

CL203: Database Systems lab

Lab#02

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MS Access Overview:

- Microsoft Access's Components: Tables, Queries, Forms, Reports
- Each has its own special function to allow the user to manage information

Microsoft Access's Components:

Tables to store your data.

Queries to find and retrieve just the data that you want.

Forms to view, add, and update data in tables.

Reports to analyze or print data in a specific layout.

Using Microsoft Access, you can manage all your information from a single database file. Within the file, divide your data into separate storage containers called tables; view, add, and update table data using online forms; find and retrieve just the data you want using queries; and analyze or print data in a specific layout using reports.

Customers : Table

Customer ID	Company Name	City
BSBEV	B's Beverages	London
EASTC	Eastern Connection	London

Store data once in one table, but view it from multiple locations. When you update the data, it's automatically updated everywhere it appears.

London Orders for April : Select Query

Company Name	City	Order Date
B's Beverages	London	11-Apr-96
Eastern Connection	London	12-Apr-96

Customers : Form

Customers

Customer ID: BSBEV

Contact Name: Victoria Ashworth

Company Name: B's Beverages

Sales by Customer : Report

Customer: B's Beverages

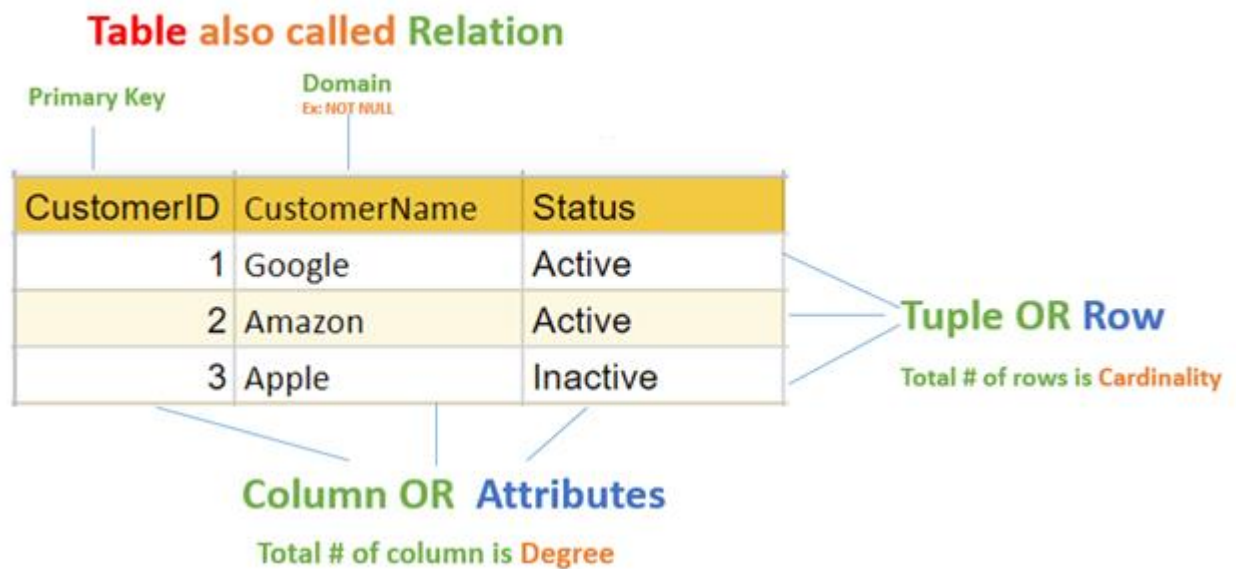
Order ID:	Sale Amount:
10943	\$711.00
10947	\$220.00
11023	\$1500.00
Total:	\$2431.00

1. Store data once in one table, but view it from multiple locations. When you update the data, it's automatically updated everywhere it appears.
2. Retrieve data by using a query.
3. View or enter data by using a form.
4. Display or print data by using a report.
5. All of these items — tables, queries, forms, and reports — are database objects.

Table

Table is an object that is used to define and store data. When you create a new table, Access asks you to define fields which is also known as column headings.

- Each field must have a unique name, and data type.
- Tables contain fields or columns that store different kinds of data, such as a name or an address, and records or rows that collect all the information about a particular instance of the subject, such as all the information about a customer or employee etc.
- You can define a primary key, one or more fields that have a unique value for each record, and one or more indexes on each table to help retrieve your data more quickly.



Query

An object that provides a custom view of data from one or more tables. Queries are a way of searching for and compiling data from one or more tables.

- Running a query is like asking a detailed question of your database.
- When you build a query in Access, you are defining specific search conditions to find exactly the data you want.
- In Access, you can use the graphical query by example facility or you can write Structured Query Language (SQL) statements to create your queries.
- You can define queries to Select, Update, Insert, or Delete data.
- You can also define queries that create new tables from data in one or more existing tables.

To find and retrieve just the data that meets conditions you specify, including data from multiple tables, create a query. A query can also update or delete multiple records at the same time, and perform built-in or custom calculations on your data.



Form

Form is an object in a desktop database designed primarily for data input or display or for control of application execution. You use forms to customize the presentation of data that your application extracts from queries or tables.

- Forms are used for entering, modifying, and viewing records.
- The reason forms are used so often is that they are an easy way to guide people toward entering data correctly.
- When you enter information into a form in Access, the data goes exactly where the database designer wants it to go in one or more related tables.

New Employee Registration Form

Employee Name* :

Email* :

Phone :

Address :

Username* :

Password* :

Report

Report is an object in desktop databases designed for formatting, calculating, printing, and summarizing selected data.

- You can view a report on your screen before you print it.
- If forms are for input purposes, than 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.
- Reports are useful because they allow you to present components of your database in an easy-to-read format.
- You can even customize a report's appearance to make it visually appealing.
- Access offers you the ability to create a report from any table or query.

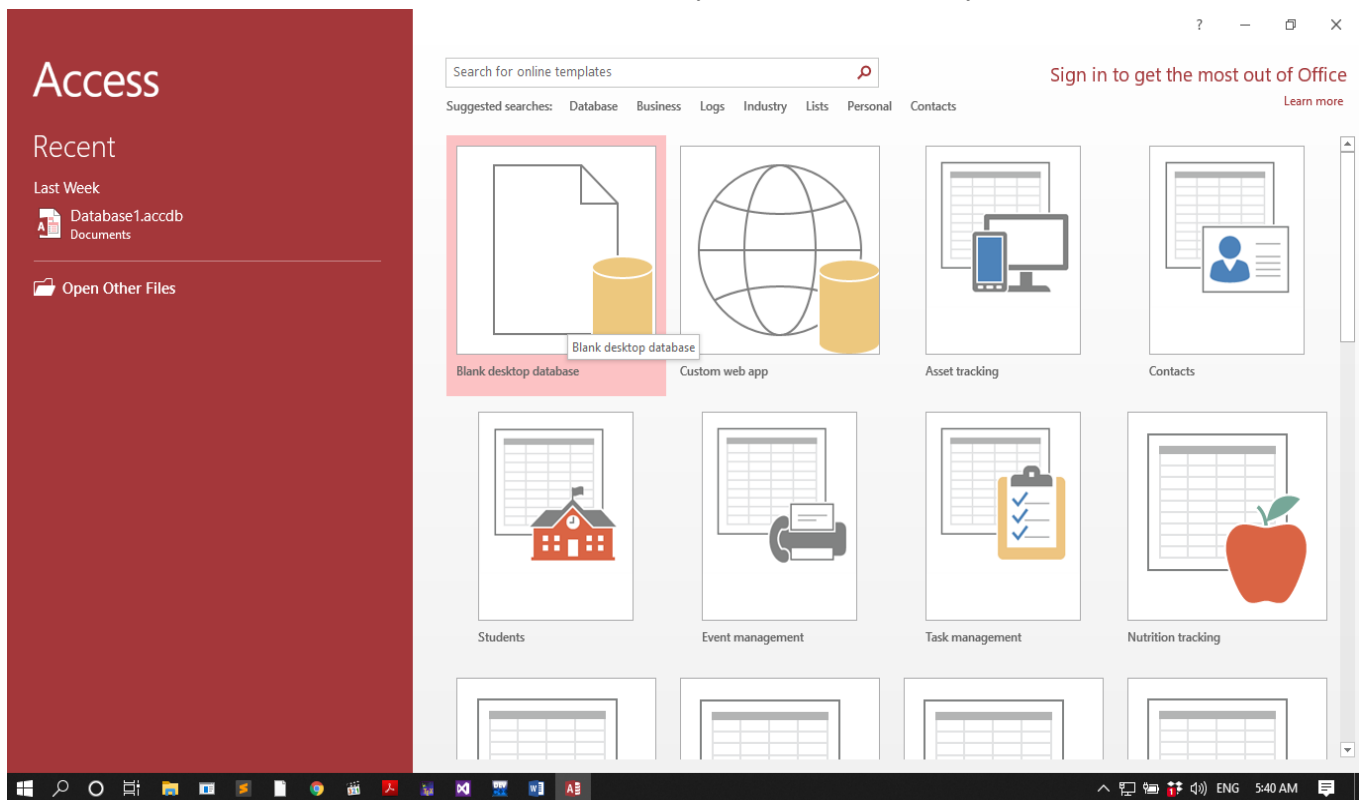
To analyze your data or present it a certain way in print, create a report. For example, you might print one report that groups data and calculates totals, and another report with different data formatted for printing mailing labels.



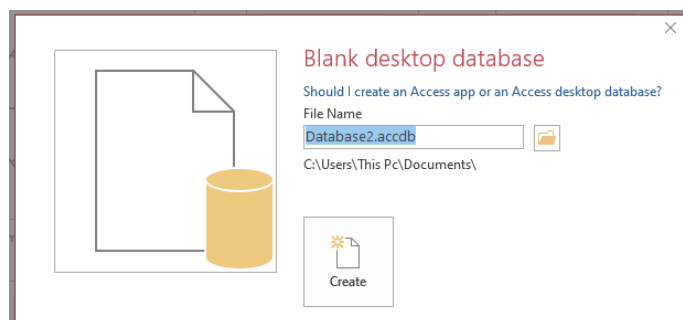
Getting Started with MS-Access:

From the Getting Started page, click **blank database** from the suggested choices.

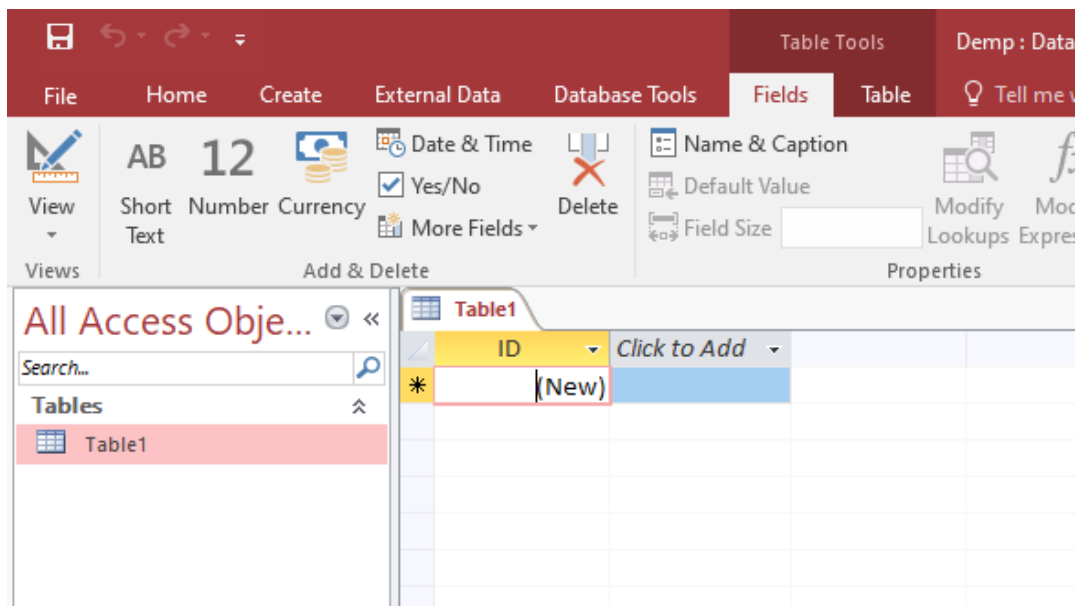
On the right hand side of the screen, give the new database a name by typing into the **File Name** box. If you want to create the database in a specific location, click the small folder icon () to the right of the textbox. The new file path you select will be shown underneath the **File Name** textbox; Access will by default use the *My Documents* folder:



A popup will open, give the new database a name by typing into the **File Name** box. If you want to create the database in a specific location, click the small folder icon () to the right of the textbox. The new file path you select will be shown underneath the **File Name** textbox; Access will by default use the *My Documents* folder:

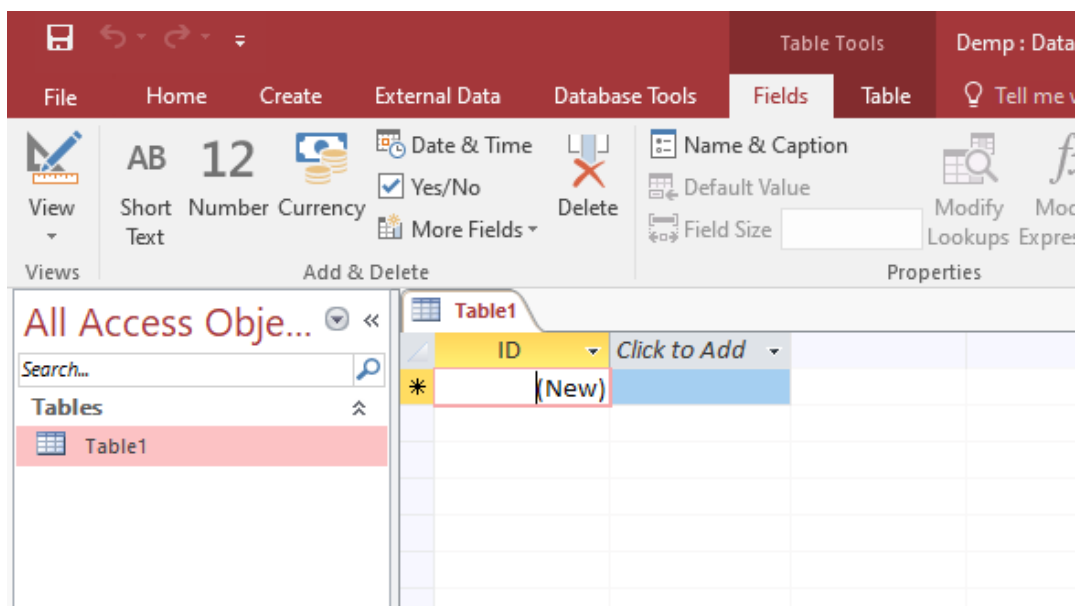


Finally click the **Create** button. The new empty database will open with a single empty table contained inside:

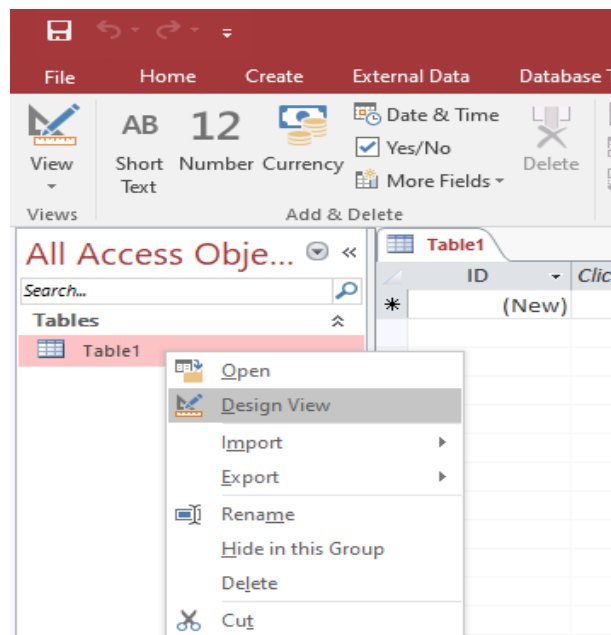


1. Create Table

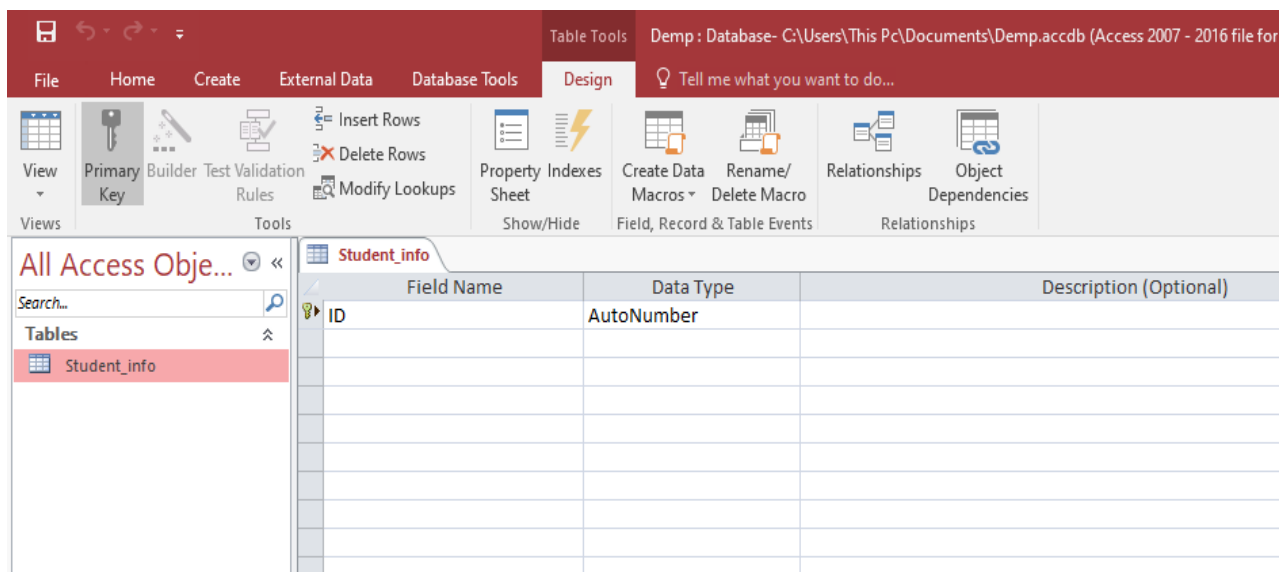
When you create a new database it will open single empty table contained inside, here you can write the attribute (Column) names and set its types. Or you can click on Create > Table



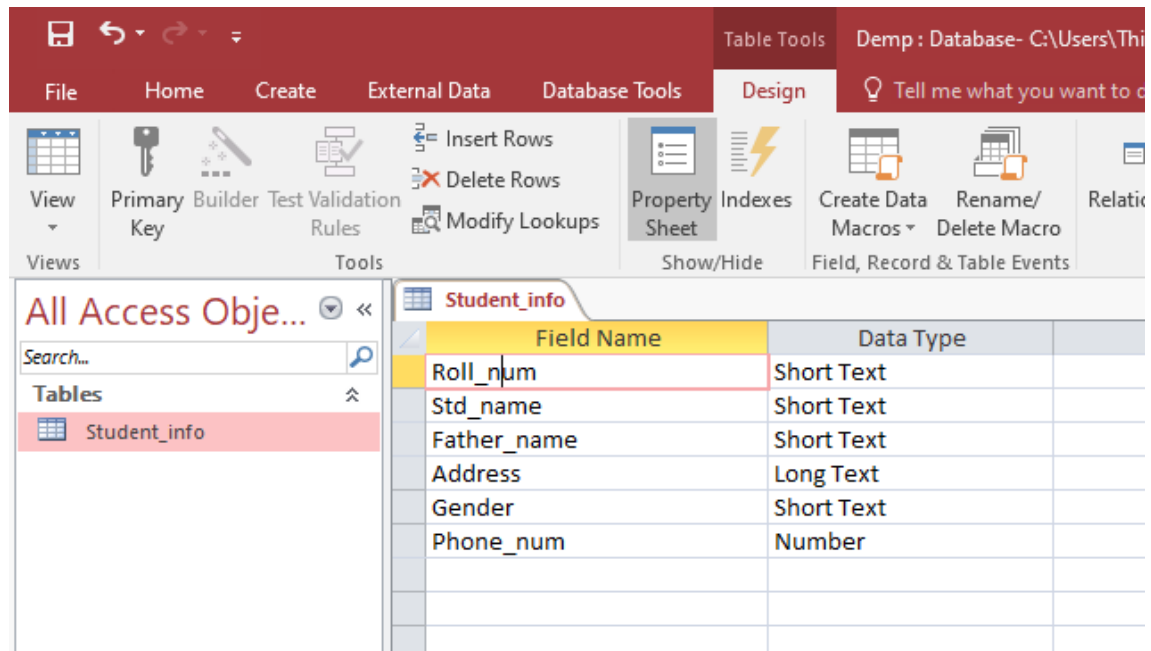
Right Click on the table name and select design view as shown in the following screen



Access will prompt you to enter the name of the table; write the name and click OK. You will see the following screen



Here you have to specify the columns of the table, let's say we want to store the data of students of an institute in this table. I have filled in the fields according the student information in mind.



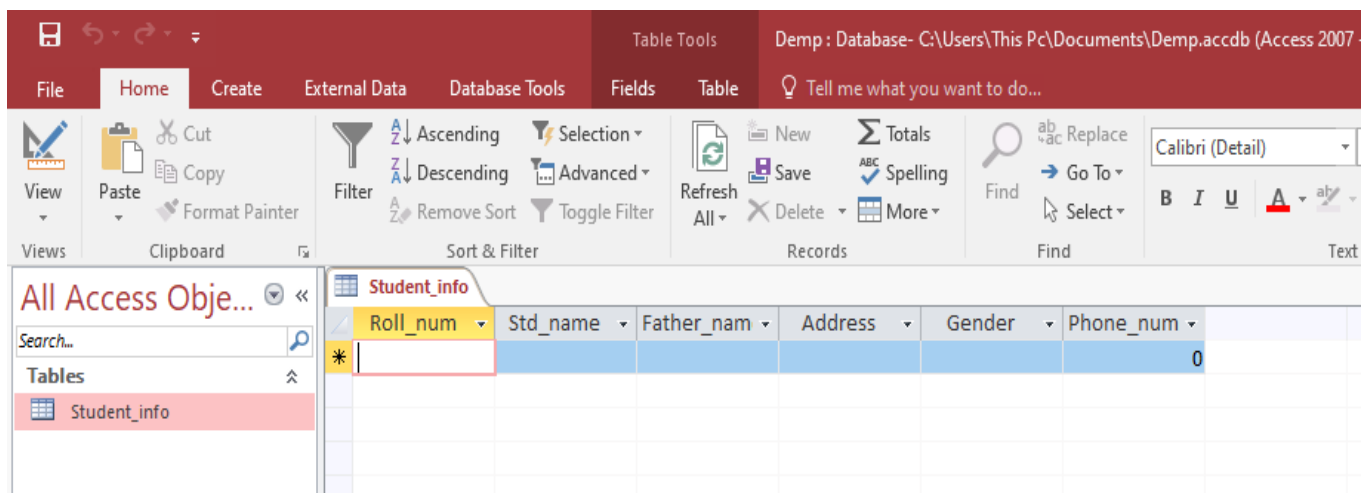
Inserting Data into Table:

Now that we have created the table, we can insert the data into it. There are two ways of doing this:

1. Using the interface
2. By writing a query

We will be inserting data using the interface for now, queries will be discussed later in this lab.

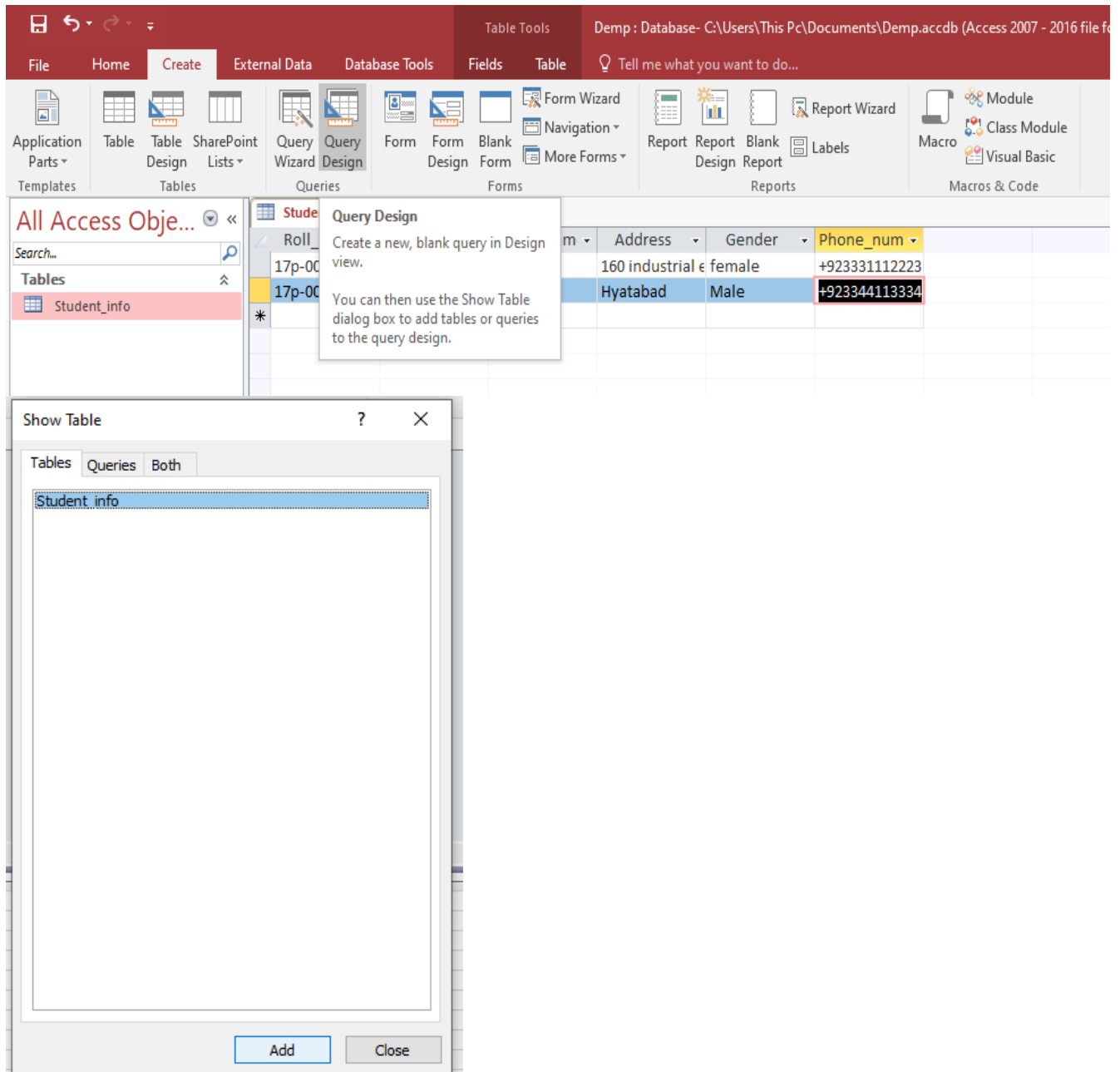
Right click on the Student_info table, and click on open. You will see the following screen

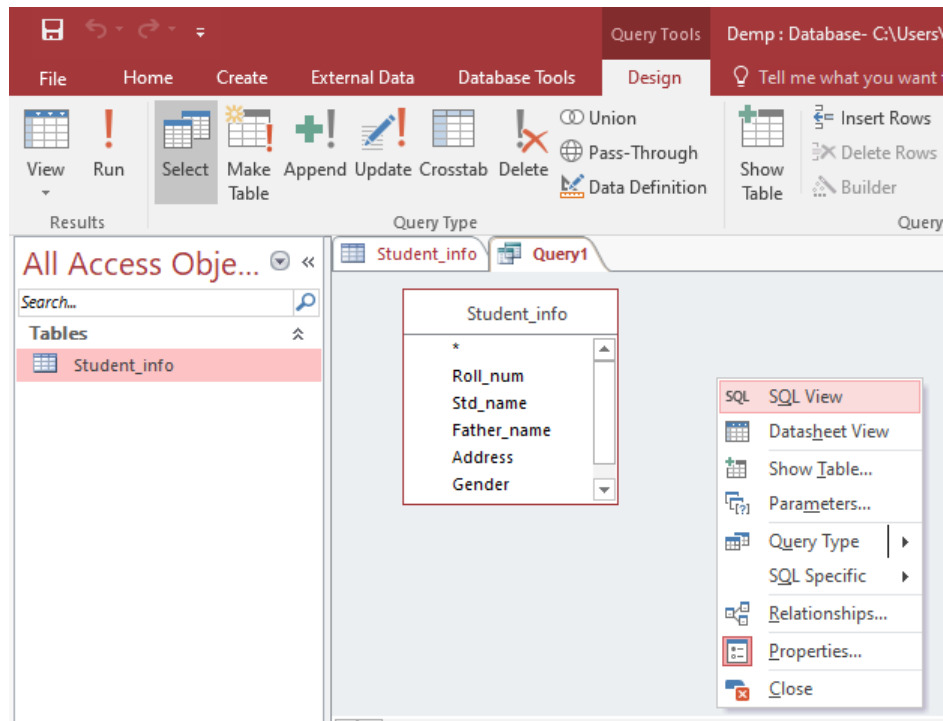


Insert as many rows as you like.

2. Query

So far we had been working in access mainly using the interface i.e. creating tables, inserting data etc. These can be done using SQL queries as well. In order to write a query in MS-Access click on the Create tab and then select Query Design from there. A small window will pop up asking you to add tables, without adding anything just click Close. Right click on an empty place and click on SQL View as shown in the following screenshot





You will get a screen where you can write text, here you will write Queries.

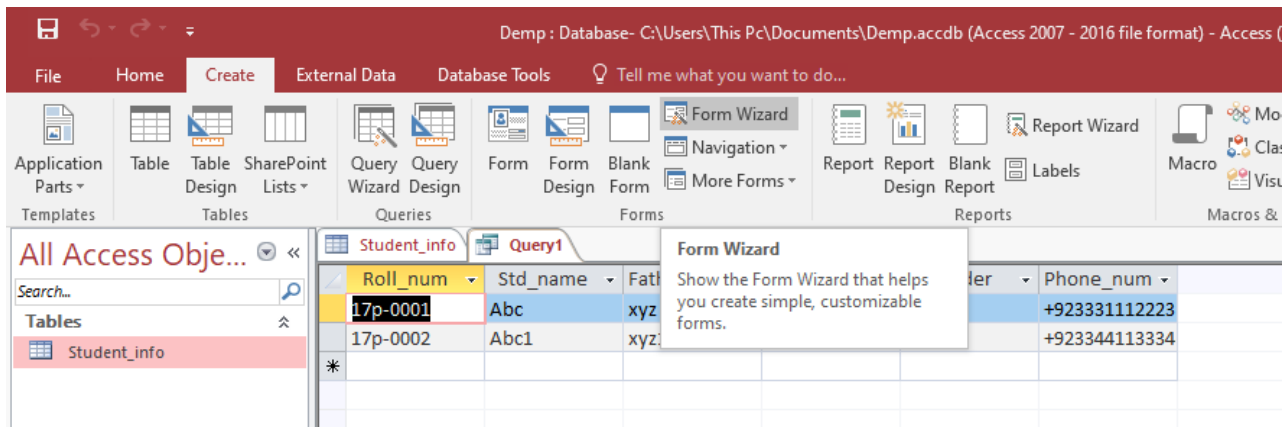
Write the following Query and click on Run from the Design tab present underneath Query Tools.

Select * from student_info;

If you have any records present in the student_info table; the above query will show it to you. SQL Queries will be discussed in detail in the later labs

3. Create Form

As discussed earlier a form is an interface which allows a user to enter/change/update data to table(s). In order to create a form click on the Create tab then More Forms and then Form Wizard. As shown in the screenshot below:



After clicking the Form Wizard the following window will pop up

Form Wizard

Which fields do you want on your form?
You can choose from more than one table or query.

Tables/Queries **Select the table name to show its columns below**

Table: student

Available Fields:

Roll_no
st_Name
father_name
address
Gender

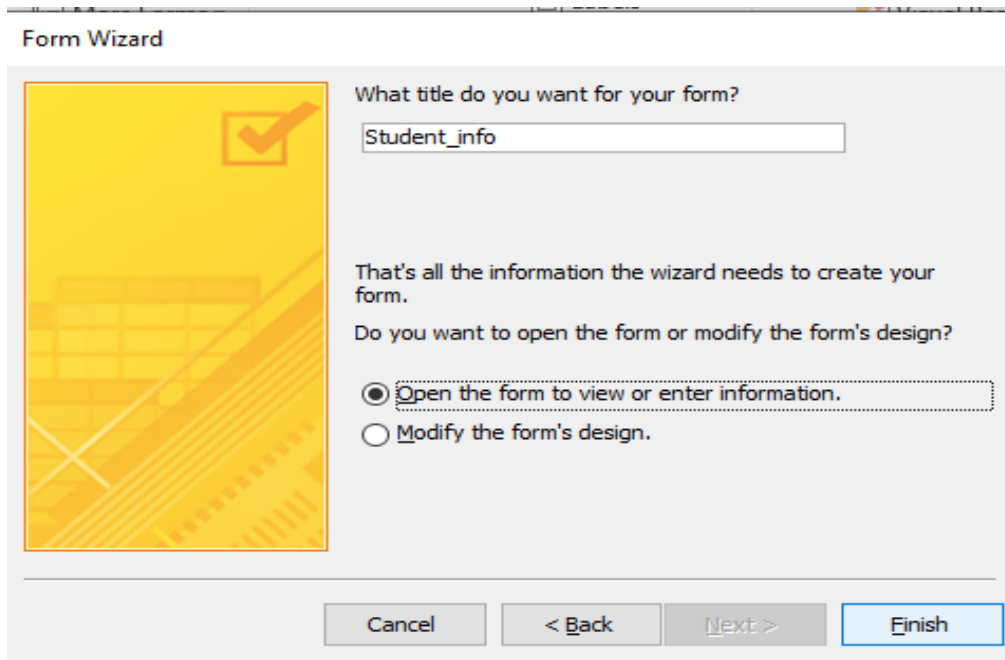
Selected Fields:

Columns of the table selected above

Select a column and click this to add to the form

Cancel < Back Next > Finish

Select the columns you want in your form and click next, on the next few screens you will be able to change the look of the form so just explore it a bit yourselves. Keep clicking next until you reach the following screen:



Form Wizard

What title do you want for your form?

Student_info

That's all the information the wizard needs to create your form.

Do you want to open the form or modify the form's design?

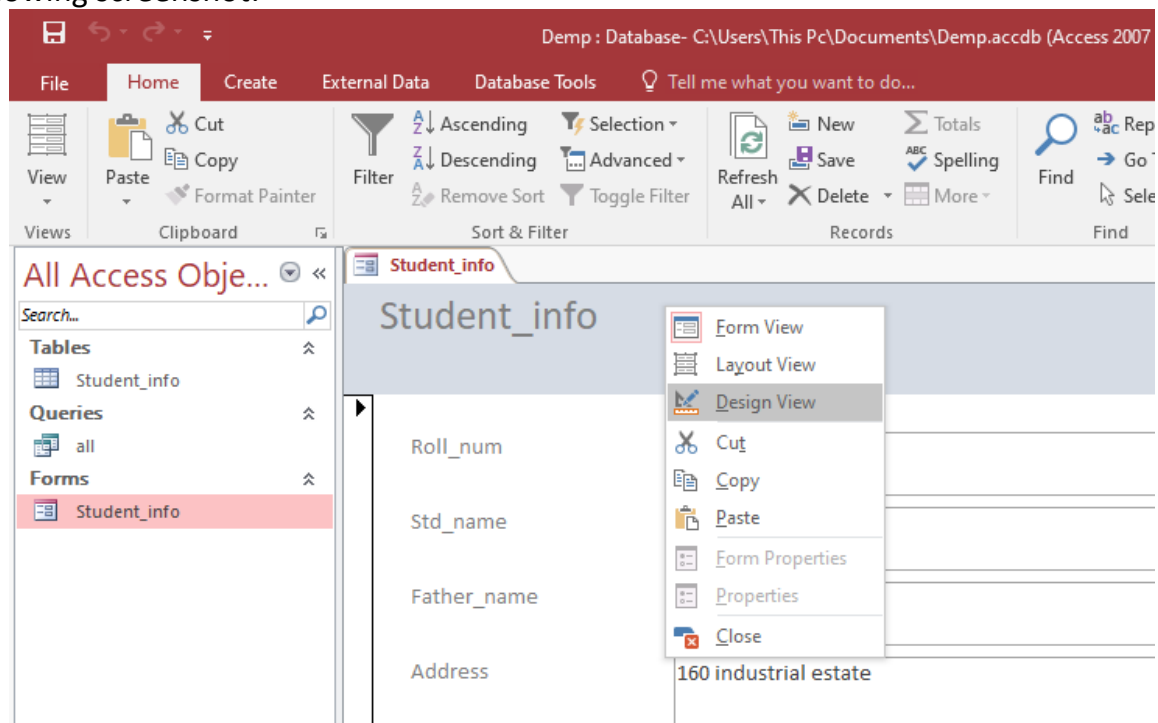
☒ Open the form to view or enter information.

☐ Modify the form's design.

Cancel < Back Next > Finish

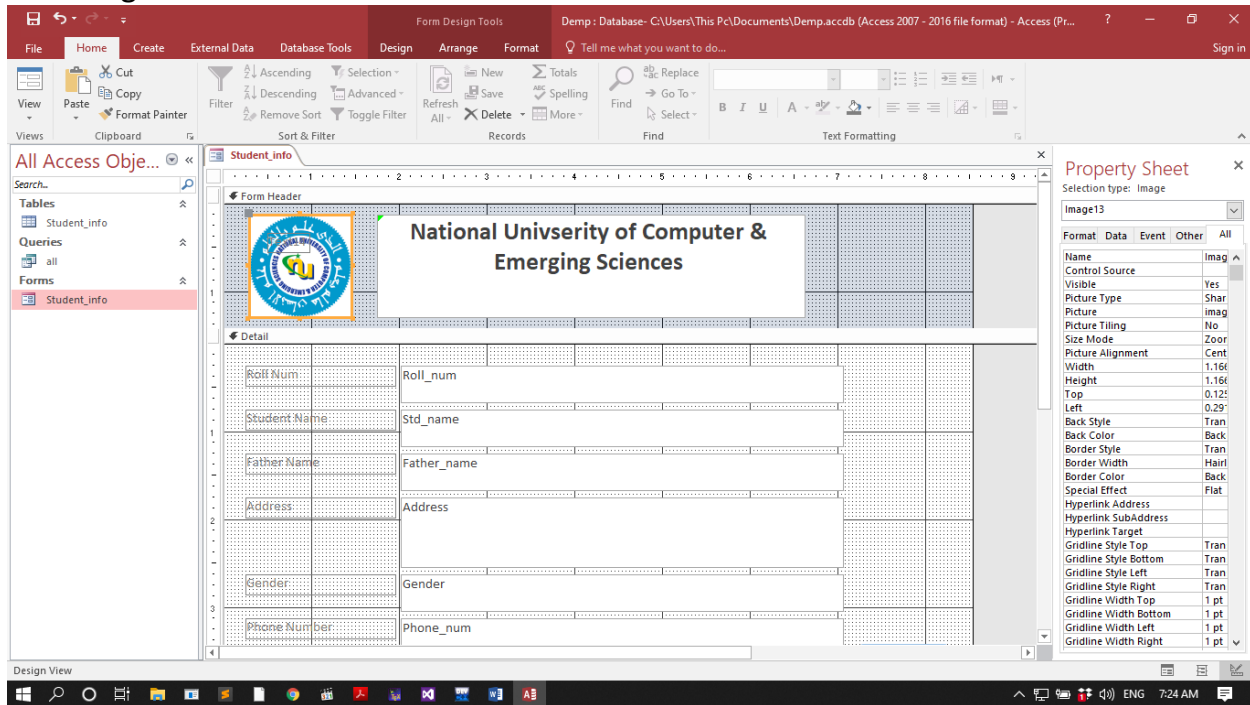
Enter the name you want for your form, if you do not want to edit anything further in the form just click Finish. If you want to modify the design or add something else to the form select Modify the form's design and click Finish.

If you select the second option and click finish you will see something like shown the following screenshot:

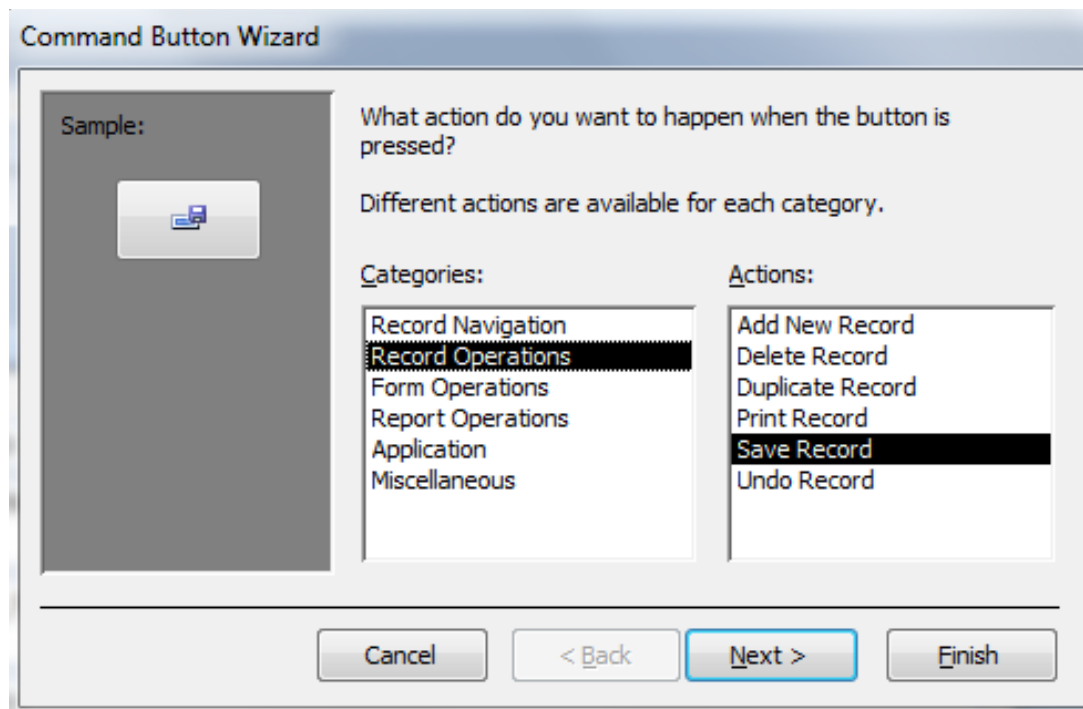


Enter the name you want for your form, if you do not want to edit anything further in the form just click Finish. If you want to modify the design or add something else to the form select Modify the form's design and click Finish.

If you select the second option and click finish you will see something like shown the following screenshot:

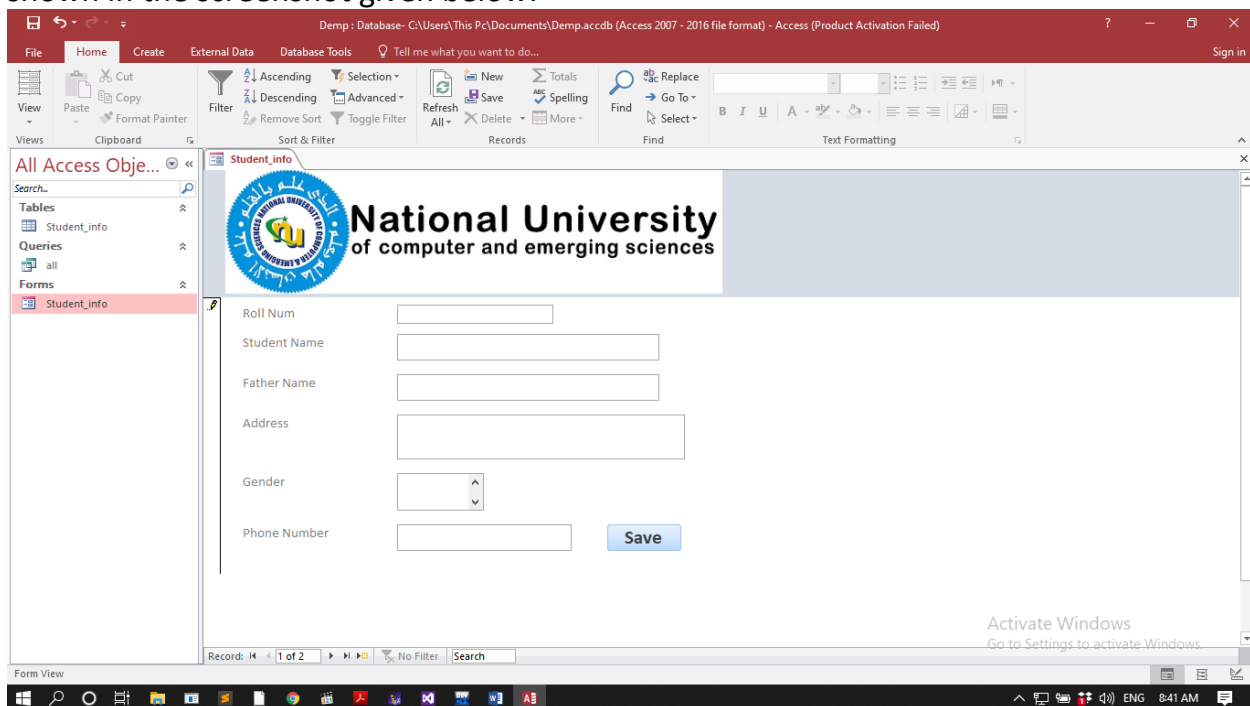


Click anywhere on the form to place it, after placing the button a window will pop up asking you the function of the button i.e. what will the button do. In our case we just want it to save the data present in the form in the student_info table. In order to do this just select Record Operations from the Categories and Save Record from Actions and click Next.



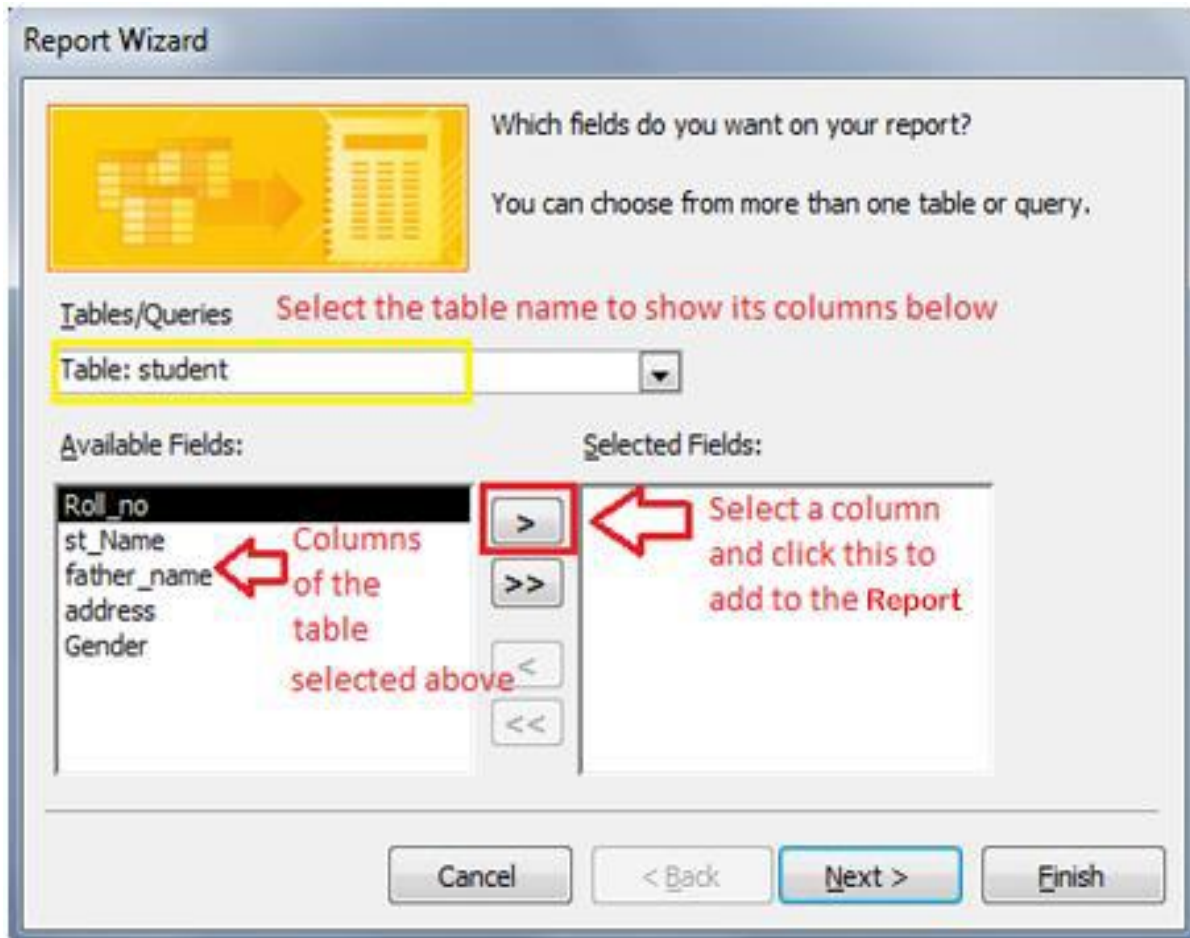
On the next screen select the text or the image you want to display on the button and then click Next, finally enter the name for the button and click Finish.

Save the form and then right click on its name and select Form View, you can now enter the data in the textboxes and save it in the table using the save button. A sample form is shown in the screenshot given below:



4. Create Report

As discussed earlier, A report is an effective way to output your data in a printed format in the way you want it. In order to create a report click on the Create tab then Report Wizard. A window will pop up as shown in the following screen.



On the next screen it will ask you to add any grouping levels, just click next without doing anything else, on the next screen set the sort order and click Next. As shown below

Report Wizard

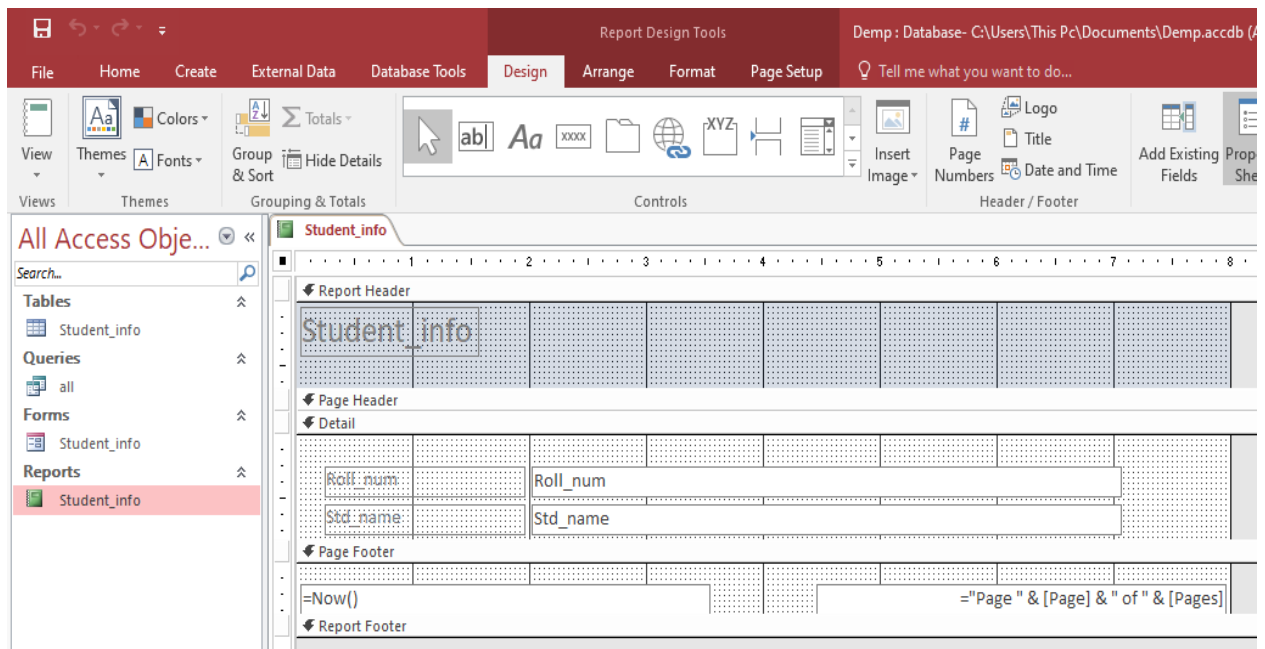
What sort order do you want for your records?

You can sort records by up to four fields, in either ascending or descending order.

1	<input type="text" value="Roll_no"/>	<input type="button" value="Ascending"/>
2	<input type="text"/>	<input type="button" value="Ascending"/>
3	<input type="text"/>	<input type="button" value="Ascending"/>
4	<input type="text"/>	<input type="button" value="Ascending"/>

On the next screen set the layout of the report and select Next. On the next screen set the design of the report by using any of the available templates and click Next. Finally set a name for the report, if you do not want to edit anything further in the report just click Finish. If you want to modify the design or add something else to the report select modify the report's design and click Finish.

If you select the second option and click finish you will see something like shown the following screenshot:



Make changes to the report according to your needs and click save, right click on the report name and click Report View to see how the final design came out.