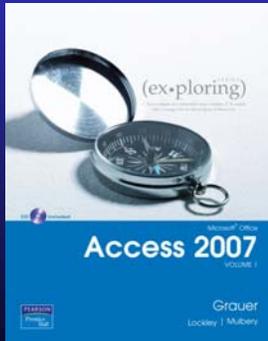


Exploring Microsoft Office Access 2007



Chapter 1: Finding Your Way Through a Database

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Committed to Shaping the Next Generation of IT Experts.

In this chapter, we will focus on basic database terminology and principles and how these are used in Access.

Objectives

- Explore, describe, navigate the objects in an Access Database
- Understand differences in storage and memory
- Practice good file management
- Backup, compact, and repair Access files
- Create filters
- Sort table data on one or more fields

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The objectives of this chapter are:

1. Explore, describe and navigate among the objects in an Access Database
2. Understand the difference working in storage and memory
3. Practice good file management
4. Back-up, compact and repair Access files
5. Create filters
6. Sort Table data on one or more fields

The objectives continue on the next slide.

Objectives (continued)

- Work with different views in Access objects
- Know when to use Access or Excel to manage data
- Use the relationship window
- Understand relational power

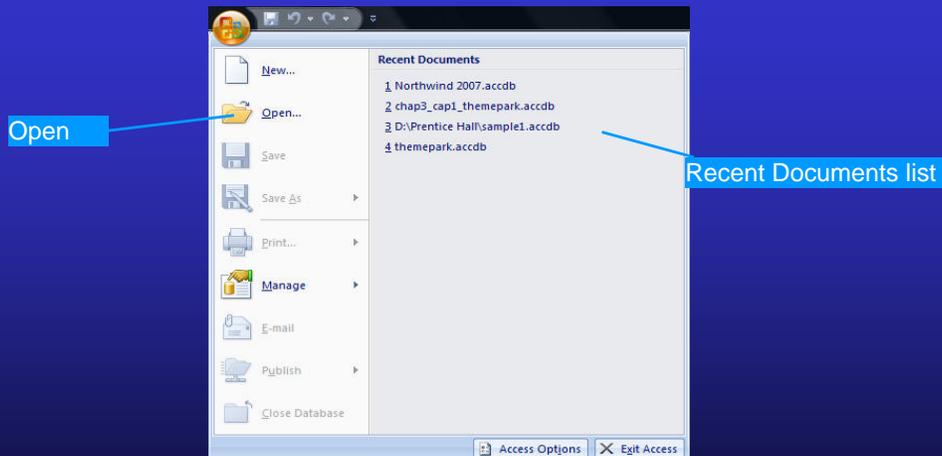
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Additional objectives of this chapter are:

7. Work with different views in Access objects
8. Know when to use Access or Excel to manage data
9. Use the relationship window
10. Understand relational power

Open a Database



- Choose Open to browse for a file or choose a database from the Recent Documents list

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Two methods of opening a database are to choose Open to browse for a file or choose a database from the Recent Documents list.

Database Terminology

- Field
- Record
- Table
- Database

Individual tables in a database

A database is made up of one or more tables

Individual fields

The screenshot shows the Microsoft Access interface. The 'All Access Objects' pane on the left lists various database objects, with 'Employees' selected. The main window displays the 'Employees' table in a grid view. The table has four columns: 'Employee I', 'Last Nam', 'First Nam', and 'Title'. The data rows are as follows:

Employee I	Last Nam	First Nam	Title
1	Davolio	Nancy	Sales Representative
2	Fuller	Andrew	Vice President, Sales
3	Leverling	Janet	Sales Representative
4	Peacock	Margaret	Sales Representative
5	Buchanan	Steven	Sales Manager
6	Suyama	Michael	Sales Representative
7	King	Robert	Sales Representative
8	Callahan	Laura	Inside Sales Coordinato
9	Dodsworth	Anne	Sales Representative
*	(New)		

Records

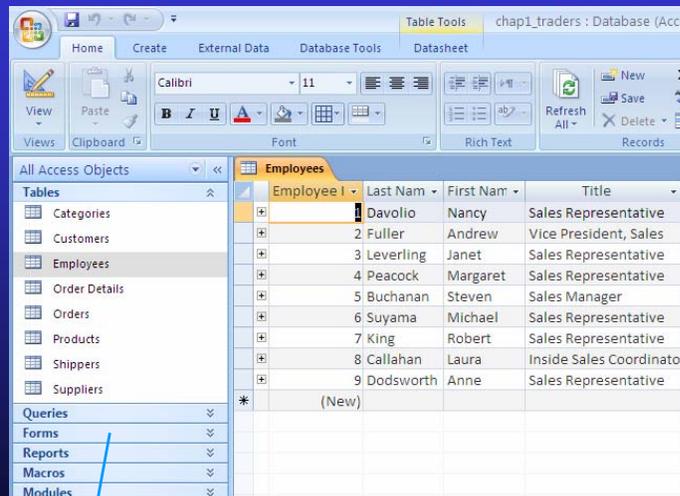
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A database consists of one or more tables. Each table consists of records which contain information about a single entity. An example of one complete record would be the name, author, isbn#, published date and publisher of textbooks. Each set of information regarding one book is considered to be one record. The name, author isbn#, published data and publisher in the above example are the individual fields that make up one record.

Objects

- Tables
- Queries
- Reports
- Forms
- Macros
- Modules



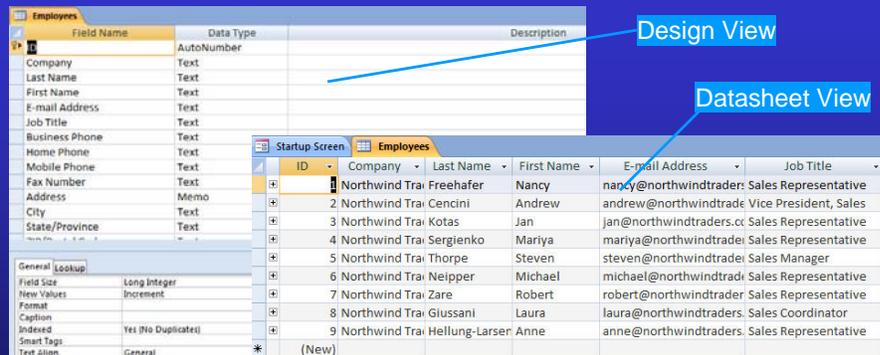
Objects

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The elements of a database are referred to as objects. Access utilizes six different types of objects: tables, queries, reports, forms, modules, and macros. Of these six objects types, the only mandatory object is one table. All other objects may or may not be included in the database per the database users needs. Objects are located in the Navigation pane of the Access window.

Work with Table Views



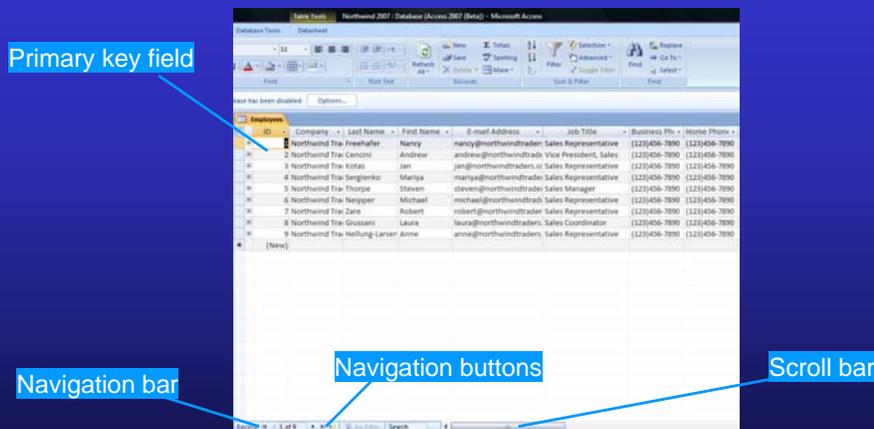
- Datasheet View – used to add, modify, delete and view records
- Design View – used to create and modify the fields in a table

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When working with tables, two different table views exist. Datasheet View is used to add, modify, view, and delete records. You may also choose to enter field names in this view when you are first creating your table. The other view, Design View, does not allow record entry. It is used for entering field names and specifying properties of the fields, such as the size of the field. You may also edit existing fields, including those that were first created in Datasheet View.

Datasheet View



- **Primary Key** – a field that identifies each record as being unique

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Datasheet View offers several visual indicators to aid in data entry. At the bottom of the right pane, the navigation bar displays the number of records in a table and specifies which record is current. Navigation buttons on the navigation bar allow you to advance through the records one at a time, jump directly to the first or last record, or add a new record. A horizontal scroll bar appears when there are too many fields to show on the screen at one time.

Design View

- Click F6 to switch between the upper and lower panes

Key symbol identifies primary key field

Field Name	Data Type
ID	AutoNumber
Company	Text
Last Name	Text
First Name	Text
E-mail Address	Text
Job Title	Text
Business Phone	Text
Home Phone	Text
Mobile Phone	Text
Fax Number	Text
Address	Memo
City	Text
State/Province	Text

Field Properties	
General	Lookup
Field Size	Long Integer
New Values	Increment
Format	
Caption	
Indexed	Yes (No Duplicates)
Smart Tags	
Text Align	General

Set field properties in the lower pane

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Design View is divided into two panes. The upper pane is used for field entry, description of fields and primary key identification. The bottom pane is used to set the individual properties of a field. You may switch between the two panes by striking F6.

Forms, Queries, and Reports

The screenshot displays three Microsoft Access objects: a report, a query, and a form. The report, titled 'Employee Phone Book', shows a list of employees with columns for 'Employee Name' and 'Business Phone'. The query, titled 'Employees Query', shows a table with columns for 'Last Name', 'First Name', and 'Job Title'. The form, titled 'Sales Analysis Form', shows a form with fields for 'Product Name', 'Employee', 'Customer Name', 'Sales', and 'Order Date'. Blue arrows point from the labels 'Report', 'Query', and 'Form' to their respective objects in the screenshot.

Employee Name	Business Phone
Andrew Cencini	(123)456-7890
Nancy Freehafer	(123)456-7890
Laura Giussani	(123)456-7890

Last Name	First Name	Job Title
Freehafer	Nancy	Sales Representative
Cencini	Andrew	Vice President, Sales
Kotas	Jan	Sales Representative
Sergienko	Mariva	Sales Representative
Thorpe		
Neipper		
Zare		
Giussani		
Hellung-l		

Product Name	Northwind Traders Beer
Employee	Anne Hellung-Larsen
Customer Name	Company AA
Sales	\$1,400.00
Order Date	1/15/2006

- Forms, queries, and reports are all based upon data contained in a table

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Forms, queries, and reports are all based upon data in one or more tables. If you save a form, query or report and make changes to the underlying data (in a table or tables) those changes will be reflected the next time you open the form, query, or report.

Forms

Form

First record from table visible in form

Underlying table

Order ID	Order Date	Employee	Customer Name	Product Name	Sales	Employee
30	1/15/2006	Anne Hellung-Larsen	Company AA	Northwind Traders Beer	\$1,400.00	
30	1/15/2006	Anne Hellung-Larsen	Company AA	Northwind Traders Dried Plums	\$105.00	
31	1/20/2006	Jan Kotas	Company D	Northwind Traders Dried Pears	\$300.00	
31	1/20/2006	Jan Kotas	Company D	Northwind Traders Dried Apples	\$530.00	
31	1/20/2006	Jan Kotas	Company D	Northwind Traders Dried Plums	\$35.00	

- Forms allow us to create an interface that can be more user friendly and attractive than Datasheet View

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Forms allow us to create an interface that can be more user friendly and attractive than Datasheet View. Keep in mind that you do not have to use all of the fields in a table when you create a form, query or report.

Queries

ID	Last Name	First Name	Job Title
1	Freehafer	Nancy	Sales Representative
3	Kotas	Jan	Sales Representative
4	Sergienko	Mariya	Sales Representative
6	Neipper	Michael	Sales Representative
7	Zare	Robert	Sales Representative
9	Hellung-Larsen	Anne	Sales Representative
* (New)			

Query results showing only employees who are Sales Representative

Criterion restricting dataset to show records that have a job title of Sales Representative

Field:	ID	Last Name	First Name	Job Title
Table:	Employees	Employees	Employees	Employees
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:				"Sales Representative"
or:				

- Queries allow us to question data
- The answer to the query is a dataset
- The question asked is formed using criteria – the rules or norm that is the basis for making judgments

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Queries allow us to ask a question about data and receive an answer back by returning a subset of the table data. This data subset is referred to as a dataset. The question asked is formed using criteria – the rules or norm that is the basis for making judgments.

Backing-up and Renaming Access Files

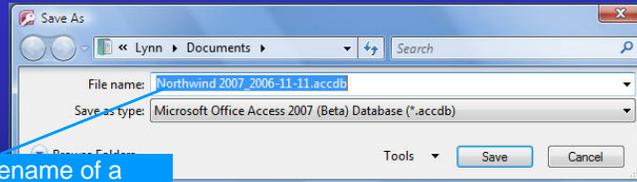
- Save As – different in Access than other Office applications
 - Save As saves only the current object, not the entire database
- To save a database with a new name you must either:
 - Backup the database
 - Copy, paste, and rename the database

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Save as does not work the same in Access as it does in other Office applications. Save as saves only the current object, not the entire database. To save a database with a new name, you must either backup the database or copy, paste, and rename the database.

Backing-up a Database



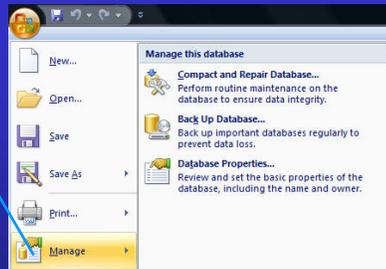
Default filename of a backup file is the name of the database and the current date

- Backing-up an Access file will produce a copy of your file with a default filename

Backing-up an Access file will produce a copy of your file with a default filename.

Compact and Repair

Compact and Repair is located under the Manage menu



- Fixes problems due to inefficient file storage and growth of a database
 - Should be performed everyday
 - Often decreases the file size by 50% or more

Compact and Repair helps fix problems due to inefficient file storage and growth of a database. You should use the compact and repair command every time you work with a database. This process often decreases the file size by 50% or more.

Filters

- Create a subset of records
- Do not change underlying table data
- Two types
 - Filter by Selection
 - Filter by Form

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Filter create a subset of records and can be applied in Datasheet view. They do not change underlying table data. The two main types of filters are Filter by Selection and Filter by Form.

Filter by Selection

The image shows three stages of the 'Filter by Selection' process in Microsoft Access:

- Table before filter by selection:** A table with columns ID, Last Name, First Name, and Job Title. The first row is Nancy Freehafer (Sales Representative), followed by Andrew Cencini (Vice President, Sales), Jan Kotas (Sales Representative), Mariya Sergienko (Sales Representative), Steven Thorpe (Sales Representative), Michael Neipper (Sales Representative), Robert Zare (Sales Representative), Laura Giussani (Sales Representative), and Anne Hellung-Larsen (Sales Representative).
- Filter by selection being applied from pre-determined criteria:** A 'Text Filters' dialog box is open over the 'Job Title' column. The 'Sales Representative' option is selected in the list.
- Results of filter:** The table now only displays records where the Job Title is 'Sales Representative': Nancy Freehafer, Jan Kotas, Mariya Sergienko, Steven Thorpe, Michael Neipper, Robert Zare, Laura Giussani, and Anne Hellung-Larsen.

- Selects only the records that match pre-selected criteria

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Filter by Selection selects only the records that match pre-selected criteria.

Filter By Form

ID	Last Name	First Name	Job Title
			Sales Coordinator
			Sales Manager
			Sales Representative
			Vice President, Sales

Inequity setting used in a Filter by Form process

Selection of criteria during Filter by form process

ID	Last Name	First Name	Job Title
<5			

- Allows the user to select criteria with which to filter by
- Allows the specification of relationships in the criteria

Filter by Form allows the user to select filter criteria. It also allows the specification of relationships in the criteria.

Applying and Removing a Filter

Filter icon in the Sort and Filter group



Toggle Filter icon

- Once a filter is applied, the Toggle Filter icon will be available
- The Toggle Filter icon can be used to apply and remove the current filter as many times as desired

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Once a filter is applied, the Toggle Filter icon will be available. The Toggle Filter icon can be used to apply and remove the current filter as many times as desired. This applies to all types of filters .

Sorting Table Data

Employees				Employees			
ID	Last Name	First Name	Job Title	ID	Last Name	First Name	Job Title
2	Cencini	Andrew	Vice President, Sales	7	Zare	Robert	Sales Representative
1	Freehafer	Nancy	Sales Representative	5	Thorpe	Steven	Sales Manager
8	Giussani	Laura	Sales Coordinator	4	Sergienko	Mariya	Sales Representative
9	Hellung-Larsen	Anne	Sales Representative	6	Neipper	Michael	Sales Representative
3	Kotas	Jan	Sales Representative	3	Kotas	Jan	Sales Representative
6	Neipper	Michael	Sales Representative	9	Hellung-Larsen	Anne	Sales Representative
4	Sergienko	Mariya	Sales Representative	8	Giussani	Laura	Sales Coordinator
5	Thorpe	Steven	Sales Manager	1	Freehafer	Nancy	Sales Representative
7	Zare	Robert	Sales Representative	2	Cencini	Andrew	Vice President, Sales

Last Name field
sorted ascending

Last Name field
sorted descending

- Lists records in ascending or design order according to one or more fields

The Sort feature in Access, just like the other Office applications, allows you to lists records in ascending or descending order according to one or more fields.

Access or Excel?

Use Excel when:

- Your data is of a manageable data size
- There is no need for relationships between data
- You are primarily creating calculations and statistics

Use Access when:

- You are working with large amounts of data
- You need to create relationships between your data
- You rely on external databases to analyze data

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Use Excel when:

1. Your data is of a manageable data size
2. There is no need for relationships between data
3. You are primarily creating calculations and statistics

Use Access when:

1. You are working with large amounts of data
2. You need to create relationships between your data
3. You rely on external databases to analyze data

Relational Database - RDBMS

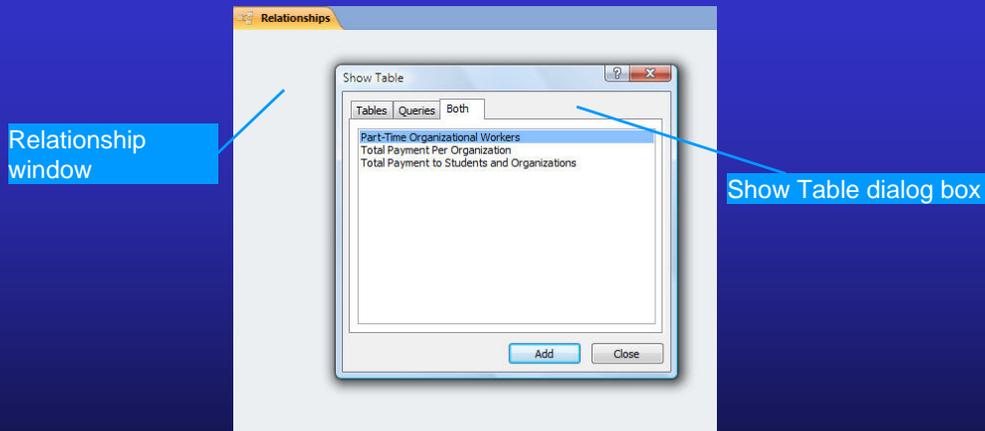
- Relational database management systems allow data to be grouped into tables and relationships created between the tables
- This is much more efficient than the opposite of an RDBMS which is a flat file. Flat files store data in one single file with no special groupings or collections

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Relational database management systems allow data to be grouped into tables and relationships created between the tables. This is much more efficient than the opposite of an RDBMS which is a flat file. Flat files store data in one single file with no special groupings or collections.

Using the Relationship Window



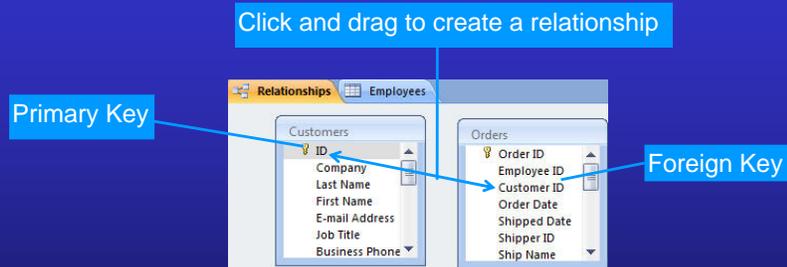
- Add the tables or queries from the Show table dialog box

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When you access the relationship window for the first time, it will be empty. You will need to add the tables and/or queries that you want to use in a relationship from the Show table dialog box.

Establishing Relationships



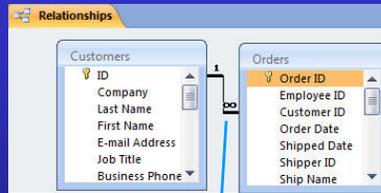
- In the Relationship window, click and drag a field name from one table to a field name in a related table

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To establish a relationship between tables, in the Relationship window, click and drag a field name from one table to a field name in the related table.

Establishing Relationships



Infinity symbol notes referential integrity has been applied

- Enter the appropriate settings in the Edit relationships dialog box
- Click Create
- A join line will appear when one table is joined to another

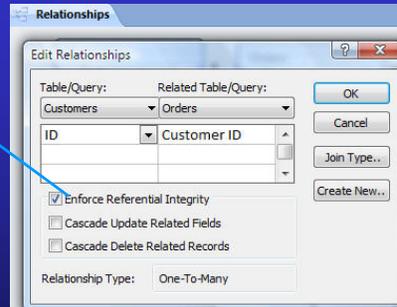
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After dragging a field name from one table to another, the Edit Relationships dialog box will appear. Enter the appropriate settings in the Edit relationships dialog box and click Create. A join line will appear when one table is joined to another.

Referential Integrity

Enforce Referential Integrity



- Referential integrity ensures that the data in a relational database maintains consistency when the data changes

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Referential integrity ensures that the data in a relational database maintains consistency when the data changes.



Be sure to read the material in the text carefully, complete the exercises as directed by your instructor, and ask questions as they arise.