

Microsoft Access 2010

Level 2

University Information Technology Services

Training, Outreach, Learning Technologies and Video Production

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Introduction

Microsoft Access allows people to effectively and efficiently organize data. This document, Level 2, has been developed to show you how to use multiple tables in Access. The various sections presented in this document will help you build a solid knowledge foundation of the software.

When you have mastered the objectives in this document, you can expand upon your knowledge of Microsoft Access by checking out the Level 3 documentation.

Objectives

The following objectives are covered in this document:

- Understanding the concept of relationships as they relate to tables.
- Knowing how to define data types for relationships.
- Having the ability to create a relationship.
- Understanding relationships and forms.
- Knowing how to create a form for a two table relationship.
- Knowing how to create a tab form for a multi-table relationship.

Relationships and Tables

The power of Access is the software's ability to create and maintain multiple tables. Access allows multiple tables to work together thereby giving you strong database management capabilities.

Level 1 Booklet/Workshop

In the Level 1 booklet/workshop, a foundation was created by presenting the use of one table in Access. In Level 1, the following table was created for an airline:

Airline Reservation System
Transaction Number
Transaction Date
First Name
Last Name
Departure City
Destination City
Meal
Ticket Cost
Departure Date
Departure Time

Figure 1 – Table for an Airline Reservation System

Using Multiple Tables in the Access Database

Users of Access begin to utilize the full strength of the system when they use multiple tables to manage data. For example, the following are two tables that could be used by a retail store that sells products to customers.

Customer Information
Customer Number
First Name
Last Name
Address
City
State
Zip Code
Phone Number
Email

<u>Purchases</u>

Purchase ID Customer Number Product Name Quantity Unit Price

Figure 2 – Two Tables for a Retail Store Database

It would be ineffective to attempt to include all of the fields presented in *Figure 2* in one table. It is much more efficient to create two tables and categorize the various fields within these tables.

An effective database used in the "real world" by a business, educational facility, governmental agency, etc. would ultimately have many tables.

Relationships Explained

When developing a database with multiple tables, it is important to understand relationships. Relationships allow the different tables to communicate with each other. When creating different tables, there must be one field that is common to the different tables. *Figure 3* shows that the *Customer Number* field is common to both tables.

Customer Information	Purchases
Customer Number	Purchase ID
First Name	Customer Number
Last Name	Product Name
Address	Quantity
City	Unit Price
State	
Zip Code	
Phone Number	
Email	

Figure 3 – Two Tables for a Retail Store Database

Relationships and Data Types

When developing multiple tables, the *Data Type* for the common field will be defined differently in the various tables. For example, *Figure 4* shows that the *Data Type* for *Customer Number* is defined as *AutoNumber* in the *Customer Information* table because this table is where the number is created. Notice that this number is also the *Primary Key*.

	Customer Information						
1	Field Name	Data Type					
8	Customer Number	AutoNumber					
	First Name	Text					
	Last Name	Text					
	Address	Text					
	City	Text					
	State	Text					
	Zip Code	Text					
	Phone Number	Text					
	Email	Text					

Figure 4 – Customer Number Defined as an AutoNumber

In the *Purchases* table, *Figure 5* shows that *Customer ID* is defined as a *Number*. Also, notice that it is not defined as the *Primary Key*.

Purchases							
2	Field Name	Data Type					
P	Purchase Number	AutoNumber					
	Customer Number	Number					
	Product Name	Text					
	Quantity	Number					
	Unit Price	Currency					

Figure 5 – Customer Number Defined as a Number

How to Create the Relationship

The following explains how to create a relationship between two tables in Access.

- 1. Be sure to close both tables.
- 2. From the Database Tools tab, click Relationships (see Figure 6).

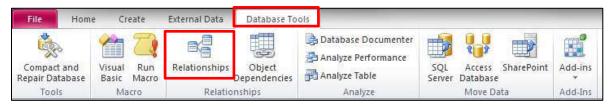


Figure 6 – Relationships Button

3. In the *Show Table* dialogue box, select each table and click the *Add* button (see *Figure 7*).

Tables	Queries	Both		
Custor	ner Inform	ation		
Purcha	ises			

Figure 7 – Show Table Dialogue Box

4. Both of the tables will be added to the *Relationships* window (see *Figure 8*). Next, click the *Close* button in the *Show Table* dialogue box.

Customer Information	Purchases
Customer Numt First Name Last Name Address City State Zip Code	Purchase Number Customer Number Product Name Quantity Unit Price
	Show Table

Figure 8 – Show Table Dialogue Box

5. Next, click to select *Customer Number* (see *Figure 9*), in the *Customer Information* table.

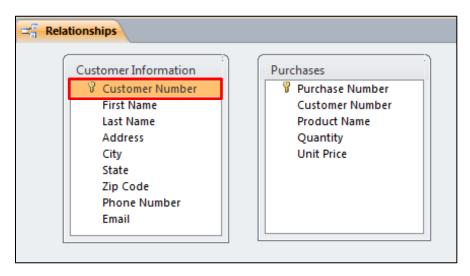


Figure 9 – Click to select Customer Number

6. Allow your mouse pointer to hover over *Customer Number* in the *Customer Information* table and hold down your left mouse button. As you hold down the left mouse button, move your mouse pointer so that it hovers over *Customer Number* in the *Purchases* table. At this point, release the mouse button that you have been holding down (see *Figure 10*).

Relationships	
Customer Information Customer Number First Name Last Name Address City State Zip Code Phone Number Email	Purchases Purchase Number Customer Number Product Name Quantity Unit Price

Figure 10 – Creating the Relationship

7. The *Edit Relationships* dialogue box (see *Figure 11*) will appear. Click to select the box for *Enforce Referential Integrity* (see *Figure 11*) and click the *Create* button.

Table/Query:	Related Table/Query:	Create
Customer Informat	▼[Purchases ▼	
Customer Num	Customer Numbe 🔺	Cancel
247 		Join Type
Cascade Update	Create New.	

Figure 11 – Edit Relationships Dialogue Box

	What happens when you enforce referential integrity?
1.	If the record doesn't exist in the primary key field of the primary table, it can't
	be entered in another related table.
2.	The record can't be deleted from the primary table if there is a record that
	relates in another related table.
3.	The primary key number cannot be changed in the primary table if there is a
	record that relates to it in another related table.

Figure 12 – What happens when you enforce Referential Integrity?

8. The relationship will be established (see *Figure 13*).

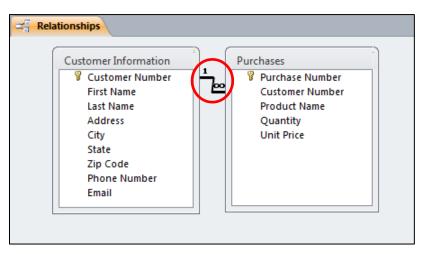


Figure 13 – The Relationship Established

NOTE: Relationships aren't always for just two tables. If you had three or more tables in your database, you could also form relationships for those other tables as well. To do this, you would simply add the table to the relationships window (steps 1-4 on pages 7-8) and follow steps 5-8 on pages 8-10.

9. Click the *Close* button (see *Figure 14*) to exit the *Relationship Tools* screen. When prompted, click *Yes* to save the relationship that you created.

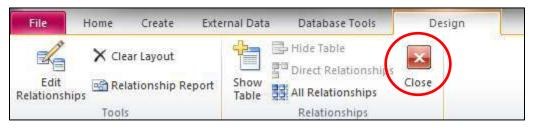


Figure 14 – Close Button

Relationships and Forms

There are many different ways to develop forms when you have relationships among different tables established. The following are some popular design techniques.

Creating a Form for a Two Table Relationship

The following is an example of how to develop a form for a two table relationship. The tables within the database are *Customer Information* and *Purchases* (see *Figure 15*).

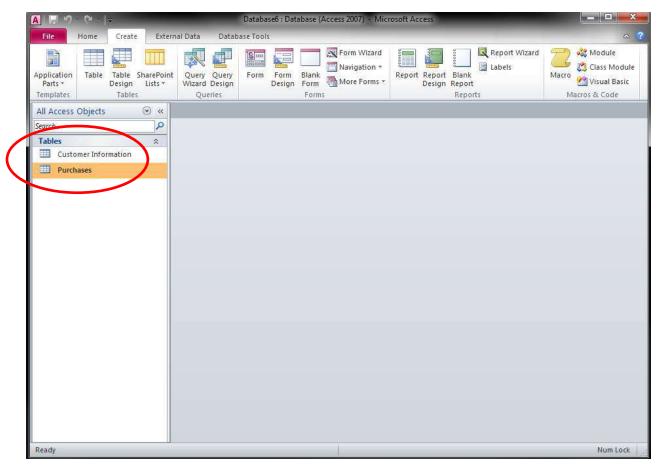


Figure 15 – Customer Database with Two Tables

A	2	<u>କ</u> . ୯ ାକ		Ĥ	orm Design Tooks	Database6 : Dat	abase (Access 2007) - Microsof	X
Fil	ie	Home Create	External Data Database	Tools Design	Arrange Forma			۵
Viev		Themes A Fonts *	abl Aa 🚥		Insert Image -	Logo	Add Existing Fields Property Tab Sheet Order	
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		[a contest of e		3 (A A A A A A A			Show only fields in the current	record source
							Fields available for this view:	
Navigation Pane	· · · · · · · · · · · · · · · · · · ·		Customer Numbe First Name Last Name Address City State Zip Code Phone Number Email	Customer Num First Name Last Name Address City State Zip Code Phone Number Emeil			Customer Information Customer Number First Name Last Name Address City State Zip Code Phone Number Emeil Fields available in related tables: Purchases	Edit Table Edit Table
	-		10		-			
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1. Create a form for the *Customer Information* table (see *Figure 16*).

Figure 16 – Form for the Customer Information Table

2. On the *Design* tab, click the *More* button (see *Figure 17*) for additional controls.

File	Home Create	External Data Database Tools	Design	Arrange Format		
View	Themes A Fonts *	abl Aa 🚥 🗋	Q. 💽		insert mage *	Logo Title Date and Time
Views	Themes		Cor	ntrols		Header / Footer

Figure 17 – More Button

3. Click the Subform/Subreport button (see Figure 18).

	Fo	rm Design Tools	Database6 : Database (Ac
External Data Database Tools	Design	Arrange Format	
abl Aa 🚥 🦳	Q. 💽		
	0		I

Figure 18 – Subform/Subreport Button

Form1		-	
- Detail	· · · I · · · 2 · · · I · · · ·	3	
<u>_</u>	Customer Number	Customer Num	
	First Name	First Name	
1	Last Name	Last Name	
	Address	Address	
	City	City	
-	State	State	
2	Zip Code	Zip Code	
	Phone Number	Phone Number	
	Email	Email	
3 PERIO			
Draw a box for your form.			

4. Draw a box on the form for the *Purchases* table (see *Figure 19*).

Figure 19 – Create a Box for the Form

5. In the SubForm Wizard dialogue box, click Next (see Figure 20).

You can use an existing form to create your subform or subreport, or create your own using tables and/or queries.
What data would you like to use for your subform or subreport?
Cancel < Back Next > Einish

Figure 20 – SubForm Wizard

6. Click to select the table that you want to place on the form (see *Figure 21*).

Which fields would you like to inc	lude on the	subform or sul	breport?	
ou can choose fields from more	than one ta	able and/or que	ery.	
ables/Queries				
able: Purchases				
vailable Fields:		Selected Fiel	ds:	
Purchase Number		1		2
Customer Number Product Name	>>			
Quantity Jnit Price	(correct)			
	<	-		
	_ <<	1		-
		< Back	Next >	Finish

Figure 21 – SubForm Wizard

7. Click the double-arrow button (see *Figure 22*) to add all of the fields onto the subform that you are creating.

Which fields would you like to in	clude on the subform	n or subreport?	
You can choose fields from more	e than one table and	l/or query.	
<u>T</u> ables/Queries			
Table: Purchases		•	
Available Fields:	Select	ed Fields:	
Purchase Number			
Customer Number Product Name	>		
Quantity	>>		
Unit Price	<		
	<		

Figure 22 – SubForm Wizard

8. Click the *Finish* button (see *Figure 23*).

Which fields would you like to incl	ude on the subform or subreport?	
'ou can choose fields from more	than one table and/or query.	
[ables/Queries		
Table: Purchases		
Available Fields:	Selected Fields:	
	Purchase Number	-
	Customer Number	
	Quantity	
	< Unit Price	
	<<	
[ancel < <u>B</u> ack Next >	Finish

Figure 23 – SubForm Wizard

9. The *Purchases* subform will appear on the *Customer Information* form. Use the anchor points to adjust the size of the form as indicated in *Figure 24* (make the form large enough that you can see the contents).

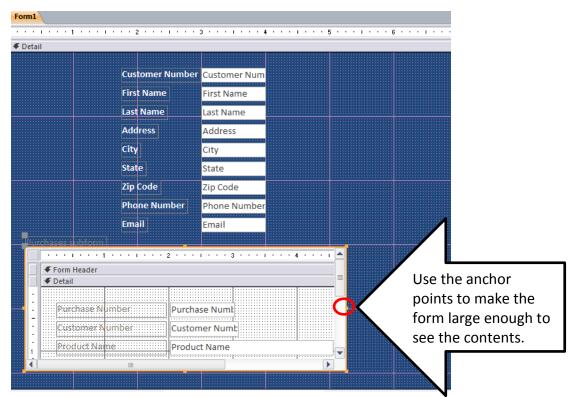


Figure 24 – SubForm

10. *Figure 25* shows how the form and subform can be used to enter data for both the *Customer Information* table as well as the *Purchases* table.

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File Home Create Exte	mai Data 🛛 Database 1	Fools				a ?
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Search. P Tables * Customer Information Purchases Forms * Customer Informatio Purchases subform	Purchases subform	Customer Num First Name Last Name Address City State Zip Code Phone Number Email	Joe Customer 150 Main St. Kennesaw GA 30144			
	Purchase Nu + C	ustomer Nu 🔹	Product Name	• Quantit	ty 🔹 Un	it Price 🔹
	1	1 De	fice Chair Isk Isk Lamp		5 5 5	\$95.00 \$200.00 \$33.00
	* (New)	1				
	Record: 14 + 1 of 3	🕨 H 🕨 🐺 No I	iller Search			
Form View	: 4	0 🚯 No Filter 🕴	Search (III Num Lock	

Figure 25 – The Form and SubForm

<u>Creating a Form with Tabs for a Multi-Table Relationship</u>

The following explains how to create a form with tabs for a multi-table relationship.

1. Create the necessary tables for the database. *Figure 26* shows the tables for an insurance company database: there is a *Customer Information* table, as well as tables for *auto insurance, life insurance, and property insurance.*

All Access Objects	
Search	٩
Tables	*
🗮 Auto	
🛄 Customer Info	
Life	
Property	

Figure 26 – Tables for an Insurance Company Database

2. Create a relationship for all of the tables in the database. *Figure 27* shows an example of relationships created for a database for an insurance company.

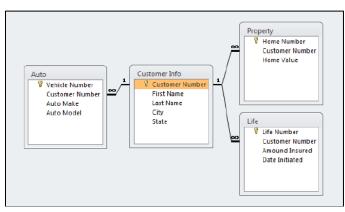


Figure 27 – Relationships for an Insurance Company Database

- 3. Create forms for all of the tables EXCEPT for the main table. For example, in *Figure 27*, you would create forms for *Auto*, *Property*, and *Life*.
- 4. The following steps explain how to create the main form. For example, in *Figure 27*, you would create the form for *Customer Info*.
 - a. Apply any color/labels to your form.
 - b. On the Design tab, click the Tab Control button (see Figure 28)



Figure 28 – Tab Control Button

c. Draw a box on your form (see *Figure 29*).

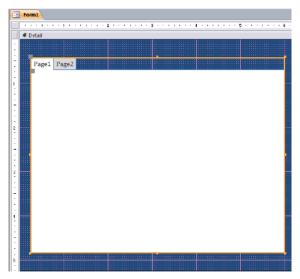


Figure 29 – Tab Control Button

d. To add more tabs, right-click over one of the tabs and click *Insert Page* (see *Figure 30*). To delete a tab, click *Delete Page*.

Pa	age1	Page2 Page3 Build <u>E</u> vent		 -	
	¥	Cu <u>t</u>			
		<u>С</u> ору			
L		<u>P</u> aste			
lſ	" ם	Insert Page			
I	×	<u>D</u> elete Page			
L		Page <u>O</u> rder			
L	2	Ta <u>b</u> Order			
Ł		Insert	►		
		<u>M</u> erge/Split	►		
L		<u>L</u> ayout	•		
L		Select Entire Row			
L		Select Entire <u>C</u> olumn	n		
		<u>A</u> lign	►		
		Size	•		
		<u>G</u> ridlines	×		
L	1	Eorm Properties			
	P	<u>P</u> roperties		 	

Figure 30 – Inserting/Deleting Tabs

e. To rename the tab, click to select the tab. Then, open the *Property Sheet*. On the *Format* tab in the *Caption* category, enter the name of the tab (see *Figure 31*).

Property S	Sheet					×
Selection	type: I	Page				
Page1					-	
Format	Data	Event	Oth	er	All	
Caption				Cus	tomer I	nform
Page Inde	ex			0		
Visible				Yes		
Picture Ty	pe			Embedded		
Picture				(noi	ne)	
Width				5.64	58"	
Height				4.04	17"	
Тор				0.73	96"	
Left				0.30	21"	

Figure 31 – Renaming Tabs

f. To add the fields onto the tab for this main form, click *Add Existing Fields* (see *Figure 32*).

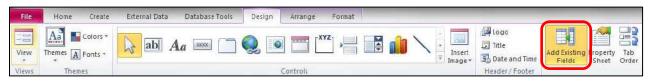


Figure 32 – Add Existing Fields button

g. In the Field List window that appears, click Show all tables (see Figure 33).

Field List	×
No fields available to be added to the current view.	
P Show all tables	

Figure 33 – Field List window

h. Click the "+" for the name of the main table containing the fields that you want to add. For this example, you would click the "+" for *Customer Info* (see *Figure 34*).

Field List	×
Show only fields in the curren	t record source
Fields available in other tables:	
🕂 Auto	Edit Table
🕀 Customer Info	Edit Table
+ Life	Edit Table
Property	Edit Table

Figure 34 – Field List window

Form1	×	Field List	×
1 ************************************	3 * * * 1 * * * * * * * * * * * * * * *	Show only fields in the current re-	cord source
🗲 Detail		Fields available for this view:	
Customer Information Auto Life Pro	perty	Customer Info Customer Number First Name Last Name City State	Edit Table
Customer Numbe	Customer Num		
First Name	First Name		
2 Last Name	Last Name		
City	City		
State	State		
		Fields available in related tables:	Edit Table
5		⊞ Life	Edit Table
		Property	Edit Table

i. Drag the fields onto the form for the tab that you have selected (see *Figure 35*).

Figure 35 – Fields on the Main Tab

- 5. You are now ready to add the forms that you created earlier to the other tabs. Click to select the tab where you want to add your form.
- 6. From the *Design* tab, click the *More* button (see *Figure 36*).



Figure 36 – More Button

7. Click the *Subform/Subreport* button (see *Figure 37*).



Figure 37 – Subform/Subreport Button

- 8. Draw a box on the form for the selected tab.
- 9. The *Subform Wizard* dialogue box will appear. Select the option, *Use an existing form* and then select the form of your choice (see *Figure 38*).

You can use an existing form to create your subform or subreport, or create your own using tables and/or queries. What data would you like to use for your subform or subreport? O Use existing Tables and Queries Use an existing form Auto Life Property

Figure 38 – Subform Wizard

- 10. Click the Finish button (see Figure 38).
- 11. Use the anchor points around the form to adjust the size.
- 12. Figure 39 shows how the Auto tab appears.

•	Auto
	Vehicle Number
3	Customer Number
- 5	Auto Make
- 4	Auto Model

Figure 39 – Auto tab

13. Repeat steps 5-11 above to place other forms on the other tabs.