

CL203: Database Systems Lab

Lab#02: MS-Access

Agenda

- MS-Access Overview
 - ✓ Table
 - ✓ Query
 - ✓ Form
 - ✓ Report
- Getting Started with MS-Access
 - ✓ Creating a Blank Database
 - ✓ Creating a Table
 - ✓ Inserting data into a Table
 - ✓ Queries
 - ✓ Forms
 - ✓ Reports

MS Access Overview

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

Table

A table allows the user to store a collection of data about a specific topic like Customers or Orders

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.

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

Customers : Table

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

Customers : Form

Customers

Customer ID: BSBEV

Contact Name: Victoria Ashworth

Company Name: B's Beverages

London Orders for April : Select Query

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

Sales by Customer : Report

Customer: B's Beverages

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

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Query

- A query allows the user to view, change, and analyze data in different ways like combining data from two different tables (Customers and Orders) to create a user's own custom view (London Orders for April)
- Can also be used as the source of records for forms, reports, and data access pages.

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.

Customer ID	Company Name	City
BSBEV	B's Beverages	London
EASTC	Eastern Connection	London
HANAR	Hanari Carnes	Rio de Janeiro

Order ID	Customer ID	Required Date	Employee
10931	HANAR	21-Apr-96	Dodsworth, Anne
10943	BSBEV	05-Apr-96	Davolio, Nancy
10987	EASTC	25-Apr-96	Peacock, Margare

Company Name	City	Order ID	Required Date
B's Beverages	London	10943	05-Apr-96
Eastern Connection	London	10987	25-Apr-96

This query retrieves the company name, city, order ID, and required date information for customers in London whose orders were required in April.

Form

A form allows a user to enter/change/update data to table(s)

To easily view, enter, and change data directly in a table, create a form. When you open a form, Microsoft Access retrieves the data from one or more tables and displays it on screen using the layout you chose in the Form Wizard or using a layout that you created from scratch.

Order ID	Customer ID	Required Date	Employee
11022	HANAR	09-May-96	Dodsworth, Anne
11023	BSBEV	25-May-96	Davolio, Nancy
11024	EASTC	10-May-96	Peacock, Margaret

Tables display many records at the same time, but you may have to scroll to see a whole record, and you can't update data from more than one table at the same time.

Forms focus on one record at a time, and they can display fields from multiple tables, pictures, and more.

Automate tasks

Orders : Form

Bill To: B's Beverages
Fauntleroy Circus
London EC2 5NT
UK

Salesperson: Davolio, Nancy

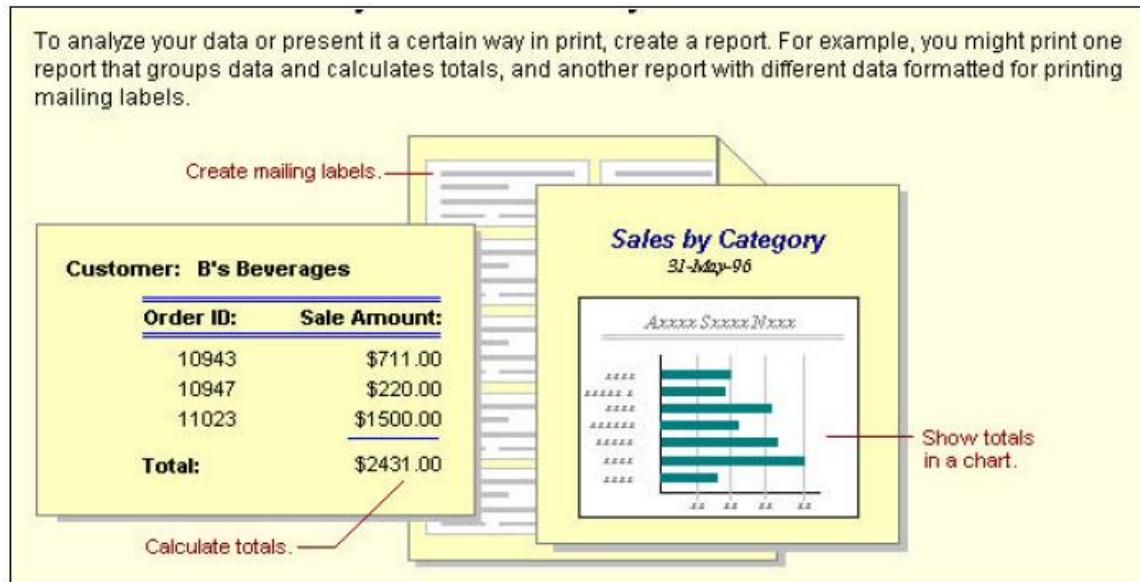
Order ID: 11023 **Required Date:** 25-May-96

Product:	Unit Price:	Quantity:	Extended Price:
Ipoh Coffee	\$46.00	30	\$1380.00
Uncle Bob's Dried Pears	\$30.00	4	\$120.00

Print Invoice

Report

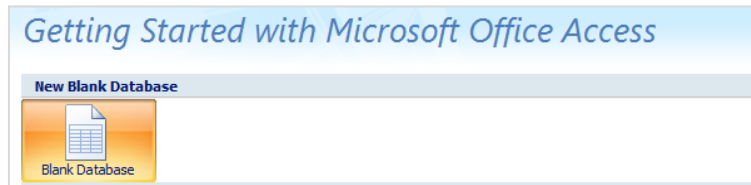
A report is an effective way to output your data in a printed format in the way you want it




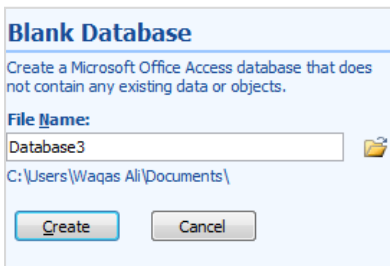
Getting Started with MS-Access

Creating a Blank Database

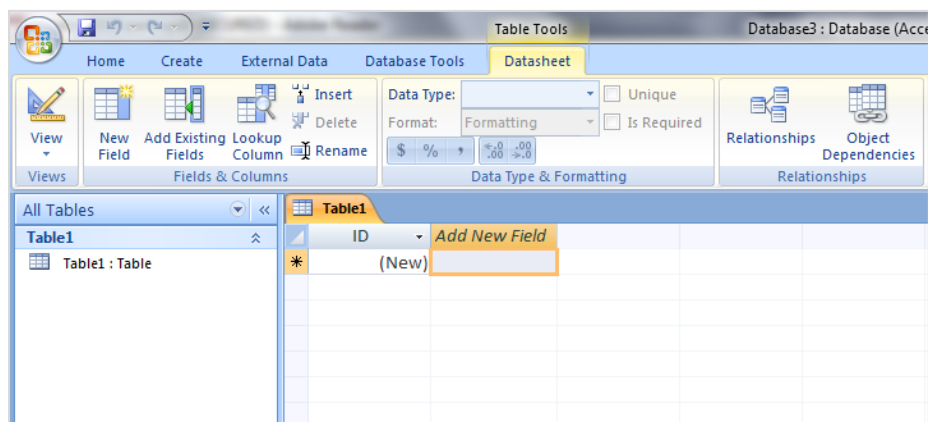
From the Getting Started page, click **blank database** from the suggested choices.



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:



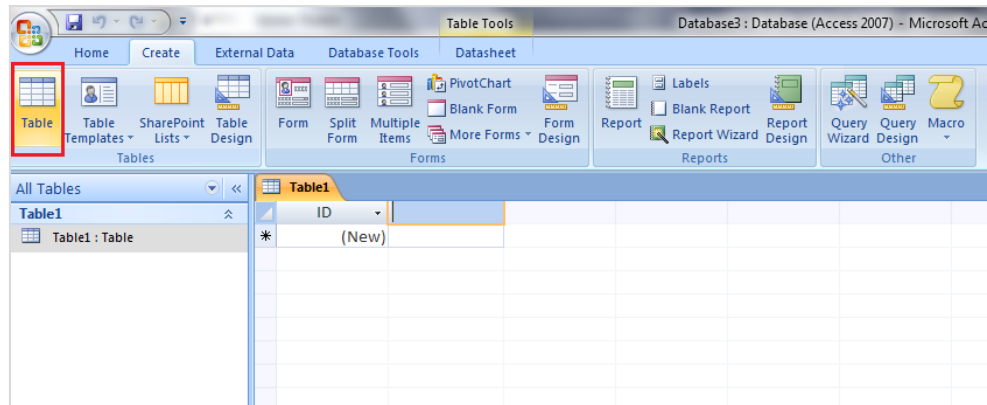
Finally click the **Create** button. The new empty database will open with a single empty table contained inside:



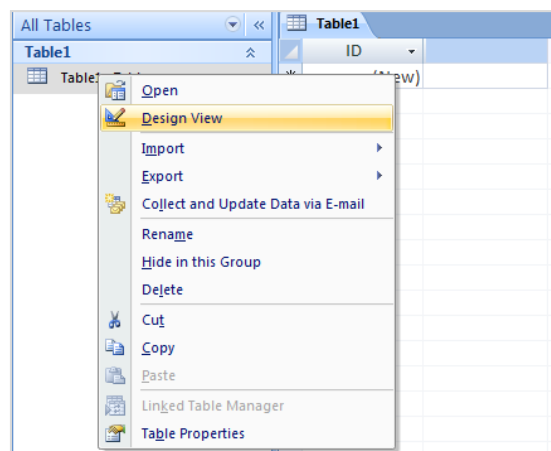
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Creating a Table

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

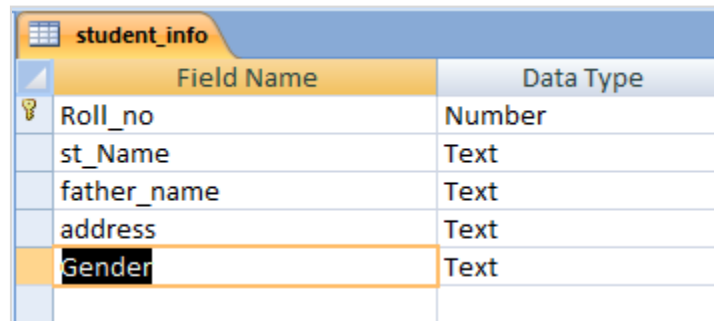


Access will prompt you to enter the name of the table; write the name and click OK. You will see the following screen

student_info		
Field Name	Data Type	Description
ID	AutoNumber	

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.

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The screenshot shows the 'student_info' table in design view. It has a primary key 'Roll_no' of type 'Number' and four text fields: 'st_Name', 'father_name', 'address', and 'Gender'. The 'Gender' field is currently selected.

Field Name	Data Type
Roll_no	Number
st_Name	Text
father_name	Text
address	Text
Gender	Text

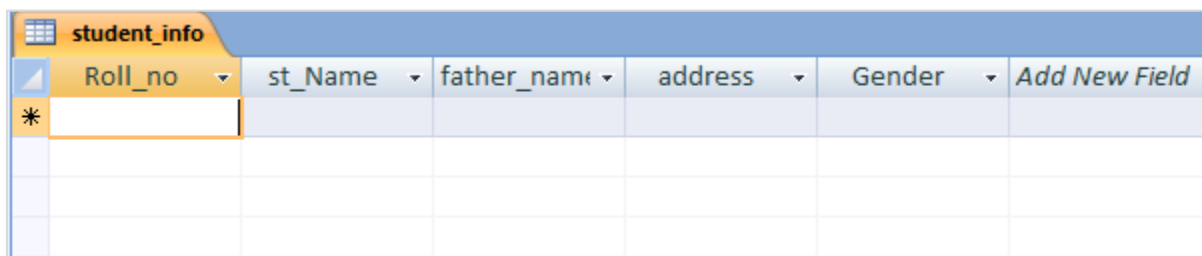
Inserting data into a table

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



The screenshot shows the 'student_info' table in datasheet view. It has columns for 'Roll_no', 'st_Name', 'father_name', 'address', 'Gender', and 'Add New Field'. The first row is highlighted with an asterisk in the first column, indicating a new record.

Roll_no	st_Name	father_name	address	Gender	Add New Field
*					

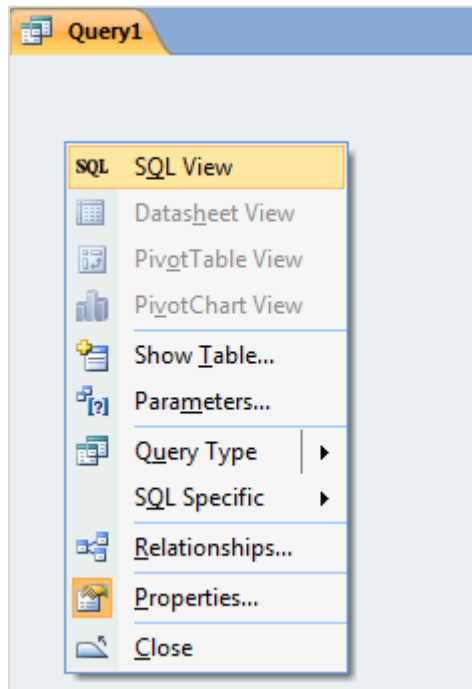
Insert as many rows as you like.

Queries

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:

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

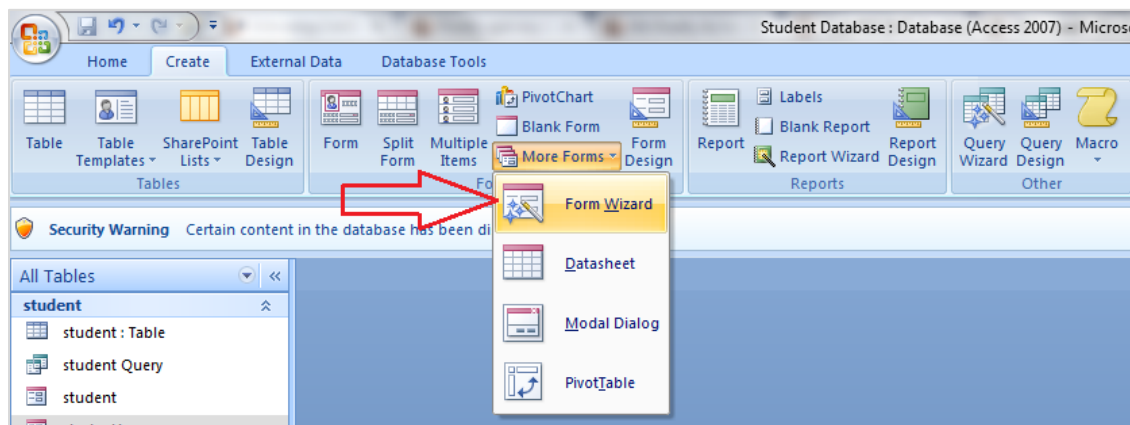
Write the following Query and click on *Run* from the *Design* tab present underneath *Query Tools*.

*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.

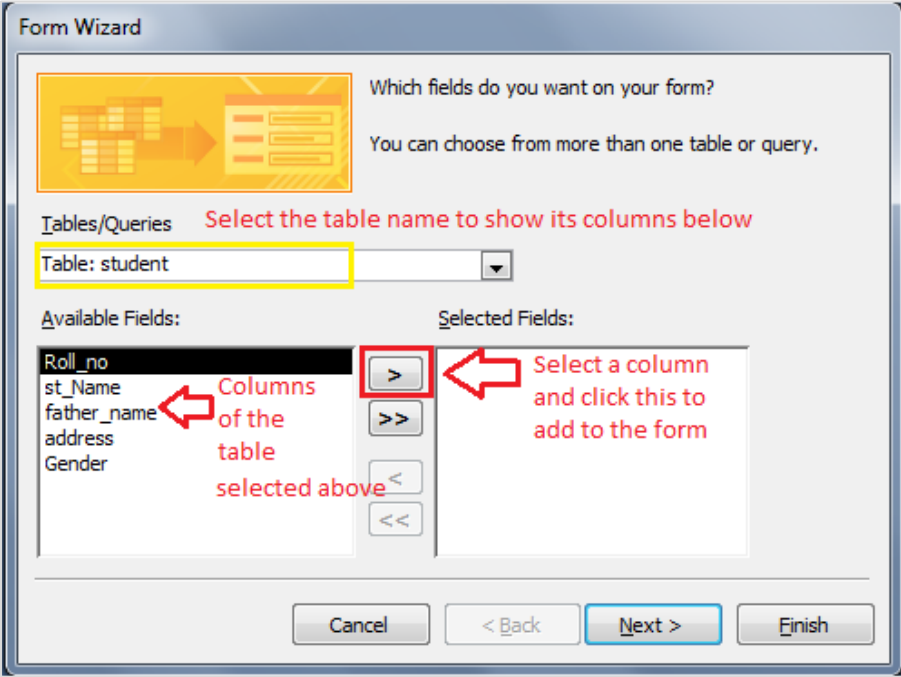
Forms

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:



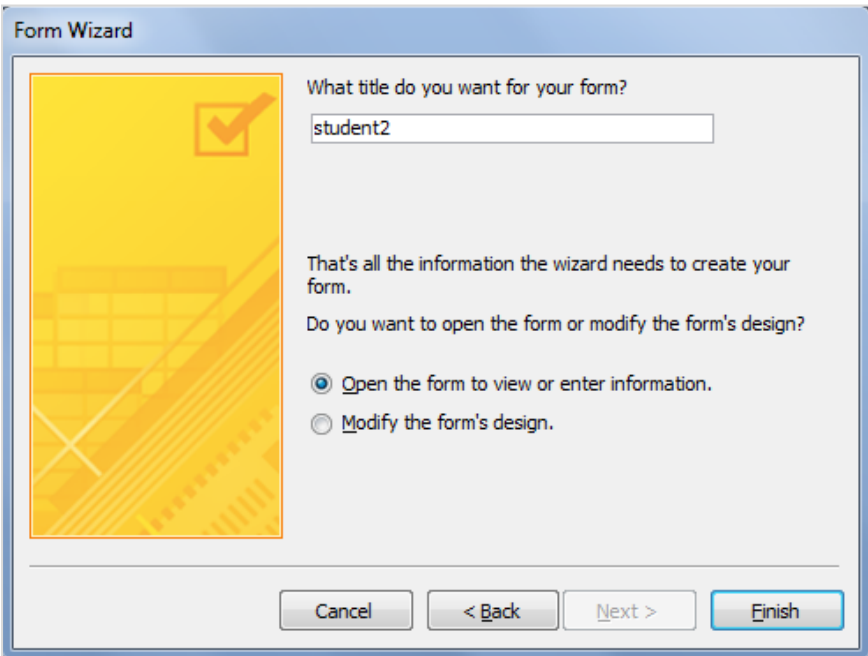
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After clicking the Form Wizard the following window will pop up.



The screenshot shows the 'Form Wizard' dialog box, Step 1. The title is 'Form Wizard'. The main question is 'Which fields do you want on your form?'. Below this, it says 'You can choose from more than one table or query.' There is a section 'Tables/Queries' with a dropdown menu showing 'Table: student'. To the right of this dropdown is a red annotation: 'Select the table name to show its columns below'. Below the dropdown are two lists: 'Available Fields:' and 'Selected Fields:'. The 'Available Fields:' list contains 'Roll_no', 'st_Name', 'father_name', 'address', and 'Gender'. The 'Selected Fields:' list is empty. Between the two lists are four buttons: '>', '>>', '<', and '<<'. A red arrow points from the 'Roll_no' field to the '>' button, with a red annotation: 'Columns of the table selected above'. Another red arrow points from the '>' button to the 'Selected Fields:' list, with a red annotation: 'Select a column and click this to add to the form'. At the bottom are four buttons: 'Cancel', '< Back', 'Next >', and '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:



The screenshot shows the 'Form Wizard' dialog box, Step 2. The title is 'Form Wizard'. The main question is 'What title do you want for your form?'. Below this is a text box containing 'student2'. Below the text box, it says 'That's all the information the wizard needs to create your form.' and 'Do you want to open the form or modify the form's design?'. There are two radio buttons: 'Open the form to view or enter information.' (which is selected) and 'Modify the form's design.'. At the bottom are four buttons: 'Cancel', '< Back', 'Next >', and 'Finish'.

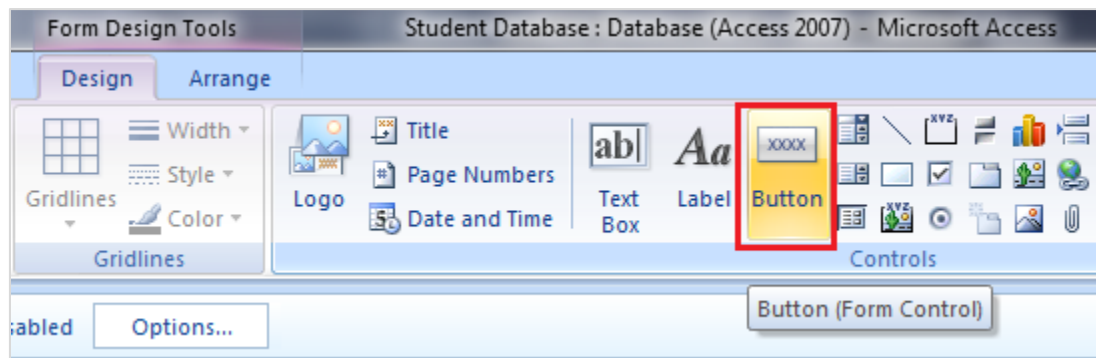
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Enter the name you want for your form, if you do not want to edit anything further in the form just click *Finish*. If you want to modify the design or add something else to the form select *Modify the form's design* and click *Finish*.

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

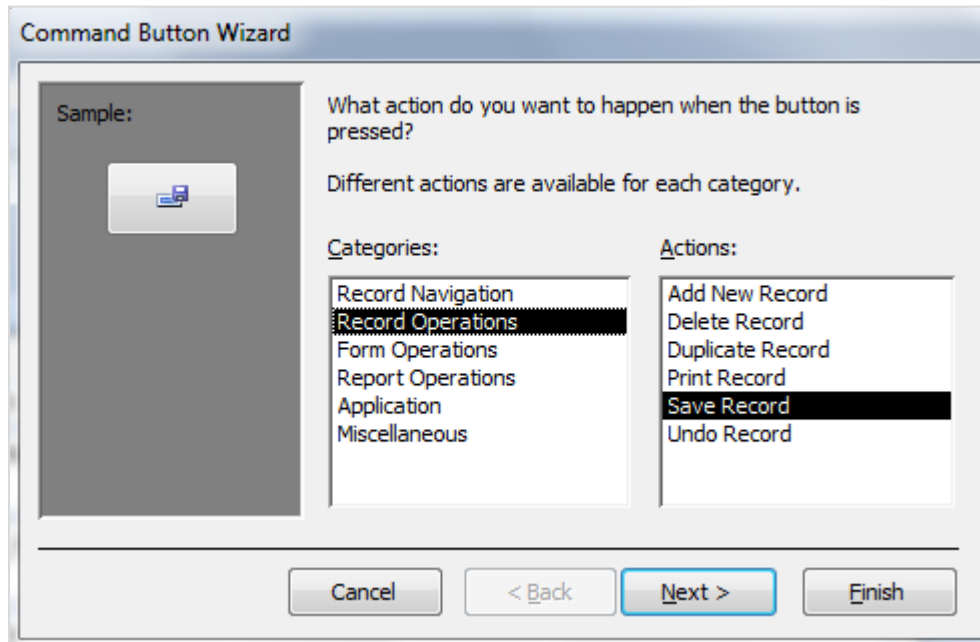
The screenshot shows the Microsoft Access Form Design view for a form named 'student2'. The form is divided into sections: Form Header, Detail, and Form Footer. The Form Header section contains the text 'student2', which is highlighted with a red box and an arrow pointing to it with the text 'Shows the name of the form, you can edit it by double clicking on it'. The Detail section contains several textboxes for data entry: 'Roll_no', 'st_Name', 'father_name', 'address', and 'Gender'. The 'Roll_no' and 'st_Name' textboxes are highlighted with a red box and an arrow pointing to it with the text 'Can be edited by double clicking on it'. The 'Gender' field is a dropdown menu. The Form Footer section is empty.

You can design the form according to your liking; we however will just add a button here which will save the data in our *student_info* table. To do this select *Button* from the *Design* tab which is under the *Form Design Tools*, as shown in the screen shot below:



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*.

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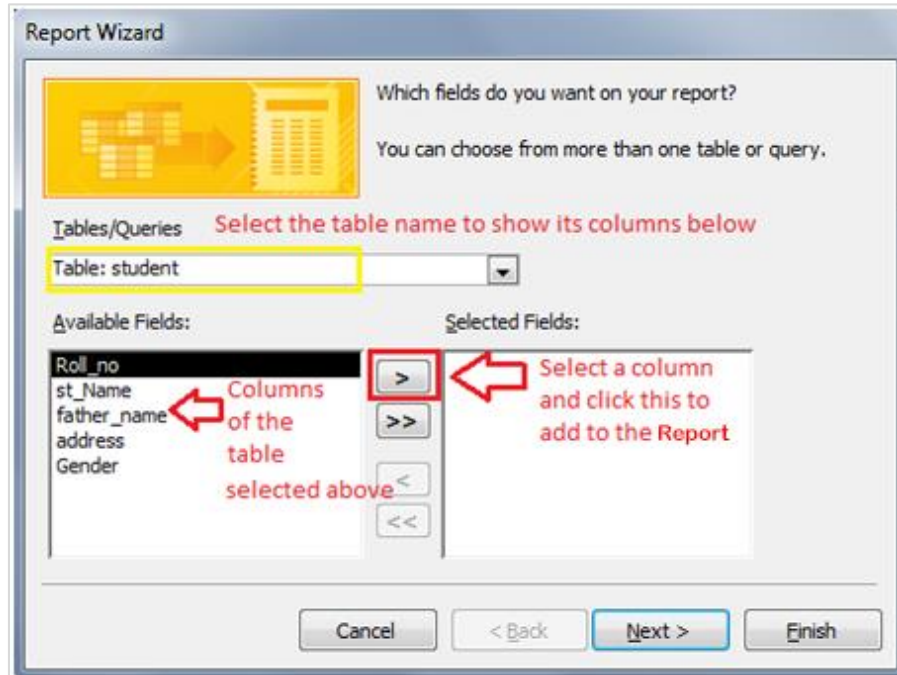


On the next screen select the text or the image you want to display on the button and then click *Next*, finally enter the name for the button and click *Finish*.

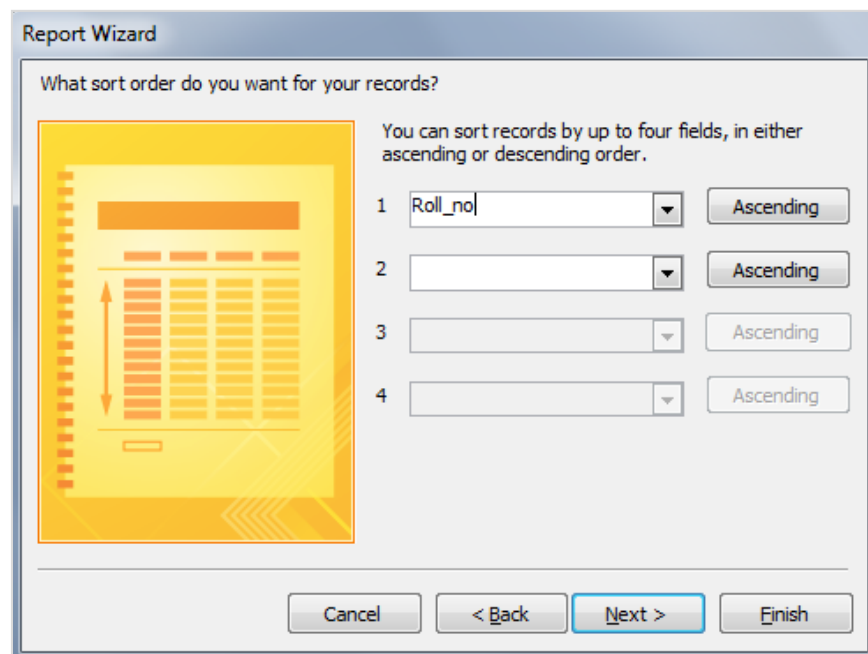
Save the form and then right click on its name and select *Form View*, you can now enter the data in the textboxes and save it in the table using the save button. A sample form is shown in the screenshot given below:

Reports

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



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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:

The screenshot shows a report design view for a report titled "student_info". The report is divided into several sections:

- Title Bar:** Contains the report title "student_info" and a note: "Title of the report, you can edit it by double clicking on it".
- Page Header:** Contains a note: "Column Names, can double clicked for Editing".
- Detail Section:** Contains a table with columns: Roll_no, st_Name, father_name, address, and Gender. The "Gender" column has a dropdown arrow.
- Page Footer:** Contains a note: "Actual data will be shown in this area".
- Report Footer:** Contains a note: "Page " & [Page] & " of " & [Pages]".

Red arrows indicate the following:

- An arrow pointing to the "student_info" title.
- An arrow pointing to the "father_name" column header in the detail section.
- An arrow pointing to the "Actual data will be shown in this area" note in the page footer.

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.