

MS Access 2010 - Lesson 2: Introduction to objects in Access

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Database in Access 2010 includes four objects: **Table, query, form and report.** These objects work together to allow you to import, store, analyze and compile your data the way you want.

In this lesson, you will learn about each object and see how they interact with each other to create a fully functional relational database.

Tables, queries, forms and reports are frameworks for any database you create in Access. Understanding how each of these objects works will help you create a useful database and help you get the information you need.

Objects in Access 2010

1. Table (Table)
2. Form, query and report (Forms, queries and reports)
 1. Form (Form)
 2. Query (Query)
 3. Report (Report)
 4. Combine objects together

Table (Table)

Up to this point, you have understood that the database is a collection of data arranged into multiple lists and connected. In Access, all data is stored in tables. These tables are like the 'heart' of any database.

Tables are arranged into vertical columns and horizontal rows.

ID	First Name	Last Name	Street Address	City
20	Barbara		29 North Luke Ct.	Raleigh
29	Bob	Jones	63-C Chapel Ct.	Durham
30	Juanita	Williams	123 Garden Plow Way	Raleigh
31	Sara	Thomas	127 South Pejulup Ln.	Raleigh
32	Larry	Binder	124 Heuristic Way	Raleigh
33	Samantha	Ferguson	2380 New Cove Rd.	Garner
34	Jamie	Stone	131 W Clinton St.	Raleigh
35	Patti	Cheng	9 Atlantic Blvd	Raleigh
36	Greg	Newton	2520 Hopkins Rd.	Raleigh
37	Carol	Allenson	3201 Glenwood Ave. U	Raleigh
38	Zoey	Altman	817 Hillsborough St. A	Raleigh
39	Danny	Haverford	202 Cedar Ln.	Raleigh
40	Vig	Aurelio	53 Pine St.	Raleigh
41	Jeffery	Bergman	1245 Ross Park Dr.	
42	William	Bittiman	1122 Glenwood Ave.	
43	Megan	Draper	311 Cook St.	
44	Dick	Whitman	105 David St.	
45	Marjan	Jameson	202 C St. Unit A	Raleigh
46	Colin	Honkins	321 F. Edenton St.	Raleigh

In Access, rows and columns are called records and fields. A field is not just a column. That is how to organize information by data type. All information in a school has the same type. For example, every entry in the **First Name** field will be the name and each entry in the **Street Address** field will be an address.

ID	First Name	Last Name	Street Address
67	Joy	Zachman	857 Lee St.
68	Frances	Trenton	901 Kenan Rd.
69	Latavia		Mclver Ct.
70	Kurtis		3 Cobb Rd.
71	Lashaunda		1 Hinton St.
72	Lieselotte		2 Spencer Ave.
73	Sula	Smart	56 Dey Rd.
74	Jude	Smith	929 Greenlaw Dr.
75	Katharine	Kellerman	76 Murphy Ave.
76	Ruiari	O'Brien	100 Aycock St.
77	Tyra	Kirby	8700 Stacey Rd.
78	Michiko	Akiwana	901 Glenwood Ave.
79	Betty	Potter	80 Greene St.
80	Elizabeth	Loges	44 Steven Rd.

Similarly, a record is not just a row. It is an information unit. Each cell in a given row is part of a record that belongs to that row.

ID	First Name	Last Name	Street Address	City	State	Zip
84	Magda	Sremski	98 Tyler St.	Raleigh	NC	276
85	Peggy	Moss	1130 Jackson St.	Raleigh	NC	276
94	Margot	Wade	532 Chronicle Way	Raleigh	NC	276
95	Florent	Marais	53 Ada St.	Raleigh	NC	276
96	Erwan	Hausman	918 Lonesome Dove R	Raleigh	NC	276
97	Rodrigue	Sterling	49 Mockingbird Way	Raleigh	NC	276
102	Theodore	Achi	120 Baker St.	Raleigh	NC	276

Note how each record spans multiple fields. Although the information in each record is organized into fields, it also belongs to other information in that record. Do you see the number on the left of each row? That is the ID number that identifies each record. The ID number for a record refers to all information contained in that row.

ID	First Name	Last Name	Street Address	City
84	Magda	Sremski	98 Tyler St.	Raleigh
85	Peggy	Moss	1130 Jackson St.	Raleigh
94	Margot	Wade	532 Chronicle Way	Raleigh
95	Florent	Marais	53 Ada St.	Raleigh
96	Erwan	Hausman	918 Lonesome Dove R	Raleigh
97	Rodrigue	Sterling	49 Mockingbird Way	Raleigh
102	Theodore	Achi	120 Baker St.	Raleigh
105	Dwyane	James	4221 Basil Ct.	Cary

Record ID numbers

Tables are a way to store closely related information. Suppose you own a bakery and have a database that includes a table containing your name and customer information, such as their phone number, home address and email address. Because this information is all about your customers, put them in the same table. Each customer will be represented by a single record and each type of customer information will be stored in their own field. If you decide to add any more information (eg customer birthday), you only need to create a new field in the same table.

Form, query and report (Forms, queries and reports)

The table stores all your data, three other objects (forms, queries, and reports) that provide you with ways to work with that data. Each of these objects interacts with records stored in database tables.

Form (Form)

The form is used to import, modify and view records. You may have to fill out forms in many cases, such as when going to a doctor's office, when applying for a job or registering for school. Forms are used frequently as an easy way to guide people to enter data correctly. When you enter information into a form in Access, you will be taken to the place you need to go, to one or more related tables.

The screenshot shows a web-based form titled "Customers" with the "Quantrimang" logo. The form contains the following fields and values:

Field	Value
Search	[Empty]
First Name	Keller
Last Name	Leigh
Street Address	12 Florida St.
City	Raleigh
State	NC
Zip Code	27609
Email	kellenleigh@email.com
Phone	(919)-555-0687

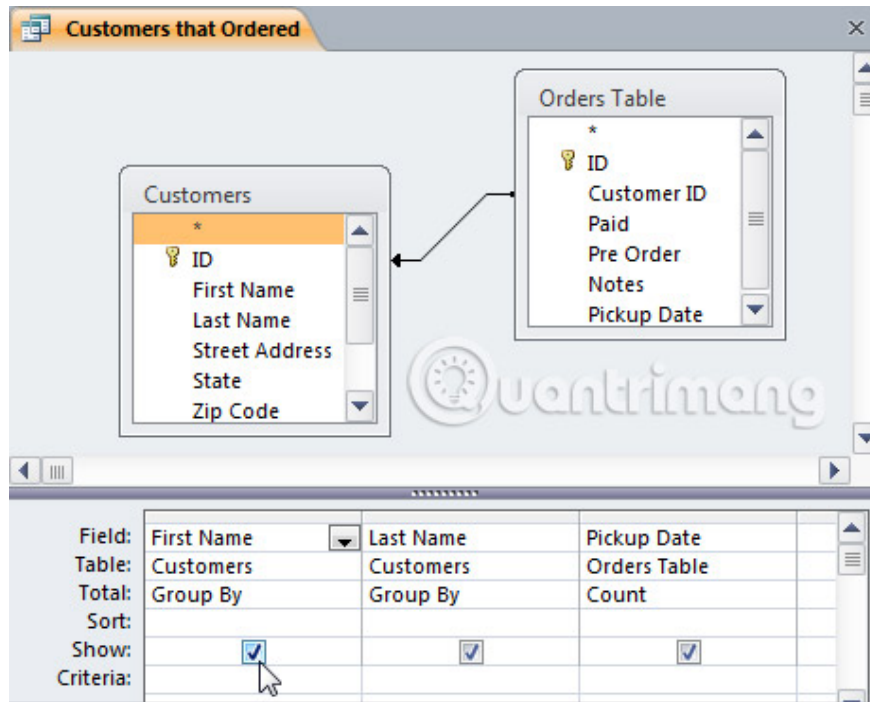
Additional elements include an "Add Record" button, a "Print" button, and a status bar at the bottom indicating "Record: 121 of 195" and "No Filter".

Forms make data entry easier. Working with extension tables can be confusing and when you have linked tables, you may need to work with multiple tables at once to import a data set. However, with forms that can import data into multiple tables at the same time, everything will all gather at one point. Database creators can even set restrictions for each individual form component to make sure all necessary data is entered in the correct format. In short, the form helps keep data consistent and organized. It is essential for an accurate and powerful database.

Query (Query)

Query is a way to search and compile data from one or more tables. Running a query is like asking a detailed question about your database. When you create a query in Access, you specify specific search conditions to find the exact data you want.

Query is much more powerful than simple searches that you can do in the table. While searching can help you find the name of a business customer, you can run a query to find the names and phone numbers of every customer who made a purchase in the past week. A well-designed query can provide information you can't find just by looking at the data in the tables.



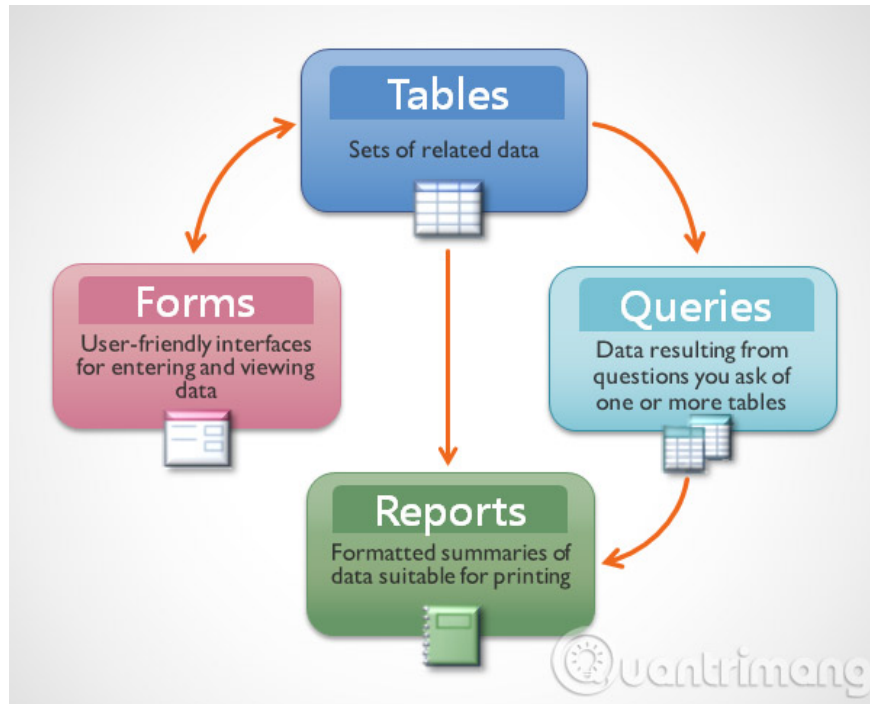
Report (Report)

The report gives you the ability to present available data. If you have ever received a printed calendar or bill of a purchase on a computer, you have seen a report about the database. The report is useful because they allow you to present the components of the database in a readable format. You can even customize the look of the report to make it more attractive and intuitive. Access gives you the ability to create reports from any table or query.



Combine objects together

Even if you really understand how to use each object, initially how they work together can still be confusing. Remember that all these objects work with the same data. Each data section in a query, form, or report is stored in one of your database tables.

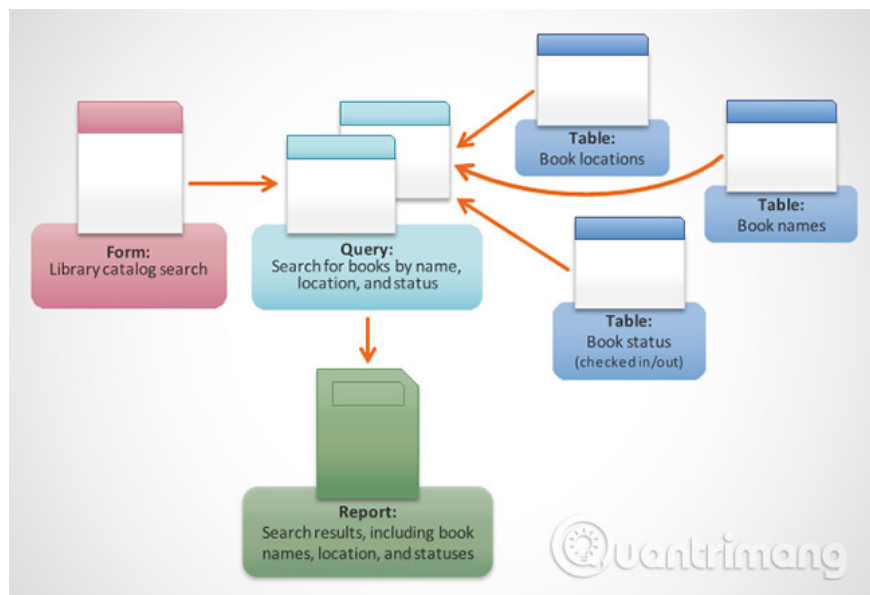


The form allows you to add data to the table and see if the data already exists. Reports present data from tables and also from queries, then search and analyze data in the same tables.

These relationships may sound complicated, but in fact they work together so well and naturally that we often don't notice, when using connected database objects. Have you used the electronic card catalog to search for a book at the library? Chances are, you have entered your search information into something that looks like this:

The screenshot shows a library catalog search interface. At the top, it says "Search the library catalog. Fill in at least one field. The more words you search for, the smaller and more refined your results list will be." Below this is a "Search by:" section with four input fields: "Title Keyword", "Author Keyword", "General Keyword", and "Subject Keyword". Each field has a dropdown arrow and an "AND" operator between them. To the right is a "Refine your search (optional):" section. It says "You can refine your search by selecting a limit or sort option." Below this are two dropdown menus: "Library Branch" (with options: Athens Drive Community Library, Cameron Village Regional Library, Cary Public Library, Duraleigh Road Library, East Regional Library) and "Type of Book" (with options: All Audio Books, Downloadable Audio Books, Adult Audio Fiction, Adult Audio Non Fiction, Children's Audio). At the bottom is a "Sorting" section with the text "Sort your results by selecting a sort option." and a "Select..." dropdown menu. A watermark "Quantimang" is visible in the bottom left corner of the screenshot.

When you perform a search, you enter your search term into a form, which is then used to create and run a query based on your request. When the query completes the search in database tables for records that match the search, you'll see a report that Access has collected information from the query and related tables, In this case is a list of books that match your search terms. You can imagine the connections between objects as follows:



Suppose instead of using these tools, you have to search in a giant table containing all the books in the library system. Related records can be spread out across multiple tables: A table for book titles and descriptions, a table that contains information about books that have been borrowed or returned, and a table with each branch of the library.

You will have to search at least three tables just to find a book, its location and see if it has been borrowed yet! It's easy to imagine how difficult it would be to find the right book. If you are not careful, you can even spoil something by accidentally deleting or editing a record. It's easy to see how objects in the database make this search easier.

In this article, we discussed the concept of a relational database. It is a database that can understand how different data sets are related to each other. Situations like the example above are the reason why people find relational databases very useful. Without a relational database, a simple task, such as finding a book and whether it is borrowed or where it is located, becomes extremely complicated and time-consuming. Knowing how to use four Access objects can make complex tasks more user-friendly.

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