



University Information
Technology Services

Microsoft Office

Access 2016 for Windows

Relational Databases & Subforms

University Information Technology Services

Learning Technologies, Training & Audiovisual Outreach

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Microsoft Office: Access 2016 for Windows Relational Databases & Subforms

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Introduction

Microsoft Access allows people to effectively and efficiently organize data. This document has been developed to show you how to use multiple tables and relational databases in *Access 2016*. The various sections presented in this document will help you to build a solid knowledge foundation of the software.

The Microsoft Access Booklet Series will provide you the necessary knowledge on how to use *Microsoft Office Access 2016*. Before reading this booklet, it is recommended that you read the following *Access 2016* documents on the UITS Documentation Center at <http://uits.kennesaw.edu/cdoc>:

- Microsoft Access 2016 – Intro to Access
- Microsoft Access 2016 – Intro to Forms

Learning 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.

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.

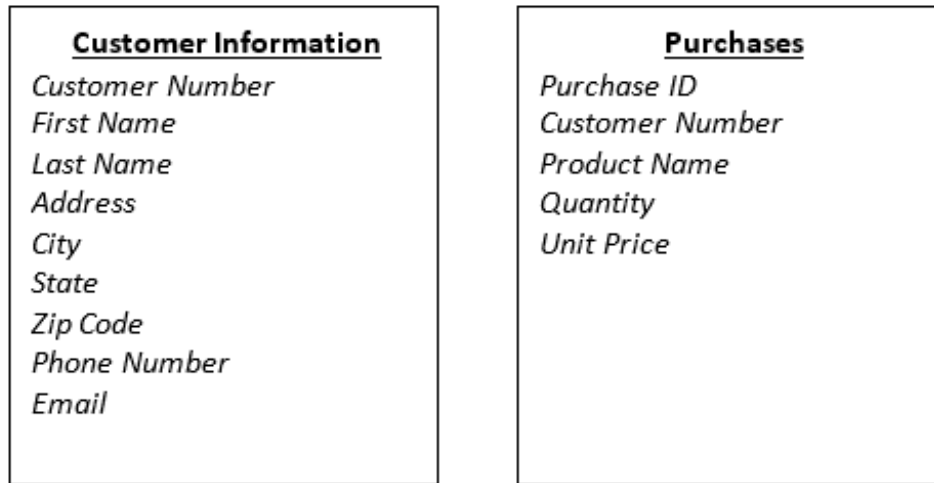


Figure 1 - Two Tables

It would be ineffective to attempt to include all of the fields presented in *Figure 1* in one table. It is much more efficient to create two tables and categorize the various fields within these tables.

An effective database used 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. For example, *Figure 2* shows that the *Customer Number* field is common to both tables.

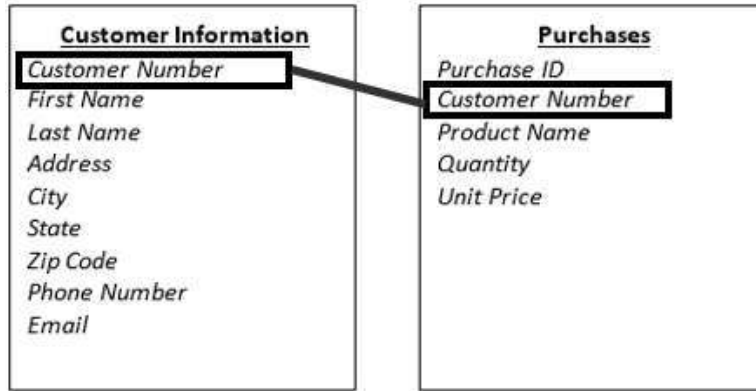


Figure 2 - Customer Number in two tables

Relationships and Data Types

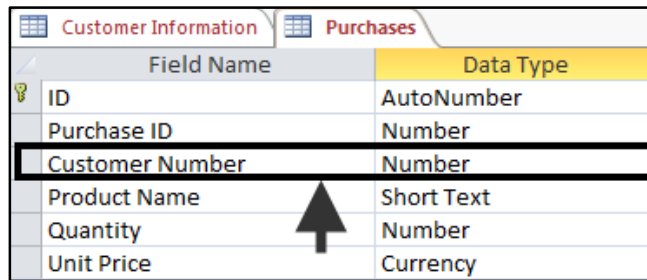
When developing multiple tables, the *Data Type* for the common field will be defined differently in the various tables.

For example, *Figure 3* below 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*.

	Field Name	Data Type
🔑	Customer Number	AutoNumber
	First Name	Short Text
	Last Name	Short Text
	Address	Short Text
	City	Short Text
	State	Date/Time
	Zip Code	Short Text
	Phone Number	Short Text
	Email	Hyperlink

Figure 3 - Primary Key

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



Field Name	Data Type
ID	AutoNumber
Purchase ID	Number
Customer Number	Number
Product Name	Short Text
Quantity	Number
Unit Price	Currency

Figure 4 - Customer Number in the Purchases Table

How to Create the Relationship

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

1. Be sure both tables are closed before attempting.
2. From the *Database Tools* tab, click **Relationships**.

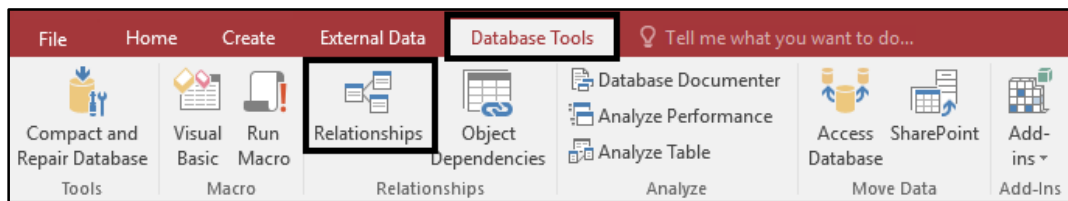


Figure 5 - Relationships

3. In the *Show Table* dialogue box, select each table and click **Add**.

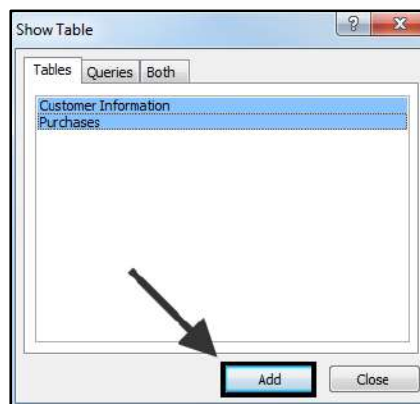


Figure 6 - Click Add

- Both of the tables will be added to the *Relationships* window. Next, click the **Close** button in the *Show Table* dialogue box.

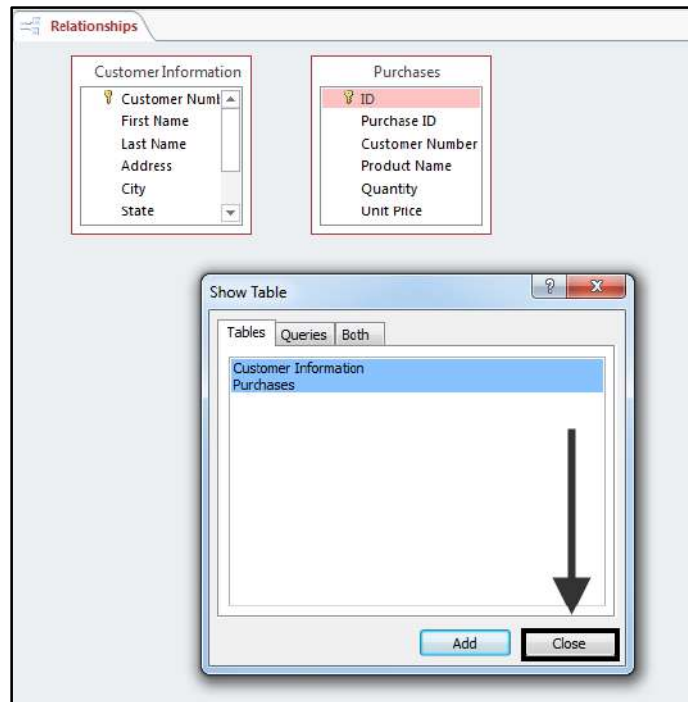


Figure 7 - Click Close

- Click to select **Customer Number** in the *Customer Information* table.

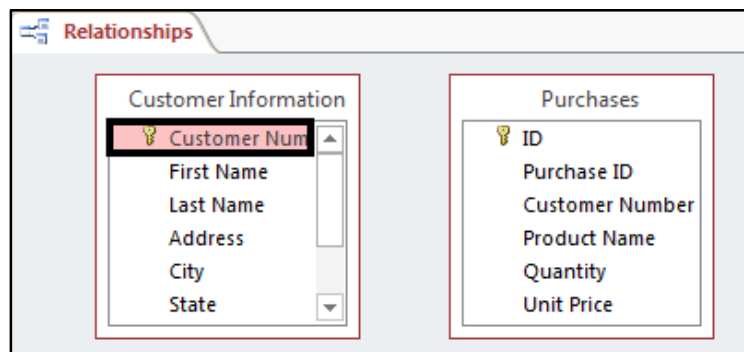


Figure 8 - Customer Number

6. Hover your mouse over *Customer Number* in the *Customer Information* table and left-click your **mouse** and hold. Drag over the *Customer Number* in the *Purchases* table and **release**.

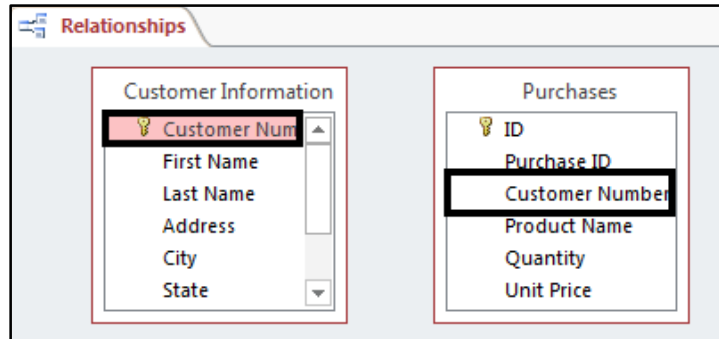


Figure 9 - Creating the Relationship

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

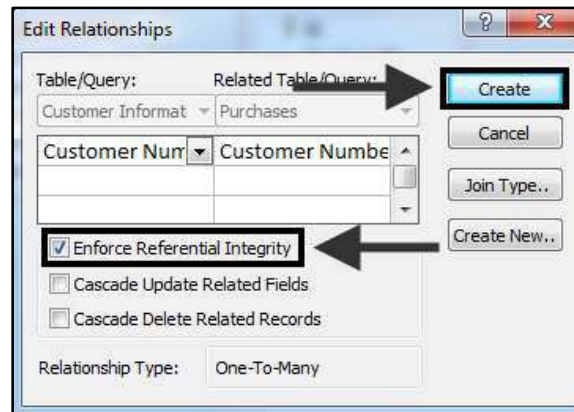


Figure 10 - Enforce Referential Integrity

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.

8. The relationship will be established.

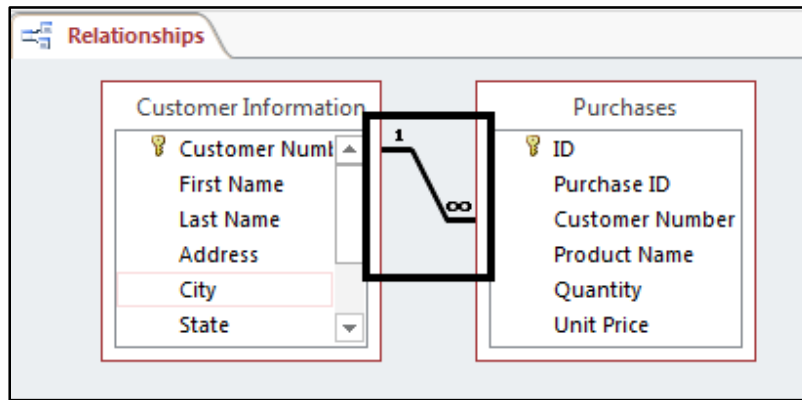


Figure 11 - The Relationship is established

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

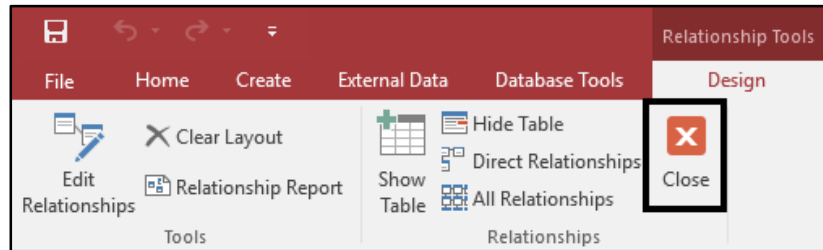


Figure 12 - Close Button

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. For example, you may need multiple table forms in the event you have a database that contains more than one table. The tables within the database are *Customer Information* and *Purchases*.

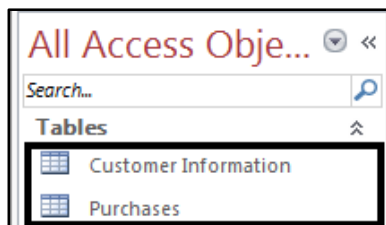


Figure 13 - Tables to create the form

1. Create a form using the Form Design tool for the Customer Information table.

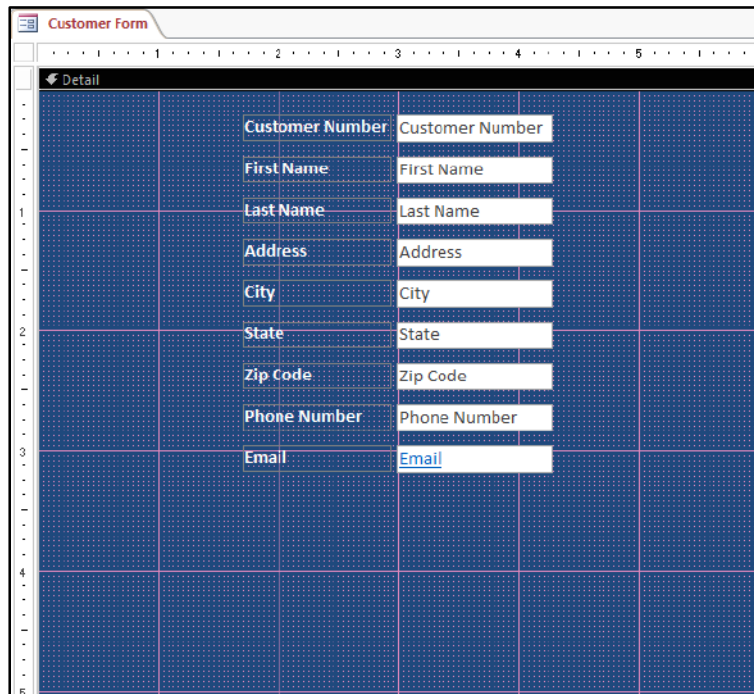


Figure 14 - Form for Customer Information Table

Note: For more information on creating *Forms*, refer to the documentation *Microsoft Access 2016: Intro to Forms* at <https://uits.kennesaw.edu/cdoc>.

2. On the *Design* tab, click the **More** button for additional controls.

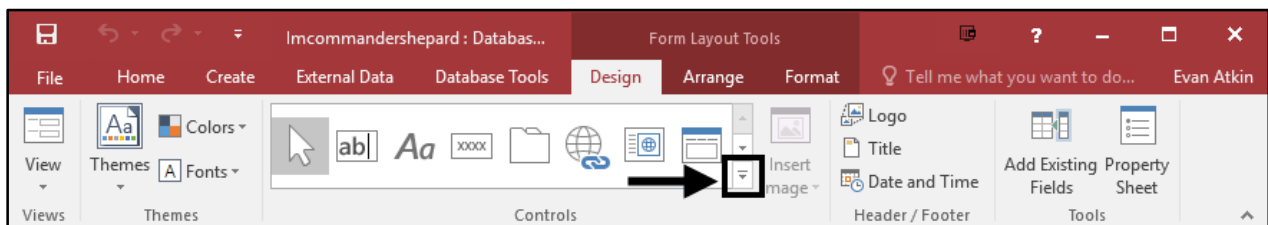


Figure 15 - The More Button

3. Click the **Subform/Subreport** button.



Figure 16 - Subform/Subreport

4. Draw a **box** on the form for the *Purchases* table.

The image shows a form design tool interface with a blue grid background. A vertical list of fields is on the left, each with a corresponding input box on the right. The fields are: Customer Number, First Name, Last Name, Address, City, State, Zip Code, Phone Number, and Email. The 'Customer Number' field is highlighted with a yellow border. Below this list is a large white rectangular area labeled 'Unbound'.

Figure 17 - Purchases Table Form

5. The *Subform Wizard* will appear. Click **Next**.

The image shows the 'SubForm Wizard' dialog box. It has a title bar and a main area with text: 'You can use an existing form to create your subform or subreport, or create your own using tables and/or queries.' Below this is the question 'What data would you like to use for your subform or subreport?' with two radio button options: 'Use existing Tables and Queries' (which is selected) and 'Use an existing form'. At the bottom, there are four buttons: 'Cancel', '< Back', 'Next >', and 'Finish'. The 'Next >' button is highlighted with a red box, and a black arrow points to it from the right.

Figure 18 - Click Next

6. Click to **select the table** that you want to place on the form.

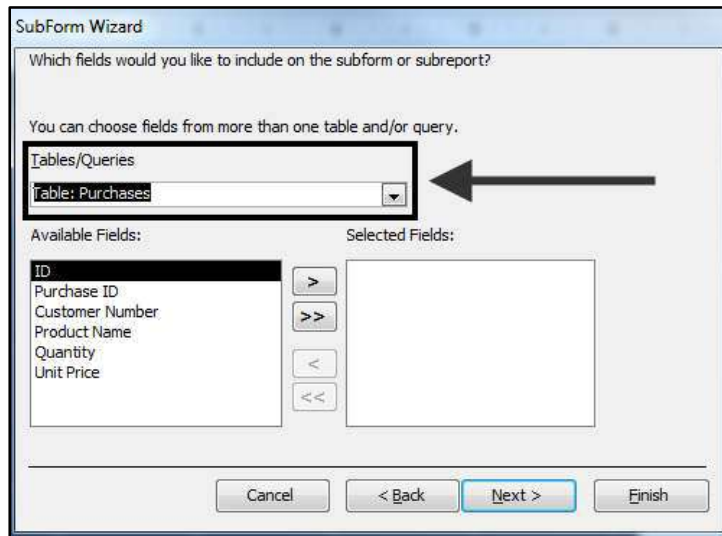


Figure 19 - Subform Wizard

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

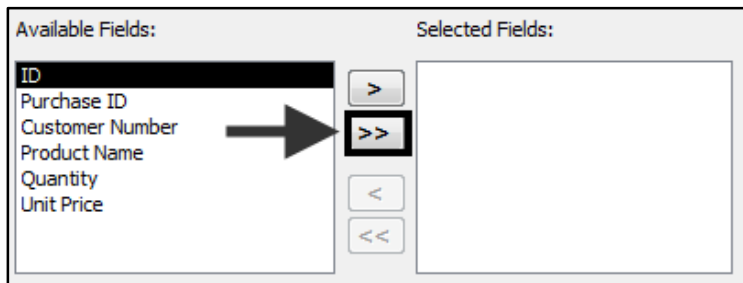


Figure 20 - Sub form Arrow

8. Click the **Finish** button.

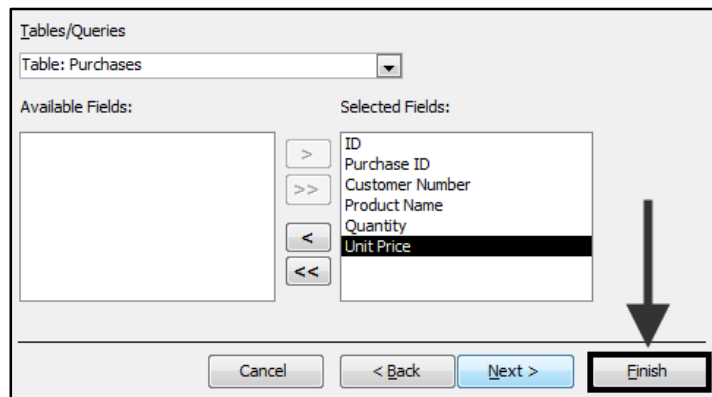


Figure 21 - Click Finish

9. The *Purchases* subform will appear on the *Customer Information* form.

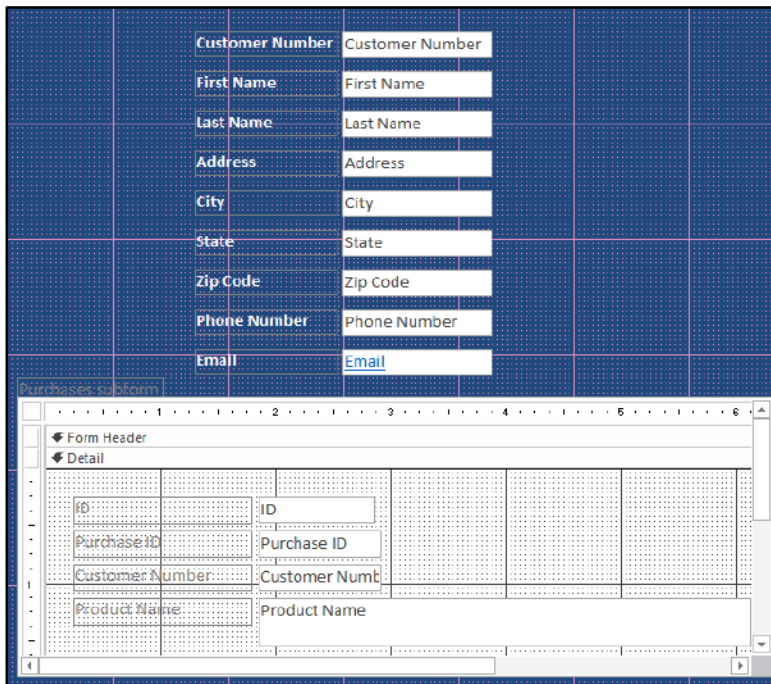


Figure 22 – Subform

10. You may now enter data in both the form and subform.

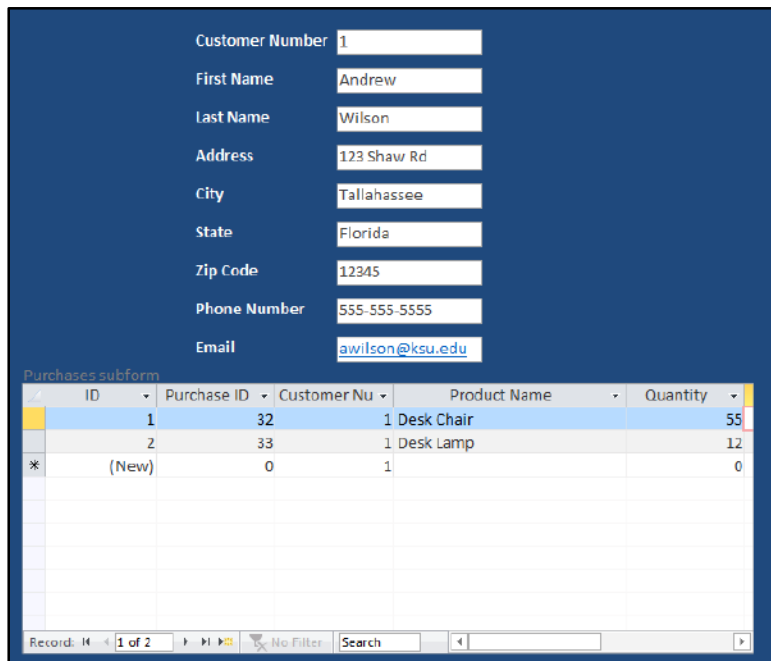


Figure 23 - Entering Data

Creating a Form with Tabs for a Multi-Table Relationship

The following explains how to create a form with tabs for a multi-table relationship. Forms with tabs are necessary in the event that you need to enter data into a database with multiple tables.

1. Create the necessary tables for the database. In this example we will need tables for an insurance company database. *Figure 24* illustrates a database that has tables for:
 - Customer Information
 - Auto insurance
 - Life insurance
 - Property insurance.

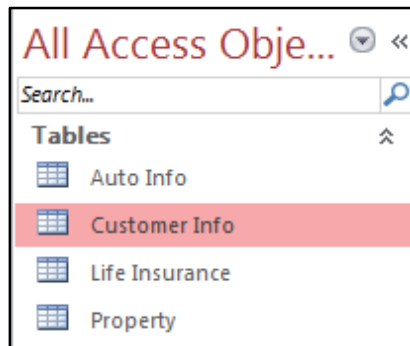


Figure 24 - Tables for an Insurance Database

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

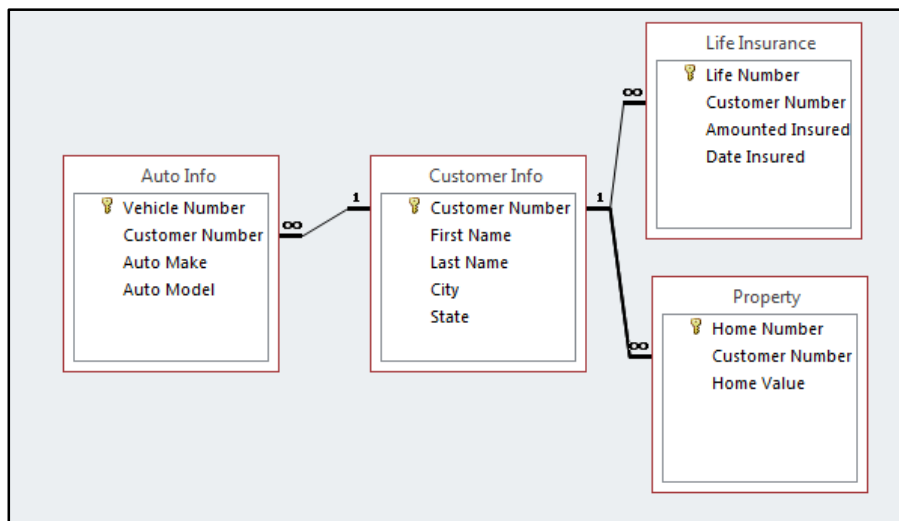


Figure 25 - Relationships for the Database

3. Create forms for all of the tables EXCEPT for the main table. For example, you would create forms for *Auto*, *Property*, and *Life*.

5. To add more tabs, right-click over one of the **tabs** and click **Insert Page** from the drop-down menu (See Figure 28).
6. To delete a tab, right-click over one of the **tabs** and click **Delete Page** from the drop-down menu (See Figure 28).

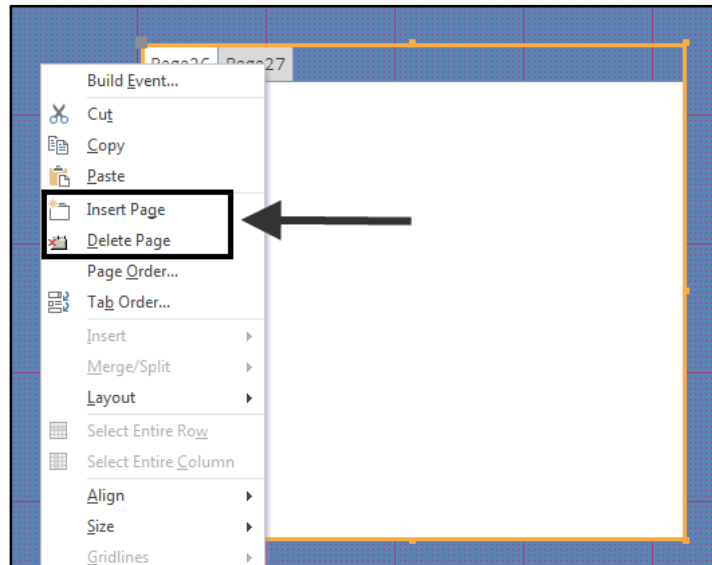


Figure 28 - Insert and Delete Page

7. To rename the tab, click to **select the tab**.
8. From the *Design* tab, click **Property Sheet**.

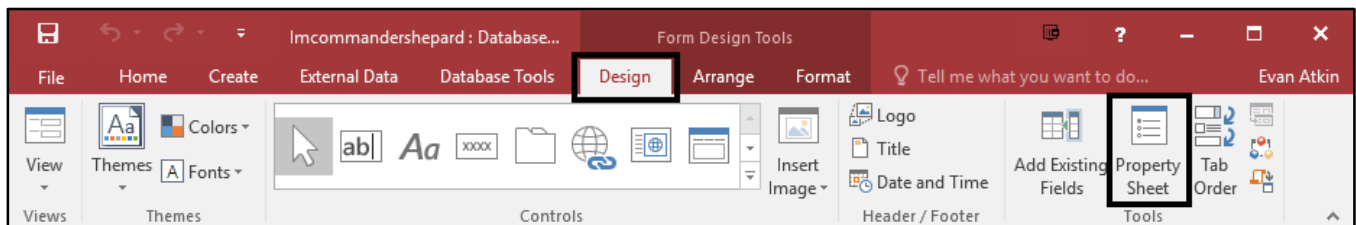


Figure 29 - Access Property Sheet

- The *Property Sheet* will open. On the *Format* tab in the *Caption* category, enter the **name** of the tab.

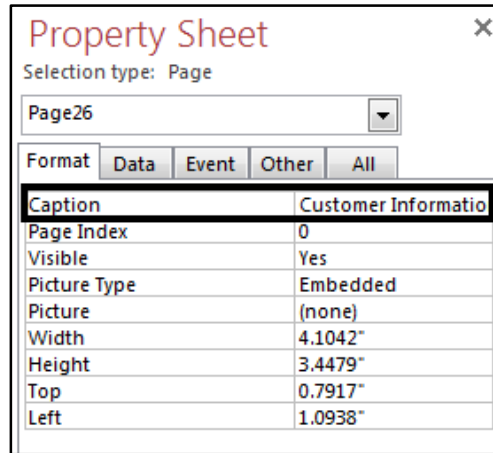


Figure 30 - Renaming Tabs

- From the *Design* tab, click **Add Existing Fields** to add the fields onto the tab for this main form.

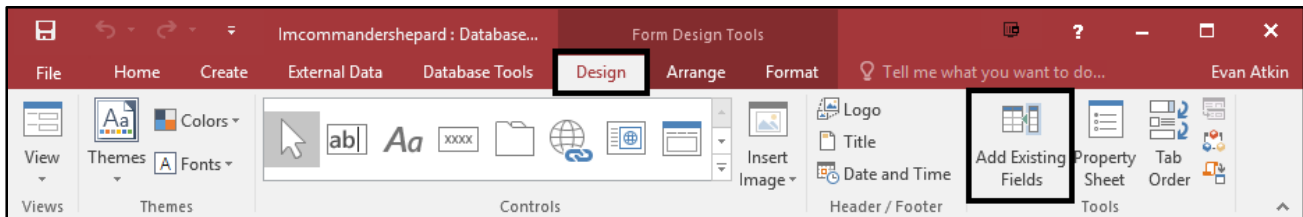


Figure 31 - Add Existing Fields

- In the *Field List* window that appears, click **Show all tables**.



Figure 32 - Show all Tables

- 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*.

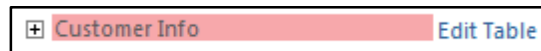


Figure 33 - Expanding the Table

13. Drag the **fields** from the *Field List* onto the tab that you have selected.

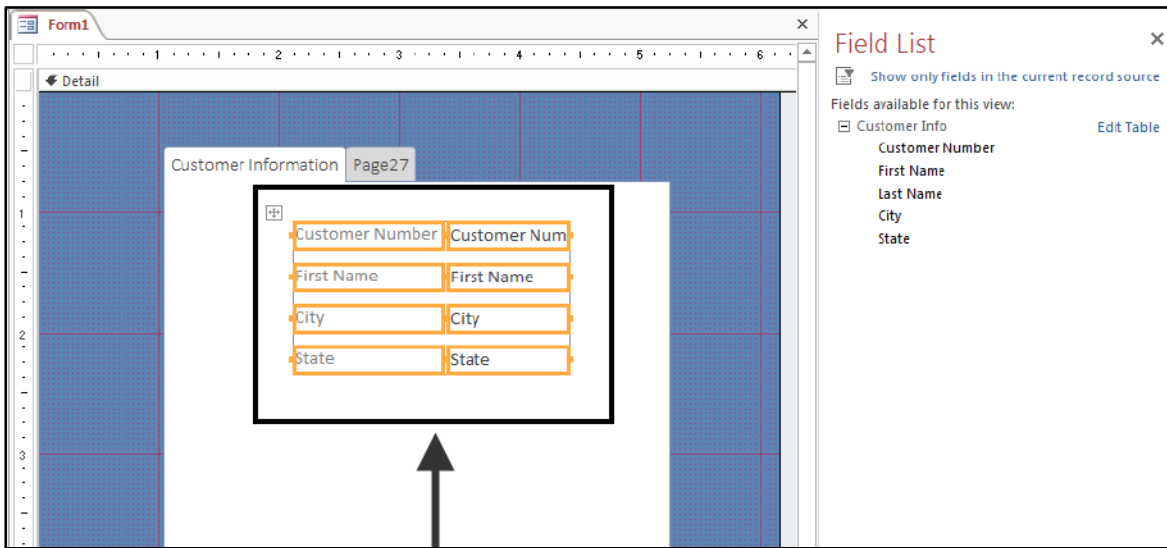


Figure 34 - Main Tab

14. 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.

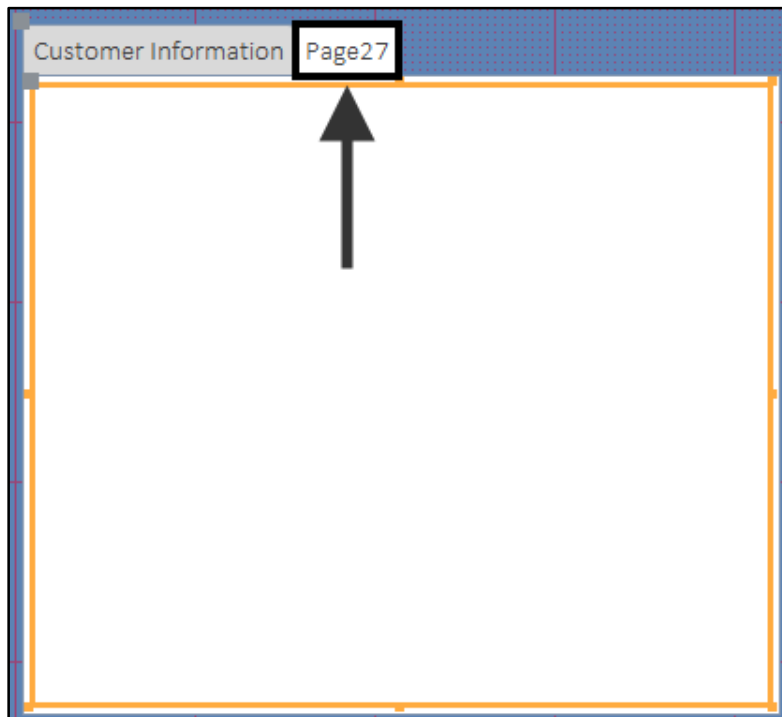


Figure 35 - Select the Tab

15. From the *Design* tab, click **More**.

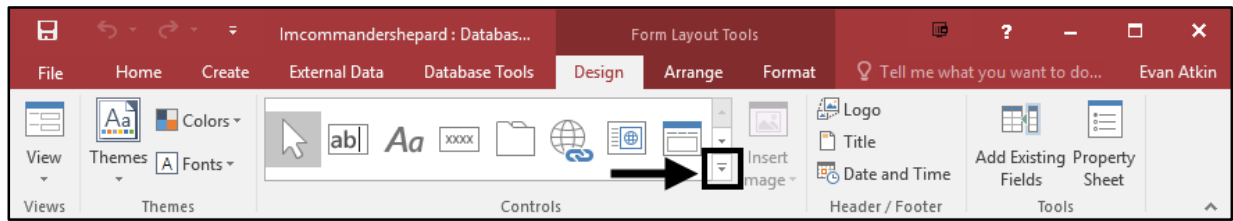


Figure 36 - The More Button

16. Select the **Subform/Subreport** control.



Figure 37 - Subform/Subreport

17. Draw a box on the form for the selected tab.

18. The *Subform Wizard* dialogue box will appear. Select the option **Use an existing form** (See Figure 38).

19. A list of forms in your database will appear. Select the **form** of your choice (See Figure 38).

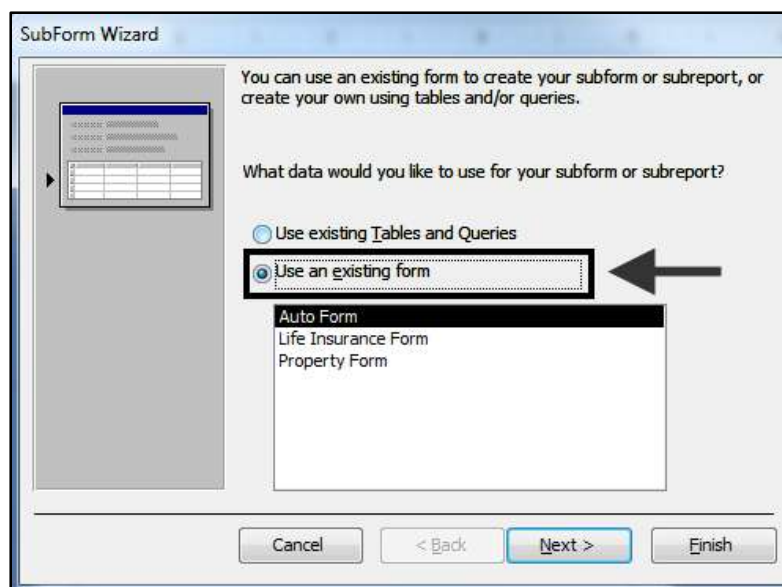


Figure 38 - Subform Wizard

20. Click the **Finish** button.

21. The *Auto Form* will be added inside the *Tab Control*. Use the sizing handles around the form to adjust the size.

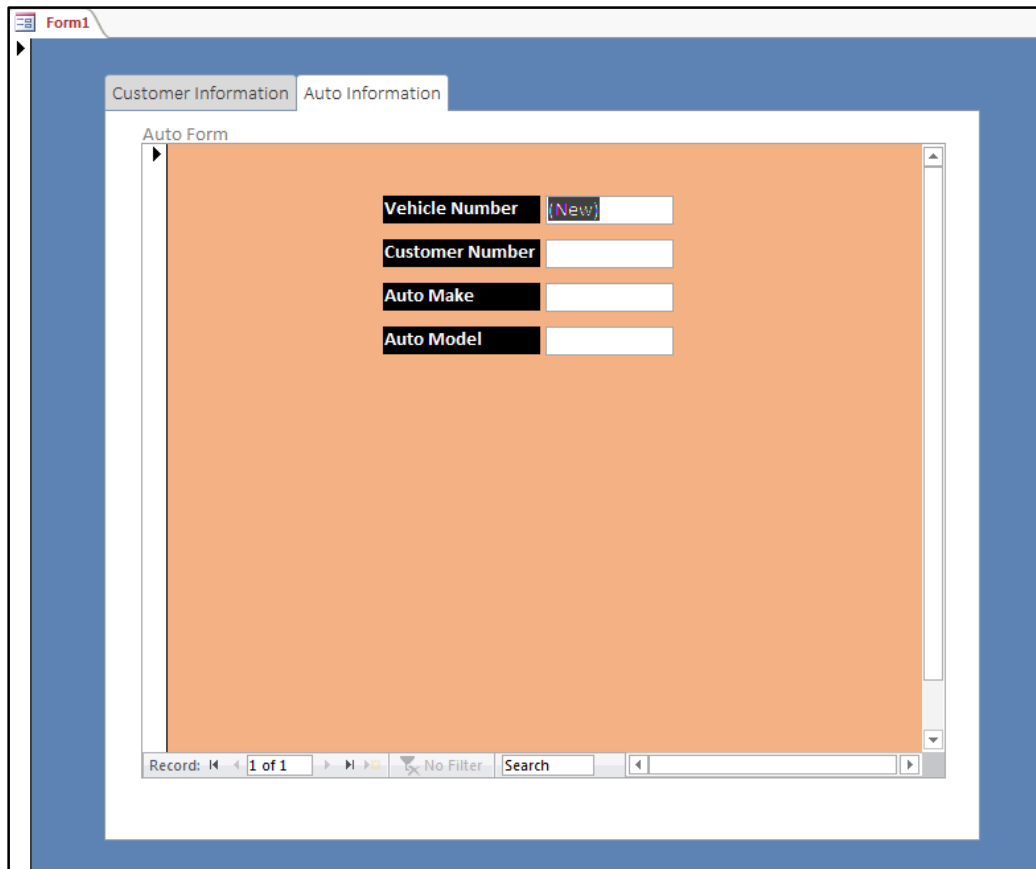


Figure 39 - Subforms

22. Repeat steps 14 – 21 to add the remaining subforms.

Additional Help

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