

# Module 5

## Using Databases

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BCS – medical school 2018

# Outline

1. Understanding Databases
2. Using the Application
3. Tables
4. Retrieving Information
5. Objects
6. Outputs

# 1. Understanding Databases

Key Concepts

Database Organization

Relationships

Operation

# Key Concepts

- ❑ Understand what a database is.
- ❑ Understand the difference between data and information.
- ❑ Understand how a database is organized in terms of tables, records and fields.
- ❑ Know some of the common uses of large-scale databases.

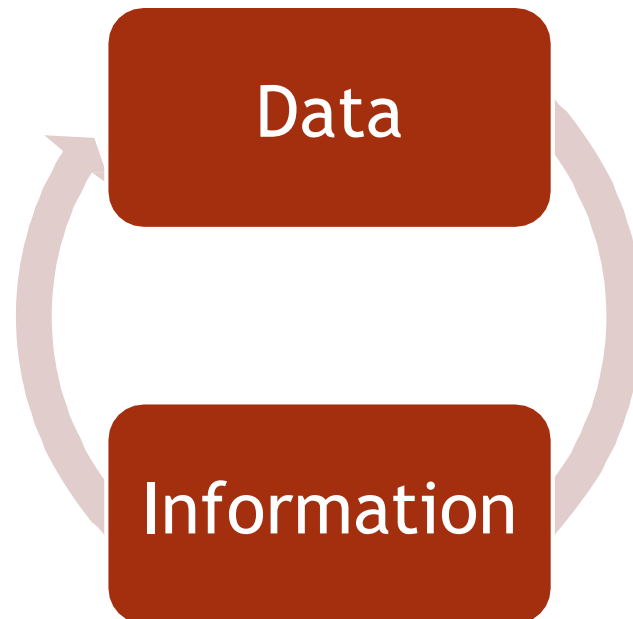
# What is a database?

- A database is defined as an organized collection of data (information).



# Data & Information

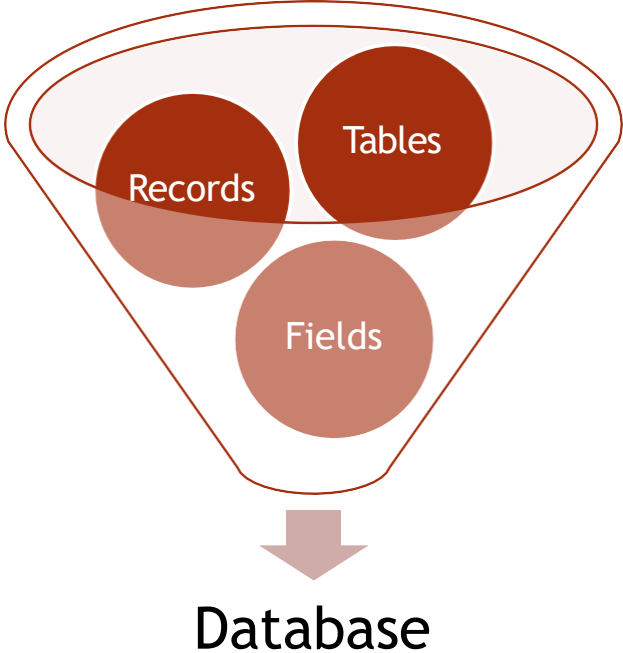
- Data is information converted into binary digital form.
- Information is facts or details about sb/sth.



# File and Database Concepts

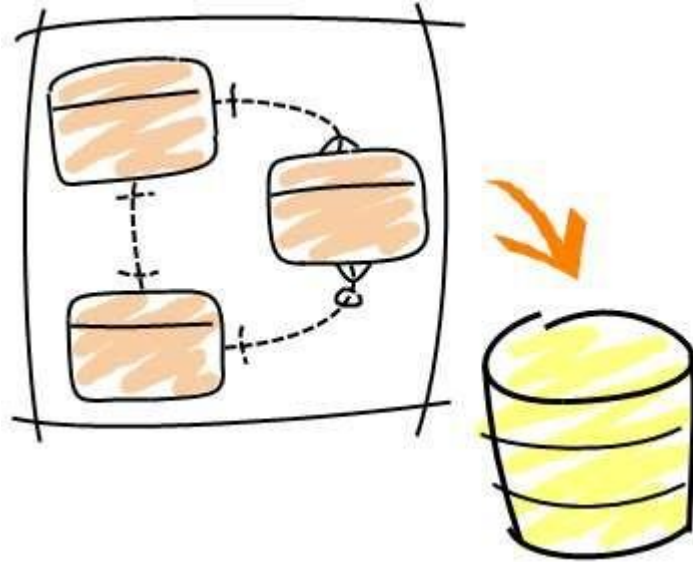
- A **database** is a collection of information
  - Databases are typically stored as computer files
- A **structured file** is similar to a card file or Rolodex because it uses a uniform format to store data for each person or thing in the file

# Database Organization



**D**  A structured collection of related data about one or more subjects.

**a**  
**t**  
**a**  
**b**  
**a**  
**s**  
**e**





# Database Uses

- ❑ Airline booking systems.
- ❑ Government records.
- ❑ Bank account records.
- ❑ Hospital patient details.



# Database Organization

- ❑ Understand that each table in a database should contain data related to a single subject type.
- ❑ Understand that each field in a table should contain only one element of data.
- ❑ Understand that field content is associated with an appropriate data.
- ❑ Understand that fields have associated field properties.
- ❑ Understand what a primary key is.
- ❑ Understand what an index is.

# Table

- A table is a list of information organized into columns and rows.
- In the example of a client contact database, the table might list the names, addresses, phone numbers, company names, titles, and e-mail addresses of your clients.
- You can have numerous tables in your Access database.



# Table Field

- Fields are the individual items that make up a record within your database.
- A **field** contains the smallest unit of meaningful information
  - Each field has a unique **field name** that describes its contents
- A field can be either variable length or fixed length.
- A **record** is a collection of information that relates to a particular item within your database table.

Customers			
	CustomerID	FirstName	LastName
+	1	Evan	Santos
+	2	Micah	Harvey
+	3	Dante	Levy
+	4	Britanney	Adkins
+	5	Ashely	Todd
+	6	Walker	Alston
+	7	Georgia	Collier
+	8	Sacha	Reilly
+	9	Keely	Lynch
+	10	Latifah	Rocha
+	11	Raymond	Aguilar
+	12	Chantale	Quinn
+	13	Chloe	Cash

# File and Database Concepts

## Possible Tables in a School Database:

<b>Student Information</b>
ID Number Last Name First Name Email Address City Program Sponsor ID Number

<b>Sponsor Information</b>
Sponsor ID Number Company Name Contact Last Name Contact First Name Email Telephone Fax Number Address City

<b>Course Information</b>
Course ID Number PeopleSoft ID Number Course Name Instructor ID Number

<b>Financial Accounts</b>
Student ID Number Term Number Cost Per Course Number of Courses Amount for Term Amount Paid Amount Owning

<b>Faculty Advisors</b>
Student ID Number Instructor ID Number

<b>Instructors</b>
Instructor ID Number Last Name First Name Faculty Email Office Telephone

# Basic Types

Format	Use to display
Text	Short, alphanumeric values, such as a last name or a street address.
Number	Numeric values, such as distances.
Currency	Monetary values.
Yes/No	Yes and No values and fields that contain only one of two values.
Date/Time	Date and Time values for the years 100 through 9999.
Attachment	Attached images, spreadsheet files, documents, charts, and other types of supported files to the records in your database, similar to attaching files to e-mail messages.
Hyperlink	Text or combinations of text and numbers stored as text and used as a hyperlink address.
Memo	Long blocks of text. A typical use of a Memo field would be a detailed product description.
Lookup	Displays either a list of values that is retrieved from a table or query, or a set of values that you specified when you created the field.

# Field Properties

Property	Use
<b>Field Size</b>	Field Size sets the maximum space available for any one value.
<b>Caption</b>	The label text that is displayed for this field by default in forms, reports, and queries. If this property is empty, the name of the field is used.
<b>Required</b>	Requires that data be entered in the field.
<b>Format</b>	choose a format that meets your specific needs.
<b>Indexed</b>	Yes (No duplicates) Creates a unique index on the field. Yes (Duplicates OK) Creates a non-unique index on the field. No Removes any index on the field.
<b>Default Value</b>	Automatically assigns the specified value to this field when a new record is added.
<b>Validation Rule</b>	Supplies an expression that must be true whenever you add or change the value in this field. Use in conjunction with the Validation Text property.
<b>Validation Text</b>	Enter a message to display when a value that is entered violates the expression in the Validation Rule property.

# Primary Key

- A primary key field is one that **uniquely** identifies each individual record in a table.
- When choosing a primary key, keep the following rules in mind:
  - The primary key values must be unique.
  - A primary key value can't be null. Within this context, *null* means an empty field.
  - The primary key must exist when the record is created and stored.

Customers		
ID	Company	First Name
1	Company A	Anna
2	Company B	Antonio
3	Company C	Thomas

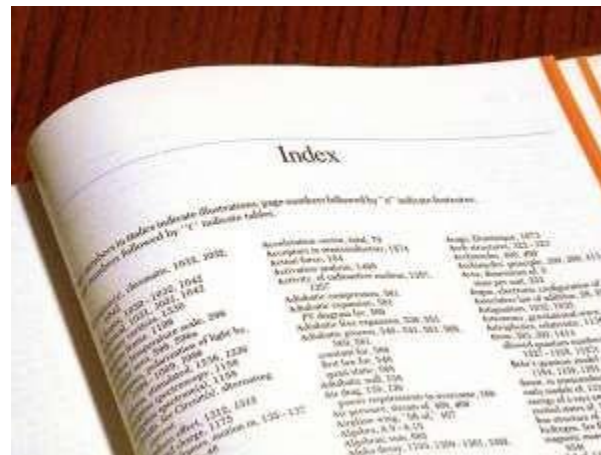
Orders		
Order ID	Customer ID	Employee
44	1	Nancy Freehafer
71	1	Nancy Freehafer
36	3	Mariya Sergienko

1. Primary key
2. Foreign key  
(key in  
another  
table)



# Indexed Field

- You can use an **index** to help Access find and sort records faster.
- An index stores the location of records based on the field or fields that are part of the index.
- A database index is, after all, very much like the index at the end of a book: it occupies its own space, it is highly redundant, and it refers to the actual information stored in a different place.



# Relationships

- ❑ Understand that the main purpose of relating tables in a database.
- ❑ Understand how a relationship is built.
- ❑ Understand the importance of maintaining the integrity of relationships between tables.
- ❑ Understand the cardinality of relationships

# Purpose of Relationships

- The main purpose of relating tables in a database is to minimize duplication of data.

□

<i>SID</i>	<i>name</i>	<i>email</i>	<i>CID</i>	<i>grade</i>
...	...	...	...	...

<i>SID</i>	<i>name</i>	<i>email</i>	<i>SID</i>	<i>CID</i>	<i>grade</i>
142	Bart	bart@fox.com	142	CPS116	B-
123	Milhouse	milhouse@fox.com	142	CPS114	B
857	Lisa	lisa@fox.com	123	CPS116	B+
456	Ralph	ralph@fox.com	857	CPS116	A+
...	...	...	857	CPS130	A+
			456	CPS114	C

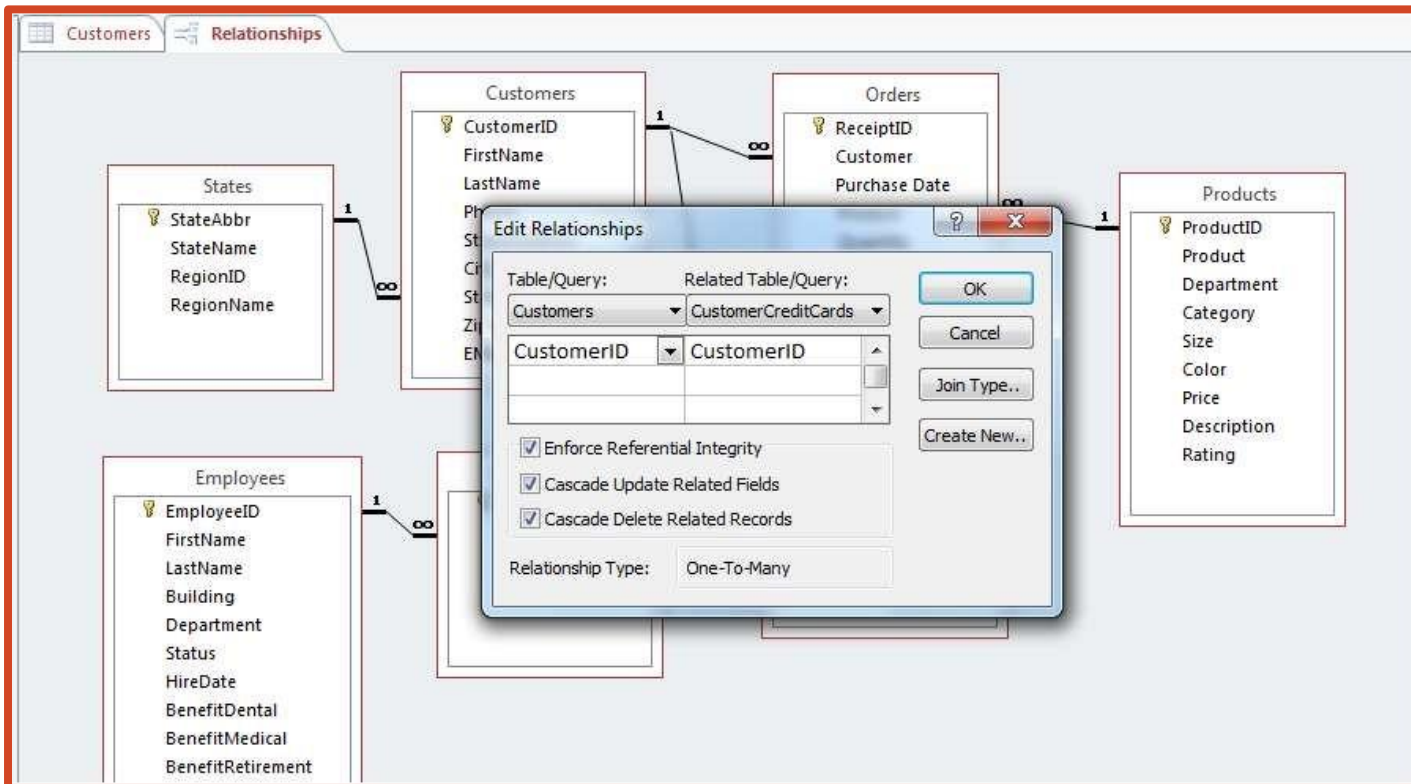
# Relationship Establishment

- A relationship is built by matching a unique field in one table with a field in another table.



# Relationships Integrity

- Referential integrity rules keep database users from accidentally breaking the mapping between related columns.



# Cardinality

- **Cardinality** refers to the number of associations that can exist between two record types
- A **one-to-one relationship** means that a record in one record type is related to only one record in another record type
- Example:
  - A single grade report is related to only one student.
- When one record is related to many records in another table, the relationship is referred to as a **one-to-many relationship**
  - Example:
    - Instructor records to student advisees

# Cardinality

- A ***many-to-many relationship*** means that one record in a particular record type can be related to many records in another record type, and vice versa
- Example:
  - Student records to course enrollment

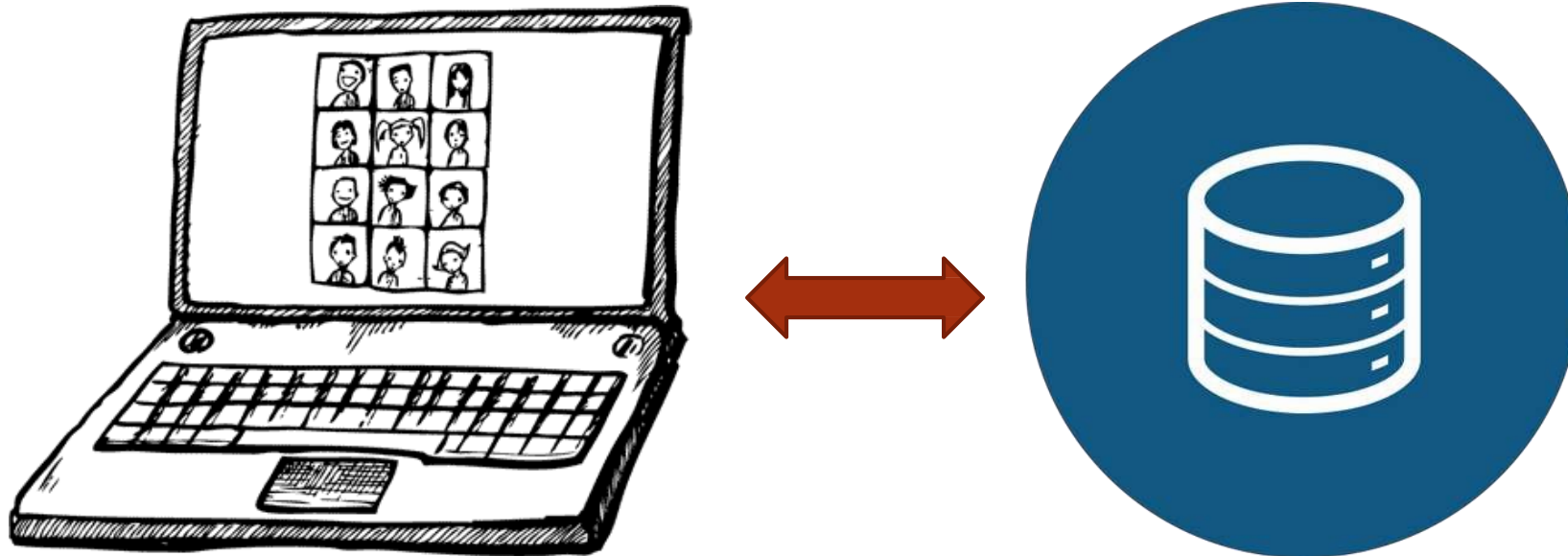
# Operations

- ❑ Define which various functions that allow management of a database.
- ❑ Classify three main functional groups which are related to the database.



# Operation

- Professional databases are designed and created by database specialists.
- Data entry, data maintenance and information retrieval are carried out by users.
- A database administrator provides access to specific data for appropriate users.
- Database administrator is responsible for recovery of a database after a crash or major errors.



## 2. Using the Application

*Working with Databases*

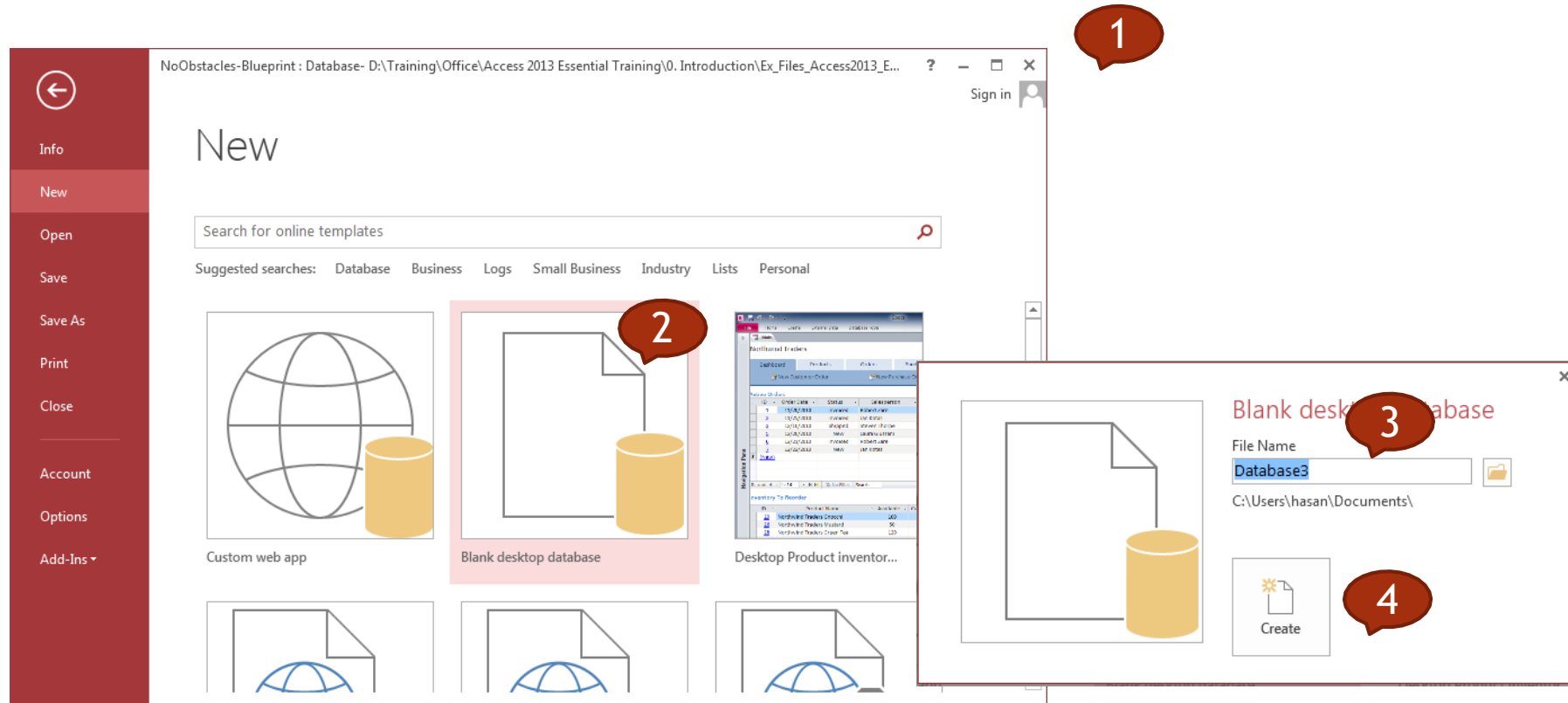
Common Tasks

# Working with Databases

- ❑ Open, close a database application.
- ❑ Open, close a database.
- ❑ Create a new database and save to a location on a drive.
- ❑ Use available Help functions.

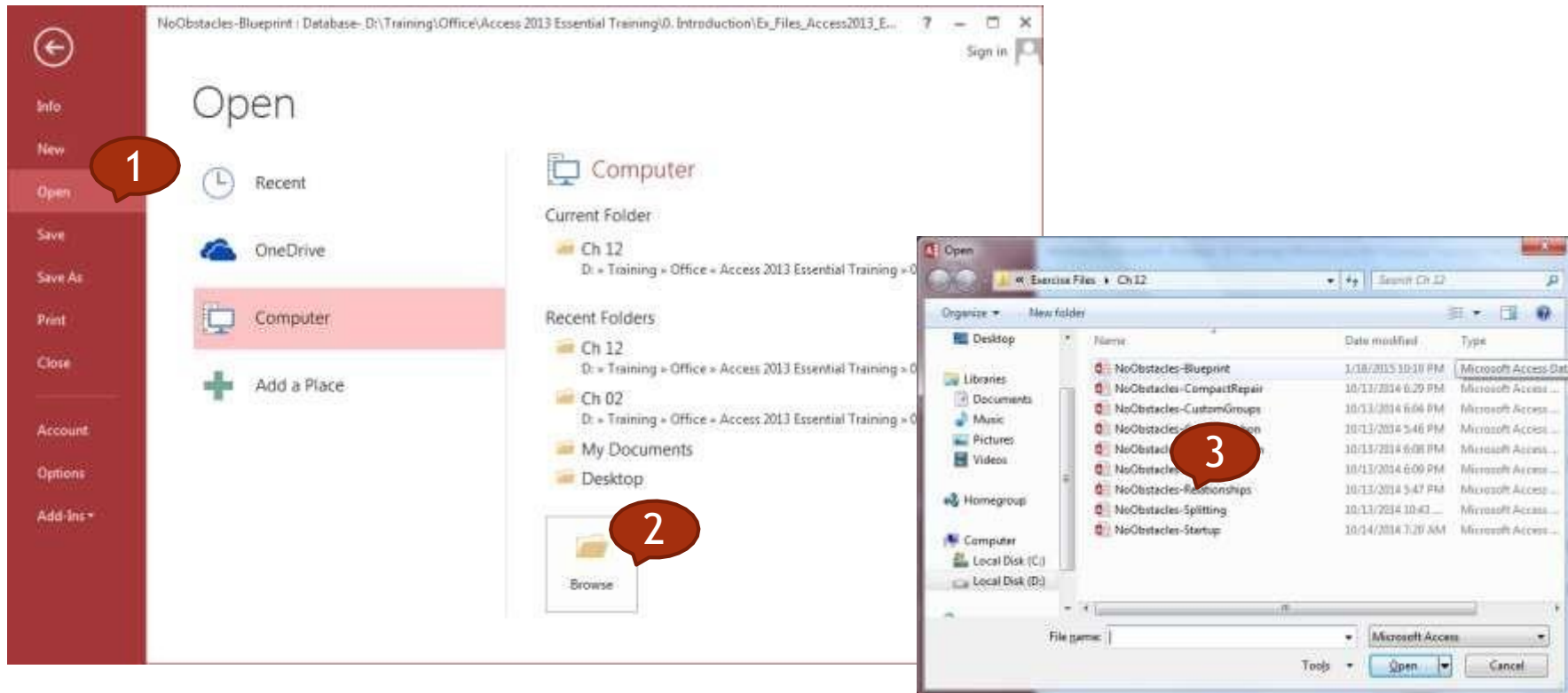
# Create a new database

1. Start Access.
2. On the **New** tab in Backstage view, click **Blank Database** or **Blank Web Database**.
3. On the right, type a name for your database in the **File Name** box.
4. Click **Create**.



# Open an existing database

1. On the **File** tab, click **Open**.
2. Click a shortcut in the **Open** dialog box – or, in the **Look in** box, click the drive or folder that contains the database that you want.
3. In the folder list, double-click folders until you open the folder that contains the database.

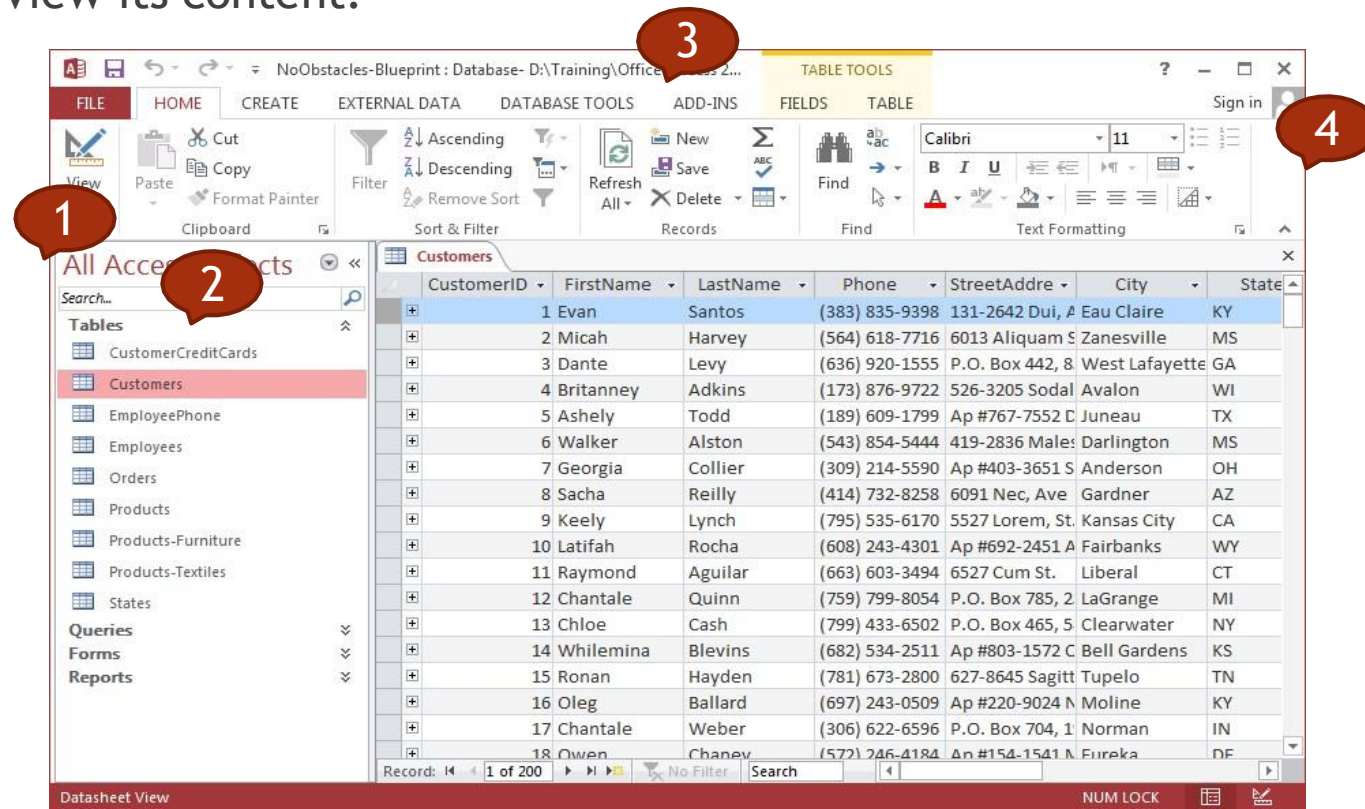


# Common Tasks

- ❑ Open, save and close a table, query, form, report.
- ❑ Switch between view modes in a table, query, form, report.
- ❑ Delete a table, query, form, report.
- ❑ Navigate between records in a table, query, form.
- ❑ Sort records in a table, form, query output

# Open/Save/Close a database object

1. Once you have your database open, go to the target object you want to deal with (Customers table, for instance)
2. Double-Click the table name to open and view its content.
3. Modify within the table entries and click Save to confirm your changes.
4. Close the table by Clicking on the close button in the upper right corner.





# Switch Views

1. Click the **Home** tab on the Ribbon.
2. Click the bottom half of the **View** button.
3. Click **Datasheet/Design View**.

The screenshot illustrates the steps to switch views in Microsoft Access. The top ribbon shows the 'HOME' tab selected, with a red circle '1' highlighting it. The 'View' button in the ribbon is highlighted with a red circle '2'. A dropdown menu is open, showing 'Datasheet View' and 'Design View', with 'Design View' selected and highlighted by a red circle '3'. The main window displays the 'Customers' table in Datasheet View, with the following data:

CustomerID	FirstName	LastName	Phone
1	Evan	Santos	(383)
2	Micah	Harvey	(564)
3	Dante	Levy	(636)
4	Britanney	Adkins	(173)
5	Ashely	Todd	(189)
6	Walker	Alston	(543)
7	Georgia	Collier	(305)
8	Sacha	Reilly	(414)
9	Keely	Lynch	(795)
10	Latifah	Rocha	(608)
11	Raymond	Aguilar	(663)
12	Chantale	Quinn	(759)
13	Chloe	Cash	(799)
14	Whilemina	Blevins	(682)
15	Ronan	Hayden	(781)
16	Oleg	Ballard	(697)
17	Chantale	Weber	(306)
18	Owen	Chaney	(572)

The bottom right pane shows the 'Field Properties' for the 'CustomerID' field:

Field Name	Data Type	Description (Optional)
CustomerID	AutoNumber	
FirstName	Short Text	
LastName	Short Text	
Phone	Short Text	
StreetAddress	Short Text	
City	Short Text	

Below the field properties, the 'General' tab is selected, showing the following properties:

Property	Value
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Text Align	General

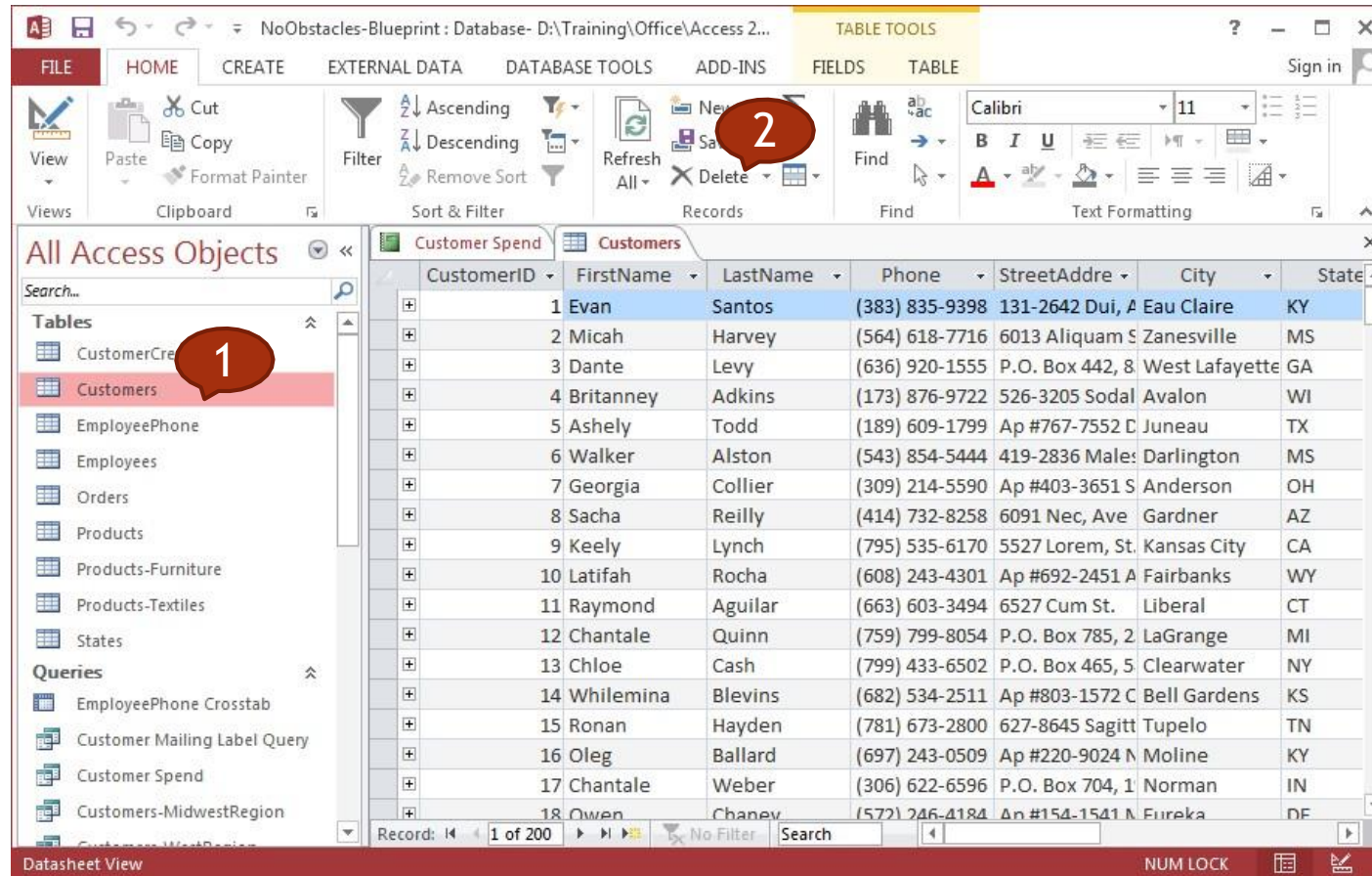
A note at the bottom right states: 'A field name can be up to 64 characters long, including spaces. Press F1 for help on field names.'

At the bottom of the window, the status bar reads: 'Design view. F6 = Switch panes. F1 = Help.' and 'NUM LOCK' is visible on the right.



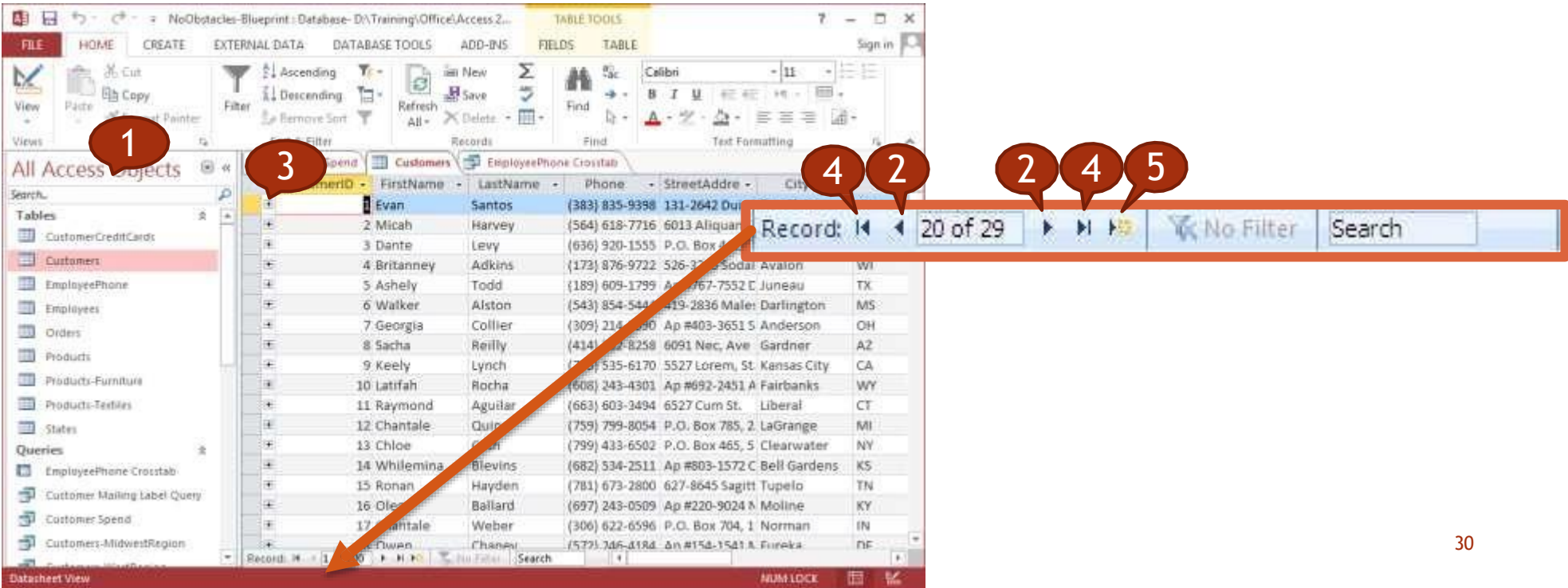
# Delete database objects

1. Click the database object you want to remove to select.
2. Click the Delete Button from the Home Ribbon.



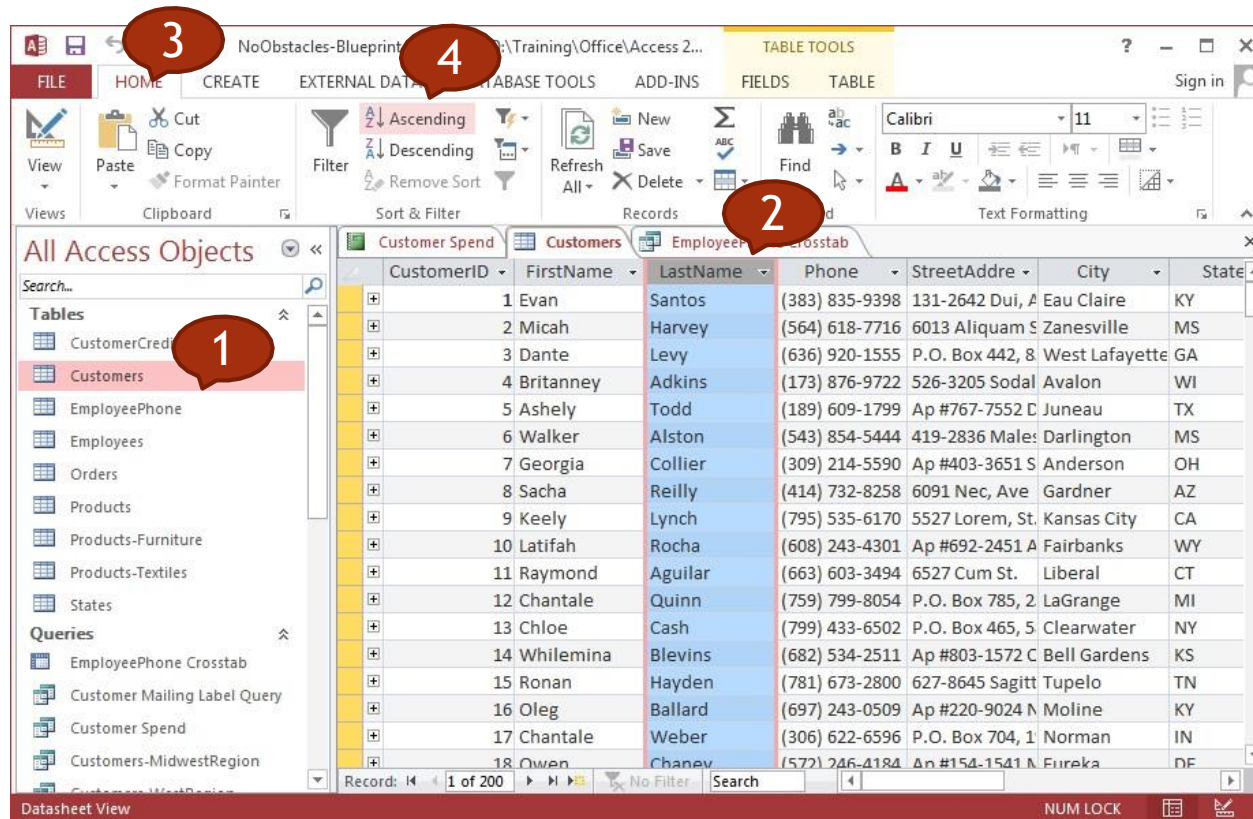
# Navigate Records

- 1. In the Navigation pane, double-click the table/Query/form whose records you want to navigate.
- 2. Click Previous Record (◀) or Next Record (▶) to move back or forward by one record.
- 3. Access displays the previous or next record in the database.
- 4. Click First Record (◀◀) or Last Record (▶▶) to navigate to the first or last record in the table.
- 5. Click New (Blank) Record (▶📄) to start a new, blank record.



# Sort Records

1. Open the table you want to sort.
2. Position your mouse pointer over the column header for the field by which you want to sort.
3. Click the Home tab on the Ribbon.
4. Click a sort button.
  - Click **Ascending** to sort the records in ascending order.
  - Click **Descending** to sort the records in descending order.



## 3. Tables

Records

Design

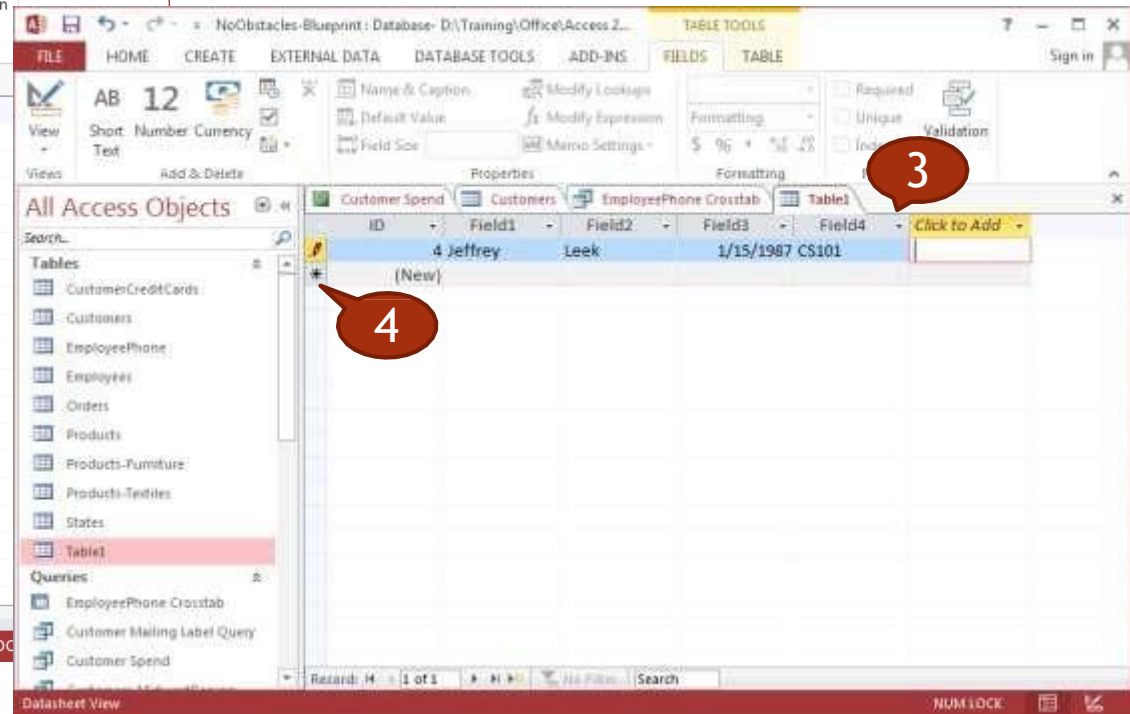
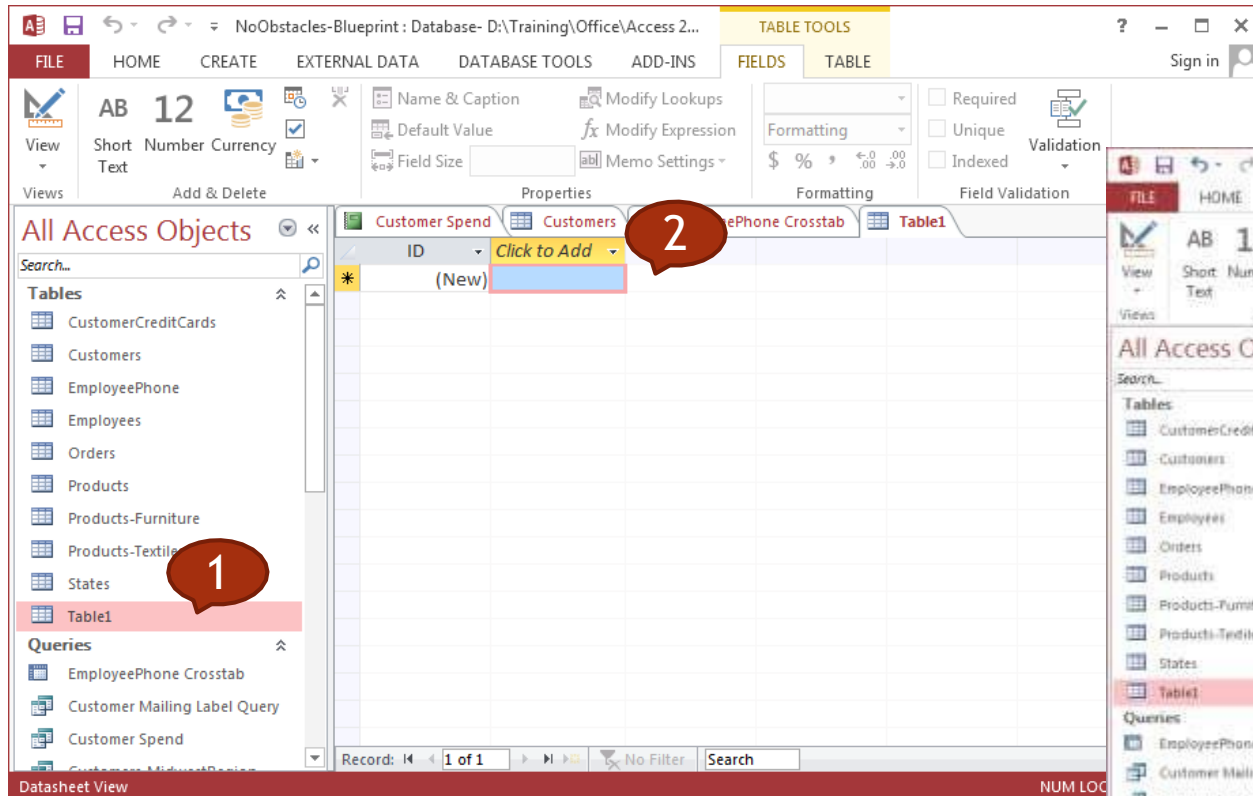
# Records

- ❑ Add, delete records in a table.
- ❑ Add, modify, delete data in a record.



# Add/Delete Records

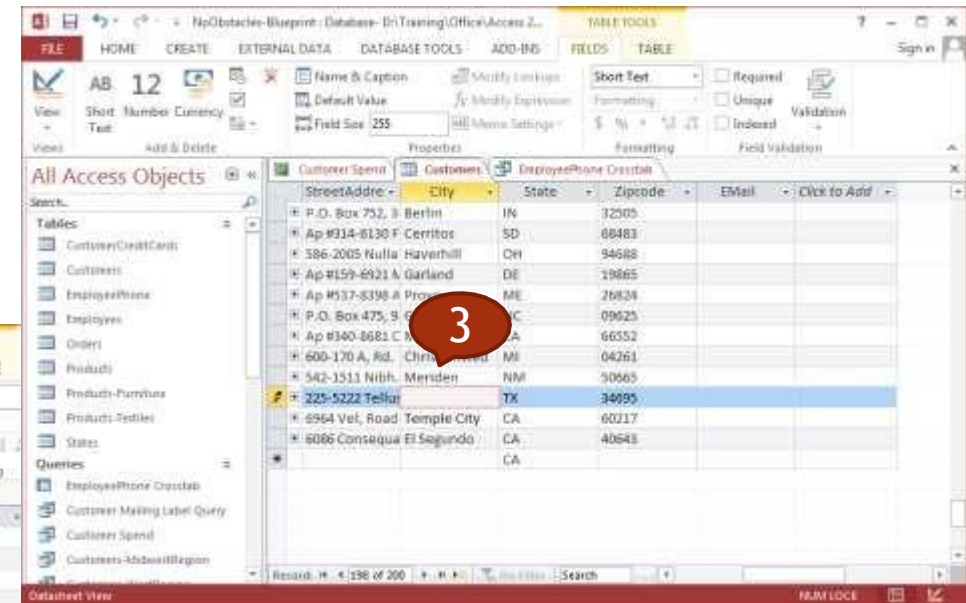
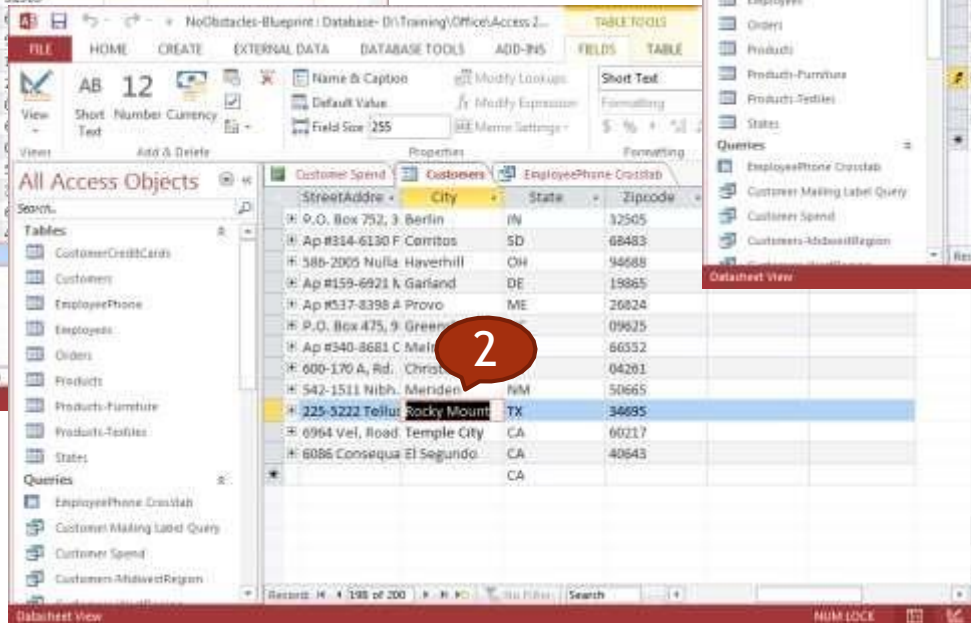
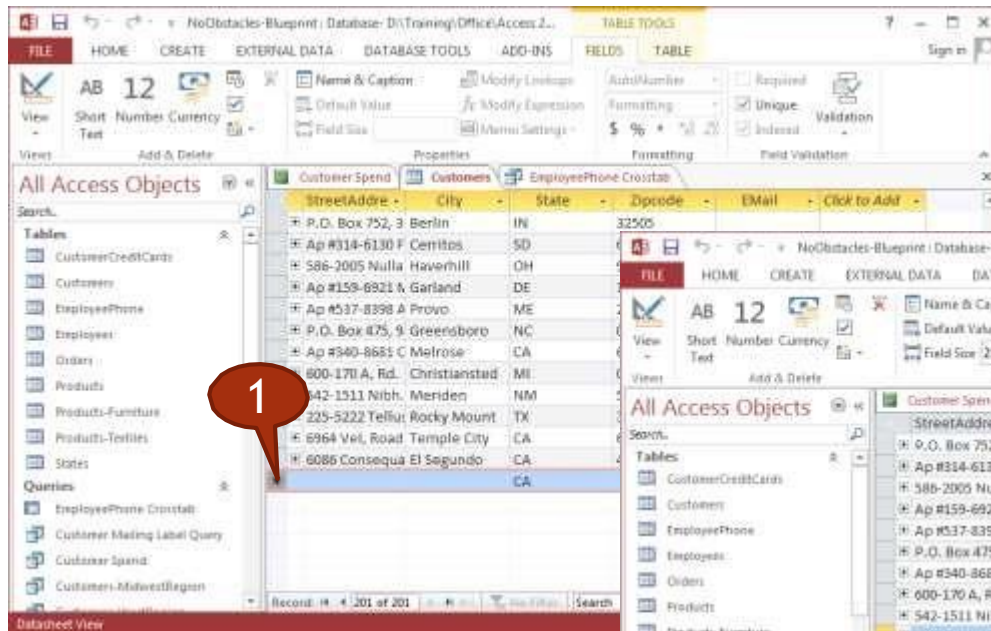
1. In the Navigation pane, double-click the table to which you want to add a record.
2. Type the desired data in the selected cell.
  - Press [Tab]
3. Repeat Step 2 until you have filled the entire row.
4. Press [Enter] to move to the next row, or record.



# Add/Delete Records

- If the table is still in design view, click View/Datasheet View. If it's closed, double-click the table in the Database window.
- 1. Once the table is in Datasheet view mode, you can add a new record.

- 2. To modify a value, select the appropriate field and replace the value.
- 3. To delete a value, select it and press Delete.



# Design

- ❑ Create and name a table and specify fields with their data types
- ❑ Apply field property settings
- ❑ Create a validation rule
- ❑ Understand consequences of changing data types, field properties in a table.
- ❑ Set a field as a primary key.
- ❑ Index a field
- ❑ Add a field to an existing table.
- ❑ Change width of columns in a table.



# Create a table with fields

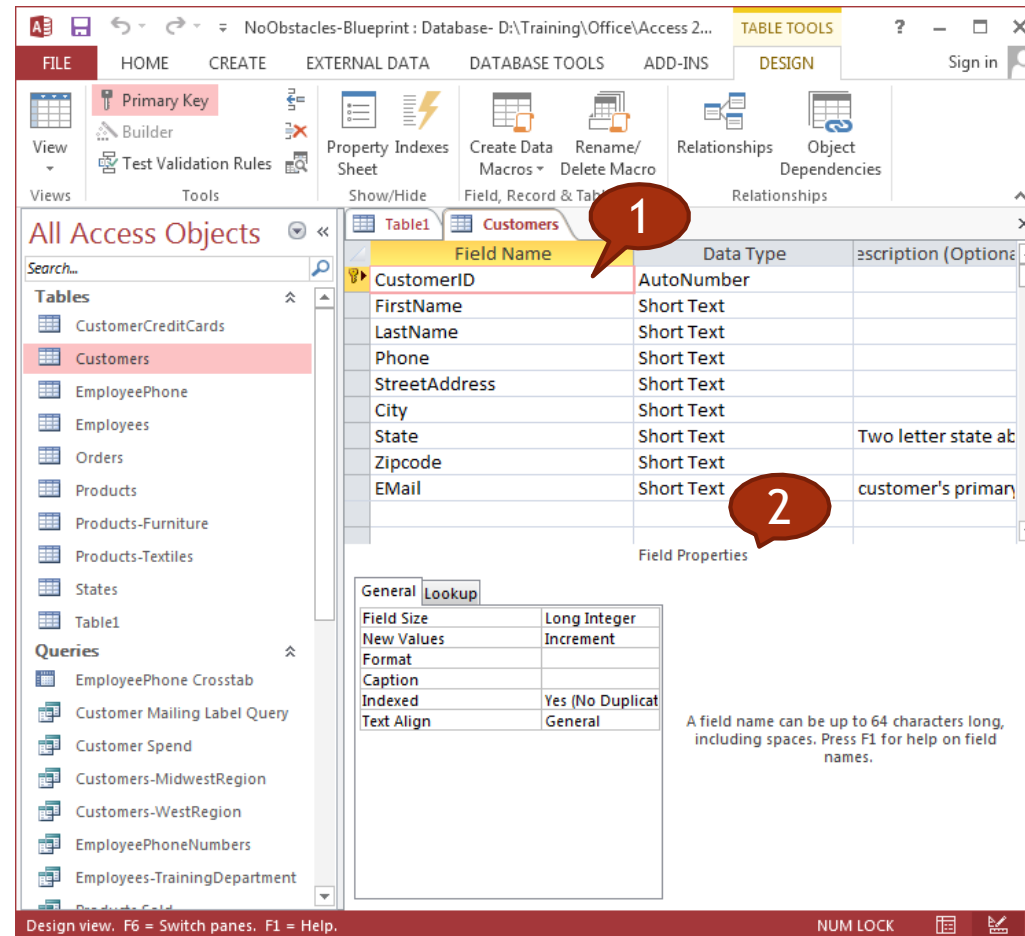
1. On the **Create** tab, in the **Tables** group, click **Table**.
2. A new table is inserted in the database and the table opens in Datasheet view.
3. On the **Home** tab, in the **Views** group, click **View**, and then click **Design View**.
4. Give a name to the table and save its current structure.
5. In the **Field Name** column, enter the name of the field that you want to create.
6. In the **Data Type** column, select the appropriate type for the corresponding field.

The image consists of six numbered screenshots illustrating the process of creating a table with fields in Microsoft Access 2013:

- 1:** The 'CREATE' tab is selected in the ribbon, and the 'Table' button in the 'Tables' group is highlighted.
- 2:** A new table named 'Table1' is created and opened in Datasheet view.
- 3:** The 'View' button in the 'Views' group is clicked, and 'Design View' is selected.
- 4:** A 'Save As' dialog box is shown with 'Table1' entered as the table name.
- 5:** The 'Design View' grid is shown with 'ID' entered in the 'Field Name' column and 'AutoNumber' selected in the 'Data Type' column.
- 6:** The 'Field Properties' task pane is shown with 'Long Integer' selected for the 'Field Size' property.

# Apply field property settings

1. In the table design grid, select the field for which you want to set properties. Access displays the properties for this field in the **Field Properties** pane.
2. In the **Field Properties** pane, enter the settings that you want for each property, or press F6 and then use the arrow keys to select a property.



# Create a validation rule

1. In the Navigation Pane, right-click the table that you want to change, and then click **Design View**.
2. In the **Field Name** column, select the field that you want to change.
3. In the lower section of the table designer, on the **General** tab, select the **Validation Rule** property box, and then enter your validation rule.

The screenshot displays the Microsoft Access interface. The **All Access Objects** pane on the left shows the **Customers** table selected, indicated by a red circle with the number 1. The **Table Design** view for the **Customers** table is shown in the center, with the **Field Name** column highlighted, indicated by a red circle with the number 2. The **Field Properties** pane at the bottom shows the **General** tab, with the **Validation Rule** property box highlighted, indicated by a red circle with the number 3. The **Expression Builder** dialog box is open, showing the **Expression Elements** pane with **Functions**, **Constants**, and **Operators** available. The **Validation Rule** property box in the **Field Properties** pane contains the text: "An expression that limits the data that can be entered in the field. Predefined validation rules are listed in the Validation Rules list box." The **Expression Builder** dialog box has a text area for entering an expression to validate the data in the field, with examples: "[field1] + [field2]" and "[field1] < 5". The **Expression Elements** pane shows a tree view with **Functions**, **Constants**, and **Operators** under the **Expression Elements** category. The **Expression Categories** and **Expression Values** panes are empty. The **Expression Builder** dialog box has **OK**, **Cancel**, **Help**, and **<< Less** buttons. The status bar at the bottom shows "Design view. F6 = Switch panes. F1 = Help." and "NUM LOCK".

Field Name	Data Type
CustomerID	AutoNumber
FirstName	Short Text
LastName	Short Text
Phone	Short Text

Property	Value
Field Size	255
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	...
Validation Text	
Required	No
Allow Zero Length	Yes
Indexed	No
Unicode Compression	No
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

## Examples of Validation Rules

Validation rule	Validation text
<>0	Enter a nonzero value.
>=0	You must enter a positive number.
0 or >100	Value must be either 0 or greater than 100.
BETWEEN 0 AND 1	Enter a value with a percent sign.
<#01/01/2007#	Enter a date before 2007.
>=#01/01/2007# AND <#01/01/2008#	Date must occur in 2007.
IN (" Tokyo", "Paris", "Moscow ")	Tests for values equal to existing members in a list.
IS NOT NULL	Forces users to enter values in the field.

# Consequences of changing data types, field properties

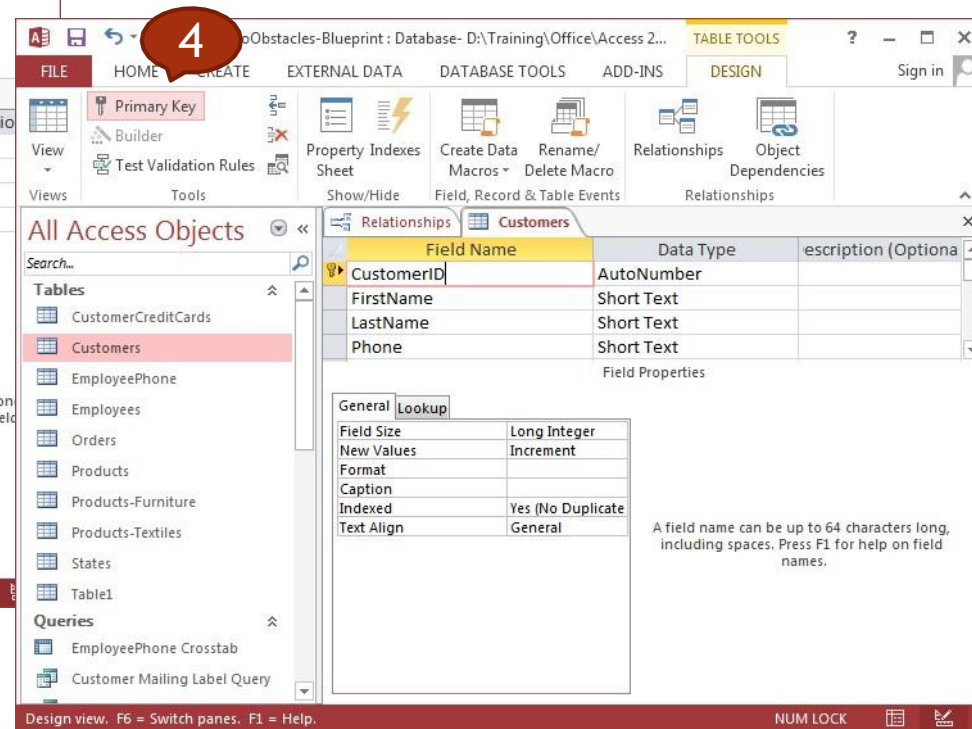
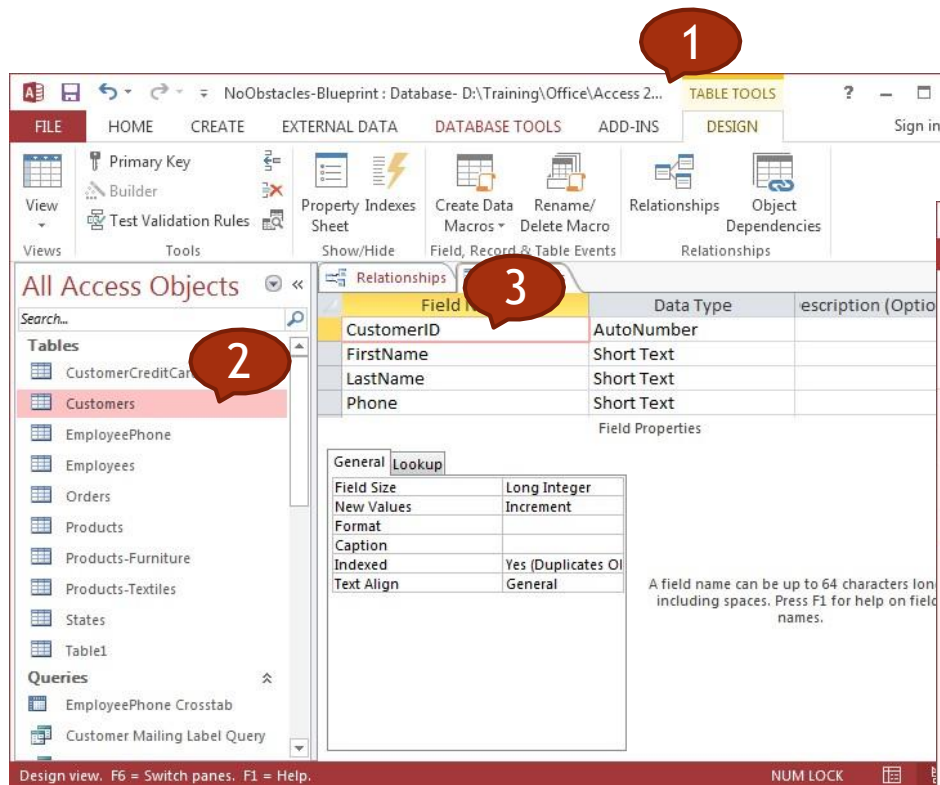
- You can change most data types when a field contains data.
- Access might truncate or delete some data, or it may not allow the conversion at all.

## Examples of Restrictions on changing data types

Convert to this type	From this type	Changes or restrictions
Text	Memo	Access deletes all but the first 255 characters.
Number	Text	Text must consist of numbers and valid currency and decimal separators.
Date/Time	Text	Original text must be a recognizable date or date-time combination. For example, 18-Jan-2006.

# Set a field as a primary key

1. Open the database that you want to modify.
2. In the Navigation Pane, right click the table in which you want to set the primary key and, on the shortcut menu, click **Design View**.
3. Select the field or fields that you want to use as the primary key.
4. On the **Design** tab, in the **Tools** group, click **Primary Key**.





# Index a field

1. In the Navigation Pane, right-click the name of the table that you want to create the index in, and then click **Design View** on the shortcut menu.
2. Click the **Field Name** for the field that you want to index.
3. Under **Field Properties**, click the **General** tab.
4. In the **Indexed** property, click **Yes (Duplicates OK)** if you want to allow duplicates, or **Yes (No Duplicates)** to create a unique index.
5. To save your changes, click **Save** on the **Quick Access Toolbar**, or press CTRL+S.

The screenshot shows the Microsoft Access interface with the following elements:

- Quick Access Toolbar:** Contains icons for Save (5), Undo, and Redo.
- Ribbon:** The **DESIGN** tab is active under **TABLE TOOLS**.
- All Access Objects:** The **Customers** table is selected in the **Tables** group (1).
- Relationships:** The **CustomerID** field is selected in the field list (2).
- Field Properties:** The **General** tab is selected (3). The **Indexed** property is set to **Yes (Duplicates OK)** (4).
- Field List:** Shows fields: CustomerID (AutoNumber), FirstName (Short Text), LastName (Short Text), and another Short Text field.
- Field Properties:** Shows properties like Field Size (Long Integer), New Values (Increment), Format, Caption, Indexed (Yes (Duplicates OK)), and Text Align (No).
- Text:** "An index speeds up searches and sorting on the field, but may slow updates. Selecting 'Yes - No Duplicates' prohibits duplicate values in the field. Press F1 for help on indexed fields."
- Status Bar:** Shows "Design view. F6 = Switch panes. F1 = Help." and "NUM LOCK".

# Add a field to an existing table

1. Double-click to open the table to which you want to add a field in Datasheet view.
2. Click the column heading to the left of where you want to insert a new field.
3. Access adds the column for the new field to the right of the column you select.
4. Click the Fields tab.
5. In the Add & Delete group, click the button for the type of field you want to add.

The image consists of two screenshots of Microsoft Access, illustrating the steps to add a new field to an existing table. The left screenshot shows the 'Customers' table in Datasheet view. A new column, 'Field1', has been added to the right of the 'City' column. The right screenshot shows the 'Fields' tab in the ribbon, with the 'Add & Delete' group selected. The 'Field Size' property is set to 255.

CustomerID	FirstName	Field1	LastName	Phone	StreetAddress	City
1	Evan		Santos	(383) 835-9398	131-2642 Dui, A Eau Claire	KY
2	Micah		Harvey	(564) 618-7716	6013 Aliquam S Zanesville	MS
3	Dante		Levy	(636) 920-1555	P.O. Box 442, 8 West Lafayette	GA
4	Brittanney		Adkins	(173) 876-9722	526-3205 Sodal Avalon	WI
5	Ashely		Todd	(189) 609-1799	Ap #767-7552 C Juneau	TX
6	Walker		Alston	(543) 854-5444	419-2836 Malei Darlington	MS
7	Georgia		Collier	(309) 214-5590	Ap #403-3651 S Anderson	OH
8	Sacha		Reilly	(414) 732-8258	6091 Nec, Ave Gardner	AZ
9	Keely		Lynch	(795) 535-6170	5527 Lorem, St Kansas City	CA
10	Latifah		Rocha	(608) 243-4301	Ap #692-2451 A Fairbanks	WY
11	Raymond		Aguilar	(663) 603-3494	6527 Cum St, Liberal	CT
12	Chantale		Quinn	(759) 799-8054	P.O. Box 785, 2 LaGrange	MI
13	Chloe		Cash	(799) 433-6502	P.O. Box 465, 5 Clearwater	NY
14	Whilemina		Blevins	(682) 534-2511	Ap #803-1572 C Bell Gardens	KS
15	Ronan		Hayden	(781) 673-2800	627-8645 Sagitt Tupelo	TN
16	Oleg		Ballard	(697) 243-0509	Ap #220-9024 N Moline	KY



# Change width of columns

1. Rest the cursor on right side of the column boundary you want to move until it becomes a resize cursor  $\leftrightarrow$
2. Drag the boundary until the column is the width you want.

The screenshot shows the Microsoft Access interface with the 'Customers' table open in Datasheet View. The 'Phone' column is highlighted in blue. A mouse cursor is positioned on the right boundary of the 'Phone' column, which has turned into a double-headed arrow, indicating it is ready to be resized. Two red callout boxes with numbers '1' and '2' point to the cursor and the boundary line respectively. The interface includes the ribbon, 'All Access Objects' pane, and a data grid with columns: CustomerID, FirstName, Field1, LastName, Phone, StreetAddress, City.

CustomerID	FirstName	Field1	LastName	Phone	StreetAddress	City
1	Evan		Santos	(383) 835-9398	131-2642 Dui, A	Eau Claire KY
2	Micah		Harvey	(564) 618-7716	6013 Aliquam S	Zanesville MS
3	Dante		Levy	(636) 920-1555	F.O. Box 442, 8	West Lafayette GA
4	Britanney		Adkins	(173) 876-9722	526-3205 Sodal	Avalon WI
5	Ashely		Todd	(189) 609-1799	Ap #767-7552 C	Juneau TX
6	Walker		Alston	(543) 854-5444	419-2836 Males	Darlington MS
7	Georgia		Collier	(309) 214-5590	Ap #403-3651 S	Anderson OH
8	Sacha		Reilly	(414) 732-8258	6091 Nec, Ave	Gardner AZ
9	Keely		Lynch	(795) 535-6170	5527 Lorem, St.	Kansas City CA
10	Latifah		Rocha	(608) 243-4301	Ap #692-2451 A	Fairbanks WY
11	Raymond		Aguilar	(663) 603-3494	6527 Cum St.	Liberal CT
12	Chantale		Quinn	(759) 799-8054	F.O. Box 785, 2	LaGrange MI
13	Chloe		Cash	(799) 433-6502	F.O. Box 465, 5	Clearwater NY
14	Whilemina		Blevins	(682) 534-2511	Ap #803-1572 C	Bell Gardens KS
15	Ronan		Hayden	(781) 673-2800	627-8645 Sagitt	Tupelo TN
16	Oleg		Ballard	(697) 243-0509	Ap #220-9024 N	Moline KY

## 4. Retrieving Information

*Main Operations*

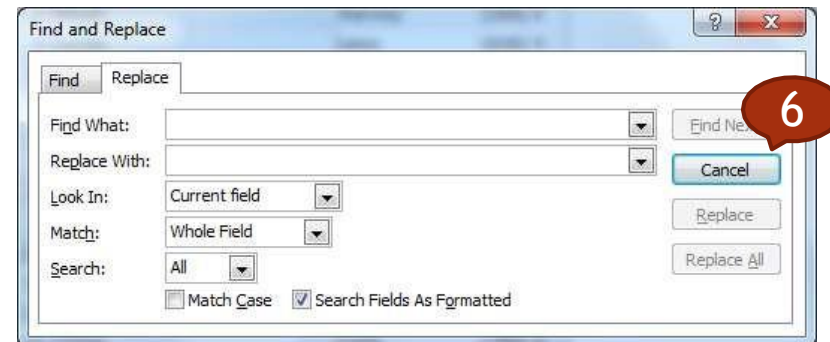
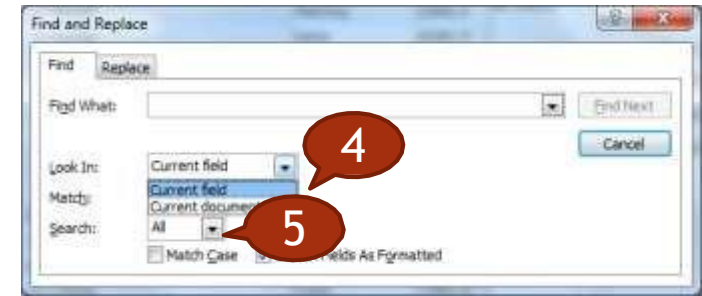
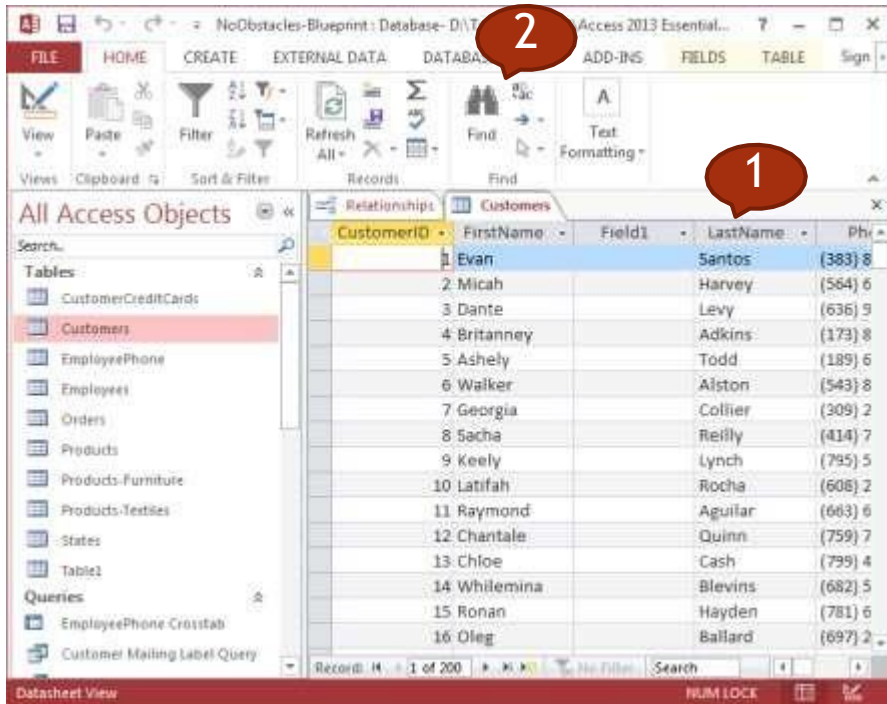
*Queries*

# Main Operations

- ❑ Use the search command for a specific word, number, date in a field.
- ❑ Apply a filter to a table, form.
- ❑ Remove the application of a filter from a table, form.

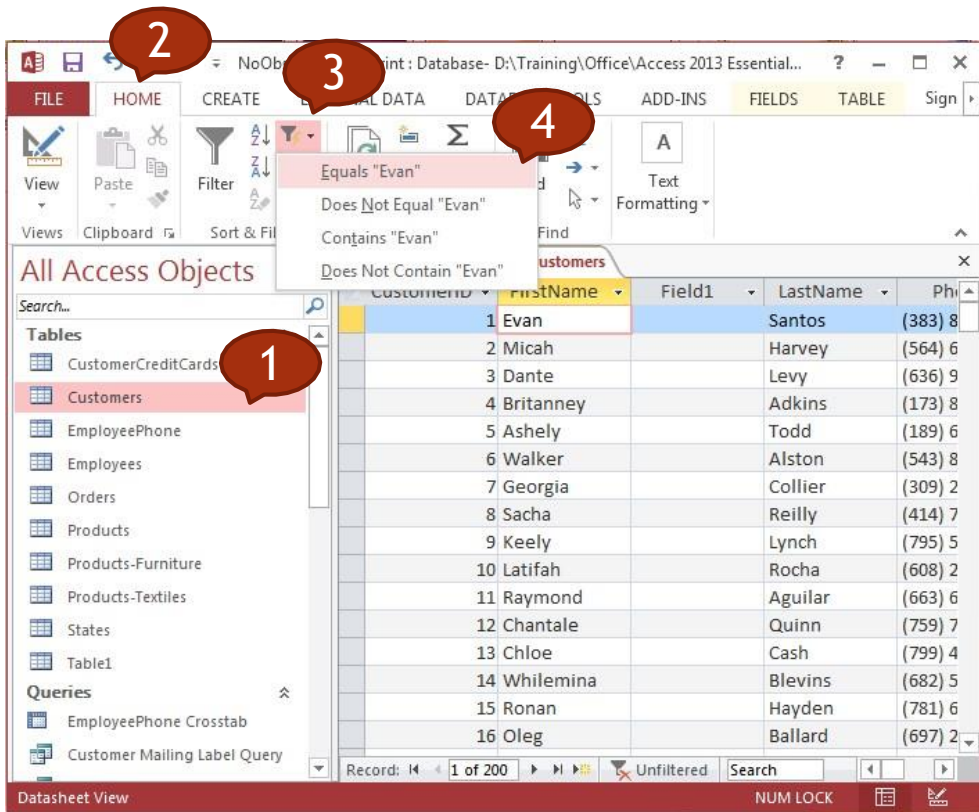
# Use the search command

1. Open the table or form, and then click the field that you want to search.
2. On the **Home** tab, in the **Find** group, click **Find**, or press CTRL+F.
  - The **Find and Replace** dialog box appears, with the **Find** tab selected.
3. In the **Find What** box, type the value for which you want to search.
4. To change the field that you want to search or to search the entire underlying table, click the appropriate option in the **Look In** list.
5. In the **Search** list, select **All**, and then click **Find Next**.
6. When the item for which you are searching is highlighted, click **Cancel** in the **Find and Replace** dialog box to close the dialog box. Records that match your conditions are highlighted.

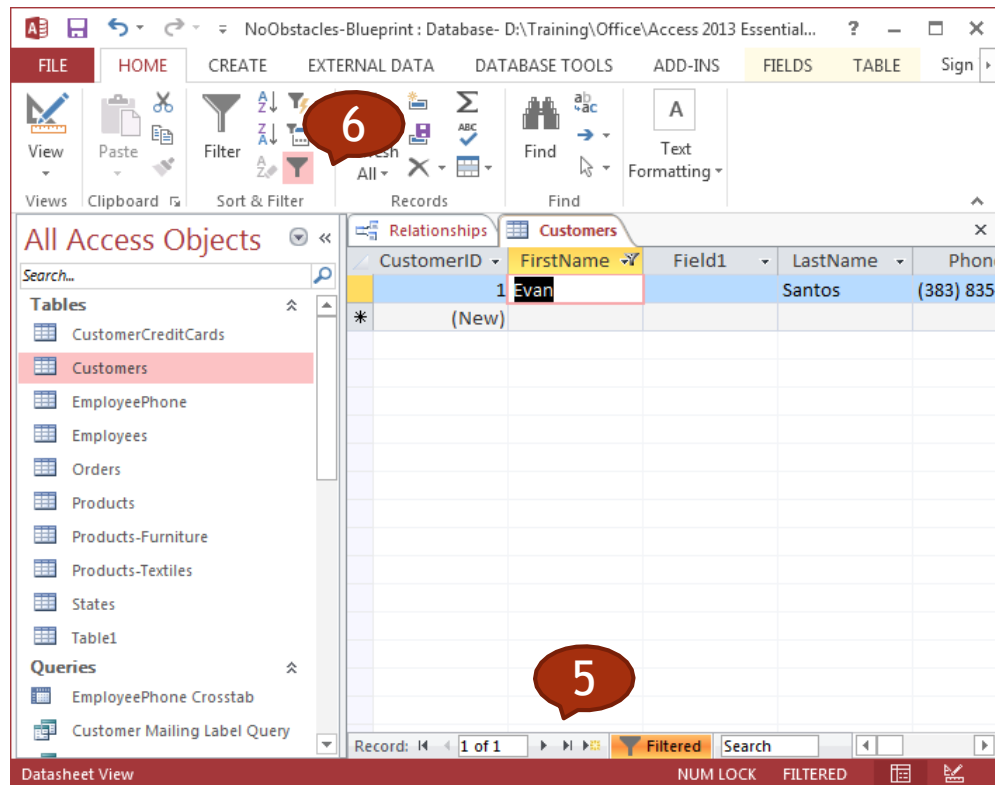


# Apply a simple filter

1. In the Navigation pane, double-click the table/form you want to use to filter records.
2. Click in the Home tab.
3. Click the Selection Button.



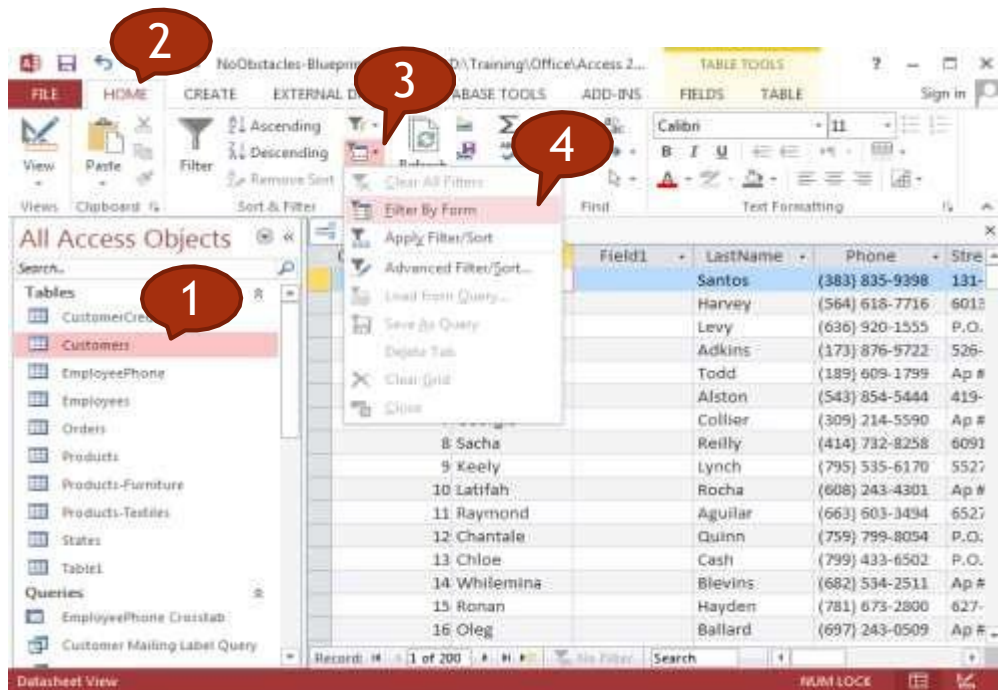
4. Click a criterion.
5. You can use the navigation buttons < | < > and > | to view the filtered records.
6. To remove the filter, you can click the Toggle Filter button.



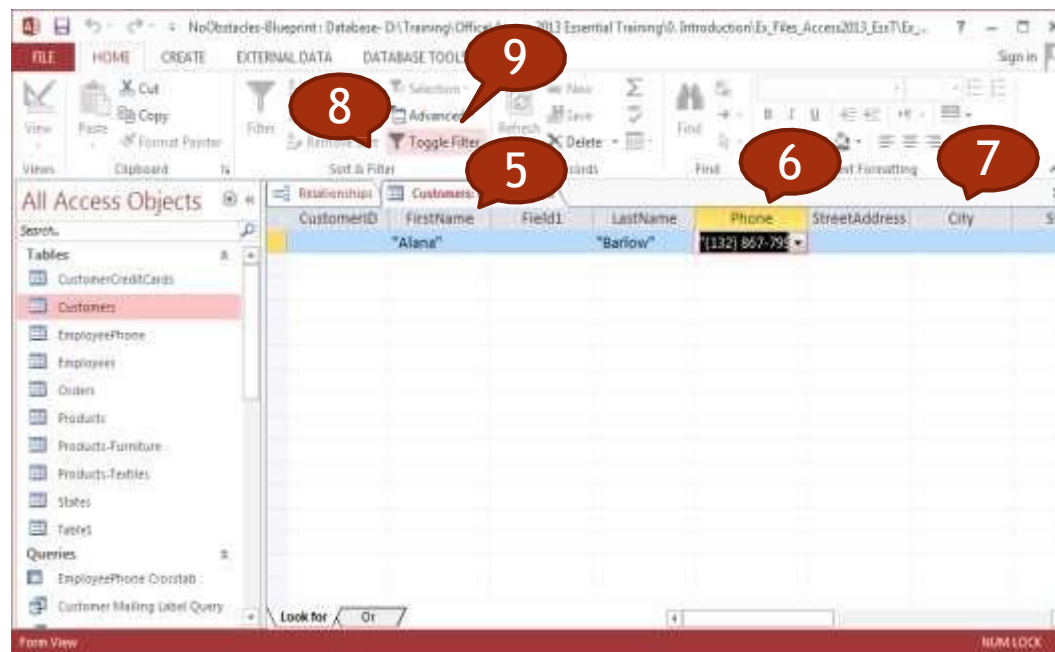


# Filter by Form

1. In the Navigation pane, double-click the table/form you want to use to sort records.
2. Click in the Home tab.
3. Click the Advanced Button.
4. Click Filter By Form.



5. Click in the field by which you want to filter.
6. Click the v that appears and choose a criterion.
7. Repeat steps 5 and 6 to add more criteria to the filter
8. Click the Toggle Filter button to filter the records.
9. Click the Toggle Filter button again to remove the filter.



# Queries

- ❑ Understand that a query is used to extract and analyze data.
- ❑ Create a named single table query using specific search criteria.
- ❑ Create a named two-table query using specific search criteria.
- ❑ Add criteria to a query.
- ❑ Add criteria to a query using logical operators
- ❑ Use a wildcard in a query
- ❑ Edit a query: add, modify, remove criteria.
- ❑ Edit a query: add, remove, move, hide, unhide fields.
- ❑ Run a query.

# Query Overview

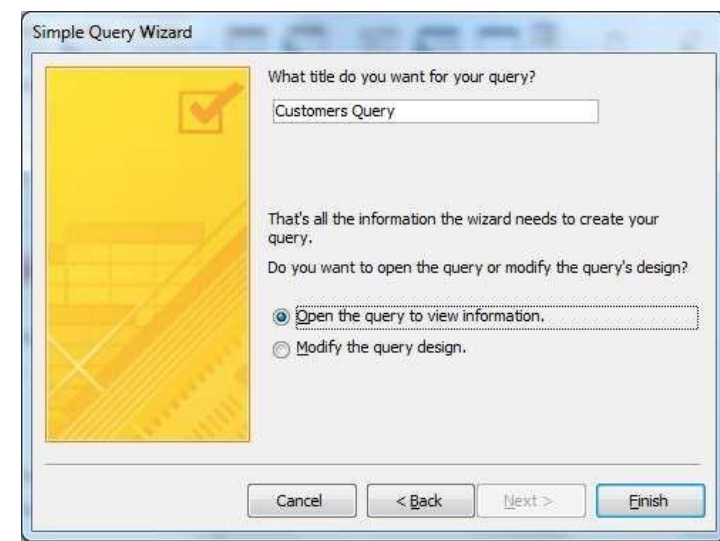
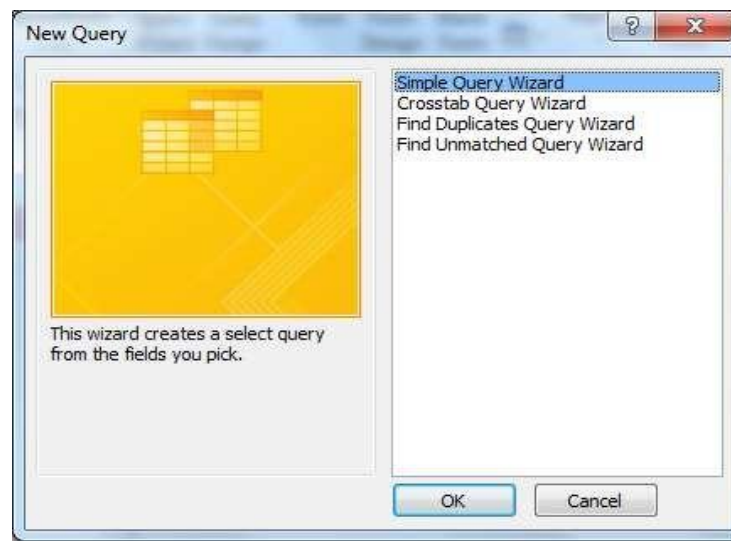
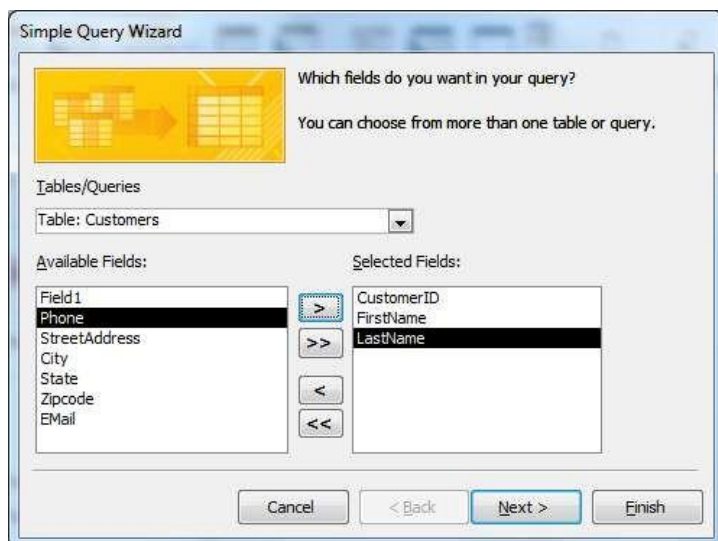
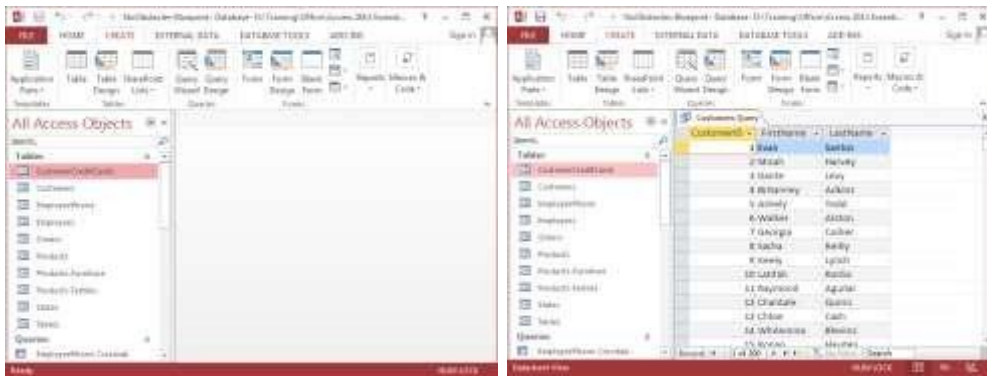
- A select query is a database object that shows information in Datasheet view.
- A query does not store data, it displays data that is stored in tables.
- A query can show data from one or more tables, from other queries, or from a combination of the two.
- A query lets you:
  - View data only from the fields you are interested in viewing.
  - Combine data from several data sources.
  - Use expressions as fields.
  - View records that meet criteria that you specify.

Field:	Name: [FirstName] & "	City	BirthDate
Table:		Contacts	Contacts
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		= "Chicago"	< DateAdd("yyyy", -40, Date())
or:			



# Use the query wizard

- On the **Create** tab, in the **Other** group, click **Query Wizard**.
- In the **New Query** dialog box, click **Simple Query Wizard**, and then click **OK**.
- Next, you add fields.
  - For each field, perform these two steps:
    - Under **Tables/Queries**, click the table or query that contains the field.
    - Under **Available Fields**, double-click the field to add it to the **Selected Fields** list.
  - When you have added all the fields that you want, click **Next**.



# Add criteria to the query

- If necessary, double-click the query in the Navigation pane that you want to modify to open it.
- Click the Home tab.
- Click the bottom half of the View button
- Click Design View
- Click the Criteria box for the field you want to use as a criterion and type the data that you want to view.
- Click the bottom half of the View button
- Click Datasheet View

# 5. Objects

*Forms*

## 6. Outputs

*Reports, Data Export*

*Printing*