



Microsoft Access 2007

Kasun



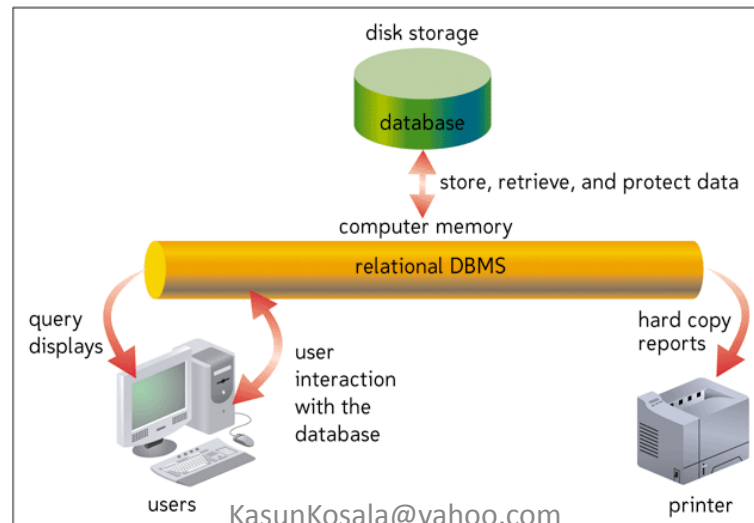
What is Access?

- Microsoft Access is a relational database management system (RDBMS).
- At the most basic level, a DBMS is a program that facilitates the storage and retrieval of structured information on a computer's hard drive.



Relational Database Management Systems

- A **database management system (DBMS)** is a software program that lets you create databases and then manipulate data in them
- In a **relational database management system**, data is organized as a collection of tables





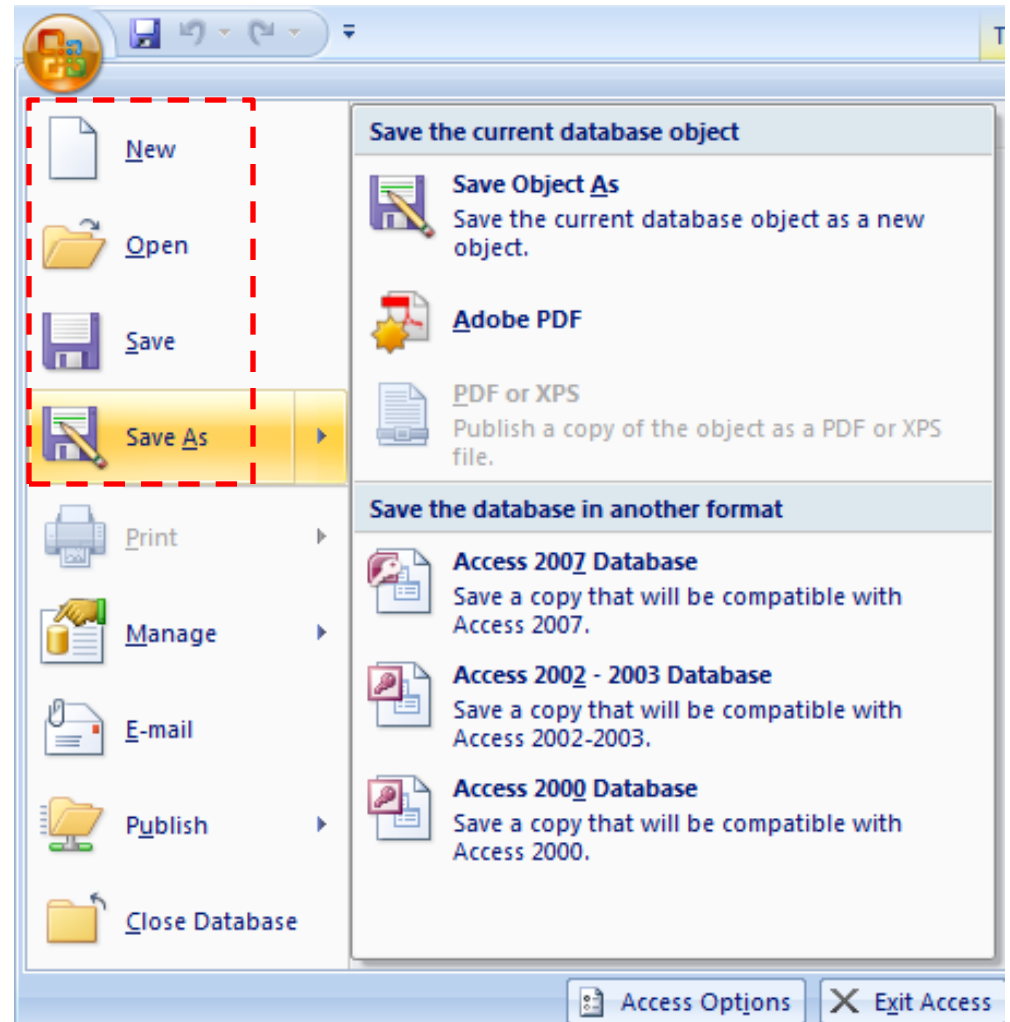
What it has?

- A **rapid application development (RAD) environment** complete with visual form and report development tools.
- Various **wizards and builders to make development easier.**
- A sprinkling of **objected-oriented extensions.**
- A full-featured **procedural programming language**—essentially a subset of Visual Basic.
- A simplified procedural **macro language unique to Access.**



Getting Started

- Start MS Access.
- Create new Database.
- Save Database.
- Open previously saved Database.
- Adding passwords to Databases.





The Access Window

The Quick Access Toolbar provides one-click access to commonly used commands, such as Save.

The **Shutter Bar Open/Close Button** allows you to close and open the Navigation Pane; you might want to close the pane so that you have more room on the screen to view the object's contents.

The **Navigation Pane** is the area that lists all the objects (tables, reports, and so on) in the database, and it is the main control center for opening and working with database objects.

Datasheet view shows the table's contents as a datasheet. The status bar indicates the current view, in this case, Datasheet view.

Access assigns the default name "Table1" to the first new table you create. When you save the table, you give it a more meaningful name.

The **Add & Delete group** contains options for adding different types of fields, including Text and Currency, to a table.

The **Fields tab** provides options for adding, removing, and formatting the fields in a table.

By default, Access creates the **ID column** as the primary key field for all new tables.

The **Click to Add column** provides another way for you to add new fields to a table.

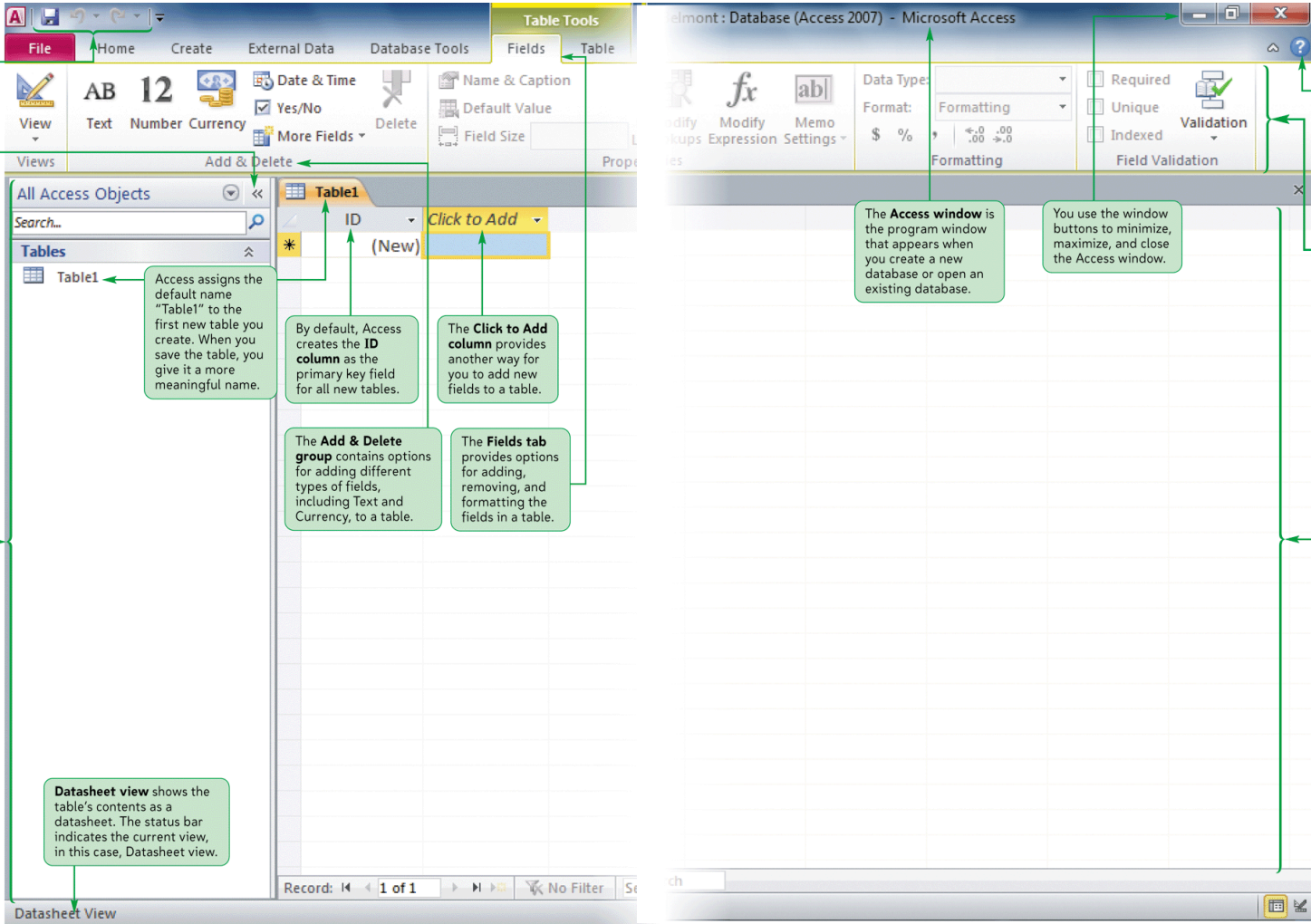
The **Access window** is the program window that appears when you create a new database or open an existing database.

You use the window buttons to minimize, maximize, and close the Access window.

The Microsoft Access Help button opens the Help window, where you can find information about Access commands and features as well as instructions for using them.

The **Ribbon** provides the main Access commands organized by task into tabs and groups.

A **datasheet** displays the table's contents in rows and columns, similar to a table that you create in a Word document or an Excel spreadsheet. Each row will be a separate record in the table, and each column will contain the field values for one field in the table.





Working with the Navigation Pane

- The Navigation Pane is the main area for working with the objects in a database
- The Navigation Pane divides database objects into categories, and each category contains groups

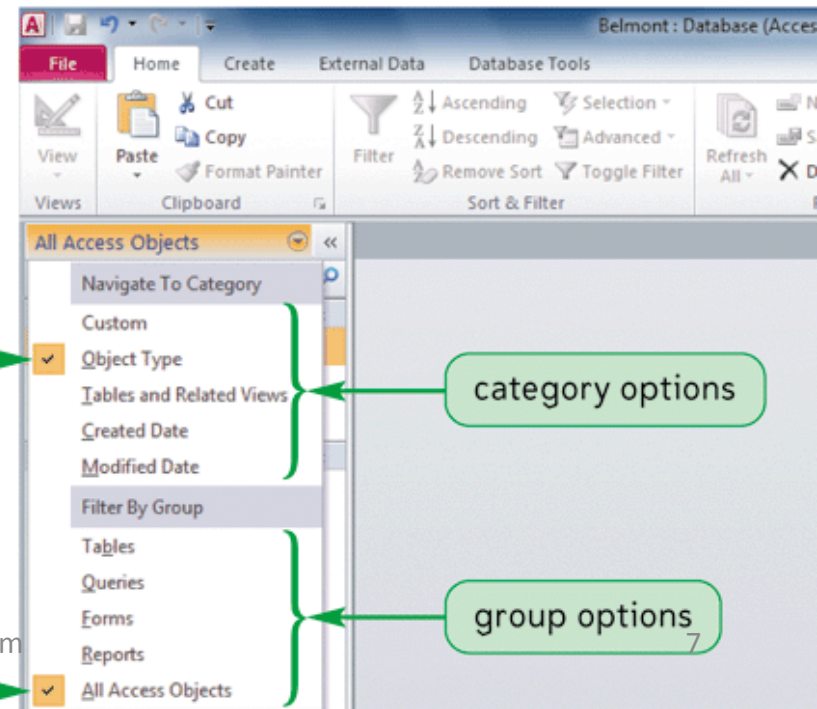
✓ **Object Type**

✓ **All Access Objects**

default category selected

default group selected

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Viewing Objects in the Navigation Pane

The screenshot shows the Microsoft Access 2007 interface with the Navigation Pane open. The ribbon includes File, Home, Create, External Data, and Database Tools. The Navigation Pane is titled 'All Access Objects' and contains a search bar and several object categories: Tables (with 'Contract' selected), Queries (with 'ContractList'), Forms (with 'ContractData'), and Reports (with 'ContractDetails').

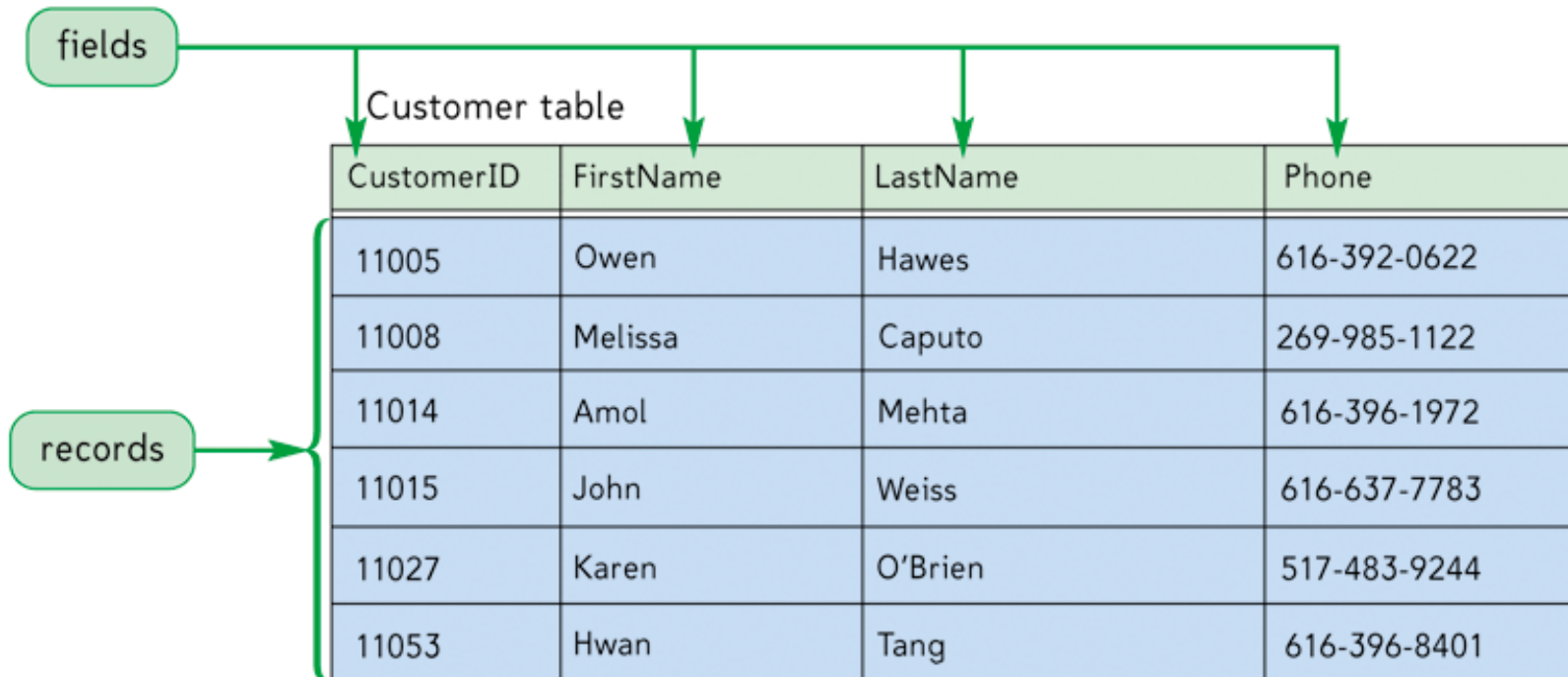
Callouts provide the following information:

- specifies that all objects in the database are displayed**: Points to the 'All Access Objects' header.
- table icon**: Points to the table icon next to the 'Tables' category.
- query icon**: Points to the query icon next to the 'Queries' category.
- form icon**: Points to the form icon next to the 'Forms' category.
- report icon**: Points to the report icon next to the 'Reports' category.
- displays a menu with options for grouping objects in the Navigation Pane**: Points to the dropdown arrow next to the 'All Access Objects' header.
- enter text here to find objects in the database containing the search text**: Points to the search bar.



Tables

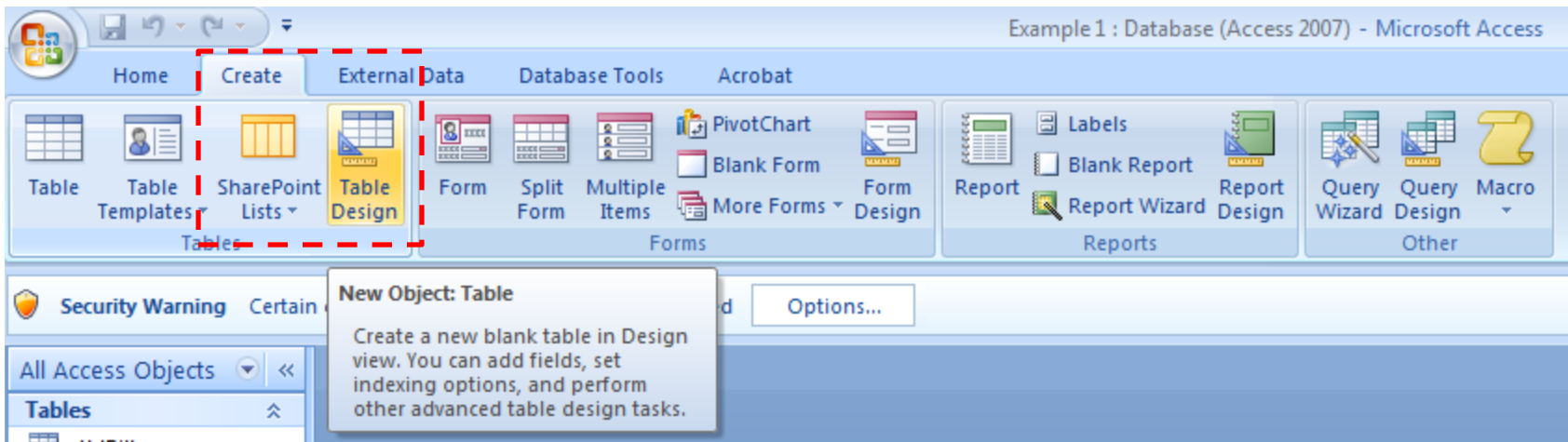
- Organizing data using Tables





Create Tables Using Design View

- Create Tab in the Ribbon → Table Design





Defining a Field in Design View

- In the Field Name box, type the name for the field, and then press the Tab key
- Accept the default Text data type, or click the arrow and select a different data type for the field. Press the Tab key
- Enter an optional description for the field, if necessary
- Use the Field Properties pane to type or select other field properties, as appropriate

Defining a Field in Design View



Figure 2-10 Table window after entering the first field name

field name entered

default data type

click to display a list of data types

properties for a Text field

pressing the F1 key displays Help information

The data type determines the kind of values that users can store in the field. Press F1 for help on data types.

default property values for a Text field

Field Name	Data Type	Description
InvoiceNum	Text	

Field Properties	
General	Lookup
Field Size	255
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	No
Allow Zero Length	Yes
Indexed	Yes (Duplicates OK)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Smart Tags	



Field Names, Data Types & Primary key

The screenshot shows the Microsoft Access interface in Design view. The ribbon includes Home, Create, External Data, Database Tools, Acrobat, and Table Tools. The Table Tools ribbon is active, showing the Design tab. The Primary Key tool is highlighted with a red dashed box. A tooltip for the Primary Key tool reads: "Primary Key. Designate the selected field or fields as the primary key." Below the ribbon, a table is displayed with the following fields:

Field Name	Data Type
IndexNo	Text
Name	Text
Physics	Number
Chemistry	Number



Table Window in Design View

The screenshot shows the Microsoft Access interface in Design View for a table named 'Table1'. The ribbon includes 'Table Tools' with sub-tabs for 'Design' and 'Field Properties'. The 'Design' tab contains a 'Table Design grid' with columns for 'Field Name', 'Data Type', and 'Description'. The 'Field Properties' pane is visible at the bottom, showing the 'General' tab with a 'Lookup' property. A callout box explains that the field name can be up to 64 characters long, including spaces, and that pressing F1 provides help on field names.

Design view allows you to define or modify a table structure or the properties of the fields in a table.

You can use the **Description property** to enter an optional description for a field to explain its purpose or usage. A field's Description property can be up to 255 characters long, and its value appears on the status bar when you view the table datasheet.

The bottom portion of the Table window in Design view is called the **Field Properties pane**. Here, you select values for all other field properties, most of which are optional.

The purpose or characteristics of the current property (Field Name, in this case) appear in this section of the Field Properties pane.

You can display more complete Help information about the current property by pressing the F1 key.

A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.

The top portion of the Table window in Design view is called the **Table Design grid**. Here, you enter values for the Field Name, Data Type, and Description field properties.

In the Field Name column, you enter the name for each new field in the table. When you first open a new Table window in Design view, Field Name is the current property.

In the Data Type column, you select the appropriate data type for each new field in the table. The data type determines what field values you can enter for a field and what other properties the field will have. The default data type for a new field is Text.


After you assign a data type to a field, the General tab displays additional field properties for that data type. Initially, most field properties are assigned default values.

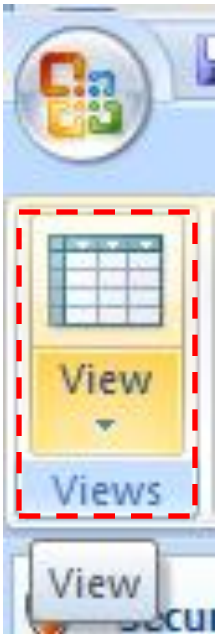
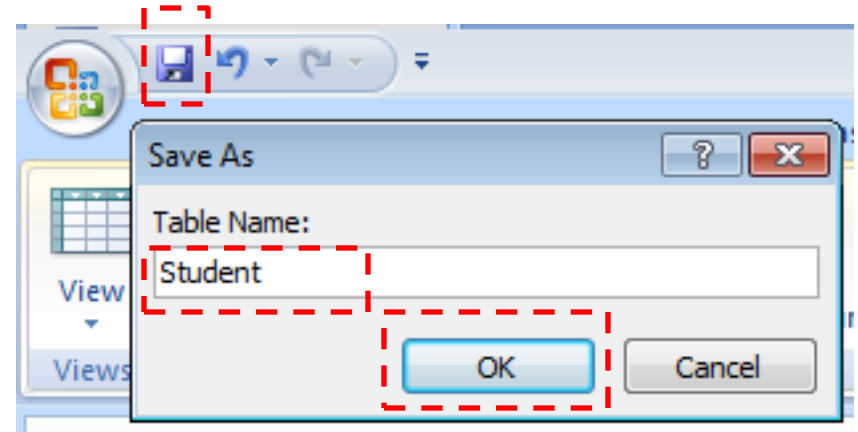
When defining the fields in a table, you can move from the Table Design grid to the Field Properties pane by pressing the F6 key.

Design view. F6 = Switch panes. F1 = Help.



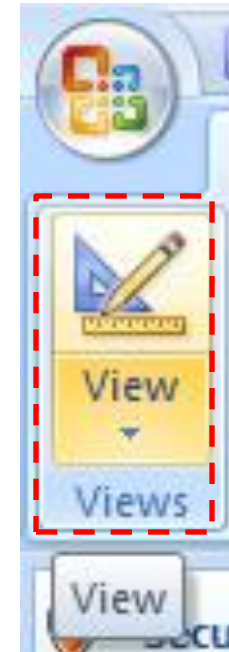
Save, Open & Redesign

- Save  (or ^S) →
Type a Name → OK.



- Opening a Table
← Datasheet view Tool






- Changing the Structure →





Navigating a Datasheet

- The **navigation buttons** provide another way to move vertically through the records

Navigation Button	Record Selected	Navigation Button	Record Selected
	First record		Last record
	Previous record		New (blank) record
	Next record		



Find

Find & Replace



Student				
IndexNo	Name	Physics	Chemistry	Add New Field
ICT13001	Perera	78	69	
ICT13002	Silva	57	64	
*				

Find and Replace

Find Replace

Find What:

Look In:

Match:

Search:

Match Case Search Fields As Formatted



Finding Data in a Table

- The **Find command** allows you to search a table or query datasheet, or a form, to locate a specific field value or part of a field value

Figure 3-3 Find and Replace dialog box

The screenshot shows the 'Find and Replace' dialog box with the following settings and callouts:

- Find What:** 3011 (Callout: value selected in the table datasheet)
- Look In:** Current field (Callout: specifies that the current field will be searched)
- Match:** Whole Field (Callout: specifies that Access will search for a match to the entire field value)
- Search:** All (Callout: specifies that all fields in the table will be searched)
- Match Case:** (unchecked)
- Search Fields As Formatted:** (checked)

Buttons: Find, Replace, Find Next, Cancel



Deleting a Record

- With the table open in Datasheet view, click the row selector for the record you want to delete
- In the Records group on the Home tab, click the Delete button (or right-click the row selector for the record, and then click Delete Record on the shortcut menu)
- In the dialog box asking you to confirm the deletion, click the Yes button



Deleting a Record

Figure 3-4 Related records from the Invoice table in the subdatasheet

plus signs indicate the table is related to another table

minus sign appears when related records are displayed

subdatasheet with related records from the Invoice table

Invoice Num	Invoice Date	Invoice Item	Invoice Amt	Invoice Paid	Click to Act
2631	11/28/2014	Schematic Plan	\$2,500.00	<input type="checkbox"/>	
2632	12/28/2014	Permitting	\$1,500.00	<input type="checkbox"/>	
2633	03/14/2015	Planting Plan	\$4,000.00	<input type="checkbox"/>	
2634	05/15/2015	Lighting Plans	\$1,500.00	<input type="checkbox"/>	



Guidelines for Designing Databases

- Identify all the fields needed to produce the required information
- Organize each piece of data into its smallest useful part
- Group related fields into tables
- Determine each table's primary key
- Include a common field in related tables
- Avoid data redundancy
- Determine the properties of each field

Guidelines for Setting Field Properties



- Choose an appropriate data type

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; default is 255
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 will be used in calculations, except those 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 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, but is used for storing monetary values. Unlike calculations with Number data type decimal values, calculations performed with the Currency data type are not subject to round-off error.	Accurate to 15 digits on the left side of the decimal point and to 4 digits on the right side
AutoNumber	Consists of integer values created automatically by Access each time you create a new record. 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 invoice has been paid.	1 character
Hyperlink	Consists of text used as a hyperlink address, which can have up to four parts: the text that appears in a field or control; the path to a file or page; a location within the file or page; and text displayed as a screen tip.	Up to 65,535 characters total for the four parts of the Hyperlink data type



Guidelines for Setting Field Properties

- The **Field Size property** defines a field value's maximum storage size for Text, Number, and AutoNumber fields only
 - ✓ Byte
 - ✓ Integer
 - ✓ Long Integer
 - ✓ Single
 - ✓ Double
 - ✓ Replication ID
 - ✓ Decimal



Changing the Format of a Field in Datasheet View

Figure 2-5 Contract table datasheet

Text field values are left-aligned

Currency and Date/Time field values are right-aligned

ContractNum	CustomerID	ContractAmt	SigningDate	ContractType
3011	11001	\$4,000.00	2/9/2013	Residential landscape plan
3012	11027	\$300.00	2/18/2013	Consultation for backyard, residential
3015	11005	\$1,500.00	3/1/2013	Schematic plan for backyard, residential
3017	11012	\$2,250.00	3/1/2013	Peer plan review for town
3020	11055	\$6,500.00	2/19/2013	Landscape design for restaurant

Figure 2-6 Format of the ContractAmt field

Currency data type and Currency format

click to reduce the number of decimal places displayed

click to change the format of the field values

ContractNum	CustomerID	ContractAmt	SigningDate	ContractType
3011	11001	\$4,000.00	2/9/2013	Residential landscape plan
3012	11027	\$300.00	2/18/2013	Consultation for backyard, residential
3015	11005	\$1,500.00	3/1/2013	Schematic plan for backyard, residential
3017	11012	\$2,250.00	3/1/2013	Peer plan review for town
3020	11055	\$6,500.00	2/19/2013	Landscape design for restaurant



Creating a Table in Design View

- Creating a table in Design view involves entering the field names and defining the properties for the fields, specifying the primary key, and saving the table structure

Design for the Invoice table

Field Name	Data Type	Field Size	Description	Other
InvoiceNum	Text	4	Primary key	Caption = Invoice Num
ContractNum	Text	4	Foreign key	Caption = Contract Num
InvoiceAmt	Currency			Format = Currency Decimal Places = 2 Caption = Invoice Amt
InvoiceDate	Date/Time			Format = mm/dd/yyyy Caption = Invoice Date
InvoicePaid	Yes/No			Caption = Invoice Paid Format = Yes/No



Specifying the Primary Key in Design View

- Display the table in Design view
- Click in the row for the field you've chosen to be the primary key to make it the active field. If the primary key will consist of two or more fields, click the row selector for the first field, press and hold down the Ctrl key, and then click the row selector for each additional primary key field
- In the Tools group on the Design tab, click the Primary Key button



Specifying the Primary Key in Design View

Figure 2-16

InvoiceNum field selected as the primary key

Primary Key button

key symbol indicates the table's primary key

The screenshot shows the Microsoft Access Design View for a table named 'Table1'. The ribbon is set to 'Table Tools > Design'. The 'Primary Key' button, represented by a key icon, is highlighted in the ribbon. Below the ribbon, the table design grid is visible with the following fields:

Field Name	Data Type	
InvoiceNum	Text	Primary key
ContractNum	Text	Foreign key
InvoiceAmt	Currency	
InvoiceDate	Date/Time	
InvoicePaid	Yes/No	



Moving a Field

- To move a field, you use the mouse to drag it to a new location in the Table window in the Table Design grid

Figure 2-17

Moving the InvoiceAmt field in the table structure

black line indicates the new position for the field being moved

selected field

move pointer

Field Name	Data Type	Description
InvoiceNum	Text	Primary key
ContractNum	Text	Foreign key
InvoiceAmt	Currency	
InvoiceDate	Date/Time	
InvoicePaid	Yes/No	



Adding a Field Between Two Existing Fields

- In the Table window in Design view, select the row below where you want the new field to be inserted
- In the Tools group on the Design tab, click the Insert Rows button
- Define the new field by entering the field name, data type, optional description, and any property specifications



Adding a Field Between Two Existing Fields

Table structure after inserting a row

Field Name	Data Type	Description
InvoiceNum	Text	Primary key
ContractNum	Text	Foreign key
InvoiceDate	Date/Time	
InvoiceAmt	Currency	
InvoicePaid	Yes/No	



Deleting a Field from a Table Structure

- In Datasheet view, click the column heading for the field you want to delete
- In the Add & Delete group on the Fields tab, click the Delete button

or

- In Design view, click the Field Name box for the field you want to delete
- In the Tools group on the Design tab, click the Delete Rows button



Deleting a Field from a Table Structure

Figure 2-31 Customer table in Design view

click to delete the current field

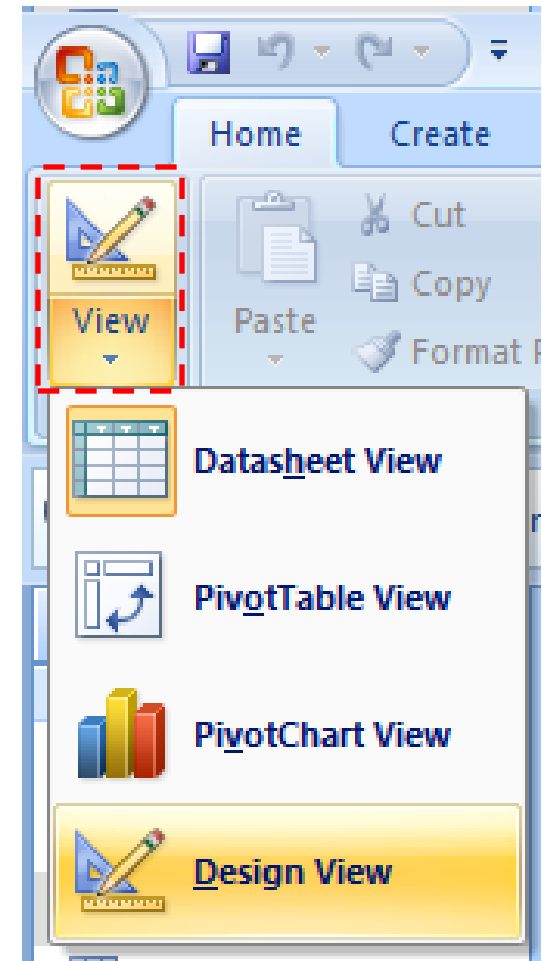
Field Name	Data Type	Description
CustomerID	Text	
Company	Text	
Last	Text	
First	Text	
Phone	Number	
Address	Text	
City	Text	
StateProvince	Text	
ZIPPostal	Text	
FaxNumber	Text	
Email	Text	
County	Text	
Web Page	Text	
Notes	Text	

fields to be deleted

Different view of Tables



- Datasheet view
 - To view, add, edit or delete Table data.
- PivotTable view
 - To view a table in different angles.
- PivotChart view
 - To draw charts against selected fields.
- Design view
 - To change the structure of a Table.





Creating a Table in Datasheet View

The screenshot shows the Microsoft Access interface with a table named 'Table1' in Datasheet View. The ribbon is set to 'Table Tools' > 'Table'. The table has five columns: ContractNum, CustomerID, ContractAmt, SigningDate, and ContractType. A sixth column is labeled 'Click to Add'. Annotations include:

- five fields entered and columns resized**: Points to the column headers.
- record (row) selector**: Points to the asterisk in the first row.
- field (column) selector**: Points to the 'ContractType' header.
- values for first record will go in this row**: Points to the first data row.

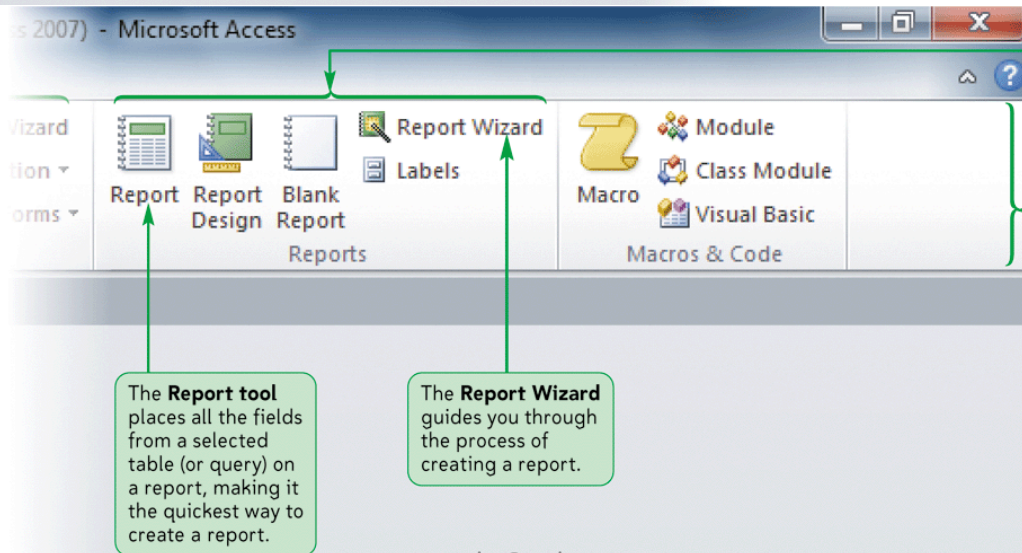
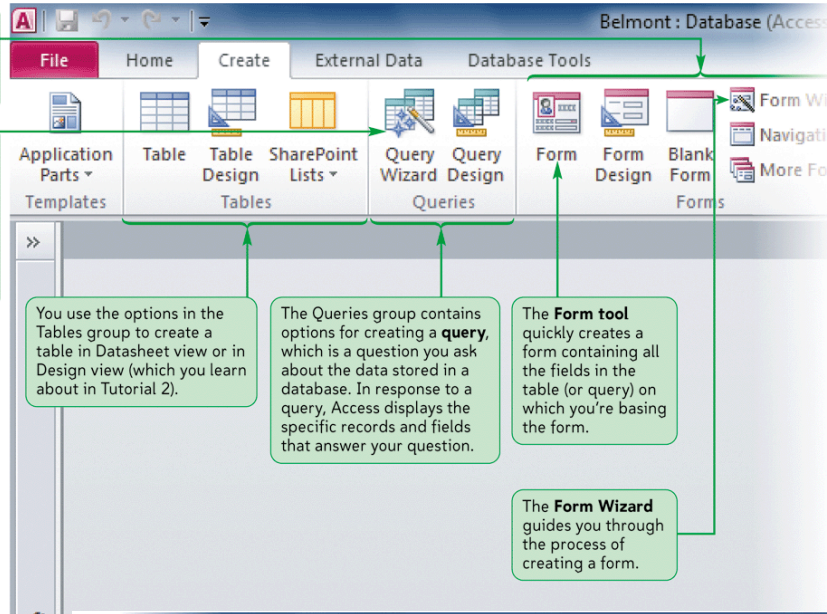
ContractNum	CustomerID	ContractAmt	SigningDate	ContractType	Click to Add
*					



Options in Create Tab

The Forms group contains options for creating a **form**, which is a database object you use to enter, edit, and view records in a database.

The **Query Wizard** button opens a dialog box with different types of wizards that guide you through the steps to create a query. One of these, the **Simple Query Wizard**, allows you to select records and fields quickly to display in the query results.





Example 1 : Database (Access 2007) - Microsoft Access

Home Create External Data Database Tools Acrobat

Table Table Templates SharePoint Lists Table Design Form Split Form Multiple Items PivotChart Blank Form More Forms Form Design Report Labels Blank Report Report Wizard Query Wizard Query Design Macro

Tables Forms Reports Other

Security Warning Certain

New Object: Table

Create a new blank table in Design view. You can add fields, set indexing options, and perform other advanced table design tasks.

Options...

All Access Objects

Tables

- tblBill
- tblItem
- tblPersona

Queries

- qryBill

- Open
- Design View
- Import
- Export
- Collect and Update Data via E-mail
- Rename
- Hide in this Group
- Delete
- Cut
- Copy
- Paste
- Linked Table Manager
- Table Properties