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LEVEL 3

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Microsoft Excel 2013 Level 3 Manual
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Microsoft Excel 2013 – Level 3

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This manual is for *Microsoft Excel 2013 – Level 3* classes held on KCLS computers running Windows 7.

Contents

Signing In to Library Computers 1

In this class, you will… 2

More Helpful Tools in Excel 2013 2

Converting Text to Columns 2

Conditional Formatting 3

Using Count & Countif Functions 3

Removing Duplicates 5

Sheet Protection 6

The Excel Table Feature 6

Pivot Tables 7

Create a Pivot Table 7

Using the Pivot Table 9

More Computer Learning from KCLS 11

Signing In to Library Computers

For personal use of library computers, sign in with your library card number and Personal ID number.

For a computer class, sign in with these codes:

627837

1212

Note: Be careful not to type the letter "O" for a zero (0) or the letter "l" for a one (1).

In this class, you will…

- Learn more helpful tools and functions in Excel 2013
- Begin working with Pivot Tables

You may review Excel 2013 basics at **kcls.org/techtutor**: select *Excel Level 1* or *Level 2* from the drop-down menu of classes and click "Manual", explore learning online resources, or both.

More Helpful Tools in Excel 2013

Converting Text to Columns

Converting text to columns is very useful in Excel. For example, if you have a list with first and last names in a single cell, separating the names into separate cells will make the data easier to work with when searching, filtering or editing. Let's learn to use the text to columns command in the data tab:

To get the training exercise file:

1. Go to **kcls.org/techtutor**
2. Click "select a class" button under "English"
3. Select *Excel Level 3* from the drop-down menu
4. Click "Training Exercise" to open
5. Click "Absolute" tab at bottom of workbook

Here's how to use the convert text to columns wizard (Figure 1):

1. Click *Text.Columns* tab in the *Excel Level 3* workbook (bottom tabs)
2. Insert a blank column
    a. Click column C label
    b. Right-click in column C
    c. Click Insert to insert a blank column
3. Select source column
    a. Click the column B label
4. Click *Data* tab in the Ribbon
5. Click *Text to Columns* command
6. Select "Delimited," click next
7. Select delimiter (e.g., space), click Next
8. Confirm Data Preview
9. Click Finish
10. Click OK

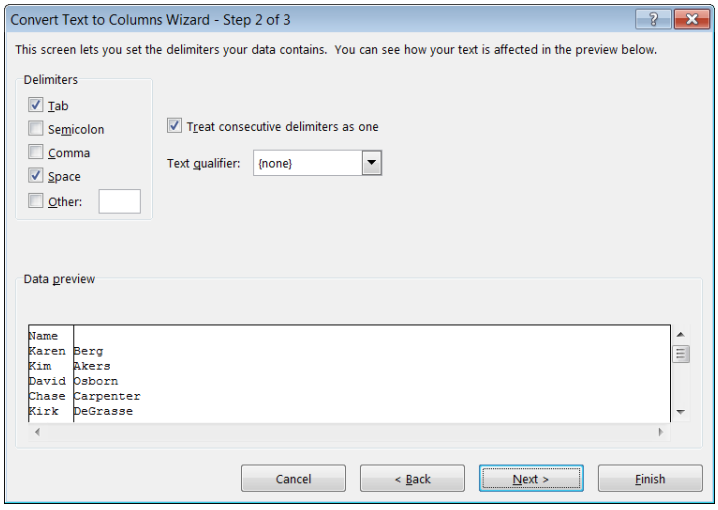

Figure 1 – *Convert Text To Columns Wizard* walks you through the steps.

Now try converting the text in the City/State column. Follow all previous steps, but step 7 will require multiple delimiters. Which additional delimiter must you use to separate "City/State"?

Conditional Formatting

Conditional formatting is great for formatting a cell(s)—like, changing font or fill color—based on criteria or rules you set. For example, an employee at a construction company had a $9800 monthly budget for purchases last year. Her boss wants to know how many months last year she went over budget. Using conditional formatting in Excel makes it easy to show this information.

Here's how to create a new rule for conditional formatting (Figure 2):

1. Click *Conditional Formatting* tab in the *Excel Level 3* workbook (bottom tabs)
2. Select cell range B1:B12
3. From the *Home* tab, under *Styles* group, click the *Conditional Formatting* command
4. Click "New Rule"
5. Select "Format only cells that contain"
6. Select "greater than" from the second drop down menu
7. Type 9800 in the blank field to the right
8. Format fill color
    a. Click format button in dialog box
    b. Click *Fill* tab in dialog box
    c. Choose desired color
    d. Click OK
9. Click OK in *New Formatting Rule* dialog box

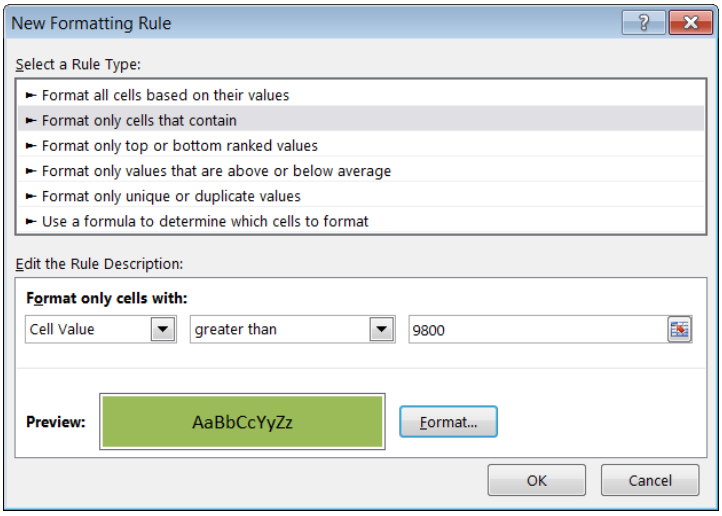

Figure 2 – Select *Rule Type* and *Edit the Rule Description* in this dialog box.

Now use conditional formatting to find out which weeks during first quarter (January through March) she spent under (less than) her $2450 weekly budget. Reminder: select multiple cells and cell ranges by pressing the Ctrl key while clicking cells.

Using Count & Countif Functions

The **Count function** in Excel is used for reliably counting entries in a selected range of cells, usually a column. This function saves time and prevents errors from manually counting items. For example, the shipping department of ABC Company needs to know how many customer orders have required delivery dates (**Figure 3, column K**) to prioritize workflow and assure timely delivery. We will use the count function to find this answer.

G	H	I	J	K
City	Region	PostalCode	Country	RequiredDate
St. Louis	MO	89203	USA	
Boston	MA	88337	USA	
Westover	WV	66954	USA	
Auburn	WA	34923	USA	1/12/2007
Seattle	WA	12345	USA	1/12/2007
Moscow	ID	02912	USA	
Helena	MT	42665	USA	
Seattle	WA	81233	USA	

Figure 3 – The **count** function counts how many cells, like in column K, have a value. The **countif** function counts how many cells, like in column H, meet criteria such as contain "WA".

Here's how to use the COUNT function:

1. Click the *Count Filter* tab in the *Excel Level 3* workbook (bottom tabs)
2. From the *View* tab, click the *Freeze Panes* command and choose "Freeze Top Row"
3. Click into cell K89
4. From the *Formulas* tab, click *Insert Function*
5. Select COUNT function, then click OK
6. In the Value 1 field, type the cell range you want to count; in this case K2:K88 (**Figure 4**)
7. Click OK

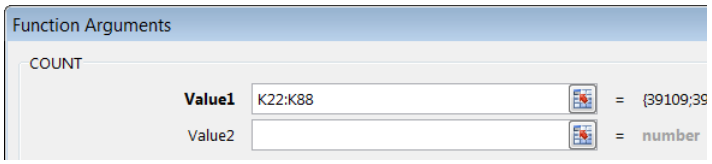

Figure 4 – Type the cell range for the count function in the *Value 1* field.

The cell will display the number of orders that have required delivery date.

The **COUNTIF function** is great for counting an entry if it meets certain criteria. For example, the shipping company is short on drivers in Washington and must determine how many orders are for delivery in that state. We'll count orders only ***if*** they are to be delivered in "WA" (**Figure 3, column H**).

Here's how to use the COUNTIF function:

1. Click into cell H89
2. From the *Formulas* tab, click *Insert Function*
3. Type "countif" in the search box (**Figure 5**), then click Go
4. Make sure COUNTIF is selected in list, then click OK
5. Type the cell range you want to count—in this case H2:H88 (**Figure 6**)
6. Type "WA" (with quote marks) in the Criteria box (**Figure 6**), then click OK

Figure 5 – Search for any function, like countif, in the function *search box*.

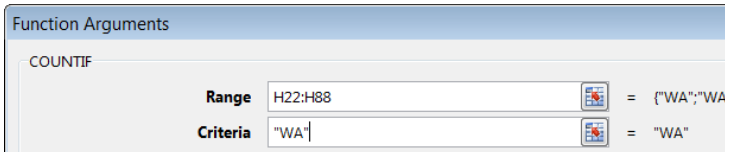

Figure 6 – Function arguments for countif include cell *range* and *criteria*.

The cell will display the number of orders thatmatch the "WA" criteria in column H.

Removing Duplicates

Sometimes a large spreadsheet may have duplicate rows. This usually occurs when more than one person enters data into a shared worksheet. It would be very tedious to manually find and remove duplicates from a couple hundred rows. Let's learn about using the **Remove Duplicates** command.

Here's how to use the Remove Duplicates command:

1. Click the *Duplicates* tab in the *Excel Level 3* workbook (bottom tabs)
2. Select *Data* tab
3. Highlight all data in table
4. Click "Remove Duplicates"
5. Confirm "My data has headers" is checked (**Figure 9**)
6. Click "Select All" button (**Figure 9**)
7. Click OK

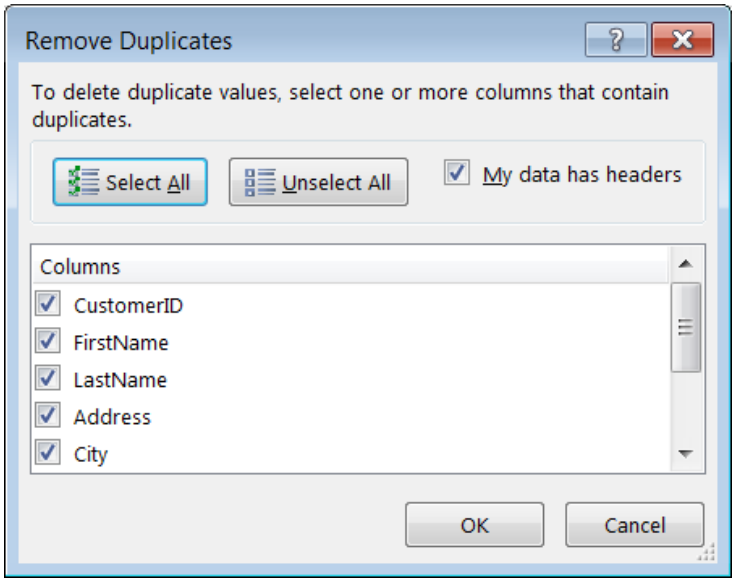

Figure 9 – Check *My data has headers* box and *select all* columns in this box.

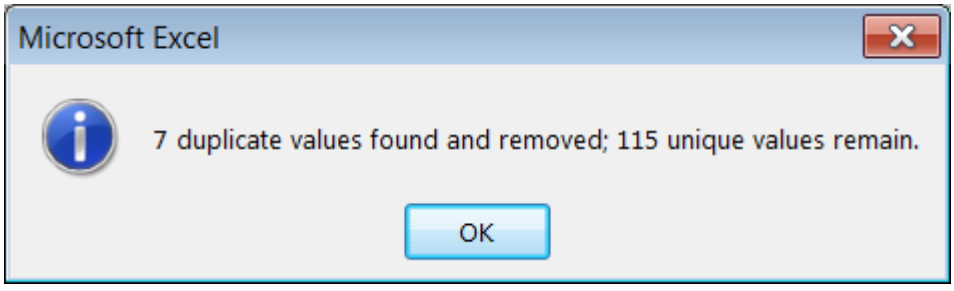

Figure 9.5 – a dialog box will indicate how many values were found and will be removed, and how many unique values remain.

Sheet Protection

Password protect your worksheets so your work is not modified by unauthorized persons.

Here's how to protect a sheet:

1. Click the *January* tab in the *Excel Level 3* workbook (look toward bottom tabs)
2. Select *Review* tab in the Ribbon
3. Click *Protect Sheet* (**Figure 10**)
4. Enter password *123*, then click OK
5. Re-type your password to confirm
6. Try to change cell B7 to 30,000

Note: To remove protection, click *Unprotect Sheet* in the *Review* tab and enter password.

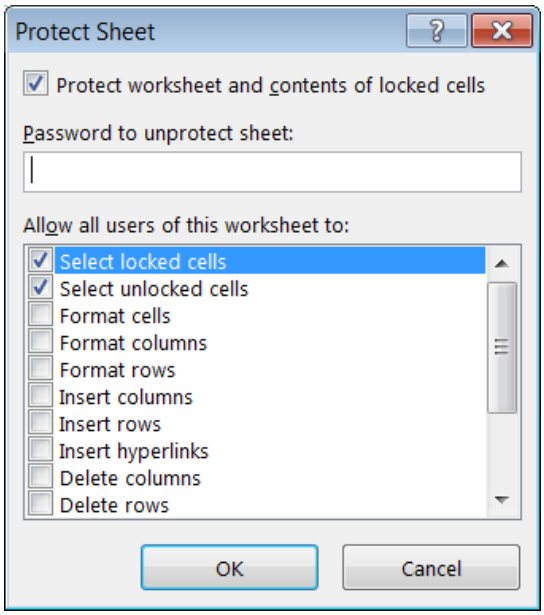

Figure 10 – Create a password in the *Protect Sheet* dialog box.

The Excel Table Feature

The **Excel 2013 table feature** converts a list of data into a formatted table. Tables are used for sorting and filtering data, and help organize and view information easily. An Excel table is an excellent tool for a **pivot table**, which allows you to quickly summarize and analyze large amounts of data, and easily extract information without using formulas.

Before creating an Excel table, and especially for a pivot table, it is important to adhere to the following standards (**Figure 11**)**:**

- Organize data in rows and columns in a spreadsheet
- Apply one type of data for each row and column
- Include a unique, descriptive header in the top row of the table for each column
- For each row, include one unique record of data about a particular entity or transaction
- Avoid blank rows or columns, including first row after header
- Use a zero instead of a blank cell in the table
- Keep list of data contained in its own worksheet

	A	B	C	D	E	F	G	H
1	**Policy**	**Start**	**Expiry**	**Construction**	**City**	**State**	**Region**	**Insured Value**
2	100200	2-Jan-13	10	Masonry	Pittsburgh	PA	East	$1,425,000.00
3	100201	2-Jan-13	14	Frame	Oklahoma City	OK	Central	$1,260,000.00
4	100202	2-Jan-13	12	Frame	Nashville	TN	East	$996,000.00
5	100203	2-Jan-13	18	Frame	Salem	OR	Northwest	$1,980,000.00
6	100204	2-Jan-13	15	Masonry	Des Moines	IA	Central	$2,100,000.00
7	100205	5-Mar-13	44	Masonry	Austin	TX	Central	$5,280,000.00
8	100206	5-Mar-13	20	Masonry	Seattle	WA	Northwest	$9,000,000.00
9	100207	5-Mar-13	60	Masonry	San Francisco	CA	Northwest	$13,500,000.00

Figure 11 – A well-formatted list of data has clear headers and information in neat rows and columns.

Here's how to create an Excel table:

1. Click the *Excel table* tab in the *Excel Level 3* workbook (bottom tabs)
2. Click into any cell in your list of data
3. Click *Insert* tab in the Ribbon
4. Click the *Table* command
5. Confirm cell range and "My table has headers" box is checked in Create Table dialog box (**Figure 12**)
6. Click OK

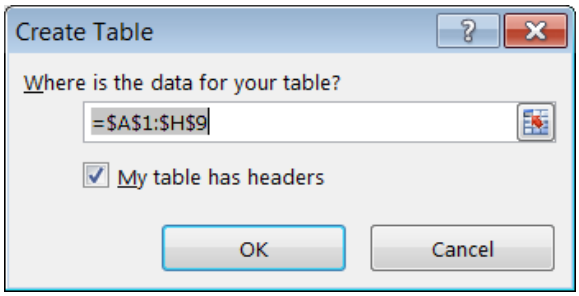

Figure 12 – Confirm cell range in *Create Table* dialog box to create a table.

The worksheet is now an Excel table. **Here are some useful tips for using tables**:

- The heading cells have drop down arrows for sorting or filtering data (see Filter Function, p. 3)
- Any time you click within the table, the *Table Tools Design* tab appears at the end of the Ribbon
- Change table styles in the *Table Tools Design* tab
- Rename your table in the *Properties* group of the *Table Tools Design* tab
- Click *Convert to Range* command in *Table Tools Design* tab to revert to a normal range of data

Pivot Tables

A **pivot table** is an interactive table that allows you to group and summarize large amounts of data in a concise table. Sort, hide, count and add data to reveal patterns and trends and make data reporting and analysis easier. In this section, we will learn how to create a pivot table and some important terms.

Create a Pivot Table

1. Click the *Sales List* tab[1] in the *Excel Level 3* workbook (bottom tabs)
2. Click into any cell in the worksheet
3. On the *Insert* tab click the *Pivot Table* command

   Note: A *Create Pivot Table* dialog box appears (**Figure 13**). Excel identifies table range by finding the worksheet edge (blank row and column). Do not change the default setting, "New Worksheet".
4. Click OK

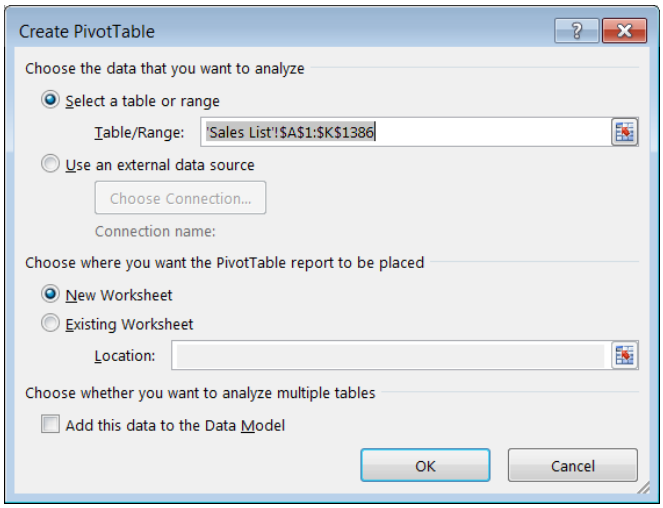

Figure 13 – Confirm cell range in *Create PivotTable* dialog box.

[1] From *The Spreadsheet Page:* *http://spreadsheetpage.com/index.php/file/pivot_table_demo_workbook*

A skeleton structure of your pivot table appears in a new worksheet (**Figure 14**). The three main areas in the structure are the actual *pivot table* area **(A)**; the *pivot table Field List* area **(B)**, which is a listing of all the fields in the worksheet; and the *pivot table Layout Areas* **(C)**, individual components that make up the pivot table (*Report Filter*, *Column Labels*, *Row Labels*, and *Values*).

To build a pivot table report, you will need to drag a field name from the top of the *pivot table field list* to one of the drop areas at the bottom of the *pivot table field list*. Each field has a check mark control to its left to help you add column data to the pivot table or remove it. You need at least 2 fields in a *pivot table report* (a row/data field and a data field), but using 3 fields (a row field, a column field, and a data field) is popular.

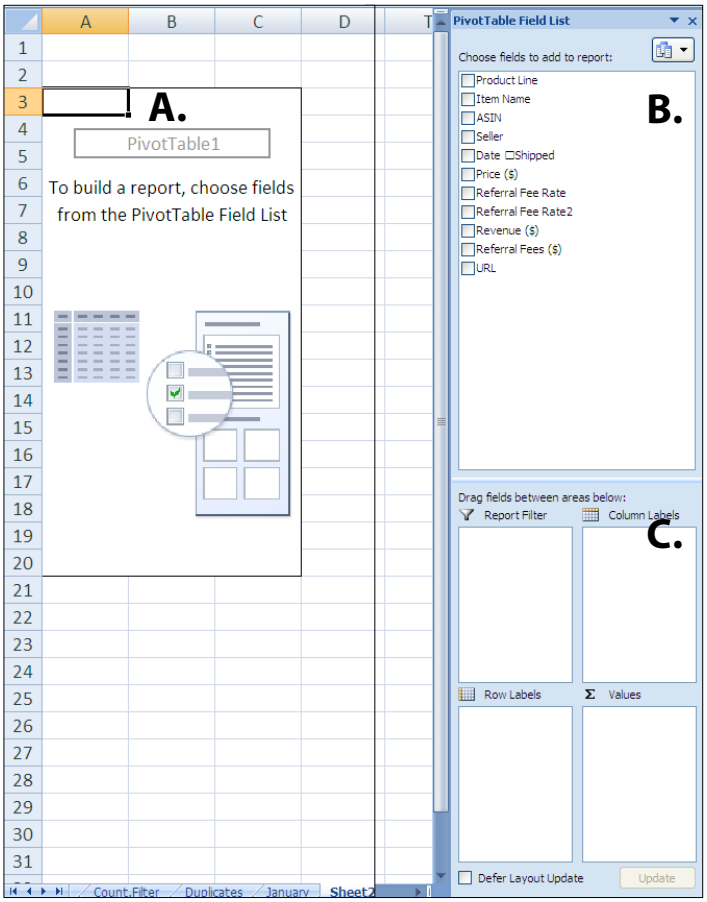

Figure 14 – The pivot table skeleton is **A)** pivot table area, **B)** pivot table field list area, and **C)** pivot table layout area.

Important pivot table terms to know:

Data field: A field from the source worksheet that contains values to be summarized. For example, Sum of Sales is a data field.

Report filter: Data fields in this area act as filters for the pivot table report. For example, if you add the *Year* field from a table as a report filter, you can display data by all or individual years in the table.

Column labels: Data fields in this area determine the arrangement of data shown in the columns of the pivot table.

Row labels: Data fields in this area determine the arrangement of data shown in the rows of the pivot table.

Values: Data fields in this area determine which data are presented in the cells of the pivot table—they are the values that are summarized in its last column (totaled by default).

Page field: A field from the source data that you assign to a page (or filter) orientation in a pivot table report.

Column field: A field from the source data that you assign to a column orientation in a pivot table report. For example, Type is a column field.

Item: A subcategory of a row, column, or page field.

Row field: A field from the source data that you assign to a row orientation in a pivot table report. For example, Region and Salesperson are row fields.

Data area: The cells in a pivot table report that contain summarized data.

Using the Pivot Table

When you create a pivot table, worksheet column headers become movable data fields. It is important to understand what the headers represent to work with the data fields in the pivot table report. The worksheet we used to create a pivot table, *Sales List*, shows information on an individual's referral sales in 2009 (**Figure 15**). The *product line* header describes the type of product or category; *item name* is the actual name of the product; *price* is the retail price; *referral fee rate* is the percentage of the *price* the individual earns for each unit sold; and *referral fee rate2* describes how many times the rate is applied based on number of units sold.

	A	B	C	D	E	F	G	H	I	J	K
1	Product Line	Item Name	ASIN	Seller	Date Shipped	Price ($)	Referral Fee Rate	Referral Fee Rate2	Revenue ($)	Referral Fees ($)	URL
2	Health & Personal Care	(1) Dr. Schulze Intestinal Formula #1 Colon Cleanse Laxative - 90 Capsules	B000SI5YNW	Third Party	29-May-09	$18.09	7.02%	1	$18.09	$1.27	<link>

Figure 15 – One row from the *Sales List* worksheet showing sales data for 2009.

We will **use the pivot table** to find out which product line had the most units sold, in 2009.

Here's how to find out which item type had the most units sold in 2009:

1. Click into *Sheet 1* in the *Excel Level 4* workbook (bottom tabs)
2. Check box next to *Product Line* in the pivot table field list area (**Figure 14**) first

   Note: If you check the box for a text field, the pivot table automatically adds that field to the *Rows Labels* drop area (**Figure 16**).
3. Check box next to *Item Name*
4. Check box next to *Referral Fee Rate2* item

   Note: If you check the box for a numeric field, pivot table automatically sums that field in the *Values* drop area (**Figure 16**).

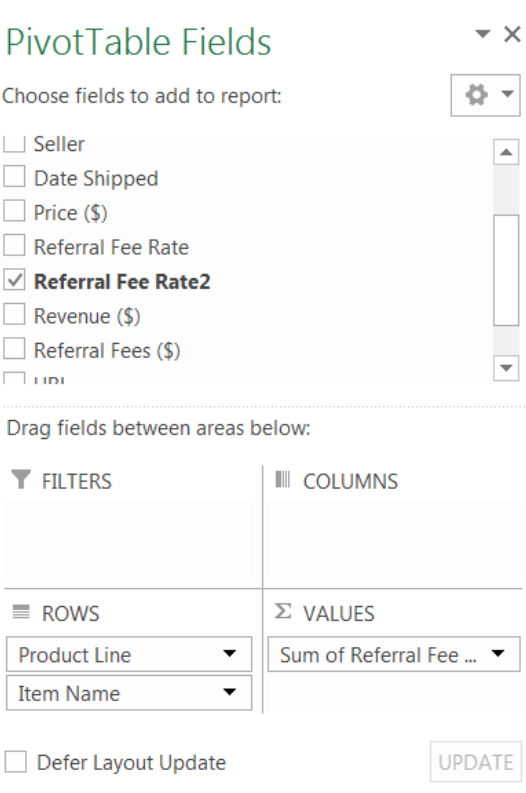

Figure 16 – Data fields are automatically added to drop areas, but can be rearranged by clicking and dragging as needed.

You now have your first pivot table report (**Figure 17**). Remember, when we clicked *referral fee rate2* in the pivot table field list the sum of that field was automatically added to the Values drop area (**Figure 16**). So the sums in that column correspond to the row labels, which are product line, or item type, broken down into individual item name. We need to further modify the pivot table report to more easily get the answer to our question.

We only need the sum of the *Product Line*, or item type to know which item type had the most units sold in 2009, so we will collapse the entire row label field (**Figure 18**).

Here's how to collapse the row label field:

1. Right click on a *Product Line* (notice the minus sign to the left of the name)
2. Move cursor over "Expand/Collapse" without clicking
3. Move into sub menu
4. Click "Collapse Entire Field"

The pivot table report appears like **Figure 19**. It's easier to read and answer our questions of which *Product Line* (row label) has the highest value in the *sum of referral rate2* column. This answers our question of which product line had the most units sold in 2009 because *referral fee rate2* column describes how many times the rate was applied based on number of units sold (**Figure 15**).

Note: Alternatively, we could have achieved the same pivot table report view by excluding the item name field in the row label drop area (**Figure 16**). This exercise also gives overall familiarity to the mechanics of pivot tables.

☑ **TIP**: If you click outside the pivot table, the *pivot table Field List* is hidden. When you click into the pivot table, the *pivot table Field List* is again displayed. You may turn off the display of the *pivot table Field List* by clicking the X in the upper right-hand corner. You can redisplay it by clicking the Options tab in the *pivot table Tools* ribbon menu and selecting the *Field List* command in the Show/Hide group.

Row Labels	Sum of Referral Fee Rate2
Apparel & Accessories	12
Adult Brain Costume Hat	2
Apple iPhone 3G Stylus Pen (Silver)	2
Centipede Giant Prop	1
got bacon? Women's tee Shirt in 6 Colors Small thru XXL	1
Hanro Inkas Chemise Sleepwear (Medium Vanilla)	1
I Love Bacon Custom Wristband	1
Levi's Men's 550 Big & Tall Relaxed Fit Jean, Medium Stonewa	1
Marc by Marc Jacobs Totally Turnlock Posh Shoudler Bag Tote	1
Paddy's Pub Flipadelphia Flip Cup Tournament T-Shirt (Small)	1
Woolrich Men's Wool Railroad Vest, NO COLOR, Size XL	1
Automotive	1
Wagan Twin USB/DC Cup Holder Adapter	1
Baby	4
Graco Backless TurboBooster Car Seat in Chatter	2
The First Years Breastflow BPA Free Starter Set	1
The First Years Breastflow Slow - Medium Flow Nipple - 2 Pac	1

Figure 17 – Pivot table report with product line and item name as row labels, sum of referral rate2 as a value.

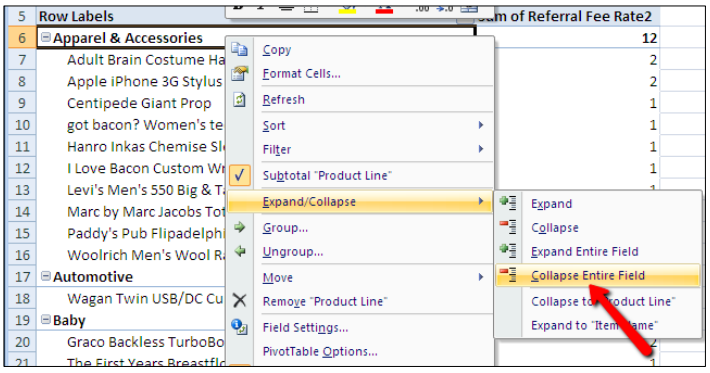

Figure 18 – Pivot table report with product line and item name as row labels, sum of referral rate2 as a value.

Row Labels	Sum of Referral Fee Rate2
Apparel & Accessories	12
Automotive	1
Baby	4
Beauty	1
Books	1007
Cell Phones & Service	3
DVD	35
Electronics	69
Health & Personal Care	24
Health & Personal Care Appliances	6
Jewelry	2
Kindle eBooks	37
Kindle Hardware	7
Kitchen & Housewares	20
Magazine Subscriptions	3
MP3 Downloads	109
Music	39
Musical Instruments	1
Office Products	1
Other	8
Pet Supplies	3
Software	5
Sports & Outdoors	33
Tools & Hardware	13
Toys & Games	18
VHS	1
Video Games	16
Video On Demand Videos	3
Watches	1
Grand Total	1482

Figure 19 – Collapsed row label view of pivot table report.

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—**END**—