

MS Access 2007

Management Information Systems

Overview

- ▶ What is MS Access?
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- ▶ Database Window
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What is a MS Access?

- ▶ MS Access is an application software that facilitates us to create Database Management Systems (DBMS).

(**DataBase Management System**) Software that controls the organization, storage, retrieval, security and integrity of data in a database. It accepts requests from the application and instructs the operating system to transfer the appropriate data.

Access Terminology

- ▶ Field – A single characteristic or attribute of a person, place, object, event, or idea. A field is also called as a Key.
- ▶ Record – A set of related field values.
- ▶ Table – A collection of records that identify a category of data, such as Customers, Orders, or Inventory.
- ▶ Query – A tool (object) that extracts records from other tables / queries under some criteria.
- ▶ Form – A tool (object) that makes easy operations on database like Insertion, deletion, saving, searching etc.
- ▶ Report – A tool (object) through which we can take output (Hardcopy or softcopy) from the database.

Access Terminology (cont)

fields

Student Table

StudentId	StudentLastName	StudentFirstName	StudentRank
700100109	Wilkinson	June	Senior
700987131	Hughes	Brian	Junior
700617912	Abair	Mindy	Freshman
700941142	Carlton	Larry	Junior
700464654	Williams	Pamela	Sophomore
700654778	Dulfer	Candy	Freshman

records

The Access Window

- ▶ When a database is opened, the Access window and the Database window will be displayed.
- ▶ The Access window contains a menu bar, toolbars, a task pane, and a status bar.
- ▶ In the Access window, use the task pane to create a new database or to open an existing database.
 - To create a new database, make a selection from the New section of the task pane.
 - To open an existing database, select from the list of Recently opened databases or from the More files option.

The Database Window

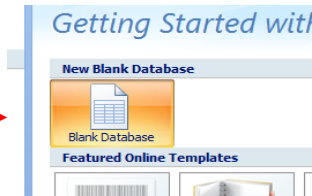
- ▶ The Database window is the main control center for working with an Access database.
- ▶ The Database window contains a menu bar, one or more toolbars, an objects bar, and a groups bar.
 - The Objects bar lists all the objects available in the database.
 - The list of objects consists of tables, queries, forms, reports, pages, macros, and modules.
 - You can click on any of the objects in the Objects bar to obtain a list of objects of that type.

To Create New Database

To create The Database,

➤ Click on File Menu > New

➤ Click on Blank Database →

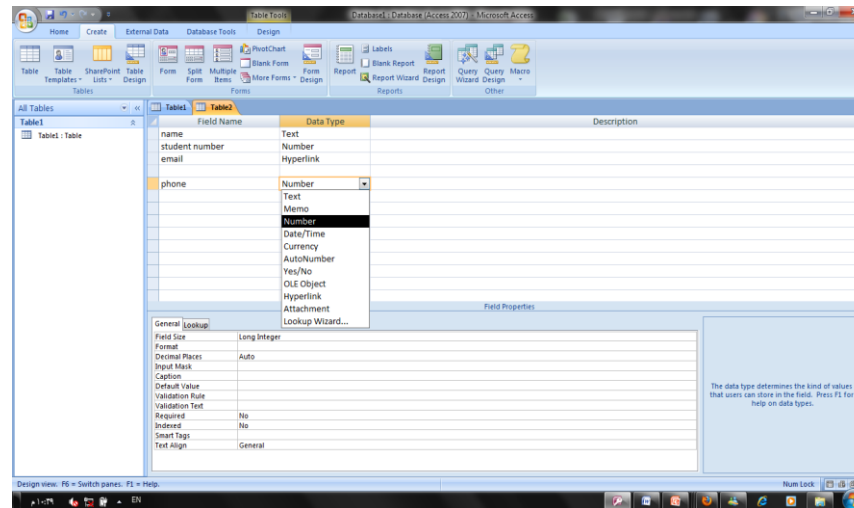
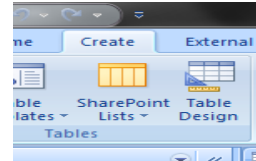


➤ Type database filename and click on button. The database is created. You can see database name in the title bar of the database window.

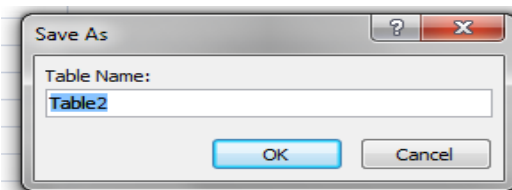
To Create New Table in Database

To create new table, follow the following steps:

- Click on **Create** on the menu bar.
- Click on **'Table Design'**
- Type fieldnames and select data type in front of each fieldname (as shown in the following figure).



- When completed, then click on Save. Type **Table name** and click on **OK**.



Setting Field Properties

- ▶ Field properties include their data type, field sizes, and an optional description of the field.
- ▶ When selecting a field size, make sure the size is big enough to hold the largest piece of data that will be stored there.
- ▶ Make sure the data type you select for a field is appropriate for the kind of data to be stored in that field.

Field Properties

DATA TYPE	DESCRIPTION	FIELD SIZE
Text	Allows field values containing letters, digits, spaces, and special characters. Use for names, addresses, descriptions, and fields containing digits that are not used in calculations.	0 to 255 characters; 50 characters default
Memo	Allows field values containing letters, digits, spaces, and special characters. Use for long comments and explanations.	1 to 65,535 characters; exact size is determined by entry
Number	Allows positive and negative numbers as field values. Numbers can contain digits, a decimal point, commas, a plus sign, and a minus sign. Use for fields that you will use in calculations, except calculations involving money.	1 to 15 digits
Date/Time	Allows field values containing valid dates and times from January 1, 100 to December 31, 9999. Dates can be entered in mm/dd/yy (month, day, year) format, several other date formats, or a variety of time formats, such as 10:35 PM. You can perform calculations on dates and times, and you can sort them. For example, you can determine the number of days between two dates.	8 bytes
Currency	Allows field values similar to those for the number data type. Unlike calculations with number data type decimal values, calculations performed using the currency data type are not subject to round-off error.	Accurate to 15 digits on the left side of the decimal separator and to 4 digits on the right side
AutoNumber	Consists of integers with values controlled by Access. Access automatically inserts a value in the field as each new record is created. You can specify sequential numbering or random numbering, which guarantees a unique field value, so that such a field can serve as a table's primary key.	9 digits
Yes/No	Limits field values to yes and no, on and off, or true and false. Use for fields that indicate the presence or absence of a condition, such as whether an order has been filled or whether an employee is eligible for the company dental plan.	1 character
OLE Object	Allows field values that are created in other programs as objects, such as photographs, video images, graphics, drawings, sound recordings, voice-mail messages, spreadsheets, and word-processing documents. These objects can be linked or embedded.	1 gigabyte maximum; exact size depends on object size
Hyperlink	Consists of text used as a hyperlink address. A hyperlink address can have up to three parts: the text that appears in a field or control; the path to a file or page; and a location within the file or page. Hyperlinks help you to connect your application easily to the Internet or an intranet.	Up to 64,000 characters total for the three parts of a hyperlink data type
Lookup Wizard	Creates a field that lets you look up a value in another table or in a predefined list of values.	Same size as the primary key field used to perform the lookup

Open an Access Database Table

- ▶ **To open a table, you must first open a database:**
 - In the list of tables, select the table you want to open and click on the Open button.
 - When a table is opened, it is in Datasheet view, which shows the table's data as a collection of rows and columns.
 - Each row in the Datasheet view represents a record in the table.

Data Sheet View of Table

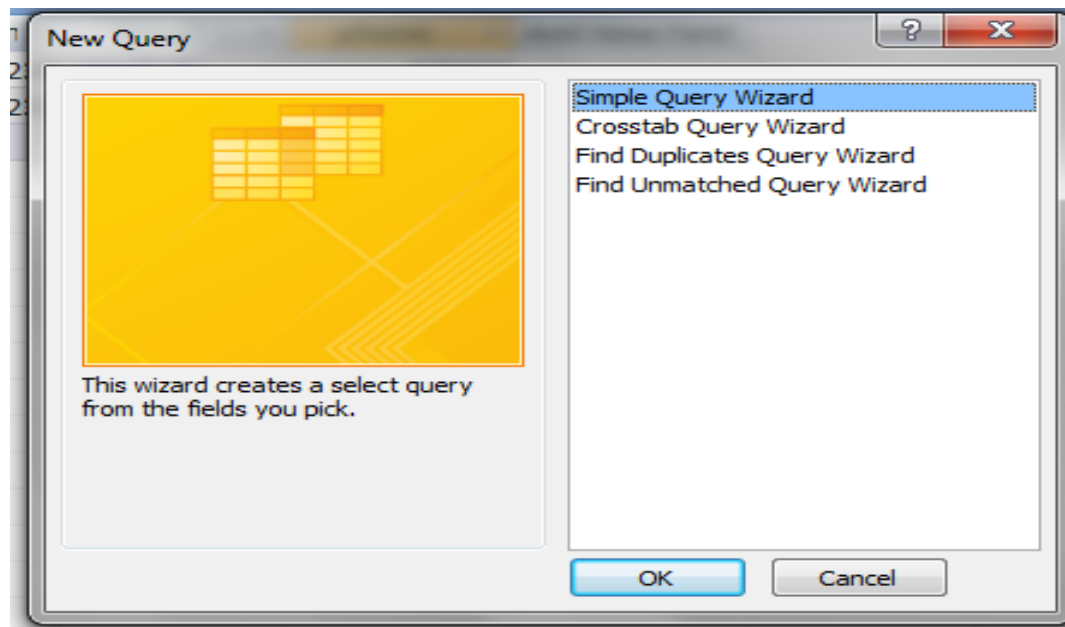
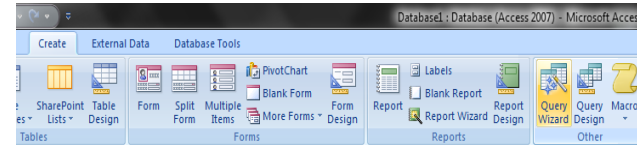
The image shows a data sheet view of a table. A callout box labeled "Fieldnames" points to the header row of the table. Another callout box labeled "Current record" points to the first row of data. The table has columns for ID, name, student number, email, and phone. The first row contains the data for a record with ID 1, name nora, student number 1234, email nbkjbuik, and phone 676656. The second row contains the data for a record with ID 2, name sara, student number 1233, email hbvjcvj, and phone 435667. The third row is a new record, indicated by an asterisk in the ID column, with the name (New) and the email http://hbvjcvj.

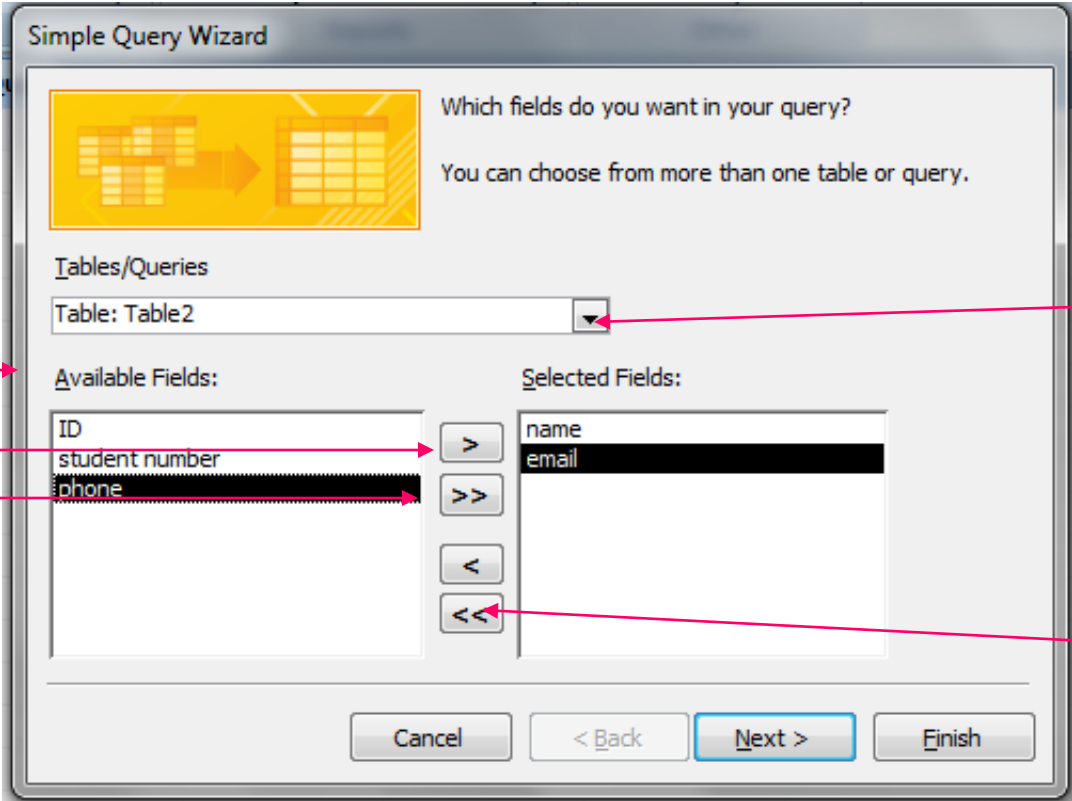
ID	name	student nun	email	phone	Add New Field
1	nora	1234	nbkjbuik	676656	
2	sara	1233	hbvjcvj	435667	
*	(New)			<input type="text" value="http://hbvjcvj"/>	

To Create New Query in Database

To create new Query, follow the following steps:

- Click on **Create** in menu bar.
- Click on **'Query Wizard'**
- You will see the following dialogue box.





default source for the query

removes a selected field

moves all available fields to the Selected Fields list box

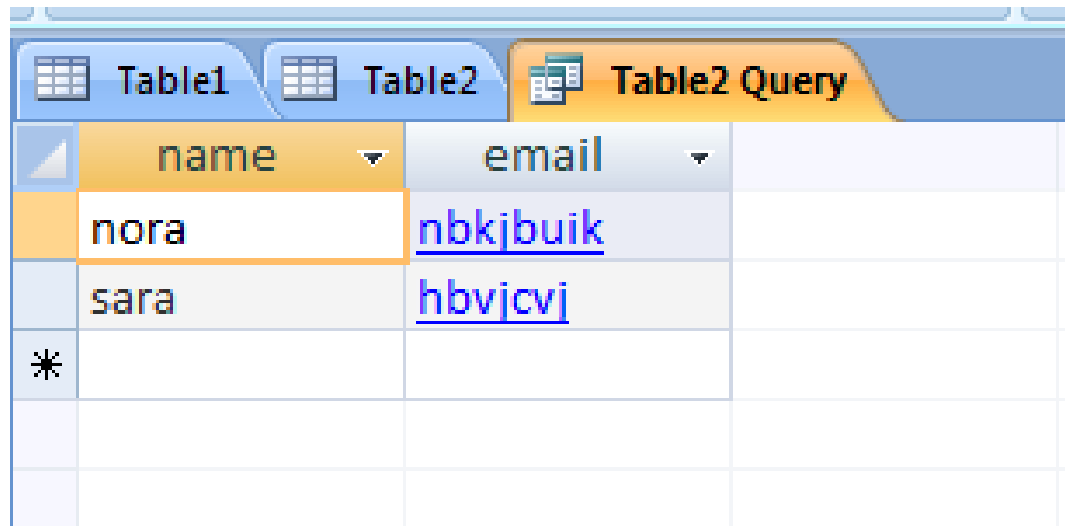
Tables/Queries list arrow

removes all selected fields

Fields Selection in Query

- ▶ In the Simple Query Wizard dialog box, select which fields you want included in the query.
 - Move all the fields into the Selected Fields box.
 - Move the fields one at a time.
 - Remove fields out of the Selected Fields box by pressing one of the remove buttons.
- ▶ If you wanted to select all the fields except one, you can move them all to the selected fields list and then remove the one field you don't want.
- ▶ Once you have made your selections, press Next to move to the next dialog box in the Wizard.

Data Sheet View of Query



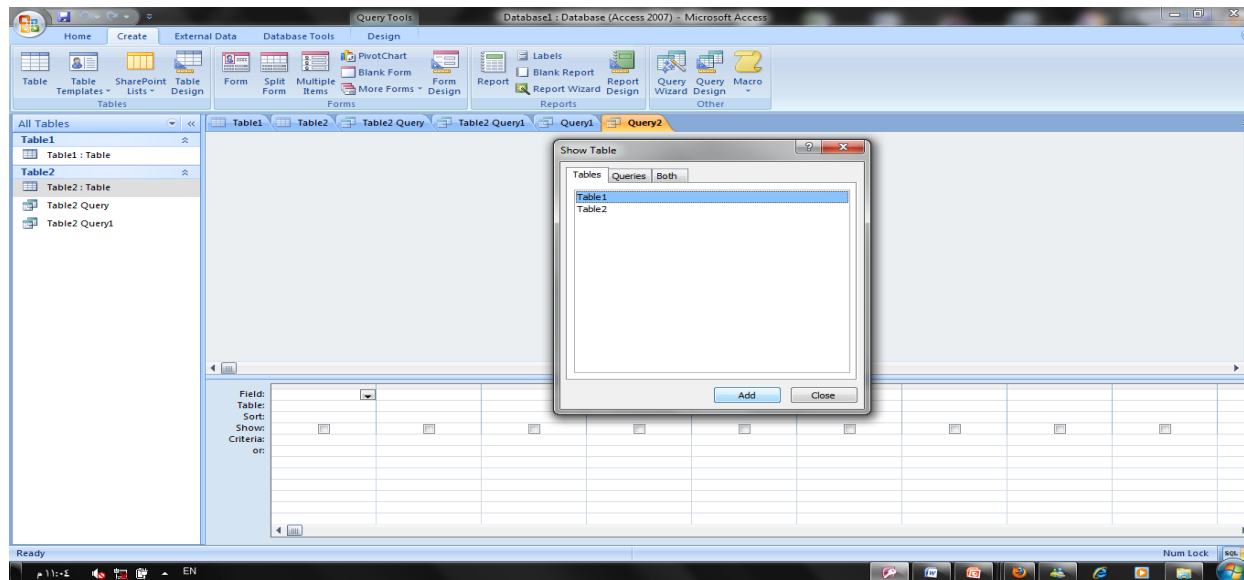
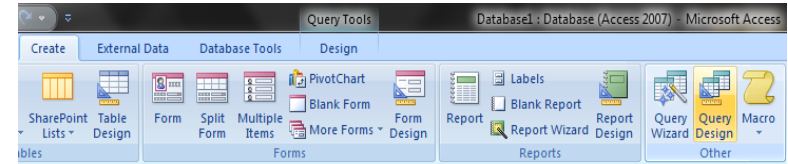
The image shows a screenshot of a data sheet view in a software application. The interface includes three tabs at the top: 'Table1', 'Table2', and 'Table2 Query'. The 'Table2 Query' tab is currently selected and highlighted in orange. Below the tabs is a table with two columns: 'name' and 'email'. The 'name' column contains the values 'nora' and 'sara', and the 'email' column contains the values 'nbkjbuik' and 'hbvjcvj'. The first row is highlighted in orange. A third row is partially visible, starting with an asterisk (*) in the first column. The table has a light blue header and a light blue background for the data rows.

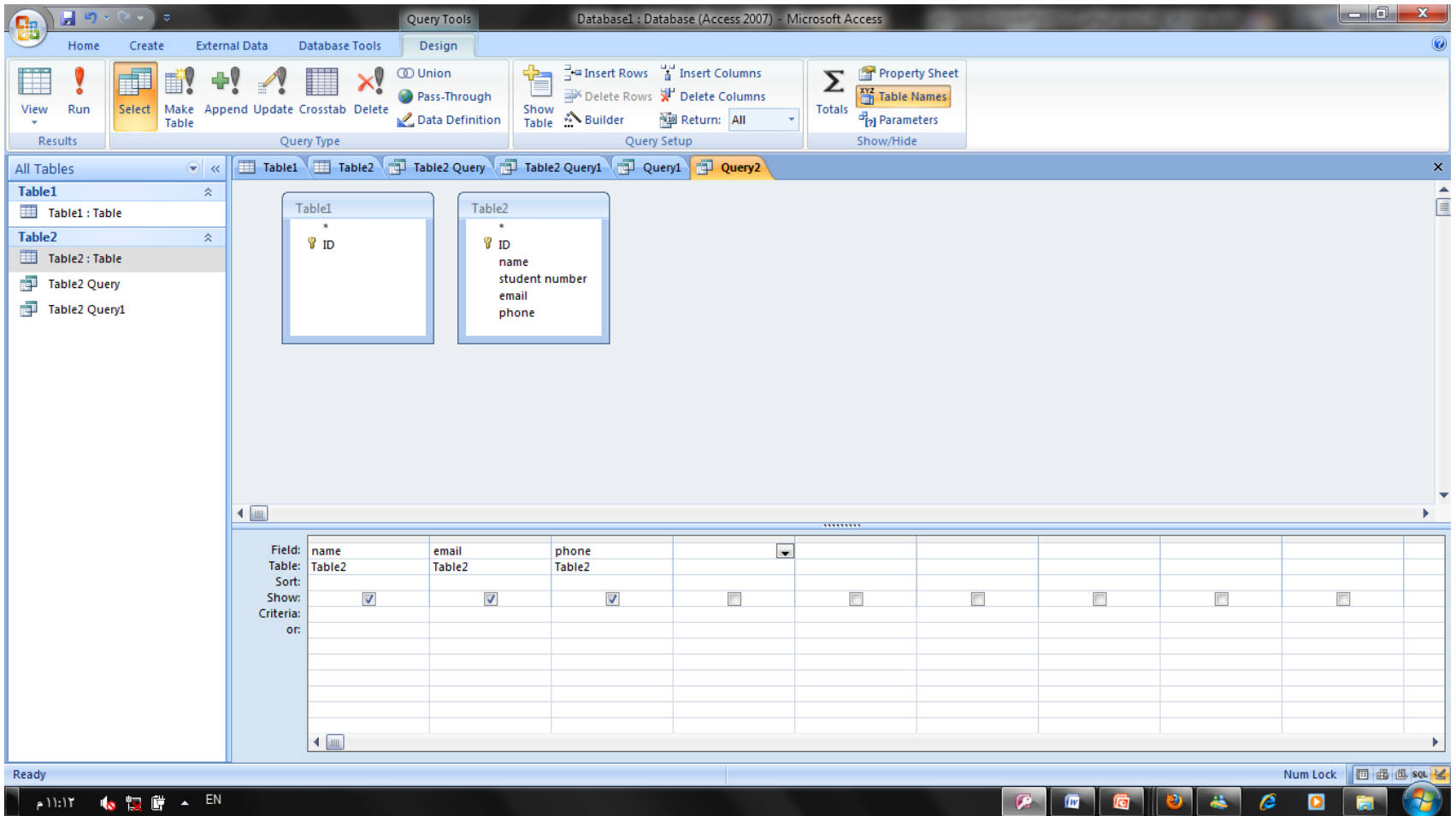
	name	email	
	nora	nbkjbuik	
	sara	hbvjcvj	
*			

Create Query Design

To create new Query, follow the following steps:

- Click on **Create** in menu bar.
- Click on **'Query design'**
- You will see the following dialogue box .





Criteria in Query

- ▶ Criteria in the query means the condition which is fulfilled for extraction of records from table like **Basic Salary<=3000**.
- ▶ Access contains the following comparison operators. These operators are used in criteria as per requirements:

Operator	Meaning	Example
=	equal to (optional; default operator)	= "Hall"
<	less than	< #1/1/99#
<=	less than or equal to	<= 100
>	greater than	> "C400"
>=	greater than or equal to	>= 18.75
<>	not equal to	<> "Hall"
Between ... And...	between two values (inclusive)	Between 50 And 325
In ()	in a list of values	In ("Hall", "Seeger")
Like	matches a pattern that includes wildcards	Like "706*"

Parameter Query

- ▶ The parameter query will prompt the user to enter the value they want to use to select records. Once the user has supplied this information, those records that match the value will be displayed in the query datasheet.
- ▶ To create parameter query, enter the fields (for which the query will ask the user for values) in the Criteria under that fieldname as [fieldname:]. In the following example, there are two parameters for which the user is asked when the query is run **Emp ID** and **Salary Month**.

Field:	Emp ID	Name	Designation	Basic Salary	Transport Allowanc	Total Salary: [Basic	Salary Month: Form
Table:	Employee	Employee	Employee	Salary	Salary		
Sort:							
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	[Emp ID:]						[Salary Month:]
or:							

Parameter
Fieldname

Enter Parameter Value

Emp ID:

OK Cancel

Parameter
Fieldname

Enter Parameter Value

Salary Month:

OK Cancel

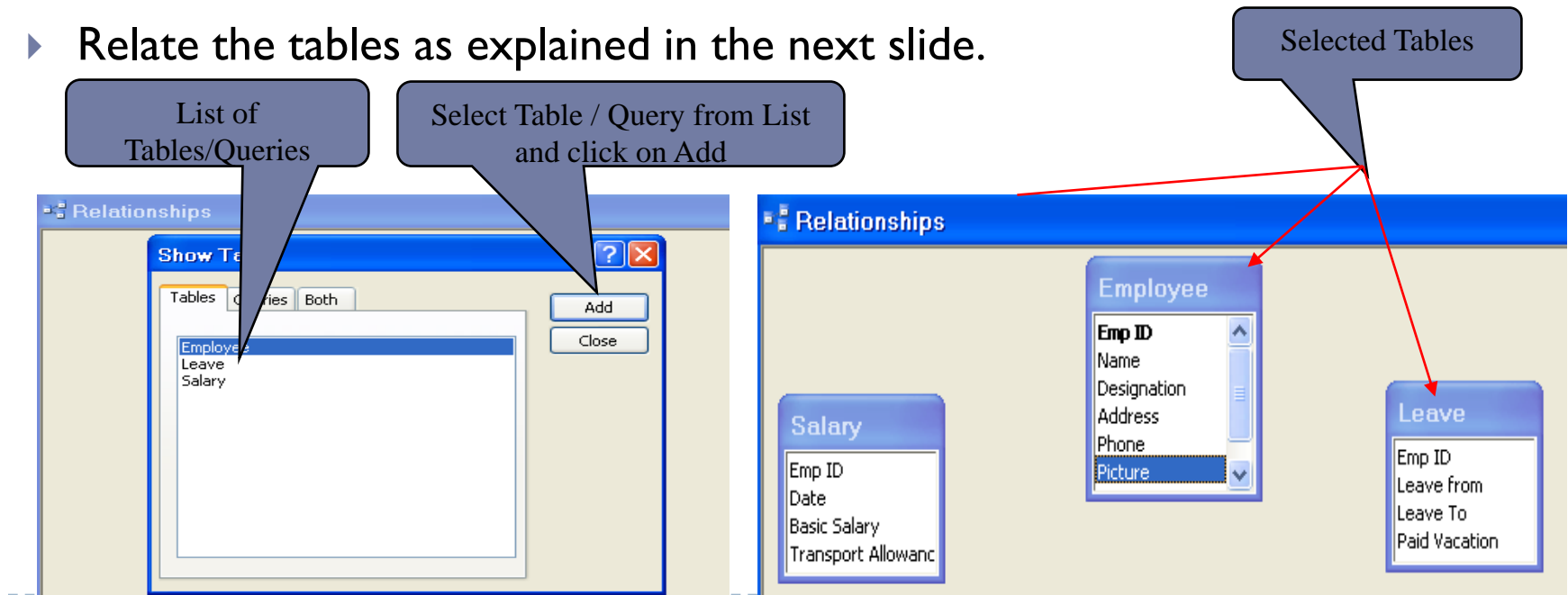
Relational Database Management System

- ▶ Primary Key - The key that uniquely identifies record in the table is called Primary Key.
- ▶ 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).
- ▶ Relational Database - In Relational Database, data is held in tables (also called relations) and the tables are linked by means of common fields. Relational databases support a number of different types of relationships between tables, all designed to enforce the concept of referential integrity. Access supports three different types of relationships between tables.

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- ▶ One-to-one relationships - occur when there is exactly one record in Table-A that corresponds to exactly one record in Table-B.
 - ▶ One-to-many relationships - occur when each record in Table-A may have many linked records in Table-B but each record in Table-B may have only one corresponding record in Table-A.
 - ▶ Many-to-many relationships - occur when each record in Table-A may have many linked records in Table-B and vice-versa.
 - ▶ 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.

Creating Relationships Between Tables

- ▶ Close any open table so that only the database window is visible.
- ▶ Click on Tools (menu) > Relationships, or Click on the Relationships icon in the standard toolbar. The Relationships window appears:
- ▶ Now right click an empty part of the relationship window and select Show Tables option.
- ▶ Add tables or queries you want to relate
- ▶ Relate the tables as explained in the next slide.



Relating Two Tables

- ▶ Move the mouse pointer to the primary key field in the primary table. That key is boldfaced.
- ▶ Drag that fieldname to the corresponding field in the related table (Child table) i.e. drag it to the appropriate foreign key.
- ▶ Release the mouse button to display a dialogue box.
- ▶ Select (Check) the Enforce Referential Integrity to enforce referential integrity between the two tables.
- ▶ Click the button to finish the job.

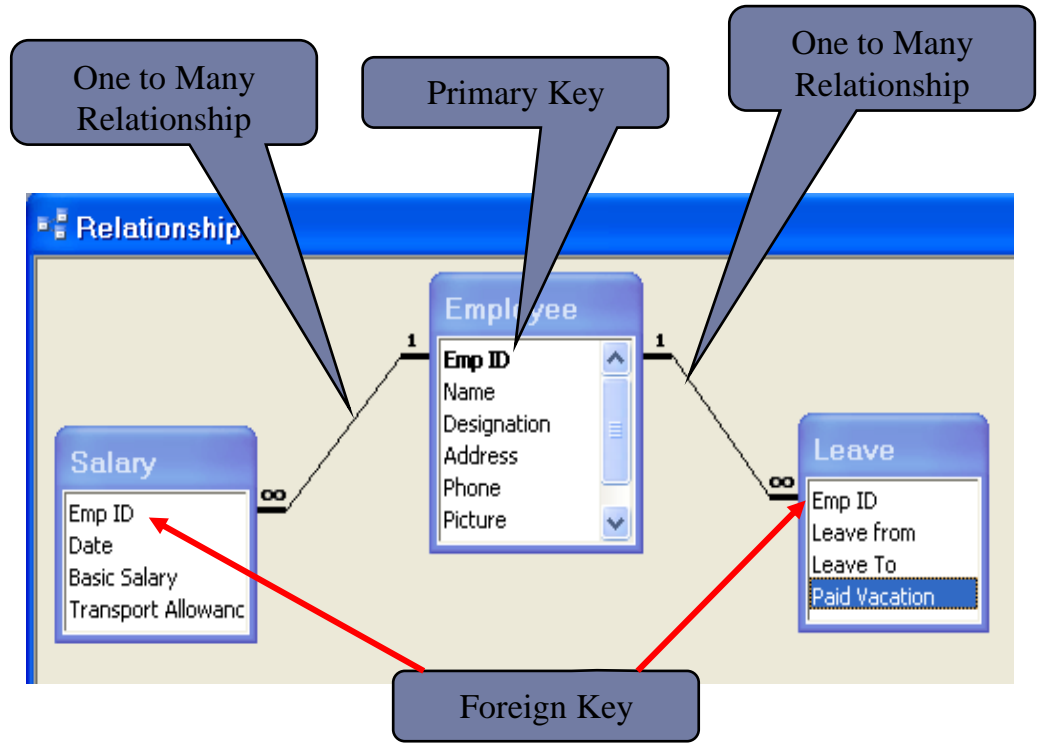
Edit Relationships

Table/Query:	Related Table/Query:
Employee	Leave
Emp ID	Emp ID

Enforce Referential Integrity
 Cascade Update Related Fields
 Cascade Delete Related Records

Relationship Type: One-To-Many

Buttons: Create, Cancel, Join Type.., Create New..

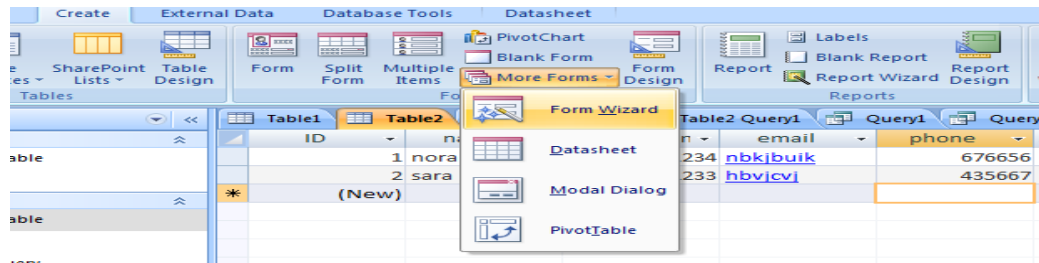


Creating Forms in Database

Form – A tool (object) that makes it easy to operate on database like Insertion, deletion, saving, searching records etc.

To create new Form, follow the following steps:

- Click on **Create** in menu bar then **more form** then **form wizard**.
- There are two methods to create new form: **Design View and Form Wizard'**
- **Design View:** Select the Design View option to create the form yourself by adding controls in Design View.
- **Form Wizard:** Select the Form Wizard option to have Access create the form for you according to your specifications. The form wizard option lets you choose the specific fields to include which might belong to one or more tables or queries.



Form Wizard

- ▶ click on Create Form by using Wizard, you will see the following dialogue box.
- ▶ Select Table/Query, select fields and click on OK.
- ▶ Select Layout of Form i.e. Columnar, Tabular.....
- ▶ Select Style of Form like Blends, Blueprint,
- ▶ Then save form with any title.

1

Form Wizard

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

Tables/Queries
Query: Salary Query

Available Fields:

Selected Fields:

- Emp ID
- Name
- Designation
- Salary Month
- Basic Salary
- Transport Allowance
- Total Salary

Buttons: Cancel, < Back, Next >, Finish

2

Form Wizard

What layout would you like for your form?

Layout options:

- Columnar
- Tabular
- Datasheet
- Justified
- PivotTable
- PivotChart

Buttons: Cancel, < Back, Next >, Finish

3

Form Wizard

What style would you like?

Style options:

- Blends
- Blueprint
- Expedition
- Industrial
- International**
- Ricepaper
- SandStone
- Standard
- Stone
- Sumi Painting

Buttons: Cancel, < Back, Next >, Finish

Creating Form (Cont)

You can add controls to the form this toolbox.

View of the Form During Design.

The screenshot shows the Microsoft Access interface with a form titled 'Table2' in design view. The form contains five text boxes, each with a label and a value:

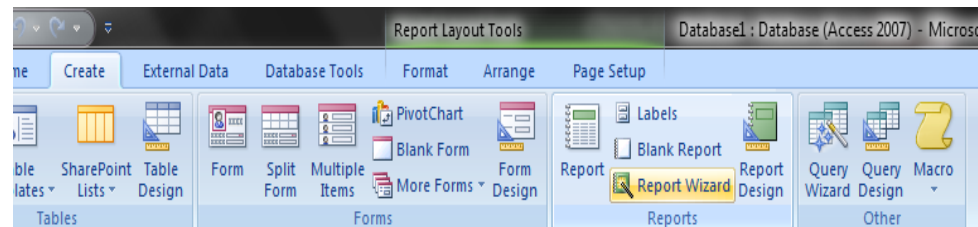
Field Name	Value
ID	1
name	nora
student number	1234
email	nbkjbuik
phone	676656

Creating Reports in Database

Report is a tool (object) through which you get output (hardcopy or softcopy) from the database.

To create new Report, follow the following steps:

- Click on **CREATE** in menu bar then **report wizard**.
- There are two methods to create new form: **Design View and Report Wizard'**
- **Design View:** Select the Design View option to create the Report yourself by adding controls in Design View.
- **Report Wizard:** Select the Report Wizard option to have Access create the Report for you according to your specifications. The Report wizard option lets you choose the specific fields to include which might belong to one or more tables or queries.



Create a Report Using the Report Wizard

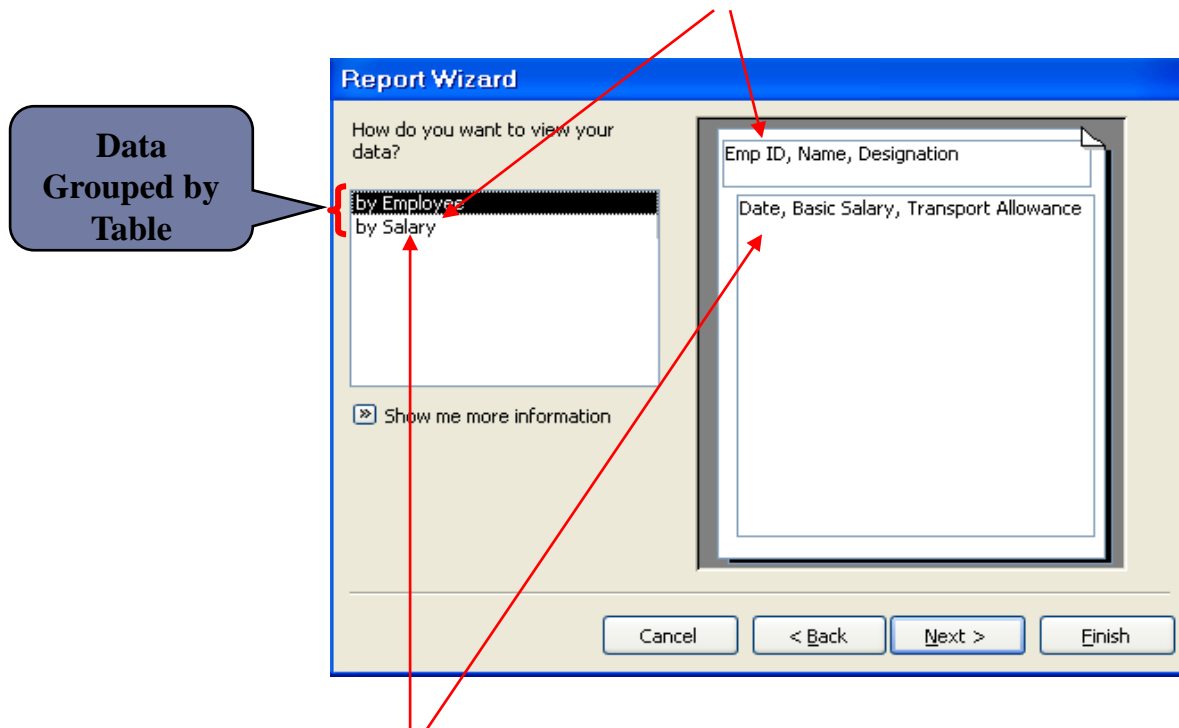
- ▶ You can easily create a formatted printout of data in table(s) in a database by using the Report Wizard.
- ▶ The Report Wizard will ask you a series of questions to help you format the report.
- ▶ Once the report has been created, either with the Report Wizard or your own design, you can change the design later.
- ▶ You will find that the choices you make in the Report Wizard are similar to the choices in the Form Wizard.
- ▶ Choices include grouping and sorting options, as well as report layout options. You can preview the report to view how it will look when printed.

Steps in Creating a Report

1. Create a new report with Report Wizard.
2. Select primary table (or query) – In this example, select Employee table.
3. Move the following fields from the Available Fields list box to the Selected fields list box:
 - Emp ID
 - Name
 - Designation
4. Select related table (or query) – In this example, select Salary table.
5. Move the following fields from the Available Fields list box to the Selected fields list box:
 - Date
 - Basic Salary
 - Transport Allowance
6. Click Next to get further dialogue box for grouping level.

Grouping Report Data

- ▶ You should decide how you want the report to be grouped. This figure shows a sample report (in the Report Wizard) that is grouped by the Employee table.



- ▶ The secondary table is the Salary table. This will develop a report where each employer's Salary is grouped under that employer.

Sorting Report Data

- ▶ You can sort the data on a particular field or on several fields.
- ▶ If you choose to sort on two or more fields, the grouping is in order as selected on the Sort Order portion of the Report Wizard.
- ▶ If you choose to sort on Date and then on Basic Salary, the report would be sorted on Date and then within each Date group, the data would be sorted on Basic Salary.

Report Wizard

What sort order and summary information do you want for detail records?

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

1 Date [v] Ascending

2 Basic Salary [v] Ascending

3 [v] Ascending

4 [v] Ascending

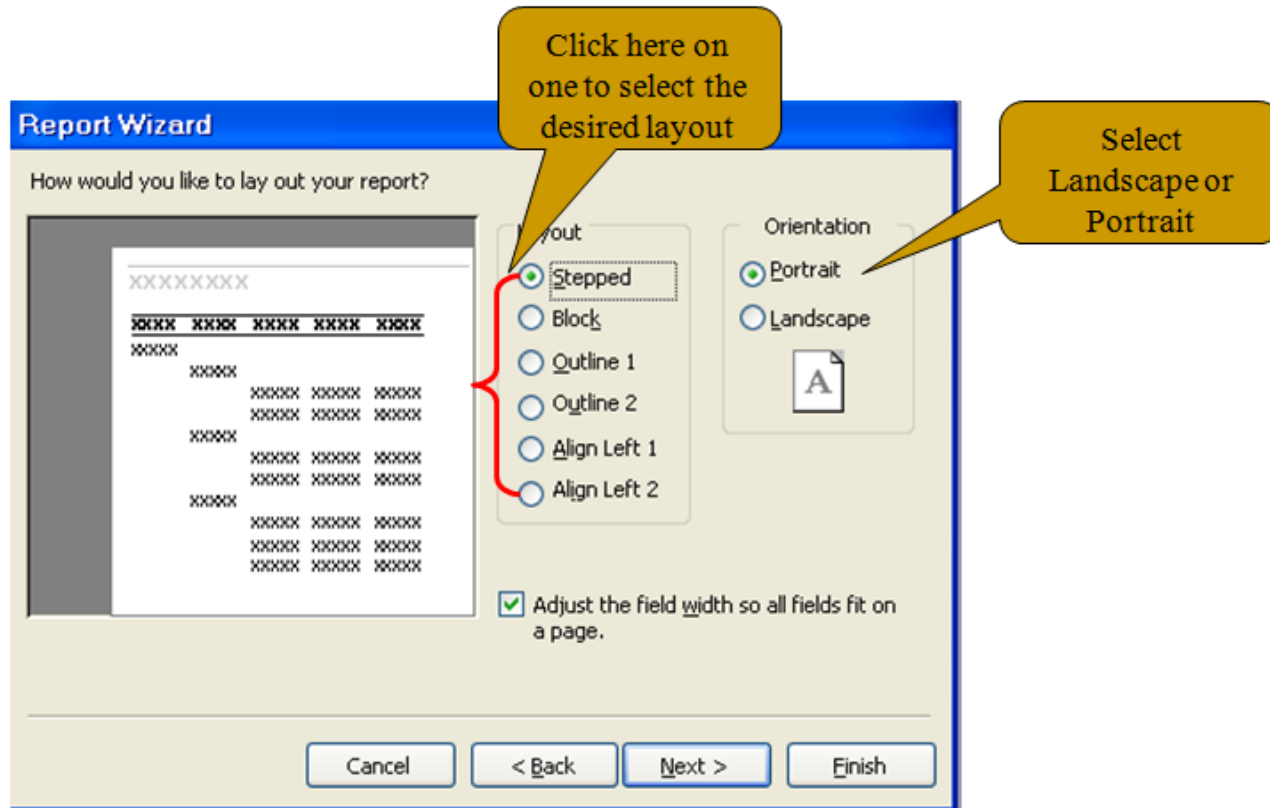
Summary Options ...

Cancel < Back Next > Finish

The dialog box includes a preview window on the left showing a report layout with columns labeled 1, 2, 3, and 4. The data is sorted by column 1 (Date) and then by column 2 (Basic Salary) within each group. The preview shows a table with columns 1, 2, 3, and 4, and rows of data. The first two columns are highlighted in blue, indicating they are the primary and secondary sort keys. The data is grouped by the first column, and within each group, it is sorted by the second column.

Choose a Report Layout

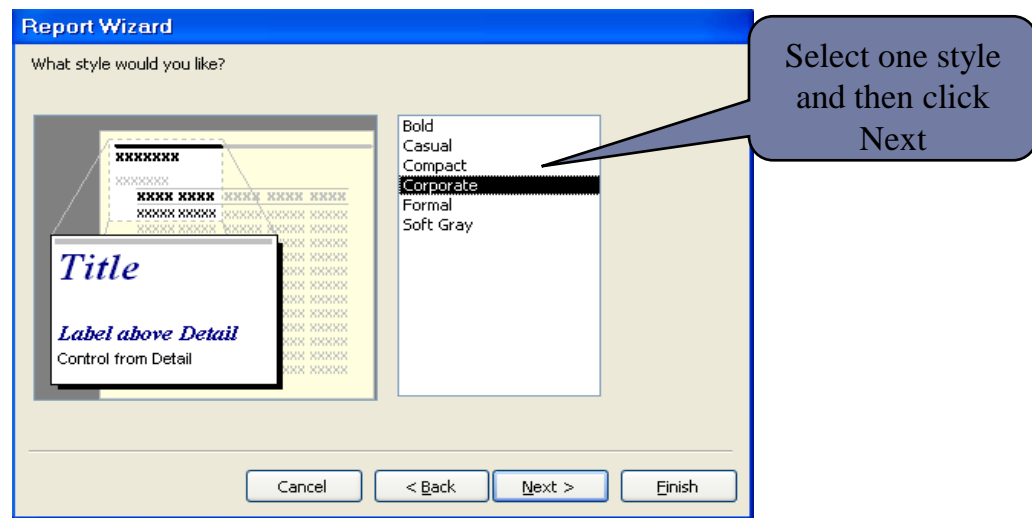
- ▶ The Layout dialogue box asks you to select the layout and orientation.



- ▶ Then click next.

Choose a Report Style

- ▶ The next dialogue box asks you to select the Style of the report.
- ▶ Select the desired style and click Next.



- ▶ Save your Report with a Report name. Now the report is ready. You can make changes in it by opening it into design view.
- ▶ Then click next.

Preview and Print a Report

- ▶ Before printing the report, you can view it in Print Preview by pressing the Print Preview button.

Salaries Report

Salary for the Month of Jan 2009					
<i>Emp ID</i>	<i>Name</i>	<i>Designation</i>	<i>Basic Salary</i>	<i>Transport Allowance</i>	<i>Total Salary</i>
2001	Abdullah	<i>Manager</i>	3000	500	3500
2002	Asad	<i>Assistant Manager</i>	5000	500	5500
2003	Yasir	<i>Secretary</i>	4500	300	4800
					13800

- ▶ If the preview looks OK, you can print the report. To print the report:
 - Click the File menu, and then click Print.

The End.....