



KNOWLEDGE CHECK 1

Data Visualization & Storytelling
Fundamentals, Module 1

Overview

By this time, you have finished Module 1, Visual Literacy of the SPARx Community's Data Visualization & Fundamentals Online Course.

You're now aware of the different ways wherein we can gather information and turn them into the simplest visualizations. In this knowledge check, we'd like for you to do some basic data collection and analysis.

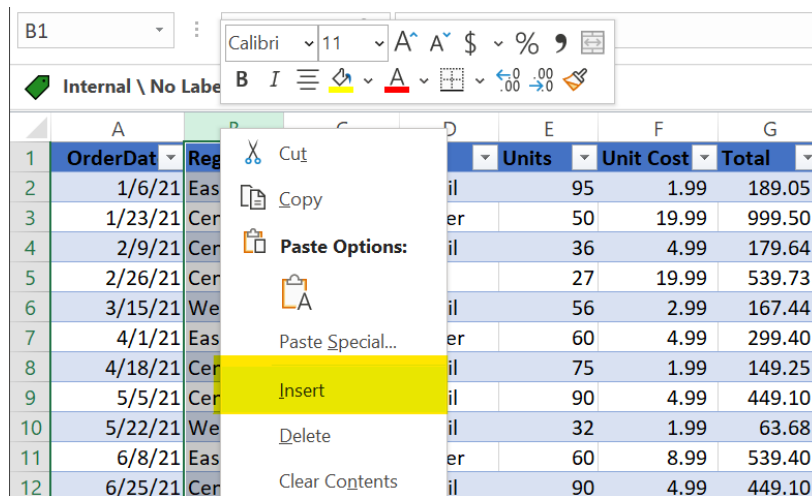
To fully complete module 1, we will require for you to submit your worksheet in MS Excel. The next pages will instruct you on what you will need to set up for the succeeding exercises which will be needed for Module 2



Working with Data

Set up your data by downloading the Sales Orders file [here](#).

1. Open the file, turn the data on the **SalesOrder** tab into a **data table**.
2. Insert a **new column between Columns A and B** and rename it to "Month"



Use formulae to explore data in Excel: create a derived column to extend the data for relevant fields.

3. In cell B2, enter the formula that would **extract the month from the dates in column A**, enter and **double click on the bottom right corner of B2 to expand the formula until the end of the column**.

	A	B	C	D
1	OrderDate	Month	Region	SalesRep
2	1/6/21	<code>=TEXT(A2,"MMM")</code>		Jamieson
3	1/23/21		Central	McKneely
4	2/9/21		Central	Jordan
5	2/26/21		Central	Green
6	3/15/21		West	Bruce

Working with Data

- Sort the data by Month to see the data grouped together by month

	A	B	C	D	E	F	G	H	I
1	OrderDate	Month	Region	SalesRep	Item	Units	Unit Cost	Total	
2	1/6/21	Jan							
3	1/23/21	Jan							
4	2/9/21	Feb							
5	2/26/21	Feb							
6	3/15/21	Mar							
7	4/1/21	Apr							
8	4/18/21	Apr							

+	Add Level	✗	Delete Level	📄	Copy Level	^	↓	Options...	<input checked="" type="checkbox"/> My
Column		Sort On		Order					
Sort by	OrderDate	Cell Values		Oldest to Newest					

Use Conditional Formatting to Explore the Data

- Highlight Extremes and Outliers:** Select the Column C, the first value in the Price column, and then hold the Shift and Ctrl keys and press the Down-Arrow key to select all the values in the Price column.
- On the Home tab of the ribbon, in the Conditional Formatting drop-down list, point to Color Scales, and select the Red-White Color Scale (with red at the top and white at the bottom). The Price cells are reformatted so that the highest expenses are colored an intense red, and the lowest prices are much lighter in color intensity. Scrolling through the data now, it is easier to find expenses that are particularly high or low.

Data	Review	View	Help	Acrobat	Power Pivot	Table Design	Comments	Share
ab	Sensitivity	Accounting		Conditional Formatting	Insert	Σ	Sort & Filter	Analyze Data
		\$ %		Highlight Cells Rules	Delete	↓	Find & Select	
		0.00 0.00		Top/Bottom Rules	Format	🔍		
				Data Bars	Cells			
F	G	H		Color Scales				
Uni	Unit Cos	Total		Icon Sets				
95	\$ 1.99	\$ 189.0		New Rule...				
50	\$ 19.99	\$ 999.5		Clear Rules				
36	\$ 4.99	\$ 179.6		Manage Rules...				
27	\$ 19.99	\$ 539.7						
56	\$ 2.99	\$ 167.4						
60	\$ 4.99	\$ 299.40						
75	\$ 1.99	\$ 149.25						

Red - White Color Scale	Apply a color gradient to a range of cells. The color indicates where each cell value falls within that range.
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Working with Data

Create a Pivot Table to do a deeper analysis of your sales data.

5. Make sure you **clear any filters** so you can see all the data.
6. In the **INSERT** tab, click **PivotTable**. In the Create PivotTable screen, select your table as the source data for your pivot table, make sure to include the headers and go until the very edge of where the data ends. Go ahead and name it as Table1. You can rename this later. It is best practice to name your table appropriately so when you have multiple or begin to link your pivots, it's easier to remember what data set goes into each data table.

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotTable' button in the 'Tables' group is highlighted. A dialog box titled 'PivotTable from table or range' is open, showing 'Table1' as the selected range and 'New Worksheet' as the location. The background shows a sales data table with columns: OrderDate, Month, Region, SalesRep, Item, Units, Unit Cost, and Total.

	OrderDate	Month	Region	SalesRep	Item	Units	Unit Cost	Total
2	1/6/21	Jan	East	Jamieson	Pencil	95	\$ 1.99	\$ 189.05
3	1/23/21	Jan	Central	McKneely	Binder	50	\$ 19.99	\$ 999.50
4	2/9/21	Feb	Central	McKneely	Binder	36	\$ 4.99	\$ 179.64
5	2/26/21	Feb	Central	McKneely	Binder	36	\$ 19.99	\$ 539.73
6	3/15/21	Mar	Central	McKneely	Binder	26	\$ 2.99	\$ 167.44
7	4/1/21	Apr	Central	McKneely	Binder	36	\$ 4.99	\$ 299.40
8	4/18/21	Apr	Central	McKneely	Binder	36	\$ 1.99	\$ 149.25
9	5/5/21	May	Central	McKneely	Binder	36	\$ 4.99	\$ 449.10
10	5/22/21	May	Central	McKneely	Binder	36	\$ 1.99	\$ 63.68
11	6/8/21	Jun	Central	McKneely	Binder	36	\$ 8.99	\$ 539.40
12	6/25/21	Jun	Central	McKneely	Binder	36	\$ 4.99	\$ 449.10
13	7/12/21	Jul	Central	McKneely	Binder	36	\$ 1.99	\$ 57.71
14	7/29/21	Jul	East	McKneely	Binder	36	\$ 19.99	\$ 1,619.19
15	8/15/21	Aug	East	Jamieson	Pencil	35	\$ 4.99	\$ 174.65
16	9/1/21	Sep	Central	Kline	Desk	2	\$ 125.00	\$ 250.00
17	9/18/21	Sep	East	Jamieson	Pen Set	16	\$ 15.99	\$ 255.84

Working with Data

Navigating the Pivot Table

5. There is a region in the worksheet where the empty PivotTable shows no data. There is a PivotTable Fields section on the right side of the window that is displaying the column names from your table.
6. There are four boxes below the PivotTable Fields called Filters, Columns, Rows, and Values.

The screenshot displays an Excel worksheet with a PivotTable named 'PivotTable1' in cell A4. The PivotTable is currently empty. To the right of the worksheet is the 'PivotTable Fields' task pane. The task pane has a title bar 'PivotTable Fields' and a close button. Below the title bar is a section 'Choose fields to add to report:' with a search box and a list of fields: 'OrderDate', 'Month', 'Region', and 'SalesRep'. Below this is a section 'Drag fields between areas below:' with four boxes: 'Filters', 'Columns', 'Rows', and 'Values'. At the bottom of the task pane is a checkbox 'Defer Layout Update' and an 'Update' button. In the worksheet, a text box says 'To build a report, choose fields from the PivotTable Field List'. A circular callout highlights the 'PivotTable Fields' task pane.

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PivotTable1

To build a report, choose fields from the PivotTable Field List

PivotTable Fields

Choose fields to add to report:

Search

☐ OrderDate

☐ Month

☐ Region

☐ SalesRep

Drag fields between areas below:

Filters

Columns

Rows

Values

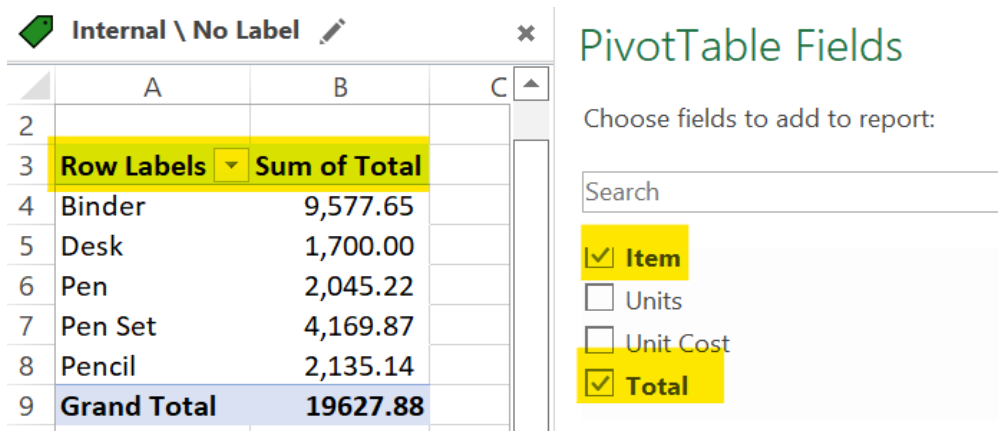
☐ Defer Layout Update

Update

Working with Data

Displaying Data in the Pivot Table

6. To display data and begin doing analysis you need to select Fields and place them in one of the Field Areas of the PivotTable.
- Click and drag on Item and drag it on the Rows area of the Pivot Fields.
 - Click on the Total and drag it on the Values area of the Pivot Fields.
 - Notice how the PivotTable is now showing you the Sum of Total prices for every row of an Item. Your PivotTable will resemble the following:



The screenshot shows a PivotTable and the PivotTable Fields task pane. The PivotTable has two columns: 'Row Labels' and 'Sum of Total'. The data rows are: Binder (9,577.65), Desk (1,700.00), Pen (2,045.22), Pen Set (4,169.87), Pencil (2,135.14), and Grand Total (19627.88). The PivotTable Fields task pane shows the 'Item' field checked in the Rows area and the 'Total' field checked in the Values area.

Row Labels	Sum of Total
Binder	9,577.65
Desk	1,700.00
Pen	2,045.22
Pen Set	4,169.87
Pencil	2,135.14
Grand Total	19627.88

Explore the Data in the Pivot Table

7. Add more detail to the PivotTable by adding “Units” to the Columns field above “Total”. You will have to change its Value Field Settings from Sum to Count
- This will show the second column to be the count of items that were sold. It will add more insight into the data than just adding the total cost spent. To do this, look at the next page’s illustration.

Row Labels	Count of Units	Sum of Total
Binder	15.00	9,577.65
Desk	3.00	1,700.00
Pen	5.00	2,045.22
Pen Set	7.00	4,169.87
Pencil	13.00	2,135.14
Grand Total	43	19627.88

Working with Data

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	A	B	C
2			
3	Row Labels	Sum of Units	Sum of Total
4	Binder	722.00	9,577.65
5	Desk	10.00	1,700.00
6	Pen	278.00	2,045.22
7	Pen Set	395.00	4,169.87
8	Pencil	716.00	2,135.14
9	Grand Total	2121	19627.88
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			

Value Field Settings

Source Name: Units

Custom Name: Count of Units

Summarize Values By Show Values As

Summarize value field by

Choose the type of calculation that you want to use to summarize data from the selected field

Sum
Count
Average
Max
Min
Product

Number Format OK Cancel

Filters Columns

Σ Values

Rows

Item

Σ Values

Sum of Units
Sum of Total

Your data table should now look like this.

Row Labels	Count of Units	Sum of Total
Binder	15.00	9,577.65
Desk	3.00	1,700.00
Pen	5.00	2,045.22
Pen Set	7.00	4,169.87
Pencil	13.00	2,135.14
Grand Total	43	19627.88

Submit

Thank you! You have completed exercises 1 to 3.

You will work on this file cumulatively as you accomplish the rest of the course. Make sure you submit your work by uploading the excel file onto the course module. Your instructors and the module will provide you guidance on next steps.

