

## EX 444 Excel Module 8 Working with Trendlines, PivotTables, PivotCharts, and Slicers

## Creating and Formatting PivotTable Reports

BTW

### Selecting PivotTable Ranges

When creating PivotTables, you can click anywhere in the range that contains the data. You do not have to select the range.

A PivotTable report, also called a PivotTable, is an interactive tool that summarizes worksheet data. It uses filter buttons in the cells and a task pane to change the way the data is presented, without changing any of the original data. Normally, when working with data tables or lists of data, each different reorganization of the data requires a new table or list. In contrast, you can reorganize data and examine summaries in a PivotTable report with a few clicks. PivotTable reports allow you to view different summaries of the data quickly and easily, using just a single table.

When creating a PivotTable report, you can use categories in the data to summarize different groups or totals. PivotTables use two types of fields: data, which contains values that the PivotTable will summarize, and category, which describes the data by categorizing it. Category fields typically correspond to columns in the original data, and data fields correspond to summary values across categories. You can change row and column groupings quickly to summarize the data in different ways to ask new questions. Reorganizing the table reveals different levels of detail and allows you to analyze specific subgroups.

One PivotTable created in this project is shown in Figure 8–16. It summarizes the LinkMe ISP data to show the total sales and average sales in 2016 and 2017 for each region by service type (Basic, Basic Plus, Hi-Speed, Deluxe 150, and T3). The filter button in cell A6 filters the results by region, and the filter button in cell B6 filters the results by service type. Columns C and D show the values for the total sales in 2016 and 2017, and columns E and F show the values for the average sales in 2016 and 2017.

Region	Service Type	2016 Total Revenue	2017 Total Revenue	Average of 2016 Revenue	Average of 2017 Revenue
City	Basic	\$12,220	\$13,139	\$6,110	\$6,570
City	Basic Plus	\$18,810	\$18,755	\$9,405	\$9,378
City	Deluxe 150	\$36,960	\$32,025	\$18,480	\$16,013
City	Hi-Speed	\$22,555	\$21,580	\$11,278	\$10,790
City	T3	\$10,800	\$11,160	\$5,400	\$5,580
<b>City Total</b>		<b>\$101,345</b>	<b>\$96,659</b>	<b>\$10,135</b>	<b>\$9,666</b>
Rural	Basic	\$17,955	\$22,525	\$8,978	\$11,263
Rural	Basic Plus	\$26,208	\$30,732	\$13,104	\$15,366
Rural	Deluxe 150	\$32,025	\$33,800	\$16,013	\$16,900
Rural	Hi-Speed	\$15,470	\$22,525	\$7,735	\$11,263
Rural	T3	\$6,545	\$4,930	\$3,273	\$2,465
<b>Rural Total</b>		<b>\$98,203</b>	<b>\$114,512</b>	<b>\$9,820</b>	<b>\$11,481</b>
Suburban	Basic	\$1,632	\$2,040	\$816	\$1,020
Suburban	Basic Plus	\$34,965	\$35,119	\$17,483	\$17,540
Suburban	Deluxe 150	\$23,335	\$24,614	\$11,668	\$12,307
Suburban	Hi-Speed	\$17,680	\$14,790	\$8,840	\$7,395
Suburban	T3	\$13,005	\$14,365	\$6,503	\$7,183
<b>Suburban Total</b>		<b>\$90,617</b>	<b>\$90,928</b>	<b>\$45,062</b>	<b>\$45,093</b>
<b>Grand Total</b>		<b>\$290,165</b>	<b>\$302,099</b>	<b>\$145,082</b>	<b>\$150,070</b>

Figure 8–16



CONSIDER THIS

### How do you determine which fields to use in a PivotTable?

You can create PivotTable and PivotChart reports in almost any configuration of your existing data. To use this powerful tool effectively, you need to create these reports with various questions in mind. Look at the categories you can use to describe your data and think about how the various categories can interact. Common questions relate to how the data changes over time, and how the data varies in geographical locations, such as states or regions, different functional groups within an organization, different product groupings, and demographic groupings, such as age and gender.

You can create PivotTable reports either on the same worksheet as the data to be analyzed or on a new worksheet in the same workbook.

## To Create a Blank PivotTable

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

The following steps create a blank PivotTable report using the ribbon. *Why? Creating a blank PivotTable allows the user to create a framework within which to use the available data.* When you create a PivotTable, each column heading from your original data will represent a field of data accessible via the PivotTable Fields task pane.

1

- Click the 'Sales Analysis Figures' sheet tab to make the worksheet active.
- Click cell B3 to select a cell containing data for the PivotTable.
- Display the Insert tab.



### Experiment

- Click the Recommended PivotTables button to view the various ways the data might be represented in tabular form. Click the Cancel button (Recommend PivotTables dialog box) to continue.
- Click the PivotTable button (Insert tab | Tables group) to display the Create PivotTable dialog box (Figure 8-17).

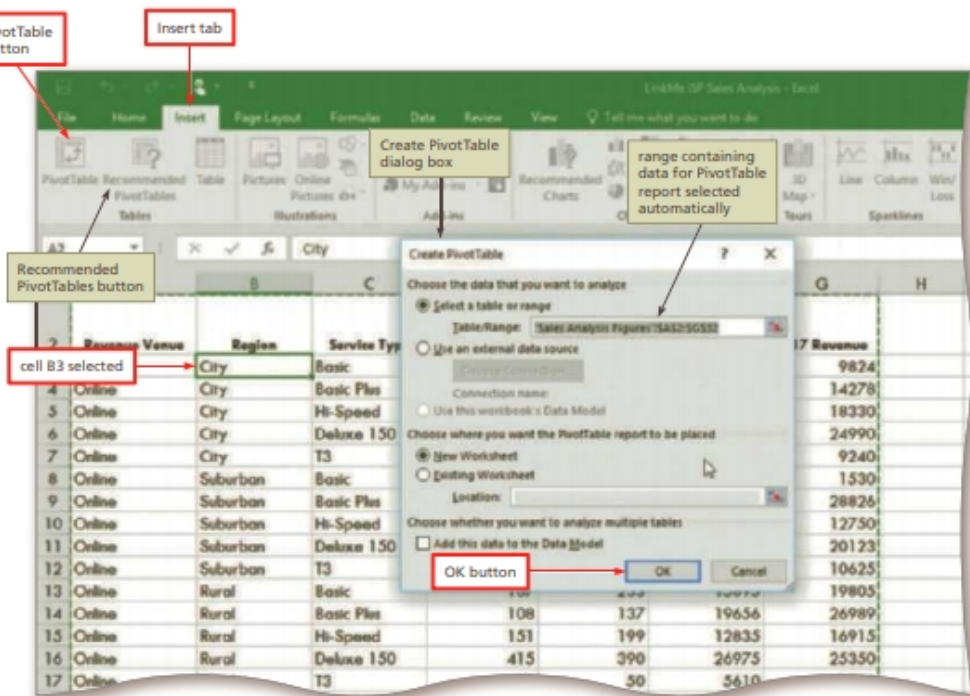


Figure 8-17

2

- Click the OK button (Create PivotTable dialog box) to create a blank PivotTable report on a new worksheet and display the PivotTable Fields task pane (Figure 8-18).

### Q&A

Why is the PivotTable blank?

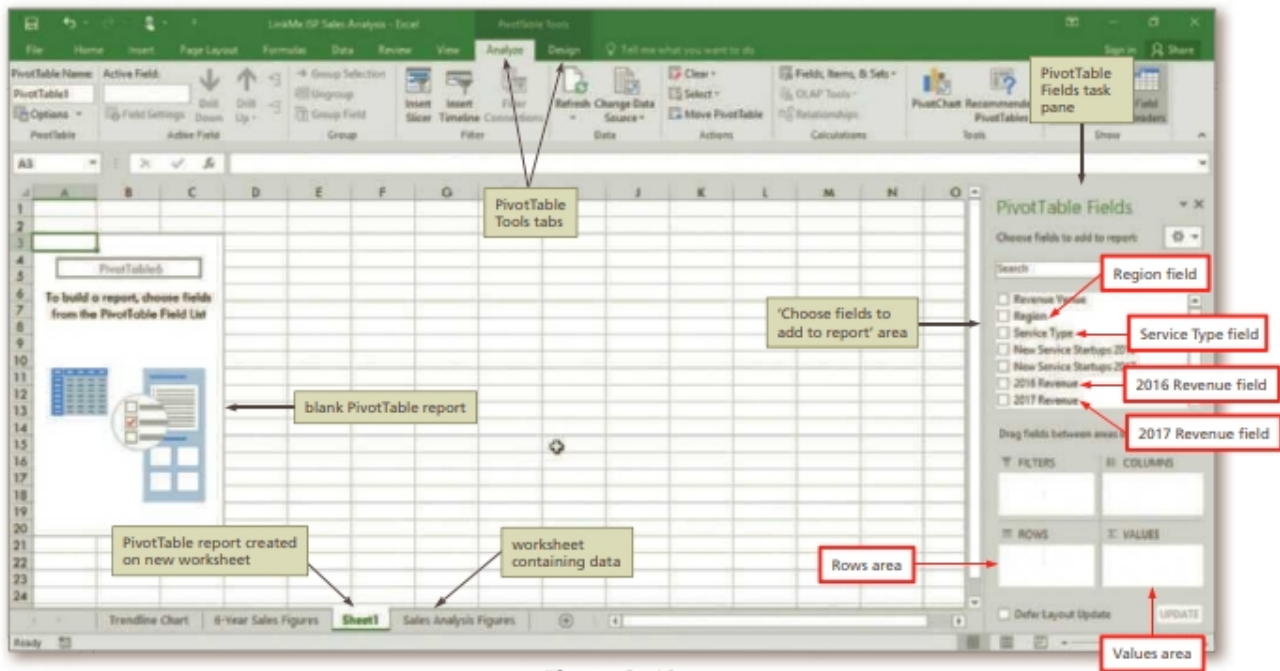
When you create a PivotTable, you first insert the structure. The resulting PivotTable is blank until you add content to it, which you do in the next set of steps.

My PivotTable Fields task pane just disappeared. What happened?

If you click outside of the PivotTable, the task pane no longer will be displayed. To redisplay the pane, click in the PivotTable.



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**Figure 8-18**

**Other Ways**

1. Click cell in range, click Recommended PivotTables (Insert tab | Tables group), click Blank PivotTable button (Recommended PivotTables dialog box)

**To Add Data to the PivotTable**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* Once the blank PivotTable is created, it needs to be populated using any or all of the fields in the PivotTable Fields task pane. You can add data by selecting check boxes in the PivotTable Fields task pane or by dragging fields from the Choose fields area to the one of the four boxed areas in the lower part of the task pane. Once you add a field, it becomes a button in the task pane, with its own button menu. Table 8-1 describes the four areas in the PivotTable Fields task pane and their common usage.

Table 8-1 Field Areas in the PivotTable Fields Task Pane	
Areas	Use
FILTERS	Fields added to the Filters area create a report filter and filter button in the PivotTable, representing a subset that meets a selection criterion.
COLUMNS	Normally, Excel creates a field in the Columns area when multiple fields are dragged to the Values area. Fields directly added to the Columns fields should contain summary numeric data
ROWS	Fields added to the Rows area become rows in the PivotTable. Subsequent fields added to the Rows area become subsets of the first field.
VALUES	Fields added to the Values area must contain numeric data from the source data

The following step adds data to the PivotTable. The rows will show the Service Type and within that the region. As you add the 2016 Total Revenue and 2017 Total Revenue fields to the Values area, Excel will create columns.

1

- Drag the Service Type field from the 'Choose fields to add to report' area to the Rows area to add the field to a row in the PivotTable.
- Click the Region check box in the 'Choose fields to add to report' area to add the Region field to the Rows area below the Service Type field.

Service Types are listed as section headings

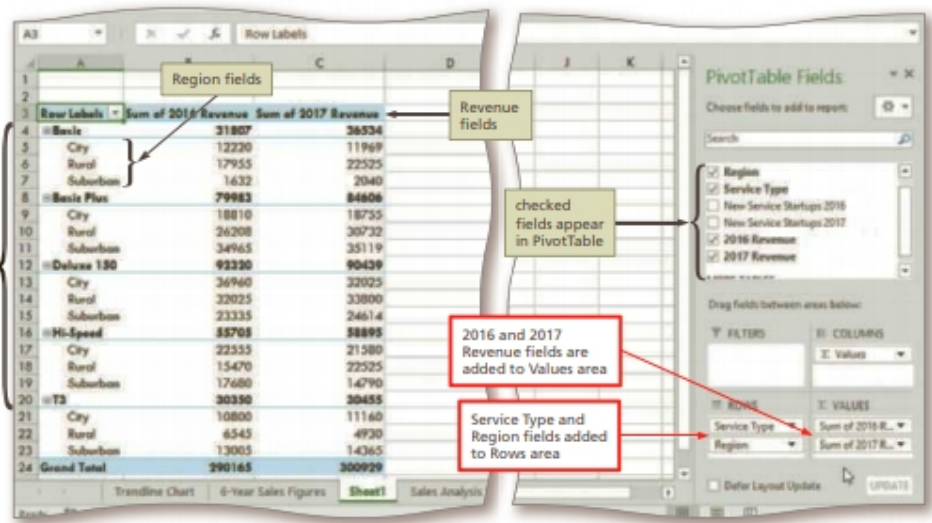


Figure 8-19

Q&A

How did the Region field end up in the Rows area?  
Excel places a checked field in the group it determines is correct for that field. You can drag the field to a different group if you choose.

- Drag the 2016 Revenue field to the Values area to add the field to column B of the PivotTable.
- Drag the 2017 Revenue field to the Values area to add the field to column C of the PivotTable (Figure 8-19).

Q&A

What is shown in the PivotTable?  
Excel displays the Service Type and Region fields as rows in the PivotTable. The 2016 Sales and 2017 Sales display as columns.

**Other Ways**

1. Click check box for each field name (PivotTable Fields task pane)

**To Change the Layout of a PivotTable**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE | 5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

You can display a PivotTable in one of three layouts. By default, PivotTable reports are presented in a compact layout. *Why change the layout? When using multiple row labels, a different layout can make identifying the groups and subgroups easier for the reader.* The following steps change the layout of the PivotTable report to the tabular layout and then add item labels to all rows.

1

- If necessary, display the PivotTable Tools Design tab.
- Click the Report Layout button (PivotTable Tools Design tab | Layout group) to display the Report Layout menu (Figure 8-20).

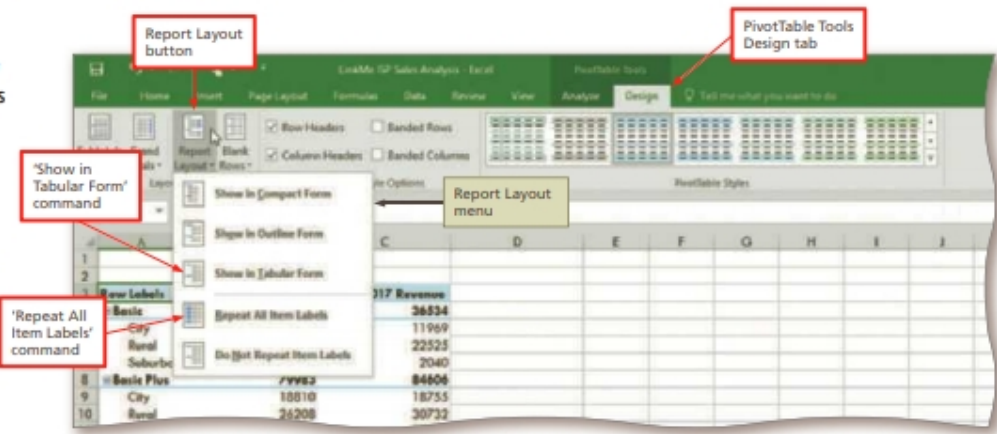


Figure 8-20



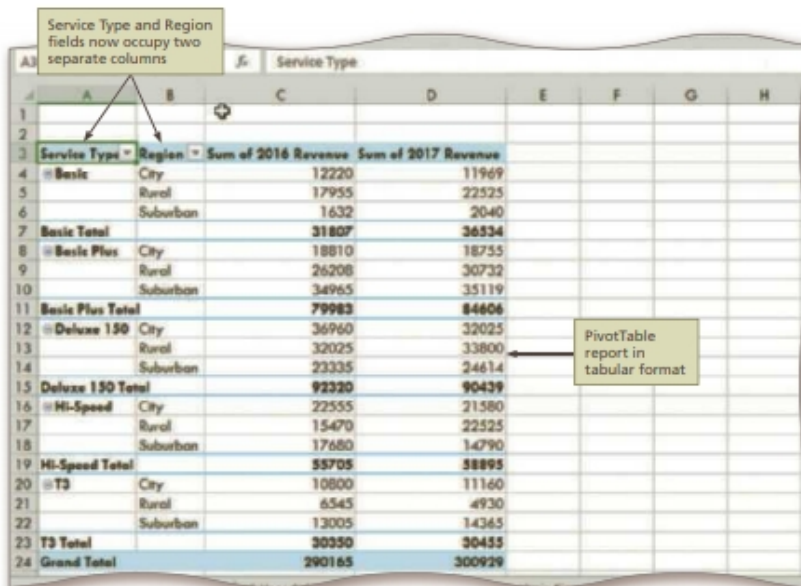
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**2**

- Click 'Show in Tabular Form' to display the PivotTable report in a tabular format (Figure 8–21).

**Experiment**

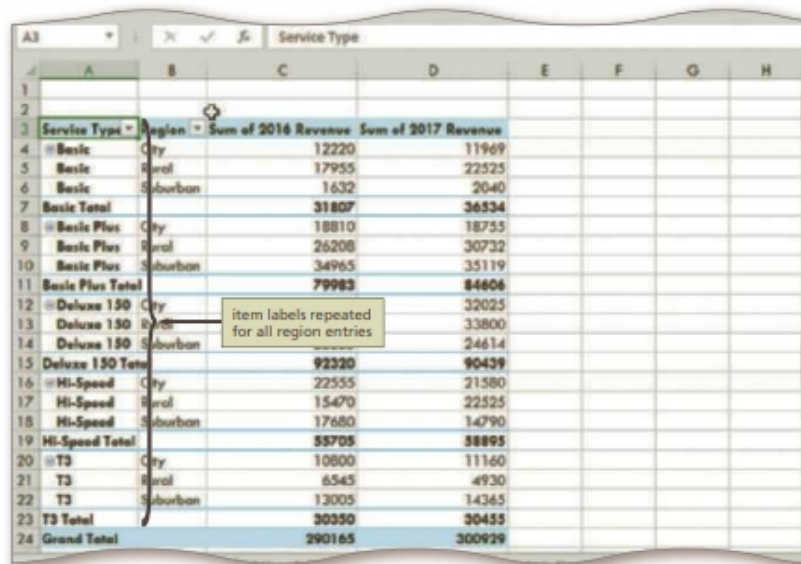
- Click all the layout options to review the differences in the layout. When done, click 'Show in Tabular Form' once again.



**Figure 8–21**

**3**

- Click the Report Layout button (PivotTable Tools Design tab | Layout group) again, and then click 'Repeat All Item Labels' to display Service Type labels for all Region entries (Figure 8–22).



**Figure 8–22**

## To Change the View of a PivotTable Report

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

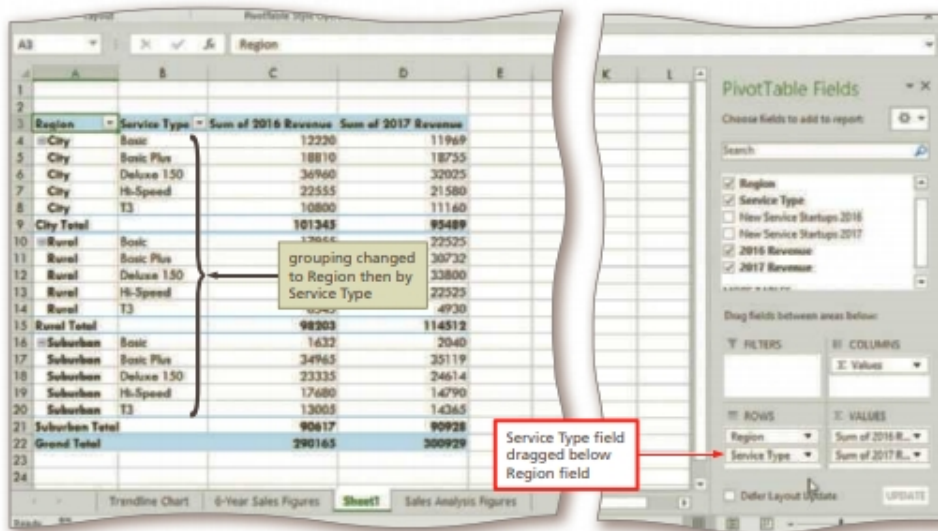
If you use the sort and summary features in Excel, comparing the revenue for each service type and region would require many steps. With PivotTable reports, this comparison is accomplished quickly. The PivotTable report in the LinkMe ISP Sales Analysis workbook currently shows the sum of the sales revenue for each year by service type and then region (Figure 8–22). *Why change the view of a PivotTable report?* You can change the view of this data depending on what you want to analyze. The following step changes the view of the PivotTable to show the total revenue by region for each service type.

**1**

- In the Rows area (PivotTable task pane), drag the Service Type button below the Region button to group total sales by Region (rather than by Service Type) (Figure 8–23).

**Experiment**

- Drag other fields to the Rows area and rearrange it to see how the data in the PivotTable changes. When you are finished, remove all fields in the Rows area but Region and Service Type as shown in Figure 8–23.



**Figure 8–23**

**Other Ways**

1. Click Service Type arrow, click Move Down on menu

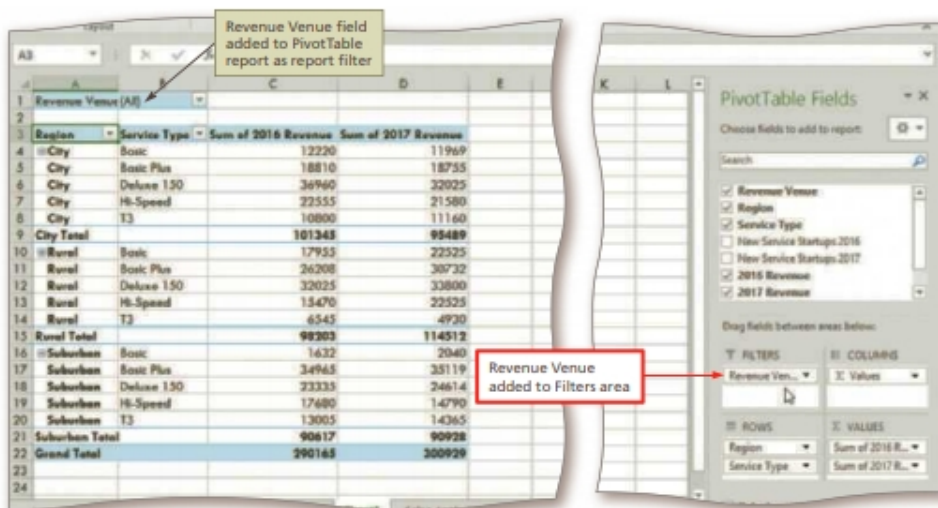
**To Filter a PivotTable Report Using a Report Filter**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* In a PivotTable report, you can add detail by further categorizing the data to focus on a particular subgroup or subgroups. You can use the Revenue Venue field to view sales in a particular venue by service type and region. Viewing a PivotTable report for a subset of data that meets a selection criterion is known as filtering. The following steps add a report filter to change the view of the PivotTable and then filter the PivotTable by Revenue Venue.

**1**

- Drag the Revenue Venue field from the 'Choose field to add to report' area (PivotTable Fields task pane) to the Filters area to create a report filter in the PivotTable (Figure 8–24).



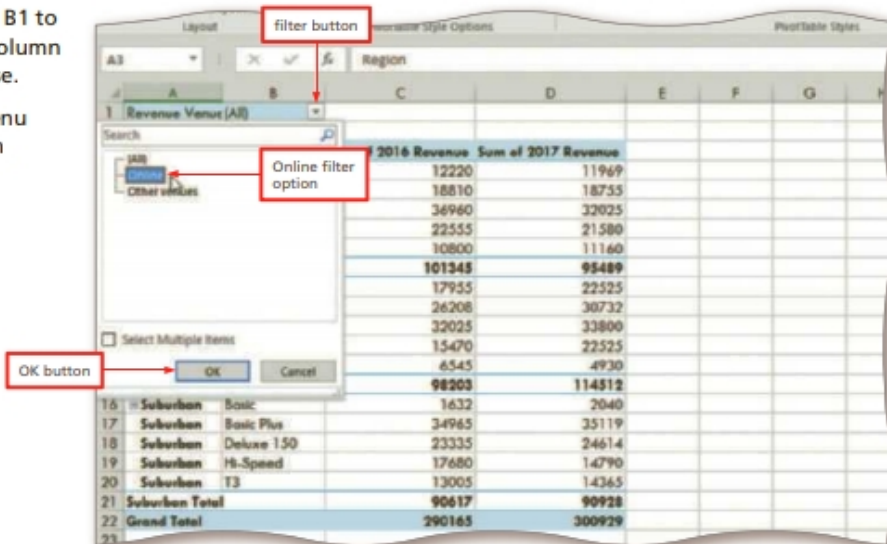
**Figure 8–24**



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**2**

- Click the filter button in cell B1 to display the filter menu for column B, Revenue Venue in this case.
- Click Online on the filter menu to select the Online criterion (Figure 8–25).

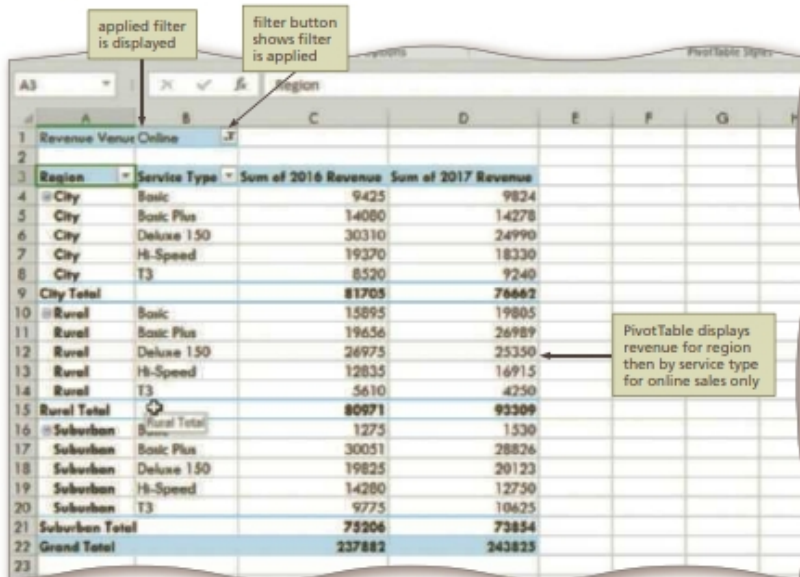


**Figure 8–25**

**3**

- Click the OK button to display totals for online sales only (Figure 8–26).

**Q&A** What is shown now in the PivotTable report?  
 Now the PivotTable shows total sales for each region and service type for online sales only.



**Figure 8–26**

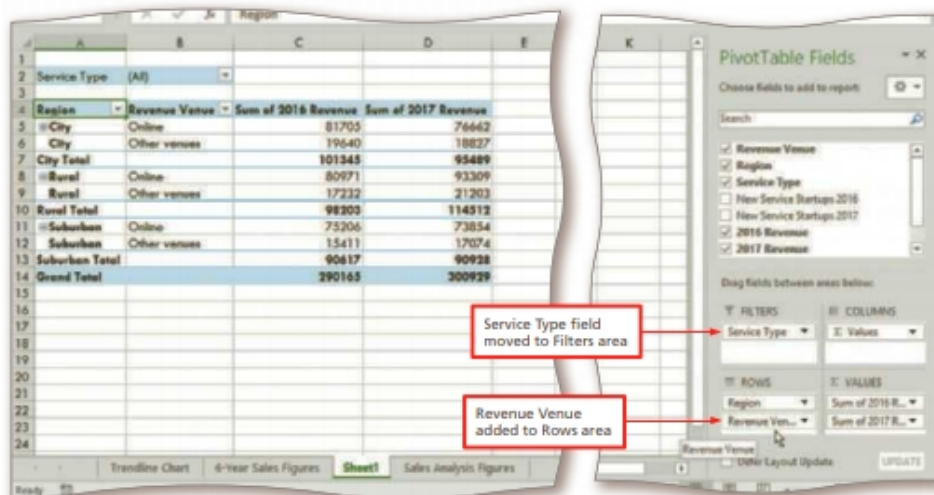
**To Filter a PivotTable Report Using Multiple Selection Criteria**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | **4 FILTER PIVOTTABLE** | 5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* You may need to identify a subset that is defined by more than one filter criterion. The following steps change the filter field and select multiple criteria on which to filter.

**1**

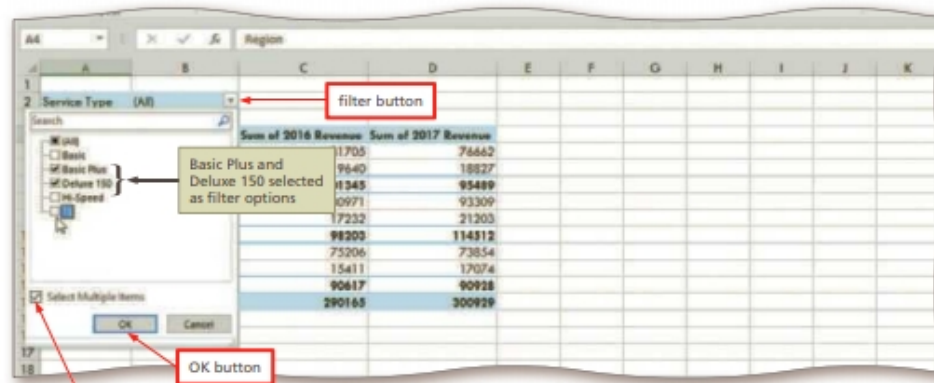
- Drag the Service Type button from the Rows area to the Filters area.
- Drag the Revenue Venue button from the Filters area to the Rows area below Region (Figure 8–27).



**Figure 8–27**

**2**

- Click the filter button in cell B2 to display the filter menu for the Service Type field.
- Click the 'Select Multiple Items' check box to prepare to select multiple criteria.
- Click to remove the check mark in each of the Basic, Hi-Speed, and T3 check boxes to deselect these criteria (Figure 8–28).



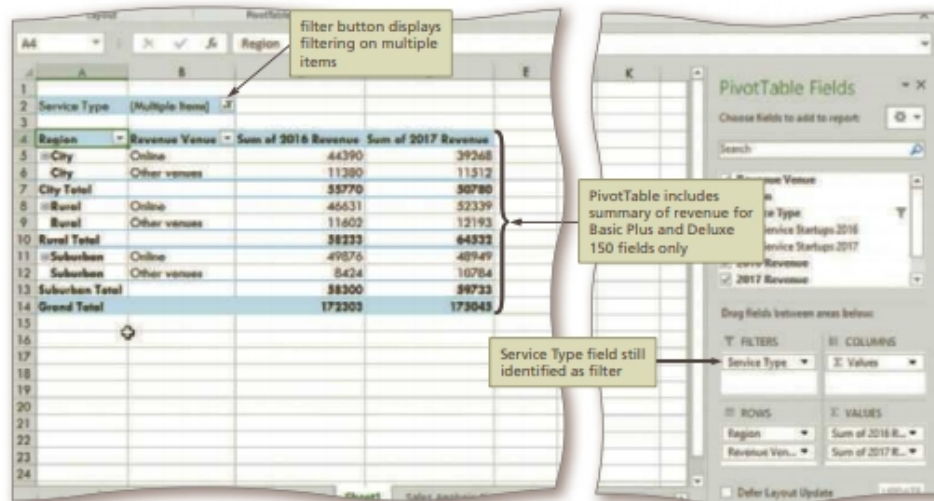
**Figure 8–28**

**3**

- Click the OK button to display sales totals for Basic Plus and Deluxe 150 service types (Figure 8–29).

**Q&A**

How do I know which criteria have been selected? With a filter, you need to click the filter button to see which criteria have been selected.



**Figure 8–29**



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## To Remove a Report Filter from a PivotTable Report

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* When you no longer need to display filtered data in a PivotTable, you can remove the filter easily. The following step removes the Service Type report filter from the PivotTable report.

- 1
  - Click the filter button in cell B2 and then click the (All) check box to include all service type criteria in the PivotTable report.
  - Click the OK button.
  - Drag the Service Type button out of the Filters area (PivotTable Fields task pane) to remove the field from the PivotTable report (Figure 8–30).

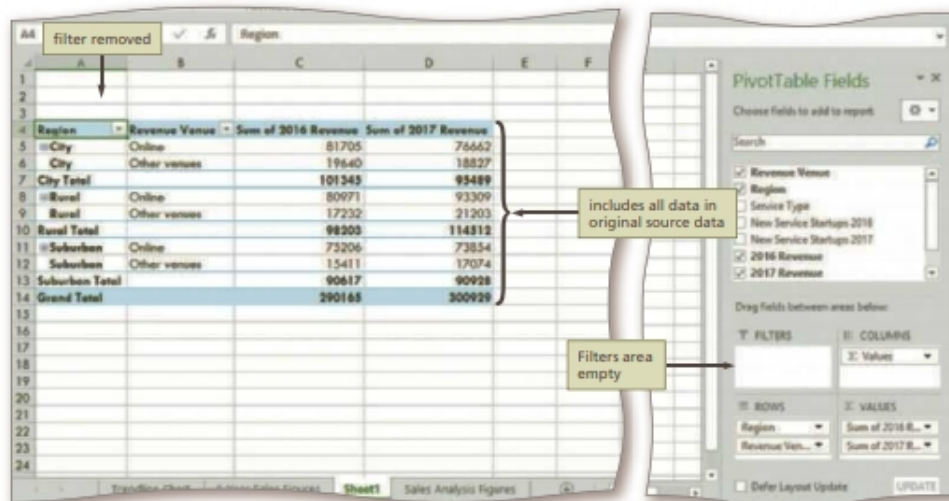


Figure 8–30

**Q&A** Should I drag it to a specific location?

No. You can drag it out of the box to any blank area on the worksheet.

## To Remove and Add Data to the PivotTable Report

The following steps remove the Revenue Venue field from the Rows area and add the Service Type field.

- 1 In the PivotTable Fields task pane, drag the Revenue Venue button out of the Rows area to remove the field from the report.
- 2 Click the Service Type check box in the 'Choose fields to add to report' area to add the Service Type field to the Rows area below the Region field.

## To Filter a PivotTable Report Using the Row Label Filter

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

Report filters are added to the PivotTable report by adding a field to the Filters area of the PivotTable Fields task pane. *Why use a Row Label filter?* In a PivotTable report, you may want to look at a subset of data based on fields that are already in use. When the field of interest is already part of the PivotTable and included in the Rows area of the PivotTable Fields task pane, you can use row label filters to view a subset of the data. Like other filter buttons, row label filters display within the column heading. When you click the filter button, Excel displays a menu of available fields. The following steps use a row label filter for Service Type to restrict data in the PivotTable to the Basic Plus and Deluxe 150 service types.

**1**

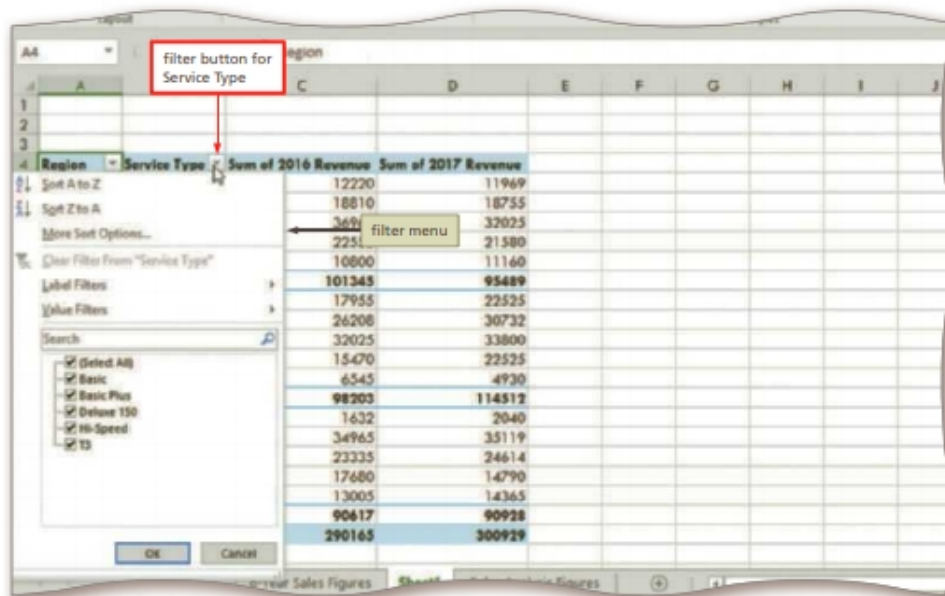
- Click the filter button in cell B4 to display the filter menu for the Service Type field (Figure 8–31).

**Q&A** I do not have a filter button in cell B4. How do I access the filter?

The filter buttons may be hidden. Click the Field Headers button (PivotTable Tools Analyze tab | Show group) to turn on the field headers and make the filter buttons visible.

Why does cell B4 not appear selected when I use the filter button?

Filtering happens independently of cell selection. You do not need to select the cell in which the filter button is located in order to use the filter. In Figure 8–31, for example, the filter button for Service Type has been clicked while cell A4 is the active or selected cell.



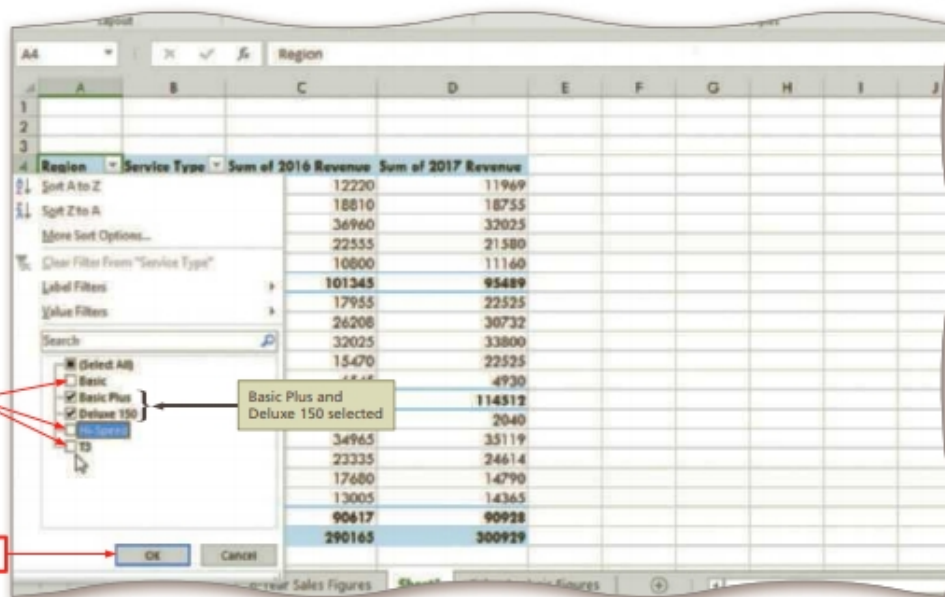
**Figure 8–31**

**2**

- Click the Basic, Hi-Speed, and T3 check boxes on the filter menu to leave only the Basic Plus and Deluxe 150 service plans selected (Figure 8–32).

Basic, Hi-Speed, and T3 check boxes cleared

OK button



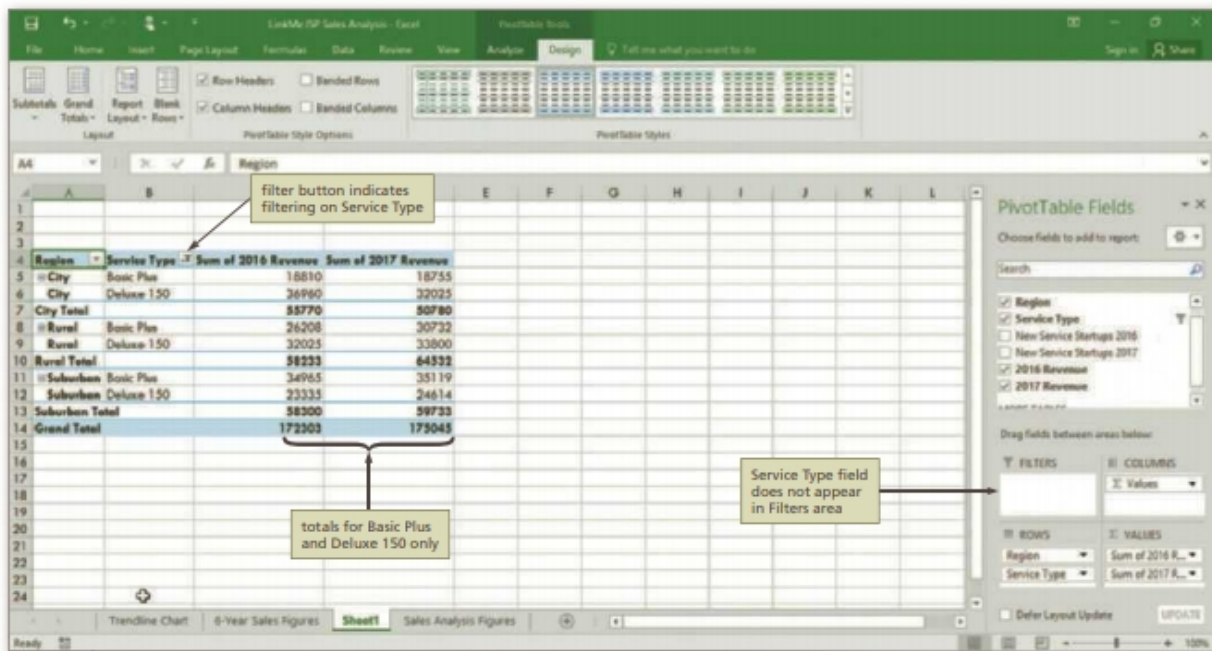
**Figure 8–32**



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**3**

- Click the OK button to display totals for Basic Plus and Deluxe 150 service types only, categorized by region (Figure 8–33).



**Figure 8–33**

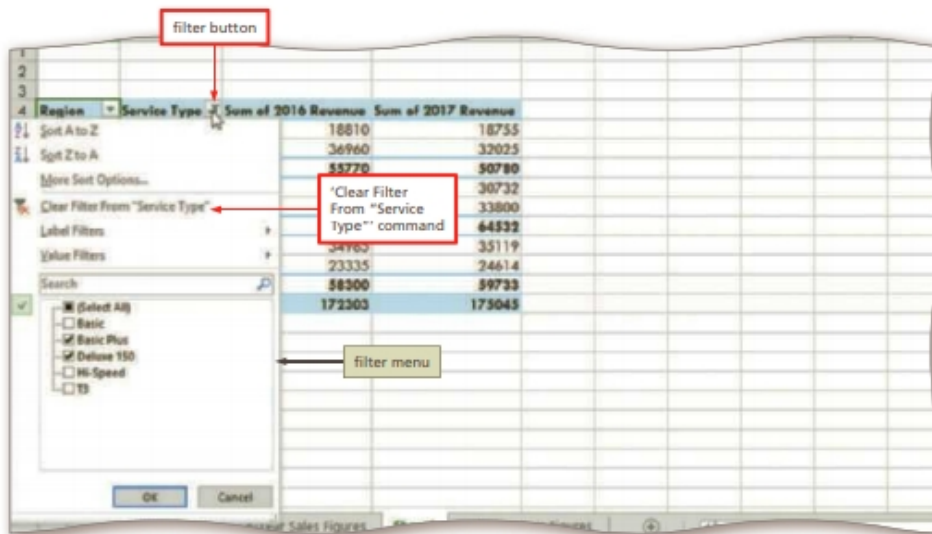
**To Clear the Filter**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* Once you have reviewed the subset of data, you may want to remove the criteria using the Row Label filter to display all records. The following steps clear the filter in order to display all records.

**1**

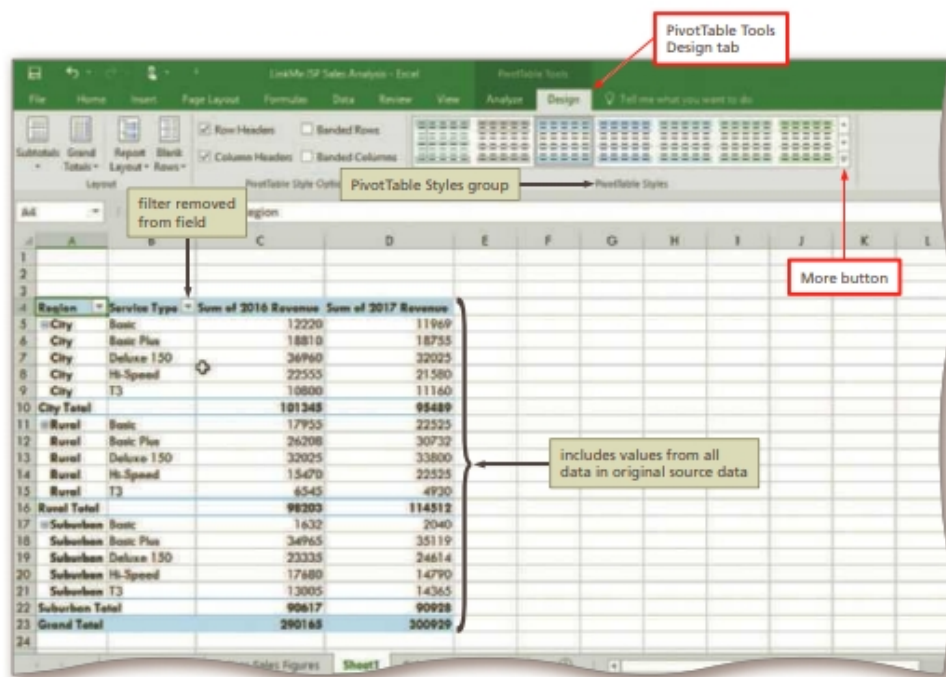
- Click the filter button in cell B4 again to display the filter menu for the Service Type field (Figure 8–34).



**Figure 8–34**

**2**

- Click 'Clear Filter From "Service Type"' on the filter menu to display totals for all service types in all regions (Figure 8–35).

**Figure 8–35****Other Ways**

- Click filter button, click (Select All) check box on filter menu, click OK button

## Formatting PivotTable Reports

You can use several formatting options to enhance the appearance of PivotTable reports and make the content easier to read. Excel includes a number of preset PivotTable report styles to simplify this task. These styles function in a similar fashion to Excel's table styles. Care should be taken when formatting PivotTable reports, however, because formatting techniques that work for regular tables of data do not behave in the same fashion in PivotTable reports. PivotTable report formatting requires the use of PivotTable styles and field settings.

### How do you choose a particular PivotTable style?

When you plan PivotTables and PivotCharts, consider what information you want to display in each report. As you are developing a report, review the galleries of PivotTable and PivotChart styles to find the best one to display your data. For example, some PivotTable styles include banded rows and columns, which can make it easier to scan and interpret the report.



CONSIDER THIS

## To Format a PivotTable Report

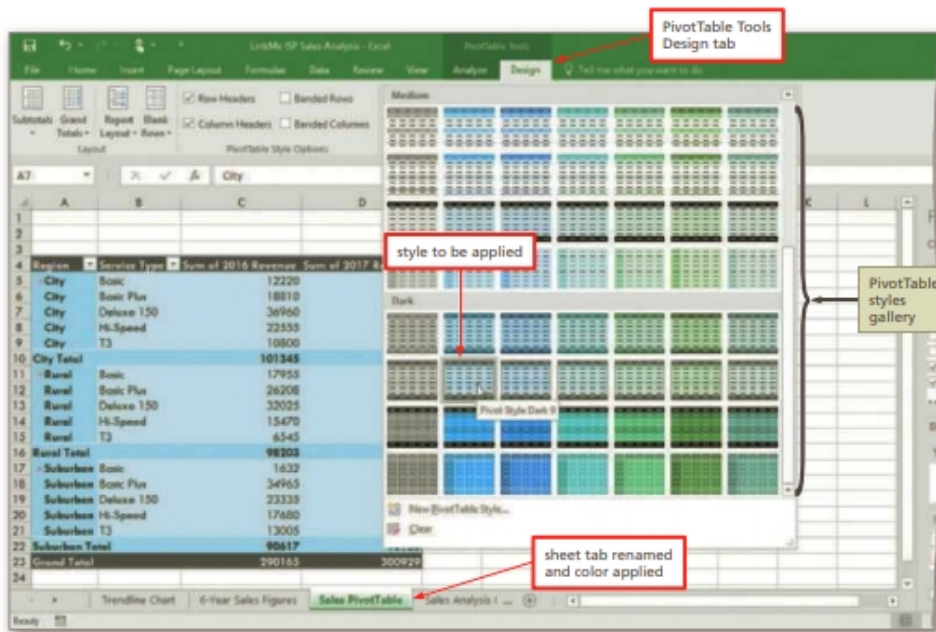
1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* PivotTable reports benefit from formatting to enhance their readability. The following steps format a PivotTable report by applying a PivotTable style and specifying number formats for the fields.

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**1**

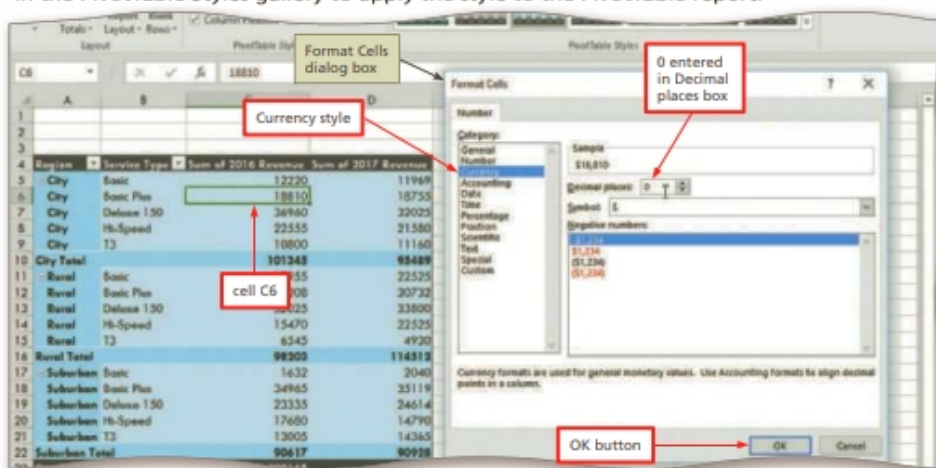
- Name the Sheet1 tab, Sales PivotTable and set the color to Turquoise, Accent 1.
- Click cell A7 to select a cell in the PivotTable.
- Click the More button in the PivotTable Styles gallery (PivotTable Tools Design tab | PivotTable Styles group) to expand the gallery.
- Scroll down until the Dark section of the gallery is visible.
- Point to 'Pivot Style Dark 9' (PivotTable Styles gallery) to display a preview of the style in the PivotTable (Figure 8-36).



**Figure 8-36**

**2**

- Click 'Pivot Style Dark 9' in the PivotTable Styles gallery to apply the style to the PivotTable report.
- Right-click cell C6 and then click Number Format on the shortcut menu to display the Format Cells dialog box.
- Click Currency in the Category list (Format Cells dialog box) to select the Currency number format.
- Type 0 in the Decimal places box to specify no decimal places (Figure 8-37).



**Figure 8-37**

**3**

- Click the OK button to apply the Currency style to all 2016 revenue values in the PivotTable report.

**Q&A**

Why does the number format change apply to all Revenue values?  
 In a PivotTable, when you format a single cell using Number Format, that formatting is applied to the entire set of values to which that single cell belongs.

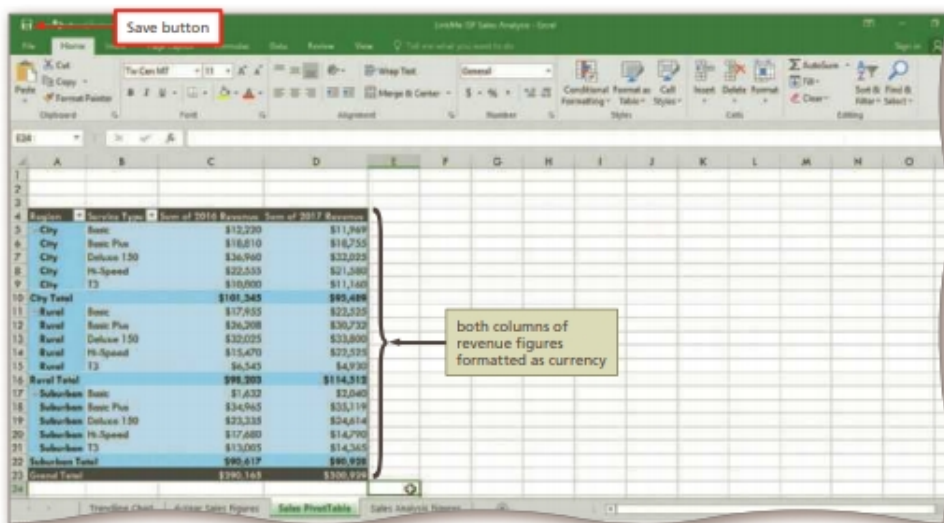
Can I use the formatting options on the Home tab?

Yes, but you would have to highlight all of the cells first and then apply the formatting. The Number Format command is easier.



**4**

- Select cell D6 and then repeat Step 3 to apply the Currency style to all 2017 revenue values.
- Click cell E24 to deselect the PivotTable report.
- Click the Save button on the Quick Access Toolbar to save the workbook (Figure 8–38).

**Figure 8–38**

**Break Point:** If you wish to take a break, this is a good place to do so. Exit Excel. To resume at a later time, run Excel and open the file named LinkMe ISP Sales Analysis, and then continue following the steps from this location forward.

## Summary Functions

In PivotTable reports, you easily can change the function used to summarize data in the original table. For example, in Figure 8–38, the data is totalled for 2016 and 2017 using a SUM function. You can change that to other summary functions. Summary functions can be inserted in one of three ways: by using the shortcut menu of a cell in the PivotTable, by using the field button menu in the Values area (PivotTable Fields task pane), or by using the Field Settings button (PivotTable Tools Analyze tab | Active Field group).

Table 8–2 lists the summary functions Excel provides for analysis of data in PivotTable reports. These functions also apply to PivotChart Reports.

**Table 8–2 Summary Functions for PivotTable Report and PivotChart Report Data Analysis**

Summary Function	Description
Sum	Sum of the values (default function for numeric source data)
Count	Number of data values
Average	Average of the values
Max	Largest value
Min	Smallest value
Product	Product of the values
Count Numbers	Number of data values that contain numeric data
StdDev.s	Estimate of the standard deviation of all of the data to be summarized, used when data is a sample of a larger population of interest
StdDev.p	Standard deviation of all of the data to be summarized, used when data is the entire population of interest
Var.s	Estimate of the variance of all of the data to be summarized, used when data is a sample of a larger population of interest
Var.p	Variance of the data to be summarized, used when data is the entire population of interest

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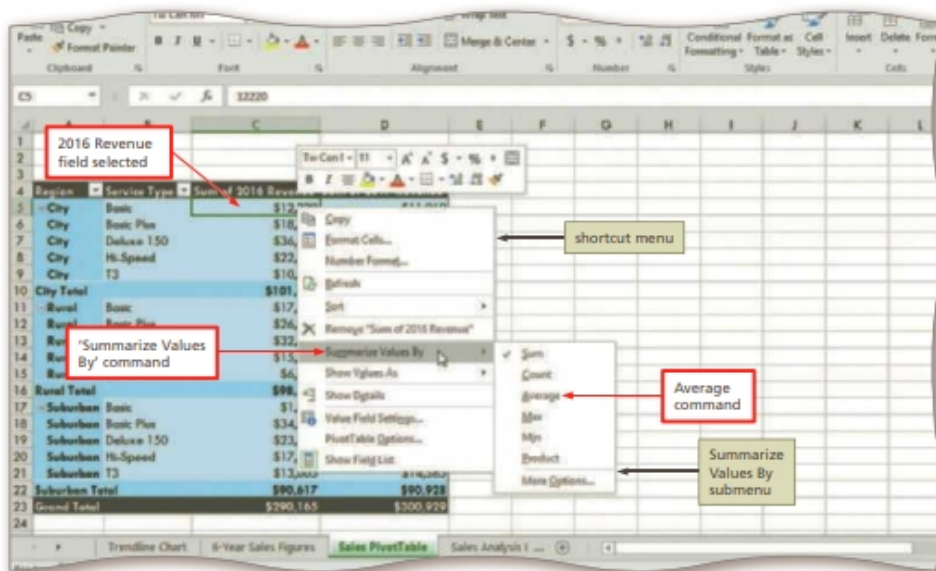
## To Switch Summary Functions

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* The default summary function in a PivotTable is the SUM function. For some comparisons, using a different summary function will yield more useful measures. In addition to analyzing the total revenue by region and service type, you are interested in looking at average sales. Currently, the PivotTable report for LinkMe ISP displays the total sales for each region by service type. Average sales by service type and by region might be a better measure for comparing the revenue. The following steps switch summary functions in a PivotTable using the shortcut menu.

**1**

- Right-click cell C5 to display the shortcut menu and then point to 'Summarize Values By' to display the Summarize Values By submenu (Figure 8-39).

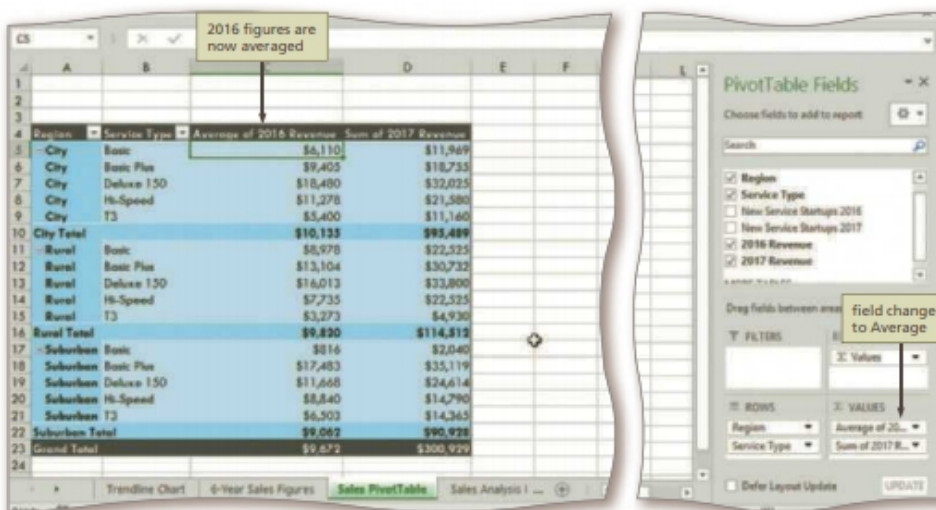


**Figure 8-39**

**2**

- Click Average on the Summarize Values By submenu to change the summary function from Sum to Average (Figure 8-40).

**Q&A** Why did the column title in cell C4 change? When you change a summary function, the column heading automatically updates to reflect the new summary function chosen.



**Figure 8-40**

3

- Repeat Steps 1 and 2 to change the summary function used in column D from Sum to Average (Figure 8–41).

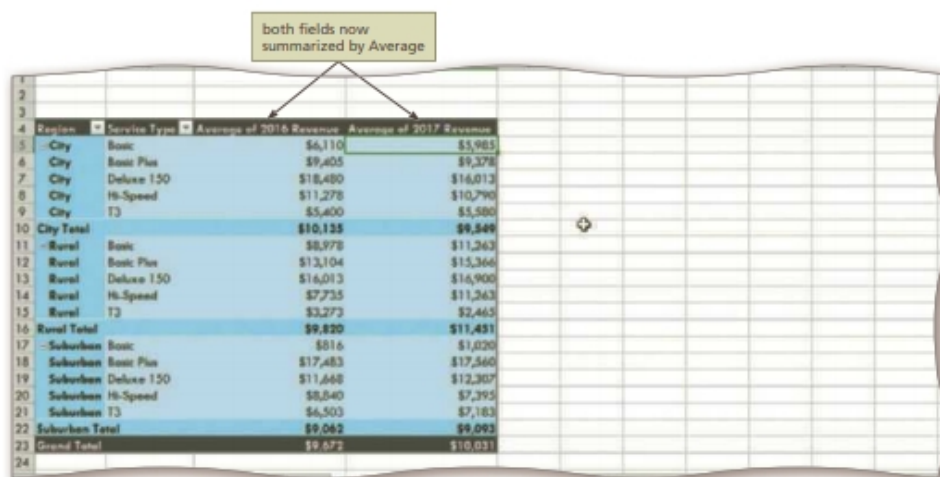


Figure 8–41

## To Insert a New Summary Function

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* In addition to changing summary functions, you may need to add new fields to analyze additional or more complex questions. You have been asked to review and compare both total and average sales for 2016 and 2017. You will need to add value fields and change the summary function to meet this request. The following steps add a second value calculation for each of the two years and use these fields to add a summary function in the PivotTable report. This time, you will use the menu displayed when you click the value field button to access the Value Field Settings dialog box.

1

- In the PivotTable Fields task pane, drag the 2016 Revenue field to the Values area above the 'Average of 2016 Sales' button to add the field to the PivotTable.
- In the Values area, click the 'Sum of 2016 Revenue' button to display the Sum of 2016 Sales menu (Figure 8–42).



Figure 8–42

Q&A

Why did I place the new field to the location above the other items in the Values area? Dragging the new field to a location above the other fields will place the data in a new column before the others in the PivotTable report, in this case in column C.



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2

- Click 'Value Field Settings' to display the Value Field Settings dialog box.
- In the Custom Name text box (Value Field Settings dialog box), type **2016 Total Revenue** to change the field name (Figure 8-43).

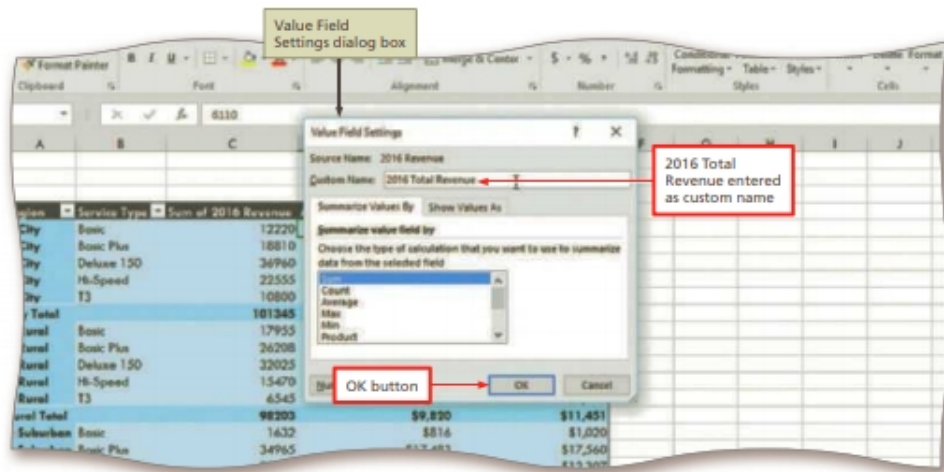


Figure 8-43

3

- Click the OK button (Value Field Settings dialog box) to apply the custom name.
- In the PivotTable Fields task pane, drag the 2017 Revenue field to the Values area, and place it between the '2016 Total Revenue' button and the 'Average of 2016 Revenue' button.
- In the Values area, click the 'Sum of 2017 Revenue' button to display its menu, and then click 'Value Field Settings' to display the Value Field Settings dialog box.
- In the Custom Name text box, type **2017 Total Revenue** and then click the OK button (Value Field Settings dialog box) to rename the field.
- Using the buttons in the Values area, rename the other two fields to customize the column headings in cells E4 and F4 as shown in Figure 8-44.
- Format the values in columns C and then D to the Currency category, 0 decimal places, and the \$ symbol (Figure 8-44).

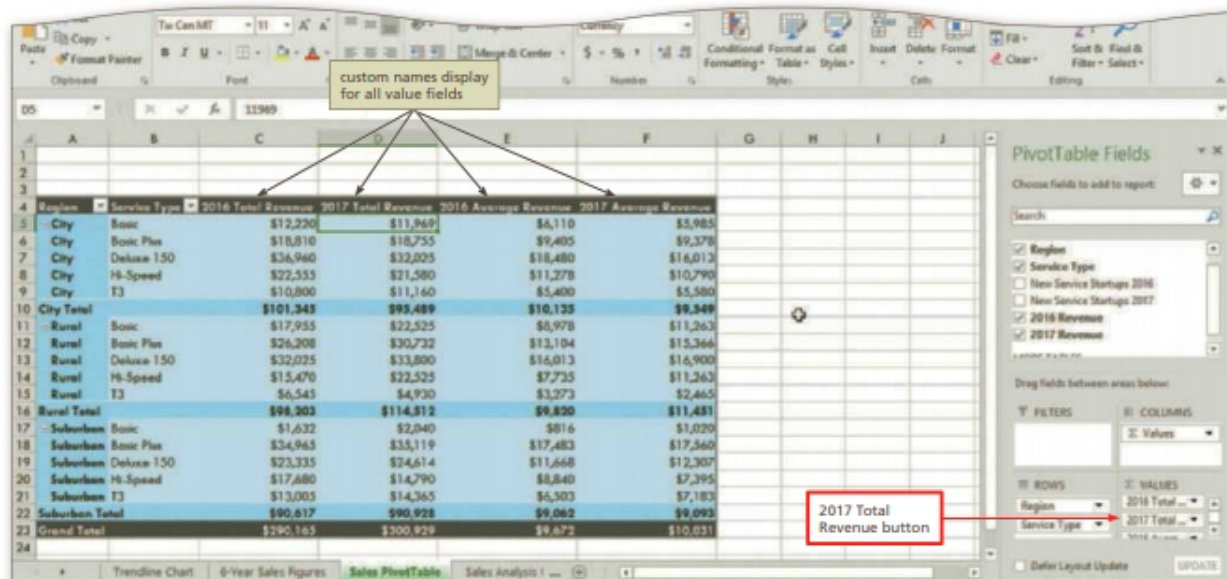


Figure 8-44

## To Customize the Field Headers and Field List

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

The following steps hide the PivotTable Fields task pane, hide the field headers, and then turn off column autofitting. *Why? Customizing the display of the field headers and field list can provide a less-cluttered worksheet.*

- Display the PivotTable Tools Analyze tab.
  - Click the Field List button (PivotTable Tools Analyze tab | Show group) to hide the PivotTable Fields task pane.
  - Click the Field Headers button (PivotTable Tools Analyze tab | Show group) to hide the field headers (Figure 8–45).

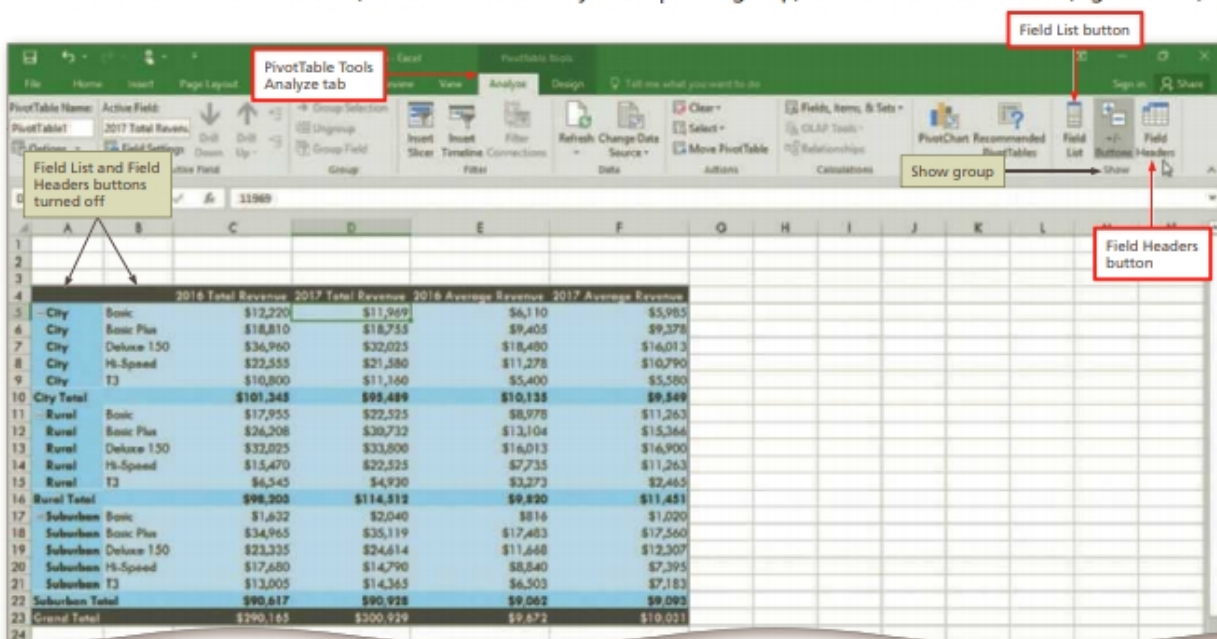


Figure 8–45

**Q&A** How can I display the PivotTable Fields task pane and field headers after hiding them?  
The Field List and Field Headers buttons (PivotTable Tools Analyze tab | Show group) are toggle buttons—clicking them again turns the display back on.

- Click the PivotTable Options button (PivotTable Tools Analyze tab | PivotTable group) to display the PivotTable Options dialog box.
  - Click the 'Autofit column widths on update' check box to remove the check mark (Figure 8–46).
- Click the OK button (PivotTable Options dialog box) to turn off the autofitting of column widths.

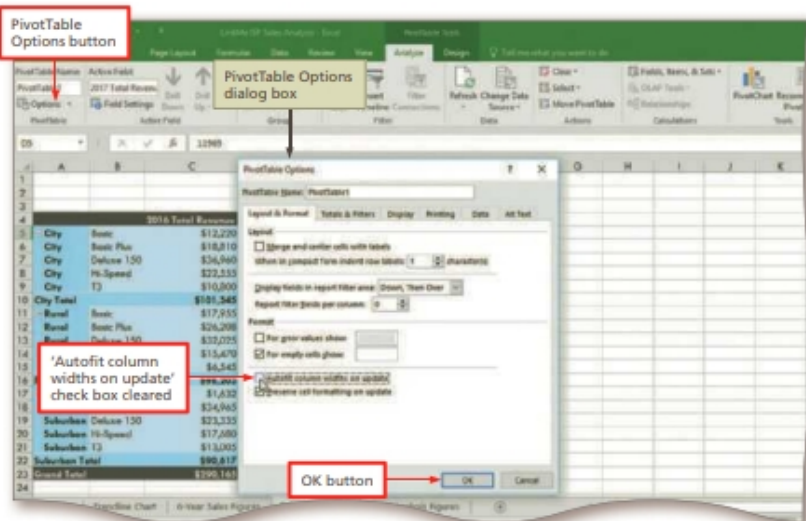


Figure 8–46



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**To Expand and Collapse Categories**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
 5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

The Expand and Collapse buttons expand and collapse across categories, reducing the amount of detail visible in the report without removing the field from the report. *Why customize the display of these buttons?* In some instances, the report may be more visually appealing without the Expand or Collapse buttons in the report. The following steps expand and collapse categories using the buttons and shortcut menus, and then suppress the display of the Expand and Collapse buttons in the report.

- 1
  - Click the Collapse button in cell A5 to collapse the City information (Figure 8-47).

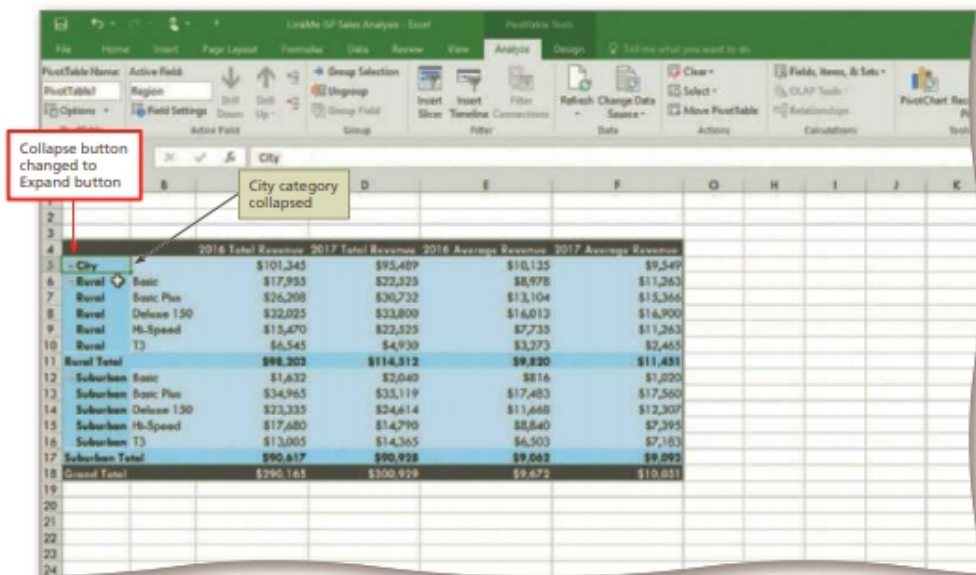


Figure 8-47

- 2
  - Right-click cell A12 to display the shortcut menu and then point to Expand/Collapse to display the Expand/Collapse submenu (Figure 8-48).

Q&A

Which method should I use to expand and collapse? Either way is fine. Sometimes the Collapse button is not visible, in which case you would have to use the shortcut menu.

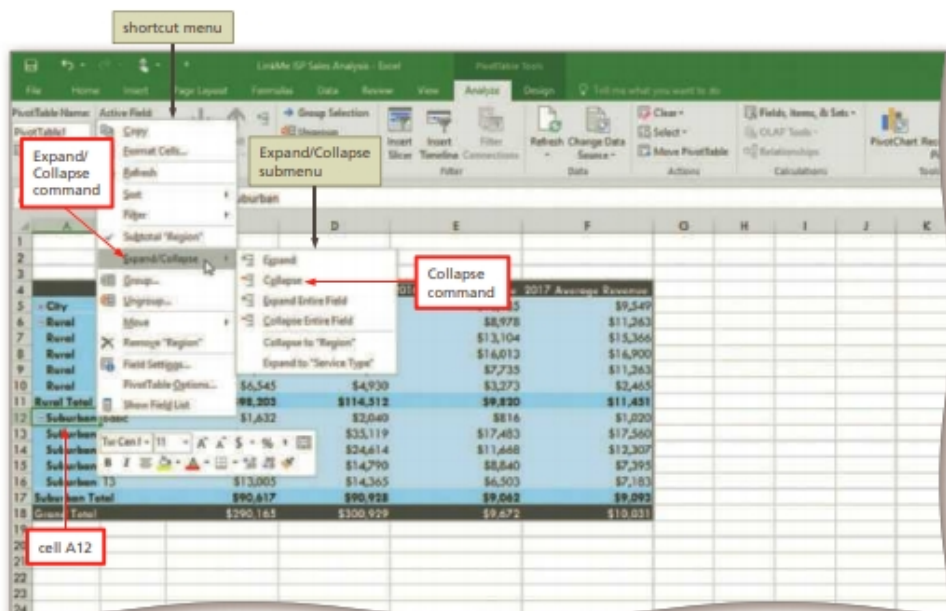


Figure 8-48



- 3
  - Click Collapse on the Expand/Collapse submenu to collapse the Suburban data.
  - Click the '+/- Buttons' button (PivotTable Tools Analyze tab | Show group) to hide the Expand and Collapse buttons in the PivotTable (Figure 8–49).

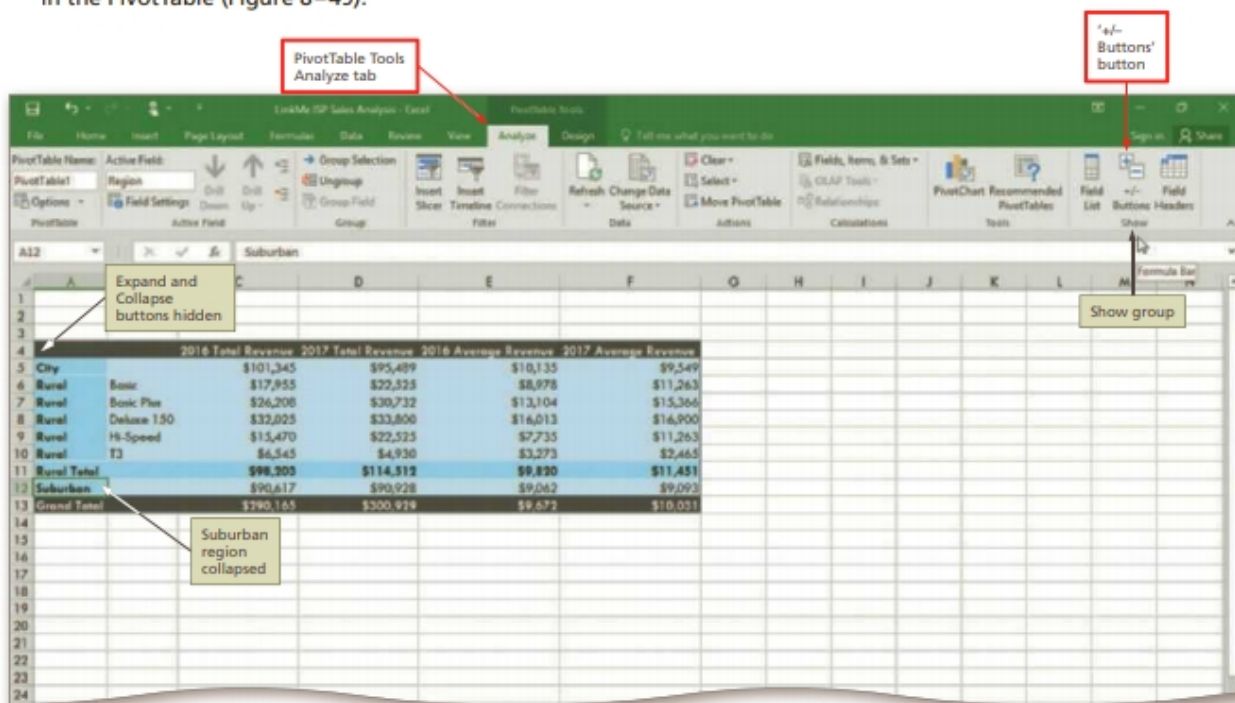


Figure 8–49

- 4
  - Right-click cell A5 and then point to Expand/Collapse on the shortcut menu to display the Expand/Collapse submenu.
  - Click 'Expand Entire Field' on the Expand/Collapse submenu to redisplay all data (shown in Figure 8–50).

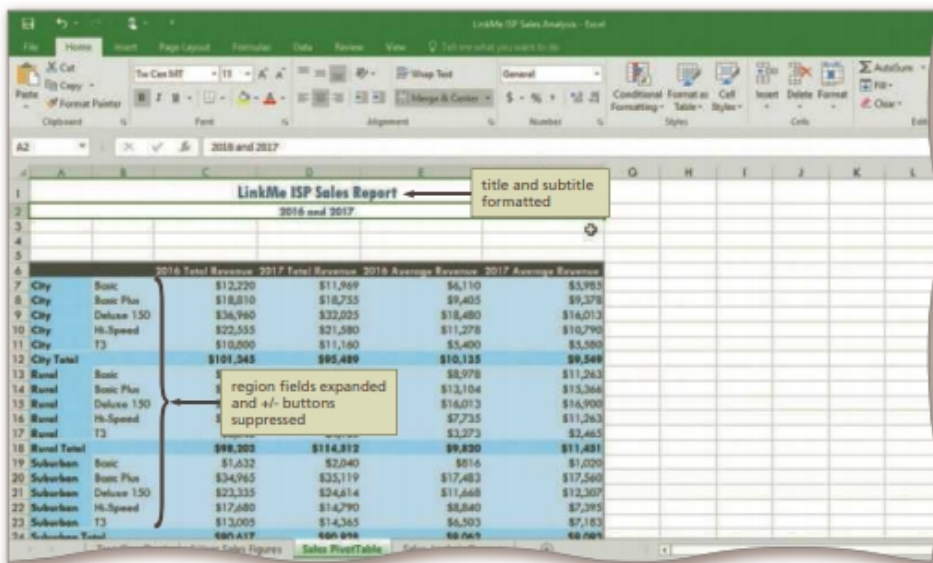
## To Create a Title

The following steps insert two blank rows and create a title for the PivotTable. You must insert new rows because Excel requires the two rows above the PivotTable to be reserved for extra filters.

- 1 Insert two blank rows above row 1 for the title and subtitle.
- 2 In cell A1, enter the title **LinkMe ISP Sales Report** and then enter the subtitle **2016 and 2017** in cell A2.
- 3 Merge and center the text in cell A1 across A1:F1.
- 4 Merge and center the text in cell A2 across A2:F2.

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- 5 Apply the Title style to cell A1 and bold the cell.
- 6 Apply the Heading 2 style to cell A2 (Figure 8–50).



**Figure 8–50**

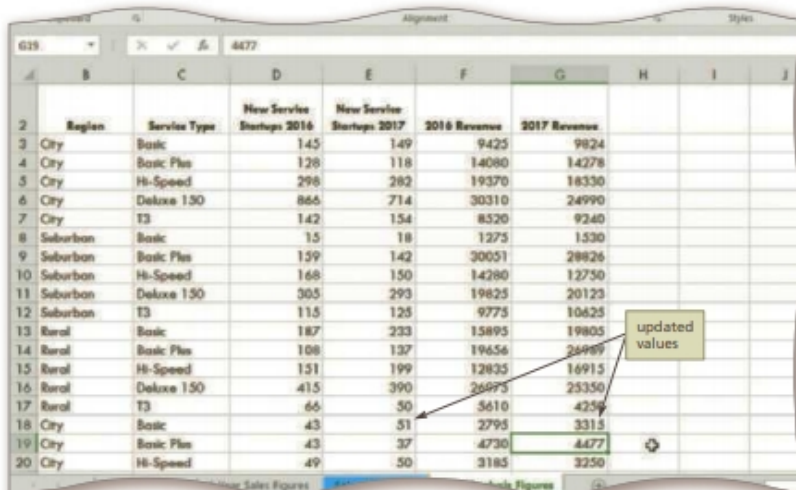
**To Update a PivotTable**

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

When you update cell contents in Excel, you also update related tables, formula calculations, and charts. *Why does this not work for PivotTables?* PivotTables do not update automatically when you change the underlying data for the PivotTable report. You must update the PivotTable manually to recalculate summary data in the PivotTable report. Two figures in the original data worksheet are incorrect: the New Service Startups 2017 and the 2017 Revenue for Basic City service sold in Other Venues. The following steps correct the typographical errors in the underlying worksheet, and then update the PivotTable report.

- 1
  - Click the 'Sales Analysis Figures' sheet tab to make it the active worksheet.
  - Click cell E18 and then type 51 as the new value.
  - Click cell G18, type 3315, and then press the ENTER key to change the contents of the cell (Figure 8–51).

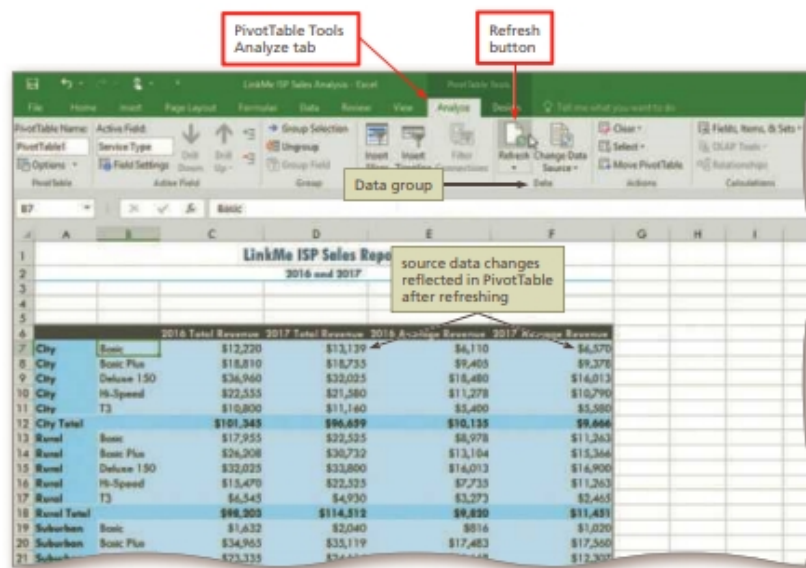
**Q&A** What data will this change in the PivotTable?  
The changed value is for sales of Basic City Service sold in Other Venues. This change will be reflected in cells D7 and F7 in the Sales PivotTable worksheet when the update is performed.



**Figure 8–51**

**2**

- Click the Sales PivotTable sheet tab to make it the active worksheet.
- If necessary, click inside the PivotTable report to make it active.
- Display the PivotTable Tools Analyze tab on the ribbon.
- Click the Refresh button (PivotTable Tools Analyze tab | Data group) to update the PivotTable report to reflect the change to the underlying data.
- Click the Save button on the Quick Access Toolbar to save the workbook (Figure 8–52).

**Figure 8–52**

**Q&A** Do I always have to refresh the data?

Yes. The contents of a PivotTable are not refreshed when the data from which they are created changes. This means you must refresh the PivotTable manually when underlying data changes.

If I add rows or columns to the data, will refreshing update the PivotTable?

If your data is in a data table, yes. Otherwise, you will have to create a new PivotTable.

**Break Point:** If you wish to take a break, this is a good place to do so. Exit Excel. To resume at a later time, run Excel and open the file named LinkMe ISP Sales Analysis, and then continue following the steps from this location forward.

## Creating and Formatting PivotChart Reports

A PivotChart report, also called a PivotChart, is an interactive chart that allows users to change, with just a few clicks, the groupings that graphically present the data in chart form. As a visual representation of PivotTables, each PivotChart Report must be associated or connected with a PivotTable report. Most users create a PivotChart from an existing PivotTable; however, you can create a new PivotTable and PivotChart at the same time. If you create the PivotChart first, Excel will create the PivotTable automatically.

### To Create a PivotChart Report from an Existing PivotTable Report

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

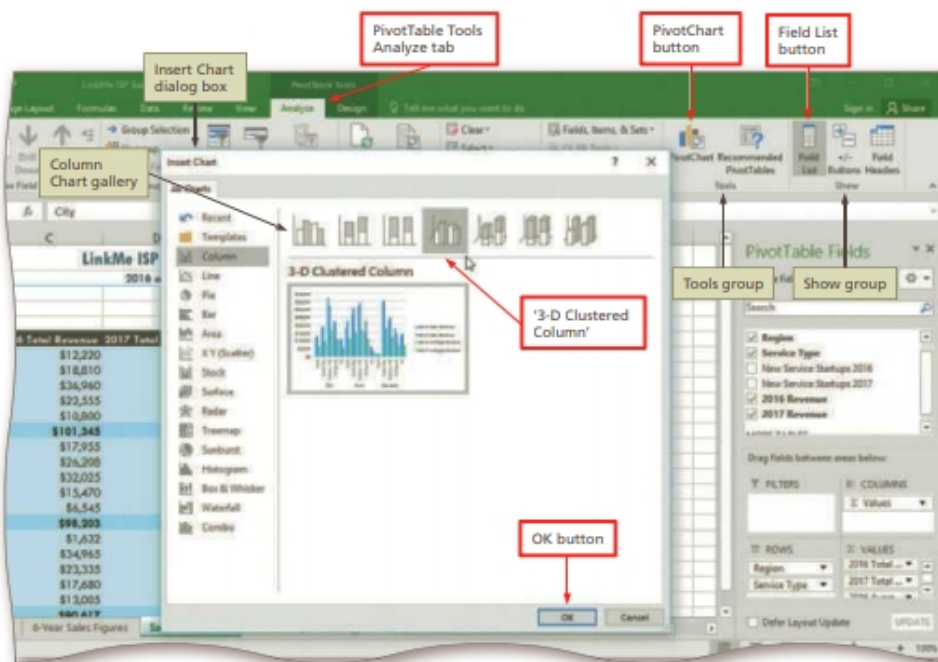
If you already have created a PivotTable report, you can create a PivotChart report for that PivotTable using the PivotChart button (PivotTable Tools Analyze tab | Tools group). The following steps create a 3-D clustered column PivotChart report from the existing PivotTable report. *Why? The PivotChart will show the two-year data for revenue side by side.*



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**1**

- If necessary, click cell A7 to select it in the PivotTable report.
- Click the Field List button (PivotTable Tools Analyze tab | Show group) to display the PivotTable Fields task pane.
- Click the PivotChart button (PivotTable Tools Analyze tab | Tools group) to display the Insert Chart dialog box.
- Click '3-D Clustered Column' in the Column Chart gallery to select the chart type (Figure 8-53).



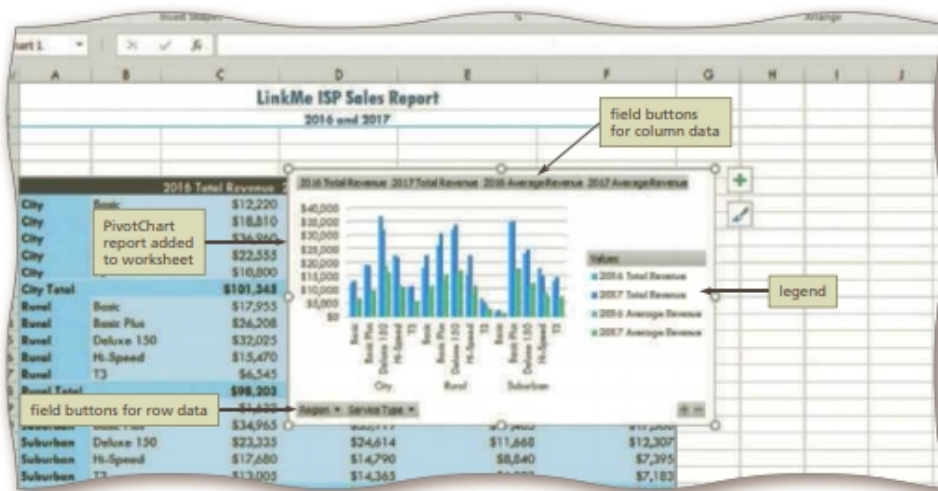
**Figure 8-53**

**2**

- Click the OK button (Insert Chart dialog box) to add the chart to the Sales PivotTable worksheet (Figure 8-54).

**Q&A**

My chart does not display field buttons across the top. Did I do something wrong?  
 No. It may be that they are just turned off. Click the Field Buttons button (PivotChart Tools Analyze tab | Show/Hide Group) to turn them on.



**Figure 8-54**

**Other Ways**

1. Click Insert PivotChart button (Insert tab | Charts group), select chart type (Insert Chart dialog box), click OK button

**To Move the PivotChart Report**

By default, a PivotChart report will be created on the same page as the associated PivotTable report. The following steps move the PivotChart report to a separate worksheet and then change the tab color to match that of the PivotTable report tab.

- 1 Display the PivotChart Tools Design tab.
- 2 With the 3-D Clustered Column chart selected, use the Move Chart button (PivotChart Tools Design tab | Location group) to move the chart to a new worksheet named Sales PivotChart.
- 3 Set the tab color to Turquoise, Accent 1 (shown in Figure 8–55).

## To Remove Fields

The following step deletes the average Sales Data from the PivotTable and PivotChart Reports. Because the PivotTable and PivotChart are connected, removing the fields from one worksheet automatically removes the fields from the other.

- 1 In the PivotChart Fields task pane, drag 2016 Average Revenue and 2017 Average Revenue out of the Values area to remove the average sales data from the PivotChart report and PivotTable report (Figure 8–55).

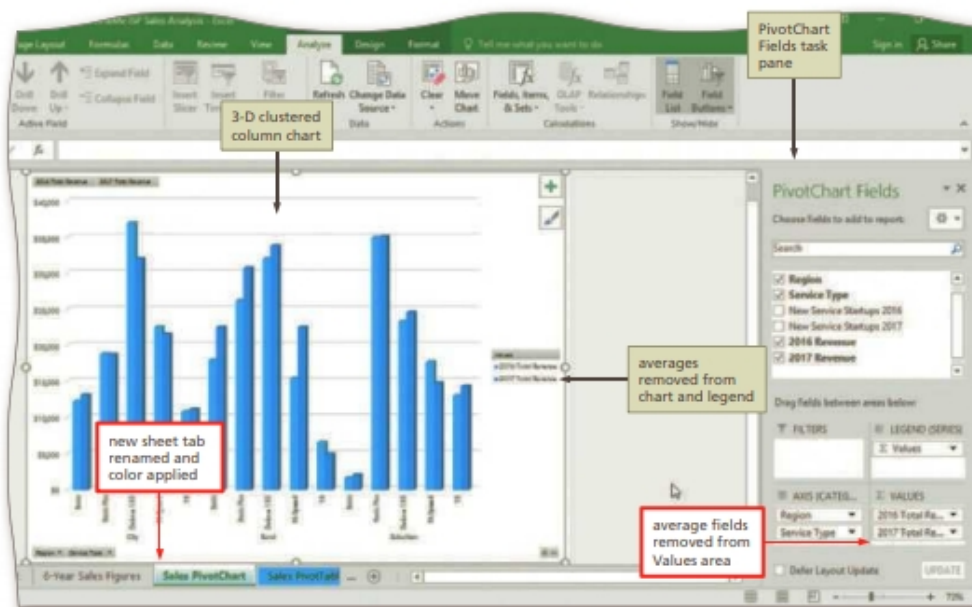


Figure 8–55

## To Change the PivotChart Type and Format the Chart

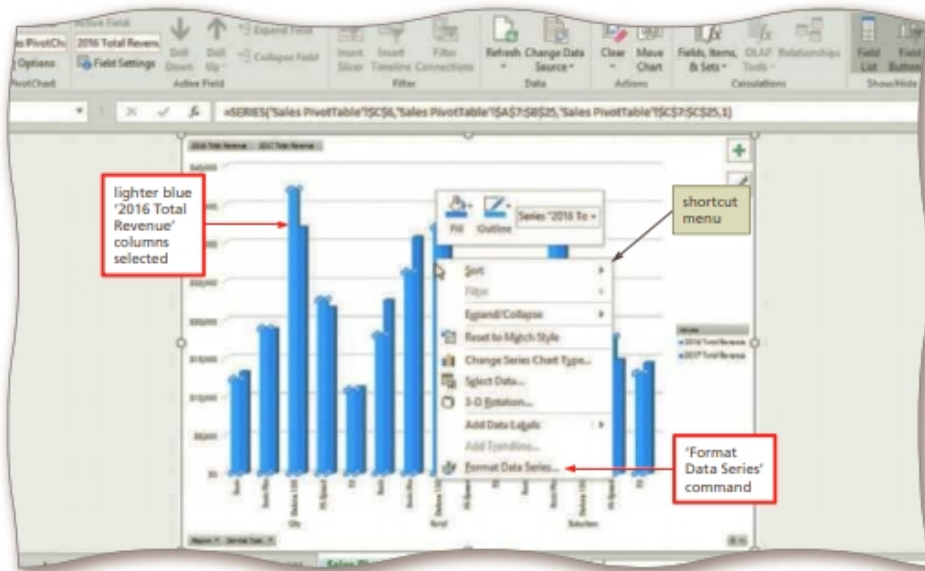
1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why?* Selecting a chart type instead of using the default type provides variety for the reader. The default chart type for a PivotChart is a clustered column chart, however PivotCharts can support most chart types, except scatter (X, Y), stock, and bubble. The following steps change the PivotChart type to 3-D cylinder, add a title to the PivotChart report, and apply formatting options to the chart.

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**1**

- Click one of the lighter blue '2016 Total Revenue' columns to select the data series.
- Right-click to display the shortcut menu (Figure 8-56).



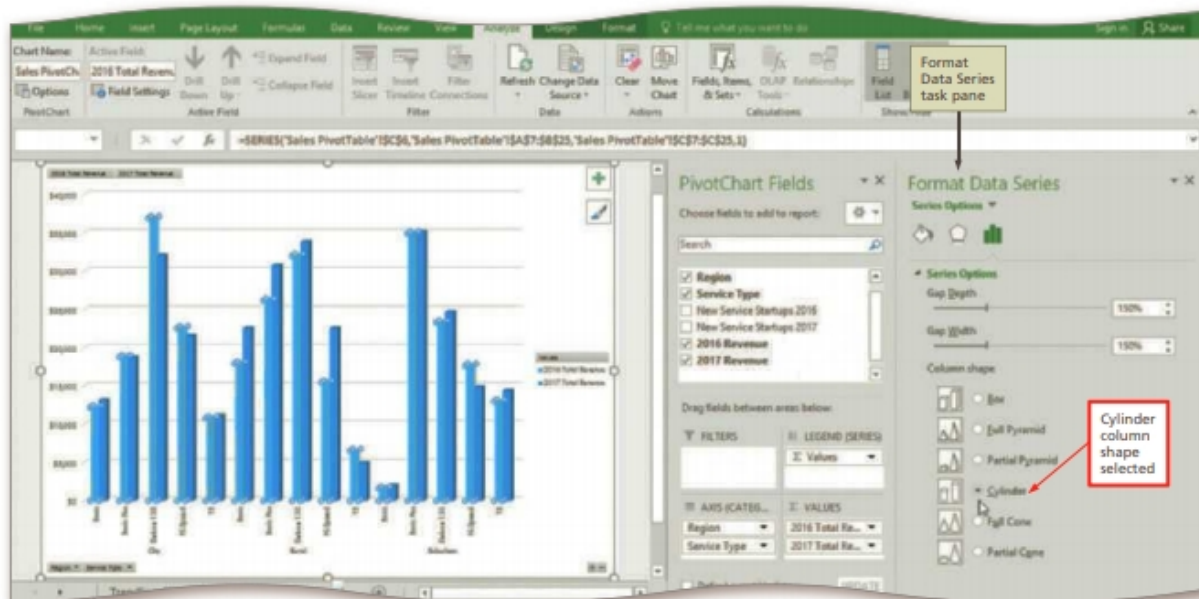
**Figure 8-56**

**2**

- Click 'Format Data Series' on the shortcut menu to open the Format Data Series task pane.
- In the Column shape section (Series Options tab), click Cylinder (Figure 8-57).

**Q&A**

I cannot see a difference. What changed?  
 The lighter blue data columns now display a rounded top. It will be more obvious later in the module and when printed.

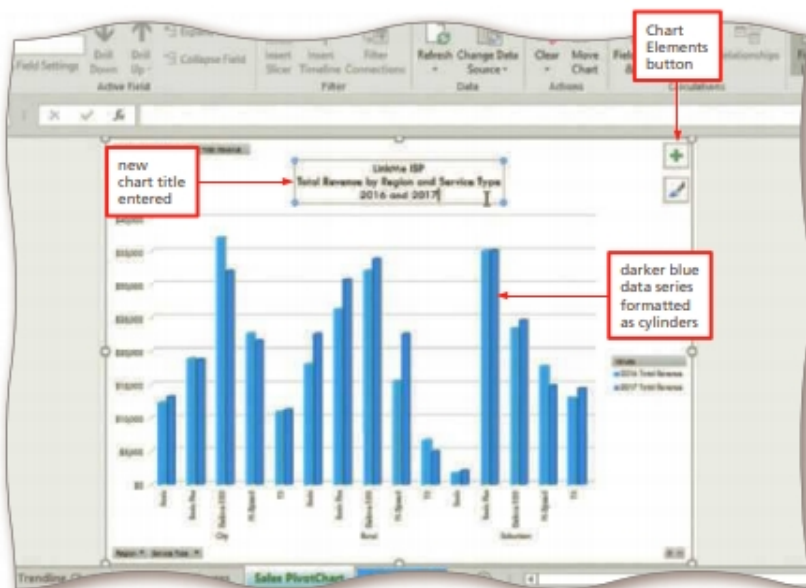


**Figure 8-57**



**3**

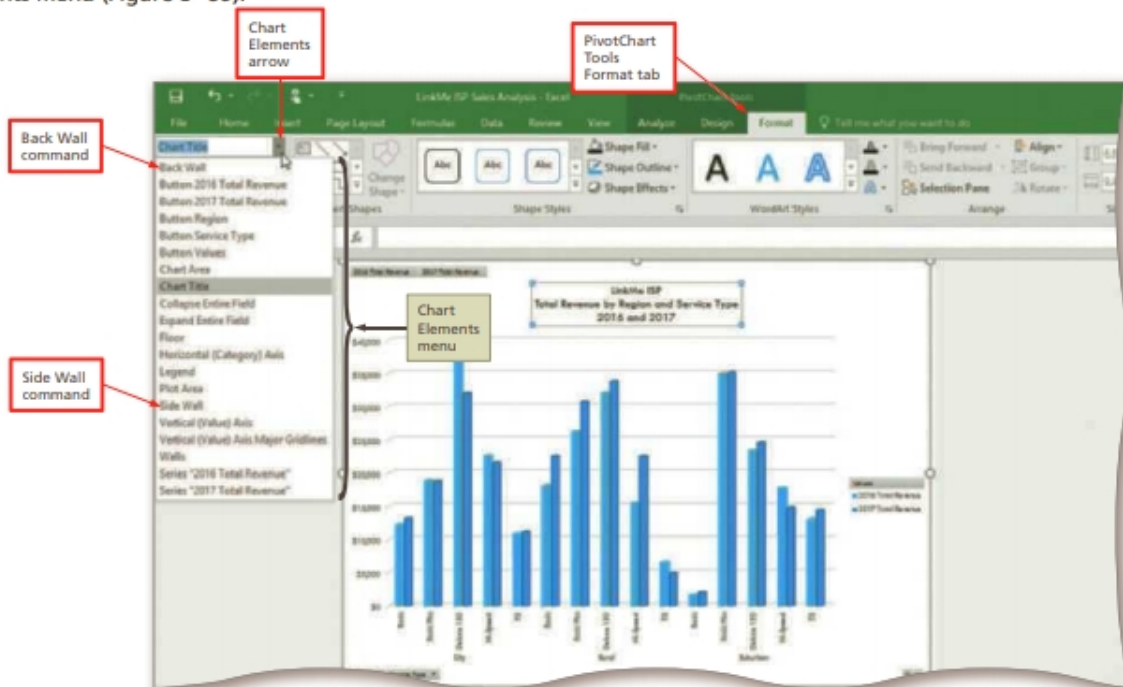
- Repeat the process to change the 2017 Total Revenue column to a cylinder and then close the Format Data Series task pane.
- Click the Chart Elements button to display the menu and then click to place a check mark in the Chart Title check box.
- Select the chart title and then type **LinkMe ISP** as the first line in the chart title. Press the ENTER key to move to a new line.
- Type **Total Revenue by Region and Service Type** as the second line in the chart title and then press the ENTER key to move to a new line.
- Type **2016 and 2017** as the third line in the chart title.
- Select all of the text in the title and change the font color to black (Figure 8-58).



**Figure 8-58**

**4**

- Display the PivotChart Tools Format tab.
- Click the Chart Elements arrow (PivotChart Tools Format tab | Current Selection group) to display the Chart Elements menu (Figure 8-59).

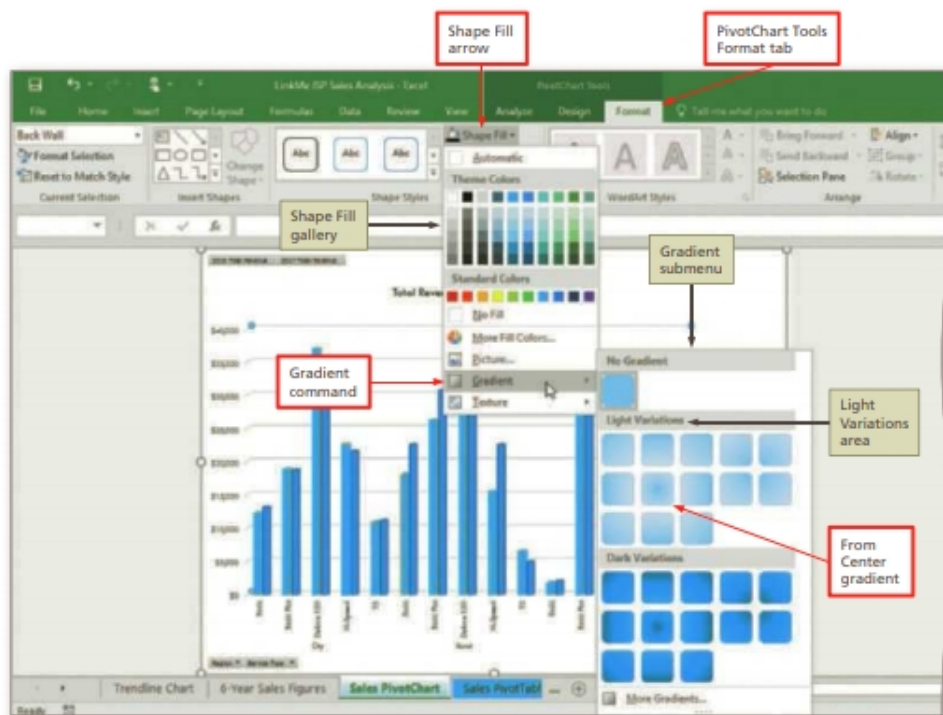


**Figure 8-59**

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**5**

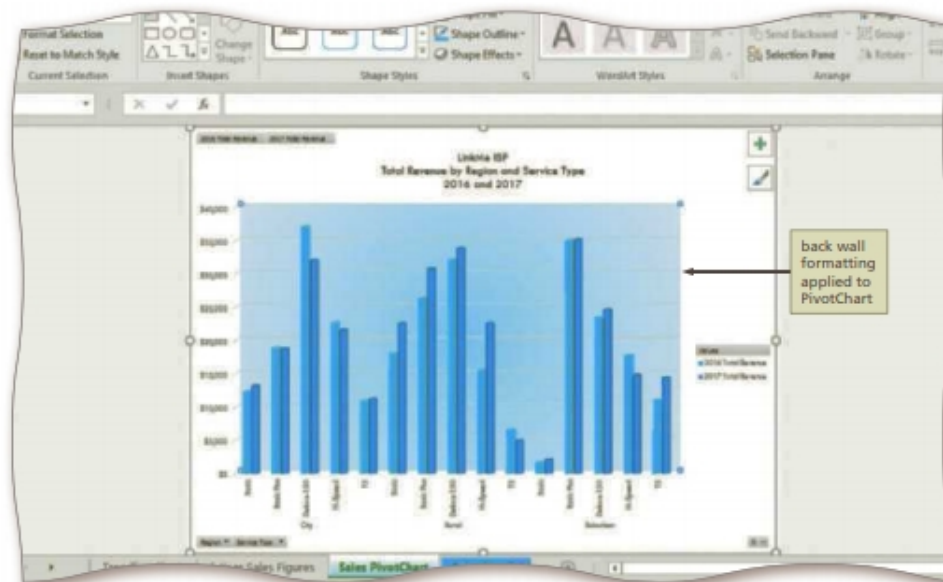
- Click Back Wall on the Chart Elements menu to select the back wall of the chart.
- Click the Shape Fill arrow (PivotChart Tools Format tab | Shape Styles group) to display the Shape Fill gallery.
- Point to Gradient in the Shape Fill gallery to display the Gradient submenu (Figure 8–60).



**Figure 8–60**

**6**

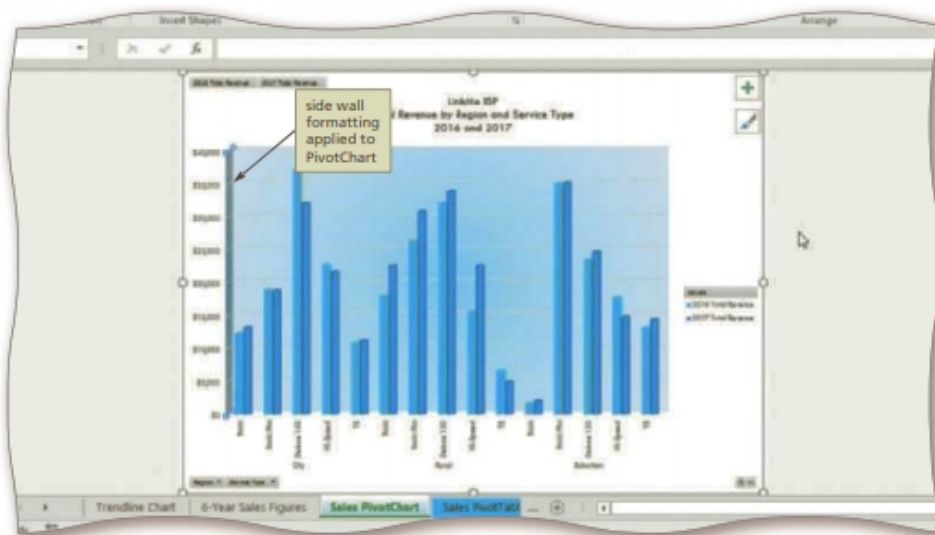
- Click From Center in the Light Variations area to apply a gradient fill to the back wall of the chart (Figure 8–61).



**Figure 8–61**

**7**

- Repeat Steps 5 and 6 after selecting Side Wall on the Chart Elements menu (Figure 8–62).



**Figure 8–62**

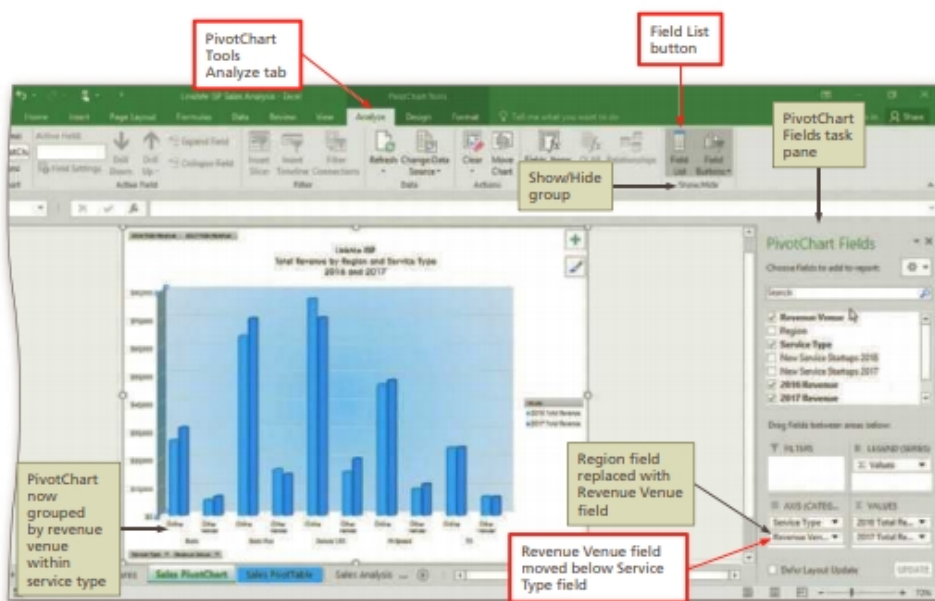
## To Change the View of a PivotChart Report

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why change the view of a PivotChart?* Changing the view of the PivotChart lets you analyze different relationships graphically. As with regular charts, when the source data is changed, any charts built upon that data update to reflect those changes. Unique to PivotCharts, however, is that the reverse is also true. Changes made to the view of the PivotChart are reflected automatically in the view of the PivotTable. The following steps change the view of the PivotChart report that causes a corresponding change in the view of its associated PivotTable report.

**1**

- Display the PivotChart Tools Analyze tab.
- If necessary, click the Field List button (PivotChart Tools Analyze tab | Show/Hide group) to display the PivotChart Fields task pane.
- Click the Region check box in the “Choose fields to add to report” area to deselect the Region field.
- Place a check mark in the Revenue Venue check box to select the field and add it to the Axis area (Figure 8–63).



**Figure 8–63**

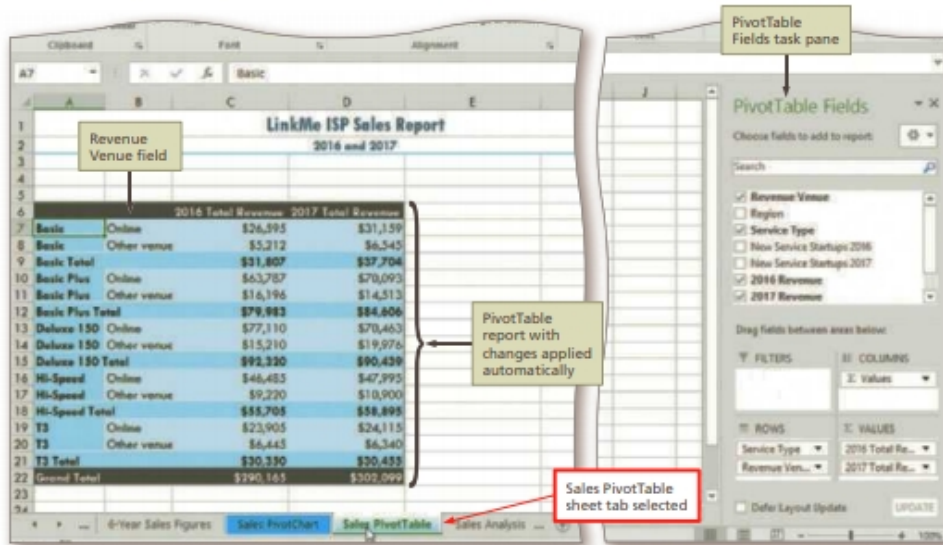


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**2**

- Click the Sales PivotTable sheet tab to view the changes in the corresponding PivotTable report.
- If necessary, click the Field List button (PivotTable Tools Analyze tab | Show group) to display the Pivot Table Fields task pane (Figure 8–64).

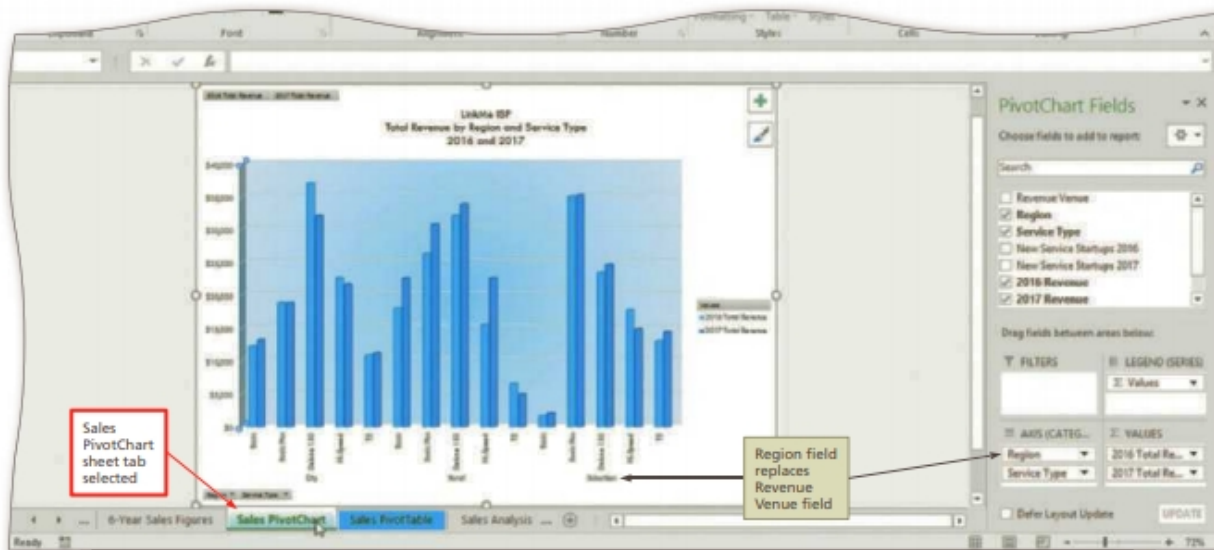
**Q&A** What usually happens when the view of the PivotChart report changes? Changes to the PivotChart are reflected automatically in the PivotTable. Changes to category (x-axis) fields, such as Revenue Venue, are made to row fields in the PivotTable. Changes to series (y-axis) fields appear as changes to column fields in the PivotTable.



**Figure 8–64**

**3**

- In the PivotTable task pane remove the Revenue Venue field from the Rows area and replace it with the Region field.
- If necessary, change the order of the row labels to display the data first by Region and then by Service type.
- Click the Sales PivotChart sheet tab to make it the active tab (Figure 8–65).



**Figure 8–65**

**4**

- Click the Save button on the Quick Access Toolbar to save the workbook.

## To Create a PivotChart and PivotTable Directly from Data

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

The requirements document included a request to create a second PivotChart and PivotTable that examine the average sale amount, controlling for different variables. *Why? Creating a second PivotChart and PivotTable offers a platform for pursuing multiple inquiries of the data simultaneously.* The following steps create a PivotChart report and an associated PivotTable report directly from the available data.

1

- Click the 'Sales Analysis Figures' sheet tab to display the worksheet.
- Click cell A3 to select a cell displaying revenue data and then display the Insert tab.
- Click the PivotChart arrow (Insert tab | Charts group) to display the PivotChart menu (Figure 8-66).

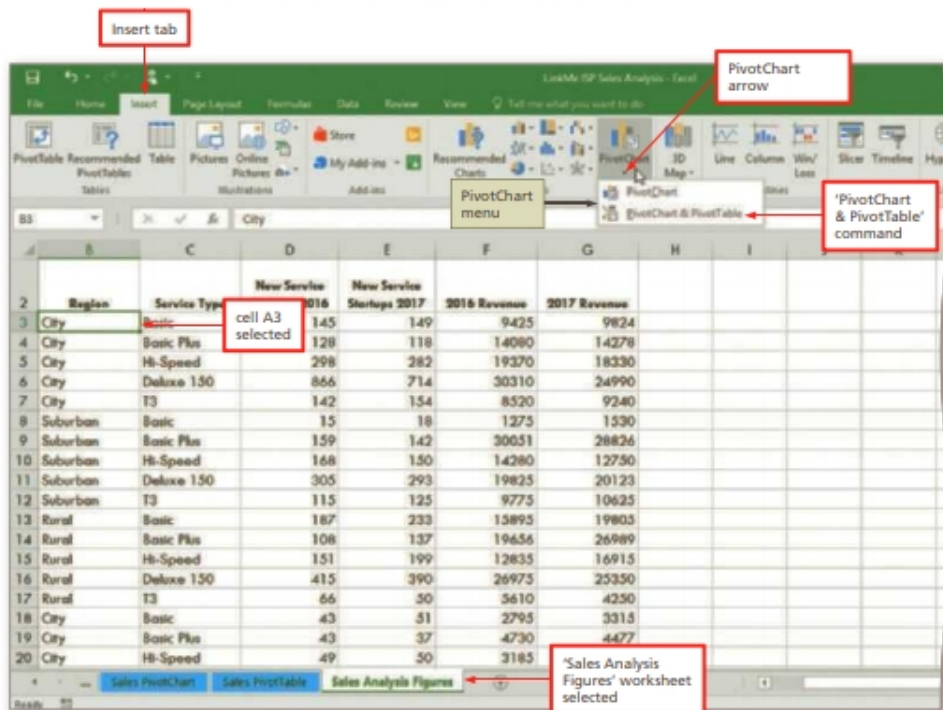


Figure 8-66

2

- Click 'PivotChart & PivotTable' on the PivotChart menu to display the Create PivotTable dialog box.
- If necessary, click New Worksheet (Create PivotTable dialog box) (Figure 8-67).

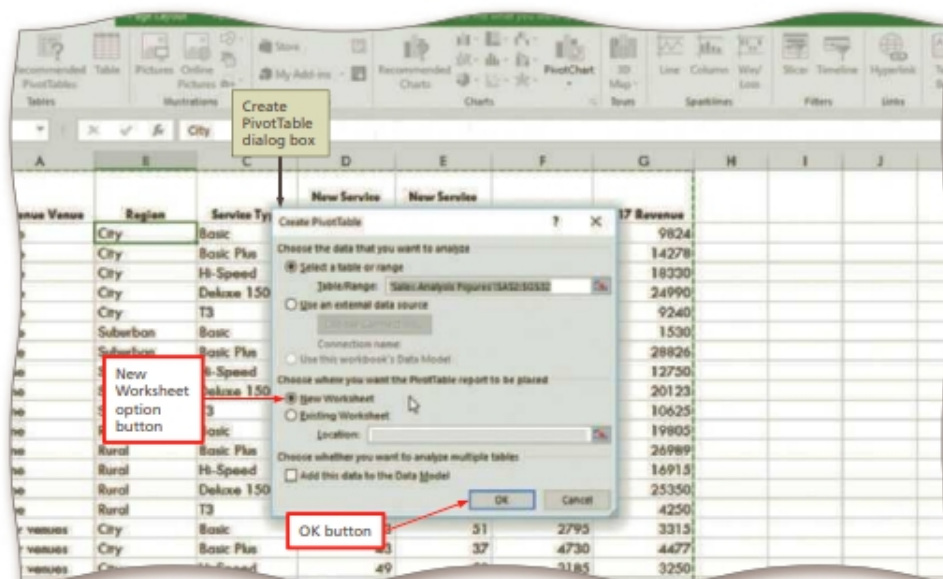
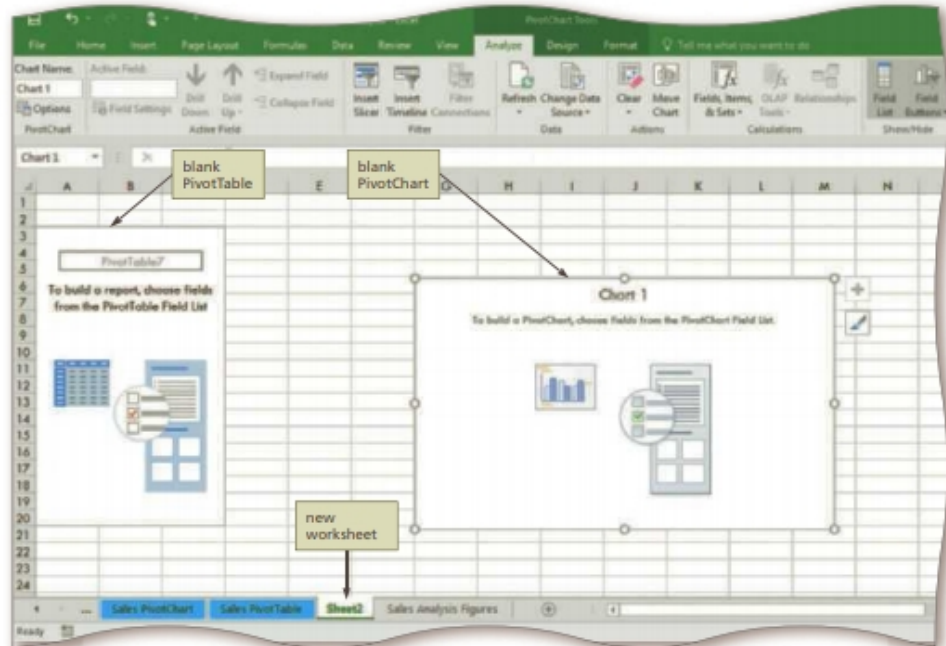


Figure 8-67

**EX 474 Excel Module 8** Working with Trendlines, PivotTables, PivotCharts, and Slicers

**3**

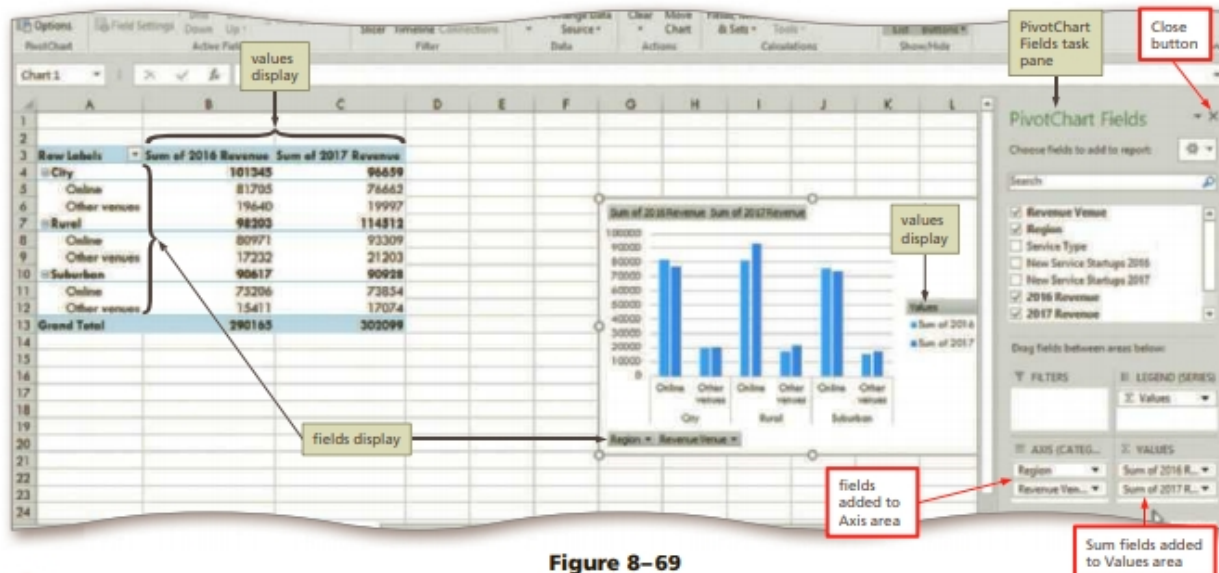
- Click the OK button to add a new worksheet containing a blank PivotTable and blank PivotChart (Figure 8–68).



**Figure 8–68**

**4**

- Use the PivotChart Fields task pane to add the Region and Revenue Venue fields to the Axis area.
- Add the 2016 Revenue and 2017 Revenue fields to the Values area in the PivotChart Fields task pane (Figure 8–69).



**Figure 8–69**

**5**

- Close the PivotChart Fields task pane.
- Rename the new worksheet as Average Startup by Region.



## To Create a Calculated Field to a PivotTable Report

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

The following steps create calculated fields to use in the PivotTable and PivotChart reports. *Why? You would like to review the average start-up sales by region and venue for 2016 and 2017, but this information currently is not part of the data set with which you are working.* You will need to calculate the values you need through the use of a calculated field. A **calculated field** is a field with values not entered as data but determined by computation involving data in other fields. In this case, Average 2016 Startup and Average 2017 Startup will be new calculated fields, based on dividing the existing values of the 2016 Revenue and 2017 Revenue by the New Service Startups 2016 and 2017 respectively.

1

- If necessary, click the PivotTable to make it active and display the PivotTable Tools Analyze tab.
- Click the 'Fields, Items, & Sets' button (PivotTable Tools Analyze tab | Calculations group) to display the Fields, Items, & Sets menu (Figure 8-70).

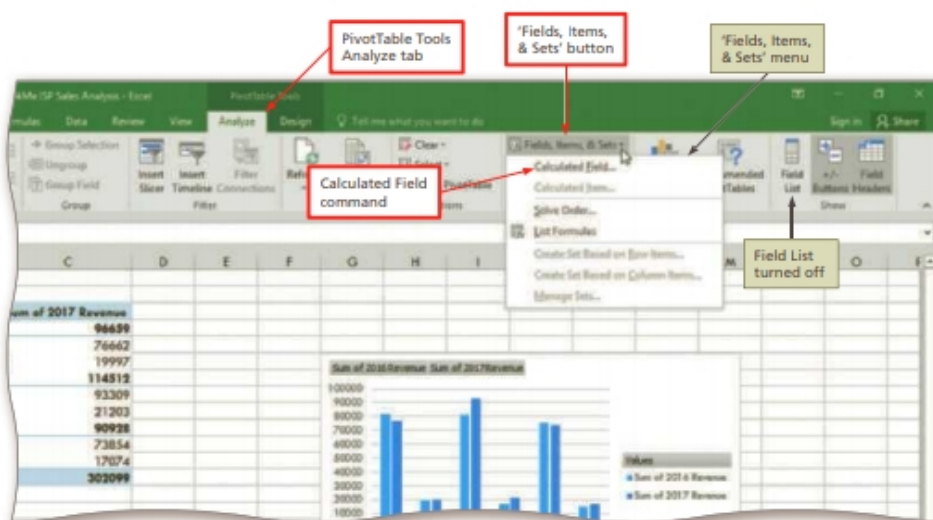


Figure 8-70

2

- Click Calculated Field to display the Insert Calculated Field dialog box.
- In the Name box, type **Average 2016 Startup**.
- In the Formula text box, delete the value to the right of the equal sign, in this case, 0.
- In the Fields list, double-click the 2016 Revenue field to insert it in the Formula text box.
- Type / (slash), and then double-click the 'New Service Startups 2016' field to complete the formula, which should read = '2016 Revenue' / 'New Service Startups 2016' (Figure 8-71).

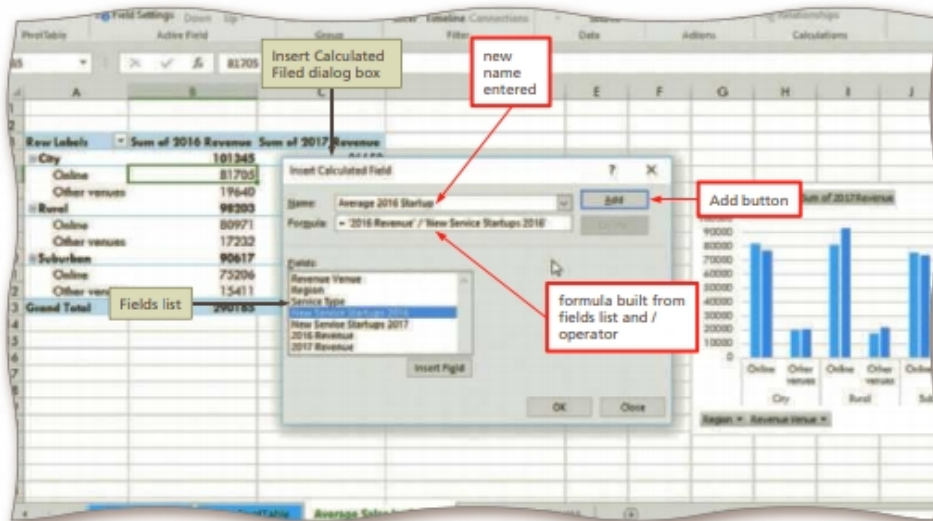
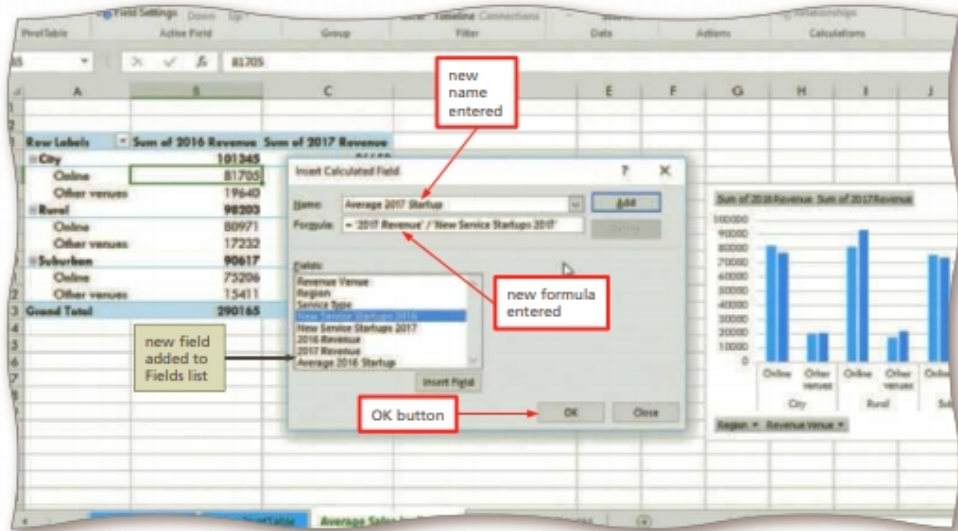


Figure 8-71

**EX 476 Excel Module 8** Working with Trendlines, PivotTables, PivotCharts, and Slicers

**3**

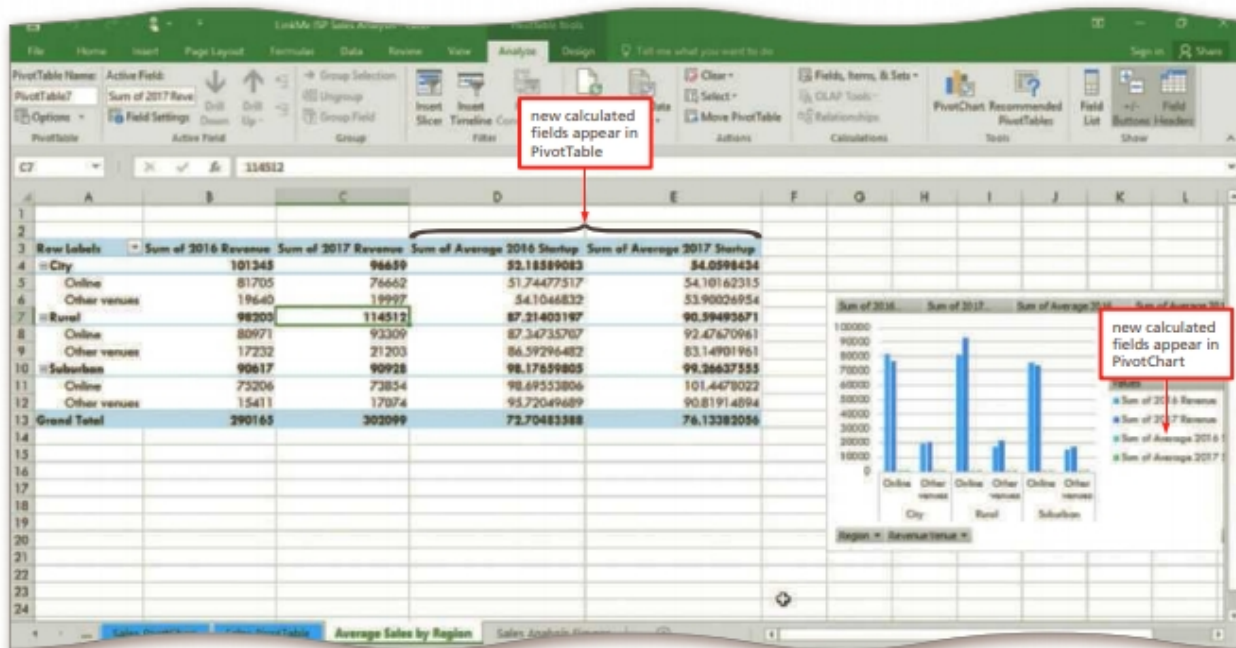
- Click the Add button (Insert Calculated Field dialog box) to add the calculated field to the Fields list.
- Repeat Step 2 to create a calculated field named Average 2017 Startup, calculated using 2017 Revenue divided by New Service Startups 2017 (Figure 8–72).



**Figure 8–72**

**4**

- Click the Add button (Insert Calculated Field dialog box) and then click the OK button to close the dialog box (Figure 8–73).



**Figure 8–73**

## To Format the PivotTable

Now that you have added a calculated field, you can format the PivotTable and PivotChart so they look professional and are easy to interpret. The following steps format the PivotTable report.

- 1 If necessary, click the Field List button (PivotTable Tools Analyze tab | Show group) to display the PivotTable Fields task pane and then click to remove the check mark in the 2016 Revenue check box and the 2017 Revenue check box to remove these fields.
- 2 If necessary, click cell A3 to select it. Display the PivotTable Tools Design tab and then apply 'Pivot Style Medium 12' to the PivotTable.
- 3 Insert two blank rows above the PivotTable. In cell A1, enter the title **LinkMe ISP**. In cell A2, enter the subtitle **Average Startup, 2016 and 2017**.
- 4 Merge and center the text across A1:C1 and A2:C2. Apply the Title style to cell A1 and bold the text. Apply the Heading 2 style to cell A2.
- 5 Change the field name in cell B5 to Average 2016 Startup. Change the field name in cell C5 to Average 2017 Startup. If Excel displays a message about the field name already existing, place a space in front of the field name.
- 6 Apply the currency number format with 2 decimal places and the \$ symbol to the Average 2016 Startup and Average 2017 Startup fields.
- 7 Change the column widths for columns B and C to 12.00, and change the width for column D to 50.
- 8 Wrap and center the field names in cells B5 and C5.
- 9 Use the Field List button, the '+/- Buttons' button, and the Field Headers button (PivotTable Tools Analyze tab | Show group) to hide the field list, the Expand/Collapse buttons, and the field headers (Figure 8–74).

collapse buttons and field headers hidden

title and subtitle entered and formatted

'Pivot Style Medium 12' applied to PivotTable

currency formatting applied

	Average 2016 Startup	Average 2017 Startup
City	\$52.19	\$54.06
Online	\$51.74	\$54.10
Other venues	\$54.10	\$53.90
Rural	\$67.21	\$90.59
Online	\$67.35	\$92.40
Other venues	\$86.59	\$83.15
Suburban	\$98.18	\$99.27
Online	\$98.70	\$101.45
Other venues	\$95.72	\$90.82
<b>Grand Total</b>	<b>\$73.70</b>	<b>\$76.13</b>

**Figure 8–74**

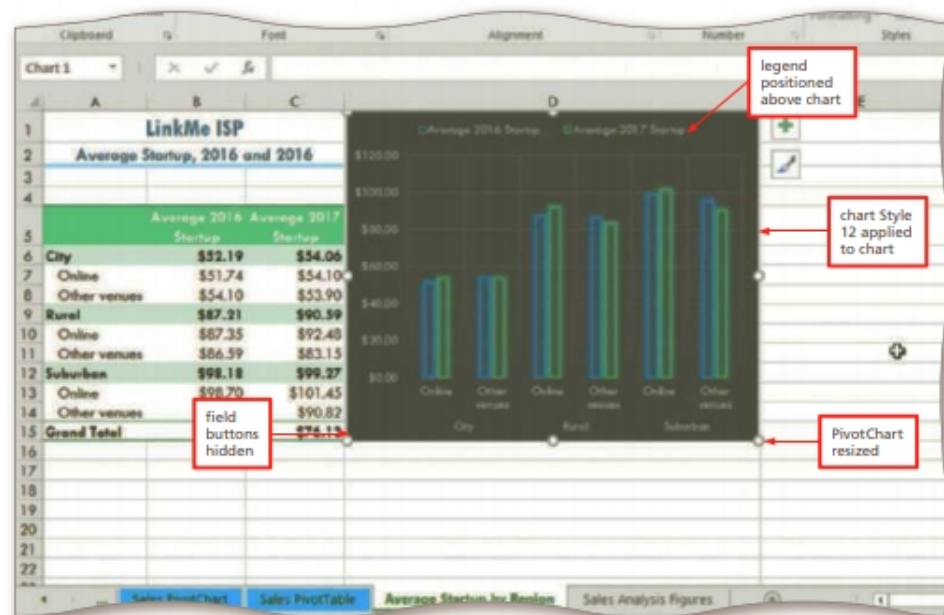


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## To Format the PivotChart

The following steps format the PivotChart report.

- 1 If necessary, click in the PivotChart report to select it. Move and resize the PivotChart report so that it fills the range D1:D15.
- 2 Apply Style 12 in the Chart Styles gallery (PivotChart Tools Design tab | Chart Styles group).
- 3 Use the 'Chart Quick Colors' button (PivotChart Tools Design tab | Chart Styles group) to change the colors to Color 3 in the Colorful area.
- 4 Use the 'Add Chart Element' button (PivotChart Tools Design tab | Chart Layouts group) to position the legend at the top of the PivotChart report.
- 5 Click the Field Buttons button (PivotChart Tools Analyze tab | Show/Hide group) to hide the field buttons.
- 6 Save the workbook (Figure 8–75).



**Figure 8–75**

## Working with Slicers

One of the strengths of PivotTables is that you can ask questions of the data by using filters. Being able to identify and examine subgroups is a useful analytical tool; however, when using filters and autofilters, the user cannot always tell which subgroups the filters and autofilters have selected, without clicking filter buttons to see the subgroups selected. Slicers are buttons you click to filter the data in PivotTables and PivotCharts, making the data easier to interpret. With Slicers, the subgroups are immediately identifiable and can be changed with a click of a button or buttons.



CONSIDER THIS

Excel Module 8

### Why would you use slicers rather than row, column, or report filters?

One effective way to analyze PivotTable data is to use slicers to filter the data in more than one field. Slicers let you refine the display of data in a PivotTable. They offer the following advantages over filtering directly in a PivotTable:

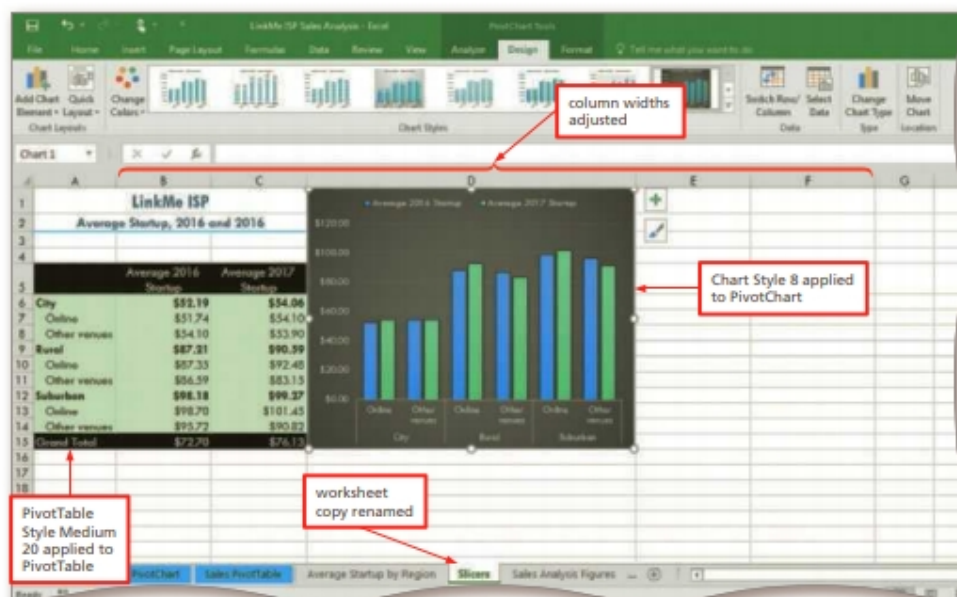
- In a PivotTable, you use the filter button to specify how to filter the data, which involves a few steps. After you create a slicer, you can perform this same filtering task in one step.
- You can filter only one PivotTable at a time, whereas you can connect slicers to more than one PivotTable to filter data.
- Excel treats slicers as graphic objects, which means you can move, resize, and format them as you can any other graphic object. As graphic objects, they invite interaction.

The owner of LinkMe ISP has asked you to set up a PivotChart and PivotTable with a user-friendly way for anyone to explore the average start-up sales data. You can use slicers to complete this task efficiently.

### To Copy a PivotTable and PivotChart

To create a canvas for exploratory analysis of revenue data, you first need to create a new PivotTable and a PivotChart. The following steps copy an existing PivotTable and PivotChart to a new worksheet, format the PivotTable, and rename the worksheet.

- 1 Create a copy of the Average Startup by Region worksheet and then move the copy so that it precedes the Sales Analysis Figures worksheet.
- 2 Rename the new worksheet, Slicers.
- 3 Apply chart Style 8 to the PivotChart to format the PivotChart.
- 4 Apply the Pivot Style Medium 20 style to the PivotTable.
- 5 Set the column widths of columns E to 17.00 and column F to 19.00.
- 6 If necessary, turn off the display of field headers and +/- buttons (Figure 8-76).



**Figure 8-76**

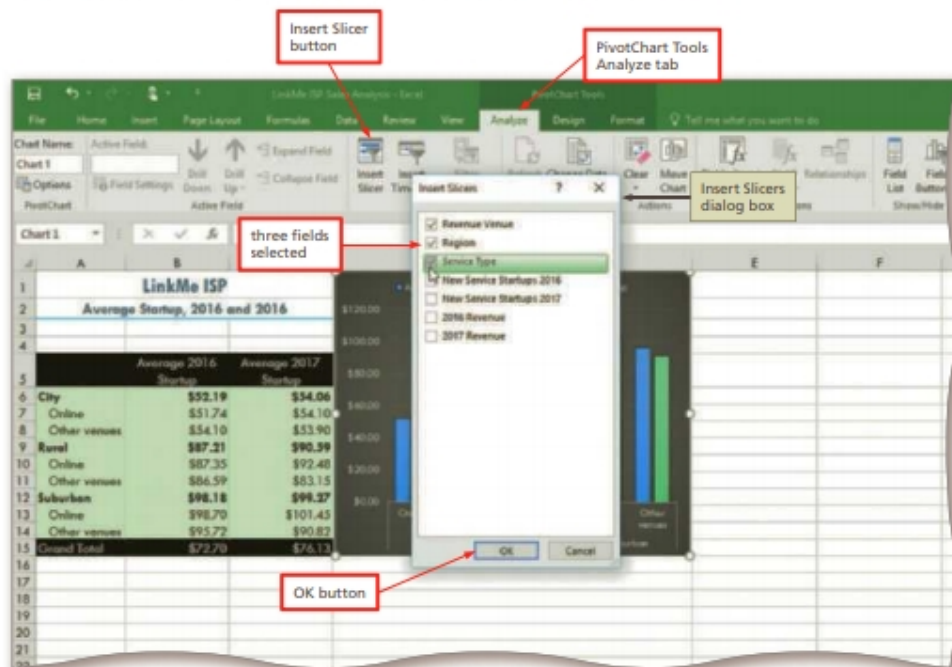
**EX 480 Excel Module 8** Working with Trendlines, PivotTables, PivotCharts, and Slicers

## To Add Slicers to the Worksheet

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
 5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

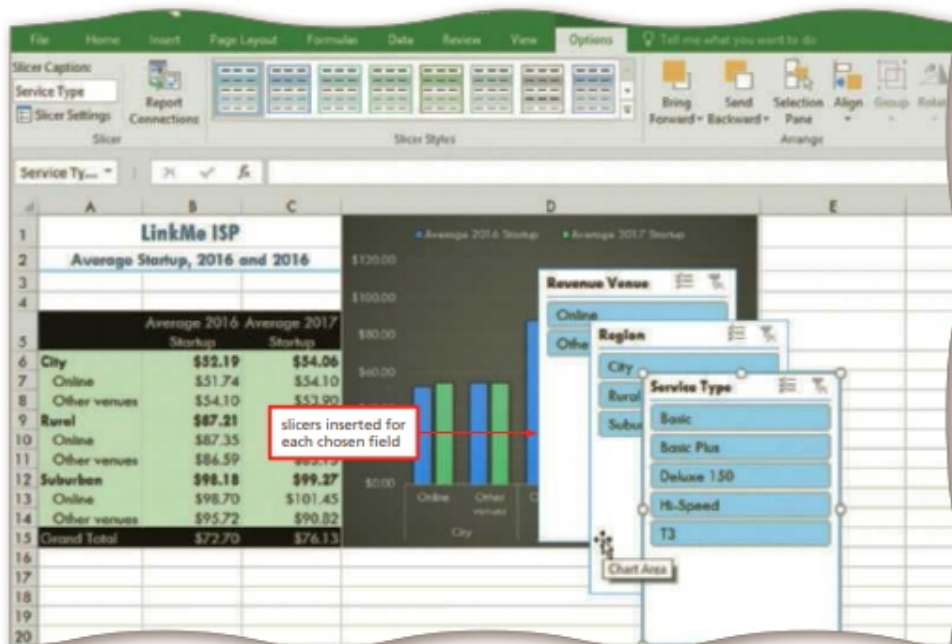
The following steps add a slicer that provides an easier way to filter the new PivotTable and PivotChart. *Why? To analyze sales data for specific subgroups, you can use slicers instead of PivotTable filters.*

- 1**
  - If necessary, click to make the PivotChart active and display the PivotChart Tools Analyze tab.
  - Click the Insert Slicer button (PivotChart Tools Analyze tab | Filter group) to display the Insert Slicers dialog box.
  - Click to place check marks in the Revenue Venue, Region, and Service Type check boxes (Figure 8-77).



**Figure 8-77**

- 2**
  - Click the OK button (Insert Slicers dialog box) to display the selected slicers on the worksheet (Figure 8-78).



**Figure 8-78**



## To Format Slicers

The following steps move the slicers to the right of the PivotChart and then format them. *Why? The slicers need to be moved and formatted so that they do not obscure the PivotTable or PivotChart and are easy to read and use.*

**1**

- Click the title bar of the Revenue Venue slicer and then drag the slicer to column E. Use the sizing handles to adjust the length of the slicer so that it ends at the bottom of row 6, and fits the width so that it ends at the right edge of column E.
- Click and drag the Service Type slicer to column F. Use the sizing handles to adjust the length of the slicer so that it ends at the bottom of row 15 and the width so that it fits in column F.



**Figure 8–79**

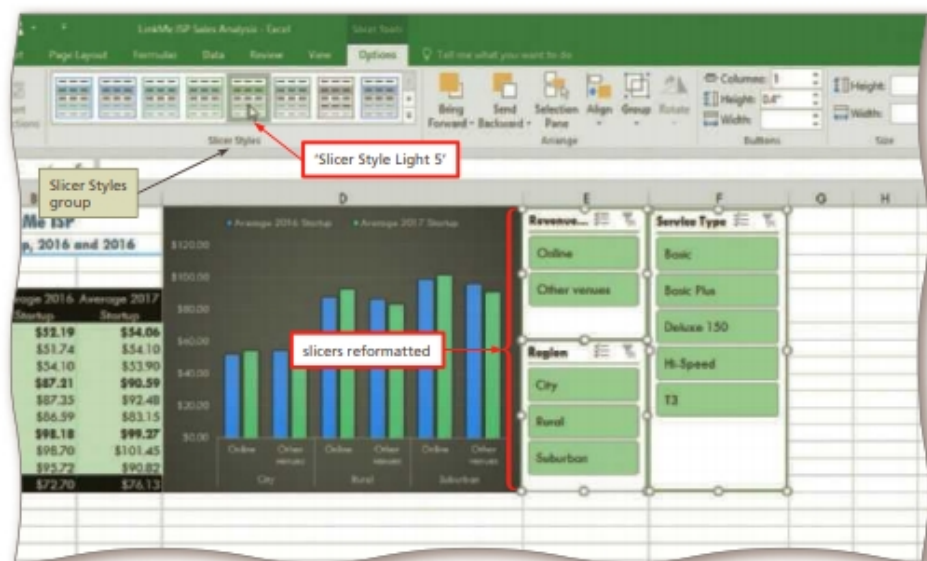
- Click and then drag the Region slicer to column E, just below the Revenue Venue slicer. Use the sizing handles to change the length of the slicer so that it ends at the bottom of row 15 and the width so that it fits in column E.
- Hold down the CTRL key and then, one at a time, click each of the slicer title bars to select all three.
- Select the text in the Height box (Slicer Tools Options tab | Buttons group), type `.4`, and then press the ENTER key to set the button height (Figure 8–79).

**2**

- Click the 'Slicer Style Light 5' Slicer style (Slicer Tools Options tab | Slicer Styles group) to apply it to the slicers (Figure 8–80).

**3**

- Click any cell to deselect the slicers.



**Figure 8–80**

## EX 482 Excel Module 8 Working with Trendlines, PivotTables, PivotCharts, and Slicers

## To Use the Slicers

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

*Why use slicers?* Slicers provide you with a visual means of filtering data. You do not need knowledge of Excel to use slicers. Instead, you click the subgroups of interest. Slicers based on row label fields provide the same results as filters in a PivotTable. They narrow the table down to a visible subgroup or subgroups. Clicking a slicer displays only that slicer's data. You can select multiple fields by using the Multi-Select button in the slicer title bar or by using CTRL+click to add a button (in the same slicer) to the display. The following steps use slicers to review average sales for different combinations of Region and Revenue Venue.

1

- Click Online in the Revenue Venue slicer to display the data for online sales in the PivotTable and PivotChart calculations.
- Hold down the CTRL key and then click City in the Region slicer to remove the City data and show the rural and suburban areas only (Figure 8–81).

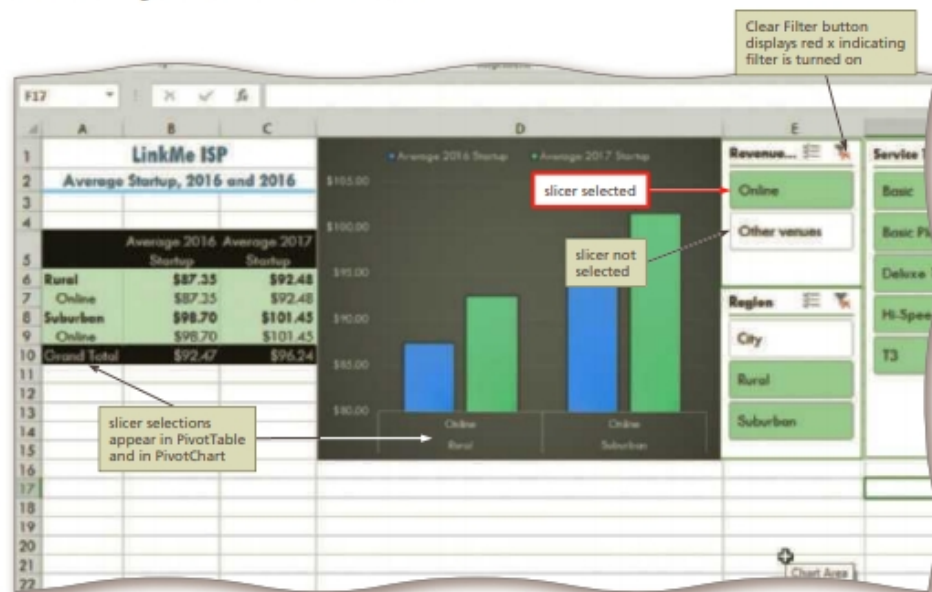


Figure 8–81

2

- Click Other venues in the Revenue Venue slicer to see the data for other venues from the rural and suburban areas only (Figure 8–82).

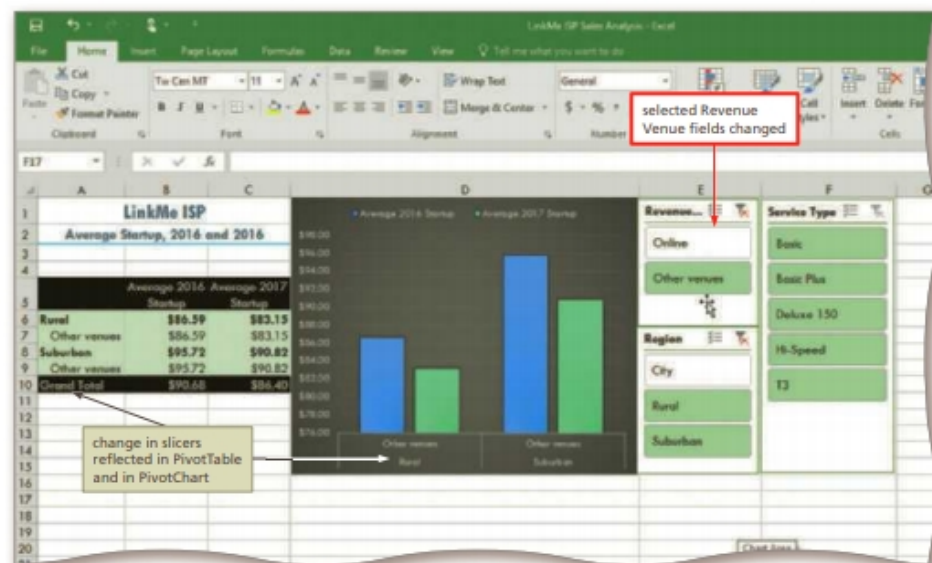


Figure 8–82

## To Use the Slicers to Review Data Not in the PivotTable

1 CREATE LINE CHART & TRENDLINE | 2 CREATE PIVOTTABLE | 3 CHANGE LAYOUT & VIEW | 4 FILTER PIVOTTABLE  
5 FORMAT PIVOTTABLE | 6 CREATE PIVOTCHART | 7 CHANGE PIVOTCHART VIEW & CONTENTS | 8 ADD SLICERS

You can look for possible explanations of patterns by using slicers to analyze data other than that which displays in the PivotTable. *Why? Slicers based on fields not included in the PivotTable provide the same results as report filters.* Slicers regroup and narrow the PivotTable content to groups not visible in the PivotTable. The following steps use slicers to review data not currently visible in the PivotTable.

1

- Click the Clear Filter button on the Revenue slicer and on the Region slicer to remove the filters and return the PivotTable and PivotChart to their unfiltered states.
- Click the Deluxe 150 button in the Service Type slicer to see the aggregate data for the average start-up prices for customers who chose the Deluxe 150 service, broken down by Revenue Venue and Region (Figure 8–83).

### Experiment

- Click different service types and combinations of service types to see how the aggregate data changes.

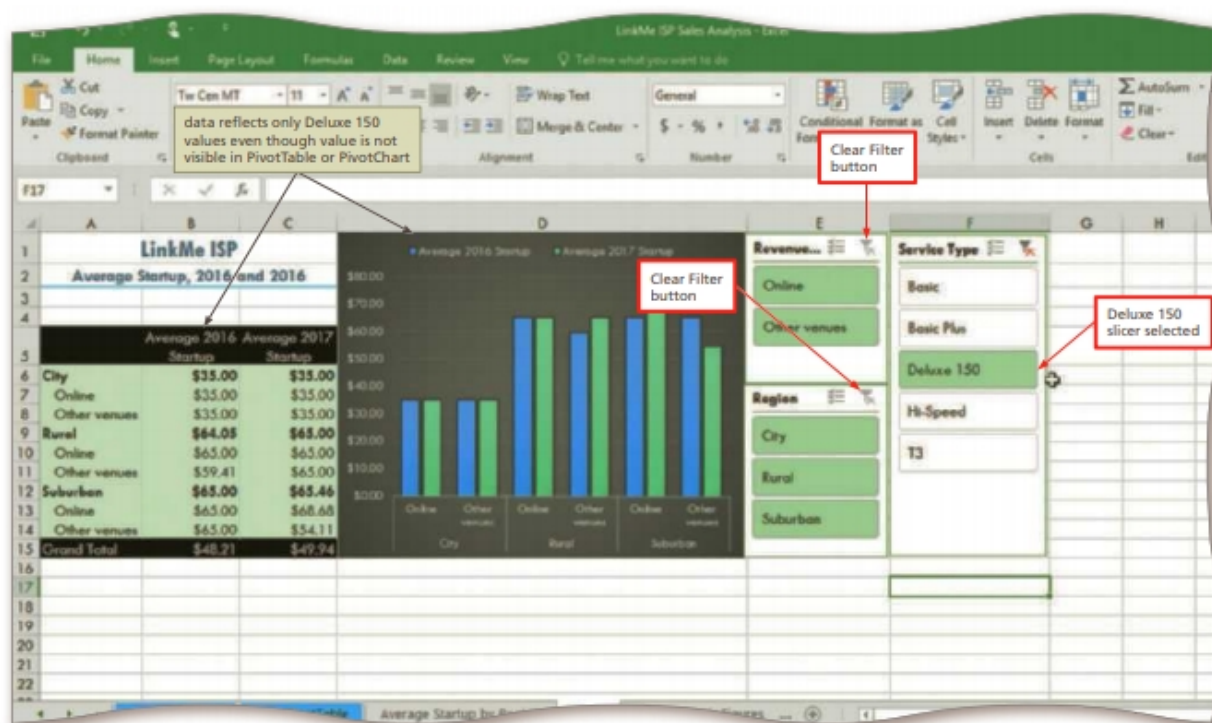


Figure 8–83

2

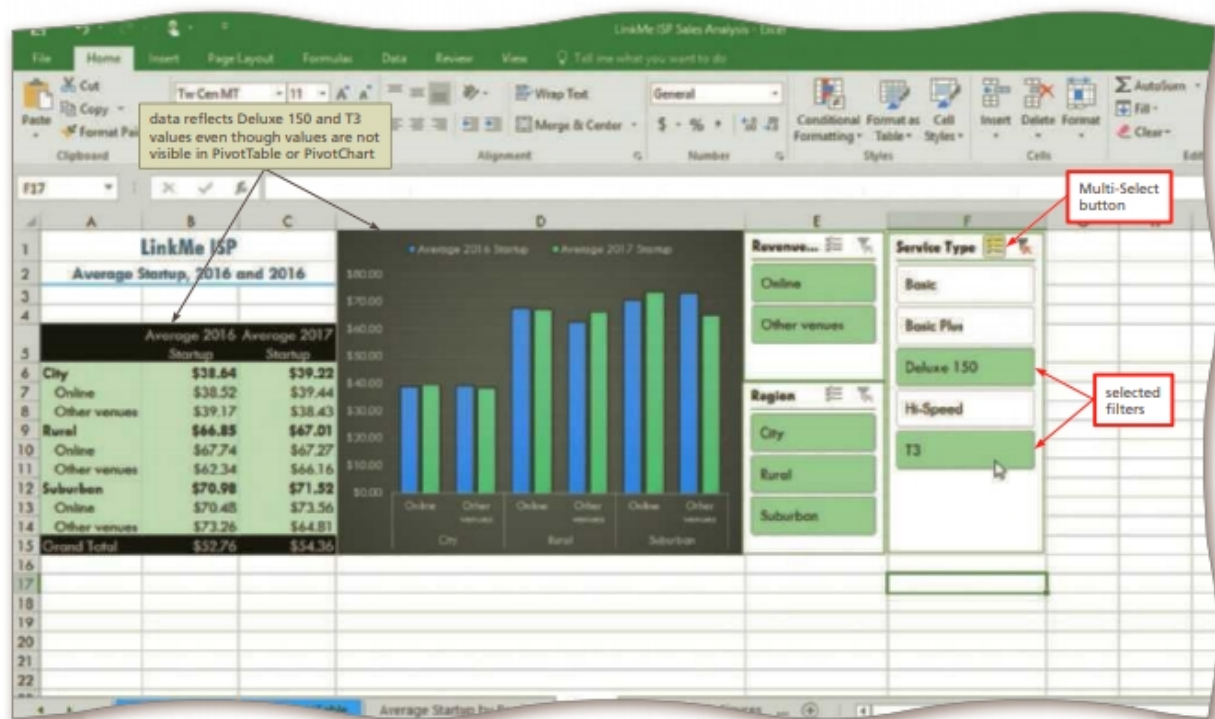
- If necessary, click the Deluxe 150 button in the Service Type slicer to select it, click the Multi-Select button in the slicer header, and then click the T3 button in the Service type slicer to view the aggregate data, broken down by Revenue Venue and Region (Figure 8–84).



**EX 484 Excel Module 8** Working with Trendlines, PivotTables, PivotCharts, and Slicers

**Q&A** How can I save a particular PivotTable setup?

PivotTables are dynamic by nature. To save a particular configuration, make a copy of the worksheet, and use the Protect Sheet command (Review tab | Changes group) to keep changes from being made to the worksheet copy. You can continue to use the PivotTable on the original worksheet to analyze the data.



**Figure 8–84**

**3**

If instructed to do so, enter your name and course number in cell F17 and F18 respectively.

- Save the workbook and exit Excel. If the Microsoft Office Excel dialog box is displayed, click the Don't Save button.

## Summary

In this module, you learned how to create a 2-D line chart and add a trendline to extend the trend to two more time periods. You added an R-squared ( $R^2$ ) value to the trendline to measure the strength of the trend and formatted a data point. You created and formatted a PivotTable report based on raw data. Using the PivotTable Fields task pane, you added row fields and columns to the PivotTable. You created calculated fields in the PivotTable using summary functions. To see the power of the PivotTable, you inserted, deleted, and organized fields to view the data in different ways. You created and formatted a PivotChart Report from a PivotTable, filtering and analyzing data. You then created both a PivotTable and PivotChart from scratch and added a calculated field. Finally, you created slicers to make manipulating PivotTables and PivotCharts easier.

---

### What decisions will you need to make when creating your next worksheet to analyze data using trendlines, PivotCharts, and PivotTables?

Use these guidelines as you complete the assignments in this module and create your own worksheets for evaluating and analyzing data outside of this class.

1. Identify trend(s) to analyze with a trendline.
    - a) Determine data to use.
    - b) Determine time period to use.
    - c) Determine type and format of trendline.
  2. Identify questions to ask of your data.
    - a) Determine which variables to combine in a PivotTable or PivotChart.
  3. Create and format PivotTables and PivotCharts.
    - a) Add all fields to the field list.
    - b) Use formatting features for PivotTables and PivotCharts.
  4. Manipulate PivotTables and PivotCharts to analyze data.
    - a) Select fields to include in PivotTables and PivotCharts.
    - b) Use filters to review subsets of data.
    - c) Use calculated fields and summary statistics to look at different measures of data.
    - d) Create and use slicers to look at subsets of data.
- 

**CONSIDER THIS: PLAN AHEAD**