Project 5 - Relational Databases (Access)

Project Objective

To operate efficiently and to remain competitive, it is essential for a company to manage its data appropriately. Databases enable quick access to critical information; provide secure storage for sensitive data, and offer analysis/reporting tools for real-time decision making. In addition, databases also play an important role with a company's presence on the Internet. Web-based databases have the ability to store information pertaining to customers, employees, competitors, online orders, and buying habits. With this in mind, you realize it is a necessity to integrate a database into your existing IT infrastructure.

In this project you will learn to use Microsoft Access to create a relational database, which is a type of database that has data organized into related tables. This database will include tables that store the most common types of information pertinent to a corporation:

- Employees
- Customers
- Products
- Orders

In addition to the tables, you will also setup the relationships between tables, and design input forms and queries (with formulas) plus create reports (also with formulas).

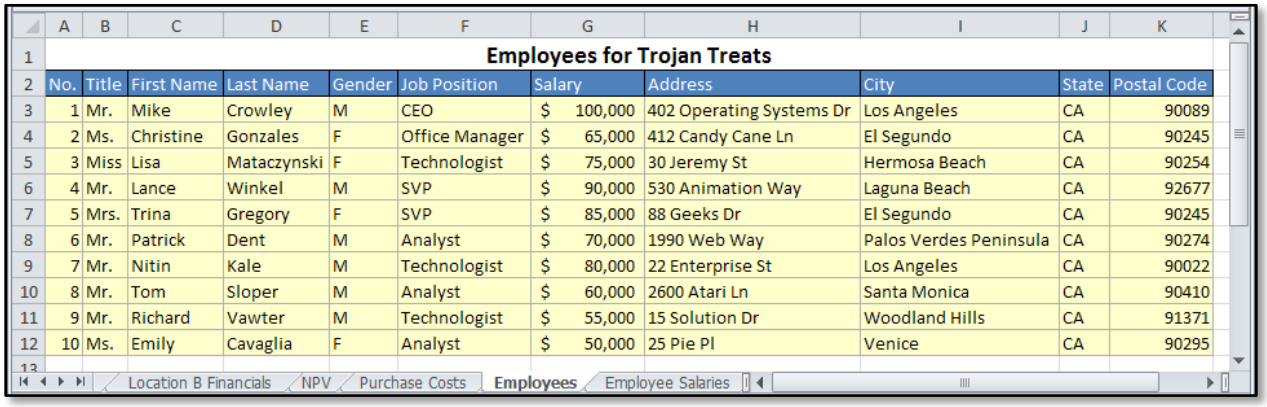
Project Overview

This project has been organized into 7 different parts:

1. Creating a **Flat File** database in Excel
2. **Importing existing data** from an Excel Spreadsheet
3. Creating the Database **Tables**
4. Establishing Table **Relationships**
5. Generating **Forms** to Input Data
6. Building **Queries** to Access Specific Data
7. Creating a **Report**

Part 1 – Creating a Flat File Database

In part 1, you will create a flat file database for storing some employee information. Follow the instructions and samples listed below.



	A	B	C	D	E	F	G	H	I	J	K
1	Employees for Trojan Treats										
2	No.	Title	First Name	Last Name	Gender	Job Position	Salary	Address	City	State	Postal Code
3	1	Mr.	Mike	Crowley	M	CEO	$ 100,000	402 Operating Systems Dr	Los Angeles	CA	90089
4	2	Ms.	Christine	Gonzales	F	Office Manager	$ 65,000	412 Candy Cane Ln	El Segundo	CA	90245
5	3	Miss	Lisa	Mataczynski	F	Technologist	$ 75,000	30 Jeremy St	Hermosa Beach	CA	90254
6	4	Mr.	Lance	Winkel	M	SVP	$ 90,000	530 Animation Way	Laguna Beach	CA	92677
7	5	Mrs.	Trina	Gregory	F	SVP	$ 85,000	88 Geeks Dr	El Segundo	CA	90245
8	6	Mr.	Patrick	Dent	M	Analyst	$ 70,000	1990 Web Way	Palos Verdes Peninsula	CA	90274
9	7	Mr.	Nitin	Kale	M	Technologist	$ 80,000	22 Enterprise St	Los Angeles	CA	90022
10	8	Mr.	Tom	Sloper	M	Analyst	$ 60,000	2600 Atari Ln	Santa Monica	CA	90410
11	9	Mr.	Richard	Vawter	M	Technologist	$ 55,000	15 Solution Dr	Woodland Hills	CA	91371
12	10	Ms.	Emily	Cavaglia	F	Analyst	$ 50,000	25 Pie Pl	Venice	CA	90295
13											

Location B Financials | NPV | Purchase Costs | **Employees** | Employee Salaries

1. Open **Microsoft Office Excel 2010**.
2. Rename Sheet1 to **Employees**.
3. Delete Sheets 2 & 3.
4. In cells A1:K1, merge and center the following title: **Employees for *Your Company***. Replace *Your Company* with your company's name. Format it how you want. You may want to change the size, weight, and color.
5. In cells A2:K2, enter the headings shown in Figure 7. They are: **No.**, **Title**, **First Name**, **Last Name**, **Gender**, **Job Position**, **Salary**, **Address**, **City**, **State**, **Postal Code**.
6. Beginning in row 3, enter your own information for 10 employees. Make sure you:
    a. have 5 female employees and
    b. only create 5 different job positions.
7. Format the table of employees, including the headings in row 2. Make sure you change the Salary column to currency and do not show a decimal point. You may format the colors and such however you wish.
8. Select the cells A2:K12. In the *Formulas* tab, select the **Define Name** button. For the *name* enter **employeelist**, and press the **OK** key. This will name the range of cells that contain your field headers and data, so that you can easily refer to it later here and in other projects down the road.
9. **Save** your workbook as ***lastname_firstname*_excel_database.xlsx**

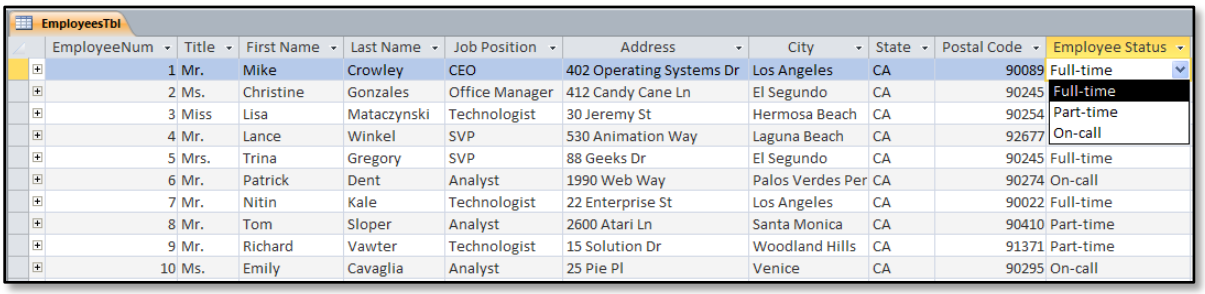
Part 2 – Importing data from an Excel Spreadsheet

In part 2, you will import data from the database created in part 1 into your Access database. Follow the instructions and samples listed below.

1. Open **Microsoft Office Access 2010**.
   a) Click on **Blank Database**.
   b) Under the *Blank Database* section on the far right in the *File Name* textfield, enter ***lastname_firstname*_access**. Click on the **Browse** icon to change the location to save your file. It will append .accdb. The *Save as type* is **Microsoft Access 2007 Databases (*.accdb)**.
   c) Click the **Create** button.
2. From the top, click on the **External Data** tab. Click on the **Excel** button.
3. In the *Get External Data* window, use the **Browse…** button to locate and select the excel file you just created in part 1. Select the **Import the source data into a new table in the current database.** option. Click the **OK** button.
4. In the *Import Spreadsheet Wizard* window:
   a) Select the **Show Named Ranges** radio button. Select the range **employeelist**, which is the name range you created in your Excel project. Select the **Next >** button to go to the next step in the wizard.
   b) Check the box **First Row Contains Column Headings** such that there is a checkmark there. Click the **Next >** button.
   c) Select the **No** column in the table. Under *Field Options*, change the *Field Name* to **EmployeeNum**. Click the **Next >** button.
   d) Select the **Choose my own primary key.** radio button. Using the pull-down, select the **EmployeeNum** option. Click the **Next >** button.
   e) ***Note:*** *A primary key field is used to uniquely identify each record in your table.*
   f) For the *Import to Table* textfield, enter **EmployeesTbl**. Click the **Finish** button. Click the **Close** button.
5. Open your Employees table in Design View by clicking on the **Home** tab. In the upper left corner, click on the **View** pull-down and select the **Design View** option.
6. Delete the **Gender** and **Salary** fields by right clicking on the field row and selecting the **Delete Rows** option. (Another way to delete is clicking on the field row and selecting the **Delete** option under the *Records* section in the *Home* tab.) Click the **Yes** button to permanently delete the selected field.
7. Add a new field to the table by typing **Employee Status** in the first empty cell in the *Field Name* column. Set the *Data Type* to the **Lookup Wizard…** option.
8. In the *Lookup Wizard* window:
   a) Select the **I will type in the values that I want.** radio button. Click the **Next >** button.
   b) Under Col1, type in the following three options in the first three cells: **Full-time**, **Part-time**, and **On-call**. Click the **Next >** button.

c) Checkmark the **Limit To List** checkbox. Click the **Finish** button. You have just created a Lookup Value for the *Employee Status* field.

9. Save your changes by clicking on the Save icon (3.5" disk) in the top left corner of the Access window.
10. Open the EmployeesTbl in the Datasheet View by clicking on the **View** pull-down and selecting the **Datasheet View** option. (If you do not see the *View* pull-down, then click on the **Home** tab and you will see it in the upper left corner.)
11. Add a status to each of your employees in the table. To add a status, you can simply click in the *Employee Status* cell for each employee and utilize the lookup values provided by clicking on the pull-down menu.



EmployeesTbl

EmployeeNum	Title	First Name	Last Name	Job Position	Address	City	State	Postal Code	Employee Status
1	Mr.	Mike	Crowley	CEO	402 Operating Systems Dr	Los Angeles	CA	90089	Full-time
2	Ms.	Christine	Gonzales	Office Manager	412 Candy Cane Ln	El Segundo	CA	90245	
3	Miss	Lisa	Mataczynski	Technologist	30 Jeremy St	Hermosa Beach	CA	90254	
4	Mr.	Lance	Winkel	SVP	530 Animation Way	Laguna Beach	CA	92677	
5	Mrs.	Trina	Gregory	SVP	88 Geeks Dr	El Segundo	CA	90245	Full-time
6	Mr.	Patrick	Dent	Analyst	1990 Web Way	Palos Verdes Per	CA	90274	On-call
7	Mr.	Nitin	Kale	Technologist	22 Enterprise St	Los Angeles	CA	90022	Full-time
8	Mr.	Tom	Sloper	Analyst	2600 Atari Ln	Santa Monica	CA	90410	Part-time
9	Mr.	Richard	Vawter	Technologist	15 Solution Dr	Woodland Hills	CA	91371	Part-time
10	Ms.	Emily	Cavaglia	Analyst	25 Pie Pl	Venice	CA	90295	On-call

Full-time
Part-time
On-call

Note: Your data is automatically saved each time you complete the editing of a record and move on to another record.

12. When finished, close the table by right-clicking on the name **EmployeesTbl** and selecting the **Close** option.

Part 3 – Creating the Database Tables

In part 3, you will create three additional database tables that will store Customer, Product, and Order Information. Follow the instructions below to create the tables.

Now, you will follow the steps below to create the **Customers** table that will store all customer-related information (at least 10 entries). Below is a sample customer table:

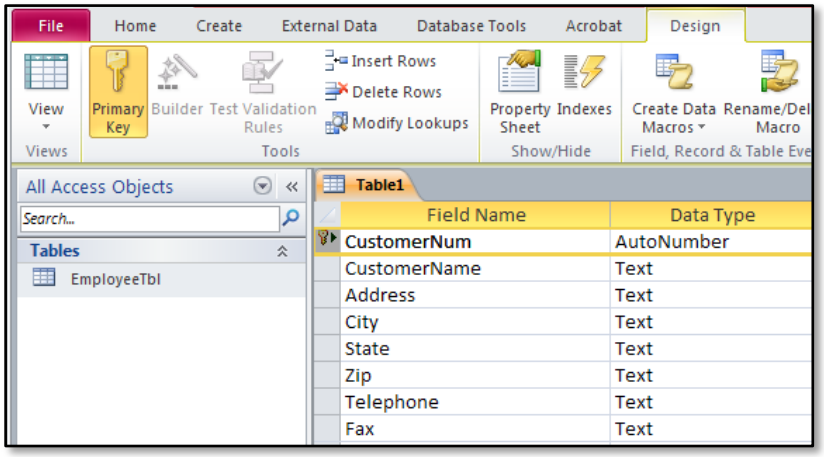
CustomersTbl

CustomerNum	CustomerName	Address	City	State	Zip	Telephone	Fax
1	USC Athletics	HER	Los Angeles	CA	90089	(213) 740-3843	(213) 740-1306
2	Viterbi	OHE 200	Los Angeles	CA	90089	(213) 740-7832	(213) 740-8493
3	Marshall	BRI 100	Los Angeles	CA	90089	(213) 740-6422	(213) 740-5432
4	Dornsife	ADM 304	Los Angeles	CA	90089	(213) 740-2531	(213) 740-8887
5	Rossier	WPH 1101	Los Angeles	CA	90089	(213) 740-5756	(213) 740-8994
6	Thornton	MUS 403	Los Angeles	CA	90089	(213) 740-6935	(213) 740-3217
7	Roski	WAH 104	Los Angeles	CA	90089	(213) 740-2787	(213) 740-8938
8	Annenberg	ASC 304	Los Angeles	CA	90089	(213) 740-6180	(213) 740-3772
9	Leventhal	ACC 101	Los Angeles	CA	90089	(213) 740-4838	(213) 747-2815
10	Keck	KAM 500	Los Angeles	CA	90033	(323) 442-1100	(323) 442-2724

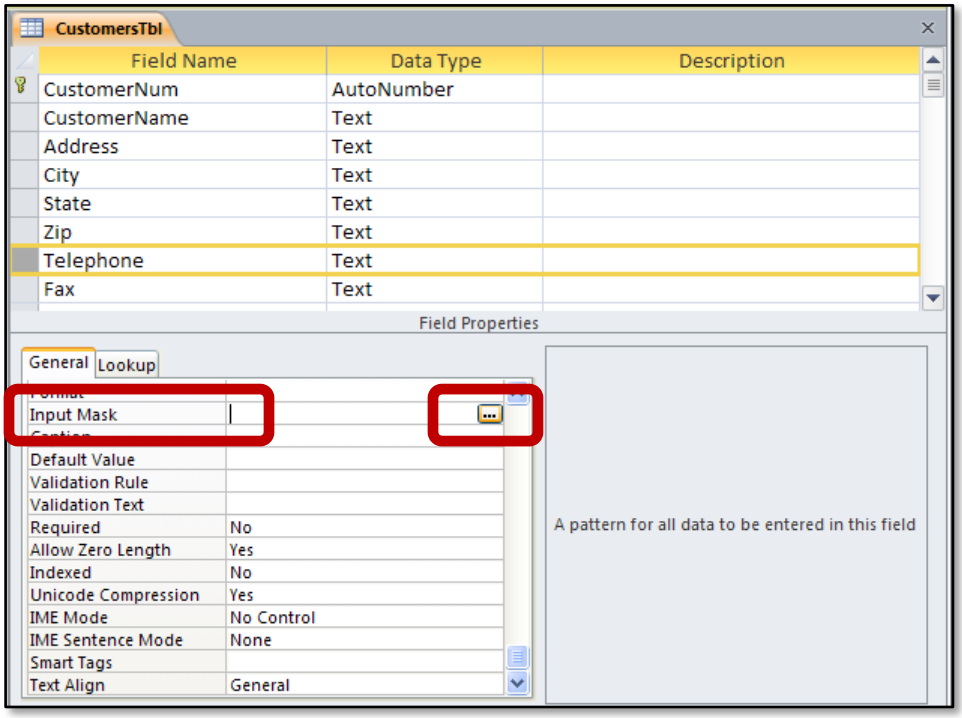
1. Click on the **Create** tab and then click the **Table Design** option. This will let us create a new table in Design View.
2. Enter the following **Field Names** and **Data Types**.

Field Name	Data Type
CustomerNum	AutoNumber
CustomerName	Text
Address	Text
City	Text
State	Text
Zip	Text
Telephone	Text
Fax	Text

3. Set up your key field by selecting the **CustomerNum** field and then selecting the **Primary Key** icon under the *Design* tab.

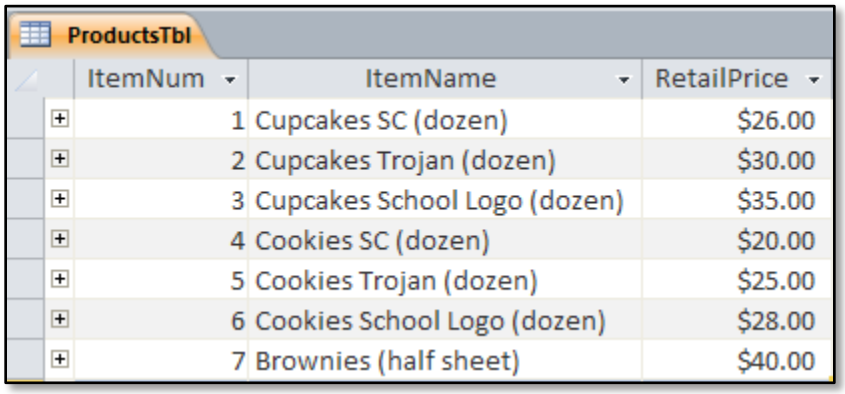


4. Save your table and name it **CustomersTbl.**



5. Set up an Input Mask for the *Telephone* field. An input mask specifies a pattern, e.g. (213) 740-4542, for all data to be entered in the field.
   a) Click on the **Telephone** row in the CustomersTbl.
   b) Click on the **General** tab in the *Field Properties* section below the table.
   c) Click on the **Input Mask** row and then click on the ... (Builder) button to start the Input Mask Wizard.
   d) In the *Input Mask Wizard* window, select the **Phone Number** option and click the **Next >** button.
   e) For the *Input Mask*, the textfield should have **!(999) 000-0000** in it. Click the **Next >** button.
   f) You can leave the default for storing the data. Click the **Next >** button.
   g) Finally click the **Finish** button. This will force everyone to use the same format for inputting this data, since it can be typed many different ways.
6. Set up an Input Mask for the **Fax** field.
7. Switch to **Datasheet View** and enter information for **10 customers**. Use the tab key to move from cell to cell. Notice that CustomerNum is automatically entered.
8. Close the table and the information will be saved automatically.

Now you will create a **Products** table for your products and their prices. Here is a sample of what the **ProductsTbl** table will look like in Datasheet view:



ProductsTbl

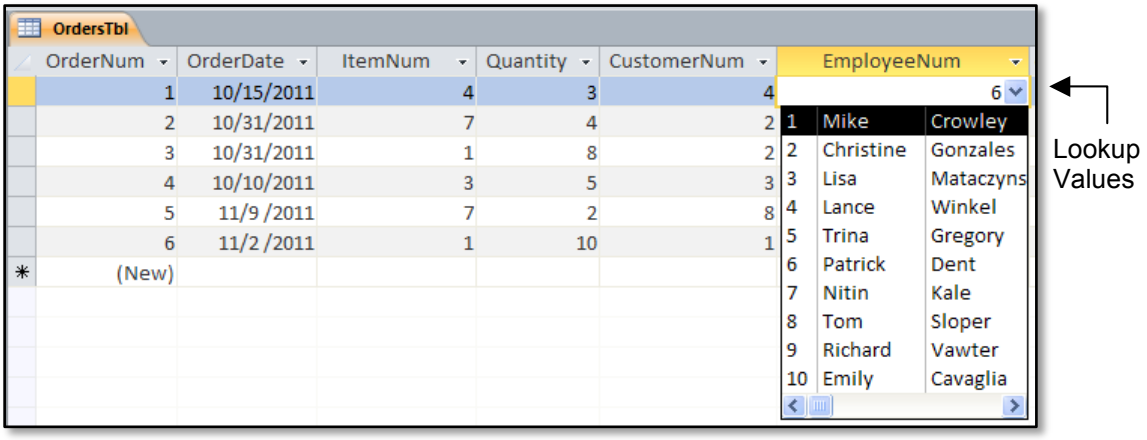
ItemNum	ItemName	RetailPrice
1	Cupcakes SC (dozen)	$26.00
2	Cupcakes Trojan (dozen)	$30.00
3	Cupcakes School Logo (dozen)	$35.00
4	Cookies SC (dozen)	$20.00
5	Cookies Trojan (dozen)	$25.00
6	Cookies School Logo (dozen)	$28.00
7	Brownies (half sheet)	$40.00

9. Create the Products table using the same tasks as you followed when creating the Customers table. The Products table uses the following field names and data types:

Field Name	**Data Type**
ItemNum	AutoNumber
ItemName	Text
RetailPrice	Currency

10. Make the **ItemNum** the Primary Key.
11. Save the table and name it **ProductsTbl**.
12. Switch to the Datasheet View and enter at least **7 different products** into the table. Then close the table.

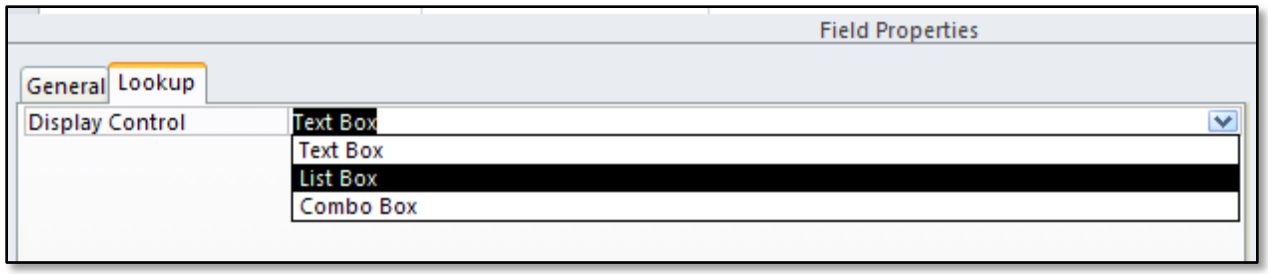
Create the **Orders** table that will store all order-related information. This table will be linked to the previous tables. Here is a sample of what the Orders table will look like:



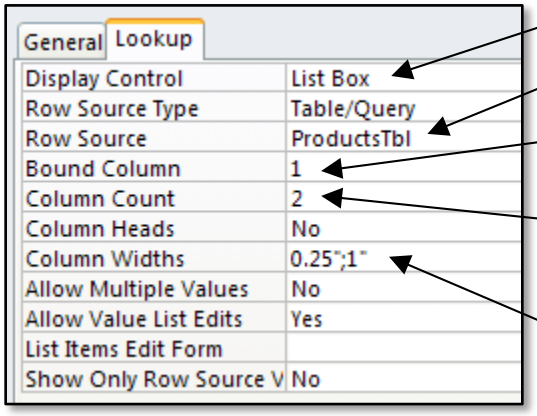
13. Create the Orders table using the same tasks as you have for the previous tables. The Orders table uses the following field names and data types:

Field Name	Data Type
OrderNum	AutoNumber
OrderDate	Date/Time
ItemNum	Number
Quantity	Number
CustomerNum	Number
EmployeeNum	Number

14. Set the OrderNum as the Primary Key.
15. Add an Input Mask for the OrderDate field and select the **Short Date** option.
16. Save the table and name it **OrdersTbl**.
17. Set up a Lookup Values for the **ItemNum** such that it will look up values for the ItemNum from the ProductsTbl.
    a) In the Design View, select the **ItemNum** field.
    b) Click on the **Lookup** tab below the *Field Properties*.
    c) For the *Display Control*, select the pull-down and choose the **List Box** option.



d) Set the following options:



List Box

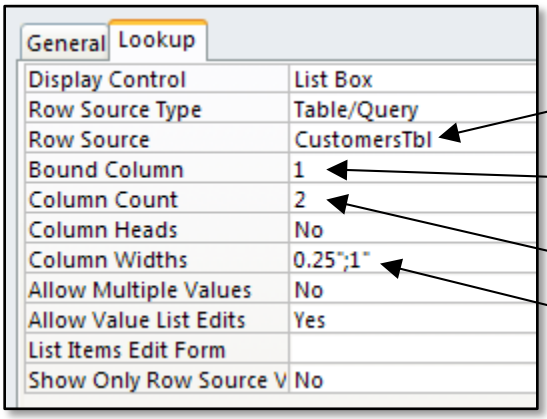
ProductsTbl – The table to link to for information

1 – The column of the ProductsTbl which contains the information to put into the ItemNum field

2 – The number of columns to display information from the ProductsTbl when using the Lookup Value (pull-down) in Datasheet View

0.25";1" – The respective column widths to display information (the number of widths will match the Column Count)

18. Set the Lookup Values for **CustomerNum** field as follows:



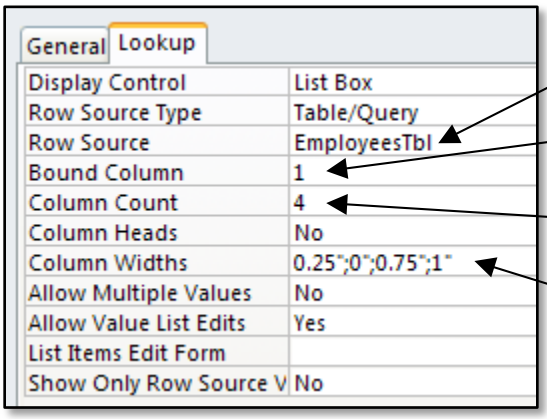
CustomersTbl – The CustomerNum field is linked to the CustomerTbl

1 – The column of the CustomerTbl which contains the information to put into the CustomerNum field

2 – The number of columns to display

0.25";1" – The appropriate column widths to display information

19. Set the Lookup Values for the **EmployeeNum** field as follows:



EmployeesTbl – The EmployeeNum field is linked to the EmployeesTbl

1 – The column of the EmployeesTbl which contains the information to put into the EmployeeNum field

4 – Display information from four fields: EmployeeNum, Title, First Name, and Last Name

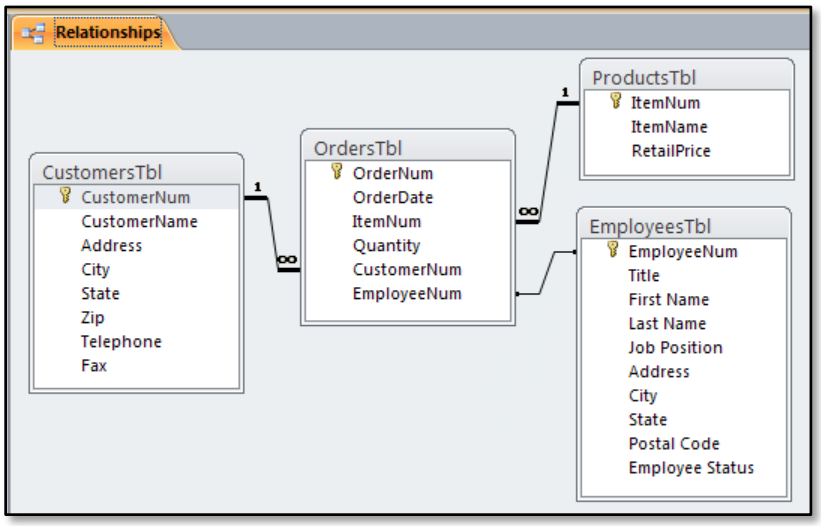
0.25";0";.75";1" – Column widths, but set the second one to 0 so it won't display the Title

20. Switch to the Datasheet View and enter at least **6 different orders** into the table. Make sure there are at least **4 orders for March 2012**.
21. Save and close the table.

Part 4 – Establishing Table Relationships

Once you create your four tables with the appropriate number of fields, key fields and field attributes, you must set-up relationships between the tables including **Enforce Referential Integrity**. Referential integrity is a set of rules that MS Access enforces to maintain consistency between related tables when you update data in a database.

Next, you will establish relationships between the four tables. Refer to the diagram shown below:

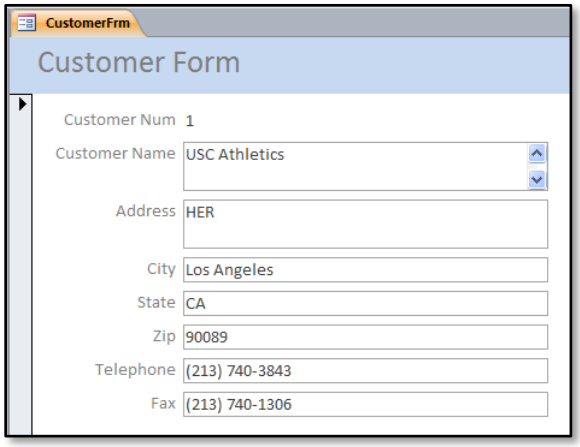


1. Click the **Database Tools** tab and click on the **Relationships** option.
2. Click on the **Show Table** button. Select all four tables (use the Shift key to multiple select). Click the **Add** button.
3. Arrange the tables as shown above.
4. Click, hold, and drag the **CustomerNum** field in the *CustomersTbl* over the **CustomerNum** field in the *OrdersTbl*. Let go.
5. In the *Edit Relationships* window, checkmark the **Enforce Referential Integrity** checkbox. Click the **Create** button.
6. Click, hold, and drag the **ItemNum** field in the *ProductsTbl* over the **ItemNum** field in the *OrdersTbl*. Let go.
7. In the *Edit Relationships* window, checkmark the **Enforce Referential Integrity** checkbox. Click the **Create** button.
8. Click, hold, and drag the **EmployeeNum** field in the *EmployeesTbl* over the **EmployeeNum** field in the *OrdersTbl*. Let go.
9. In the *Edit Relationships* window, click on the **Create** button. (Do not enforce referential integrity.)
10. Click on the **Close** button to close the relationships and save your changes.
11. You can test the relationships by trying to add an order for a non-existent customer.

Part 5 – Generate a Form to Input Data

You will create an input form for adding a new customer and another input form for taking new orders.

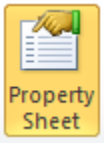
Now, you will create an input form for the Customers table. Refer to the form shown below:



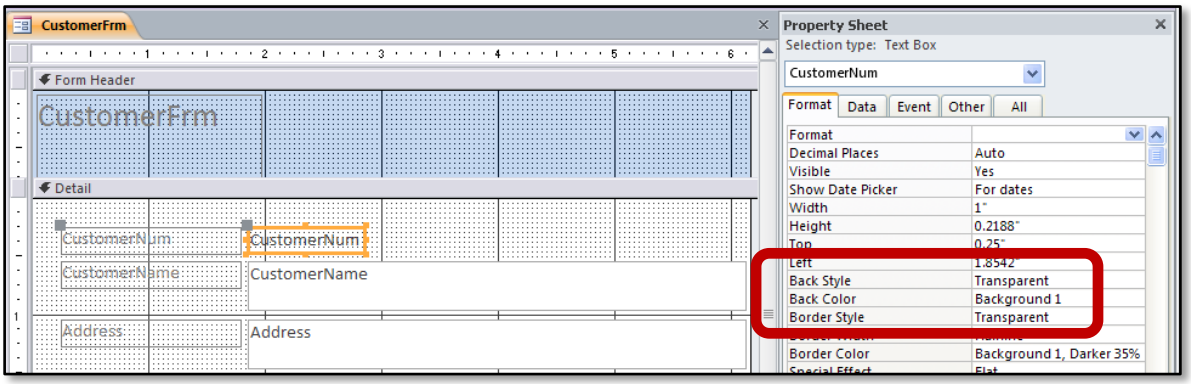
1. Click on the **Create** tab.
2. Click on the **Form Wizard** option.
   a) For the Tables/Queries option, use the pull-down to choose **Table: CustomersTbl**. Select all of the fields from the Customers table by clicking on the **>>** button. Click the **Next** button.
   b) For the layout, select the **Columnar** radio button. Click the **Next** button.
   c) For the title of your form, enter **CustomersFrm**. Select the **Modify the form's design.** option. Click the **Finish** button.

Because the Customer Number is assigned automatically, you wish to prevent the user from "clicking" within this field. To "lock" this field, perform the following tasks in the Design view:

3. Select the **CustomerNum** input field then click on the **Property Sheet** button under the *Design* tab. The Property Sheet will be displayed on the right-hand side.



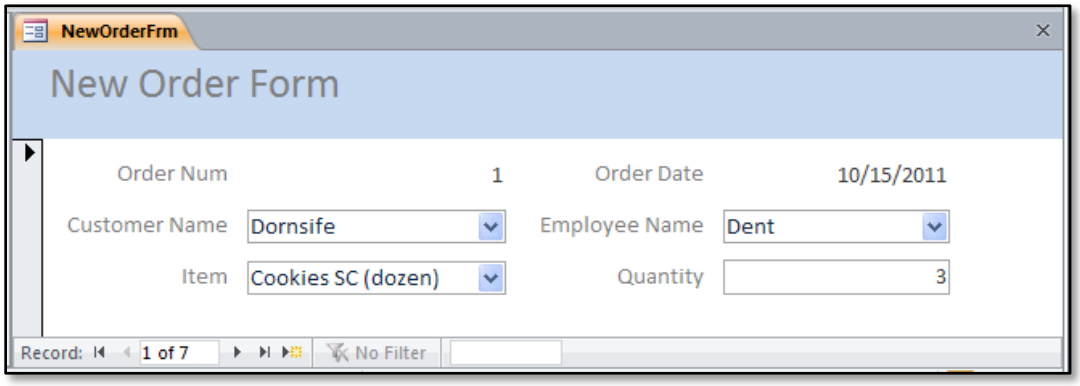
4. In the *Property Sheet*, select the **Format** tab. For the *Back Style* property, select the **Transparent** option. For the *Border Style* property, select the **Transparent** option.



5. In the *Property Sheet*, select the **Data** tab. For the *Locked* property, select the **Yes** option.

6. In the *Property Sheet*, select the **Other** tab. For the *Tab Stop* property, select the **No** option.
7. You may adjust the formatting of the form and change the labels.
8. Save your form.
9. Select the **View** pull-down and select the **Form View** option. You will see your new form.

Create a second form called **NewOrderFrm**. You will begin by using the form wizard as before, however, you will have to finish the form by performing some manual design tasks described below. A sample form is shown here:



10. Click on the **Create** tab.
11. Click on the **Form Wizard** option.

    d) For the *Tables/Queries* option, use the pull-down to choose **Table: OrdersTbl**. Select the following three fields: **OrderNum**, **OrderDate**, and **Quantity**. Click the **Next** button.

    e) For the layout, select the **Columnar** radio button. Click the **Next** button.

    f) For the title of your form, enter **NewOrderFrm**. Select the **Modify the form's design.** option. Click the **Finish** button.

The next series of manual design tasks will explain how to add "Bound fields" (fields linked to data from tables) and "Combo Boxes" to your form. You will also need to move, or rearrange some of the fields and their labels to resemble the sample shown above. Here are some helpful hints for moving objects on your forms (and on your report that you will create later).

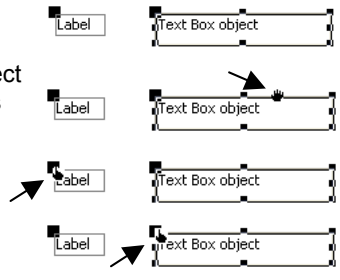
Helpful design hints

a. Field (Textbox objects) and their label objects are linked together

b. If you wish to move both together as one unit, select the field object and place your cursor on the field's border so the cursor's shape becomes a 4 arrows.

c. You can move the label object independently by moving this handle.

d. You can move the field object independently by moving this handle.



e. You can select more than one object by holding down the **Shift** key.

f. You can align multiple selected objects by right clicking and choosing **Align**.

12. Set the following properties (using the Property Sheet) for the **OrderNum** and **OrderDate** field objects:

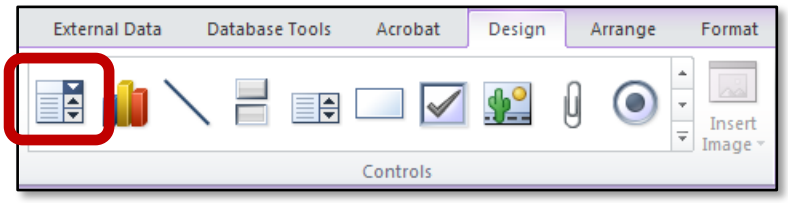
Tab	Property	Value
Format	Back Style	Transparent
Format	Border Style	Transparent
Data	Locked	Yes
Other	Tab Stop	No

13. Set the following property for the **OrderDate** field object:

Tab	Property	Value
Data	Default Value	=Date()

14. Arrange the three label/field groups, which are currently on your form, as shown in the sample at the top of the page.

15. For the **Customer Name** and **Customer Number**, we want to add a combo box. Under the *Design* tab in the *Controls* section, select the **Combo Box** icon.



a) Drag and outline the location for the object on your form. The *Combo Box Wizard* window will open.

b) Select the **I want the combo box to get the values from another table or query** option. Click the **Next** button.

c) For the *table or query* question, select the **Table: CustomerTbl** option. Click the **Next** button.

d) Using the **>** button, add the following two fields: **CustomerNum** and **CustomerName**. Click the **Next** button.

e) Sort by **CustomerName** in Ascending Order. Click the **Next** button.

f) Checkmark the **Hide key column** checkbox. Click the **Next** button.

g) Select the **Store that value in this field** option and select **CustomerNum**. Click the **Next** button.

h) Enter **Customer Name** for the label. Click the **Finish** button.

i) In the *Property Sheet*, click on the **Others** tab and set the *Tab Index* property to **0**.

16. For the **Employee Name** and **Employee Number**, add a combo box by using the **Combo Box** wizard. Use the same steps as above with the following exceptions:

a) For the table, select **Table: EmployeesTbl**.

b) Select the following two fields: **EmployeeNum** and **LastName**.

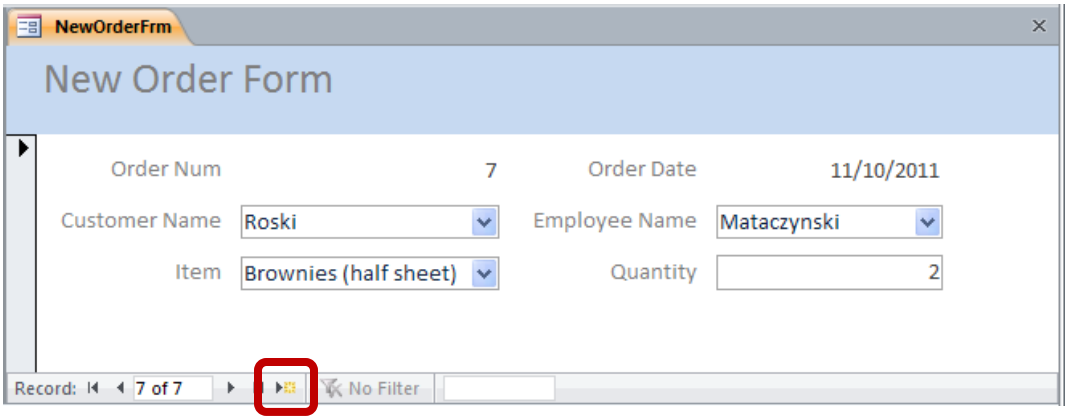
c) Sort by **Last Name** in **Ascending Order**.

d) Store the value in the field **EmployeeNum**.

e) Label the field **Employee Name**.

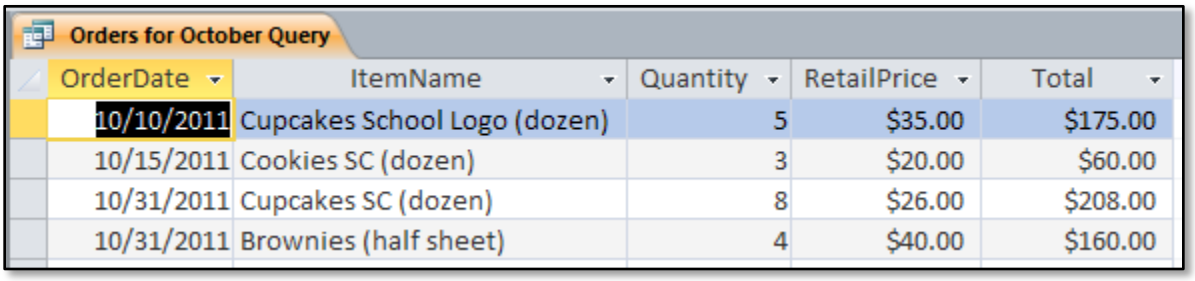
f) Set the *Tab Index* property to **1**.

17. For the **Item**, add a combo box by using the **Combo Box** wizard.
    a) For the table, select **Table: ProductsTbl**.
    b) Select the following two fields: **ItemNum** and **ItemName**.
    c) Sort by **Item Name** in **Ascending Order**.
    d) Store the value in the field **ItemNum**.
    e) Label the field **Item**.
    f) Set the *Tab Index* property to **2**.
18. For the *Quantity* field, make sure the *Tab Index* property is set to **3**.
19. Save your form design
20. View your Order Form in Form View.
21. Use the **New (blank) record** icon at the very bottom of the form to add **4** more orders.



Part 6 – Build Queries to Access Data

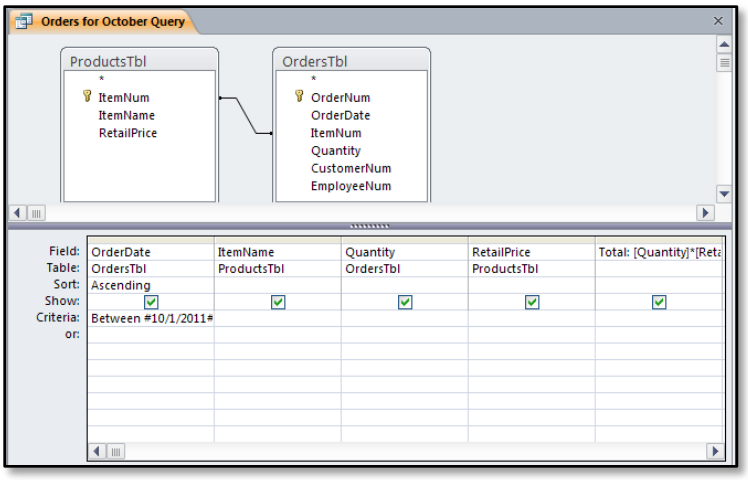
You will create two queries. Both queries will extract data from at least two of the tables and sort the resulting information to be displayed. Both queries will also include a formula.



Orders for October Query

OrderDate	ItemName	Quantity	RetailPrice	Total
10/10/2011	Cupcakes School Logo (dozen)	5	$35.00	$175.00
10/15/2011	Cookies SC (dozen)	3	$20.00	$60.00
10/31/2011	Cupcakes SC (dozen)	8	$26.00	$208.00
10/31/2011	Brownies (half sheet)	4	$40.00	$160.00

1. Click on the **Create** tab.
2. Click on the **Query Wizard** option.
   a) In the *New Query* window, select the **Simple Query Wizard** option. Click the **OK** button.
   b) For the *Tables/Queries* option, select **Table: OrdersTbl**. Select the following two fields: **OrderDate** and **Quantity**.
   c) For the *Tables/Queries* option, select **Table: ProductsTbl**. Select the following two fields: **ItemName** and **RetailPrice**. Click the **Next** button.
   d) Select the **Detail** radio button. Click the **Next** button.
   e) For the *title* of your query, enter **Orders for March Query**. Select the **Modify the query design.** radio button. Click the **Finish** button.
3. Select the **Quantity** column and drag it between the *ItemName* and *RetailPrice* columns.
4. Within the *OrderDate* column, set the **Criteria** for the query by typing **Between #3/1/12# And #3/31/12#** in the cell on the *Criteria* row.
5. Sort the information by date by selecting **Ascending** from the pull-down on the *Sort* row within the *OrderDate* column.
6. Add a new column of information for the Total. On the *Field* row in the first black column, enter the following: **Total:[Quantity]*[RetailPrice]**



7. Switch to the **Datasheet View** to view the query results.

Create a second query to list orders by customers. A sample is shown here.

Orders by Customers Query

CustomerNum	CustomerName	ItemNum	Quantity	RetailPrice	Total
8	Annenberg	7	2	$40.00	$80.00
4	Dornsife	4	3	$20.00	$60.00
3	Marshall	3	5	$35.00	$175.00
7	Roski	7	2	$40.00	$80.00
1	USC Athletics	1	10	$26.00	$260.00
2	Viterbi	1	8	$26.00	$208.00
2	Viterbi	7	4	$40.00	$160.00

8. Using the **Simple Query Wizard**, create a query named **Orders by Customers Query**.
9. The fields for your query will be taken from three tables:

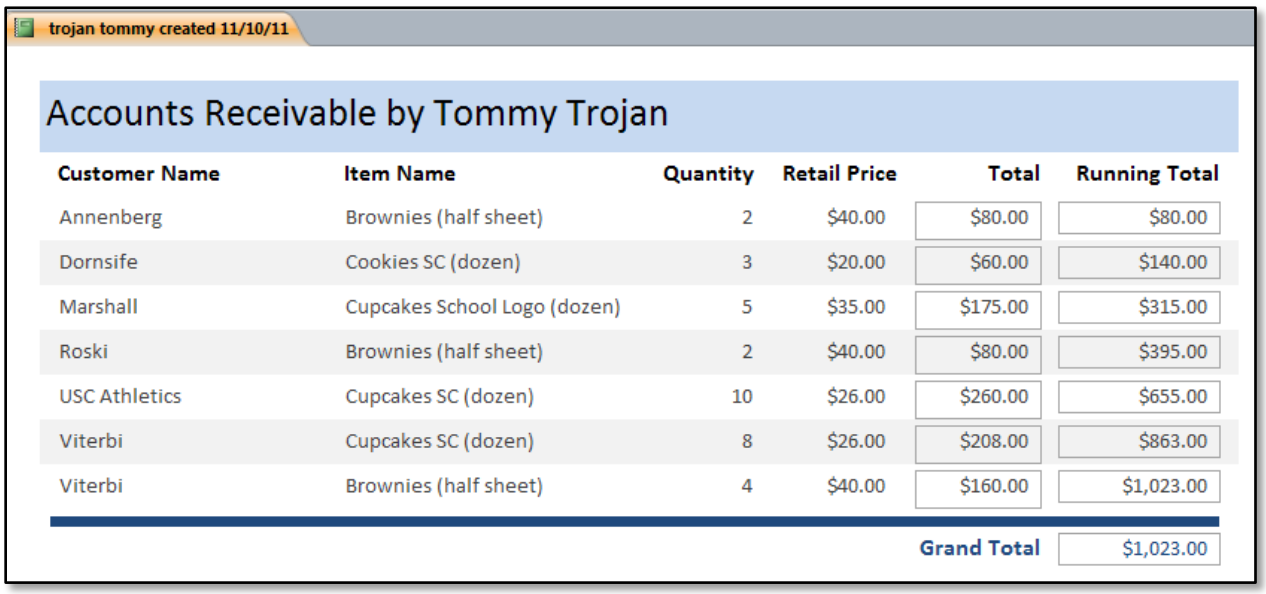
Table	Field
CustomersTbl	CustomerNum
CustomersTbl	CustomerName
OrderTbl	ItemNum
OrderTbl	Quantity
ProductsTbl	RetailPrice

10. Create a field for **Total** and use an appropriate formula to calculate the price.
11. Place the columns of information in the order shown in the sample above.
12. Sort the information by both customer name and total price. The **CustomerName** should be sorted in **Ascending** order and the **Total** in **Descending** order.
13. Switch to the **Datasheet View** to view the query results.

Part 7 – Create a Report

You will create one report that collects at least one field of data from three of the tables. Formulas will be used to keep a running total and to calculate a grand total for the report. The name of your report will be ***lastname firstname* created *mm/dd/yy***.

You will create a report of Accounts Receivables, in landscape format, using the Reports Wizard. Add formulas for Totals, Running Totals, and a Grand Total. You may want to review the helpful design hints given in Part 4.



trojan tommy created 11/10/11

Accounts Receivable by Tommy Trojan

Customer Name	Item Name	Quantity	Retail Price	Total	Running Total
Annenberg	Brownies (half sheet)	2	$40.00	$80.00	$80.00
Dornsife	Cookies SC (dozen)	3	$20.00	$60.00	$140.00
Marshall	Cupcakes School Logo (dozen)	5	$35.00	$175.00	$315.00
Roski	Brownies (half sheet)	2	$40.00	$80.00	$395.00
USC Athletics	Cupcakes SC (dozen)	10	$26.00	$260.00	$655.00
Viterbi	Cupcakes SC (dozen)	8	$26.00	$208.00	$863.00
Viterbi	Brownies (half sheet)	4	$40.00	$160.00	$1,023.00
				Grand Total	$1,023.00

1. Click on the **Create** tab.
2. Click on the **Report Wizard**.
   a) The fields for your query will be taken from three tables. Add them in the following order:

Table	Field
CustomersTbl	CustomerName
ProductsTbl	ItemName
OrdersTbl	Quantity
ProductsTbl	RetailPrice

   b) For viewing the data, select **by OrdersTbl**.
   c) For sorting, select **CustomerName** in **Ascending** order.
   d) For the Layout, select **Tabular**.
   e) For the Orientation, select **Landscape**.
   f) For the Title, enter ***lastname firstname* created *mm/dd/yy***.
   g) Select the **Modify the report's design** before clicking on the **Finish** button.
3. Add the **Total** label to your report using the **Label** tool.
   a) Click on the **Design** tab. In the *Controls* section, select the **Label** icon (Aa).

b) Draw the label object within the *Page Header* section of the report.

c) In the Label box, enter **Total**.

d) Adjust the size and location of the new object.

4. Add the **Total** field to your report using the **Text Box** tool.

   a) In the Design tab in the Controls sections, select the Text Box icon. 

   b) Draw the field object within the *Detail* section of the report.

   c) Access created a **Text** label within the *Detail* section. Delete this **Text** object by right-clicking on it and selecting the **Delete** option.

   d) Select the new Unbound control object. In the *Property Sheet*, select the **Data** tab. Set the *Control Source* property to **=[Quantity]*[RetailPrice]**

   e) In the *Property Sheet*, select the **Format** tab. Set the *Format* property to **Currency**.

   f) Adjust the size and location of the new field object as shown in the sample.

5. Add the **Running Total** objects to the report by adding a **Label** in the *Page Header* section and a **Text Box** in the *Detail* section.

   a) Repeat steps 3 and 4 you did for the **Total** label and **Total** field.

   b) Additionally, for the Running Total field object, in the *Property Sheet* in the *Data* tab, set the **Running Sum** property to **Over All**.

6. Update the **Page Footer** section.

   a) Remove any objects that are currently in the *Page Footer* section.

   b) Add a horizontal line to the top of the section. In the *Design* tab in the *Controls* section, use the **Line** option. You can format it by selecting on the *Format* tab.

   c) Add a **Grand Total** text box. For the *Grand Total* label, change the text to **Grand Total**.

   d) Select the **Grand Total** field object. In the *Property Sheet*, select the **Data** tab. Set the *Control Source* property to the name of the Running Total field object. For example: **=[Text15]**

      Note: your text number may be different. Check the Name property of the Running Total object on your report to get the correct name.

   e) In the *Property Sheet*, select the **Format** tab and set the *Format* property to **Currency**.

7. In the *Report Header* section, change the title of the report to **Accounts Receivable by *your name***

8. Switch to the Report View and verify that your report resembles the sample and that all values are calculated and displayed properly.

9. Return to the Design View to make any necessary corrections.

10. Save and close the report.

Submitting the project

1. Your excel file should have one sheet with the flat file database. Your Access file should have one database with four tables (CustomersTbl, EmployeesTbl, OrdersTbl, ProductsTbl), two queries (Orders by Customers Query, Orders by October Query), two forms (CustomerFrm, NewOrderFrm), and one report (*lastname firstname* created *date*).
2. You need to submit your Access file (***lastname_firstname*_access.accdb**) and your Excel file (***lastname_firstname*_excel_database.xlsx**). Put them in the same folder.
3. Use a zip program such as 7-Zip and zip them into one file named ***lastname_firstname*_access.zip**. This is the file that you will submit on Blackboard.
4. Submit your zip file on **Blackboard** (http://blackboard.usc.edu) under **Assignments**:
   a. Click on the **Lab5** assignment.
   b. Next to *Attach File*, click on the **Browse My Computer** button.
   c. Find your ***lastname_firstname*_access.zip** file and click the **Choose** button.
   d. Click on the **Submit** button in the bottom right corner.