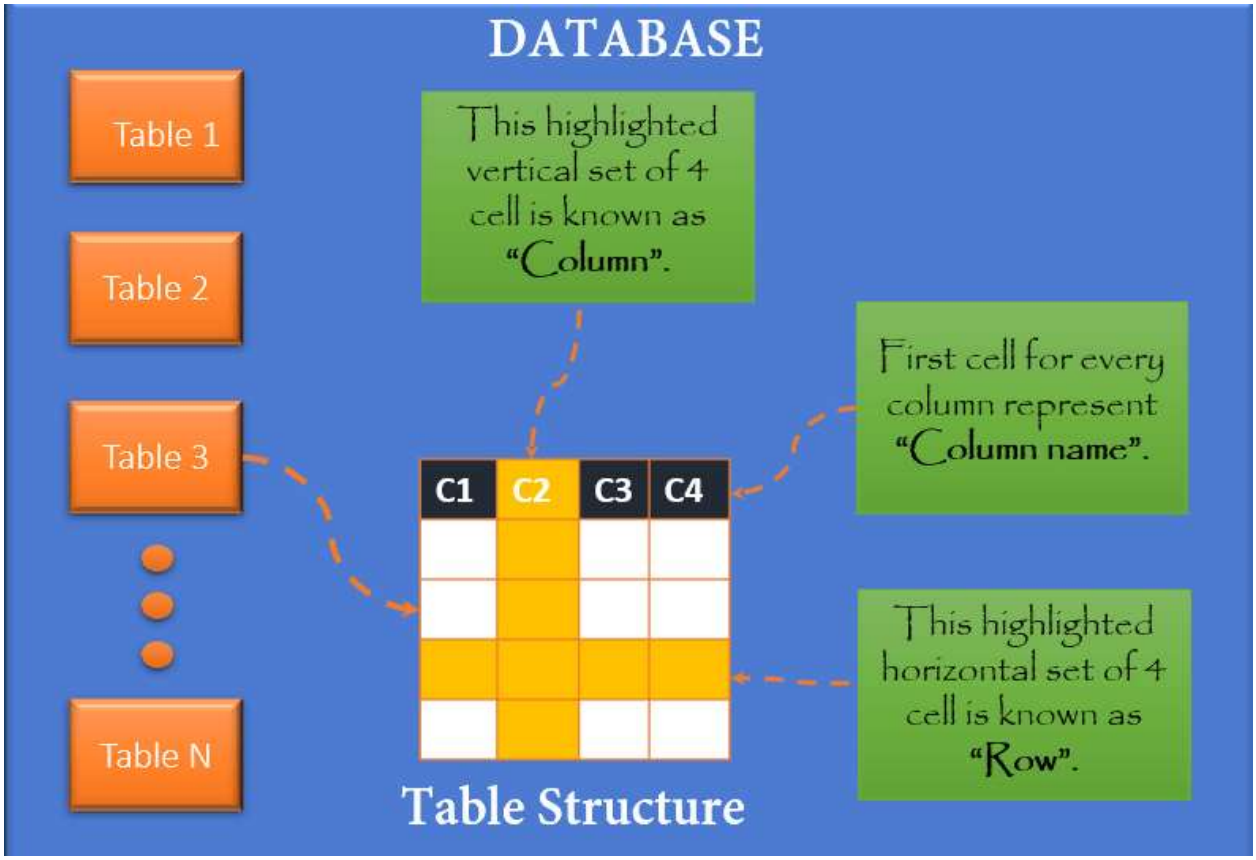


Result: Guru99 Database created and below window will appear.



How to Create Table

The first step to store data in the database is to create a Table where data will reside. Postcreation of the table, we can keep inserting the rows in the table.

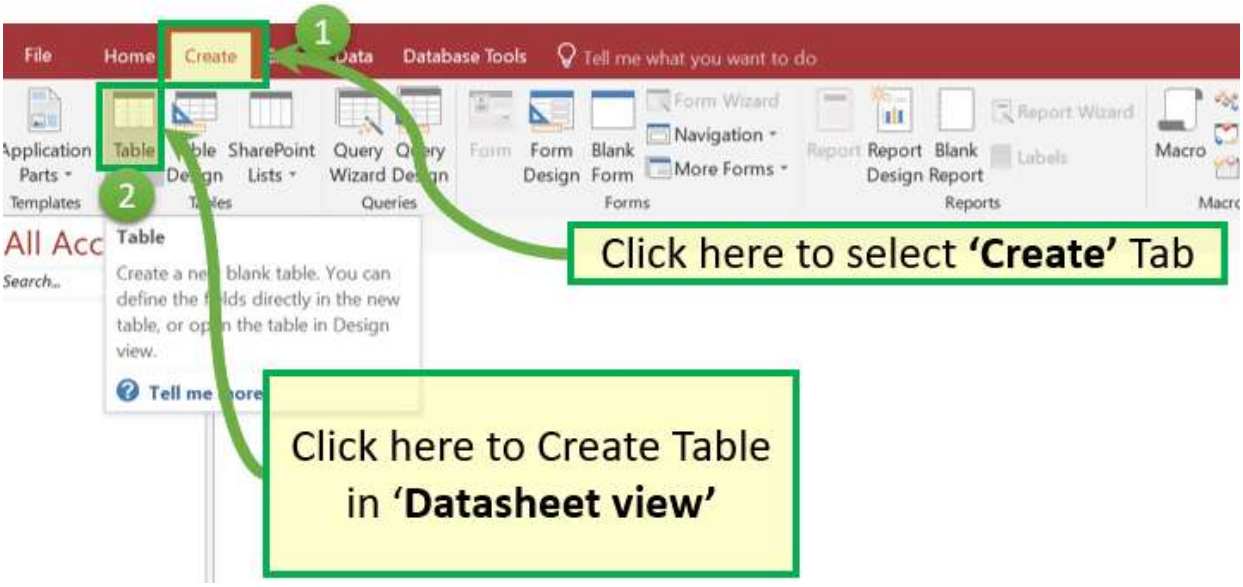


There are two ways to create Database in MS ACCESS

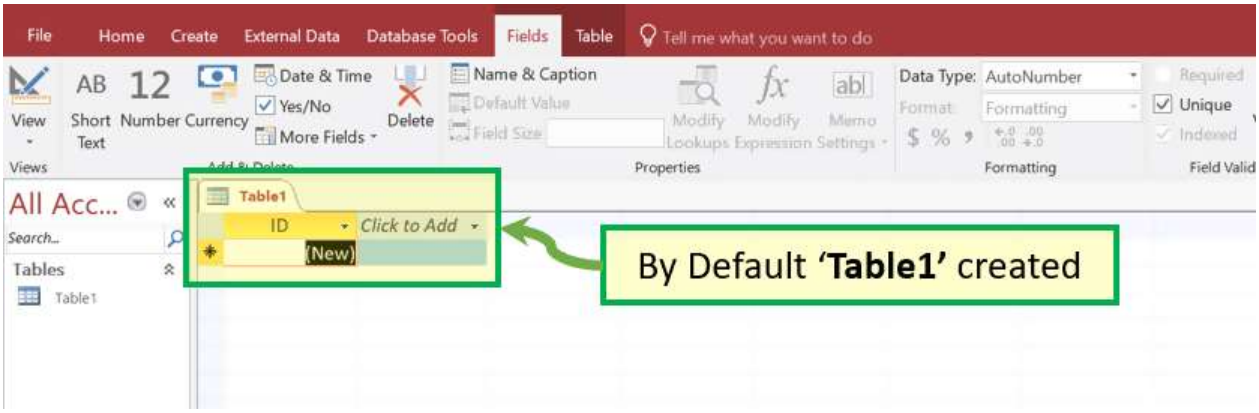
1. Create a Table from **Design View**
2. Create a Table from **Datasheet View**

Create Table – Datasheet View

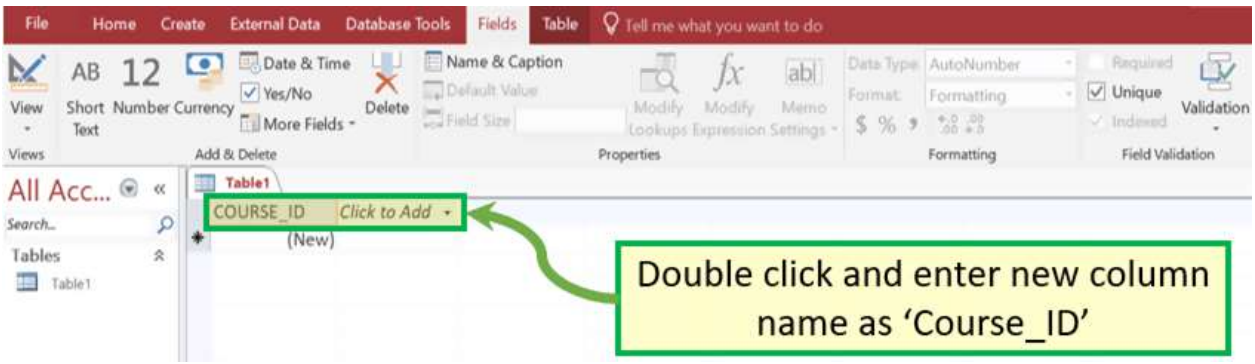
Step 1) First Click **Create** tab. Then from **Tables** group, click **Table**.



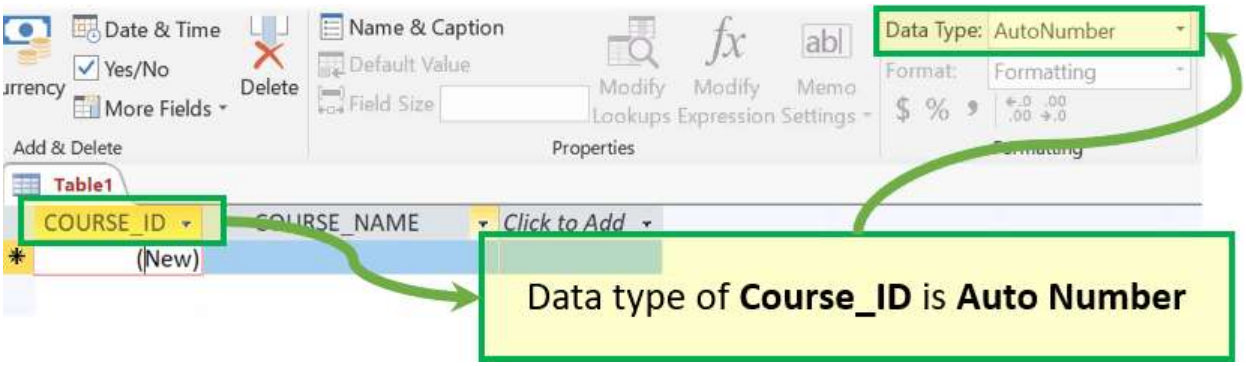
Step 2) System will display the default table created with 'Table1' name.



Step 3) To **Rename** Column, double click on Column Header and enter the new column Name.

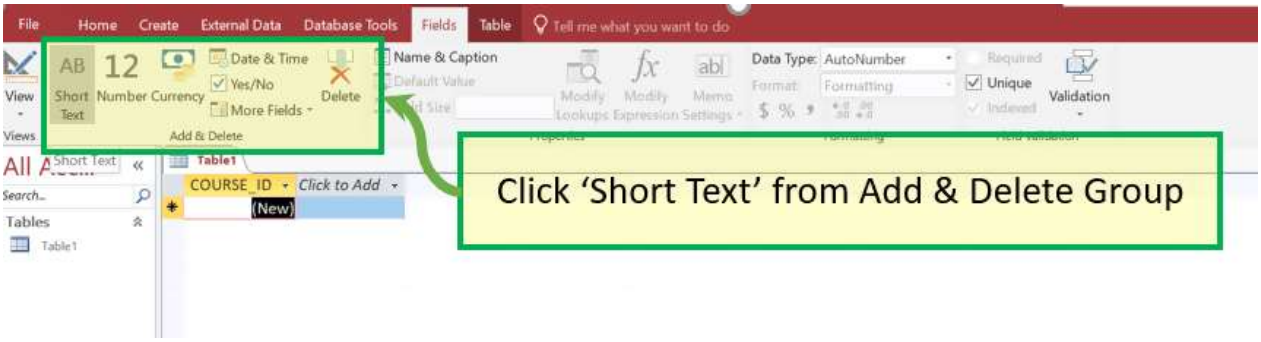


Note that the Data type of Course_ID is '**AutoNumber.**' Hence this is also the Unique Key of thetable.

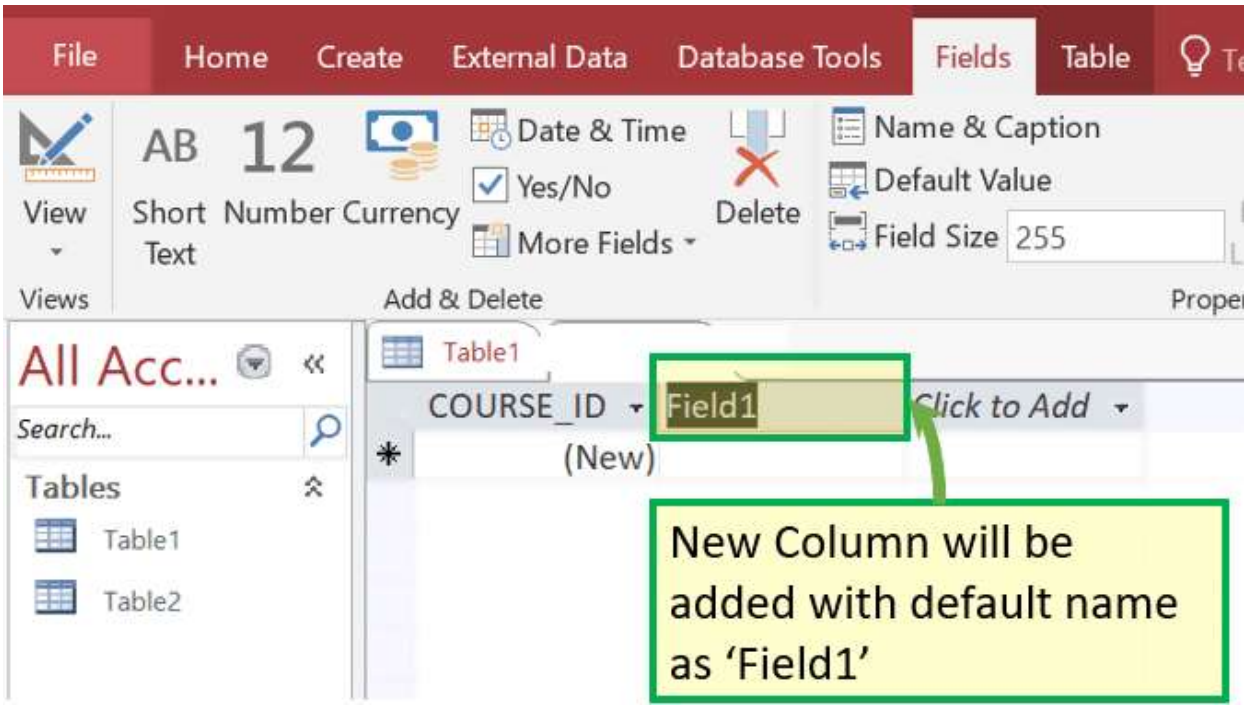


Step 4) You can **Add Column** by clicking on any category from **the 'Add & Delete'** group.Alternatively, you can also add a column by clicking on 'Click to Add'

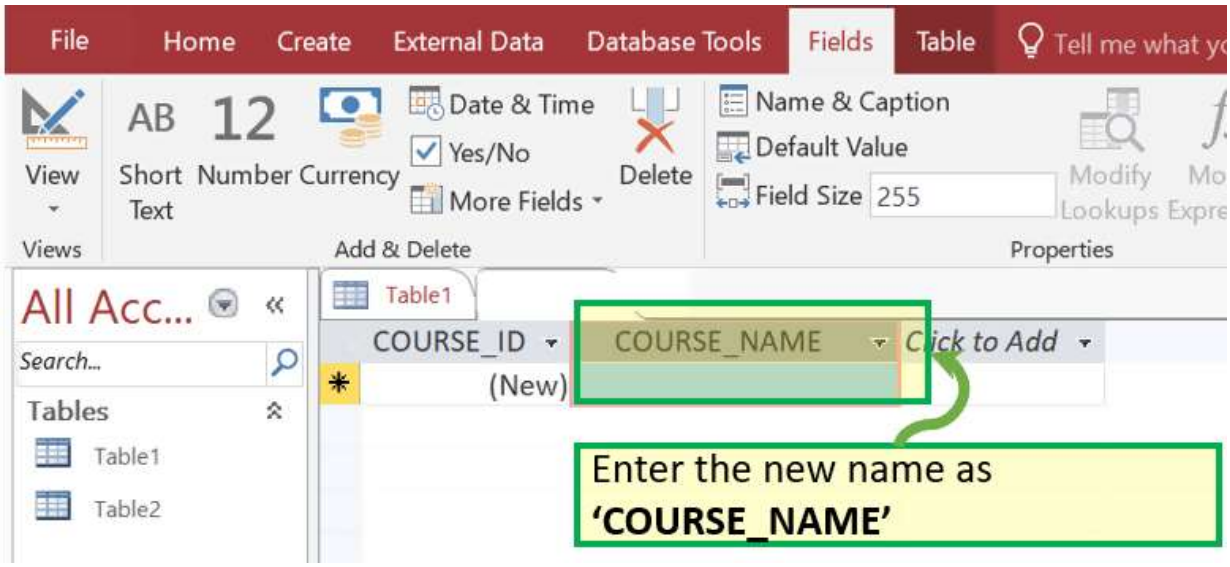
For Example, click on 'Short Text' from the 'Add & Delete' group.



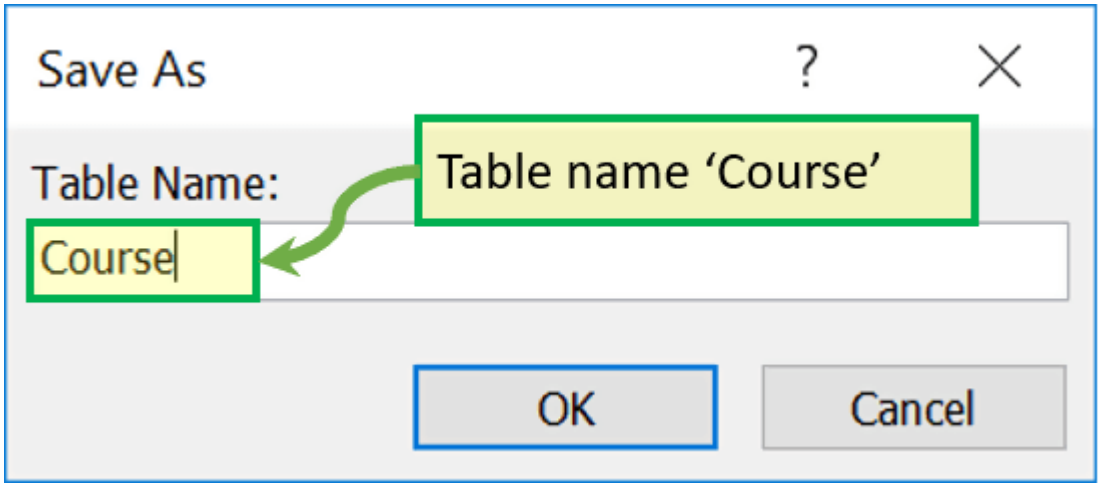
Step 5) Column will be added with the default name as **'Field1.'**



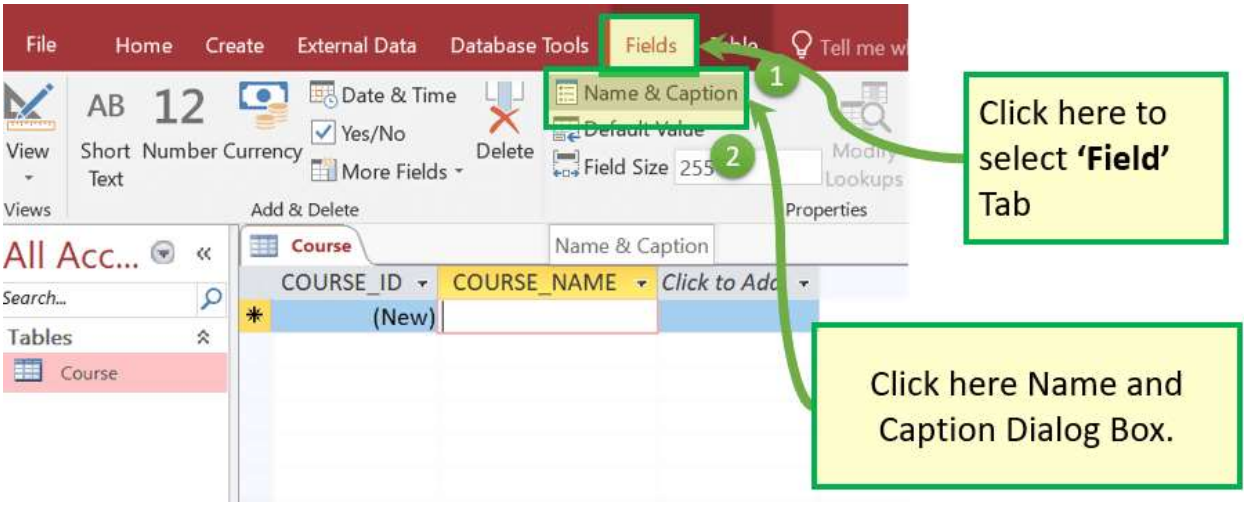
Step 6) Click on Header and rename as **'COURSE_NAME.'**



Step 7) Press 'Ctrl + S' and Enter the new table name to save the table.

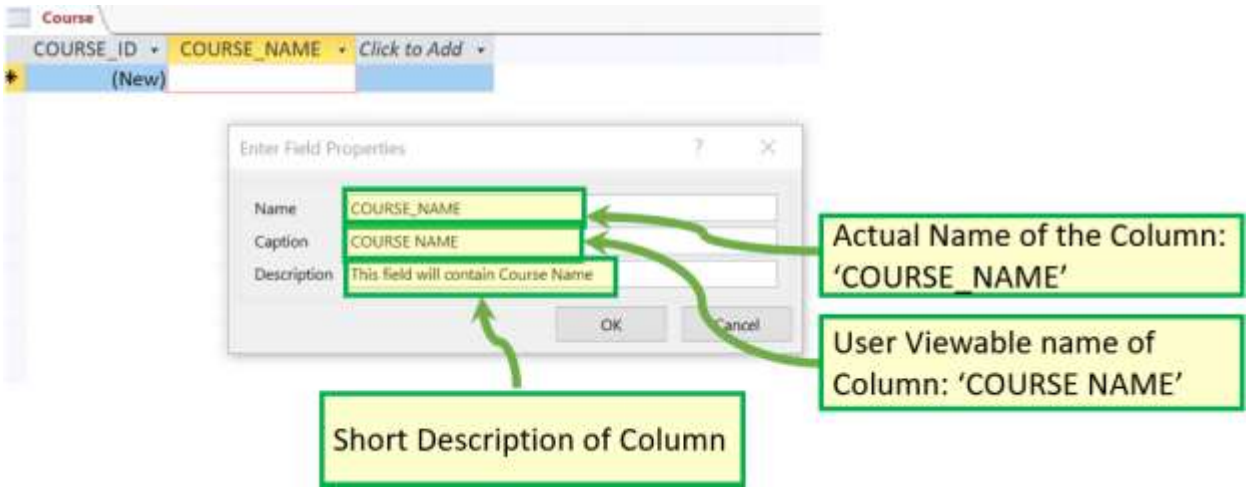


Step 8) You can also save new Name, Caption and Short description for any Column by clickingon '**Name and Caption.'** Click on it

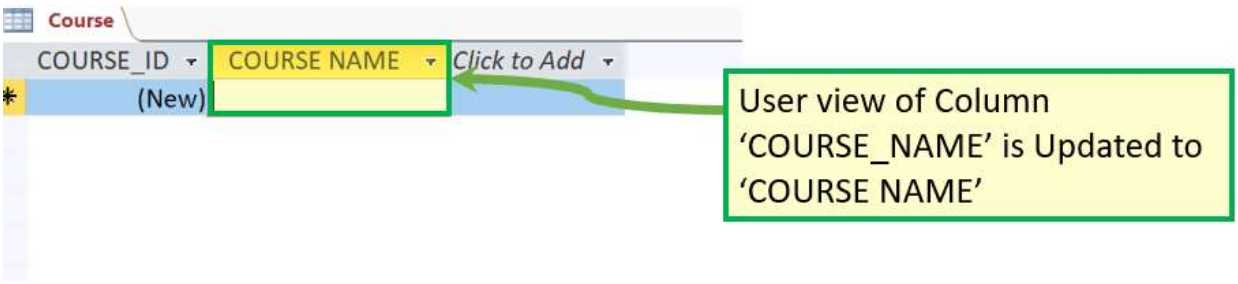


Step 9) Dialog Box will appear. Add the following and Click on 'OK'

- 'Name' - This is the actual name of the column.
- 'Caption' - This is the user view name of the column.
- 'Description' - This is the short description of the column name.

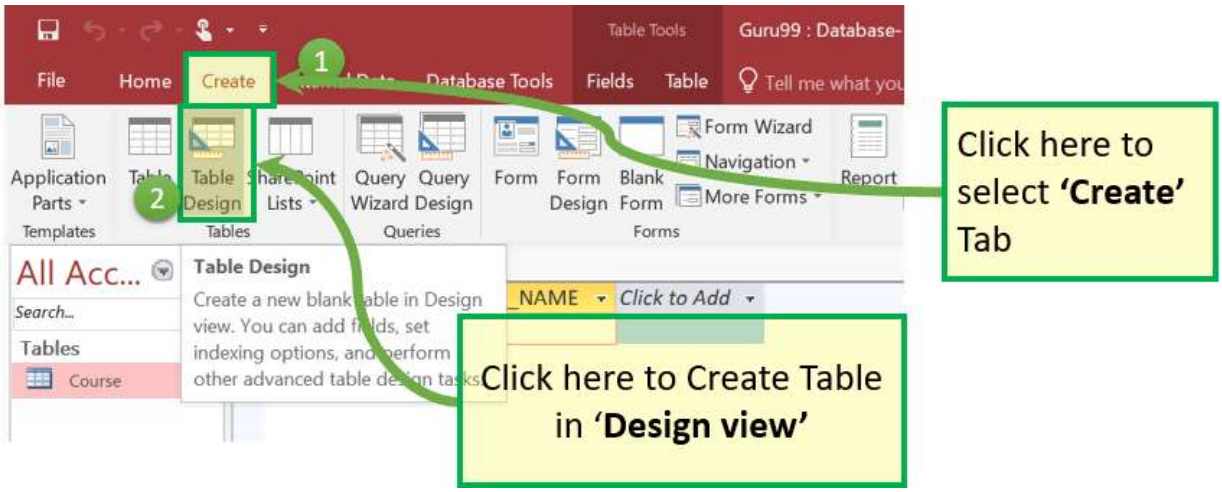


Result: Name, Caption, and Description now exist.

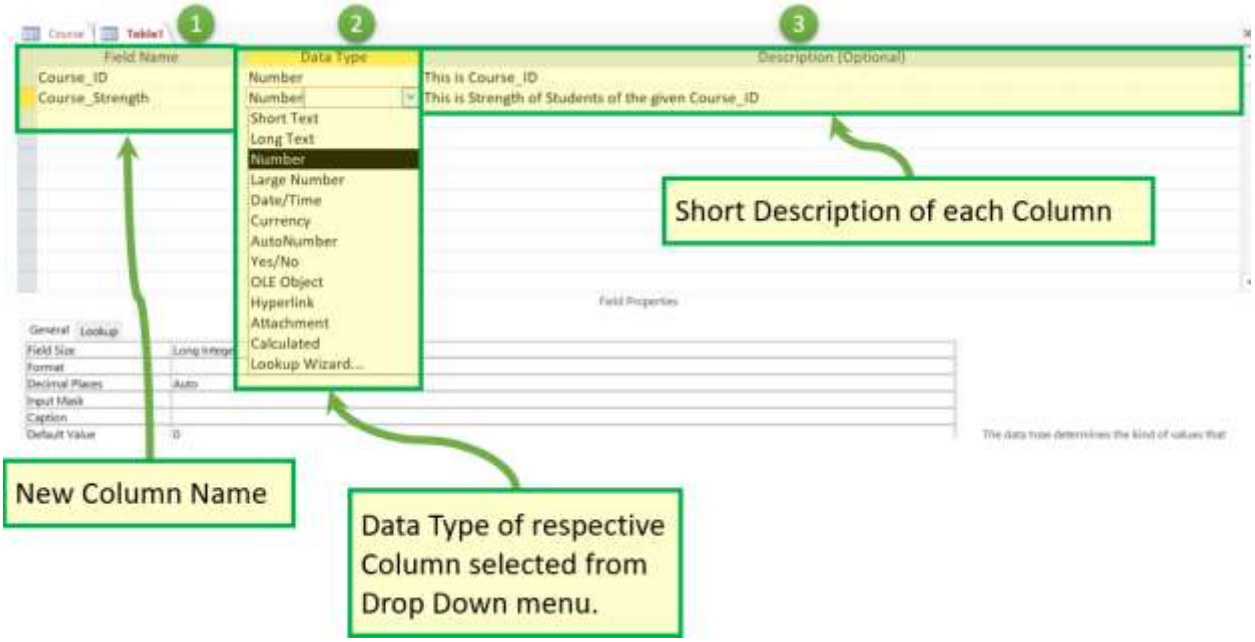


Create Table – Design View

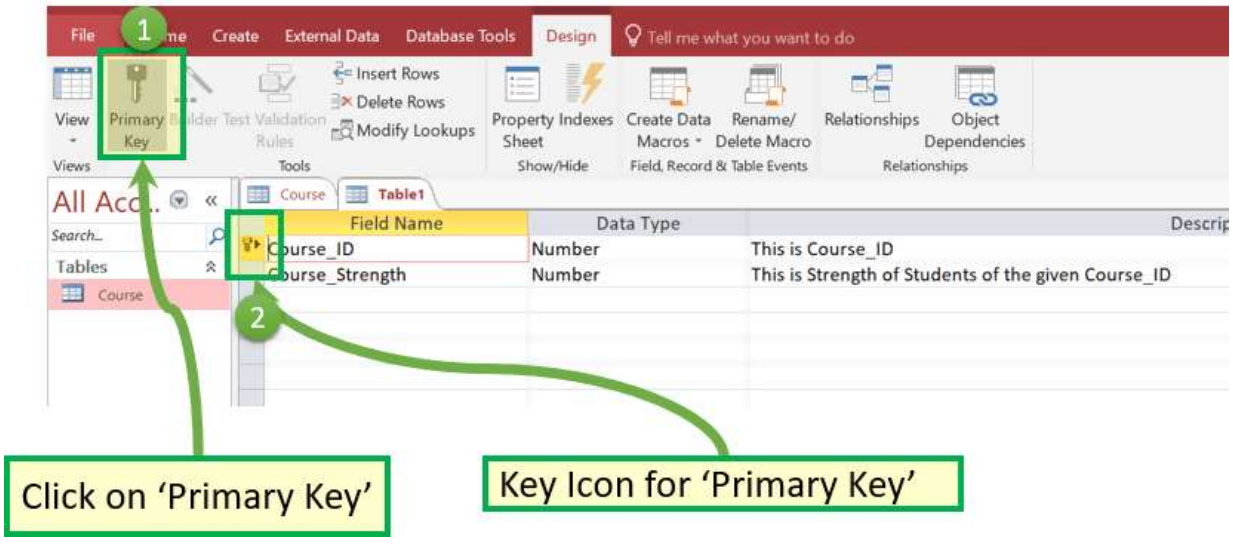
Step 1) First Click Create tab. Then from Tables group, click Table.



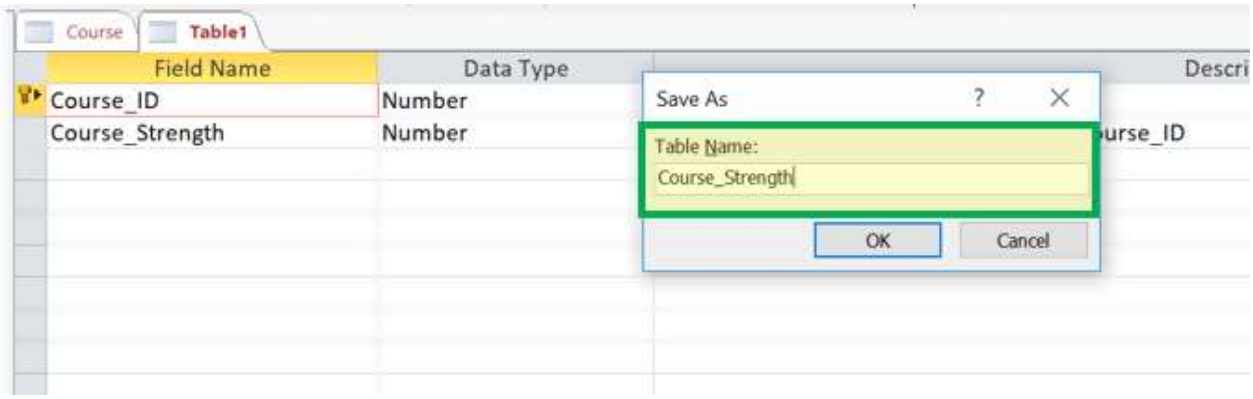
Step 2) Table Dialog box appears. For each Field enter **Filed Name, DataType** and **Description.**



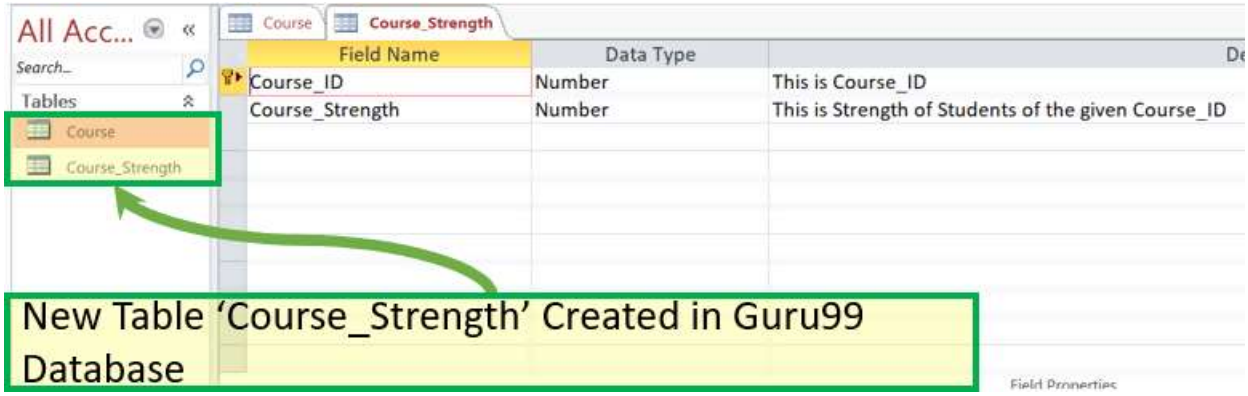
Steps 3) To Add Course_ID as Primary Key, select it and Click on 'Primary Key.' Course_Id willbe Preceded by KEY ICON as shown below:



Steps 4) Press 'Ctrl+S.' Enter the Table Name and Click OK



Result:

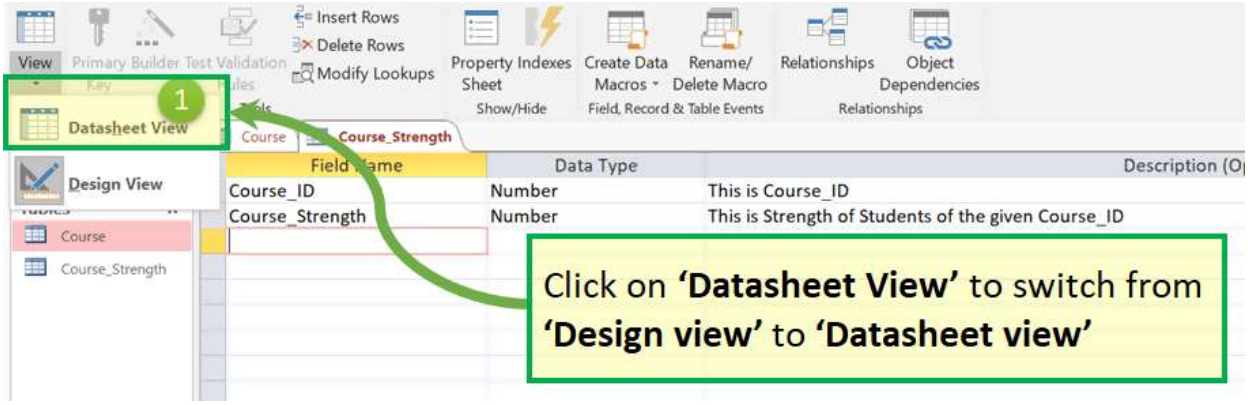


How to Switch views between Datasheet and Design

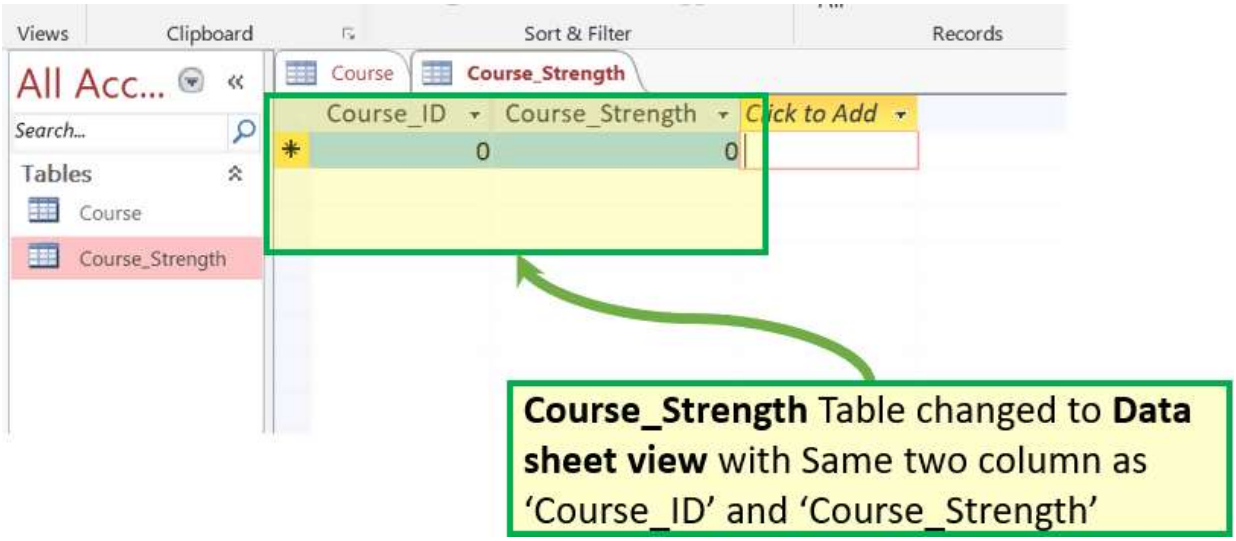
To switch views, between the datasheet (spreadsheet view) and the design view, clickthe **'View'** button in the top-left hand corner of the Access Ribbon (shown in the Home/Help/Design Tabs). And Click on the View you need to display.

For Example: Let's Assume You want to switch to the newly created table 'Course_strength'from 'Design view' to 'Data Sheet' View.

Step 1) Click on Datasheet View



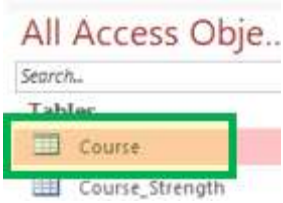
Result:



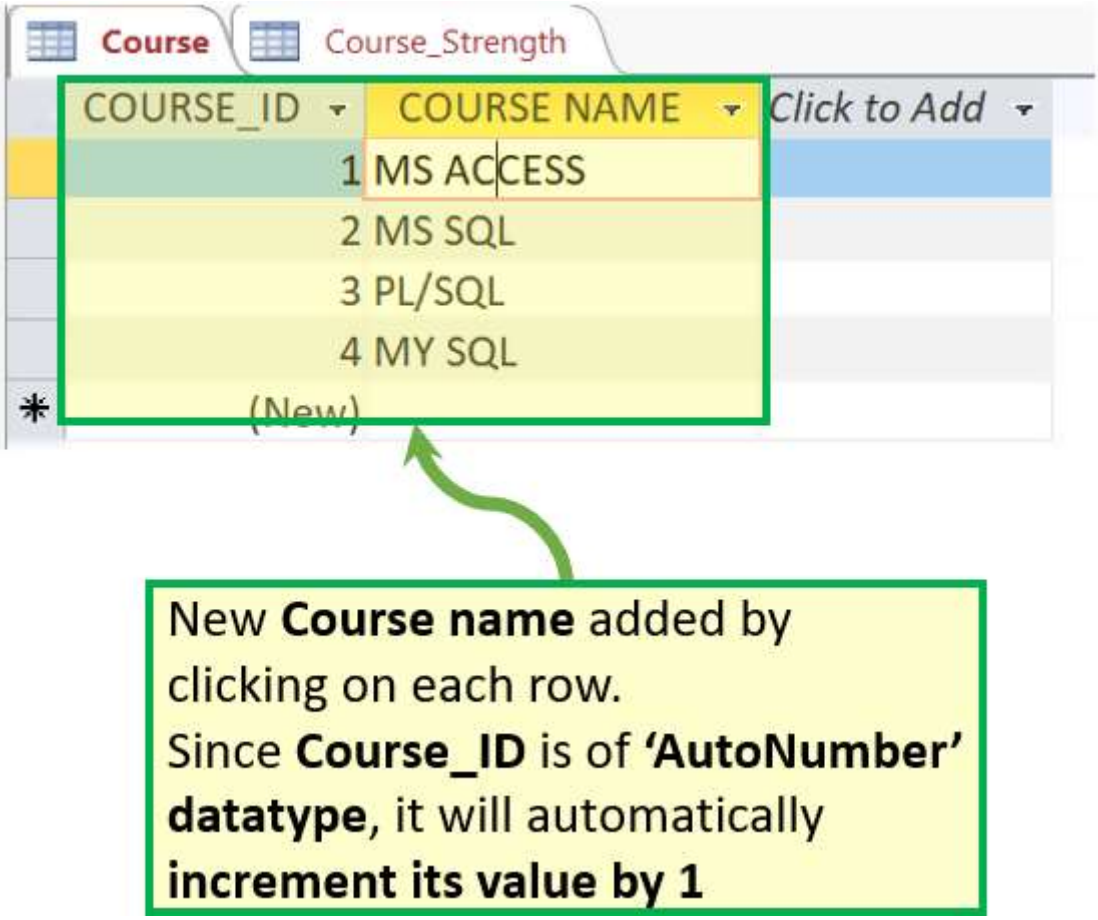
MS ACCESS- Adding Data

- You have created tables Course and Course_Strength.
- There are two ways to add data. One is Datasheet view and other from Form. We willlearn to add data from Datasheet view in this section.
- There is no need to save the data manually. Once you click other rows, Accessautomatically saves the data.
- The only thing you need to take care while adding data is, you should enter the correctdata type, i.e., if Column is defined as Number we can add only number and not text.

Step 1) Select the 'Course' table

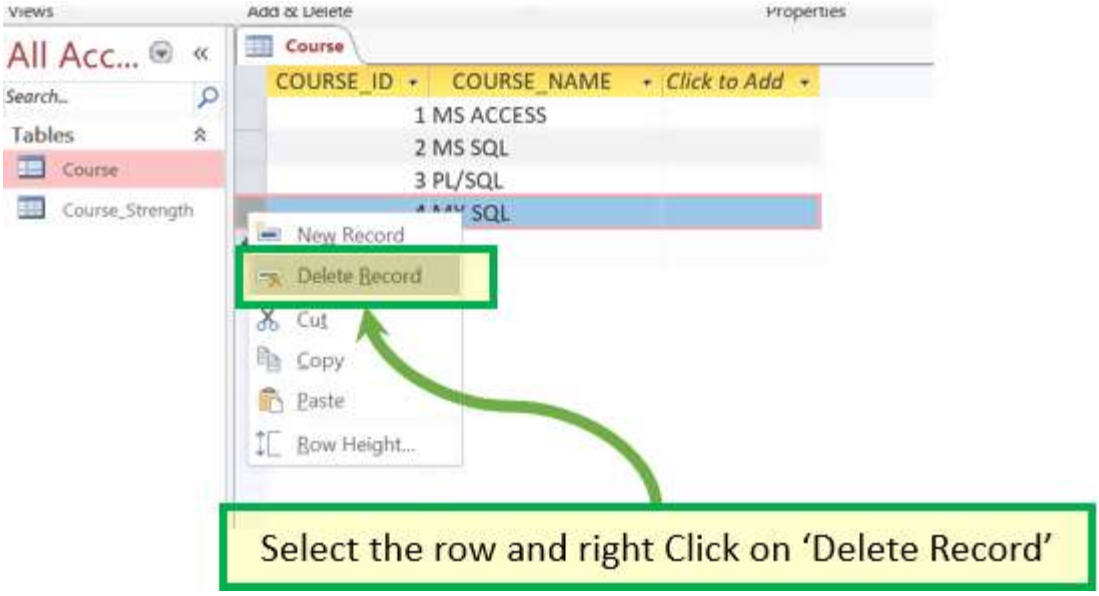


Steps 2) Select the **Datasheet view** option in the ribbon and **add** some data by entering thevalues in It. Updated Data will be AutoSaved.

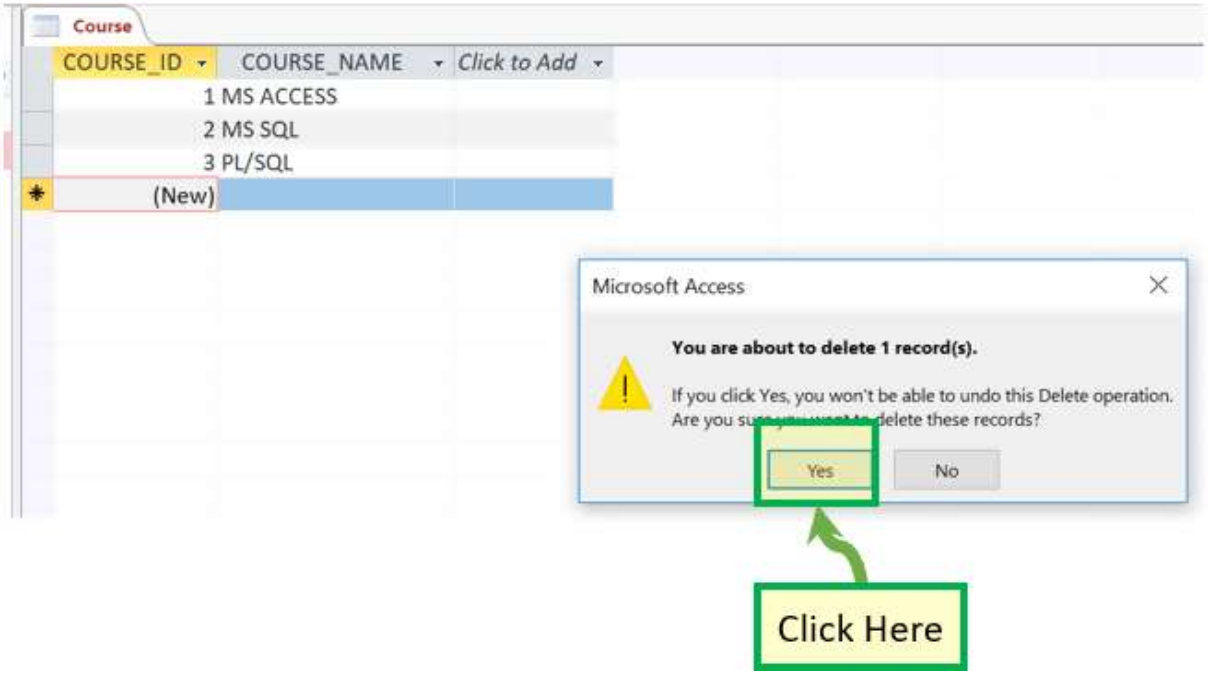


Now let's say You want to delete 4th row with 'My SQL' as Course name.

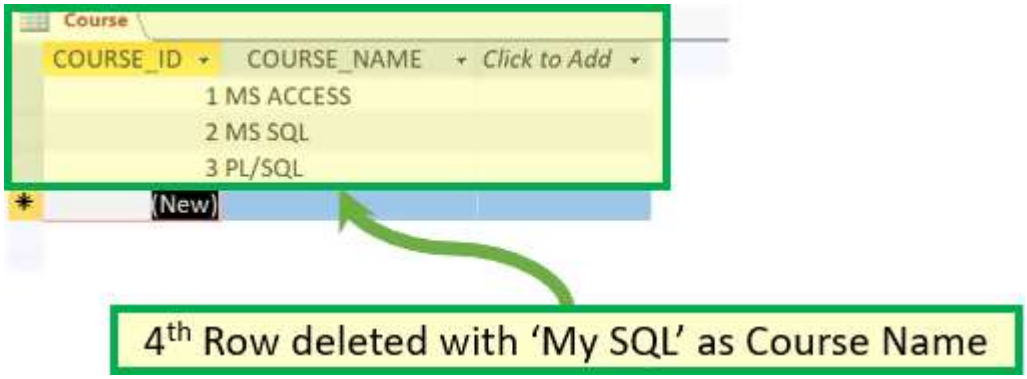
Step 3) Select the row by clicking on the leftmost column and Right Click on the row. Theoptions menu will appear with the 'Delete Record' Option



Step 4) Popup Window will appear to confirm the deletion of the record. Click **'OK'**



Result:



Summarizing views:

Datasheet View:

Displays in the view, which allows you to enter raw data into your database table.

Design view:

Displays the view, which allows you to enter fields, data types, and descriptions into yourdatabase table.

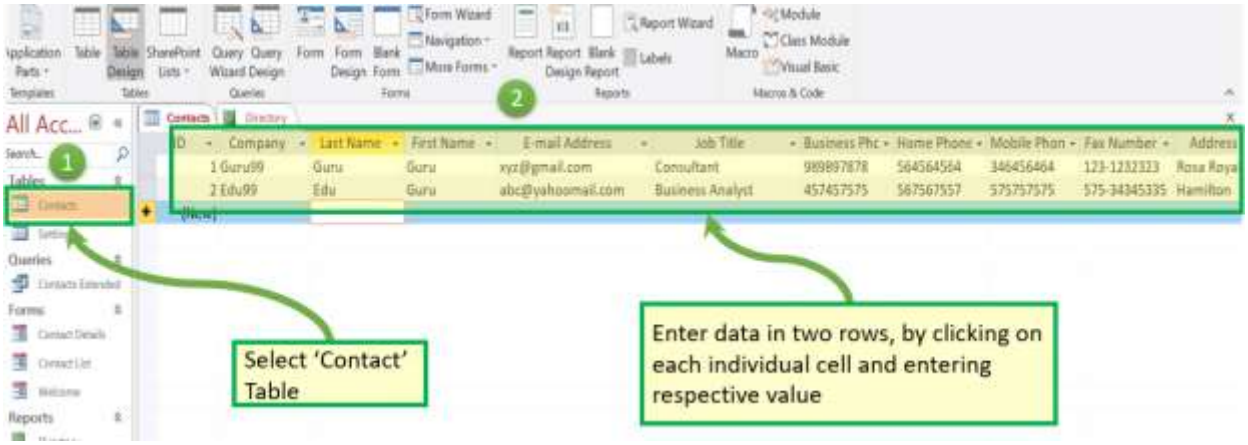
Forms in MS ACCESS

- A form is a database object that you can use to create a user interface for a databaseapplication.
- It is mainly used to ease the process of data entry or editing.
- Data in a form can be selected from one or more tables.
- Forms can also be used to control access to data, like which fields or rows of data arevisible to which users.
- Forms have a Form View.
- Help you to display live data with easy creation of new data.

To understand form lets first create **two new Record in** Contact Table (from the prebuilt ContactDatabase discussed here)

Step 1) Select the 'Contact' table from Left Navigation.

Step 2) Create two rows by entering some relevant data in two rows.



Create Form, and then we will see how forms can be leverage for easy display, editing, andcreation of new data.

How to create a form

There are four primary ways to create the form as mentioned below:

- Form Wizard
- Form
- Multiple Item
- Split Form

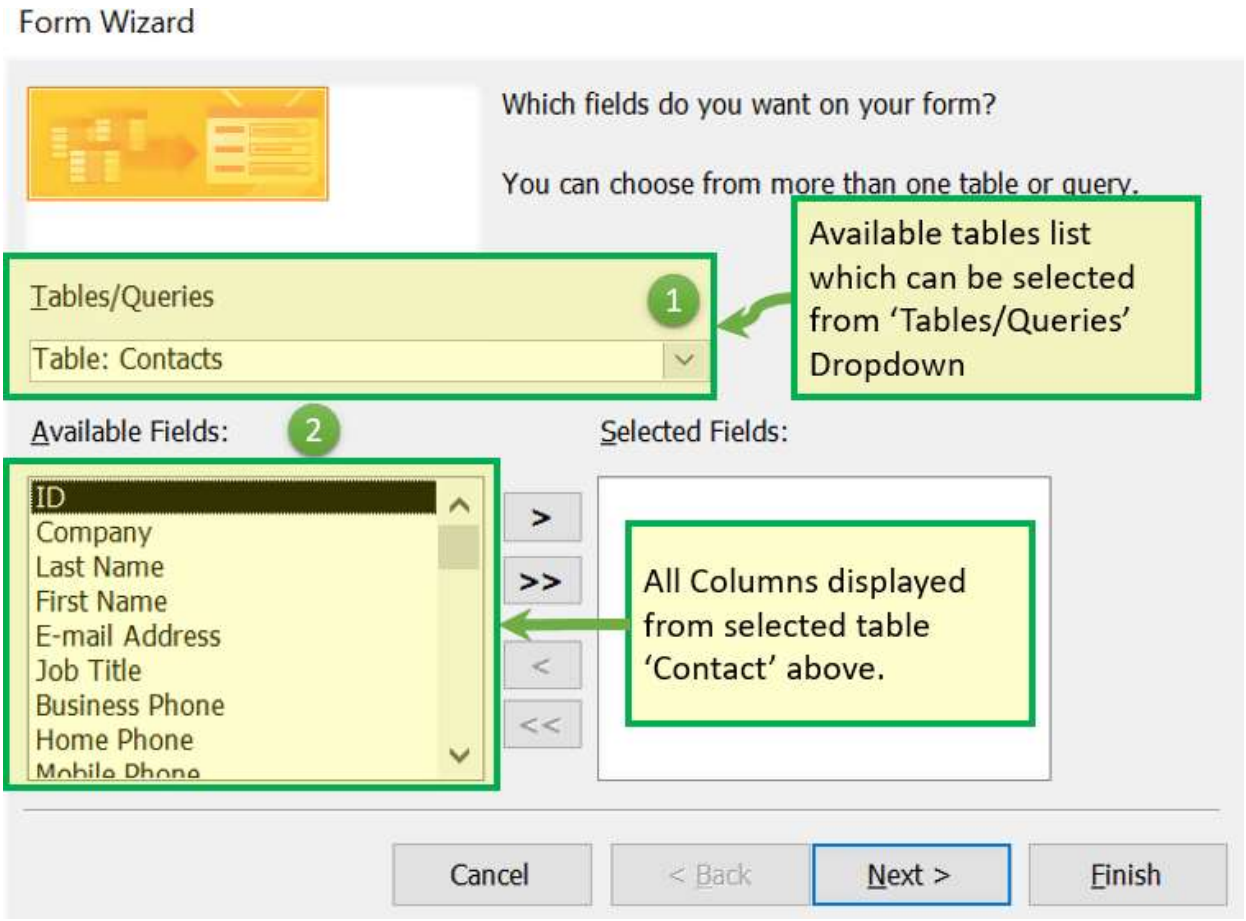
Let's have a look at each option to create the form, one by one:

1. Create using Form Wizard

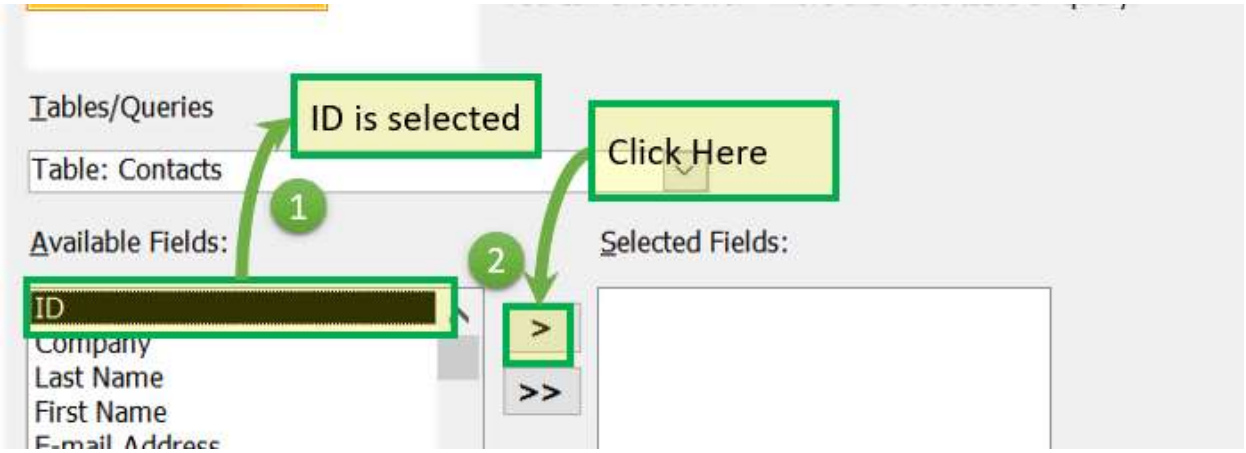
This option allows the user to create the form with the wizard and select the column from theavailable list of column form in the legacy Select window format.

Step 1) Click on **'Form Wizard.'**

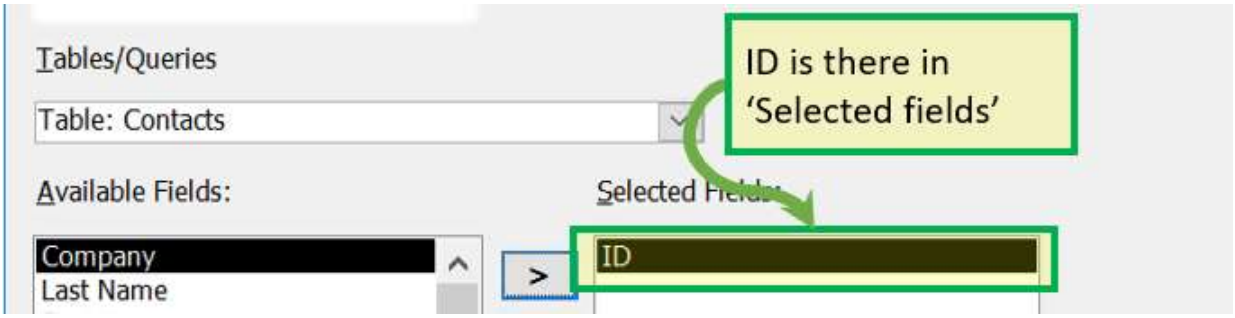
Step 2) System will display below the screen.



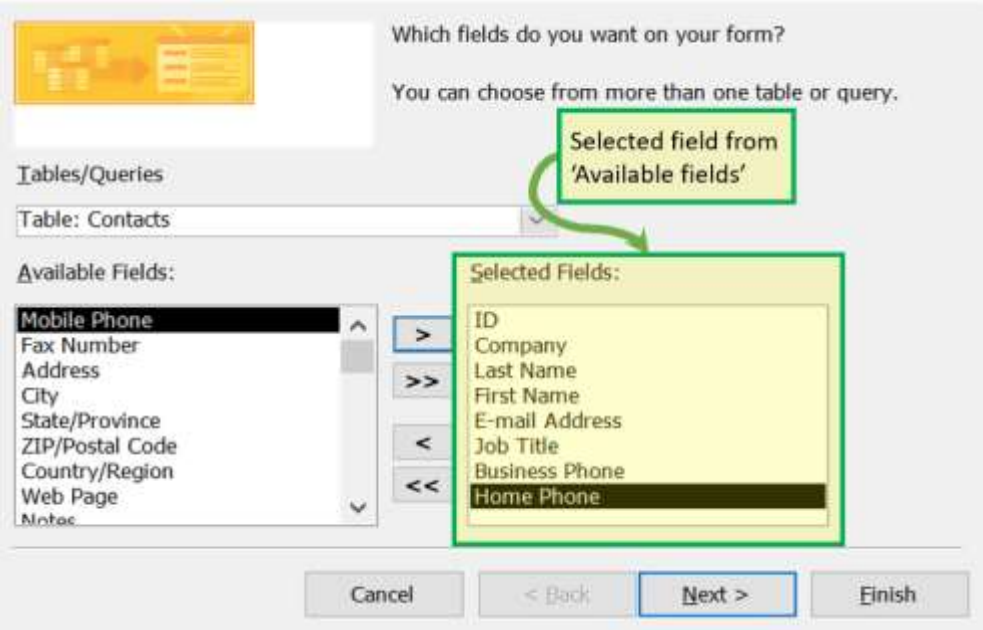
Step 3) Select the columns which you want to be there in final form.



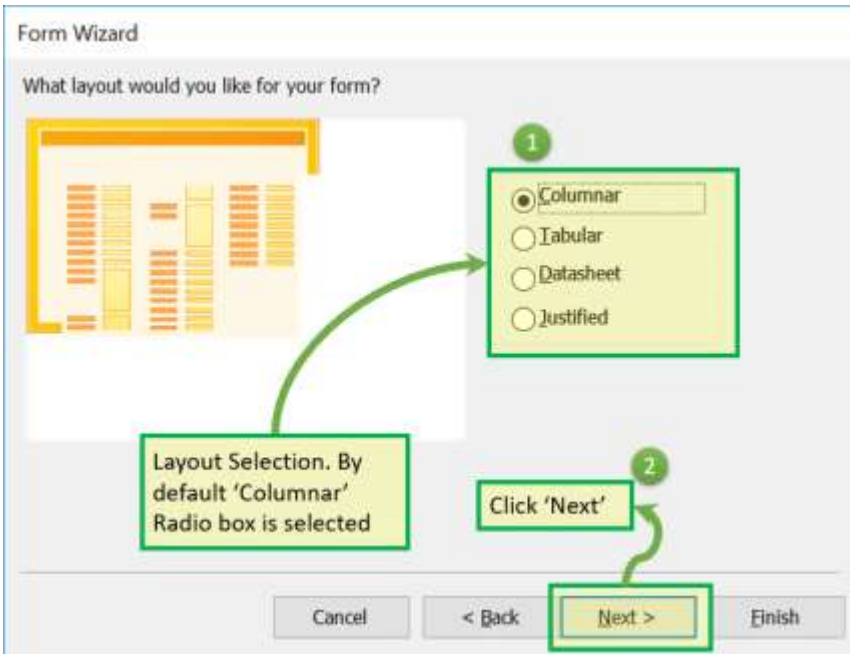
Result: ID is selected



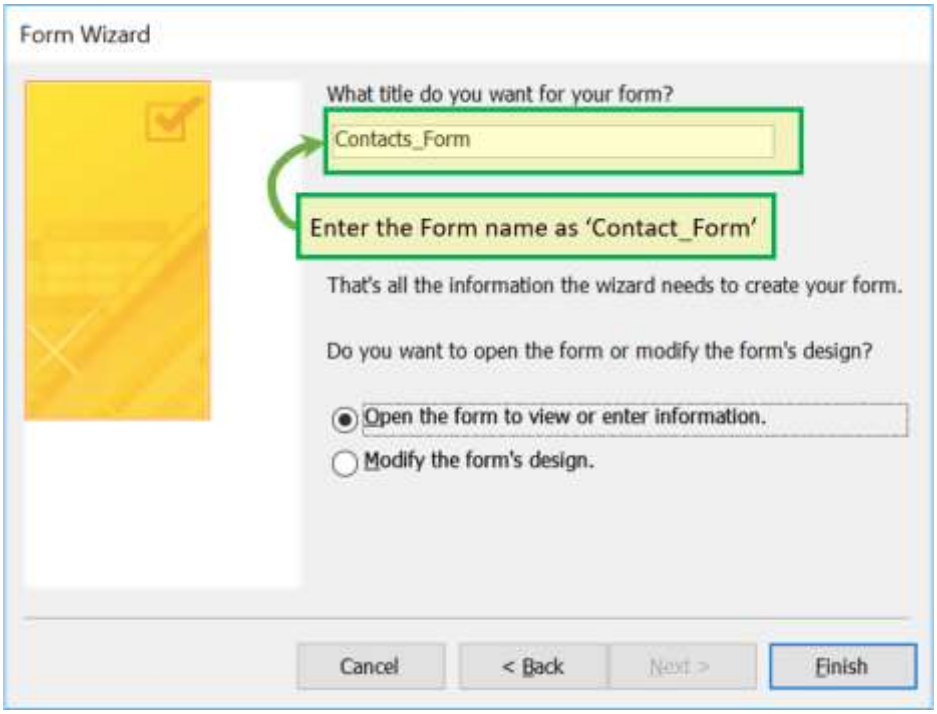
Step 4) Keep selecting all required column as explained in Step 3 above and then click 'Next.'



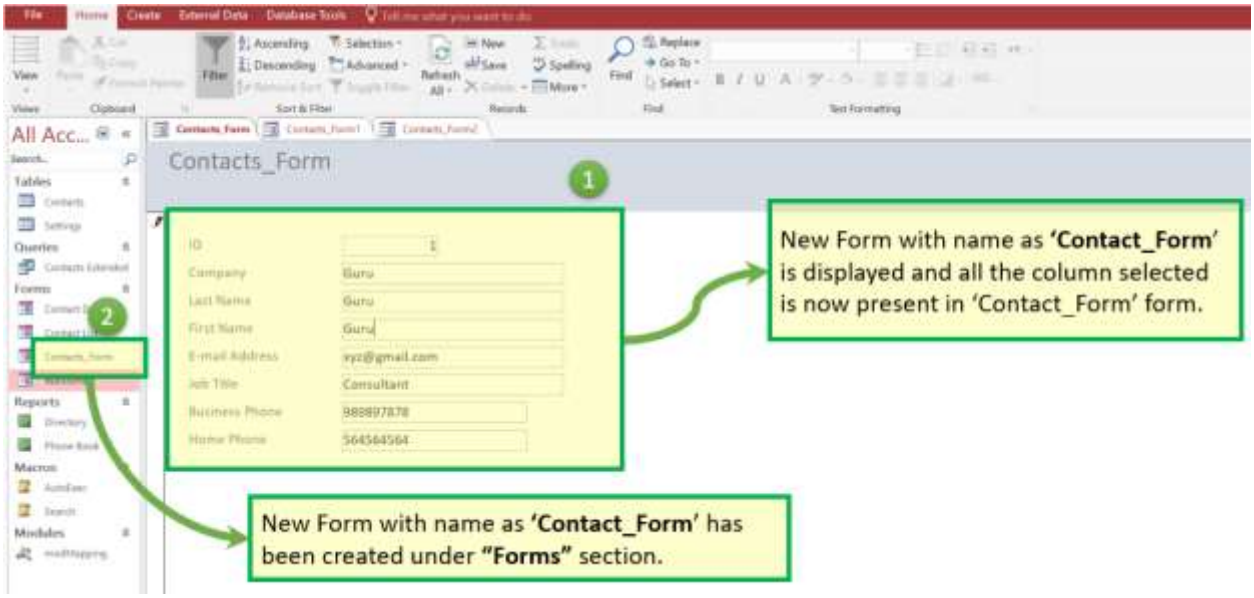
Step 5) Layout selection box will appear which allows the user to select the different type ofform layout. Click 'NEXT'



Step 6) Enter the name of the form as "Contact_Form" and click 'Finish.'



Result: Contact_Form now exist with all column displayed which are there in step 4 in theSelected column list.

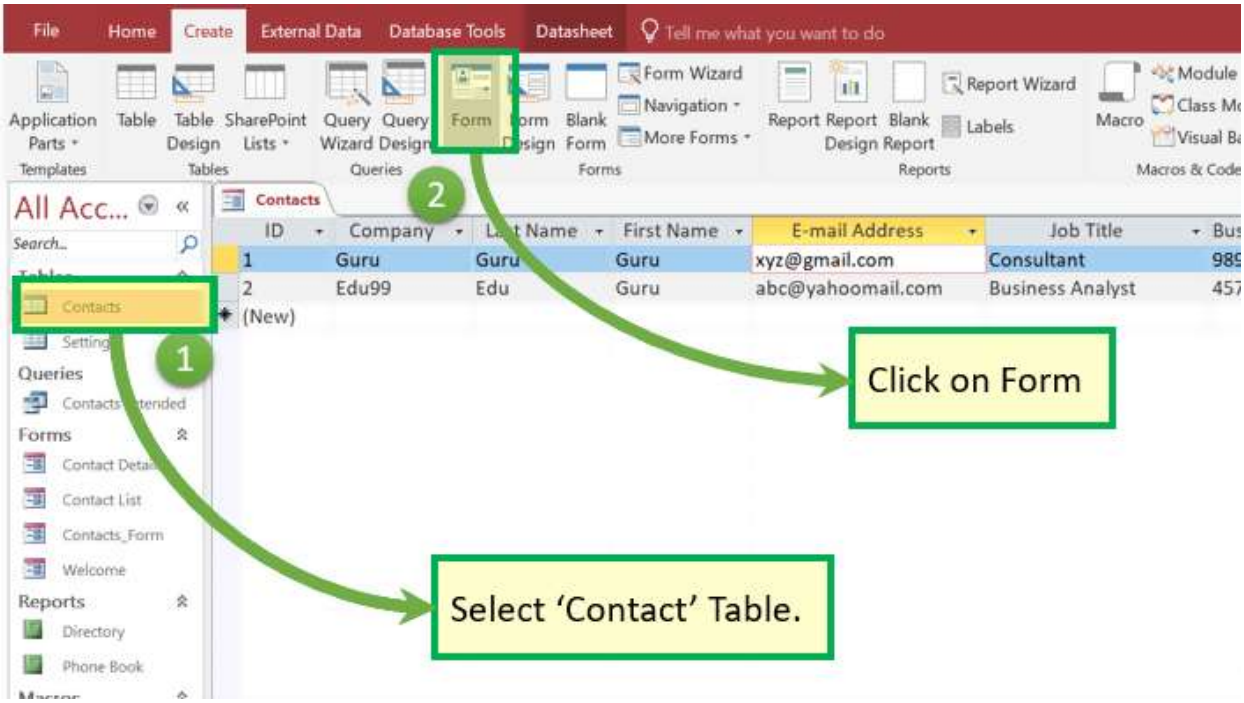


2. Create using Form

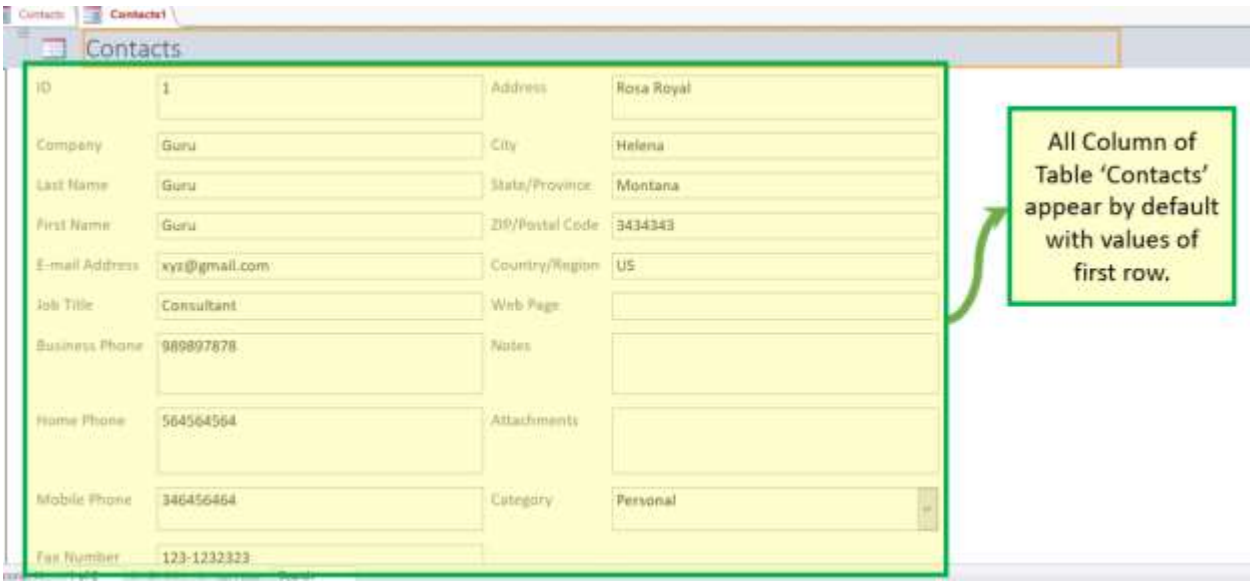
It is the simplest way to create the form which will:

- By default, populate all the column from the selected table in 'form view,'
- The user can delete non-required column manually

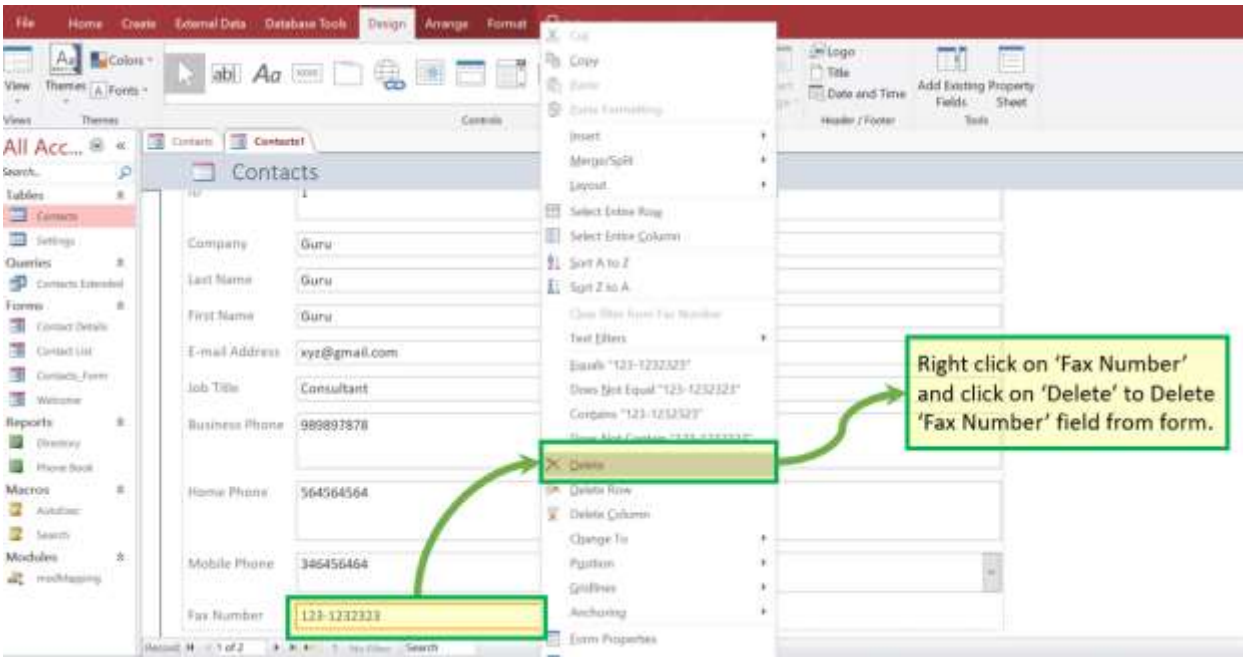
Step 1) Select the table for which we want to create the form and click on 'Form.'



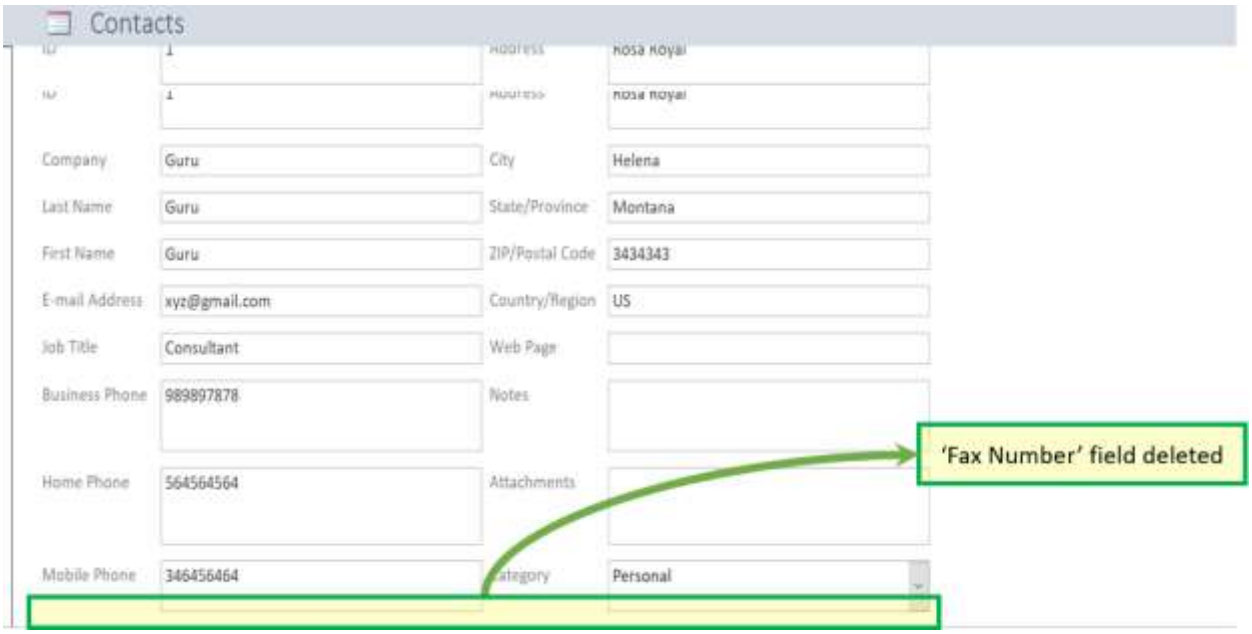
Step 2) Below window will appear.


Contacts
Contacts1
Contacts
ID
1
Address
Rosa Royal
Company
Guru
City
Helena
Last Name
Guru
State/Province
Montana
First Name
Guru
ZIP/Postal Code
3434343
E-mail Address
xyz@gmail.com
Country/Region
US
Job Title
Consultant
Web Page
Business Phone
989897878
Notes
Home Phone
564564564
Attachments
Mobile Phone
346456464
Category
Personal
Fax Number
123-1232323
All Column of Table 'Contacts' appear by default with values of first row.

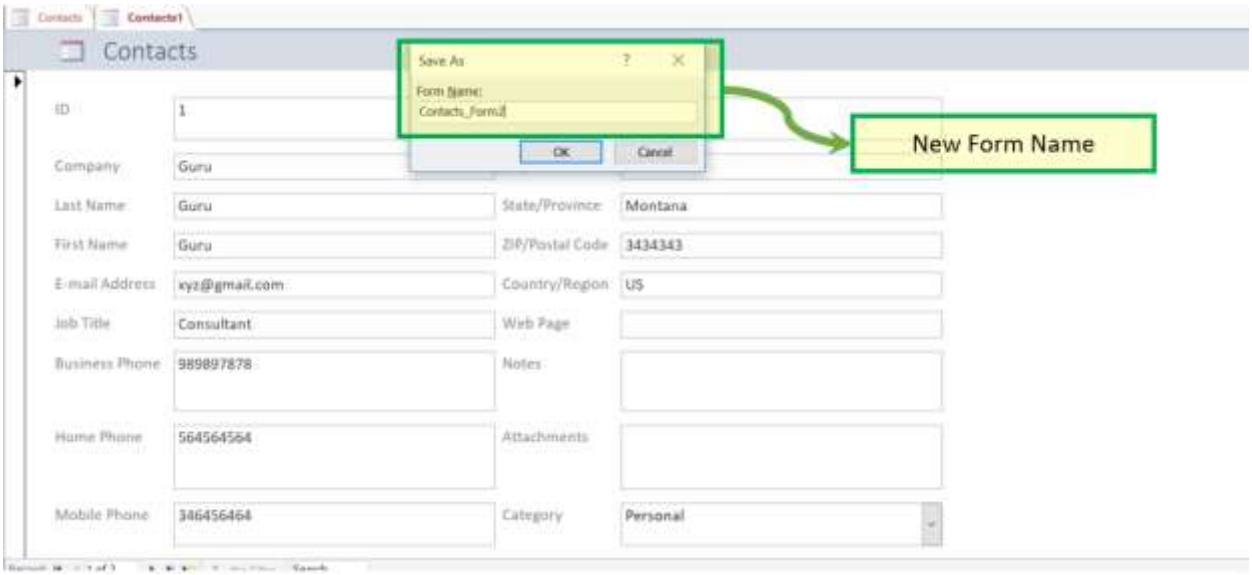
Step 3) Right-click on any cell which we don't want to be part of final forms and click on'Delete.'



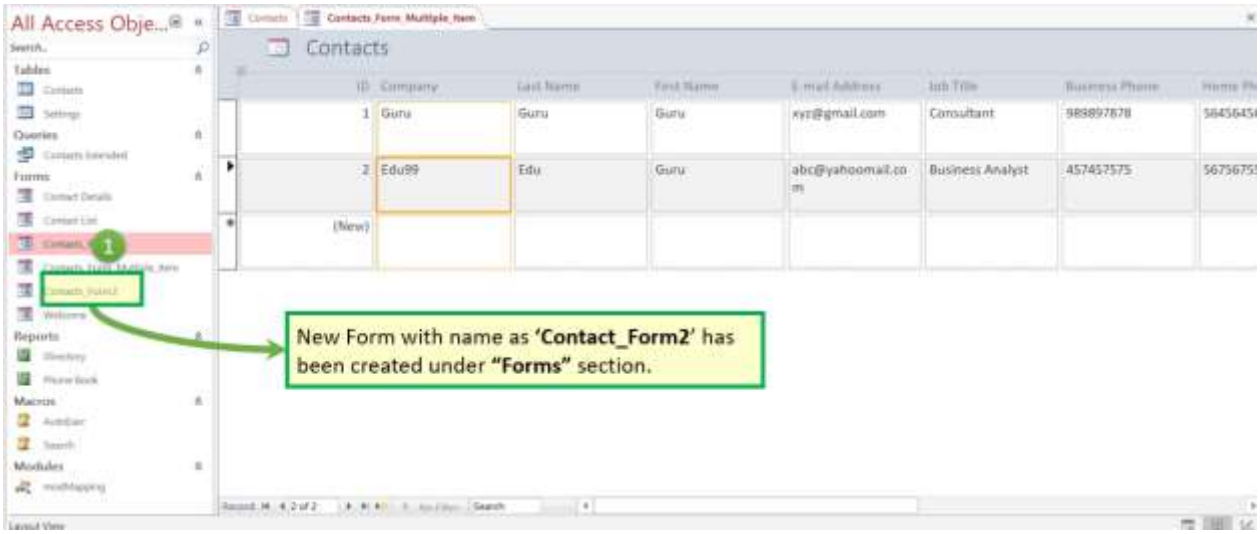
Result: 'Fax Number' **field does not exist now.**



Step 4) Press 'Ctrl+S' and enter new Form Name as 'Contact_Form2'. Click 'OK'.



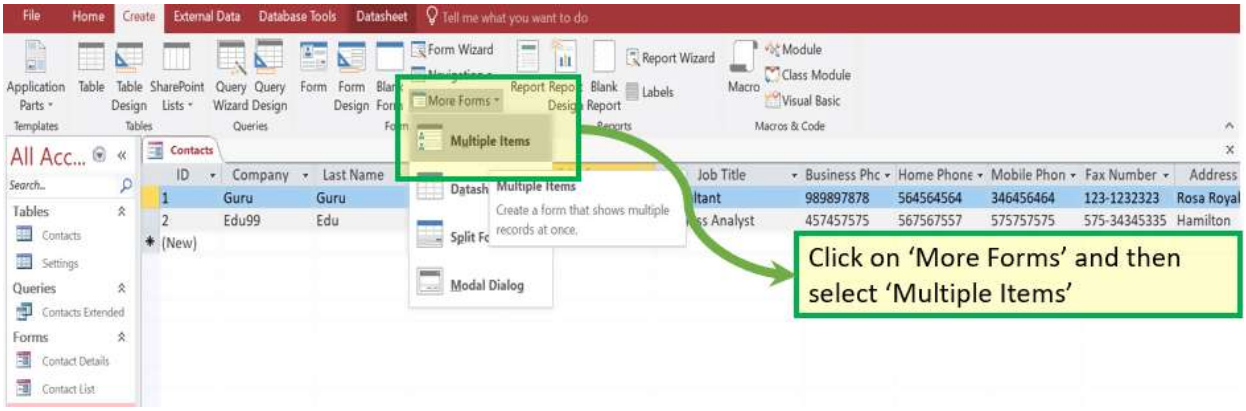
Result: New form with the name as **'Contact_Form2'** exists under the "Forms" section.



3. Create form by 'Multiple Item.'

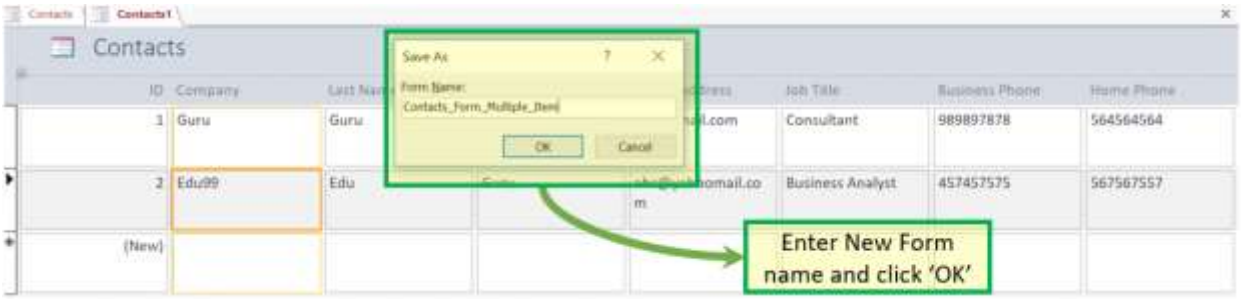
It is another type wherein All the records already created will be displayed in Form with anoption to Add new record.

Step 1) From the 'Create' tab. Click on 'More forms' and select 'Multiple Items.'

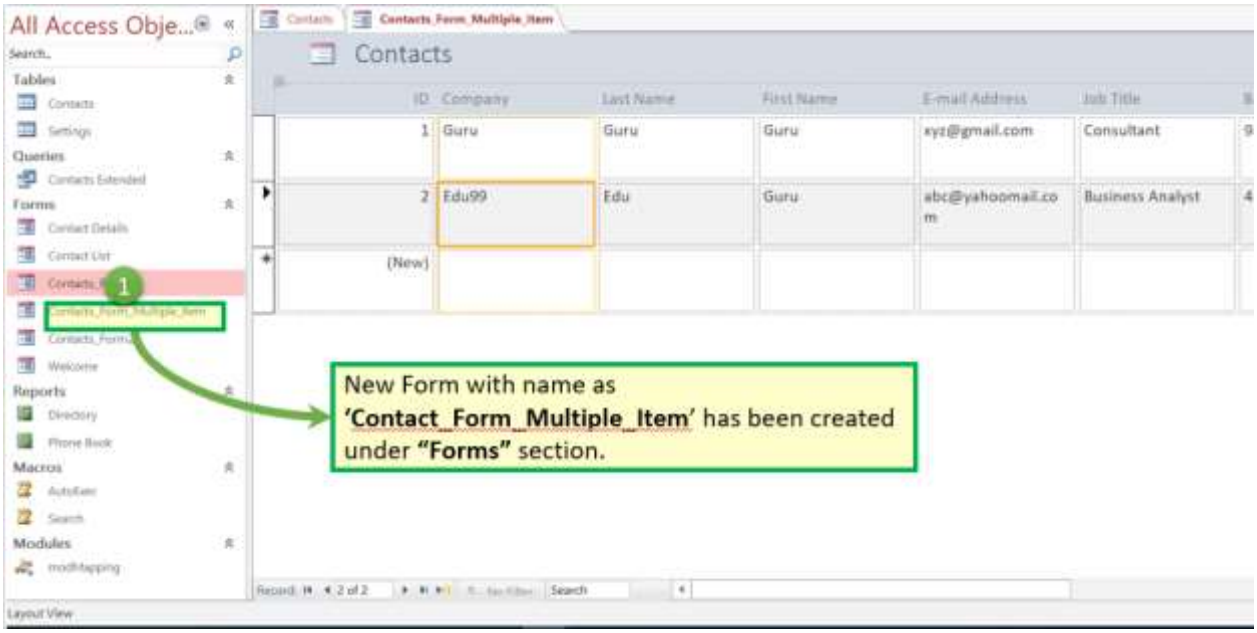


Result: Below Multiple lines, the window will appear

Step 2) Press 'Ctrl+S'. Enter the new form name and click 'OK.'



Result: New Form with the name as 'Contact_Form_Multiple_Item' exists under the "Forms"section.

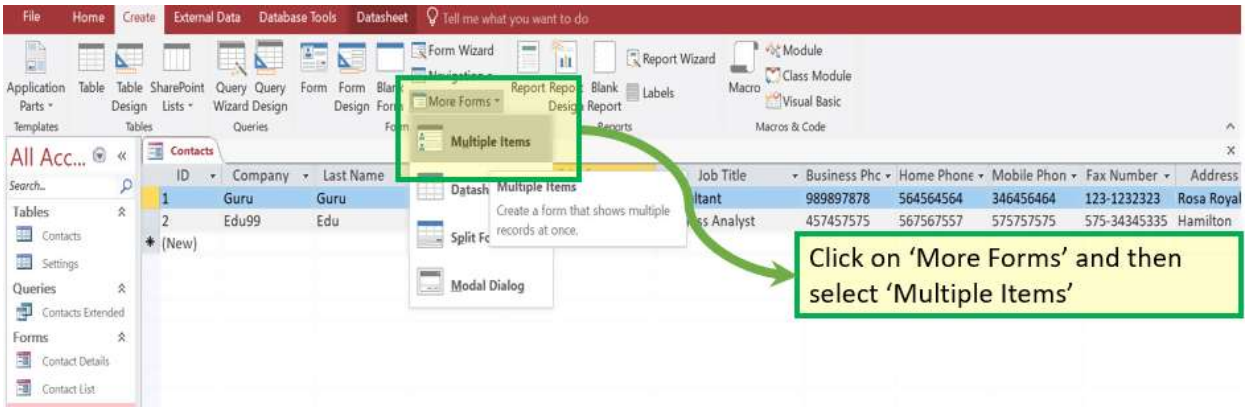


4. Create form by 'Split from'.

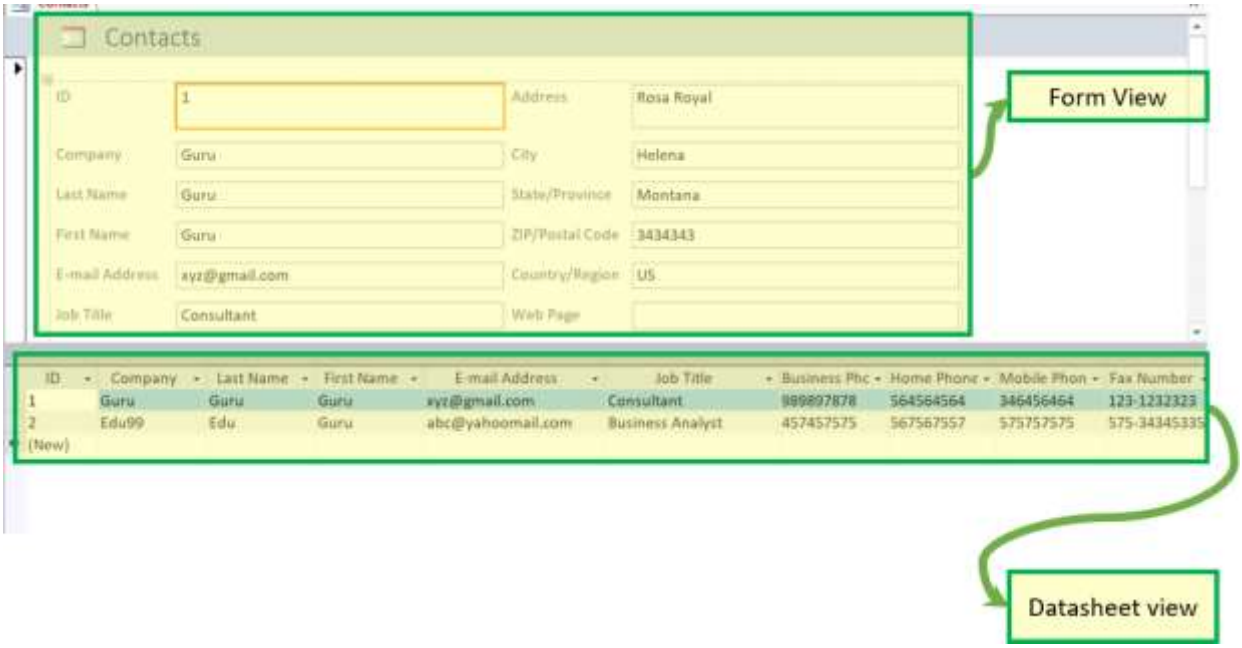
It is a mix of simple form and split form in a way that this form provides the view of **Form anddatasheet** in a split window.

Whatever the user enters in Form is visible directly in Datasheet view immediately and viceversa.

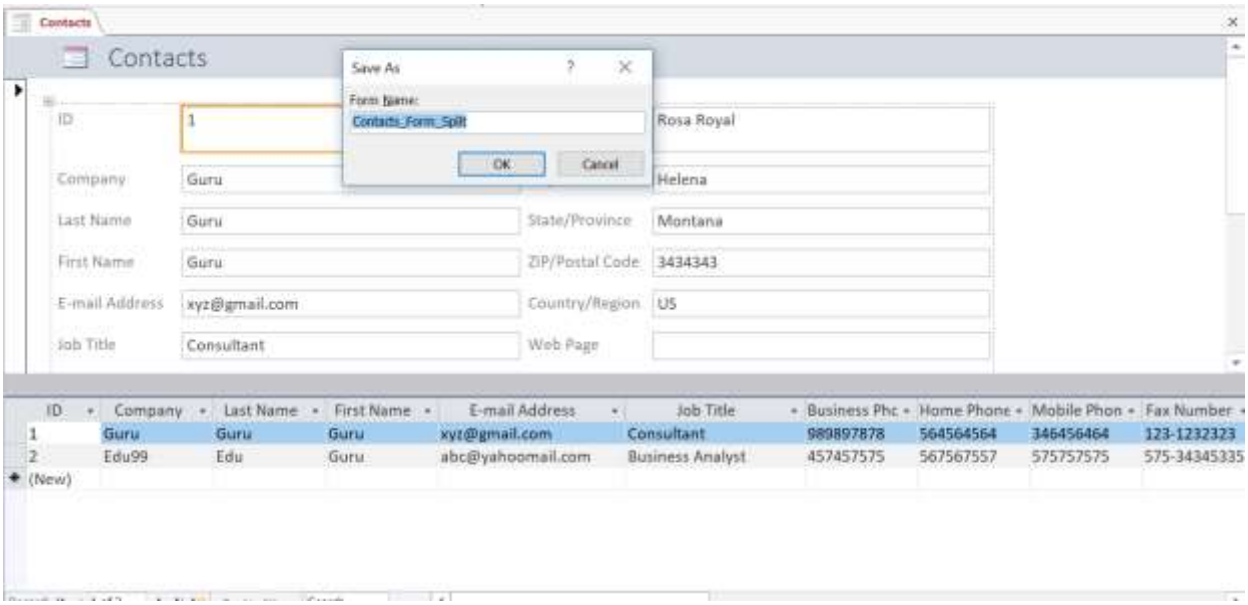
Step 1) From the 'Create' tab, click on 'More forms' and select 'Split Form.'



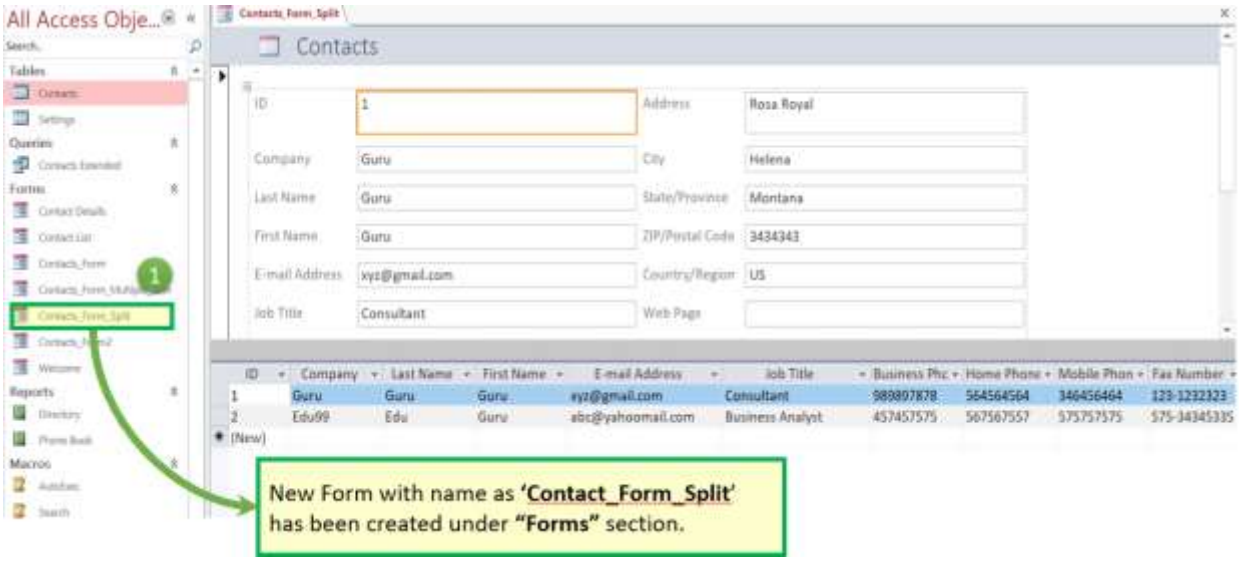
Result: Below window will appear with the Form and data sheet together.



Step 2) Press 'Ctrl+S' and enter the new form name. Click 'OK.'



Result: New Form with the name as 'Contact_Form_Split' exists under the "Forms" section.

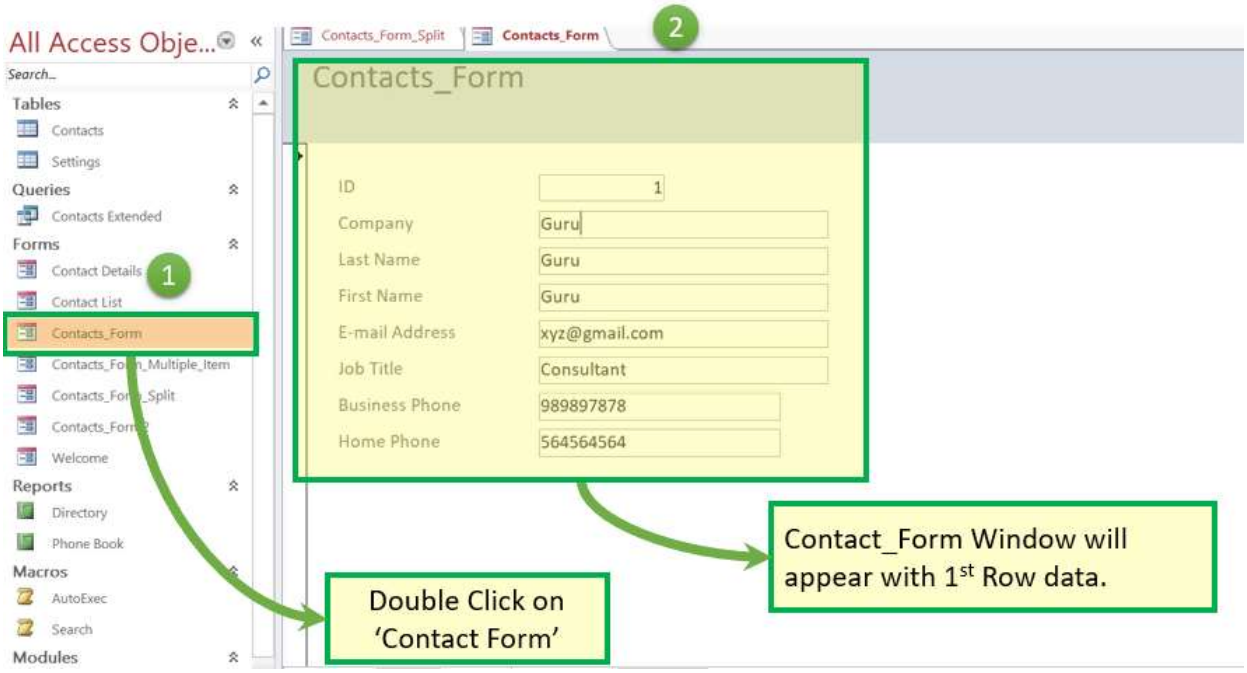


Edit the existing record via Form.

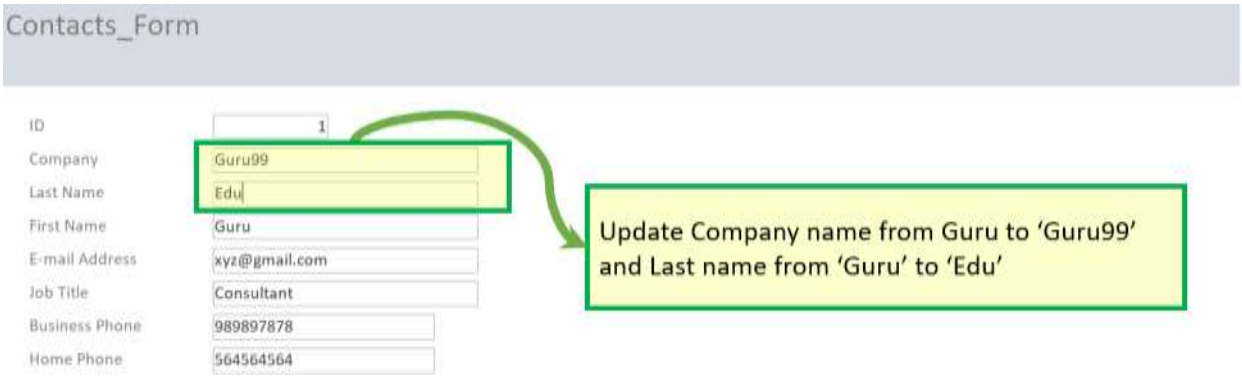
- One of the features of forms is that we can edit the values and data directly from theform.
- It is more user-friendly because as compared to row format in the table, forms have bettervisibility of selected fields and the user can do the direct updates.
- These values updated from forms will also be reflected in original tables immediately.

Let's have a look at how to edit value from the form:

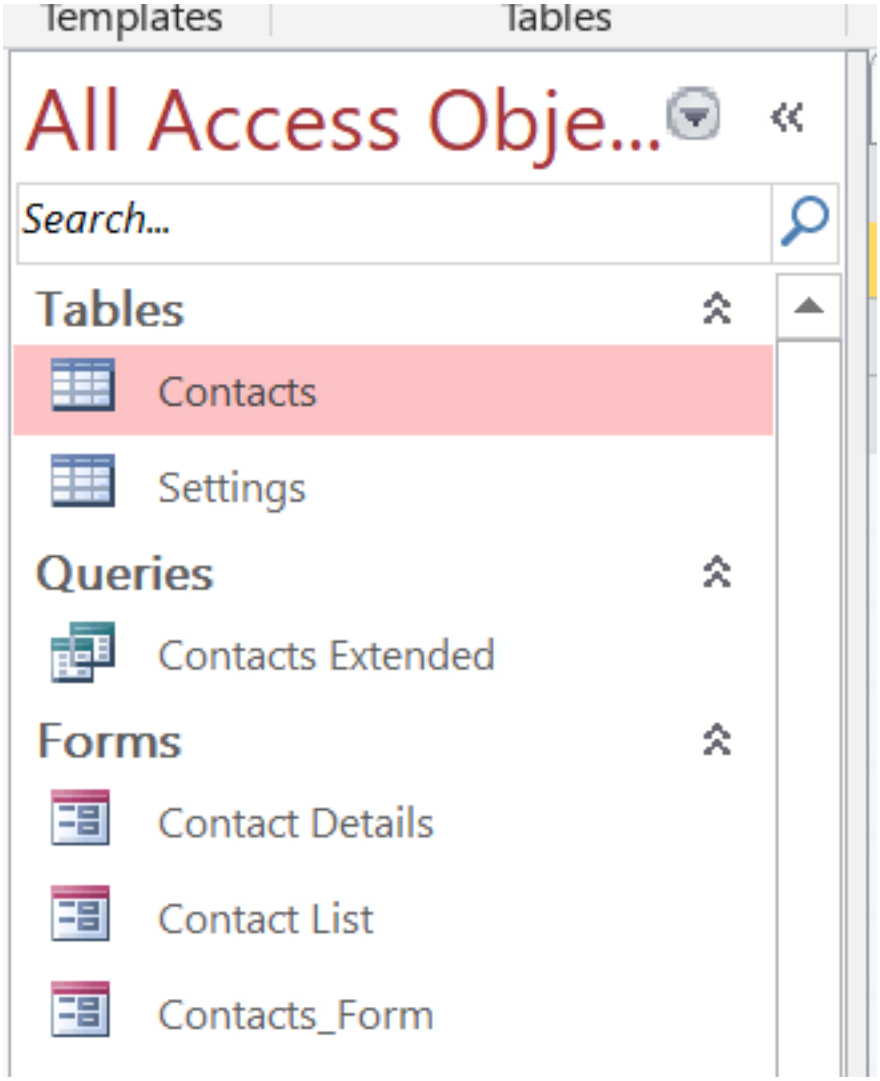
Step 1) Click on **'Contact_Form'**

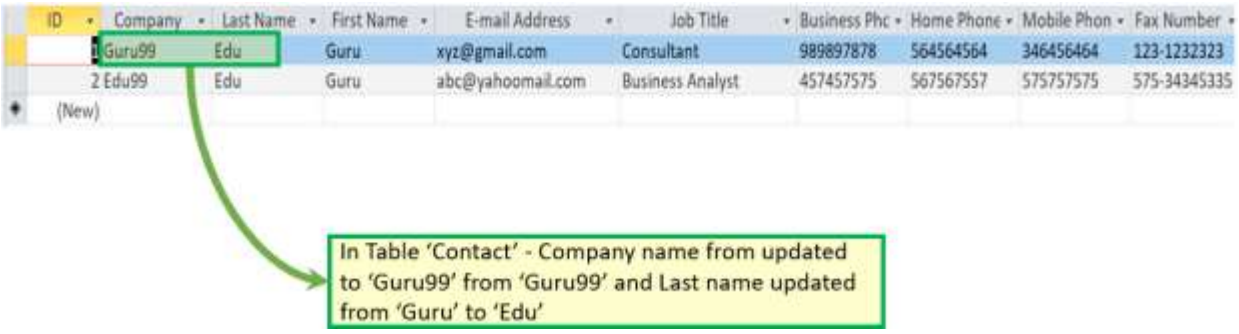

All Access Obje...
Search...
Tables
Contacts
Settings
Queries
Contacts Extended
Forms
Contact Details
Contact List
Contacts_Form
Contacts_Form_Multiple_Item
Contacts_Form_Split
Contacts_Form2
Welcome
Reports
Directory
Phone Book
Macros
AutoExec
Search
Modules
1
Contacts_Form_Split
Contacts_Form
2
Contacts_Form
ID
1
Company
Guru
Last Name
Guru
First Name
Guru
E-mail Address
xyz@gmail.com
Job Title
Consultant
Business Phone
989897878
Home Phone
564564564
Double Click on 'Contact Form'
Contact_Form Window will appear with 1st Row data.

Step 2) Update some values on 'Contact_Form' value



Step 3) Double Click on 'Contact' table.

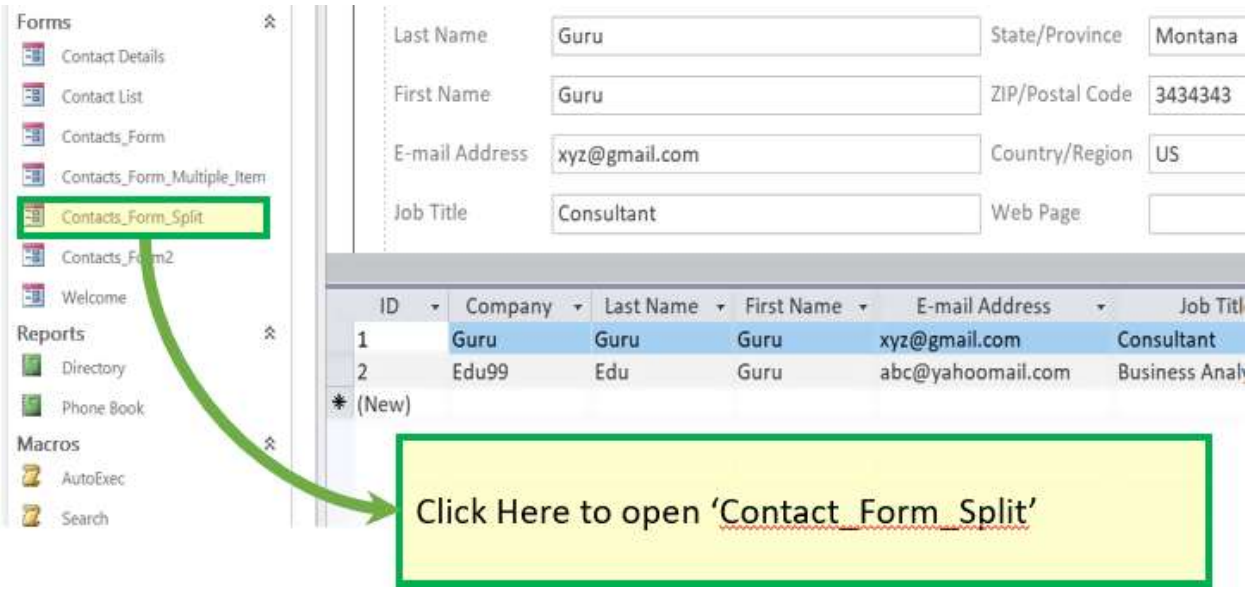




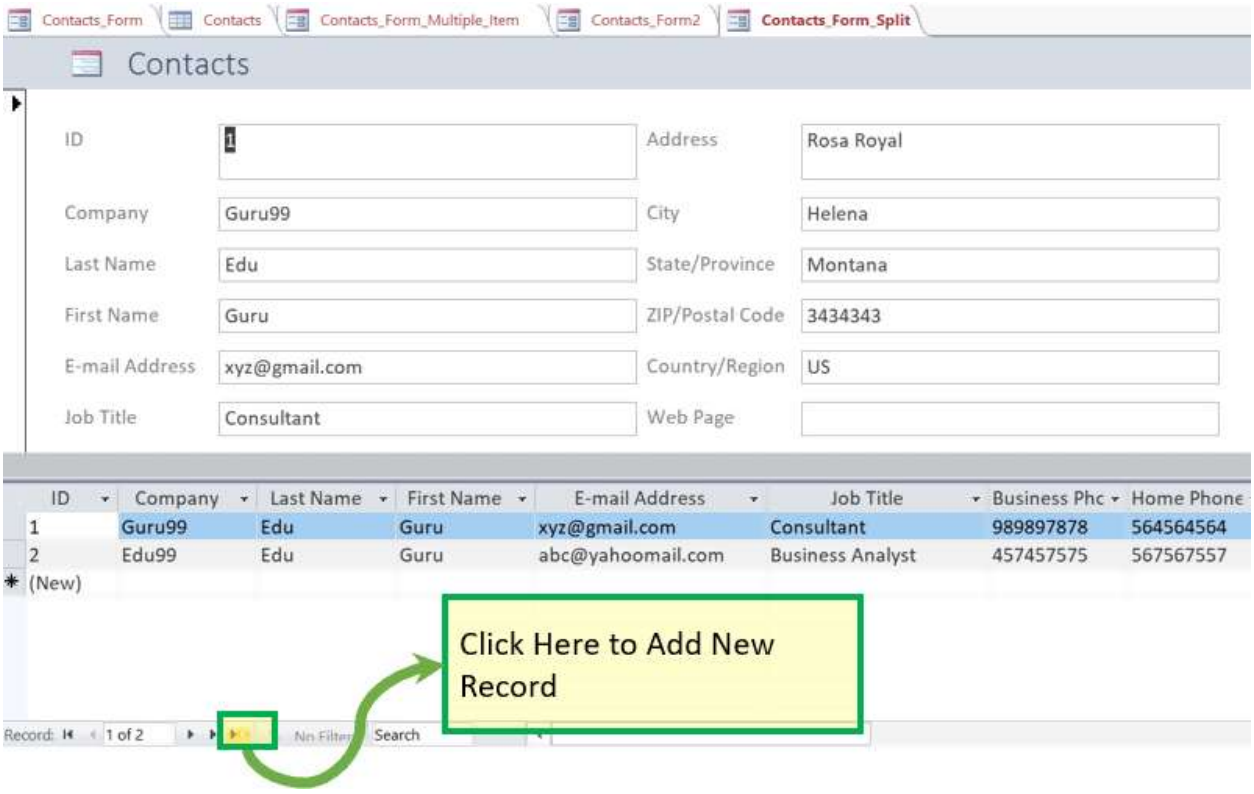
Add a record to a Form.

- Forms also give the flexibility to Add records.
- Again, this is a user-friendly and appealing way of adding records as compared to addingrecords in a row form.
- Here, we will take the Microsoft Access databases example of Split from'Contact_Form_Split' created above.

Step 1) Open 'Contact_Form_Split'

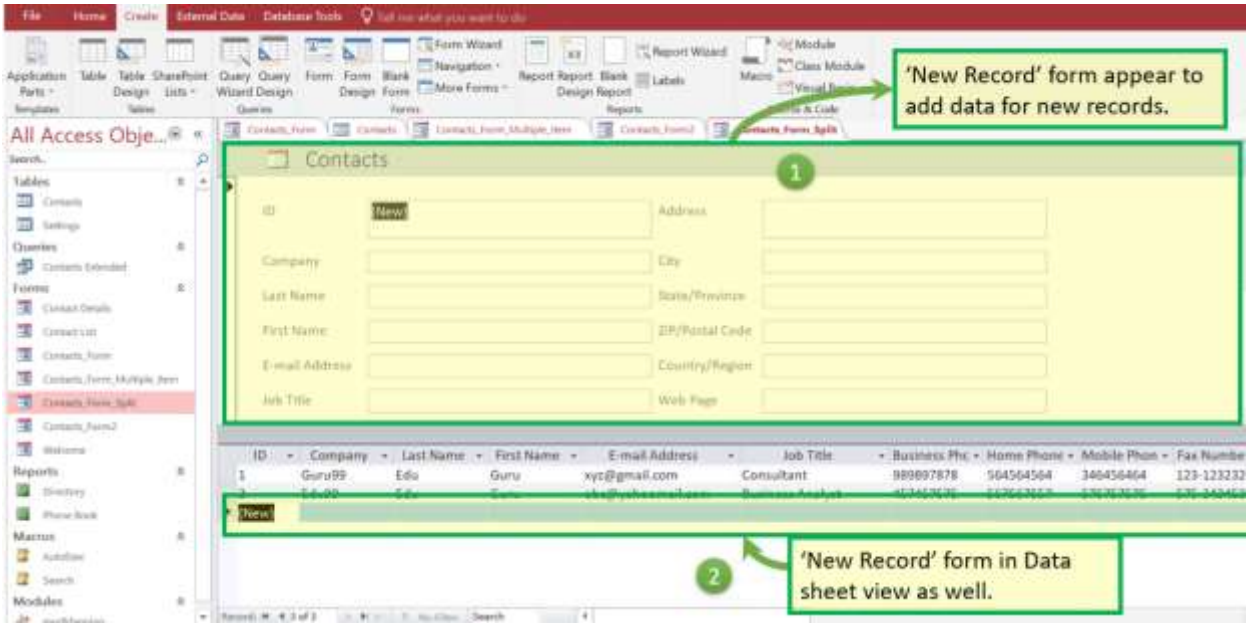


Step 2) To Add record, click on 'New (blank) Record Icon.'



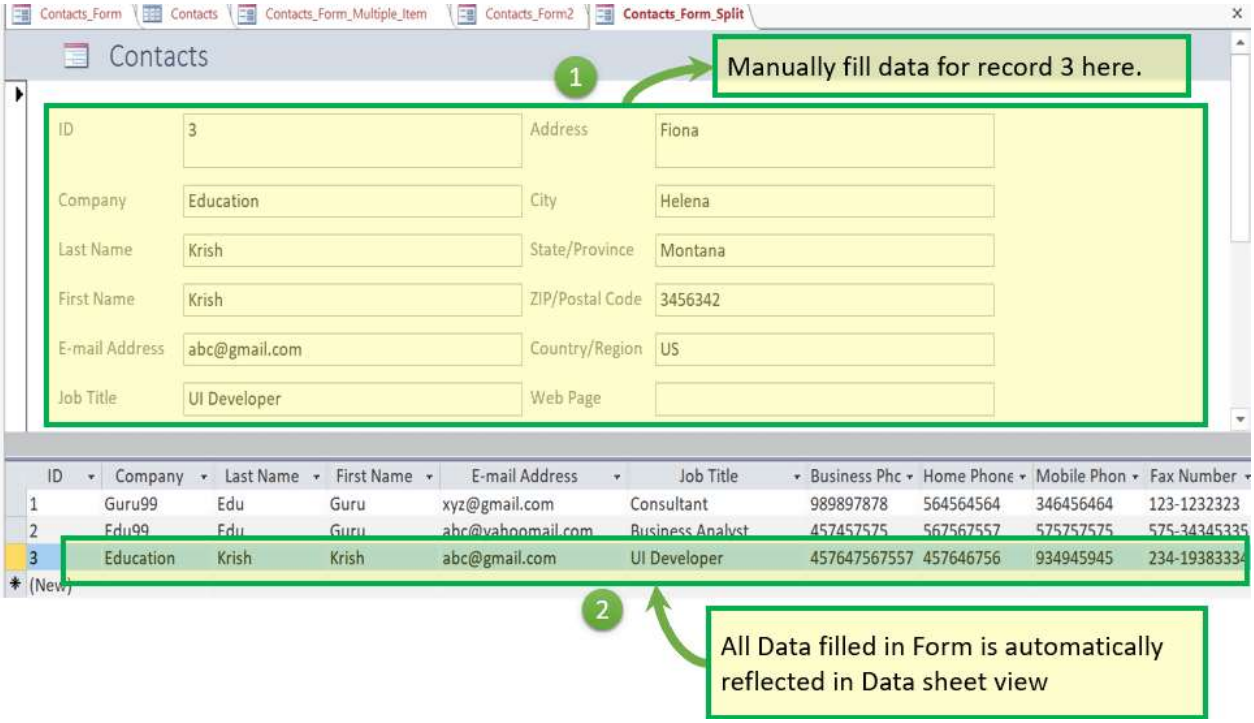
Result: New record window appear in:

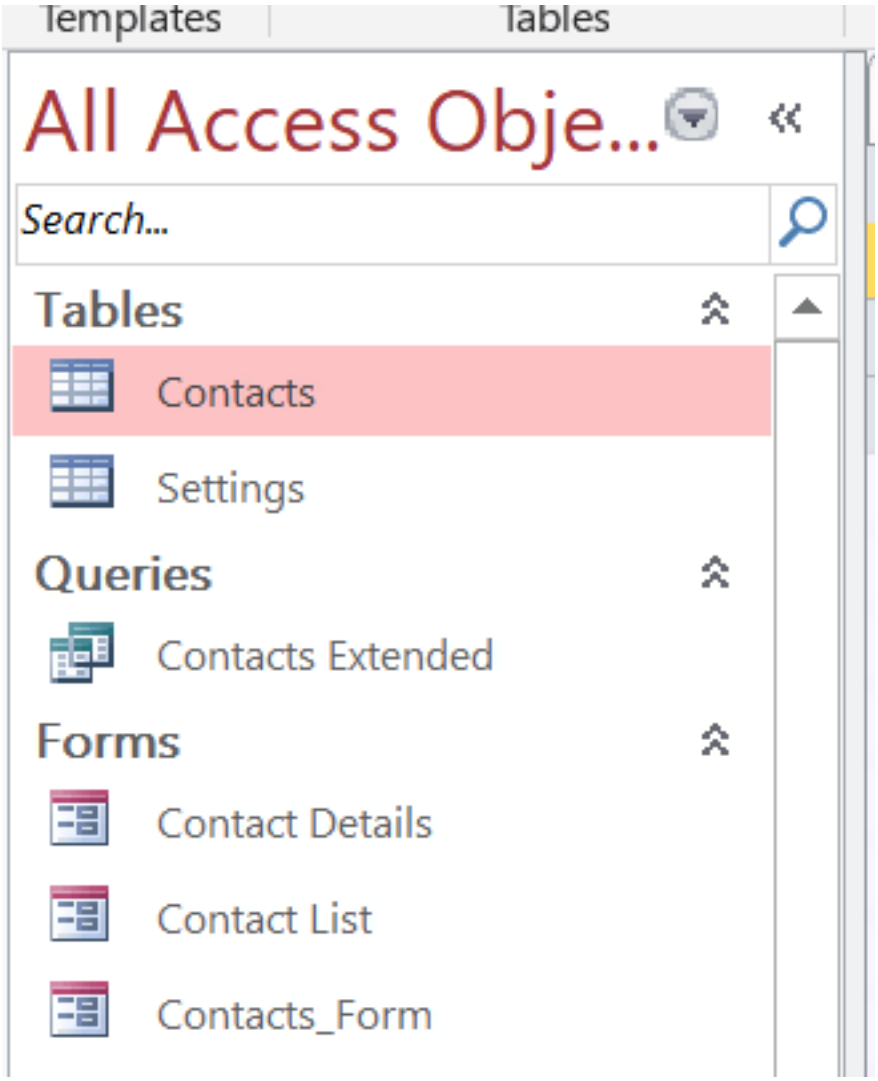
1. Form View and
2. Datasheet View.



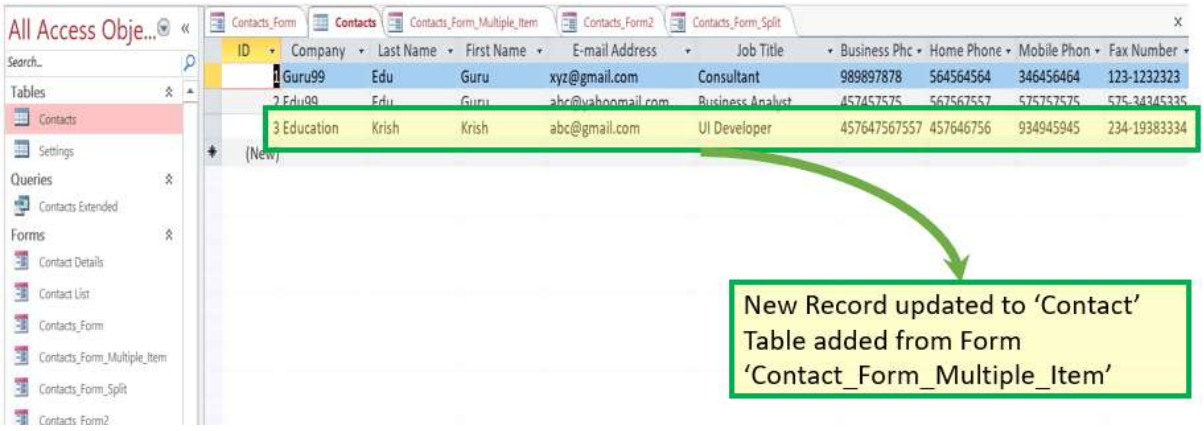
Step 3) Manually fill the data from Form. Note that in split form all data will be automaticallyreflected in below data sheet as well.

Step 4) Double Click on 'Contact' table.





Result: New Record updated to 'Contact' Table added from Form 'Contact_Form_Multiple_Item'



Report

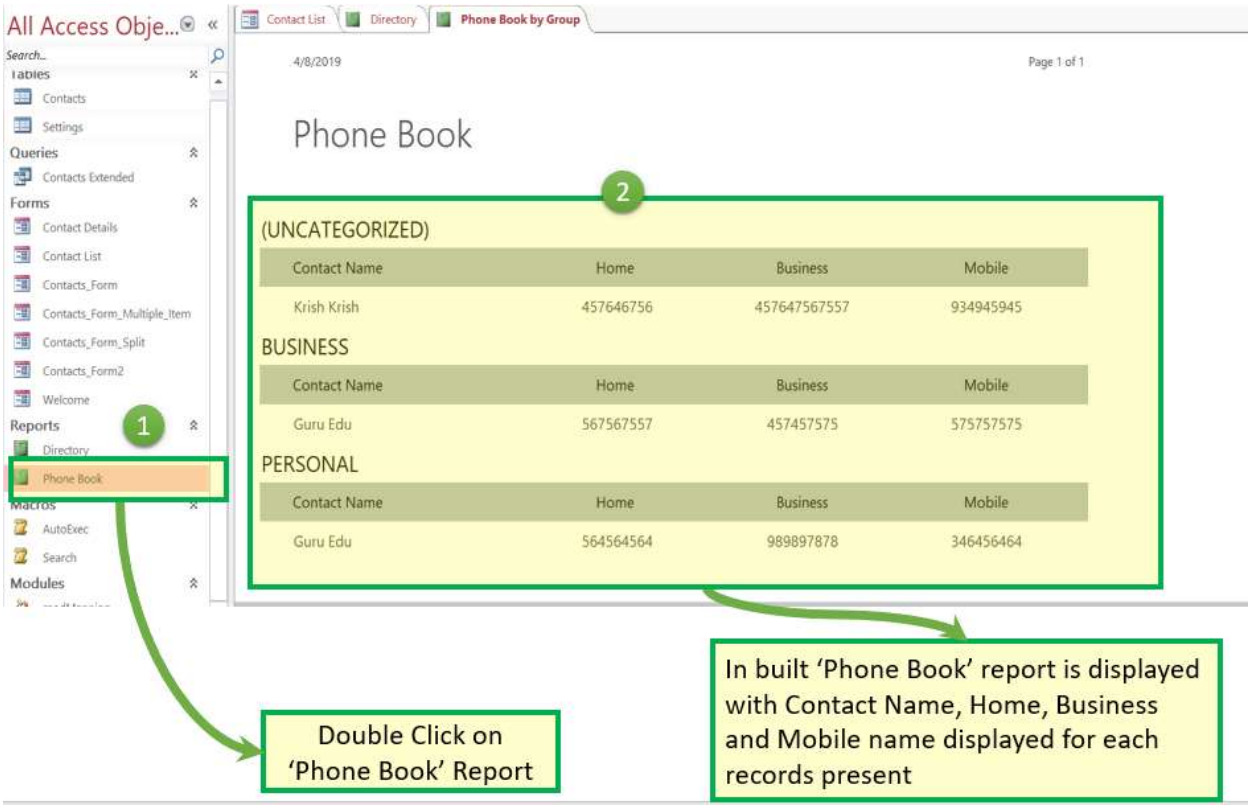
- A report is an object in MS Access that is designed for formatting, calculating andprinting selected data in an organized way.
- It contains information from tables and also information that are there in the reportdesign.
- Reports are helpful as they allow you to present all information of your database in aneasy-to-read format.

Let's take an MS Access databases example of **'Contact'** DB default report – 'Phone Book.'

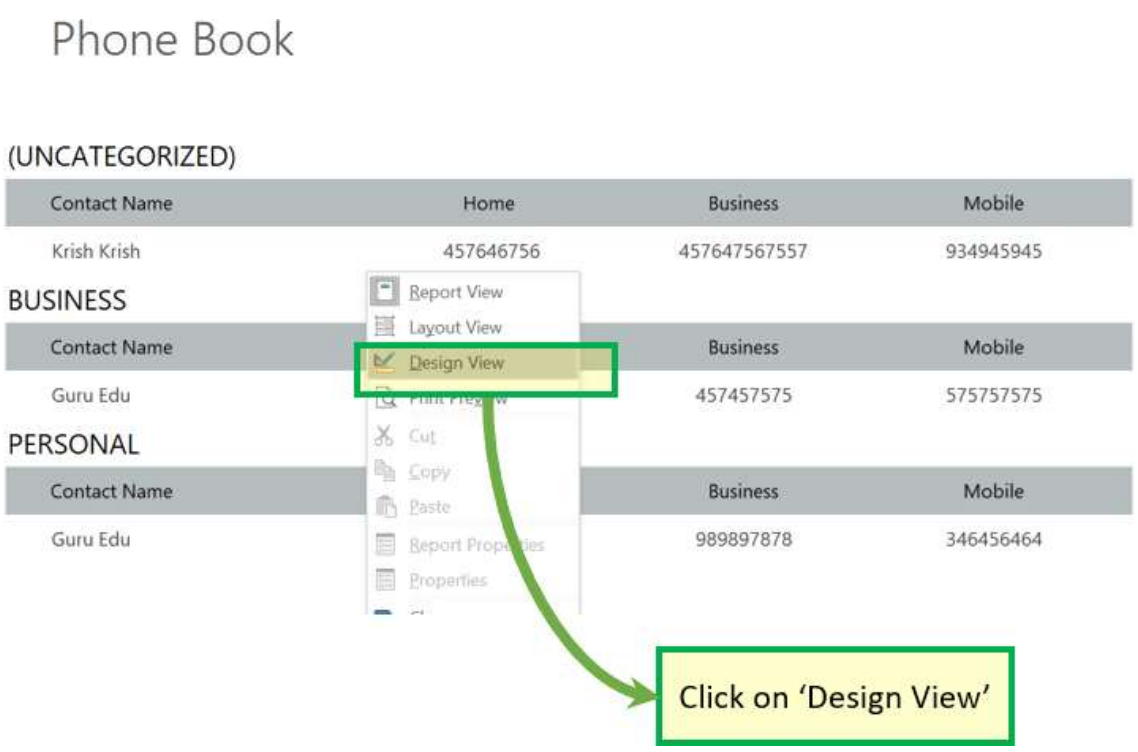
Step 1) Click on 'Phone Book' under 'Report' section. The system will open the inbuilt 'PhoneBook' report.

It will display Contact Name, Home, Business and Mobile name

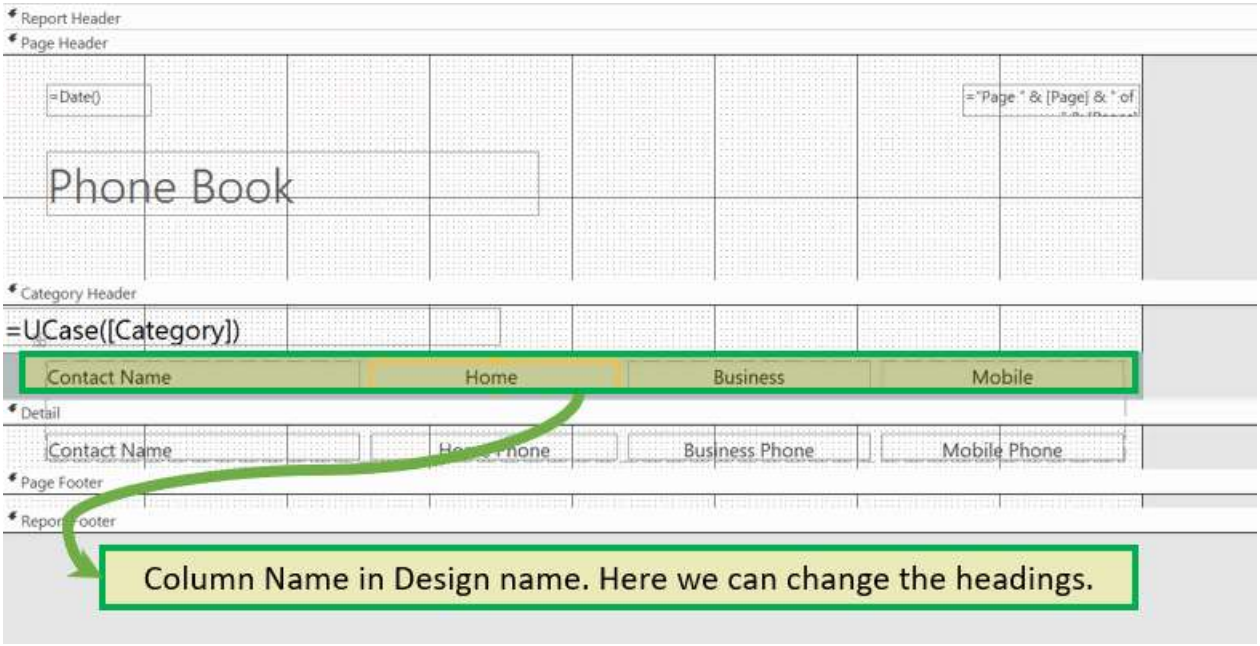
displayedfor each record present.



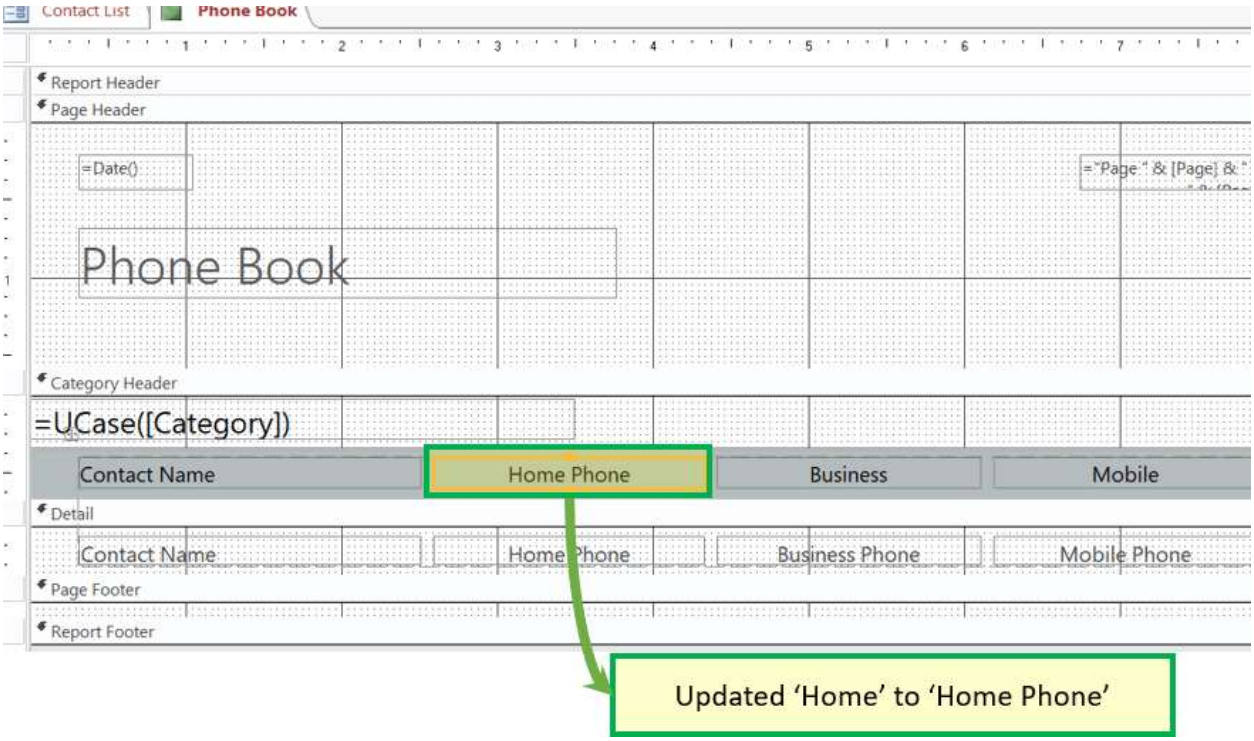
Step 2) Now suppose that we want to edit the report Heading from 'Home' to 'Home Number.'Right click and click on 'Design View.'



The system will open the Report in Design view.

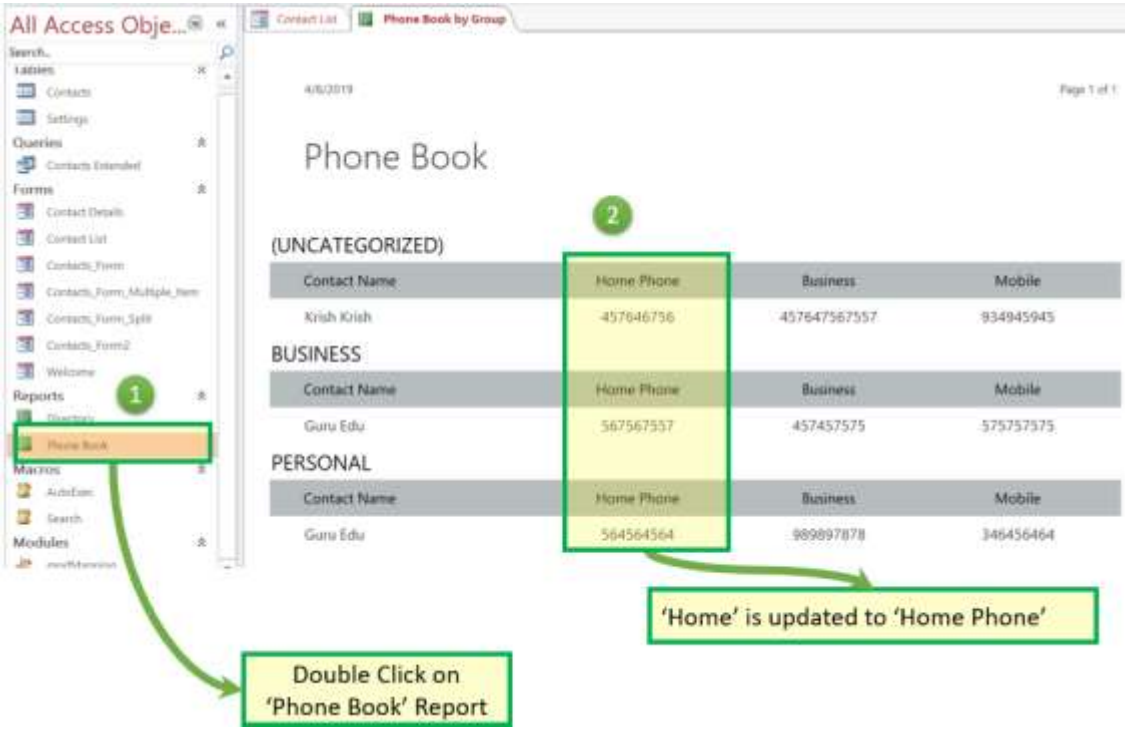


Step 3) Edit the name you want to update and Press 'Ctrl+S'.



Step 4) Double click 'Phone book' under reports

Result: Label is updated from 'Home' to 'Home Phone.'



Summary

- Microsoft Access is a Database Management System offered by Microsoft.
- Allows you to create tables, queries, forms, and reports, and connect with the help of Macros
- MS-Access will enable you to link to data in its existing location and use it for viewing, updating, querying, and reporting.
- Access consists of **four main database objects**: Tables, Queries, Forms, and Reports.
- There are **two ways** to **create a Database in SQL ACCESS**:
- Create Database from **Template**
- Create a **Blank Database**
- There are **two ways** to **create a Database in MS ACCESS**
- Create a Table from **Design View**
- Create a Table from **Datasheet View**
- You can switch between the datasheet and the design view by clicking the 'View'button in the top-left-hand corner of the Access program.
- A form can be created using Form Wizard, Form, Multiple Item, Split Form
- A report is an object in MS Access designed for formatting, calculating, andprinting selected data in an organized way.