

Course CB08

Organize and Analyze Data With Tables and Pivot Tables

**by
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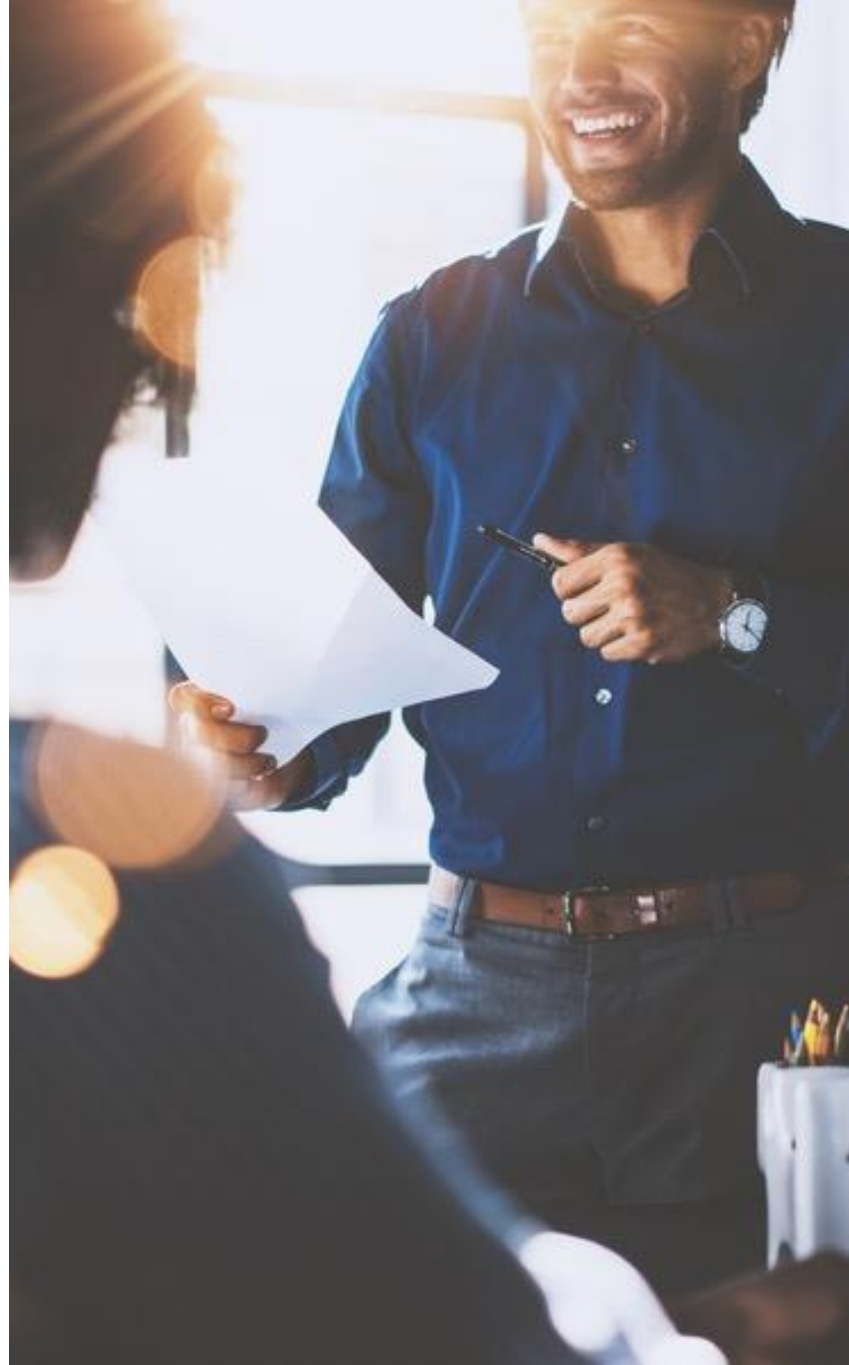
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Organize and Analyze Data With Tables and Pivot Tables

Objectives

- ▶ **Analyze and subtotal data contained in an Excel dataset with filtering and subtotalling**
- ▶ **Summarize business data with PivotTables**
- ▶ **Manipulate a PivotTable to examine data**



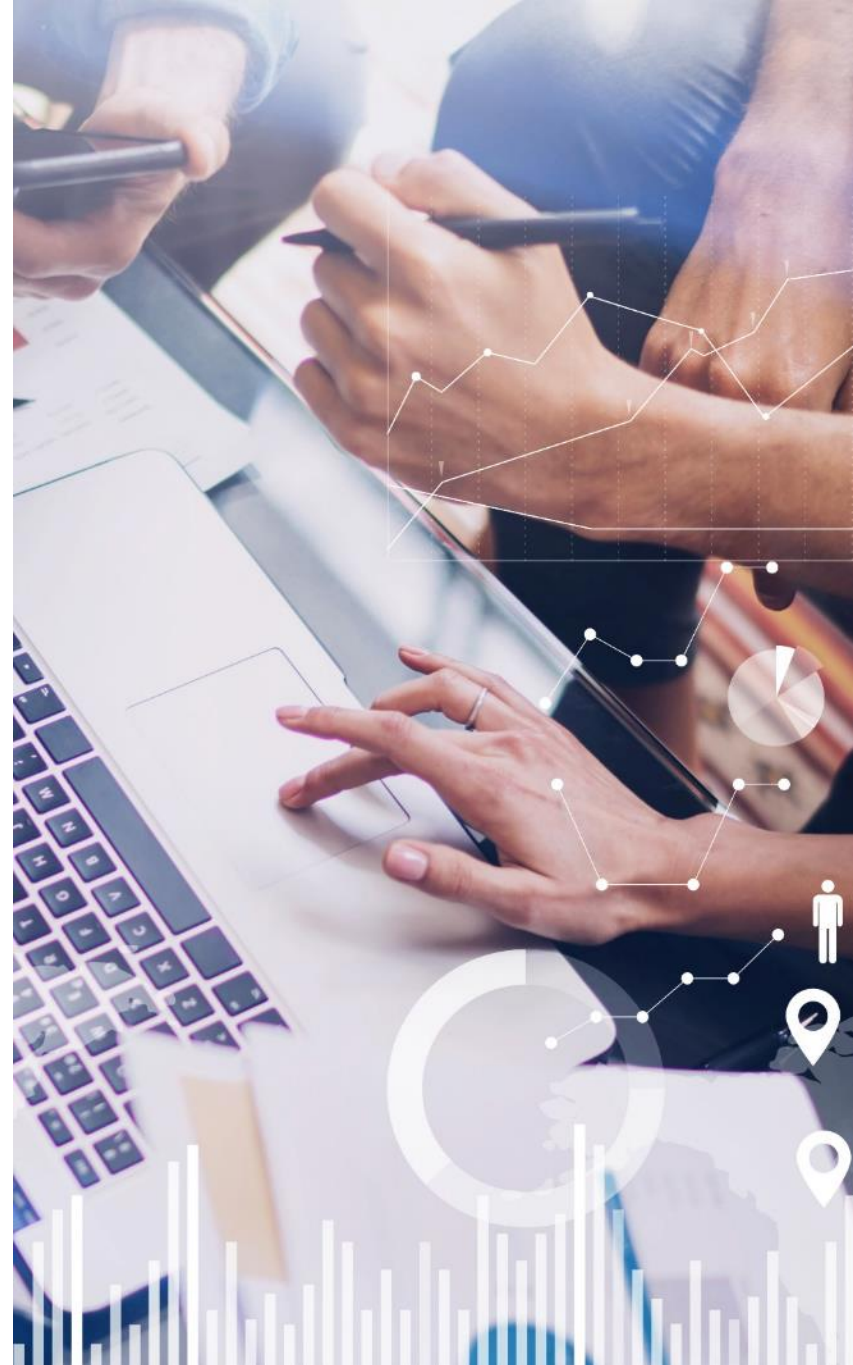
Analyzing Data



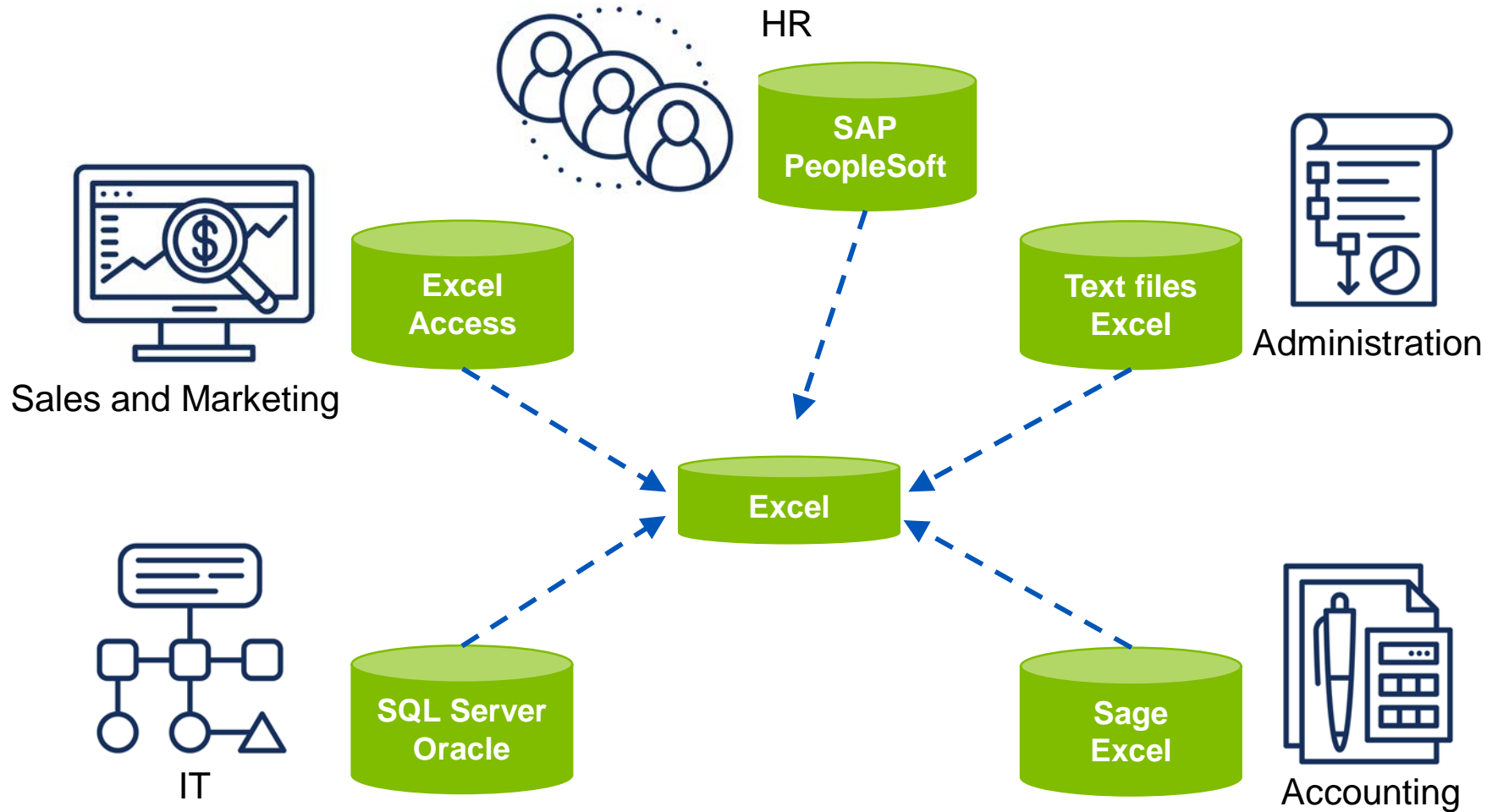
Contents

Interrogating Excel Lists

- ▶ **Creating PivotTables and PivotCharts**
- ▶ **Hands-On Exercise 1.1**
- ▶ **Analyzing Data With PivotTables**
- ▶ **Hands-On Exercise 1.2**



How Is Your Data Stored?



IT = information technology
SQL = structured query language

What Are Excel Lists (Datasets)?

► Flat-file databases

- Columns are fields and the top row has field names
- Rows are records

► Contiguous with no breaks in either columns or rows

- IntelliSense can correctly identify the boundaries of your dataset when one cell is selected

	A	B	C	D	E
1	OrderDate	CompanyName	ProductCode	Quantity	Country
2	01/01/2005	AMBASSADOR PCKG (PETERBORO')		15	Singapore
3		GRIFFITH LABORATORIES		4	Thailand
4	05/01/2005	M & H PLASTICS LTD		19	
5	08/01/2005	RAYSHINE (CHESTERFIELD)		13	UK
6	08/01/2005	SYNTEC PROCESSING LTD		0	Sweden
7	09/01/2005	SERRANGOON COFFEE CHUMPS		18	France
8	10/01/2005	CRAZY COFFEE LOVERS		12	UK
9	13/01/2005	DAIRI-PAK		9	USA
10	14/01/2005	CHOCOHOLICS		8	Australia
11	16/01/2005	BUNZL CLEANING & HYGIENE SUPPLIES		14	Canada
12	17/01/2005	KELLOGS		9	Japan
13	17/01/2005	INDUCTS CHEMICALS LTD		6	India
14	18/01/2005	COUNTRY COTTAGE COOKED MEATS LTD		5	Sweden
15	21/01/2005	CONCORDE CHEMICALS		1	France
16	22/01/2005	INDUS CHEMICALS LTD		10	Pakistan

Sorting and Filtering Range of Data

► Notice the tables below. Which one is a suitable data source?

	A	B	C	D	E
1	Title		DateOut	AmountPaid	Category
2					
3	Spirited Away		12/31/2010	2.50	Animated
4	Not a movie that is seen very often				
5	Spirited Away - the children's version	virginia		2.50	Children's
6	Sahara	Jesse	war movie	29.5	
7					

	A	B	C	D
8	Title	DateOut	AmountPaid	Category
9	There Will Be Blood	12/30/2010	2.50	Adventure
10	Avatar	12/30/2010	2.50	Animated
11	Five Easy Pieces	12/30/2010	2.50	Drama
12	There Will Be Blood	12/30/2010	2.50	Drama
13	Unforgiven	12/30/2010	2.50	Drama
14	Avatar	12/30/2010	2.50	Fantasy
15	What the Bleep Do We Know!?	12/30/2010	2.50	Mystery

Overview on Types of Dataset Analysis

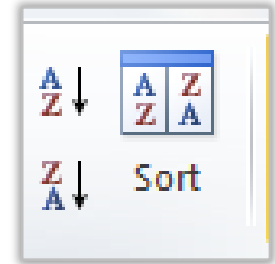
► Excel analyzes datasets with

- Filtering
 - Lets you examine a subset of data
 - Either use AutoFilter or Advanced Filter
- Subtotaling
 - Calculates subtotals and grand totals depending on changes in a specified field
- PivotTables
 - Interactive table that lets you summarize and query data
 - Can analyze data from relational databases

Sorting the Data

► Organize your data quickly by sorting it

- Excel provides 64 levels of sort
- Sort reorders the data according to a particular field(s)
- Add a level for a secondary sort



► Steps

- Click a cell that is within the range of contiguous data
- If the data is contiguous, Excel will find the edges of the range (called IntelliSense)
- Select **Data | Sort & Filter | Sort**
- Select the field to sort by, the type of sort, and direction. Also, indicate that the range has headers
- Click **OK**

Sort Dialog

The screenshot shows the Microsoft Excel interface with the 'Data' tab selected. The 'Sort & Filter' group in the ribbon is active, showing the 'Sort' button. A data table is visible with columns A, B, C, and D. The table contains movie titles, release dates, and prices. A 'Sort' dialog box is open, allowing the user to configure sorting criteria.

Sort Dialog Configuration:

- My data has headers:** ☒
- Sort by:** DateOut, **Sort On:** Values, **Order:** Oldest to Newest
- Then by:** Title, **Sort On:** Values, **Order:** A to Z

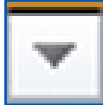




Table Data:

	A	B	C	D
7				
8	Title	DateOut	AmountPaid	Category
9	There Will Be Blood	12/30/2010	2.50	Adventure
10	Avatar	12/30/2010	2.50	Adventure
11	Five Easy Pieces	12/30/2010	2.50	Adventure
12	There Will Be Blood	12/30/2010	2.50	Adventure
13	Unforgiven	12/30/2010	2.50	Adventure
14	Avatar	12/30/2010	2.50	Adventure
15	What the Bleep	12/30/2010	2.50	Adventure
16	Unforgiven	12/30/2010	2.50	Adventure
17	Cliffhanger	12/30/2010	2.50	Adventure
18	National Treasure	12/30/2010	2.50	Adventure
19	Cliffhanger	12/29/2010	2.50	Adventure
20	National Treasure 2: Book of Secrets	12/29/2010	2.50	Adventure

AutoFilter

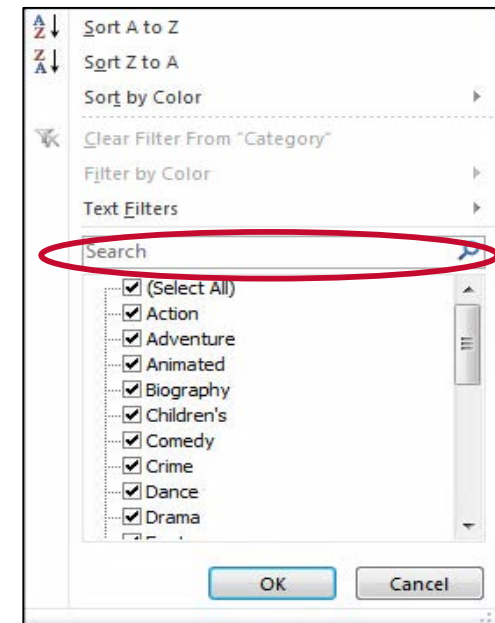
- ▶ **AutoFilter can be turned on for a contiguous range of data**
 - Click a cell within a contiguous range of data
 - Select **Data | Sort & Filter | Filter** button
- ▶ **Filter buttons appear in the header row on each column**
 - Click the icon for a particular column to select criteria
 - Can also sort
 - Icon at top changes, identifying filter



Status	Icon
No filter	
Sort ascending/descending	 
Filtered/filtered with sort	 

Filtering an Excel Recordset

- ▶ **Click on a drop down to enter criterion for a column**
 - Type a value in the search box *or*
 - Click the desired checkboxes
 - Click **OK**
 - Excel returns a dataset of those records that meet the criteria
- ▶ **Select Data | Sort & Filter | Clear to show all records again**

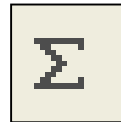


	A	B	C	D
7				
8	Title	DateOut	AmountPaid	Category
9	There Will Be Blood	12/30/2010	2.50	Adventure
19	Cliffhanger	12/29/2010	2.50	Adventure
20	National Treasure 2: Book of Se	12/29/2010	2.50	Adventure

Subtotal Function With a Filtered Dataset

► Subtotal a column with filters

- Use AutoSum tool
- Applies the SUBTOTAL () function
- Sums up visible records



► **SUBTOTAL(function_num,ref1)**

- `function_num` = value that specifies function to apply
- `ref1` = reference to the entire field

Used with ranges	Used in tables	Function
1	101	AVERAGE
2	102	COUNT
3	103	COUNTA
4	104	MAX
5	105	MIN
6	106	PRODUCT
7	107	STDEV
8	108	STDEVP
9	109	SUM
10	110	VAR
11	111	VARP

D2242		:	✕	✓	<i>fx</i>	=SUBTOTAL(9,D2:D2241)
	A	B		C	D	E
1	OrderDate	CompanyName	ProductCode	Quantity	Country	
588	22/01/2004	LAKSA DELIGHTS	PR10	15	UK	
628	03/02/2004	CRAZY COFFEE LOVERS	PR10	10	UK	
666	13/02/2004	THE RITZY	PR10	17	UK	
769	30/03/2004	RAYSHINE (CHESTERFIELD)	PR10	20	UK	
889	17/05/2004	RAYSHINE FOODS LTD (ORCHARD ROAD)	PR10	20	UK	
1067	16/07/2004	RAYSHINE FOODS (MOLD) LTD	PR10	13	UK	
1157	28/08/2004	CRAZY COFFEE LOVERS	PR10	9	UK	
1161	30/08/2004	M & H PLASTICS LTD	PR10	9	UK	
1172	05/09/2004	RAYSHINE (CHESTERFIELD)	PR10	11	UK	
1389	18/11/2004	BIRMINGHAM PACKAGE CO	PR10	18	UK	
1426	30/11/2004	BAKEWELL (PIPELINE)	PR10	1	UK	
2242				143		

Sort, Select, and Subtotal a Range of Data

Do Now

1. Open the file C:\CB08\01_AutoFilter.xlsx
2. With the instructor try sorting and selecting information
3. Try out SUBTOTAL function with the filtered list

Excel Tables

- ▶ **Tables are groups of associated data**
 - Usually have headers, with data below
 - Coordinates with SharePoint

- ▶ **Tables provide a database area in the spreadsheet**
 - Analyze groups of data
 - Sort and select data
 - Subtotal data at the end of a column with a Total row
 - Use drop-downs to define the function to be used

Creating a New Table

► Entering data in an Excel worksheet doesn't make it an Excel table

- You must insert a table from an existing range

► Steps

- Click a cell in a contiguous range of data
- Choose **Insert | Tables | Table**

Or

- Quick key <Ctrl><T>
- Verify the table range
 - IntelliSense finds contiguous rows and columns
- Specify whether the table has headers (column headings)
- Click **OK**

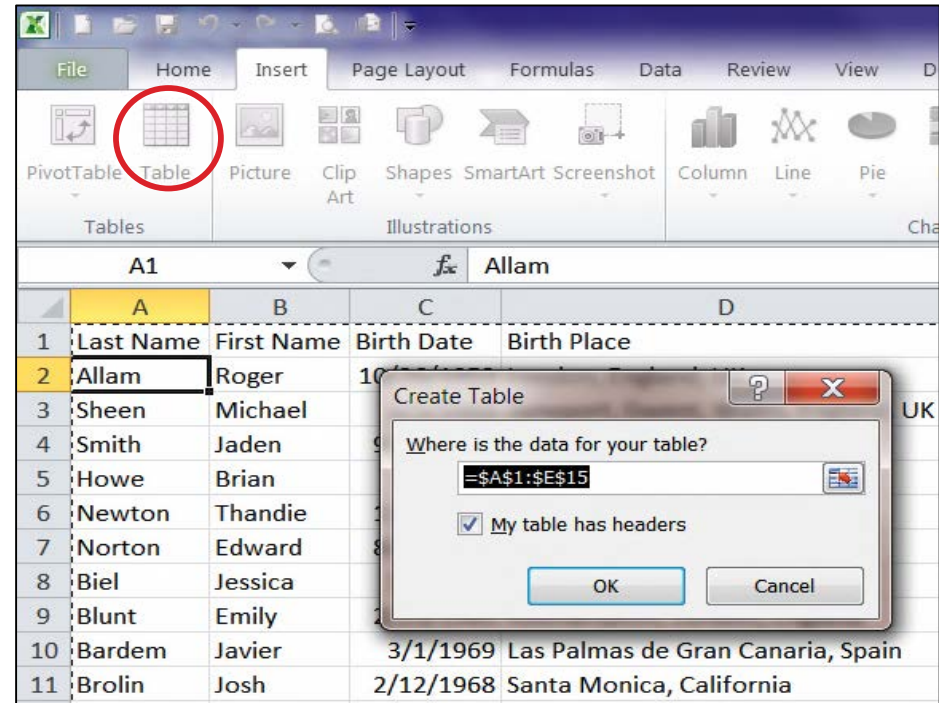


Table Tools

- ▶ **Table tools appear when the active cell is in the table area**
 - Modify the table's design

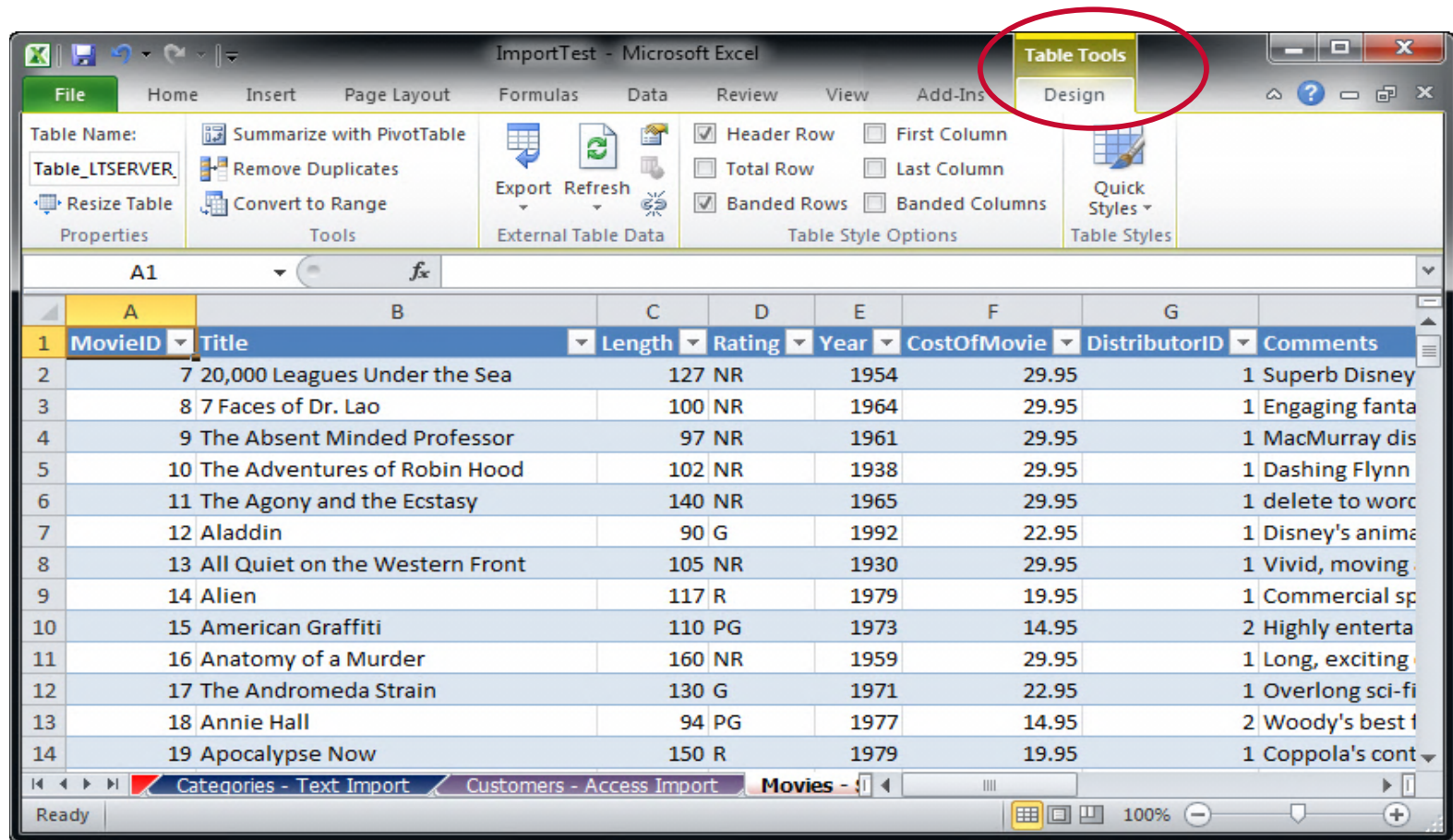
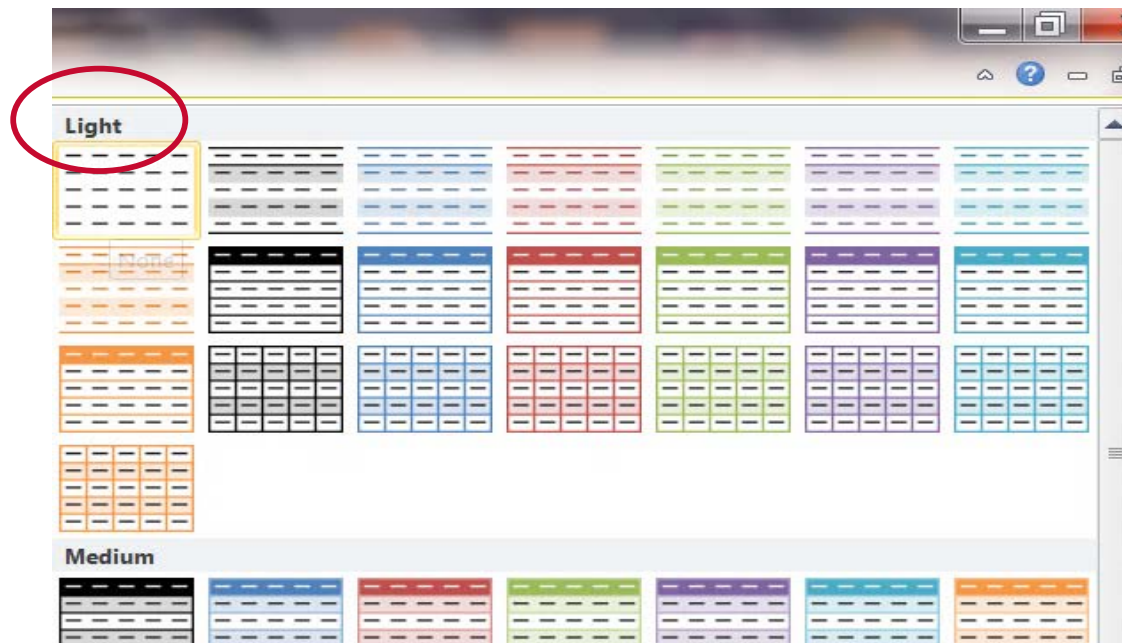


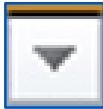




Table Styles

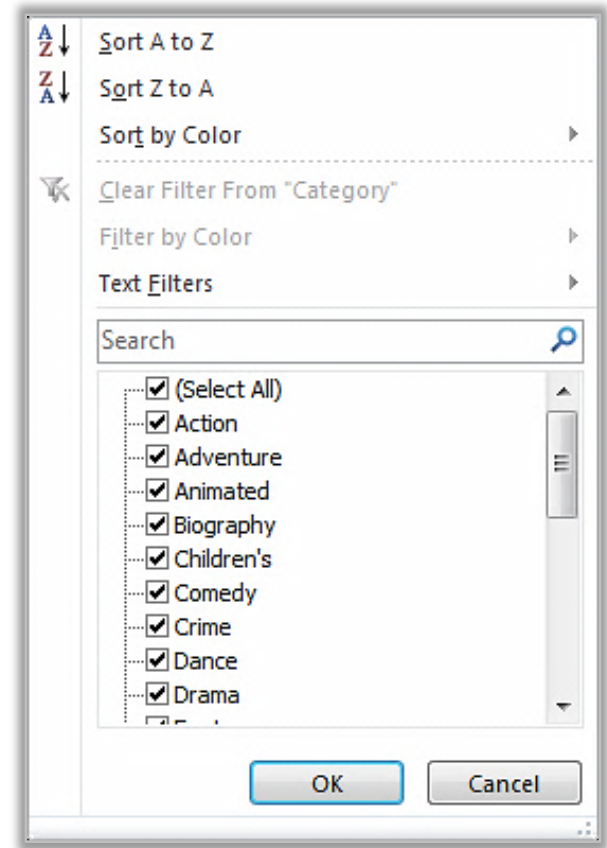
- ▶ Excel automatically picks a table style after you insert a table
- ▶ Use the Table Tools | Design tab to
 - Select a different table style
- ▶ To choose no style, under the Light category, select None



Sorting and Filtering Table Data

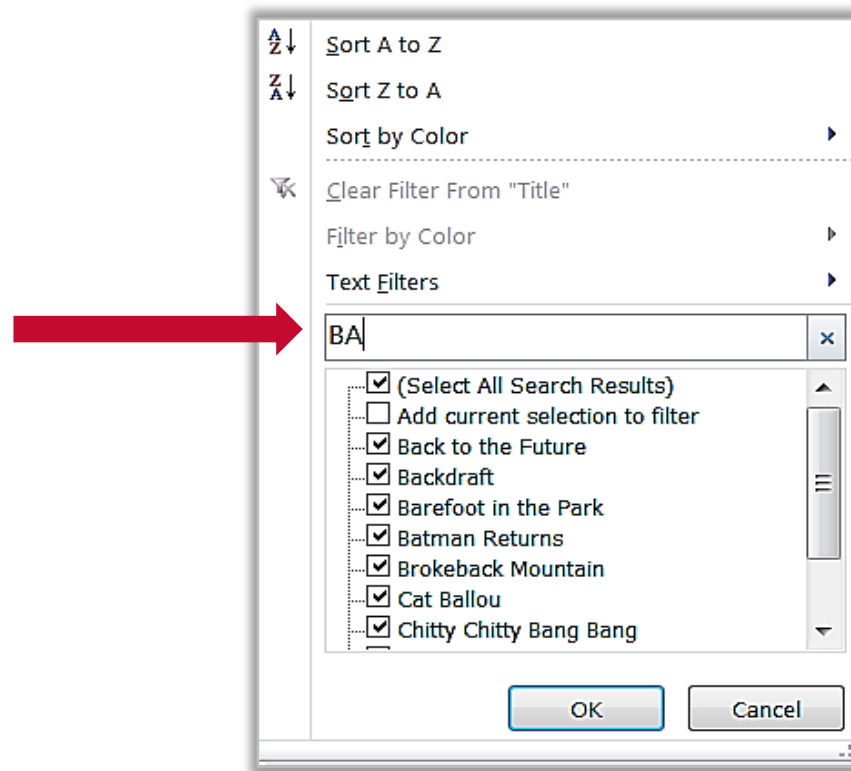
- ▶ **Similar to the AutoFilter, table data can be easily sorted and filtered**
 - Filter buttons turn on by default after you insert a table
 - Can turn them off by selecting **Data | Sort & Filter | Filter** button
- ▶ **Select column header drop-down**
 - Choose sort order
 - Filter by selecting which data to see
- ▶ **Icon at top of column changes, identifying filter**

Status	Icon
No filter	
Sort ascending/descending	 
Filtered/filtered with sort	 



Search: Filter the Choices With the Search Box

- ▶ Large datasets can produce many filter choices
- ▶ Narrow the choice by using the Search option
- ▶ Available for both the table and the AutoFilter



Add Subtotals—Turn on the Total Row

ExtractedSQLData.xls [Compatibility Mode] - Excel

TABLE TOOLS

DESIGN

Table Name: Table_Query_fro

Summarize with PivotTable

Remove Duplicates

Convert to Range

Insert Slicer

Export

Refresh

External Table Data

☒ Header Row

☒ Total Row

☒ Banded Rows

☐ First Column

☐ Last Column

☐ Banded Columns

☒ Filter Button

Quick Styles

Table Style Options

Table Styles

D2242

	A	B	C	D	E	F	G
1	OrderDate	CompanyName	ProductCode	Quantity	Country		
1579	09/02/2005	J L PRIESTLEY FRESH PRODUCE	AQ50	6	USA		
1760	29/04/2005	RAYSHINE (CHESTERFIELD)	AQ50	11	USA		
1804	14/05/2005	BIRMINGHAM PACKAGE CO	AQ50	2	USA		
2030	29/07/2005	INDUCTS CHEMICALS LTD	AQ50	12	USA		
2051	08/08/2005	DAIRI-PAK	AQ50	11	USA		
2106	31/08/2005	SMG FOODS	AQ50	18	USA		
2134	21/09/2005	BAKEWELL (BADLANDS)	AQ50	14	USA		
2185	31/10/2005	CLF FOODS LTD (WARBOYS)	AQ50	20	USA		
2231	14/12/2005	INDUCTS CHEMICALS LTD	AQ50	1	USA		
2242	Total			9			
2243							
2244							
2245							
2246							
2247							
2248							
2249							
2250							

None

Average

Count

Count Numbers

Max

Min

Sum

StdDev

Var

More Functions..

Managing Tables of Data

► Add Columns with Formulas

- Table has its own Formula Writing, copies formulas down

	Y	Z	AA	AB	AC	AD
▼	ExtendedPrice ▼	Freight ▼	total ▼	Year ▼		
0	168	32.38	=[@ExtendedPrice]+[@Freight]			
0	98	32.38	130.38	1996		

► Insert a row in a table without affecting other datasets on the worksheet

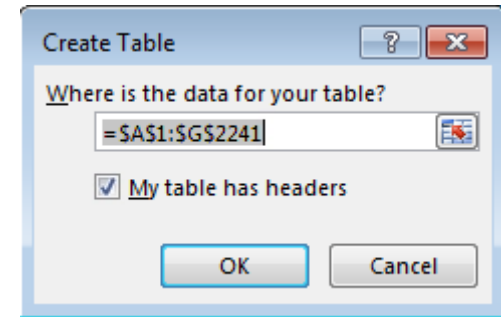
- Home | Cells | Insert Table Rows Above (or Below)

Create a Table

Do Now

1. Open the file C:\CB08\02_Create_a_Table.xlsx

- Verify that the active cell is A1
- Click on Insert | Tables | Table
- Click on OK to accept the parameters in the Create Table Dialog



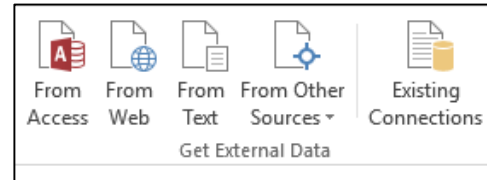
2. With your instructor

- Examine the color schemes for the table
- Pick all records where the country is India and the product code is AQ10
- Remove filters
- Add a column to the end of the table
- Create a revenue column that multiplies Quantity * Price
- Turn on the totals row
- Add a new row to the bottom of the table

Connect to External Data

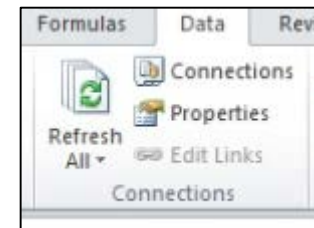
► Connect to External Data

- Data | Get External Data



► See and manage connections

- Data | Connections | Properties
- Use Connection over again

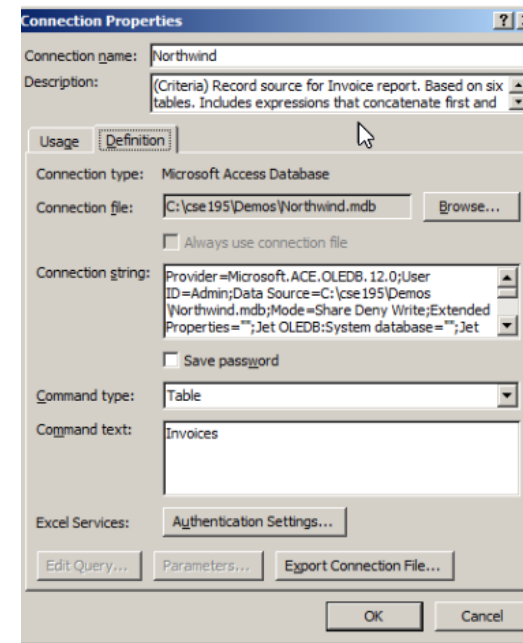
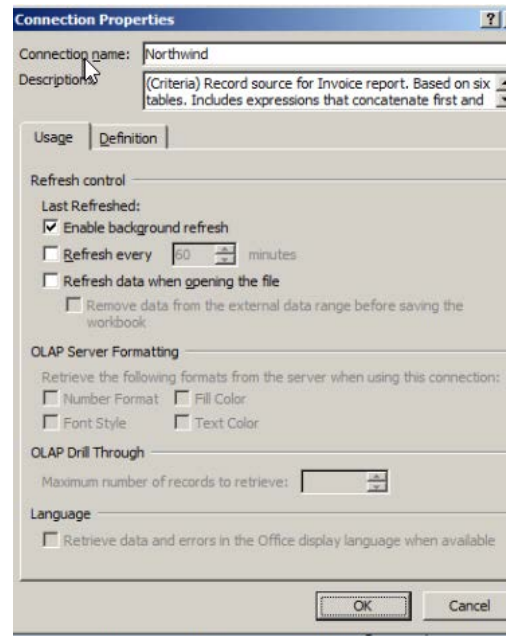


► Usage

- Configure how the data in the workbook is refreshed
- Configure the server format

► Definition

- Authentication settings
- Data Source



Connect to External Data

Do Now

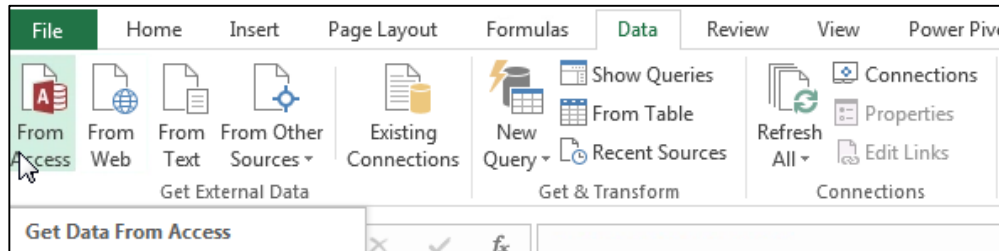
1. Use the same file from the previous exercise

- Click on the + next to the worksheet tab to create a new worksheet

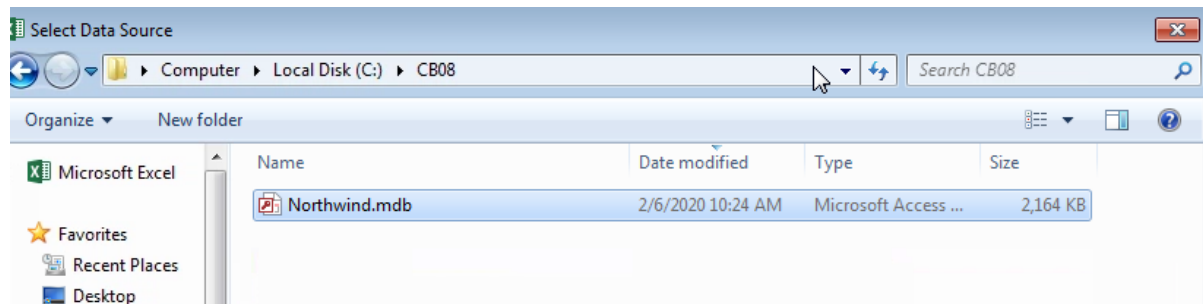


- Call the new sheet Access File

2. Click on Data | Get External Data | From Access



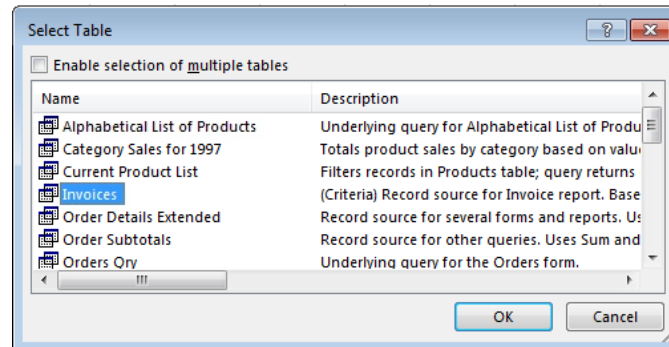
3. Navigate to C:\CB08\Northwind.mdb then click on Open



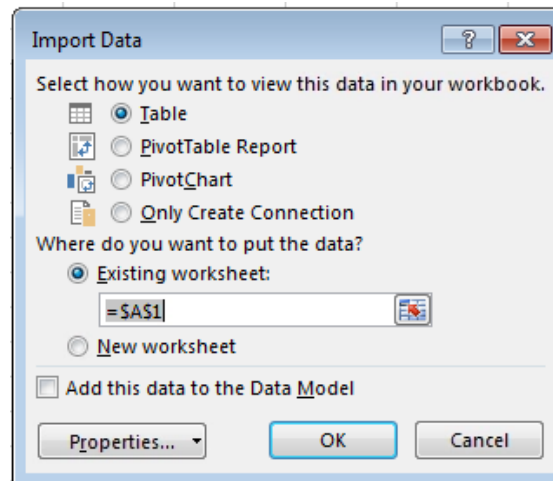
Connect to External Data (Continued)

Do Now

4. From the Select Table dialog click on Invoices then click on OK



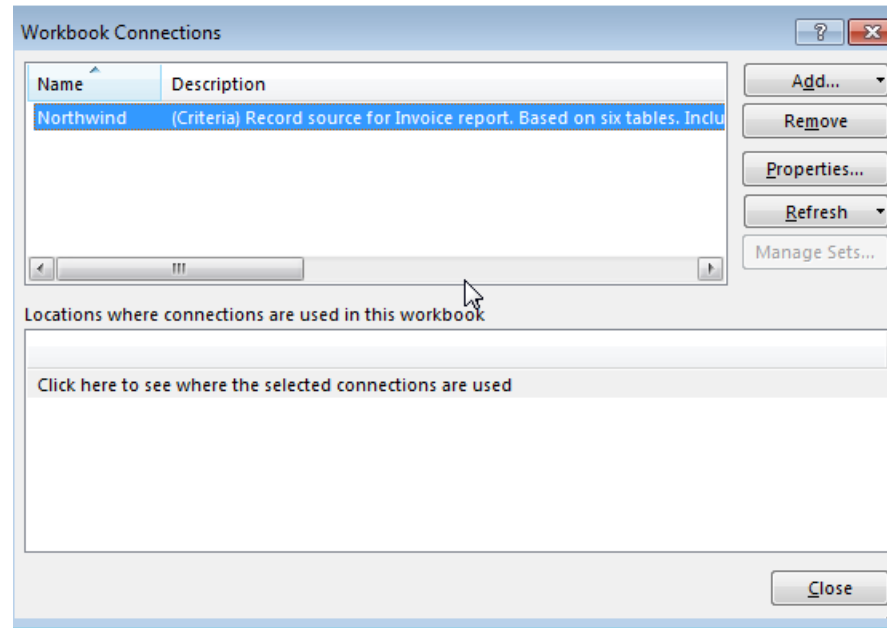
5. Verify from the Import Data screen that you are viewing the data in a table, putting the data in A1



Connect to External Data (Continued)

Do Now

6. Click on Data | Connections | Connections to view the connection



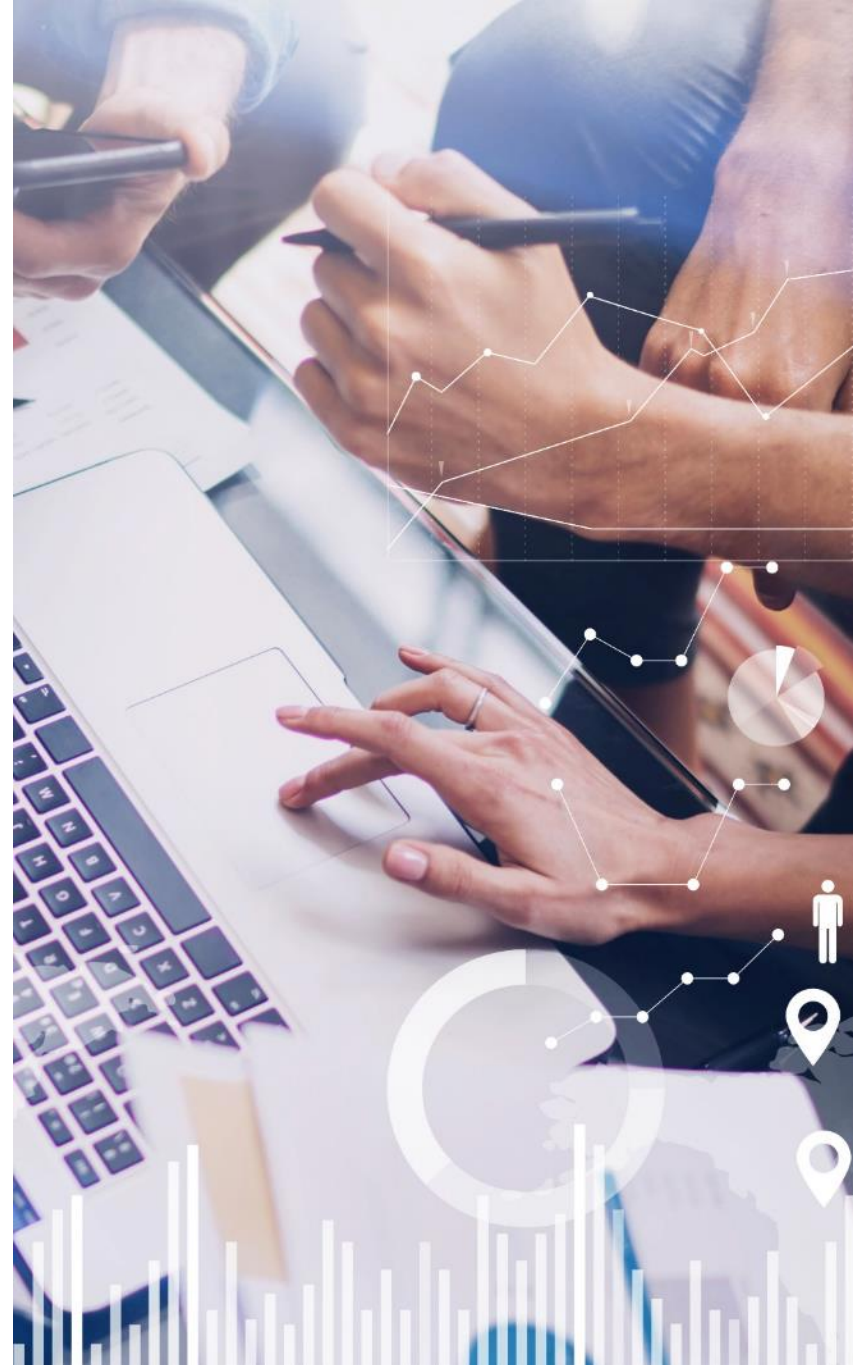
7. With your instructor, investigate the Properties window

Contents

- ▶ Interrogating Excel Lists

Creating PivotTables and PivotCharts

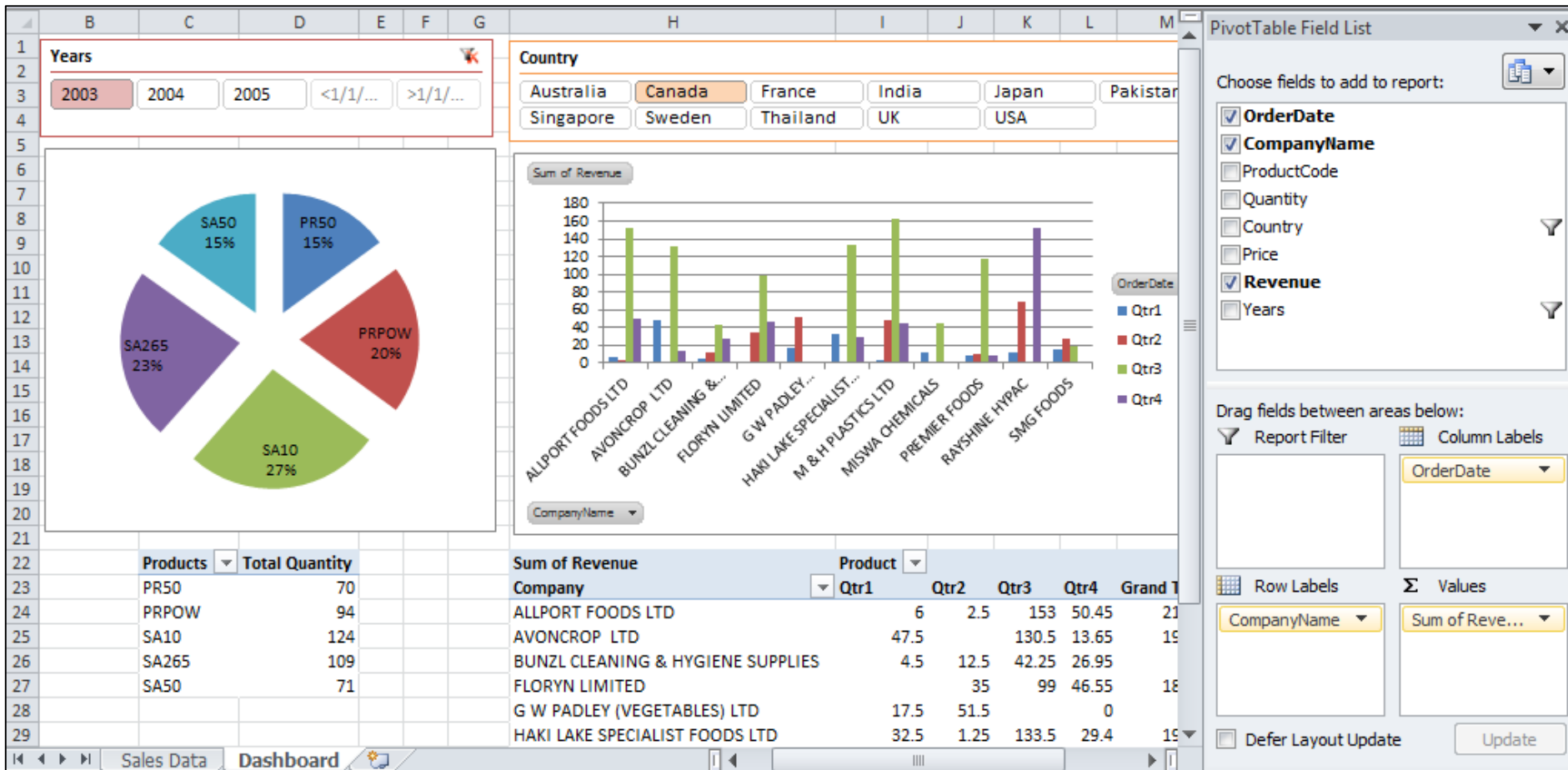
- ▶ Hands-On Exercise 1.1
- ▶ Analyzing Data With PivotTables
- ▶ Hands-On Exercise 1.2



Database Analysis

- ▶ **Analyze large datasets such as relational databases with**
 - PivotTables
 - Interactive table to combine and compare datasets
 - Report on multiple related tables in Excel
 - PowerPivots (2010/2013)
 - Build multidimensional cubes
 - Hierarchical views of data
 - Report on data from different sources
 - Power Views (2013)
 - Visual interpretation of data
 - Could be multidimensional data

PivotTables and PivotCharts



PivotTables and PivotCharts

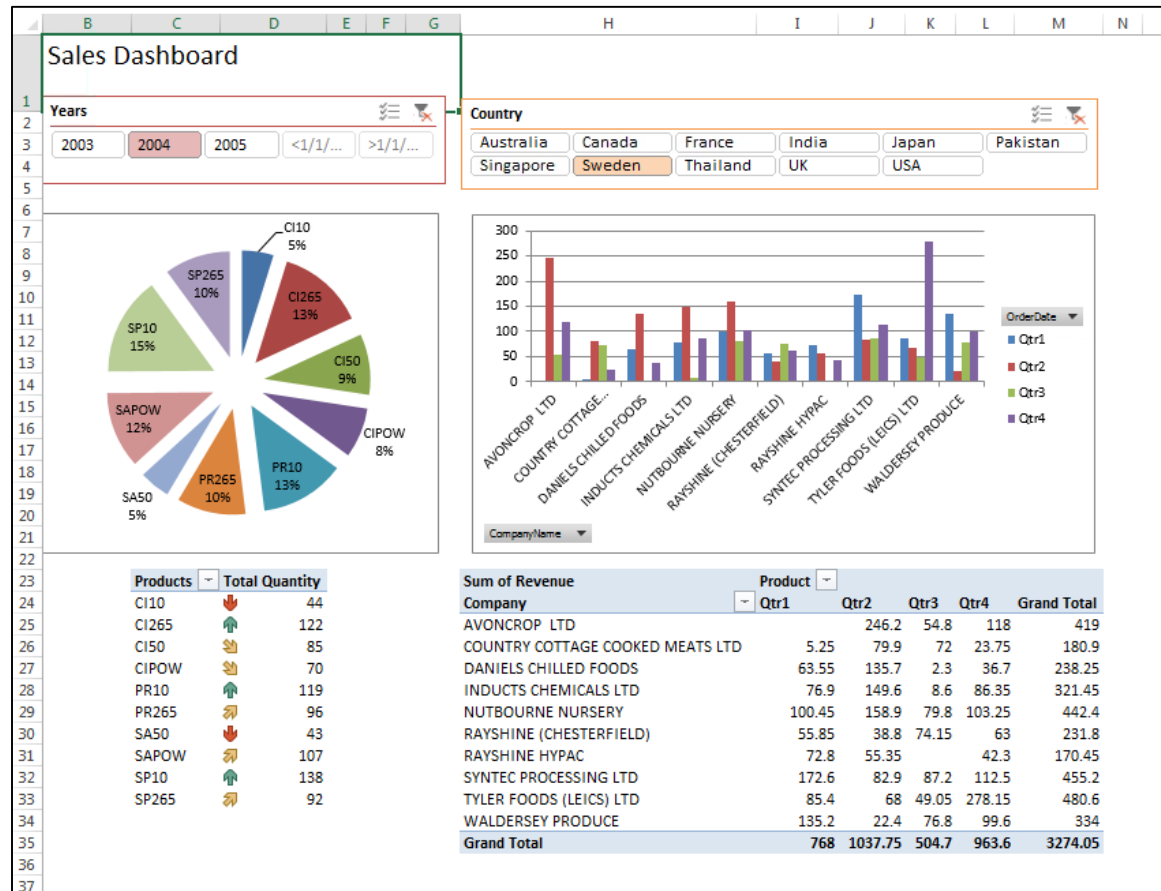
- ▶ **A PivotTable is an interactive table**
 - Summarizes large amounts of data
 - Allows viewing and manipulating data in a variety of ways
 - Can rotate rows and columns
- ▶ **A PivotChart is the graphical representation of a PivotTable**
 - Calculates totals from a long dataset of figures
 - Compares multiple facts about each summary total
- ▶ **Excel 2010/2013 introduced further features to aid dashboard creation**
 - Slicer
 - Sparklines

Try Out a Pivot Table Dashboard

Do Now

► Open the file C:\CB08\03_Dashboard.xlsx

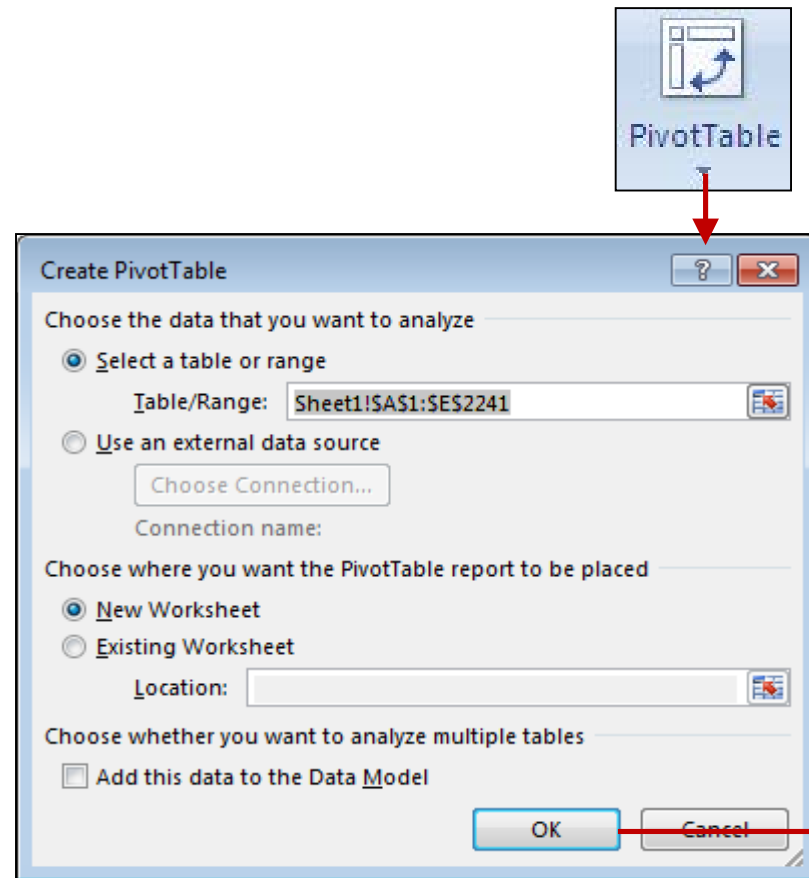
- With your instructor, try out slicers
- Observe pivot tables and pivot charts



Creating a PivotTable

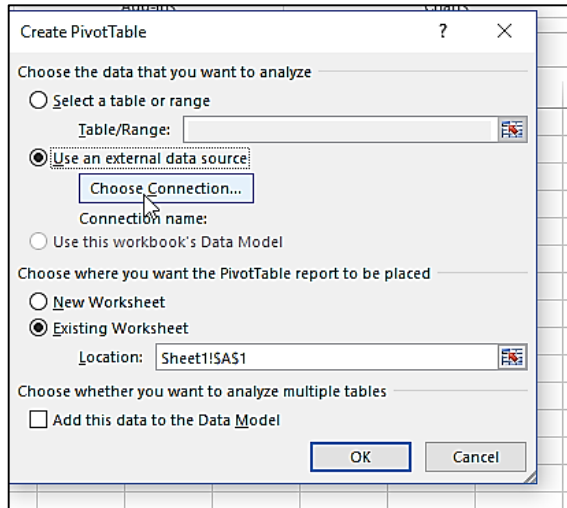
Demo

- ▶ From the Ribbon, select Insert | PivotTable
- ▶ Data can come from
 - Within the current workbook
 - Text files
 - Excel files
 - Access files
 - SQL Server
 - Oracle
 - An external data source

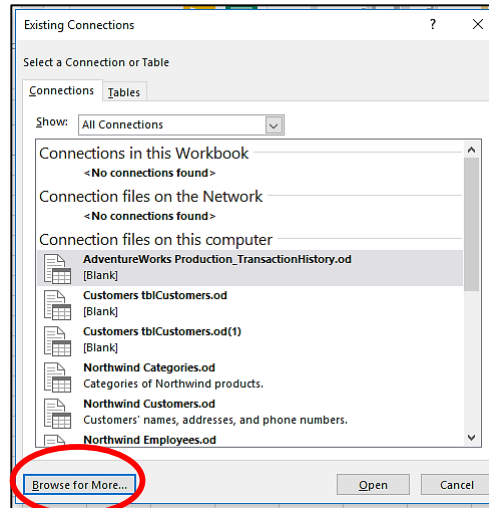


Steps to Connect to a Named Range—Worksheet File

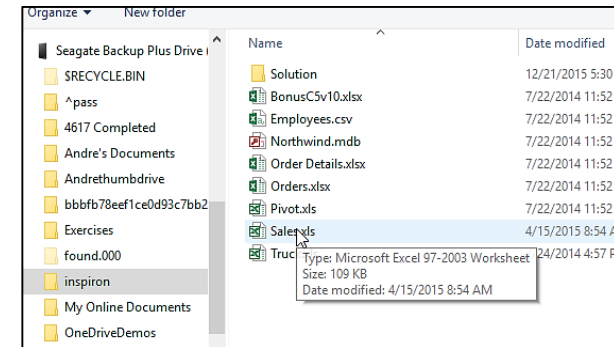
1



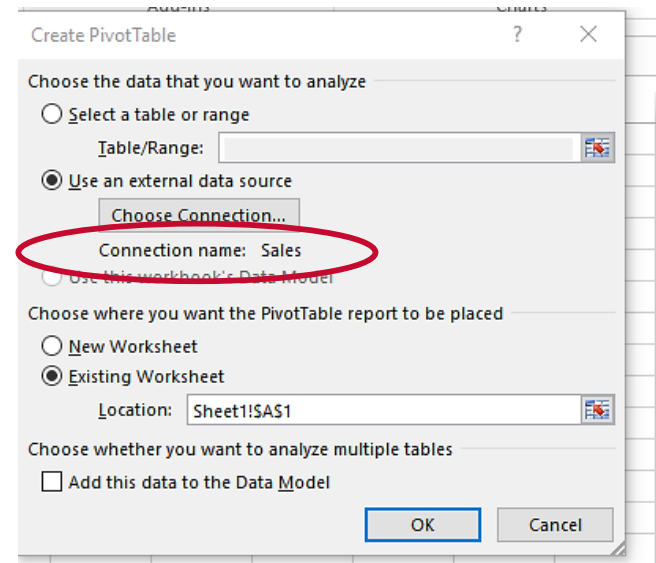
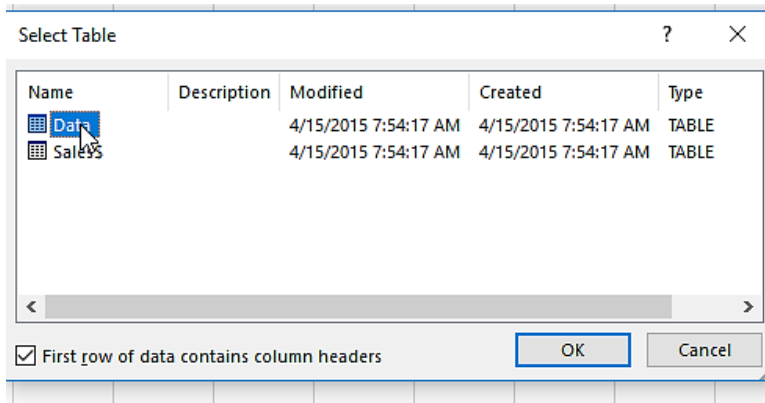
2



3



4



PivotTable Field List: Report and Field Areas

► PivotTable creates a cache of data

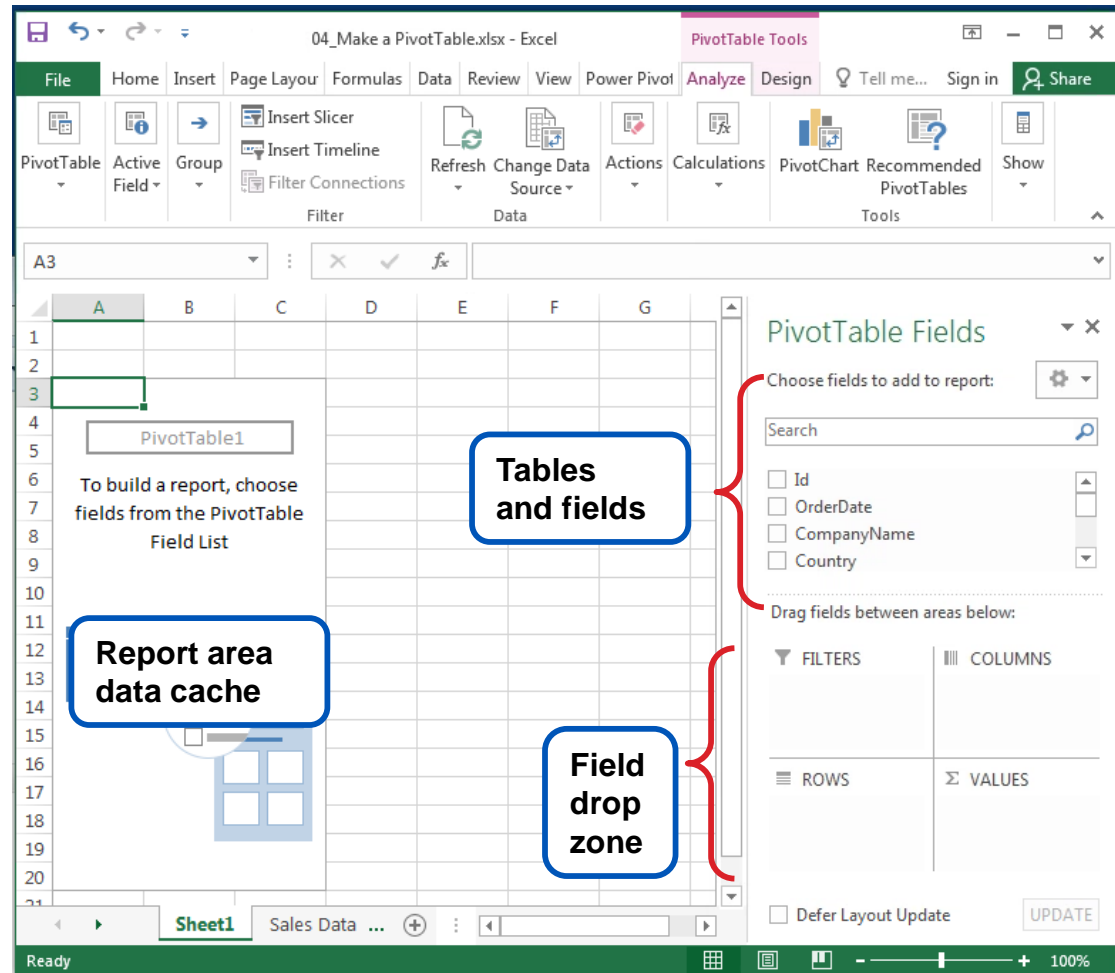
- Places the data in memory
- Report area represents the data
- Active cell must be in the report area to work with the PivotTable

► Column headers from data become PivotTable fields

- Drag fields into the Field drop zone area to build report

OR

- Click checkbox next to field
- Right-click on field and choose the action



Parts of the PivotTable

- Table describes the different parts of the PivotTable

Description	Area
Filters the report at the top level	Filters
Defines groups/categories of column headings	Columns
Defines groups/categories of row headings	Rows
Details being summarized	Values


What Goes Where?


► Depends on the question you want answered

- Example: How do I see the revenue per quarter for each product?

	A	B	C	D	E	F
1	COUNTRY	(All) ▼				
2	CHANNEL	(All) ▼				
3						
4	Sum of REVENUES	DATE ▼				
5	PRODUCT ▼	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total
6	Aqua Aroma	372,116	60,445	57,757	45,206	535,524
7	CleanIt	14,145	1,950	13,530	29,745	59,370
8	Proven	36,715	21,797	31,867	28,622	119,001
9	Sanitize	57,135	69,538	72,162	47,936	246,771
10	Sparkle	17,775	14,400	16,875	9,900	58,950
11	Grand Total	497,886	168,130	192,191	161,409	1,019,616

PivotTable Fields

Choose fields to add to report: 



☒ DATE

☒ COUNTRY


☒ CHANNEL


☐ SALES PERSON

☒ PRODUCT

Drag fields between areas below:

▼ FILTERS

COUNTRY ▼ 

CHANNEL ▼ 

☰ ROWS

PRODUCT ▼

||| COLUMNS

DATE ▼

Σ VALUES

Sum of REVE... ▼

☐ Defer Layout Update

UPDATE

Create a Pivot table

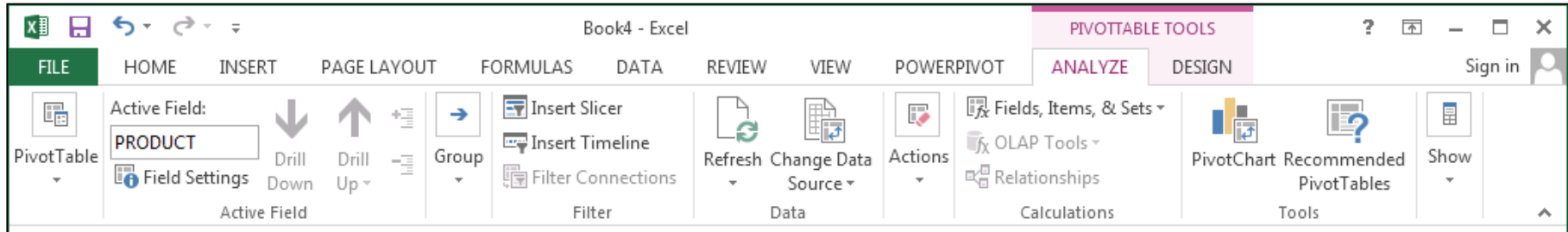
Do Now

1. Open the file C:\CB08\04_Make a PivotTable.xls
2. With your instructor, create a pivot table

19				
20				
21	Row Labels	Sum of Revenue		
22	2016			
23	Qtr2	812.07		
24	Qtr3	2762.25		
25	Qtr4	7327.25		
26	2017	30569.8		
27	2018	40301.67		
28	2019	8186.28		
29	Grand Total	89959.32		
30				

3. Create a Pivot table from an External data source
 - Observe Connection Properties

What Can I Do to My PivotTable?



► PivotTable Tools—context-sensitive

► ANALYZE

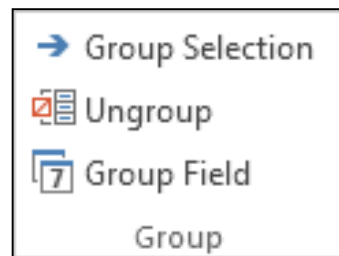
- Helps to interpret the data:
 - PivotCharts
 - Create groups
 - Create calculations
 - Create filters

► DESIGN

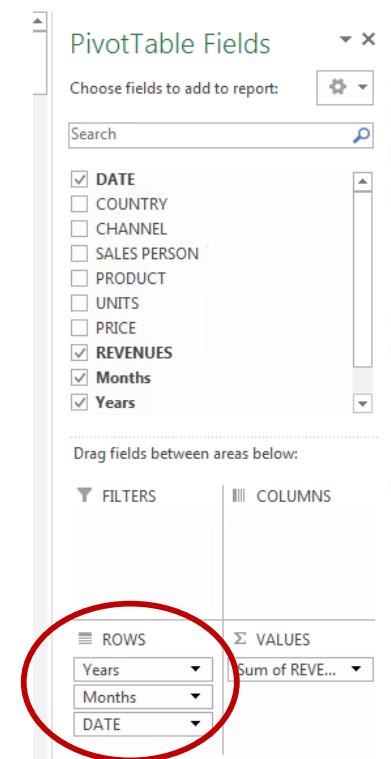
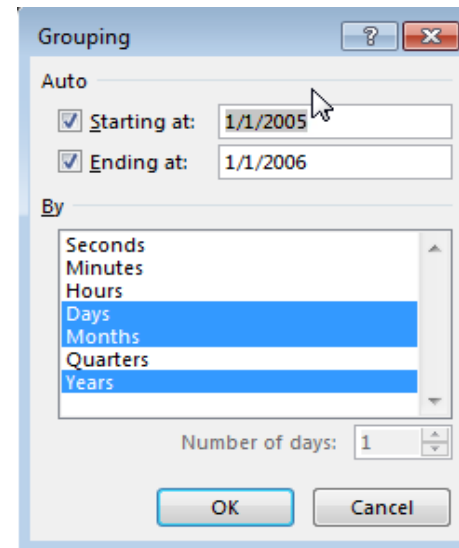
- Formats the PivotTable
- Changes the layout

Grouping Your Data

- ▶ **By Default, dates are grouped**
 - System creates a hierarchy
 - New fields are created from the Date field
 - + and – signs allow you to collapse or expand a group
 - ▶ **Change the grouping**
 - Pivot Table Tools | Analyze | Group
- OR
- Right-click on Date field
 - Group



3	Row Labels	Sum of REVENUES
4	2005	
5	+ Jan	65,240.00
6	+ Feb	54,303.00
7	+ Mar	55,618.00
8	+ Apr	67,712.00
9	+ May	52,433.00
10	+ Jun	47,985.00
11	+ Jul	56,383.00
12	+ Aug	66,870.00
13	+ Sep	68,938.00
14	+ Oct	74,167.00
15	+ Nov	54,347.00
16	+ Dec	32,895.00
17	Grand Total	696,891.00



Grouping Your Data

	A	B	C	D	E	F	G	H	I
4	Sum of REVENUES Column Labels <input type="button" value="v"/>								
5	Row Labels <input type="button" value="v"/>	1/1/2005	1/2/2005	1/4/2005	1/5/2005	1/6/2005	1/11/2005	1/16/2005	1/17/2005
6	Dan Clifford	2275		1625					
7	Jonathan Mark		2000				1600		
8	Karen Lee				2275			650	3237
9	Megan Strutt								
10	Wayne Sarten					1200			
11	Grand Total	2275	2000	1625	2275	1200	1600	650	3237

Before

	A	B	C	D	E	F	G	H	I	J	K	L	M
4	Sum of REVENUES Column Labels												
5	Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6	Dan Clifford	5500	2702	9676	1800	6535	8091	5550	5474		2041	10240	1950
7	Jonathan Mark	4950		1300	2400		1950		4944	338	1352		900
8	Karen Lee	9112	3261	2450	6246	2769	12570	9835	13609	4850	12943	9478	1404
9	Megan Strutt	4000	2990		4642	2392		1794	2700	1600		975	
10	Wayne Sarten	1200	2250		2925	1950	6175	4645	2418		2925	400	598
11	Grand Total	24762	11203	13426	18013	13646	28786	21824	29145	6788	19261	21093	4852

After

Groups: Hide and Show Detail

- ▶ **Create other groups by populating the Row area with more than one field**
- ▶ **Show or Hide detail**
 - Expand/Collapse a row or column heading
- ▶ **Expand or Collapse entire Field**
 - Click on Pivot Table Tools | Options | Active Field
 - Right Click to reveal the short cut menu Expand/Collapse to hide or show values
- ▶ **Show what makes up a value**
 - Double-click a data item to drill down
 - Displays details in a new sheet

Row Labels	Sum of REVENUES
Dan Clifford	175,335.00
Retail	90,330.00
Wholesale	85,005.00
Jonathan Mark	75,628.00
Retail	36,303.00
Wholesale	39,325.00

PivotTable Fields

Choose fields to add to report: [Settings]

Search [Search Icon]

☐ DATE
☐ COUNTRY
☒ CHANNEL
☒ SALES PERSON
☐ PRODUCT
☐ UNITS
☐ PRICE
☒ REVENUES

Drag fields between areas below:

FILTERS

ROWS

SALES PERSON
CHANNEL

VALUES

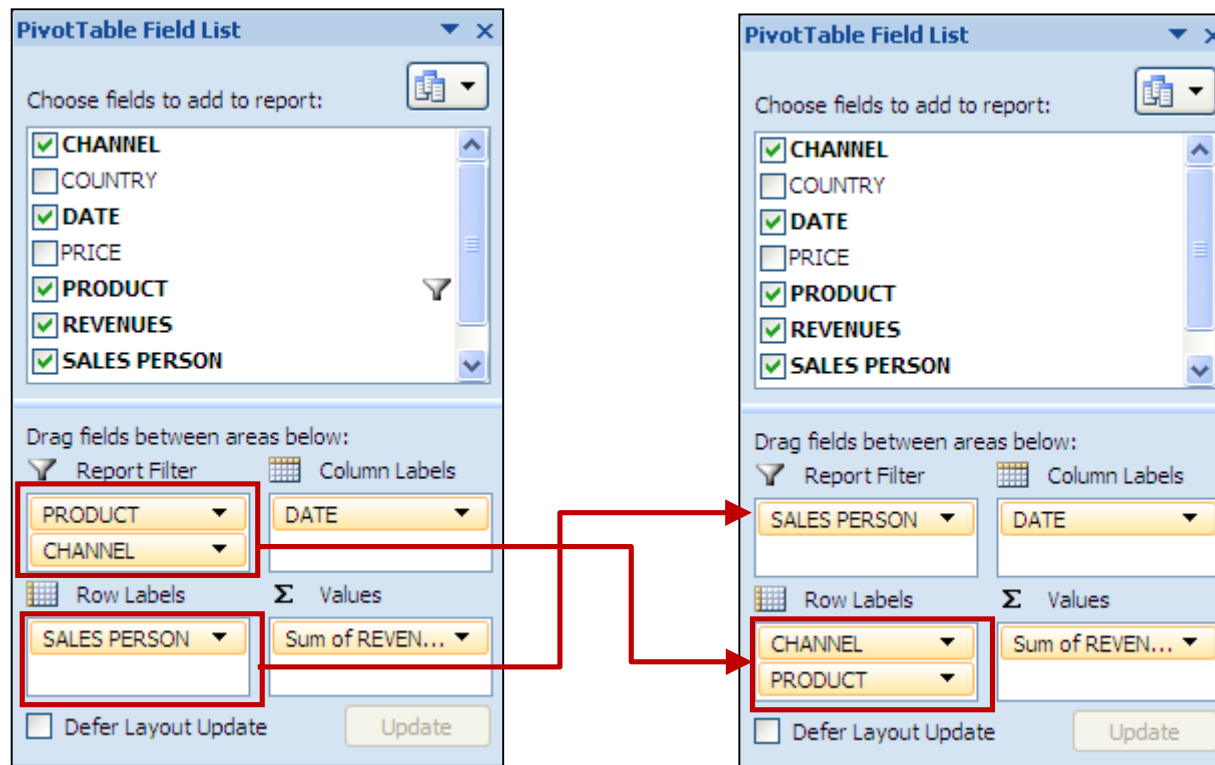
Sum of REVE...

Expand Field
Collapse Field

Pivoting

► Change the perspective of the PivotTable

- Drag a field and drop it into a new field location in Field List areas
- Example: I want to see the product breakdown for each channel

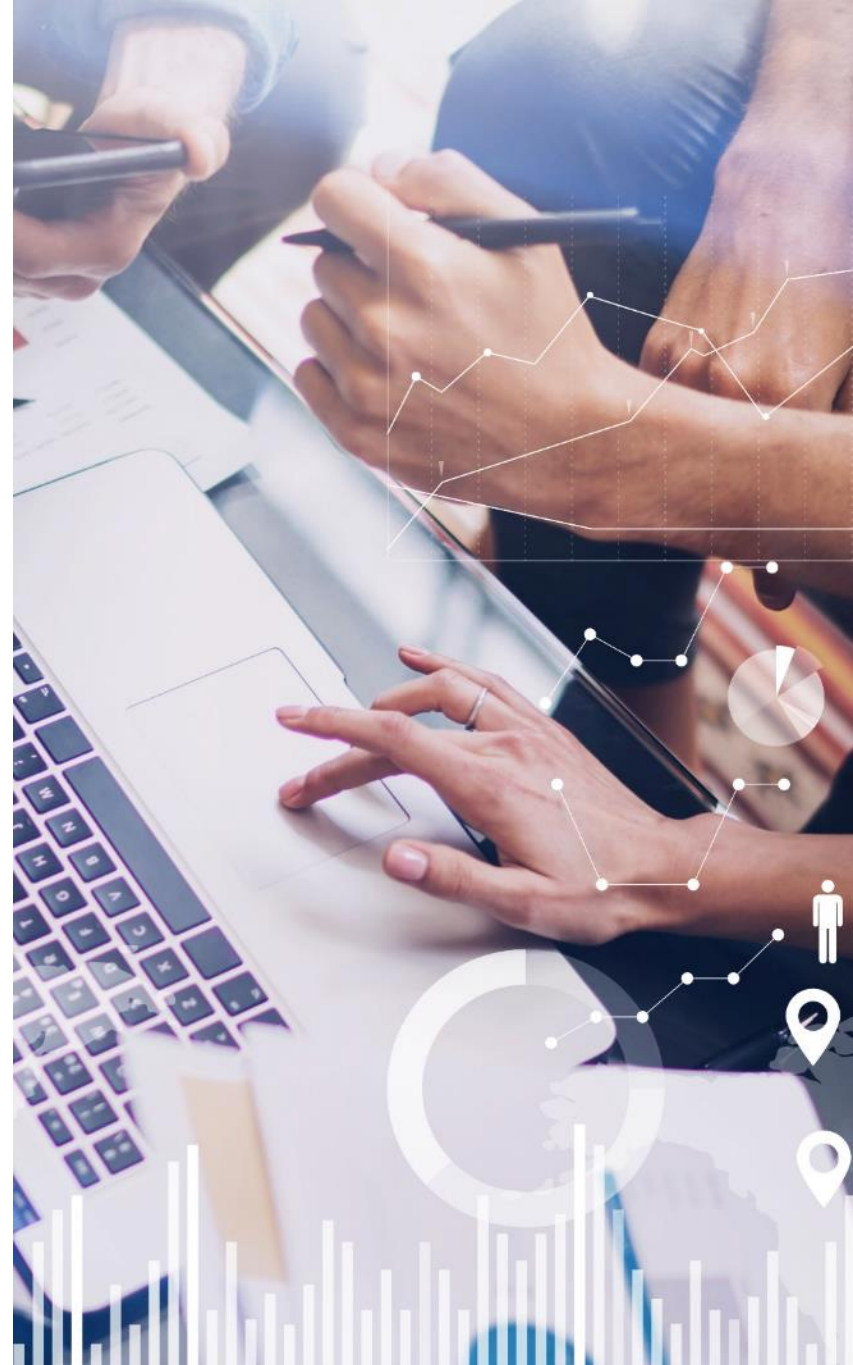


Contents

- ▶ Interrogating Excel Lists
- ▶ Creating PivotTables and PivotCharts

Hands-On Exercise 1.1

- ▶ Analyzing Data With PivotTables
- ▶ Hands-On Exercise 1.2



Hands-On Exercise 1.1

- In your Exercise Manual, please refer to Hands-On Exercise 1.1: Reporting Data in a PivotTable

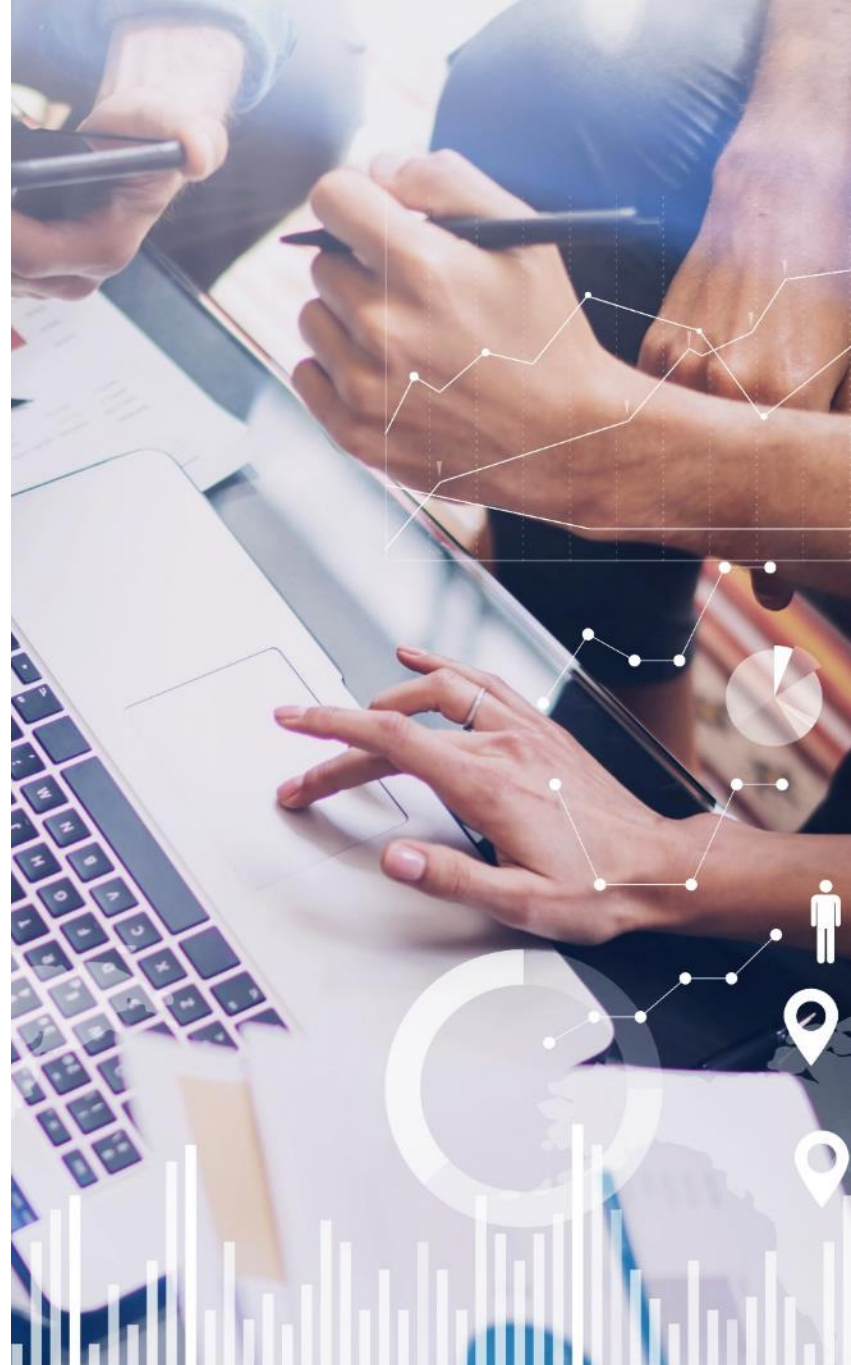
Main exercise	Your team has to produce a report for the board for the sales data in different countries. You will prepare the data in the form of a PivotTable.
Bonus	You will examine how to refresh a PivotTable and extract data from an Access database.

Contents

- ▶ Interrogating Excel Lists
- ▶ Creating PivotTables and PivotCharts
- ▶ Hands-On Exercise 1.1

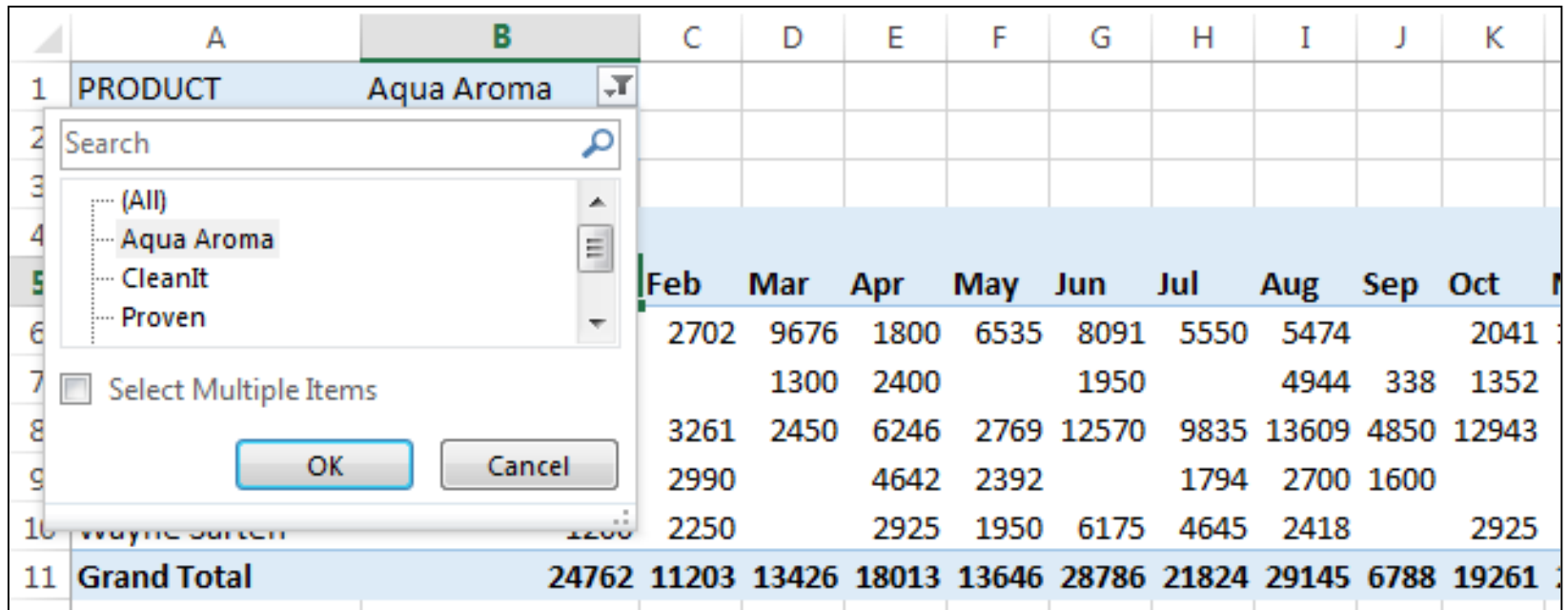
Analyzing Data With PivotTables

- ▶ Hands-On Exercise 1.2



Filter by Filter

- ▶ **Use the Report Filter**
- ▶ **Filter by a single item**
 - Example: I want to see the revenue generated for Aqua Aroma
- ▶ **Filter by multiple items**
 - “Select Multiple Items” checkbox



The screenshot shows a spreadsheet with a filter dropdown menu open for the 'PRODUCT' column. The dropdown menu lists the following items: (All), Aqua Aroma, CleanIt, and Proven. The 'Aqua Aroma' item is selected. Below the list is a checkbox labeled 'Select Multiple Items' which is currently unchecked. The 'OK' and 'Cancel' buttons are at the bottom of the dropdown menu.

	A	B	C	D	E	F	G	H	I	J	K
1	PRODUCT	Aqua Aroma									
2	Search										
3											
4											
5											
6											
7											
8											
9											
10											
11	Grand Total										

The data table shows the following values:

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
2702	9676	1800	6535	8091	5550	5474			2041	
	1300	2400		1950		4944	338	1352		
3261	2450	6246	2769	12570	9835	13609	4850	12943		
2990		4642	2392		1794	2700	1600			
2250		2925	1950	6175	4645	2418		2925		
24762	11203	13426	18013	13646	28786	21824	29145	6788	19261	

Filter by Slicer

The screenshot shows the Excel interface with the 'Slicer Tools' ribbon active. The Slicer is titled 'SALES PERSON' and is located above the PivotTable. It contains five buttons: 'Dan Clifford', 'Jonathan Mark', 'Karen Lee' (which is selected and highlighted in red), 'Megan Strutt', and 'Wayne Sarten'. A red box highlights the Slicer, and a red arrow points to it with the word 'Slicer' in a red box. The PivotTable shows 'Sum of REVENUES' by 'Row Labels' and 'Column Labels' (Qtr1, Qtr2, Qtr3, Qtr4, Grand Total). The data is filtered by the selected Slicer value 'Karen Lee'.

Row Labels	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
Aqua Aroma	9112	3261	2450	6246	2769	12570	9835	13609	4850	12943	9478	1404	88527
Cleanit	1200	2700			450					4770	600	9300	19020
Proven	6266	4753	10511	5228	1254	297	2145	5950	6772	4125	2529	4653	54483
Sanitize	1498	14891	2200	17695	9309	5997	8994	8953	15795	4700	6596	4394	101022
Sparkle	1800	2025	1575		2700	900	3825	2475	5850	4050	1800		27000
Grand Total	19876	27630	16736	29169	16482	19764	24799	30987	33267	30588	21003	19751	290052

Filter by Slicer

- ▶ **Filter data visually by adding a slicer to a PivotTable**
 1. Make PivotTable active
 - Click in PivotTable
 2. Insert | Filters | Slicer
 - “Insert Slicers” dialog box appears
 3. Select the field to “slice” the data
 - Boxes/buttons appear for each item in the field
- ▶ **Use the buttons to filter the PivotTable**
- ▶ **Connect more than one PivotTable to the same slicer**

Create a Slicer

Do Now

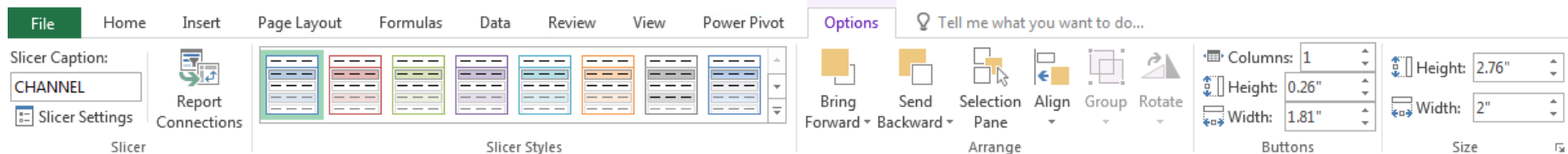
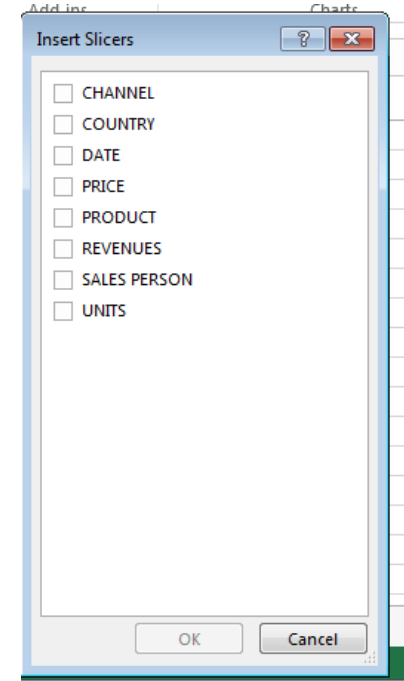
1. Open the file C:\CB08\05_Pivot tables with Slicer.xlsx

2. Verify that you are in the pivot table

- Add in a slicer
 - Click on Insert | Filters | Slicer
 - Click on the box next to Channel and Country
 - Click on OK

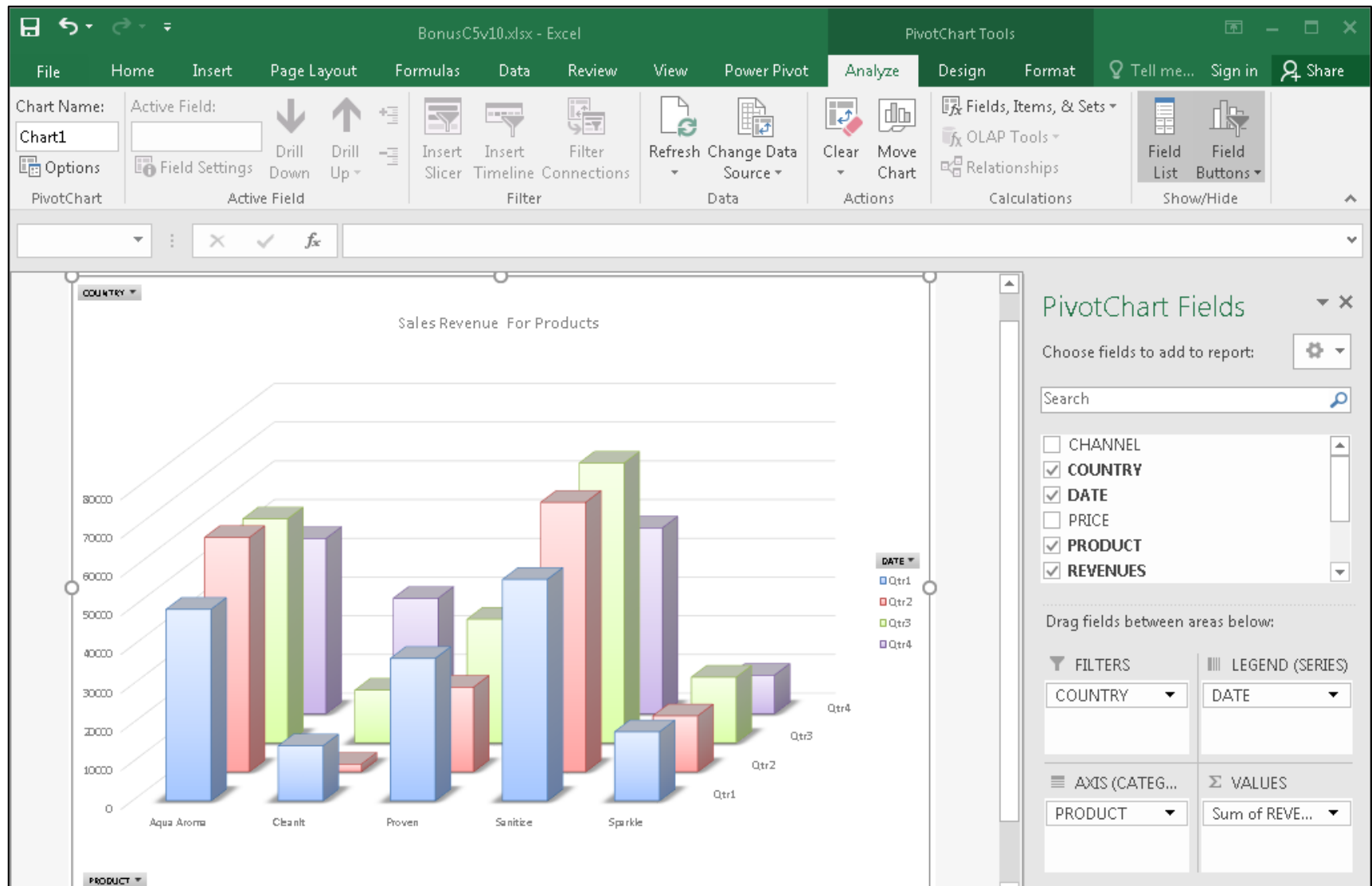
3. Investigate the slicer tools

- Slicer Styles to change colors
- Buttons group | Columns to change columns from 1 to many



4. Leave the file open

PivotCharts



PivotCharts

- ▶ **Display the detail you want to chart on the PivotTable**
 - From the PivotTable Tools, select **Options | Tools | PivotChart**

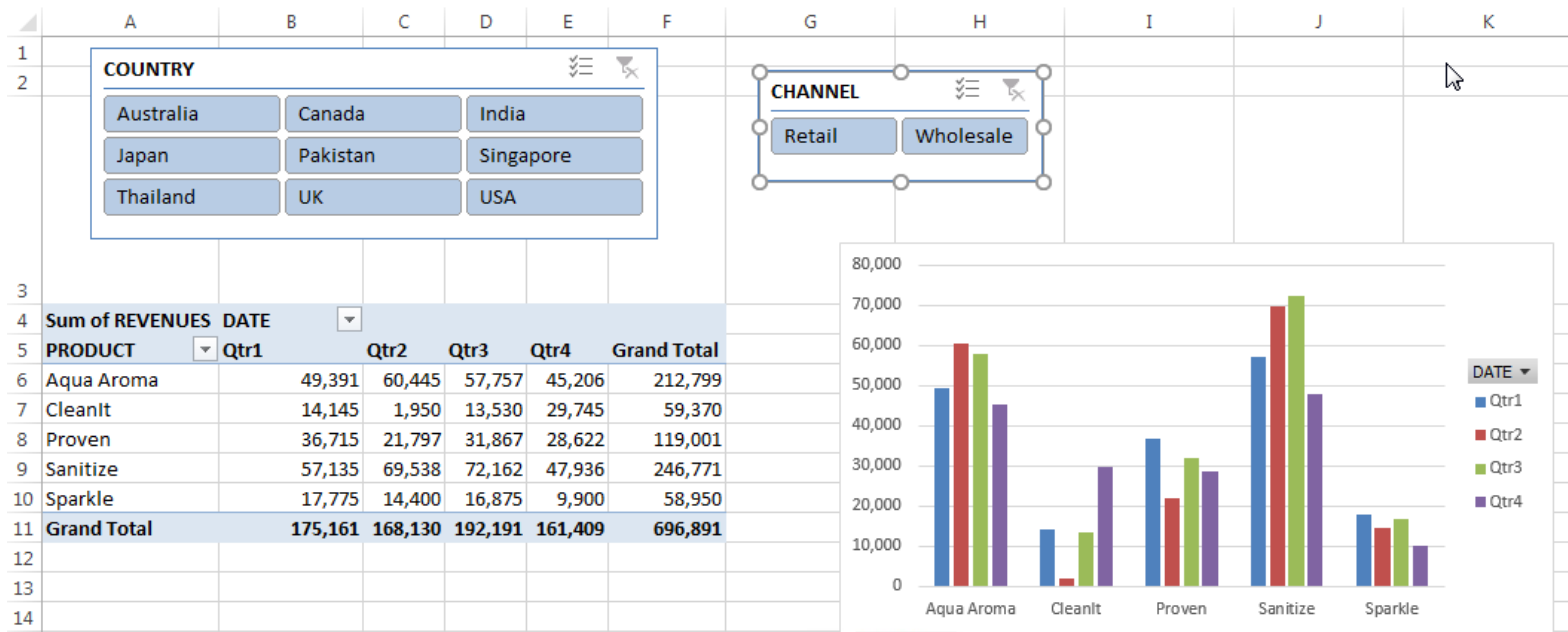
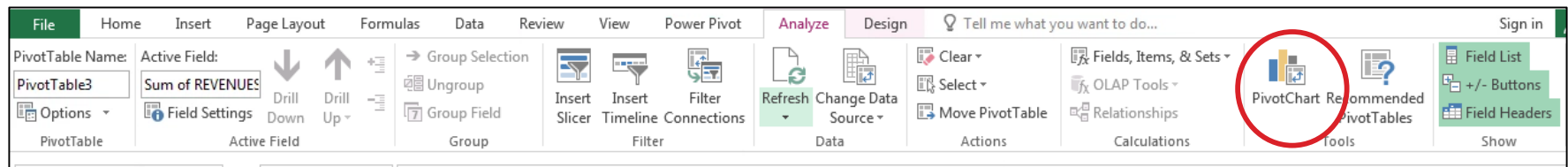


- ▶ **Pivot fields like a PivotTable**
- ▶ **Configure using PivotChart Tools**
 - Analyze: specific PivotChart commands
 - Design, Layout, Format: generic chart commands

Create Pivot Chart

Do Now

1. Using the existing file, click inside the pivot table
2. Click on PivotTable tools | Analyze | Tools | PivotChart



Visually Present Data With Sparklines

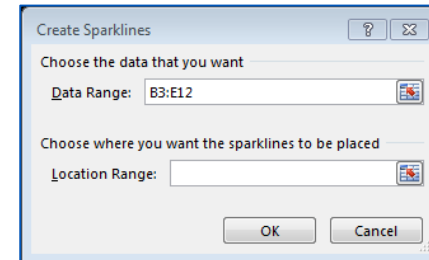
► Sparklines are trend charts placed inside a range of cells

- Types: Line, Column, Win/Loss

2	Region	Q1	Q2	Q3	Q4	Line	Column	Win Loss
3	California	\$ 1,538.00	\$ 501.00	\$ 515.00	\$ 1,581.00			
4	Montana	\$ 167.00	\$ 163.00	\$ 1,424.00	\$ 1,344.00			
5	Colorado	\$ 616.00	\$ 1,334.00	\$ 184.00	\$ 752.00			
6	Nevada	\$ 1,352.00	\$ 1,145.00	\$ 127.00	\$ 1,297.00			
7	Utah	\$ 786.00	\$ 1,167.00	\$ 702.00	\$ 113.00			
8	Oregon	\$ 1,042.00	\$ 1,168.00	\$ 366.00	\$ 1,162.00			
9	Washington	\$ 1,322.00	\$ 247.00	\$ 1,087.00	\$ 106.00			
10	New Mexico	\$ 285.00	\$ 364.00	\$ 1,320.00	\$ 1,578.00			

► Create Sparklines:

- Select the numbers to be graphed
- Click Insert | Sparklines | Line
- Indicate the Location Range of the chart
- Click OK



Create Sparklines

Choose the data that you want

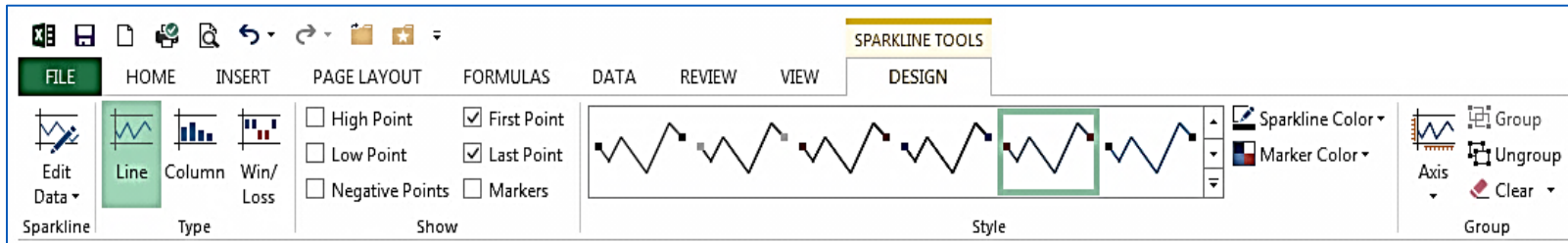
Data Range: B3:E12

Choose where you want the sparklines to be placed

Location Range:

OK Cancel

► Sparkline tools allow you to change the design and format



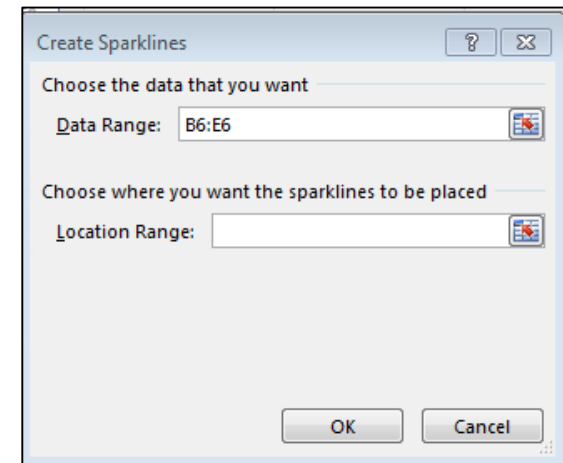
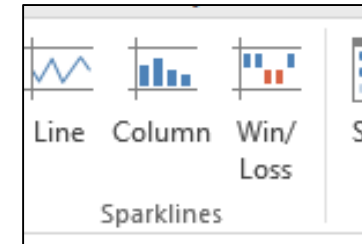
The image shows the Excel ribbon with the 'SPARKLINE TOOLS' tab selected. The ribbon is divided into three sections: 'Type', 'Show', and 'Style'.

- Type:** Contains icons for 'Line', 'Column', and 'Win/Loss' sparkline types. The 'Line' icon is currently selected.
- Show:** Contains checkboxes for 'High Point', 'Low Point', 'Negative Points', 'First Point', 'Last Point', and 'Markers'. 'First Point' and 'Last Point' are checked.
- Style:** Contains a preview of the selected sparkline type with a green border. To the right of the preview are dropdown menus for 'Sparkline Color' and 'Marker Color'. Further right are buttons for 'Group', 'Ungroup', 'Axis', and 'Clear'.

Enhance the Pivot Table With Sparklines

Do Now

1. Using the same file as the previous exercise
2. Select cells B6:E6 to highlight Aqua Aroma Sales by Quarter
3. Click on Insert | Sparklines | Column
4. In the create Sparklines Dialog
 - Verify the data range
 - Click into the Location Range Box
 - Point to cell on G6
 - Click on OK



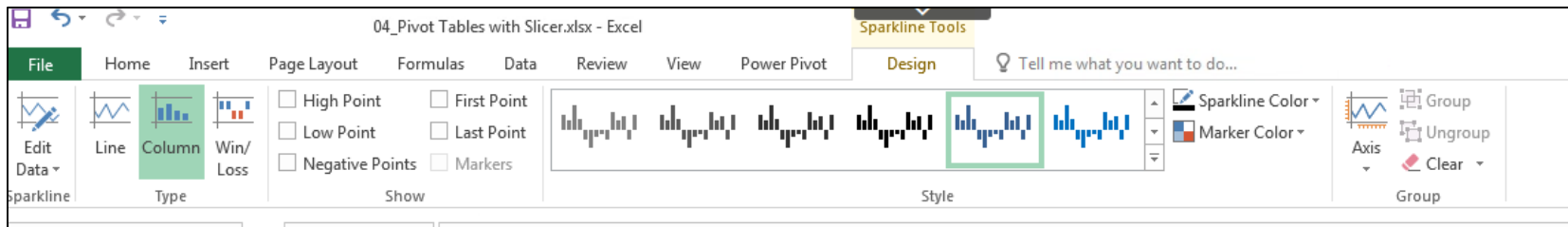
Sum of REVENUES	DATE					
PRODUCT	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total	
Aqua Aroma	49,391	60,445	57,757	45,206	212,799	
CleanIt	14,145	1,950	13,530	29,745	59,370	
Proven	36,715	21,797	31,867	28,622	119,001	
Sanitize	57,135	69,538	72,162	47,936	246,771	

Enhance the Pivot Table With Sparklines (Continued)

Do Now

5. Using Sparkline tools | Design | Show

- Click on box next to High Point and Low point
- From the Style group investigate the various styles



6. Drag the fill handle down to fill the sparklines

Sum of REVENUES	DATE						
PRODUCT	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total		
Aqua Aroma	49,391	60,445	57,757	45,206	212,799		
CleanIt	14,145	1,950	13,530	29,745	59,370		
Proven	36,715	21,797	31,867	28,622	119,001		
Sanitize	57,135	69,538	72,162	47,936	246,771		
Sparkle	17,775	14,400	16,875	9,900	58,950		
Grand Total	175,161	168,130	192,191	161,409	696,891		

7. Filter the data by country. Notice how the sparklines have changed

Conditionally Formatting Cells and Data

Category Sales Summary - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

MS Sans Serif 10

Conditional Formatting

Format as Table

Cell Styles

Insert

Delete

Format

Sort & Find & Filter Select

Editing

111 775

	A	B	C	D	E	F	G
	Category	Total Of Amount Paid	1996	1997	1998	1999	2000
1							
2	Action	\$7,470.00	\$37.50	\$100.00	\$60.00	\$90.00	\$70.00
3	Adventure	\$12,412.50	\$130.00	\$182.50	\$187.50	\$165.00	\$187.50
4	Animated	\$2,200.00	\$47.50	\$90.00	\$70.00	\$80.00	\$75.00
5	Biography	\$2,205.00	\$67.50	\$120.00	\$110.00	\$112.50	\$115.00
6	Children's	\$1,852.50	\$20.00	\$22.50	\$17.50	\$30.00	\$17.50
7	Comedy	\$10,442.50	\$417.50	\$580.00	\$535.00	\$580.00	\$455.00
8	Crime	\$1,735.00	\$55.00	\$110.00	\$82.50	\$102.50	\$72.50
9	Dance	\$1,410.00	\$107.50	\$155.00	\$110.00	\$152.50	\$102.50
10	Drama	\$23,365.00	\$555.00	\$835.00	\$700.00	\$797.50	\$652.50
11	Fantasy	\$7,790.00	\$227.50	\$232.50	\$250.00	\$250.00	\$215.00
12	Historical	\$3,202.50	\$72.50	\$122.50	\$62.50	\$110.00	\$72.50
13	Horror	\$655.00	\$35.00	\$82.50	\$45.00	\$77.50	\$52.50
14	Musical	\$3,787.50	\$292.50	\$392.50	\$335.00	\$400.00	\$300.00
15	Mystery	\$2,195.00	\$27.50	\$17.50	\$25.00	\$25.00	\$17.50

Sales By Category Sales By Category (2) TestSheet

Ready 100%

Conditionally Formatting Cells and Data

- ▶ **Conditional formatting formats data based on cell value**
- ▶ **Benefits**
 - Helps highlight important data
 - Visually identify trends in data
 - Find data breakpoints
 - Who has sold X amount
 - Who is getting paid more than they generate in revenue
 - Highest-performing or lowest-performing students
 - Conditional formatting overrides manual formatting
- ▶ **The steps**
 - Select cell or range
 - Select **Home | Styles | Conditional Formatting**
 - Select format type

Managing Conditional Formatting

- Manage conditional formatting by selecting Home | Styles | Conditional Formatting | Manage Rules

The screenshot shows an Excel spreadsheet with a PivotTable. The PivotTable has a 'Grand Total' row with values 25,546, 18,134, 15,855, 11,143, 4,950, and 75,628. The cells are formatted with arrows and colors (green, yellow, red) based on their values. The 'Conditional Formatting Rules Manager' dialog box is open, showing the 'This PivotTable' selection. The dialog box lists a rule named 'Icon Set' with the format 'Icon Set' and the formula '= \$F\$6:\$F\$10'. The 'Stop If True' checkbox is unchecked. The 'OK' button is highlighted.

Conditional Formatting Rules Manager

Show formatting rules for: This PivotTable

New Rule... Edit Rule... Delete Rule

Rule (applied in order shown)	Format	Applies to	Stop If True
Icon Set	Icon Set	= \$F\$6:\$F\$10	<input type="checkbox"/>

OK Close Apply

Defer Layout Update

Enhance the Pivot Table With Conditional Formatting

Do Now

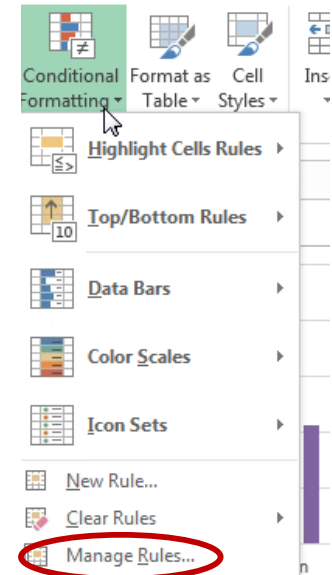
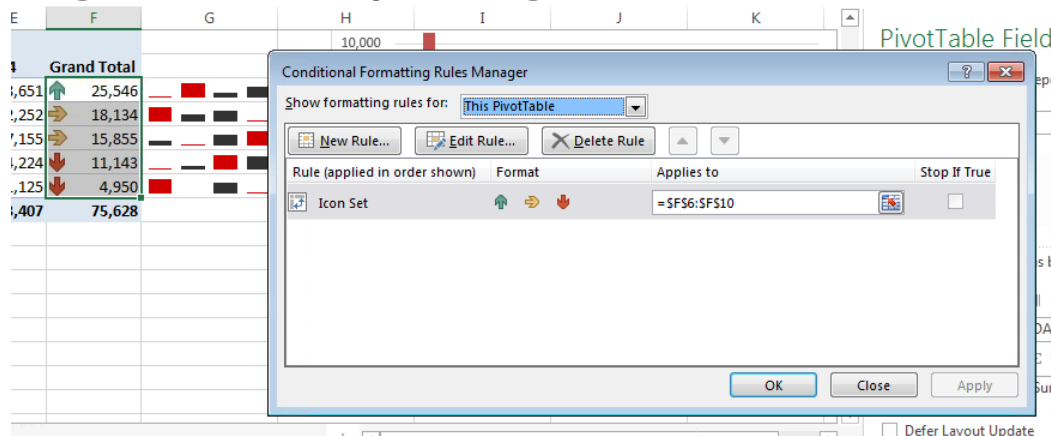
1. Using the same file as the previous exercise
2. Select cells F6:F10 to highlight the Grand Total
3. Right-click the mouse, select Sort | Largest to Smallest
4. Click on Home | Conditional Formatting | Icon Sets | 3 arrows

Sum of REVENUES	DATE						
PRODUCT	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total		
Sanitize	1,903	10,492	4,500	8,651	25,546	↑	
Aqua Aroma	6,250	4,350	5,282	2,252	18,134	→	
CleanIt	2,685	450	5,565	7,155	15,855	→	
Proven	779	1,650	4,490	4,224	11,143	↓	
Sparkle	2,025		1,800	1,125	4,950	↓	

Enhance the Pivot Table With Conditional Formatting

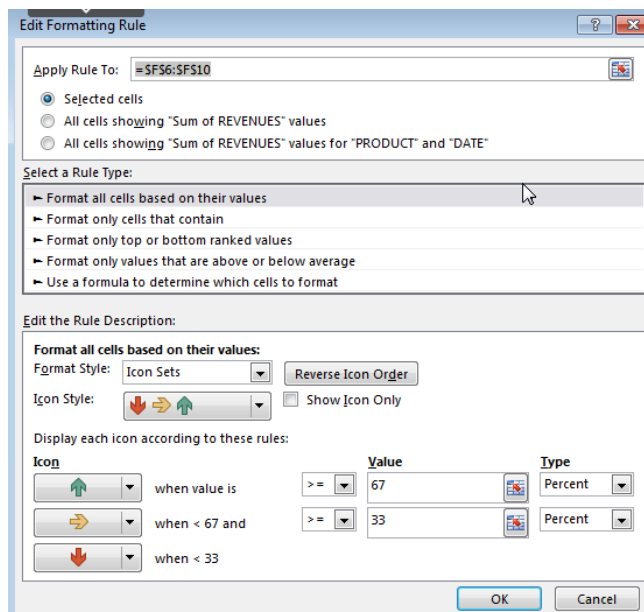
Do Now

5. Investigate the cell rules, click on Home | Conditional Formatting drop down | Manage Rules



6. Click on Edit Rule

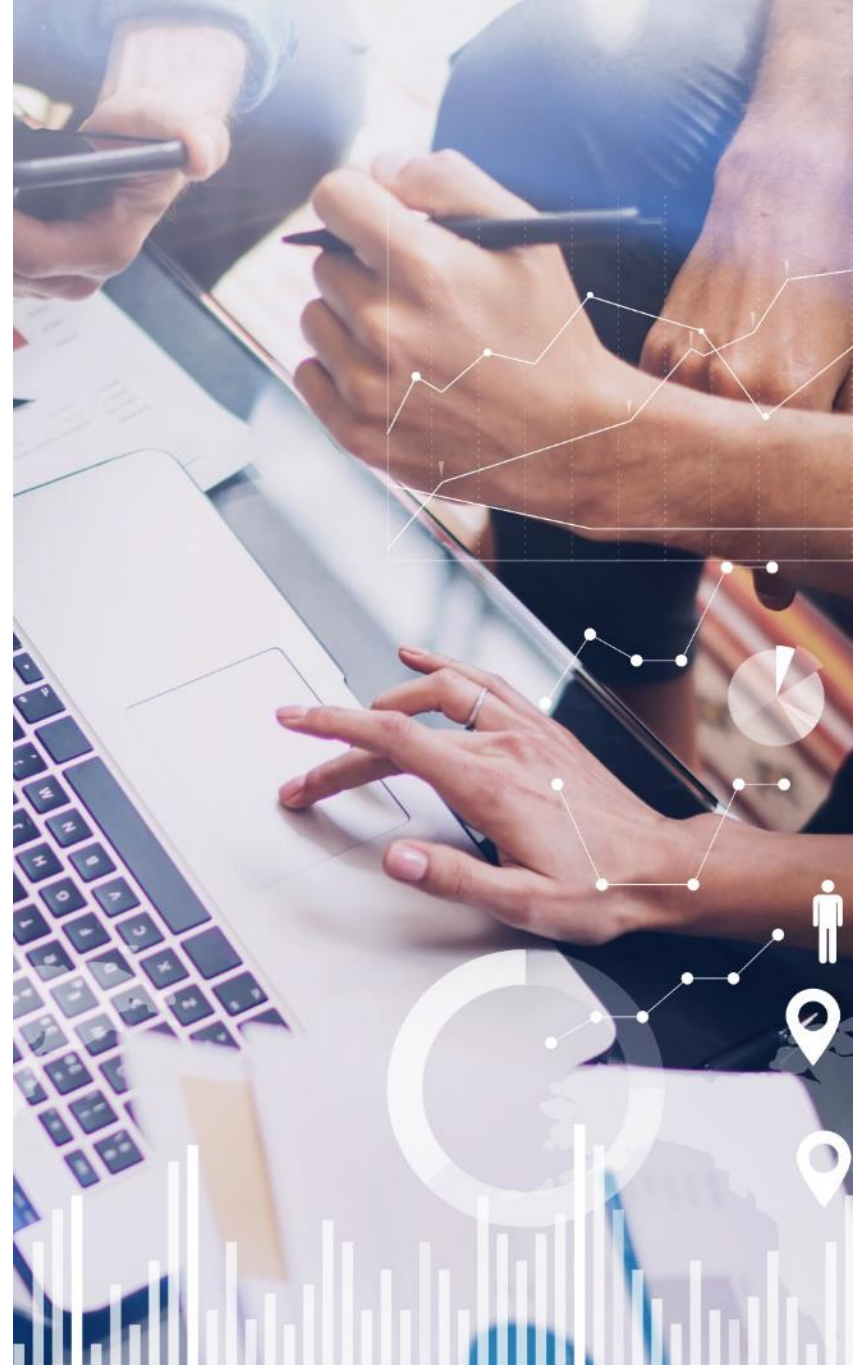
- Observe Rule description



Contents

- ▶ **Interrogating Excel Lists**
- ▶ **Creating PivotTables and PivotCharts**
- ▶ **Hands-On Exercise 1.1**
- ▶ **Analyzing Data With PivotTables**

Hands-On Exercise 1.2



Hands-On Exercise 1.2

- In your Exercise Manual, please refer to Hands-On Exercise 1.2: Analyzing Data With PivotTables

Main exercise	The board has lots of questions to ask you regarding the sales data for the different countries. You need to provide some quick answers.
Bonus	You will add custom formulas and create a PivotChart from the PivotTable.

Objectives

- ▶ **Analyze and subtotal data contained in an Excel dataset with filtering and subtotaling**
- ▶ **Summarize business data with PivotTables**
- ▶ **Manipulate a PivotTable to examine data**

