



**TURBOCHARGED  
FOR SUCCESS**



Advanced Data Analytics using Excel

September 2021



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## Excel Basics

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- Managing Formulas and Function
- Formatting and Proofing
- Data Management Skills



# Getting Started with Essential Features

- Introduction
- What is a Spreadsheet
- Overview of Spreadsheet program
- Working with Workbook and Worksheet
- Understanding the Ribbon and Ribbon Components



# Getting Started with Essential Features

## Introduction

Excel is a massive application with 1000s of features and 100s of ribbon (menu) commands.

It is very easy to get lost once you open Excel.

One of the basic survival skills is to understand how to navigate Excel and access the features you are looking for.



# Getting Started with Essential Features

## What is a Spreadsheet?

A program that allows you to use data to input, manage, and present information. Excel is a business tool for storing and managing large sets of data.

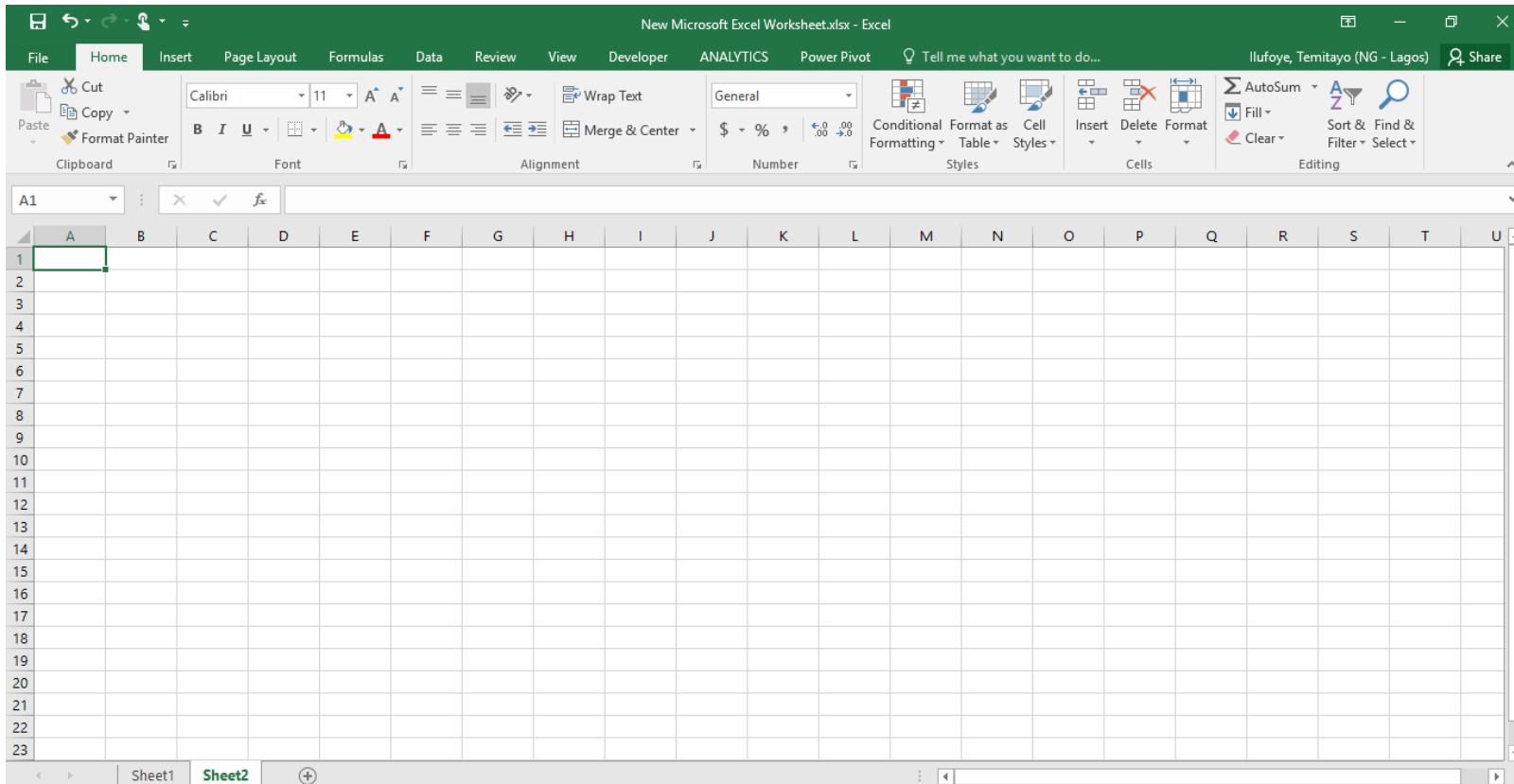
- Excel's main screen is called a "worksheet".
- Each worksheet is comprised of many boxes, called "cells".

	A1	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

# Getting Started with Essential Features

## Overview of Spreadsheet Program

When you open a blank Excel file, this is how it looks.



# Getting Started with Essential Features

## Overview of Spreadsheet Program

There are five (5) important areas in the screen.

- 1. Quick Access Toolbar:** This is a place where all the important tools can be placed. When you start Excel for the very first time, it has only 3 icons (Save, Undo, Redo). But you can add any feature of Excel to Quick Access Toolbar so that you can easily access it from anywhere (hence the name).
- 2. Ribbon:** Ribbon is like an expanded menu. It depicts all the features of Excel in easy to understand form. Since Excel has 1000s of features, they are grouped into several ribbons. The most important ribbons are – Home, Insert, Formulas, Page Layout & Data.

# Getting Started with Essential Features

## Overview of Spreadsheet Program

**3. Formula Bar:** This is where any calculations or formulas you write will appear. You will understand the relevance of it once you start building formulas.

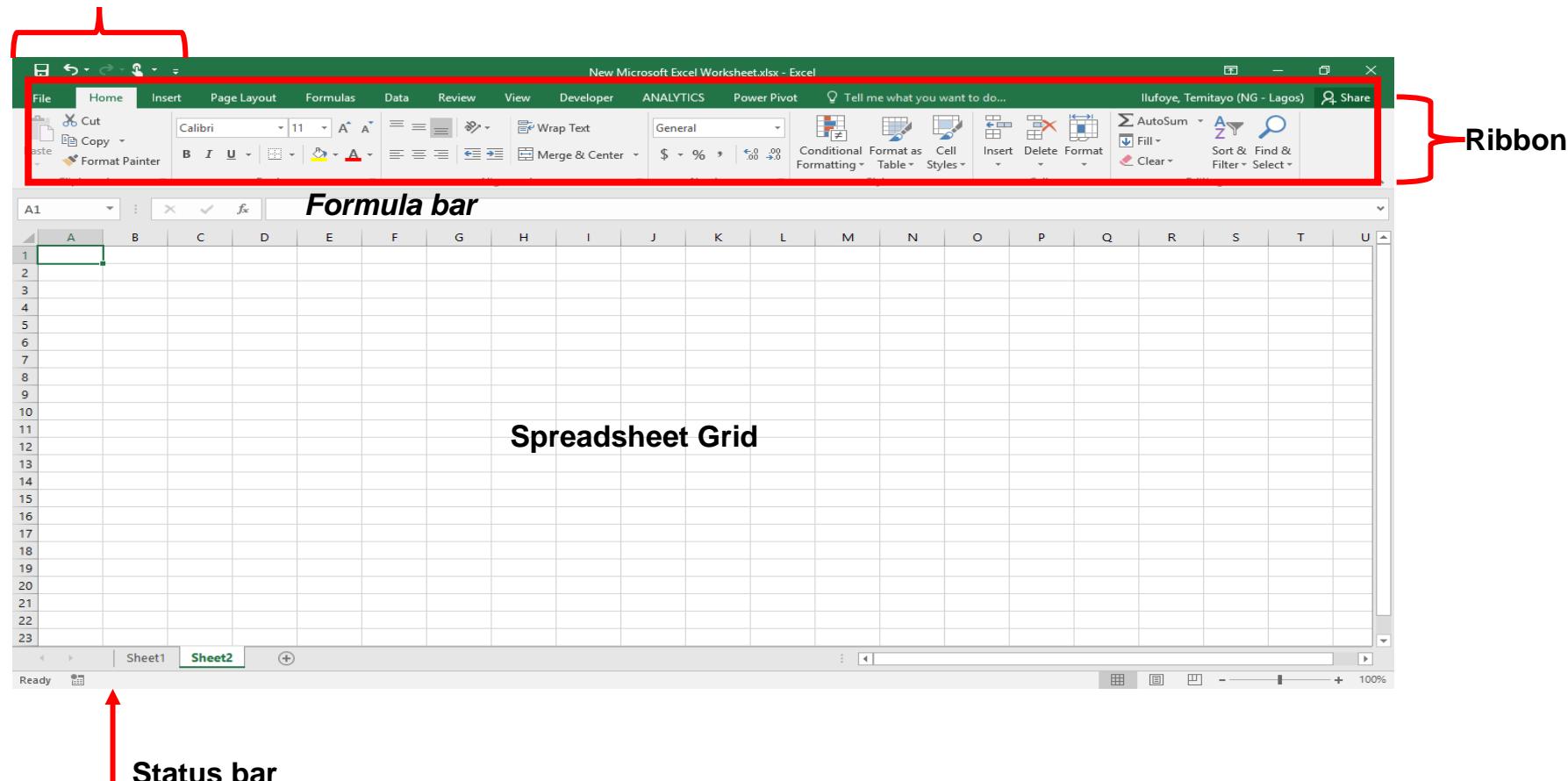
**4. Spreadsheet Grid:** This is where all your numbers, data, charts & drawings will go. Each Excel file can contain several sheets. But the spreadsheet grid shows few rows & columns of active spreadsheet. To see more rows or columns you can use the scroll bars to the left or at bottom.

**5. Status bar:** This tells us what is going on with Excel at any time. You can tell if Excel is busy calculating a formula, creating a pivot report or recording a macro by just looking at the status bar. The status bar also shows quick summaries of selected cells (count, sum, average, minimum or maximum values).

# Getting Started with Essential Features

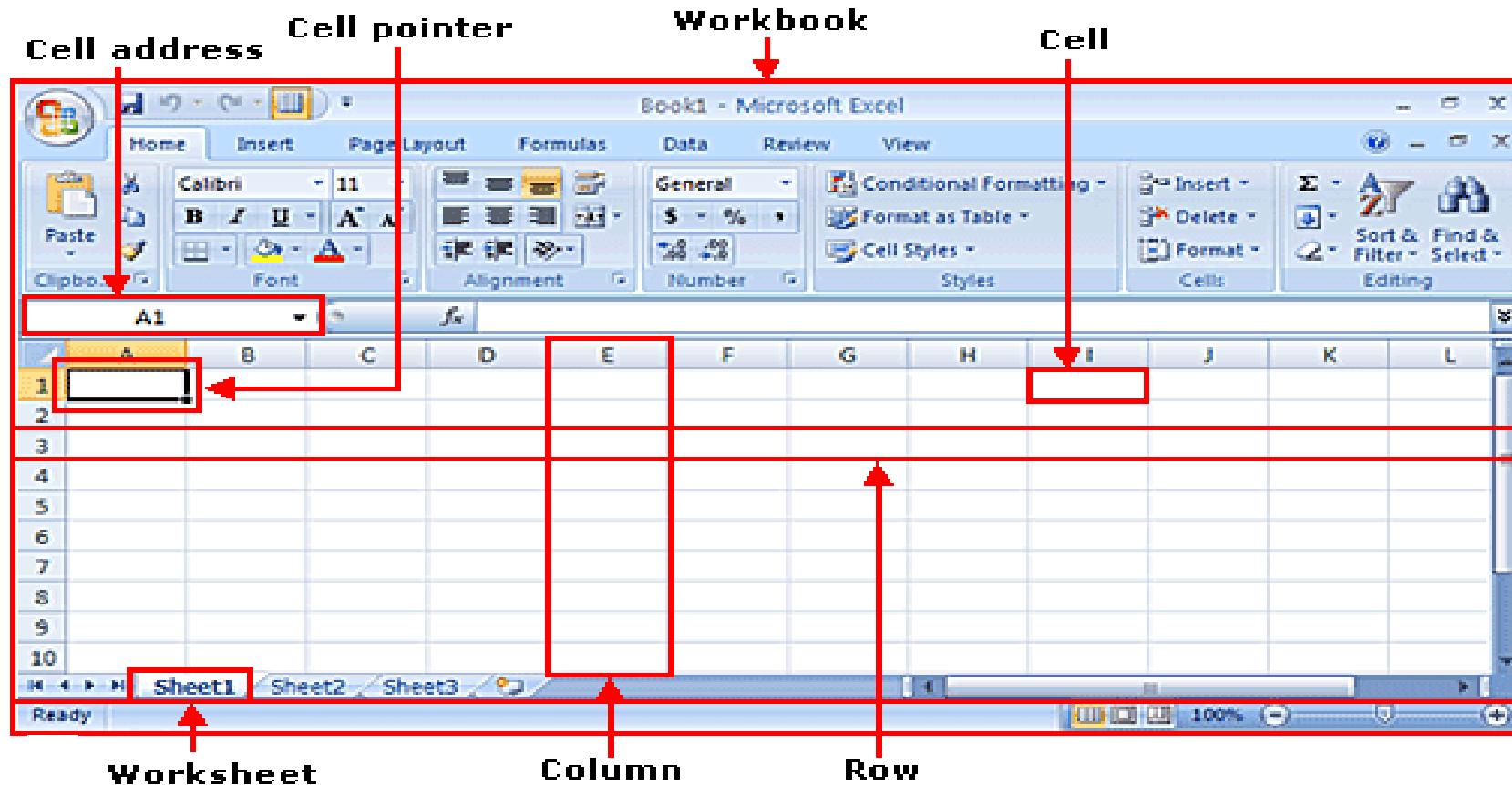
## Overview of Spreadsheet Program

Quick access toolbar



# Getting Started with Essential Features

## Working with Worksheet and Workbook

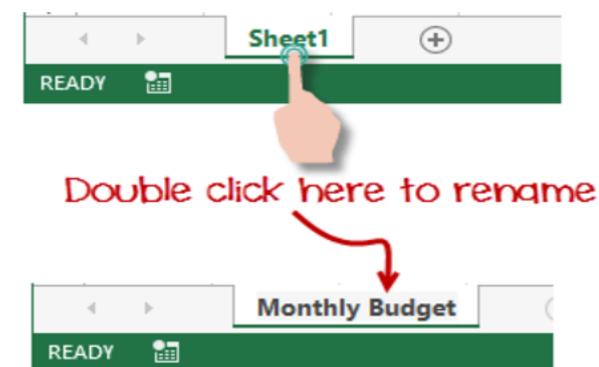


# Getting Started with Essential Features

## Working with Worksheet and Workbook

A **worksheet** is a collection of rows and columns. When a row and a column meet, they form a cell. Cells are used to record data. Each cell is uniquely identified using a cell address. Columns are usually labelled with letters while rows are usually numbers.

A **workbook** is a collection of worksheets. You can delete or add more sheets to suit your requirements. By default, the sheets are named Sheet1, Sheet2 and so on and so forth. You can rename the sheet names to more meaningful names i.e. Daily Expenses, Monthly Budget, etc.



# Getting Started with Essential Features

## Working with Worksheet and Workbook

**Rows and columns:** The horizontal divisions in a worksheet are called rows. Each row is identified by a number. For example, the first row in a worksheet is 1.

Columns are the vertical divisions in a worksheet. Each column is identified by a letter. For example, the first column in a worksheet is A.

**Cell:** A cell is formed by the intersection of a row and a column. The highlighted rectangular border formed around an active cell is called a cell pointer. An active cell is the cell in which you are working currently. There can be only one active cell at a time.

You can use a cell to store and display different types of data such as text, numbers, or formulas. Each cell in a worksheet is identified by a cell address.

# Getting Started with Essential Features

## Working with Worksheet and Workbook

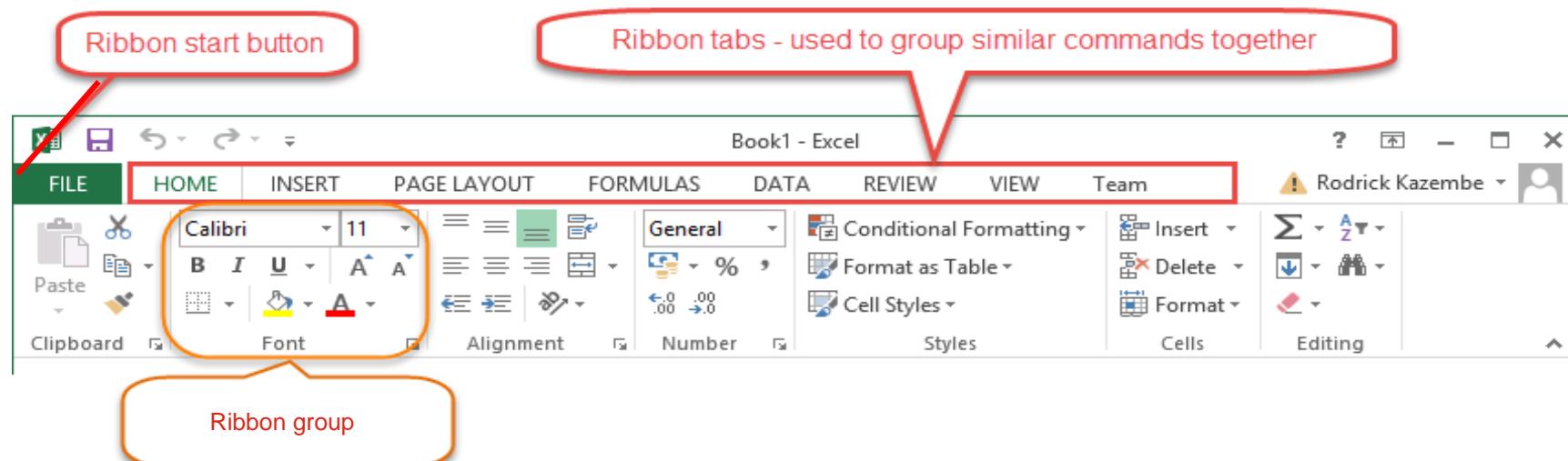
**Cell Address:** A cell address is made of the column letter and row number of the cell. For example, the cell formed by the first column and first row has the cell address A1. The cell address indicates the exact location of a cell in a worksheet.

# Getting Started with Essential Features

## Understanding the Ribbon

The ribbon provides shortcuts to commands in Excel. A command is an action that the user performs. An example of a command is creating a new document, printing a document, etc.

The image below shows the ribbon used in Excel 2013.



# Getting Started with Essential Features

## Understanding the Ribbon: Components

**Ribbon start button** - it is used to access commands i.e. creating new documents, saving existing work, printing, accessing the options for customizing Excel, etc.

**Ribbon tabs** – ribbon or menu tabs are used to group similar commands together. The home tab is used for basic commands such as formatting the data to make it more presentable, sorting and finding specific data within the spreadsheet.

**Ribbon group** – ribbon groups contains related commands. As an example, the Alignment group contains commands that can be used to align data.

# Entering Data

- Entering Information & Working with Excel
- Moving and copying data
- Inserting, Deleting and Hiding Rows & Columns
- Inserting, Deleting, Moving and Copying Sheets
- Using navigation techniques



# Entering Data

There are two ways to enter information into a cell:

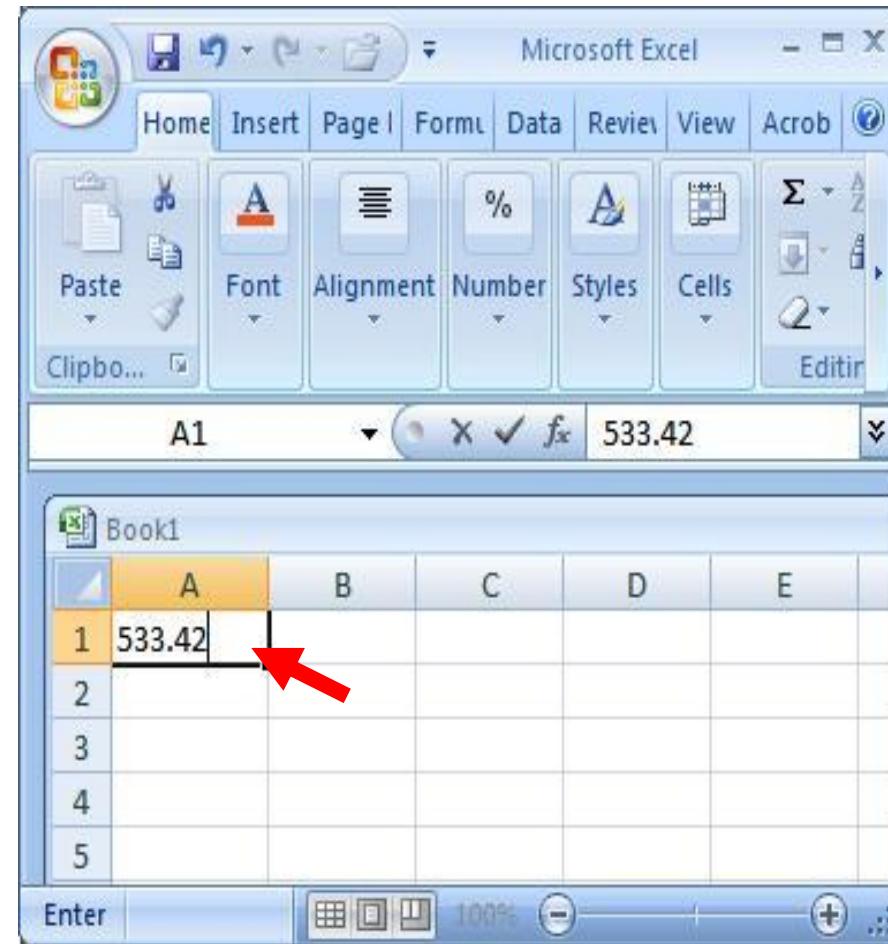
- 1. Type directly into the cell.**
- 2. Type into the formula bar**



# Entering Data

## 1. Type directly into the cell.

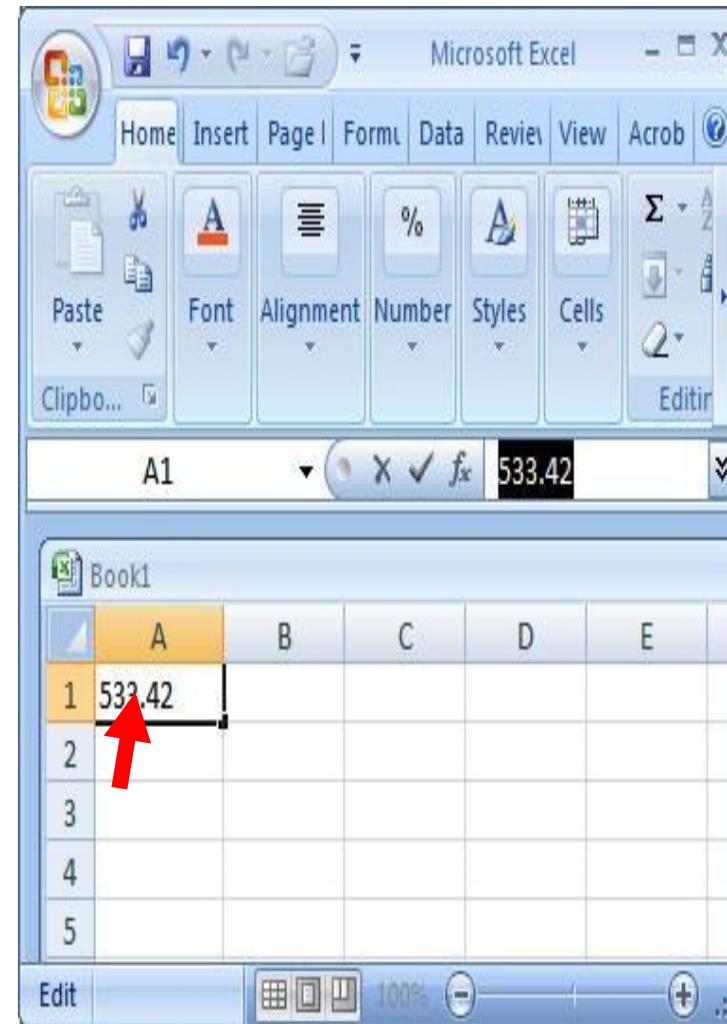
Click on a cell, and type in the data (numbers or text) and press Enter.



# Entering Data

## 2. Type into the formula bar.

Click on a cell, and then click in the formula bar (the space next to the  ). Now type the data into the bar and press Enter



# Entering Data

## Double Click to Modify a Cell

- To modify the contents of a cell double click on the cell.
- Then use the right, left arrow keys and the Insert and Delete keys to modify the data.
- When you are done:
  - Press the Enter key or
  - Click on the check box.

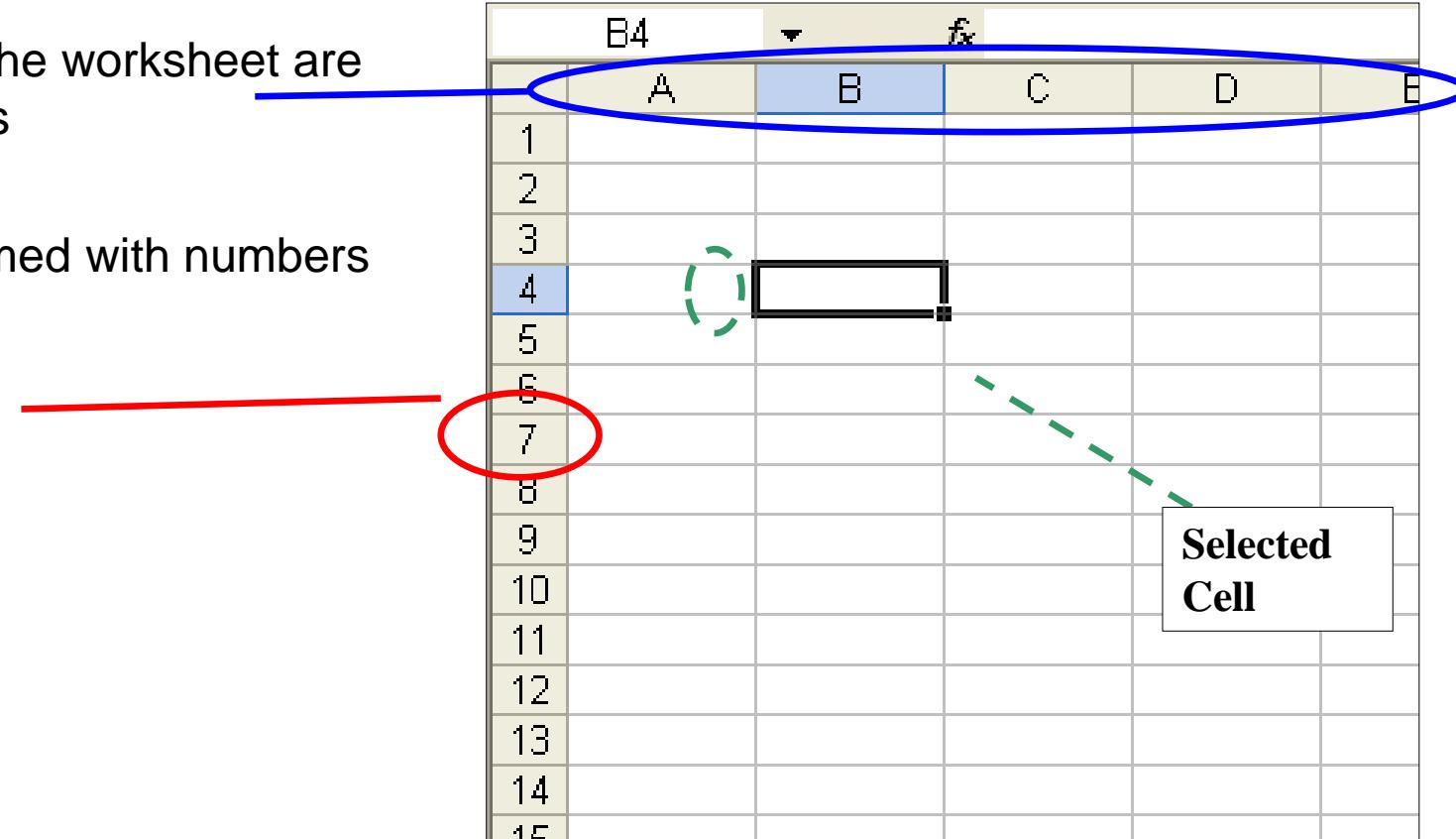
		B4	▼	X	✓	f/x	hello there	
	A	B	C	D	E	F	G	H
1								
2								
3								
4		hello there						
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

**Double click to change “hi there” to “hello there”**

# Entering Data

## Column Names (letter) & Row Names (number)

- The columns of the worksheet are named with letters
- The rows are named with numbers

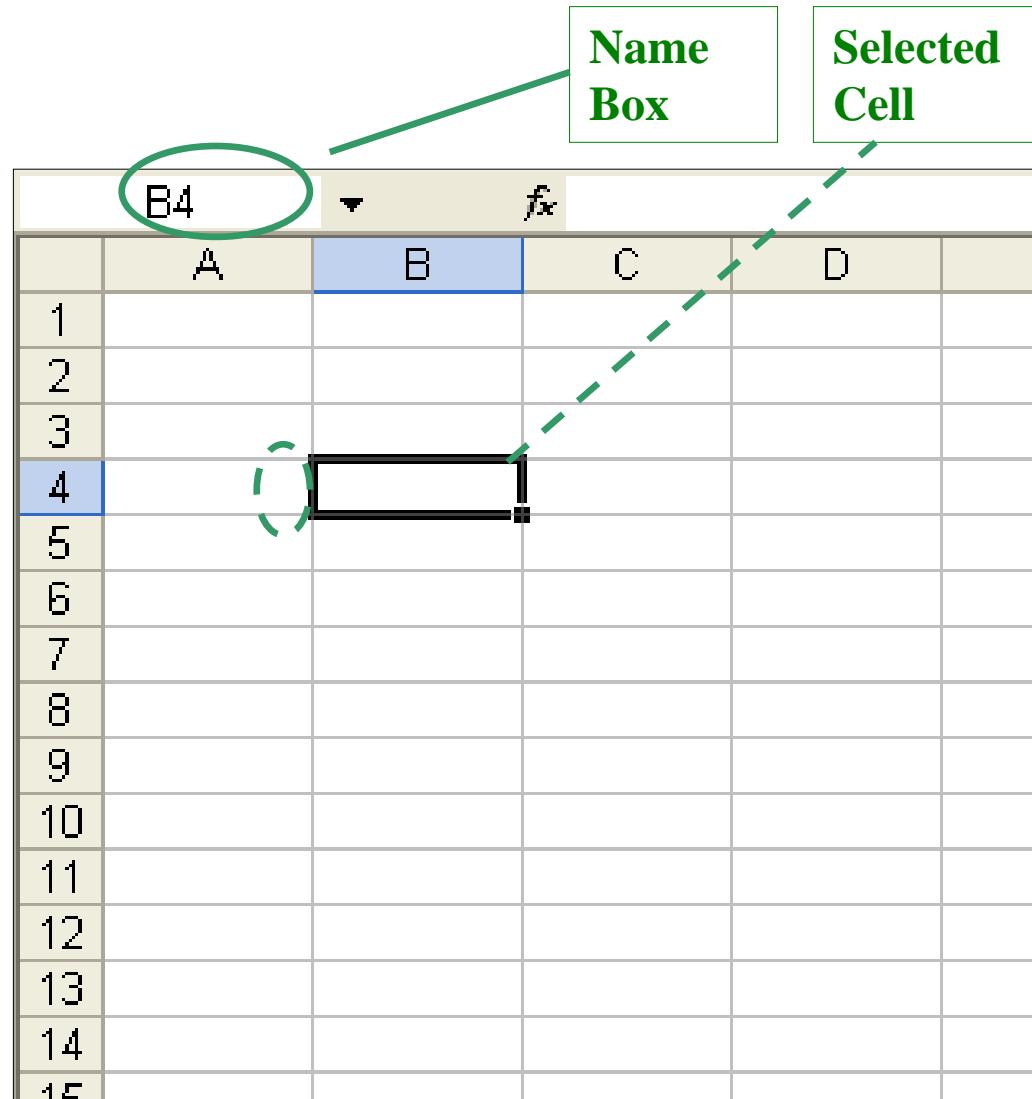


	A	B	C	D	E
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

# Entering Data

## Cell Names

- The name of a cell is a combination of the **Letter Of The Column** that the cell is in followed by the **Number Of The Row** that the cell is in.
- Example: the selected cell in the picture is named **B4** (*NOT 4B*)
- Excel automatically shows the the name of the **currently selected cell** in the “**name box**” (located above the worksheet).
- The letter ***must*** come first (i.e. B4, NOT 4B) and there may NOT be any spaces between the letter and the number.



A screenshot of an Excel spreadsheet illustrating cell addressing. The top row shows column headers A through E. The leftmost column shows row numbers 1 through 15. Cell B4 is highlighted with a thick black border and circled with a green oval. The 'Name Box' at the top left contains 'B4'. The 'Selected Cell' is indicated by a green dashed arrow pointing to cell B4.

# Entering Data

## Resizing a Row

- Make a row taller or shorter by dragging the separator between the rows.
- Click and drag here to resize row 5.

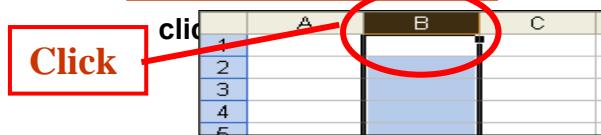
	A	B	C	D	E
1					
2					
3					
4					
5	Name	Hours Worked			
6					
7					

Row is now  
taller

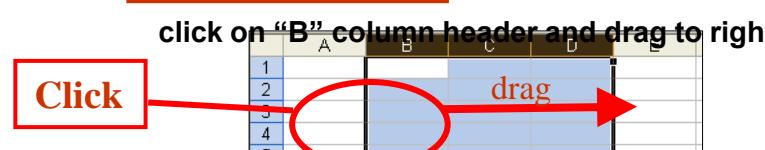
# Entering Data

## Select Entire Columns/Rows/Worksheet

### To select ENTIRE COLUMN B

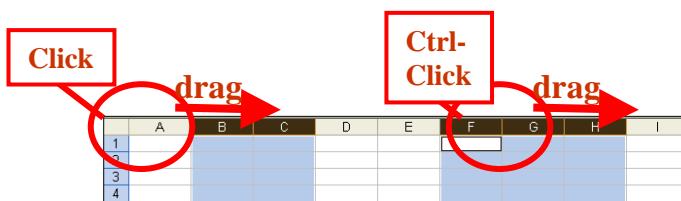


### To select COLUMNS B,C,D

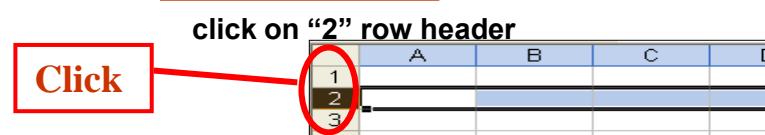


### To select COLUMNS B,C and F,G,H

click on "B" column header, drag to right,  
then Ctrl-Click on "F" column header and drag right

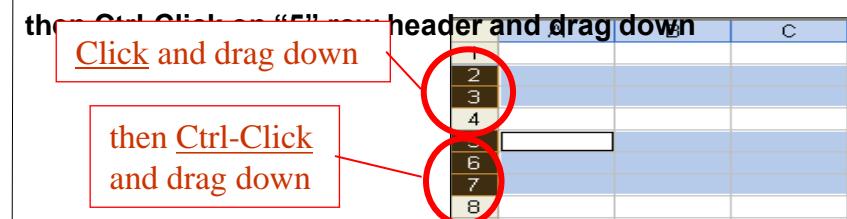


### To select ENTIRE ROW 2



### To select ROWS 2,3 and 5,6,7

click on "2" row header, drag down,



### To select ENTIRE WORKSHEET

click on select worksheet button  
(corner between "1" and "A" buttons)



# Entering Data

## Moving and Copying Data

### Simple Copy and Move

The easiest way to move or copy a cell or a group of cells is by selecting the cell or cells to be moved or copied, then using the mouse to drag the selection box to a new location.

### Cut, Copy and Paste

Another, more flexible, way to copy or move a selection is to use cut, copy, and paste operations. These operations allow the user to copy or move selected cells to the clipboard buffer and then paste the contents of the clipboard buffer to a different location or a different workbook.

# Entering Data

## Moving and Copying Data

### Pasting the Clipboard

To paste the contents of the clipboard (i.e., previously cut or copied selection) to a new location, just click on a cell and use one of the following methods:

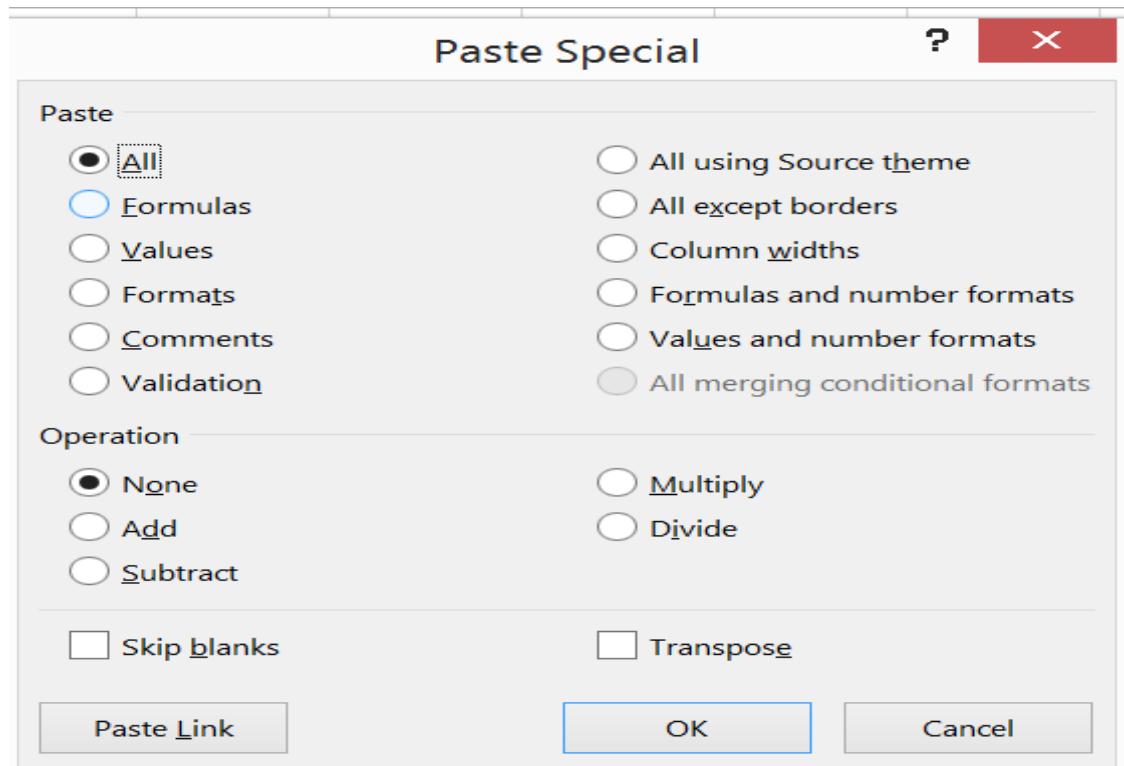
- Use keyboard shortcut Ctrl+V.
- Choose Paste from the Edit menu.
- Click on  Paste button in the toolbar.
- Right-click on the cell and choose Paste from the context menu.

# Entering Data

## Moving and Copying Data

### Paste Special

The **Paste Special...** command can act exactly like the **Paste** command or may selectively paste the cell contents, the



cell formats, the calculated values of the original cells rather than their contents. If you need more options, use **Paste Special...** command.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

### Inserting Row

Select the **row heading** below where you want the new row to appear. For example, if you want to insert a row between rows 7 and 8, select row 8.

5	Neil	Crawford	908-555-2234	2312 Stonepot Road
6	Anthony	Keel	267-555-0144	533 Spring Avenue
7	Ray	Logan	256-555-2475	2439 Ritter Street
8	Tricia	Matthews	808-555-6397	4721 Arron Smith Drive
9	Leola	McNew	580-555-8177	2182 Cody Ridge Road
10	Joshua	Milliman	213-555-1117	2166 Zimmerman Lane

Right Click and select the Insert command

The **new row** will appear above the selected row.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

### Inserting Column

Select the **column heading** to the right of where you want the new column to appear. For example, if you want to insert a column between columns D and E, select column E.

D	E	F
Street Address	Position(s)	
300 Round Table Drive	Pitcher, Second base	
4721 Arron Smith Drive	Catcher	
2152 Liberty Avenue	Outfield	
3503 Prospect Valley Road	First base	
1483 Frosty Lane	Third base	
1663 Taylor Street	Shortstop	
3329 Washington Avenue	First base, pitcher	
1736 Broad Street	DH	
2937 Earnhardt Drive	Second base	
232 Timber Oak Drive	Right field	
4072 Nelm Street	Third Base	
2182 Cody Ridge Road	Pitcher	
1001 Cerullo Road	Second base	

Right Click and select the Insert command

The **new column** will appear **to the left** of the selected column.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

### Deleting Row

It's easy to **delete** any row that you no longer need in your workbook. Select the **row(s)** you want to delete. In our example, we'll select **rows 6-8**.

5	Josefina	Woodard	714-555-4506	2152 Liberty Avenue
6	Rodney	Ross	310-555-8862	3503 Prospect Valley Road
7	Leigh	Dizon	607-555-7816	1483 Frosty Lane
8	Mark	Grant	914-555-5592	1663 Taylor Street
9	Mildred	Persinger	601-555-0175	3329 Washington Avenue
10	Dwayne	Patnode	205-555-3783	1736 Broad Street
11	Bonnie	Benjamin	502-555-1212	2937 Earnhardt Drive

Right Click and select the Delete command

The **selected row(s)** will be deleted, and the rows below will **shift up**

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

### Deleting Columns

Select the **columns(s)** you want to delete. In our example, we'll select **column E**.

D	E ↓	F
Street Address	Zip Code	Position(s)
800 Round Table Drive	27606	Pitcher, Second base
4721 Arron Smith Drive	27704	Catcher
2152 Liberty Avenue	27615	Outfield
3329 Washington Avenue	27513	First base, pitcher
1736 Broad Street	27613	DH
2937 Earnhardt Drive	27606	Second base
232 Timber Oak Drive	27704	Right field
4072 Nelm Street	27615	Third Base
2182 Cody Ridge Road	27513	Pitcher
1001 Cerullo Road	27613	Second base
9 Tenmile Road	27606	Third base
1386 Patterson Street	27704	Outfield, catcher
3990 Pretty View Lane	27615	Left field
533 Spring Avenue	27513	Shortstop, pinch runner
2723 Nelm Street	27613	Left field, Center field

Right Click and select the Delete command

The **selected columns(s)** will be deleted, and the columns to the right will shift left.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

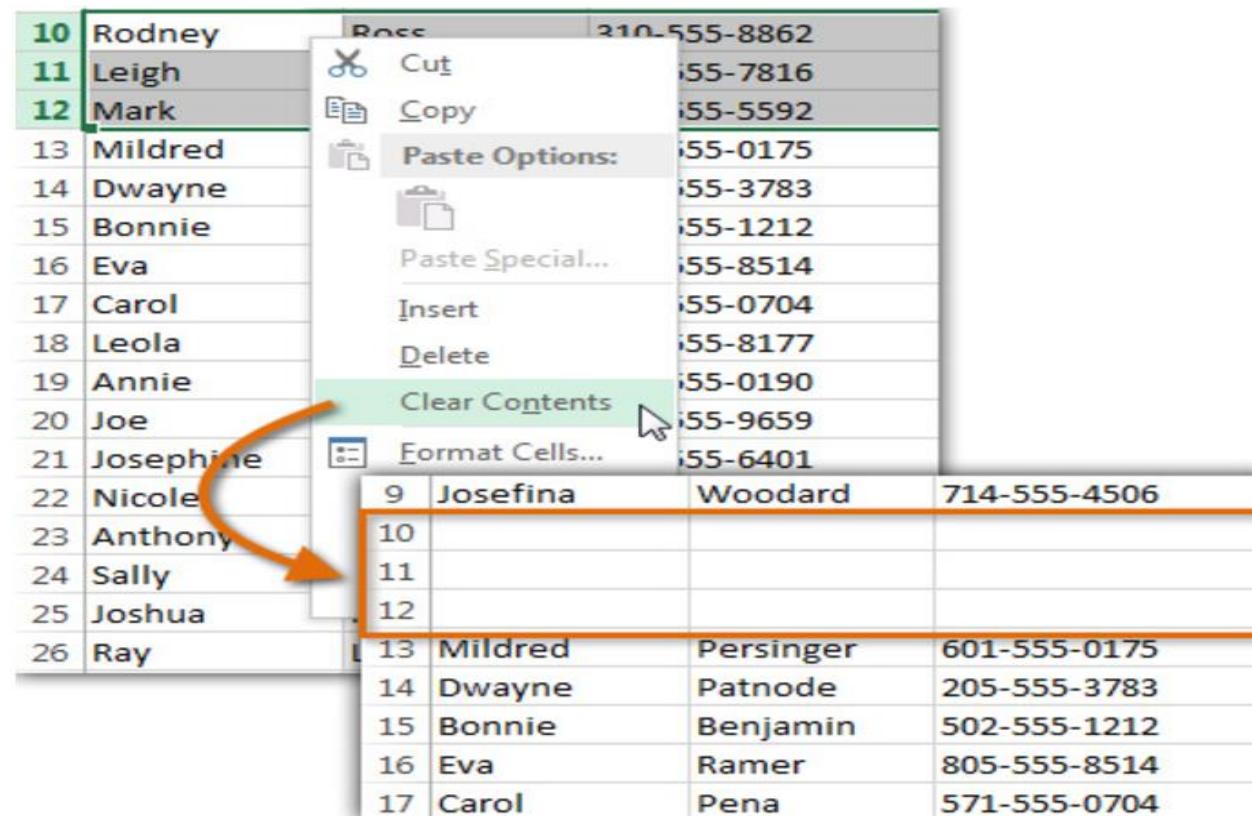
### Clearing Content

It's important to understand the difference between deleting a row or column and simply clearing its contents. If you want to remove the **content** of a row or column without causing others to shift, right-click a **heading**, then select **Clear Contents** from the drop-down menu.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

### Clearing Content



The screenshot shows a Microsoft Excel spreadsheet with data in columns A through D. The first few rows contain headers: Row 1 (A1-D1) has 'Employee ID' in A1, 'Last Name' in B1, 'First Name' in C1, and 'Phone Number' in D1. Rows 2 through 26 contain employee records. An orange arrow points from the 'Clear Contents' option in the context menu to the row numbers 10, 11, and 12, which are highlighted with a red border. The context menu also includes options like Cut, Copy, Paste Options, Insert, Delete, Format Cells, and Clear Contents.

	Employee ID	Last Name	First Name	Phone Number
10	Rodney	Ross	210-555-8862	
11	Leigh			555-7816
12	Mark			555-5592
13	Mildred			555-0175
14	Dwayne			555-3783
15	Bonnie			555-1212
16	Eva			555-8514
17	Carol			555-0704
18	Leola			555-8177
19	Annie			555-0190
20	Joe			555-9659
21	Josephine			555-6401
22	Nicole	9	Josefina	714-555-4506
23	Anthony	10		
24	Sally	11		
25	Joshua	12		
26	Ray	13	Mildred	Persinger 601-555-0175
		14	Dwayne	Patnode 205-555-3783
		15	Bonnie	Benjamin 502-555-1212
		16	Eva	Ramer 805-555-8514
		17	Carol	Pena 571-555-0704

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

**To hide and unhide a row or column:**

At times, you may want to **compare** certain rows or columns without changing the organization of your worksheet. Excel allows you to **hide** rows and columns as needed. In our example, we'll hide columns C and D to make it easier to compare columns A, B, and E.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

To hide and unhide a row or column:



The screenshot shows a Microsoft Excel spreadsheet with 15 rows of data. The columns are labeled A, B, C, and D. The data includes names and contact information. A context menu is open over the range of cells from C1 to D15. The menu options include Cut, Copy, Paste Options (which is highlighted), Insert, Delete, Clear Contents, Format Cells, Column Width, Hide (which is highlighted with a mouse cursor), and Unhide.

	A	B	C	D
1	<b>First Name</b>	<b>Last</b>	<b>Cell Phone</b>	<b>Street Address</b>
2	Amanda	Ryan	513-555-4477	800 Round Table
3	Tricia	Matthews	808-555-6397	4721 Arron Smith
4	Josefina	Woodard	714-555-4506	2152 Liberty Aver
5	Rodney	Ross	310-555-8862	3503 Prospect Val
6	Leigh	Dizon	607-555-7816	1483 Frosty Lane
7	Mark	Grant	914-555-5592	1663 Taylor Street
8	Mildred	Persinger	601-555-0175	3329 Washington
9	Dwayne	Patnode	205-555-3783	1736 Broad Street
10	Bonnie	Benjamin	502-555-1212	2937 Earnhardt Dr
11	Eva	Ramer	805-555-8514	232 Timber Oak D
12	Carol	Pena	571-555-0704	4072 Nelm Street
13	Leola	McNew	580-555-8177	2182 Cody Ridge R
14	Annie	Muro	502-555-0190	1001 Cerullo Road
15	Joe	Rodriguez	781-555-9659	9 Tenmile Road

The columns will be **hidden**

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

To hide and unhide a row or column:

To **unhide** the columns, select the columns to the **left** and **right** of the hidden columns (in other words, the columns on **both sides** of the hidden columns). In our example, we'll select columns **B** and **E**.

Right-click the mouse, then select **Unhide** from the **formatting** menu. The hidden columns will reappear.

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

To hide and unhide a row or column:

A	B	E	G
1 First Name	Last Name	Position(s)	
2 Amanda	Ryan	Pitcher, Second	
3 Tricia	Matthews	Catcher	
4 Josefina	Woodard	Outfield	
5 Rodney	Ross	First base	
6 Leigh	Dizon	Third base	
7 Mark	Grant	Shortstop	
8 Mildred	Persinger	First base, pitcher	
9 Dwayne	Patnode	DH	
10 Bonnie	Benjamin	Second base	
11 Eva	Ramer	Right field	
12 Carol	Pena	Third Base	
13 Leola	McNew	Pitcher	
14 Annie	Muro	Second base	
15 Joe	Rodriguez	Third base	
16 Josephine	Carter	Outfield, catcher	

-  Cut
-  Copy
-  Paste Options:
-  Paste Special...
-  Insert
-  Delete
-  Clear Contents
-  Format Cells...
-  Column Width...
-  Hide
-  Unhide

# Entering Data

## Inserting, Deleting and Hiding Rows & Columns

Other operations that can be performed are :

- Wrapping text
- Merging cells

# Entering Data

## Inserting, Deleting and Moving Worksheets

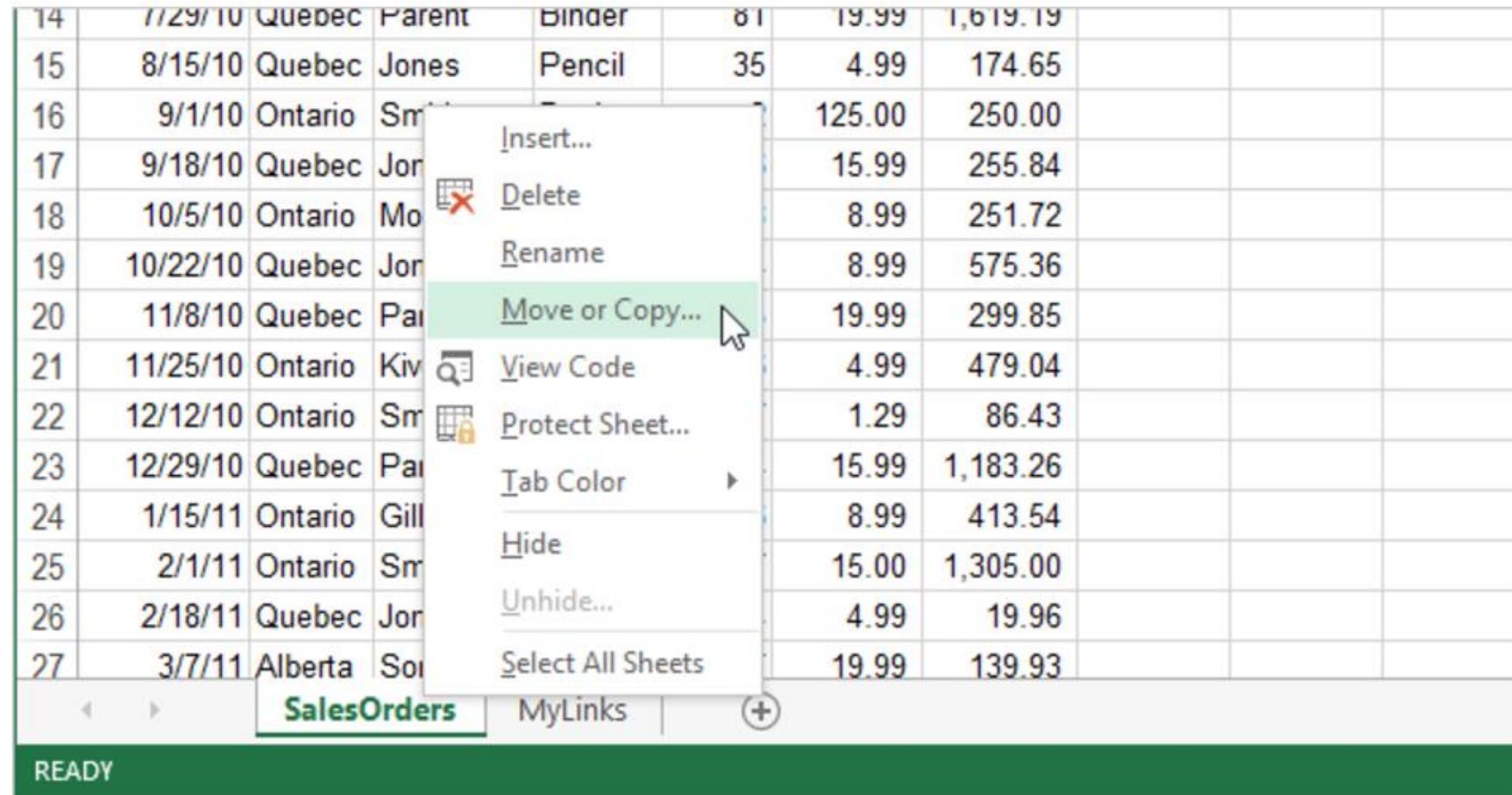
There may be times when you want to create a new Excel worksheet based on an existing worksheet. You can easily copy an entire worksheet in Excel to a new worksheet in the same file or even to a new, separate workbook file.

The **Move** or **Copy** command allows you to easily move or copy a worksheet, with all of its data and formatting, to a new sheet or to a new book.

Select the worksheet you want to move or copy and right-click on the worksheet's tab at the bottom of the Excel window. Select Move or Copy from the popup menu.

# Entering Data

## Inserting, Deleting and Moving Worksheets



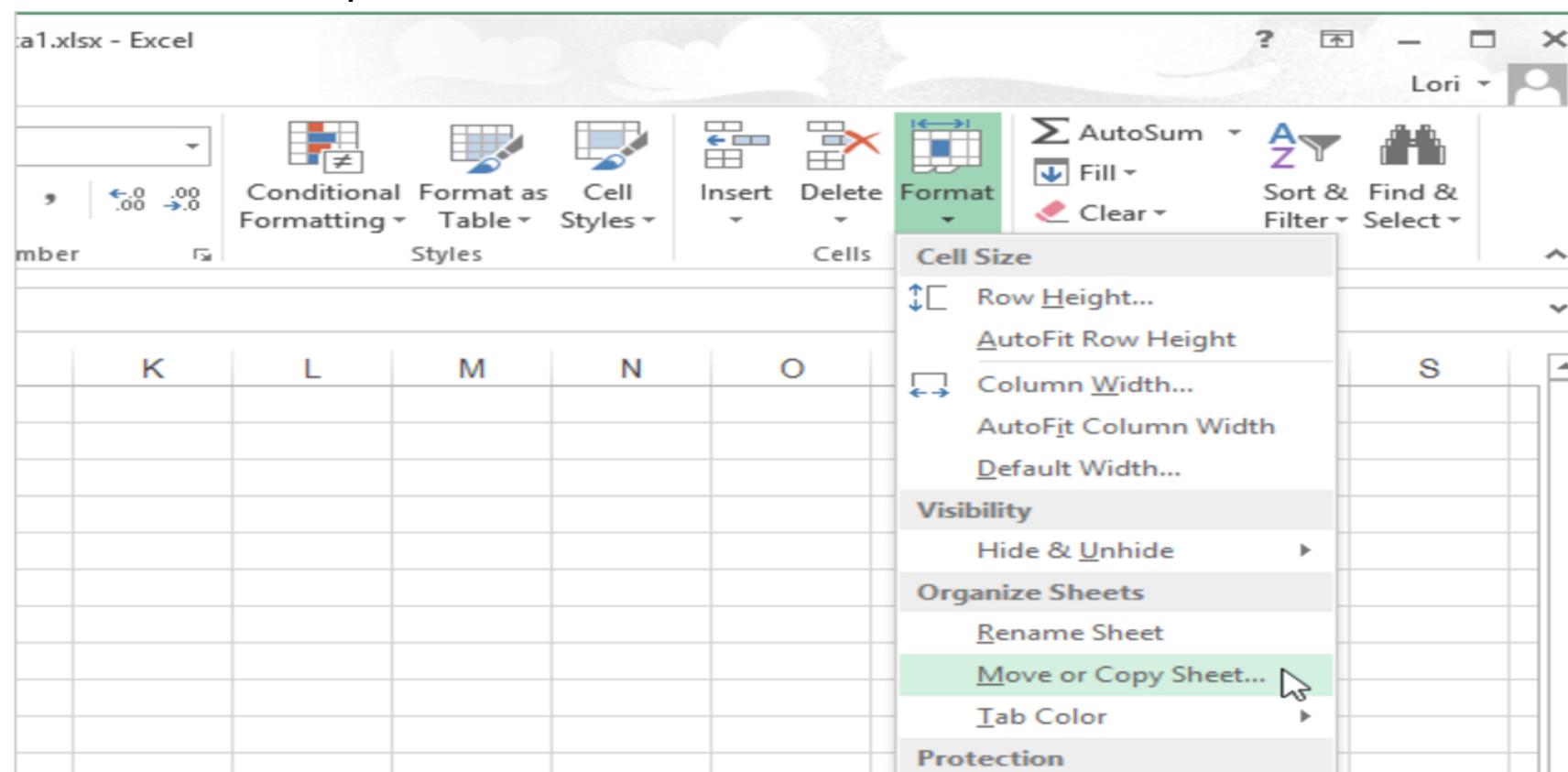
A screenshot of Microsoft Excel showing a context menu for a worksheet tab. The menu options include Insert..., Delete, Rename, Move or Copy..., View Code, Protect Sheet..., Tab Color, Hide, Unhide..., and Select All Sheets. The "Move or Copy..." option is highlighted with a green background and a cursor arrow pointing to it. The worksheet tab at the bottom is labeled "SalesOrders".

14	7/29/10	Quebec	Parent	Binder	81	19.99	1,619.19
15	8/15/10	Quebec	Jones	Pencil	35	4.99	174.65
16	9/1/10	Ontario	Smith	Pen		125.00	250.00
17	9/18/10	Quebec	Jones	Eraser		15.99	255.84
18	10/5/10	Ontario	Moore	Marker		8.99	251.72
19	10/22/10	Quebec	Jones	Scissors		8.99	575.36
20	11/8/10	Quebec	Parent	Binders		19.99	299.85
21	11/25/10	Ontario	Kivimaki	Glue		4.99	479.04
22	12/12/10	Ontario	Smith	Calculator		1.29	86.43
23	12/29/10	Quebec	Parent	Chalk		15.99	1,183.26
24	1/15/11	Ontario	Gillies	Pencil Case		8.99	413.54
25	2/1/11	Ontario	Smith	Handwriting Book		15.00	1,305.00
26	2/18/11	Quebec	Jones	Math Workbook		4.99	19.96
27	3/7/11	Alberta	Son	Science Workbook		19.99	139.93

# Entering Data

## Inserting, Deleting and Moving Worksheets

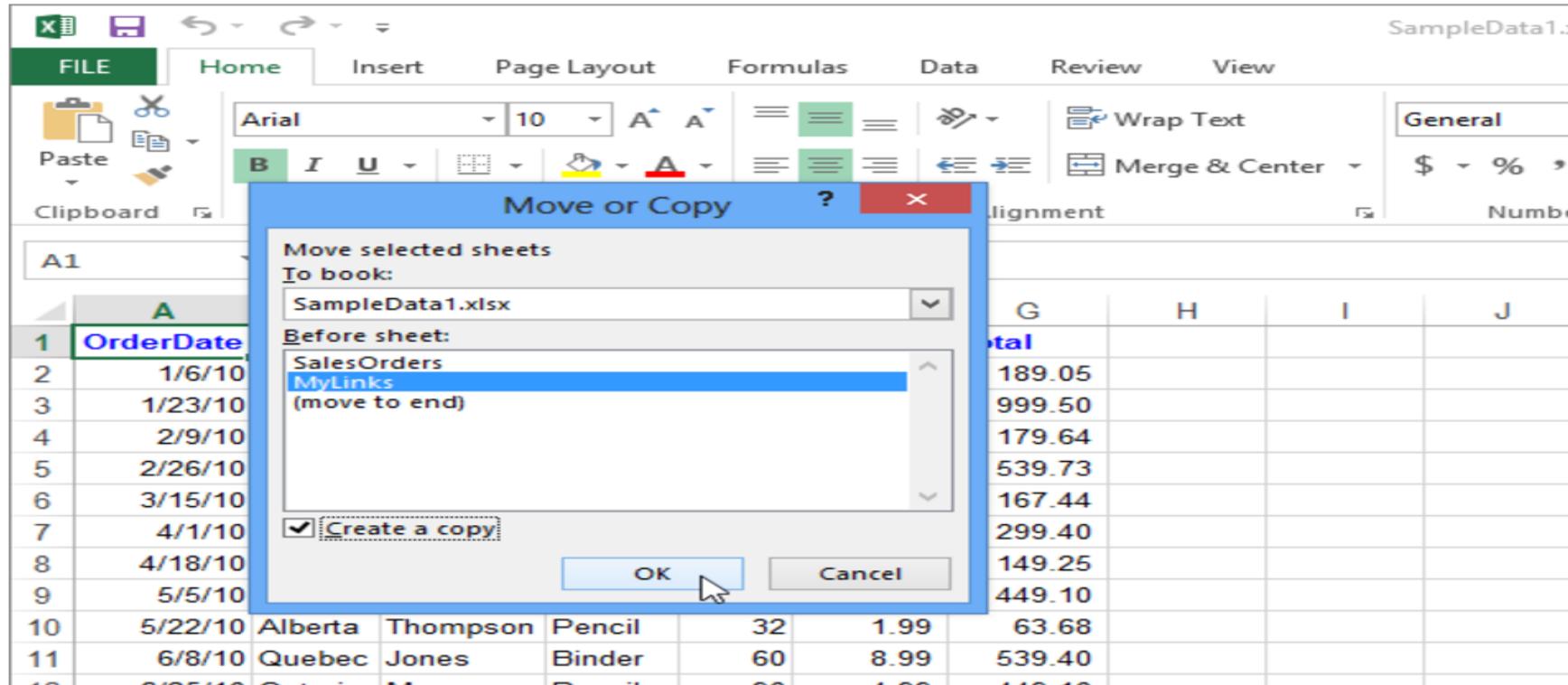
**NOTE:** You can also select the worksheet and click the Format button in the Cells section on the Home tab on the Ribbon. Then, select Move or Copy Sheet in the Organize Sheets section of the drop-down menu.



# Entering Data

## Inserting, Deleting and Moving Worksheets

The Move or Copy dialog box displays. Select the workbook to which you want to move or copy the selected worksheet from the To book drop-down list. You can select the current workbook (the default), another existing workbook, or a create a new book to contain the moved or copied worksheet.



The screenshot shows a Microsoft Excel spreadsheet titled "SampleData1.xlsx". The spreadsheet contains data from row 1 to 12, columns A to J. Column A is labeled "OrderDate" and contains dates from 1/6/10 to 6/8/10. Columns B through J show various metrics like Alberta, Thompson, Pencil, etc., with numerical values. The "Move or Copy" dialog box is open over the spreadsheet. It has the title "Move or Copy" and the sub-instruction "Move selected sheets". The "To book:" dropdown is set to "SampleData1.xlsx". The "Before sheet:" dropdown shows "SalesOrders" at the top, followed by "MyLinks" with the note "(move to end)". There is a checked checkbox labeled "Create a copy". At the bottom are "OK" and "Cancel" buttons. The "OK" button is highlighted with a cursor.

# Entering Data



## Exercise

1. Open our **practice workbook**.
2. Modify the **width** of a column. If you are using the example, use the column that contains the players' first names.
3. **Insert** a column between column A and column B, then **insert** a row between row 3 and row 4.
4. **Delete** a column or a row.
5. **Move** a column or row.
6. Try using the **Text Wrap** command on a cell range. If you are using the example, wrap the text in the column that contains street addresses.
7. Try **merging** some cells. merge the cells in the title row using the **Merge & Center** command (cell range A1:E1).

# Entering Data

## Using Navigating Techniques

### Navigating Worksheets and Workbooks

Most of us use the mouse to navigate to adjacent worksheets on a workbook. And, to navigate to different workbooks we take help of the Windows taskbar. It's time to learn a few shortcut keys.

To Perform Action	Press Keys
Move to the next sheet in the workbook	Ctrl + Page Down
Move to the previous sheet in the workbook	Ctrl + Page Up
Move to the next workbook window	Ctrl + F6/Tab
Move to the previous workbook window	Ctrl + Shift + F6/Tab

*Another quick way to switch worksheets is to right-click on the empty space before the first sheet tab to show the list of all tabs. Then, select the tab you wish to switch to.*

# Entering Data

## Using Navigating Techniques

### Navigating Cells on Worksheet

These are keys you will require almost always. And, that's because Excel is all about data in cells. When you are working on one, you know how often you have to move from cell to cell and from one end to the other.

To Perform Action	Press Keys
Move one cell up, down, left, or right	Arrow Keys
Move one cell to the right	Tab
Move one cell to the left	Shift + Tab
Move to the edge of the current data region	CTRL + Arrow Key
Move to the beginning of the row	Home
Move to the beginning of the worksheet	Ctrl + Home
Move to the next empty cell of the row	End
Move to the last unused cell in the bottom-most row	Ctrl + End

# Entering Data

## Using Navigating Techniques

### Navigating Cells on Worksheet

To move down one screen	Page Down
To move up one screen	Page Up
To move one screen to the right	Alt + Page Down
To move one screen to the left	Alt + Page Up
To move between unlocked cells on a protected worksheet	Tab

# Entering Data

## Using Navigating Techniques

### Navigating Selected Range

To Perform Action	Press Keys
Move from top to bottom within the selected range	Enter
Move from bottom to top within the selected range	Shift + Enter
Move from left to right within the selected range (or down if only one column is selected)	Tab
To move from right to left within the selected range (or up if only one column is selected)	Shift + Tab

# QUIZ



1. The advantage of using a spreadsheet is:
  - A. Calculations can be done automatically
  - B. Changing data automatically updates calculations (as long as Excel is not set to calculate manually)
  - C. More flexibility
  - D. All of the above
  
2. The intersection of a row and a column is called:
  - A. Data
  - B. A field
  - C. A cell
  - D. An equation
  
3. The shortcut to move to the previous excel sheet is:
  - A. Ctrl + Tab
  - B. Ctrl + page down
  - C. Ctrl + page up
  - D. Ctrl + Arrow key
  
4. The cell labeled F5 refers to:
  - A. Row F, Column 5
  - B. Column F, Row 5
  - C. Functions available in cells
  - D. Function key F5

# Managing and Navigating Large workbooks

- Working with Multiple Worksheets
- Grouping and Ungrouping worksheets
- Switching Between Worksheets
- Switching Between Workbooks
- Splitting and Freezing a Window



# Managing and Navigating Large workbooks

## Introduction

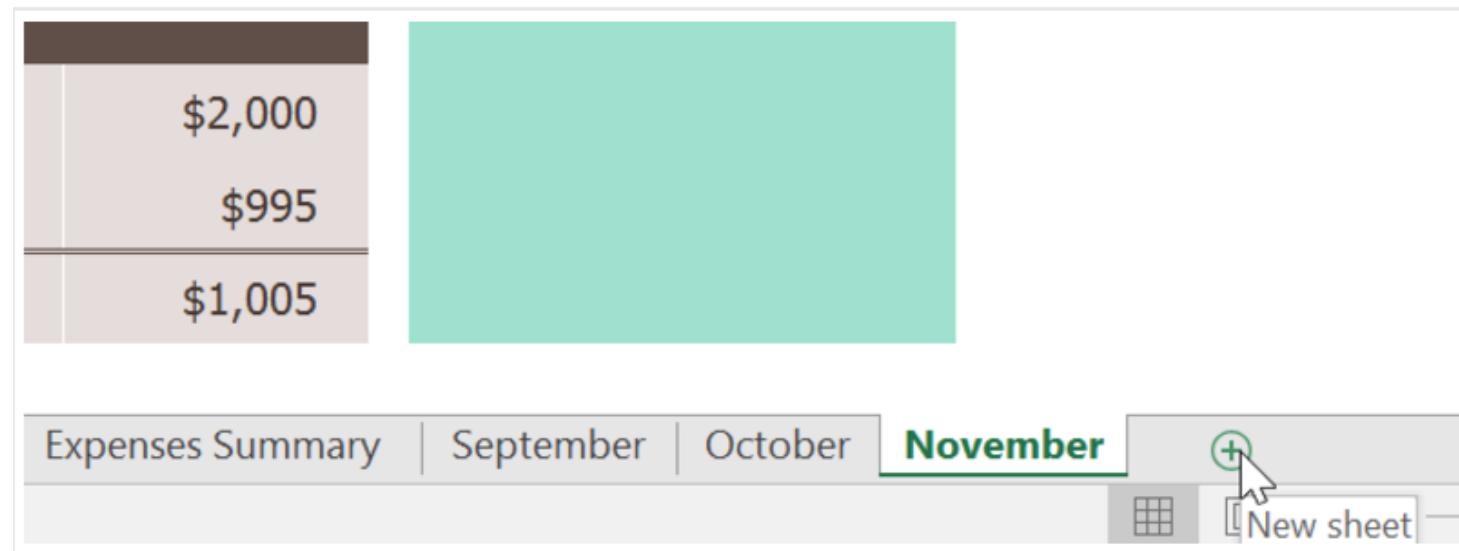
Every workbook contains at least one **worksheet** by default. When working with a large amount of data, you can create **multiple worksheets** to help organize your workbook and make it easier to find content. You can also **group** worksheets to quickly add information to multiple worksheets at the same time.

# Managing and Navigating Large workbooks

## Working with Multiple Worksheets

To insert a new worksheet:

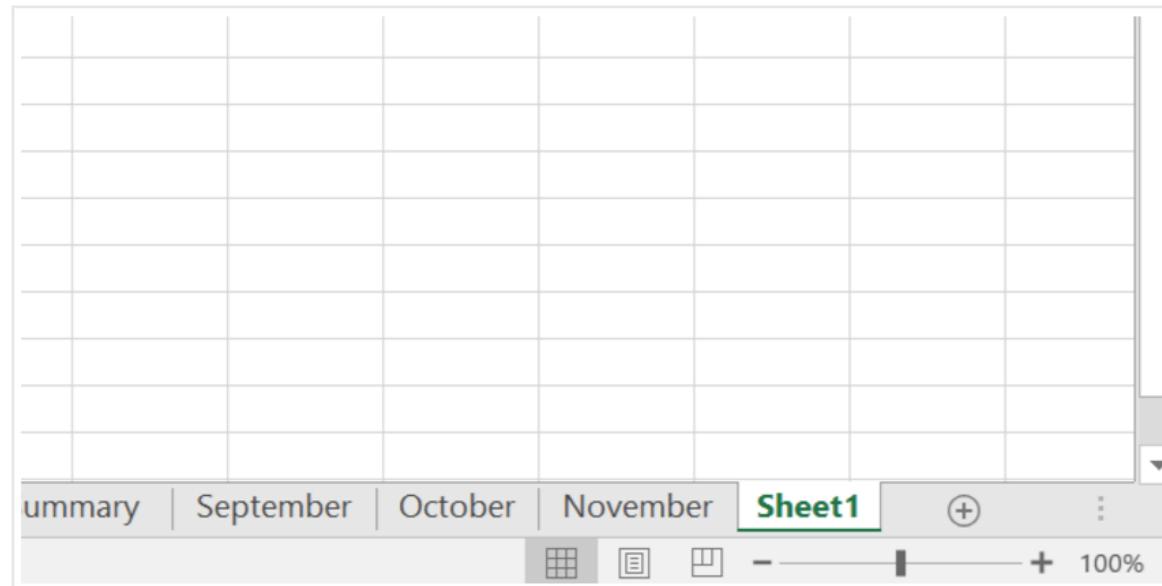
Locate and select the **New sheet** button near the bottom-right corner of the Excel window.



# Managing and Navigating Large workbooks

## Working with Multiple Worksheets

A new **blank worksheet** will appear.



By default, any new workbook you create in Excel will contain one worksheet, called **Sheet1**. To change the **default number** of worksheets, navigate to **Backstage view**, click **Options**, then choose the desired number of worksheets to include in each new workbook.

# Managing and Navigating Large workbooks



## Working with Multiple Worksheets

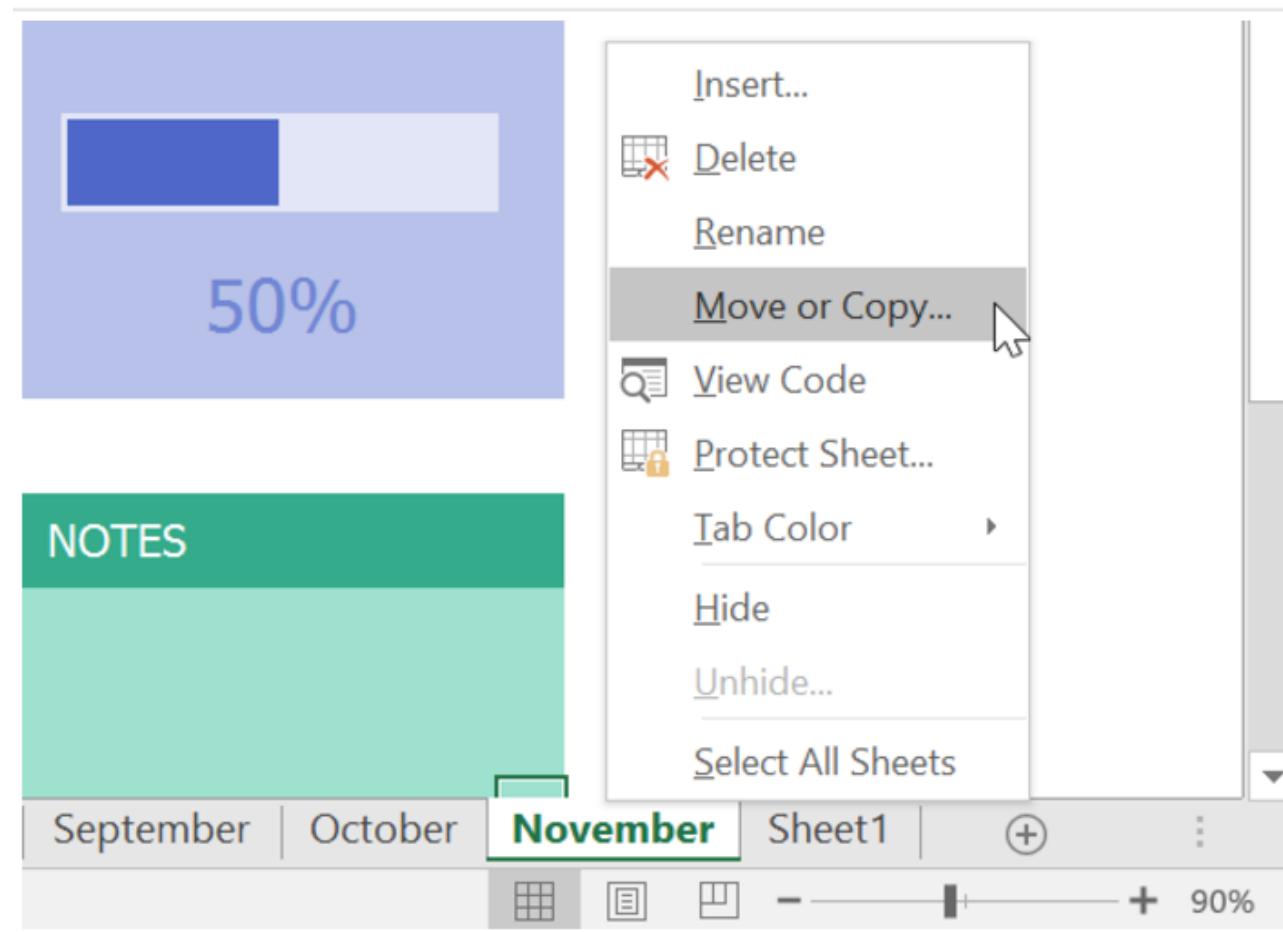
### To copy a worksheet:

If you need to **duplicate** the content of one worksheet to another, Excel allows you to **copy** an existing worksheet.

Right-click the worksheet you want to copy, then select **Move or Copy** from the worksheet menu.

# Managing and Navigating Large workbooks

## Working with Multiple Worksheets



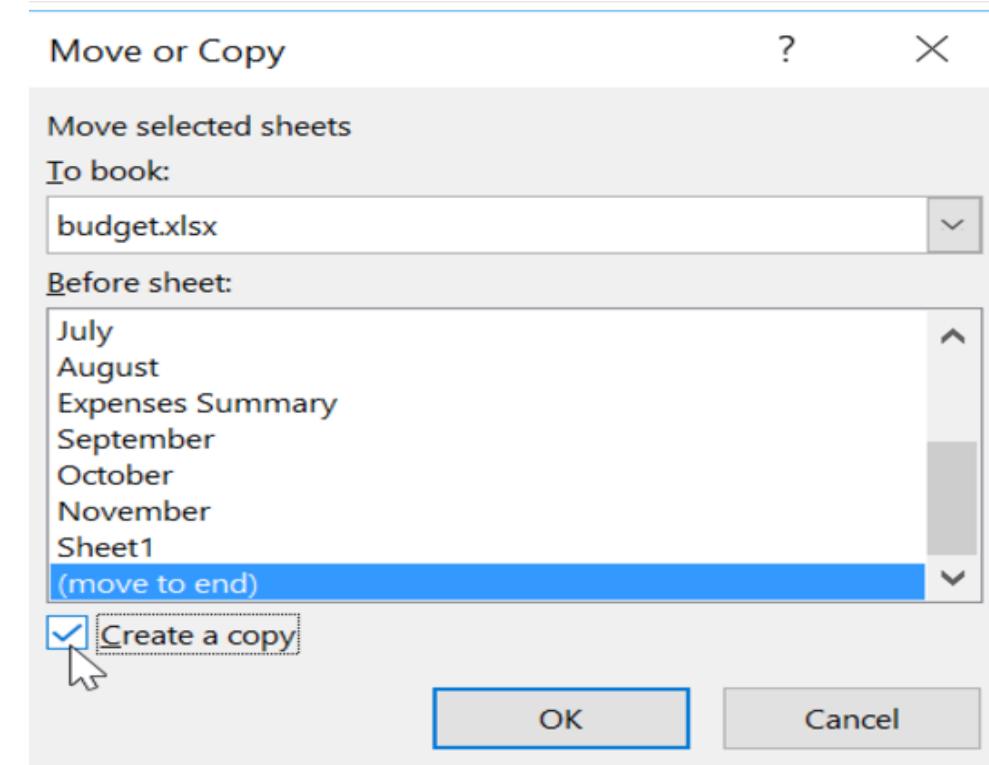
# Managing and Navigating Large workbooks

## Working with Multiple Worksheets

### To copy a worksheet:

The **Move or Copy** dialog box will appear. Choose where the sheet will appear in the **Before sheet:** field. In our example, we'll choose **(move to end)** to place the worksheet to the right of the existing worksheet.

**Check the box next to Create a copy, then click OK.**



# Managing and Navigating Large workbooks



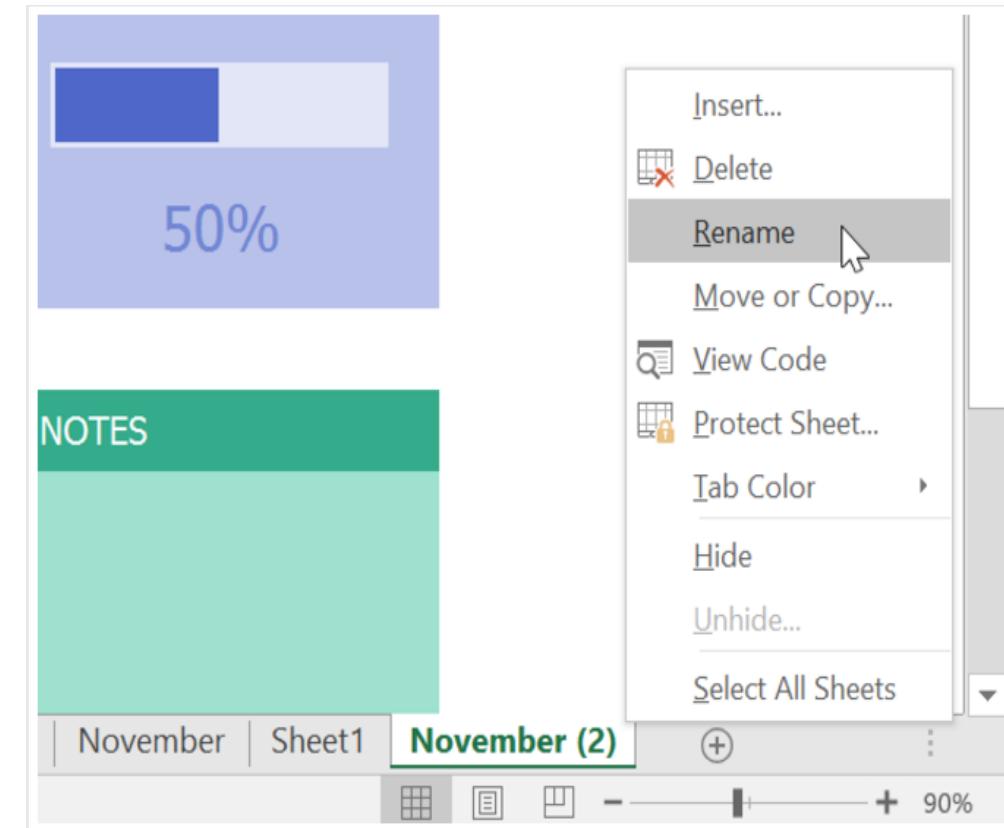
## Working with Multiple Worksheets

### To rename a worksheet:

Right-click the **worksheet** you want to rename, then select **Rename** from the worksheet menu.

Type the **desired name** for the worksheet.

Click anywhere outside the worksheet tab, or press **Enter** on your keyboard. The worksheet will be **renamed**.

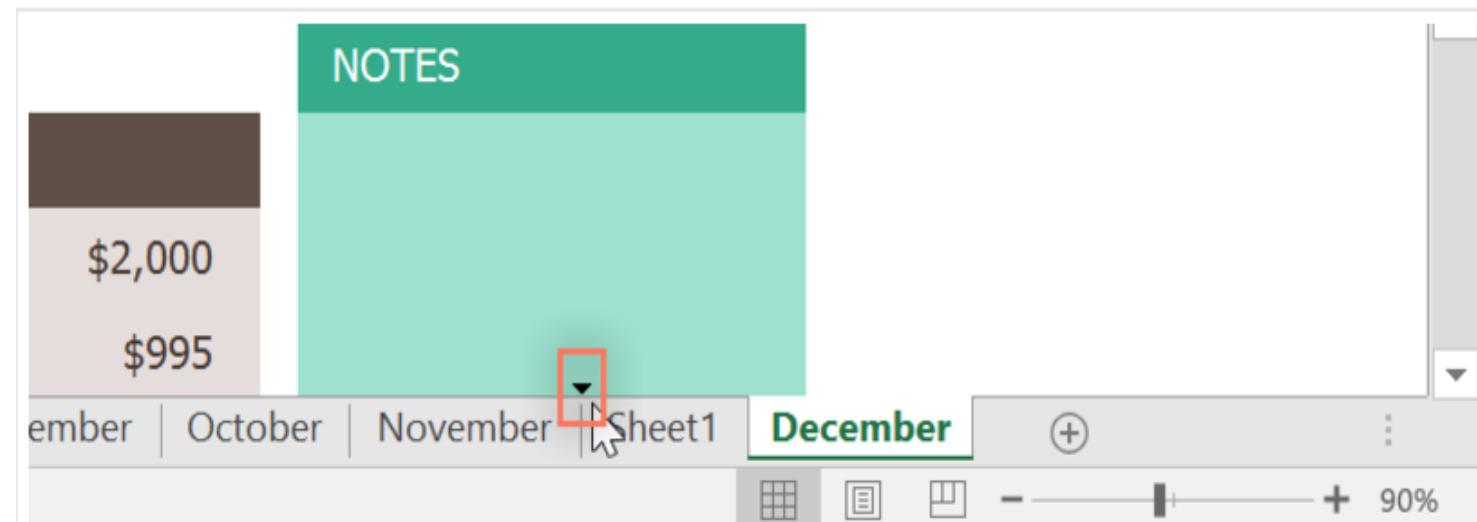


# Managing and Navigating Large workbooks

## Working with Multiple Worksheets

### To Move a worksheet:

Click and drag the worksheet you want to move until a **small black arrow** appears above the desired location.



Release the mouse. The worksheet will be moved.

# Managing and Navigating Large workbooks

## Working with Multiple Worksheets

To delete a worksheet:

Right-click the **worksheet** you want to delete, then select **delete** from the worksheet menu.

# Managing and Navigating Large workbooks

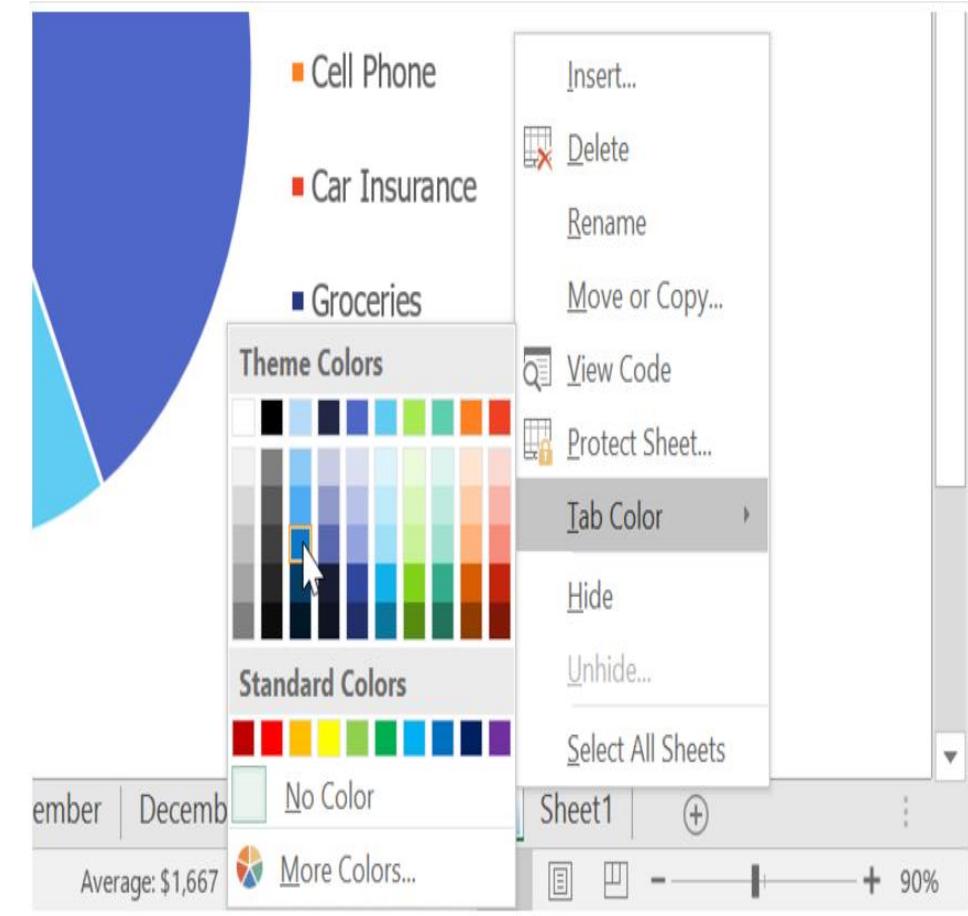
## Working with Multiple Worksheets

To change the worksheet tab color:

Right-click the desired worksheet tab, and hover the mouse over **Tab Color**.  
The **Color** menu will appear.

Select the desired **color**.

The worksheet tab color will be **changed**.



# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### Introduction

Whenever you're working with a lot of data, it can be difficult to **compare** information in your workbook. Fortunately, Excel includes several tools that make it easier to view content from different parts of your workbook at the same time, such as the ability to **freeze panes** and **split** your worksheet.

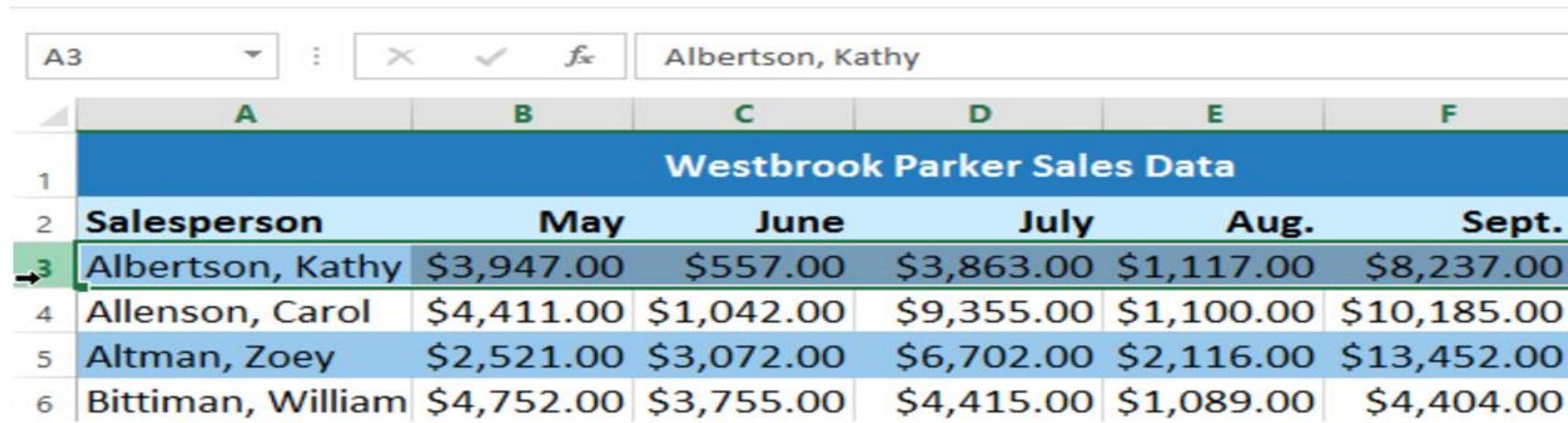
# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Freeze rows

You may want to see certain rows or columns all the time in your worksheet, especially **header cells**. By **freezing** rows or columns in place, you'll be able to scroll through your content while continuing to view the frozen cells.

1. Select the **row** below the row(s) you want to **freeze**. In our example, we want to freeze rows **1** and **2**, so we'll select row **3**.



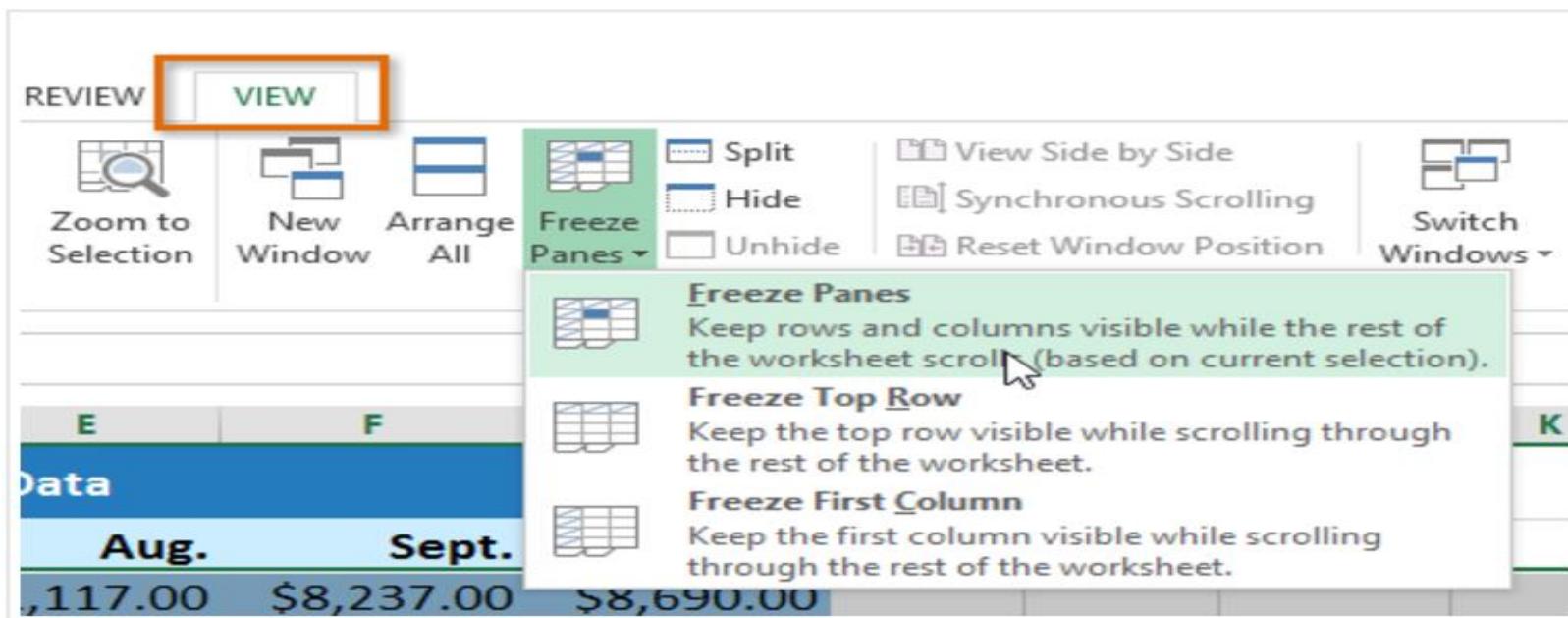
A3	B	C	D	E	F
Westbrook Parker Sales Data					
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	→ Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
4	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
5	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
6	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00

# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Freeze rows

2. Click the **View** tab on the **Ribbon**.
3. Select the **Freeze Panes** command, then choose **Freeze Panes** from the drop-down menu.

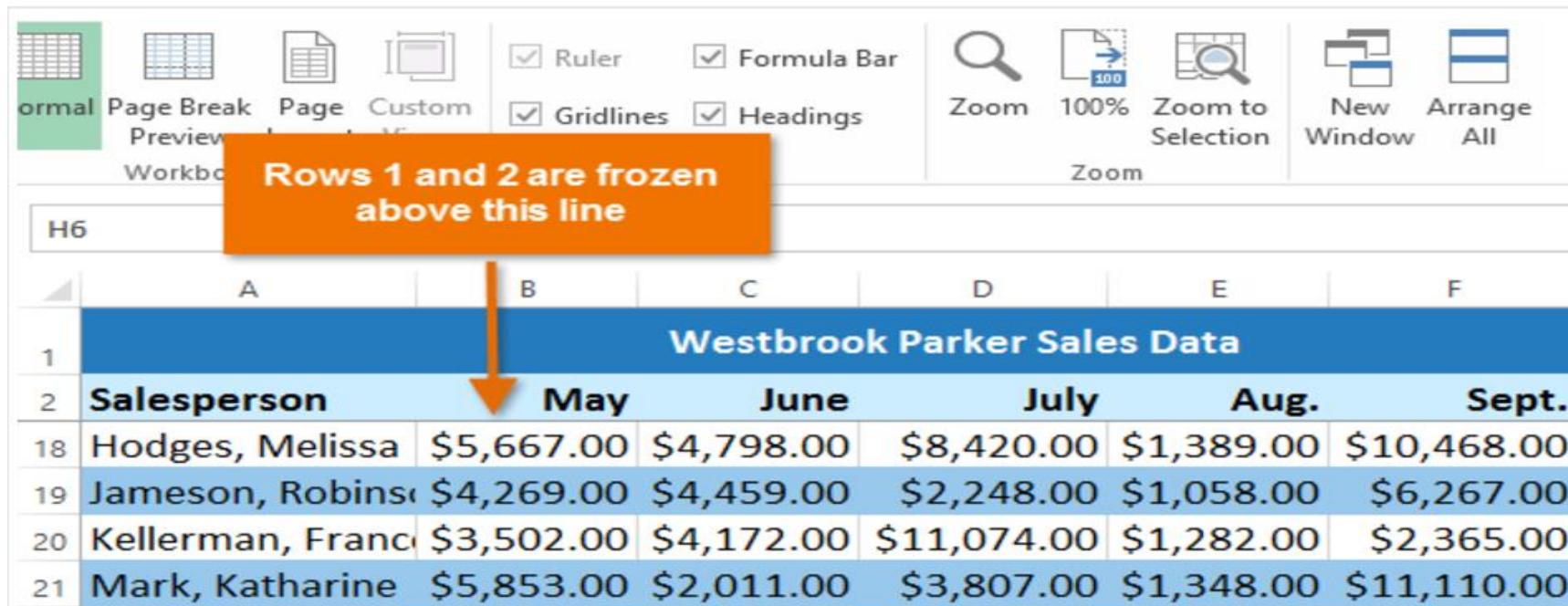


# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Freeze rows

4. The rows will be **frozen** in place, as indicated by the **gray line**. You can **scroll down** the worksheet while continuing to view the frozen rows at the top



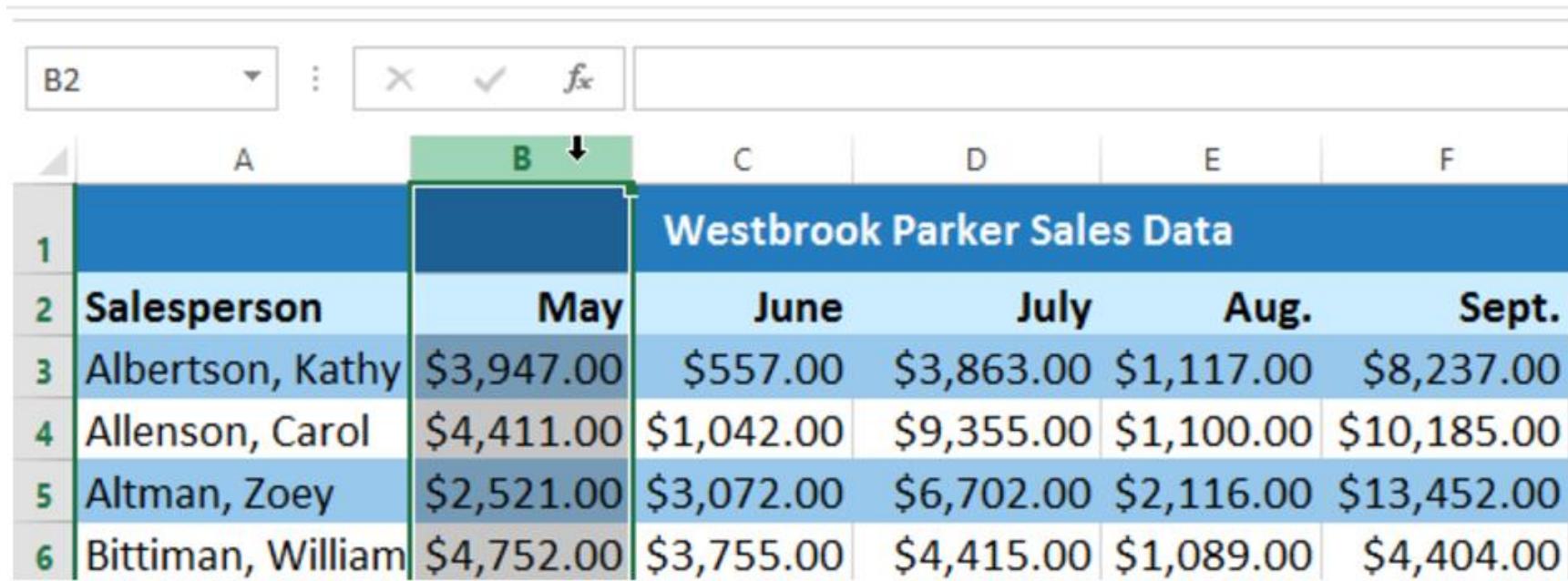
Westbrook Parker Sales Data						
	Salesperson	May	June	July	Aug.	Sept.
18	Hodges, Melissa	\$5,667.00	\$4,798.00	\$8,420.00	\$1,389.00	\$10,468.00
19	Jameson, Robins	\$4,269.00	\$4,459.00	\$2,248.00	\$1,058.00	\$6,267.00
20	Kellerman, Franc	\$3,502.00	\$4,172.00	\$11,074.00	\$1,282.00	\$2,365.00
21	Mark, Katharine	\$5,853.00	\$2,011.00	\$3,807.00	\$1,348.00	\$11,110.00

# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Freeze Column:

1. Select the **column** to the right of the column(s) you want to **freeze**. In our example, we want to freeze **column A**, so we'll select column **B**.



The screenshot shows a Microsoft Excel spreadsheet titled "Westbrook Parker Sales Data". The table has columns labeled "Salesperson", "May", "June", "July", "Aug.", and "Sept.". Row 1 contains the header information. Rows 2 through 6 list individual salespeople with their corresponding sales figures for each month. The cell containing "May" is currently selected, indicated by a green background and a downward-pointing arrow icon in the column header. The ribbon at the top shows the formula bar with "B2" and various Excel icons.

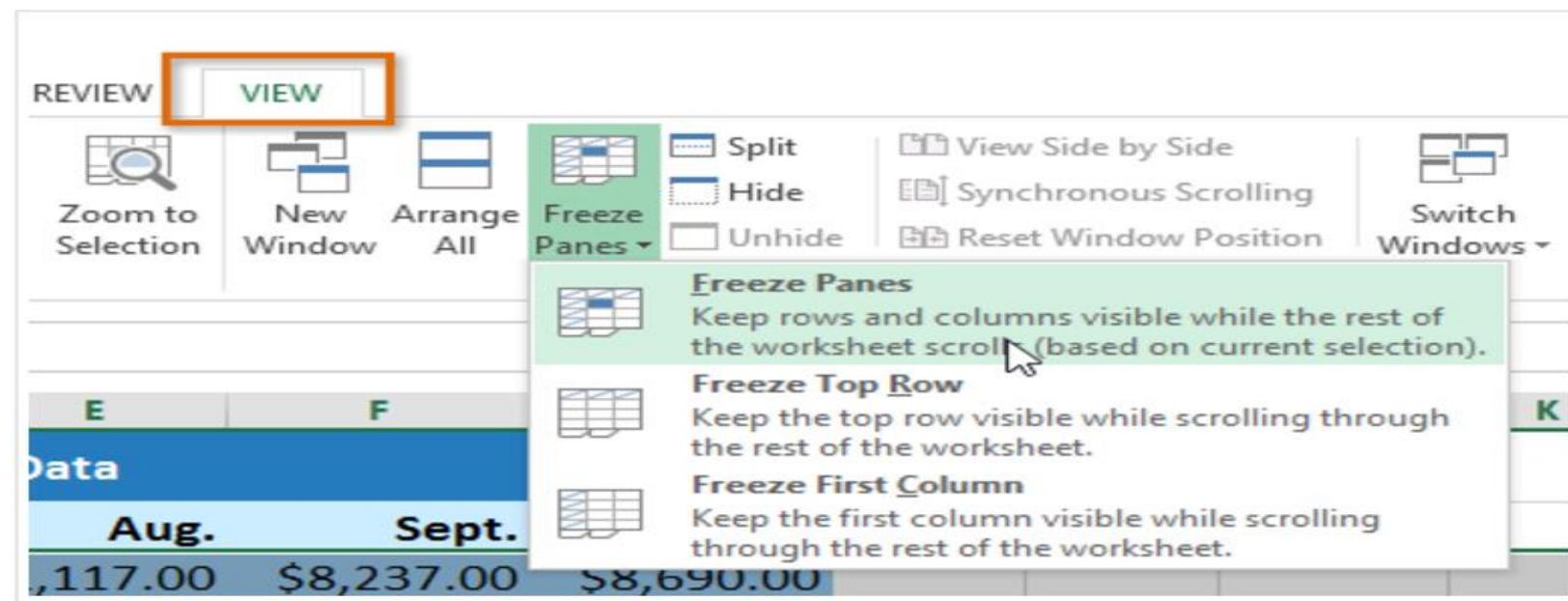
	A	B	C	D	E	F
1	Westbrook Parker Sales Data					
2	Salesperson	May	June	July	Aug.	Sept.
3	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00	\$8,237.00
4	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00	\$10,185.00
5	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00	\$13,452.00
6	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00	\$4,404.00

# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Freeze Column:

2. Click the **View** tab on the **Ribbon**.
3. Select the **Freeze Panes** command, then choose **Freeze Panes** from the drop-down menu.

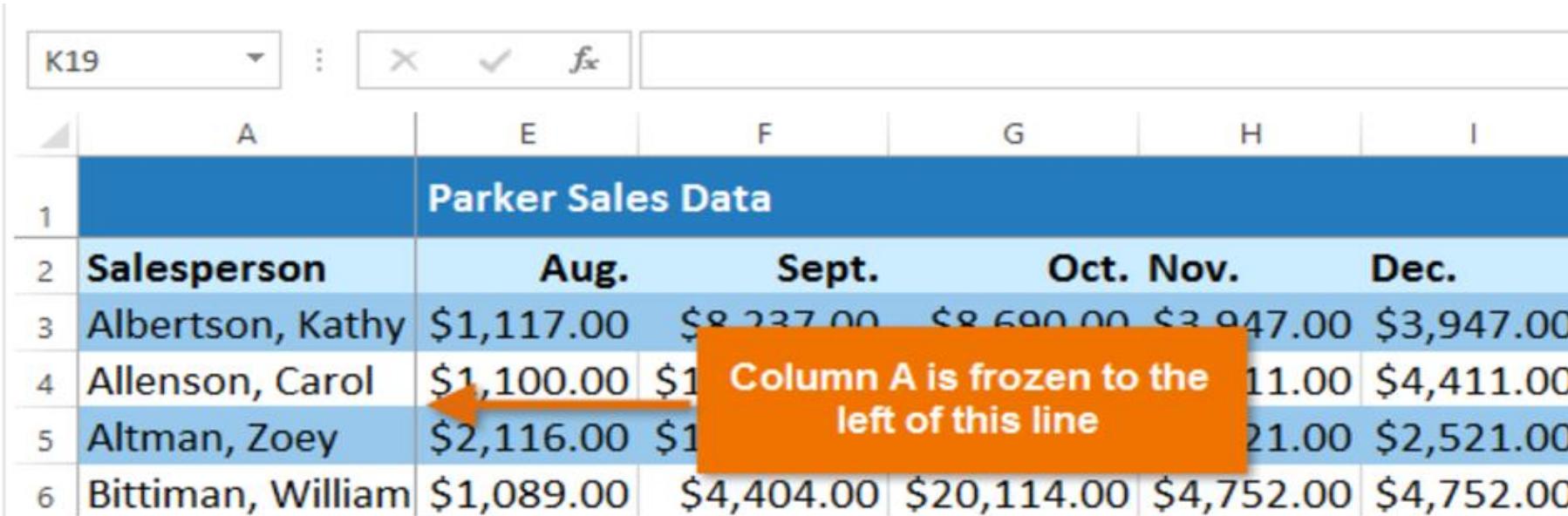


# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Freeze Column:

4. The column will be **frozen** in place, as indicated by the **gray line**. You can **scroll across** the worksheet while continuing to view the frozen column on the left.



The screenshot shows a Microsoft Excel spreadsheet titled "Parker Sales Data". The top row contains the title and the first few columns of data. The second row contains the column headers: "Salesperson", "Aug.", "Sept.", "Oct.", "Nov.", and "Dec.". The third row contains data for "Albertson, Kathy": \$1,117.00, \$8,237.00, \$8,690.00, \$3,947.00, and \$3,947.00. The fourth row contains data for "Allenson, Carol": \$1,100.00, \$1,100.00, \$1,100.00, \$1,100.00, \$1,100.00, and \$4,411.00. The fifth row contains data for "Altman, Zoey": \$2,116.00, \$2,116.00, \$2,116.00, \$2,116.00, \$2,116.00, and \$2,521.00. The sixth row contains data for "Bittiman, William": \$1,089.00, \$4,404.00, \$20,114.00, \$4,752.00, \$4,752.00, and \$4,752.00. A vertical gray line is positioned to the left of the "Aug." column header, indicating it is frozen. An orange callout box with white text points to this line with the text: "Column A is frozen to the left of this line". The formula bar at the top shows "K19".

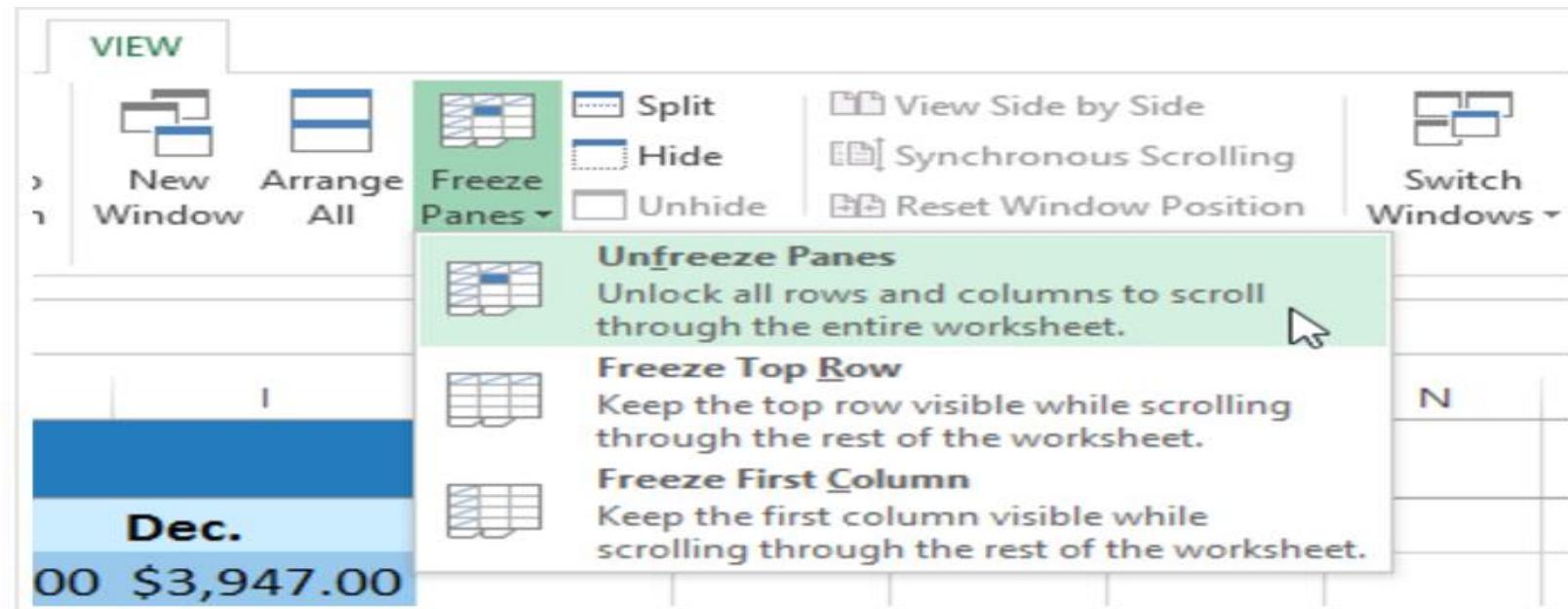
Parker Sales Data					
Salesperson	Aug.	Sept.	Oct.	Nov.	Dec.
Albertson, Kathy	\$1,117.00	\$8,237.00	\$8,690.00	\$3,947.00	\$3,947.00
Allenson, Carol	\$1,100.00	\$1,100.00	\$1,100.00	\$1,100.00	\$4,411.00
Altman, Zoey	\$2,116.00	\$2,116.00	\$2,116.00	\$2,116.00	\$2,521.00
Bittiman, William	\$1,089.00	\$4,404.00	\$20,114.00	\$4,752.00	\$4,752.00

# Managing and Navigating Large workbooks

## Splitting and Freezing a Window

### To Unfreeze Row or Column:

To **unfreeze** rows or columns, click the **Freeze Panes** command, then select **Unfreeze Panes** from the drop-down menu.



# Managing and Navigating Large workbooks

## Exercise



1. Open an existing Excel workbook. If you want, you can use our [practice workbook](#).
2. Try **freezing** a row or column in place. Freeze the **top two rows** (rows 1 and 2).
3. Try opening a **new window** for your workbook.
4. Use the **Split** command to split your worksheet into multiple panes.

# Creating and Editing Formula

- Mathematical Operators
- Understanding Cell References
- Creating Formula using point and click method
- Modifying values with cell reference
- Editing Formulas



# Creating and Editing Formula

## Introduction

One of the most powerful features in Excel is the ability to **calculate** numerical information using **formulas**. Just like a calculator, Excel can add, subtract, multiply, and divide.

# Creating and Editing Formula

## Mathematical Operators

Excel uses standard operators for formulas, such as

a **plus sign** for addition (+),  
a **minus sign** for subtraction (-),  
an **asterisk** for multiplication (\*),  
a **forward slash** for division (/), and  
a **caret** (^) for exponents.

Note: All formulas in Excel must begin with an **equals sign** (=). This is because the cell contains, or is equal to, the formula and the value it calculates.

Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponents	^

# Creating and Editing Formula

## Understanding Cell References

While you can create simple formulas in Excel manually

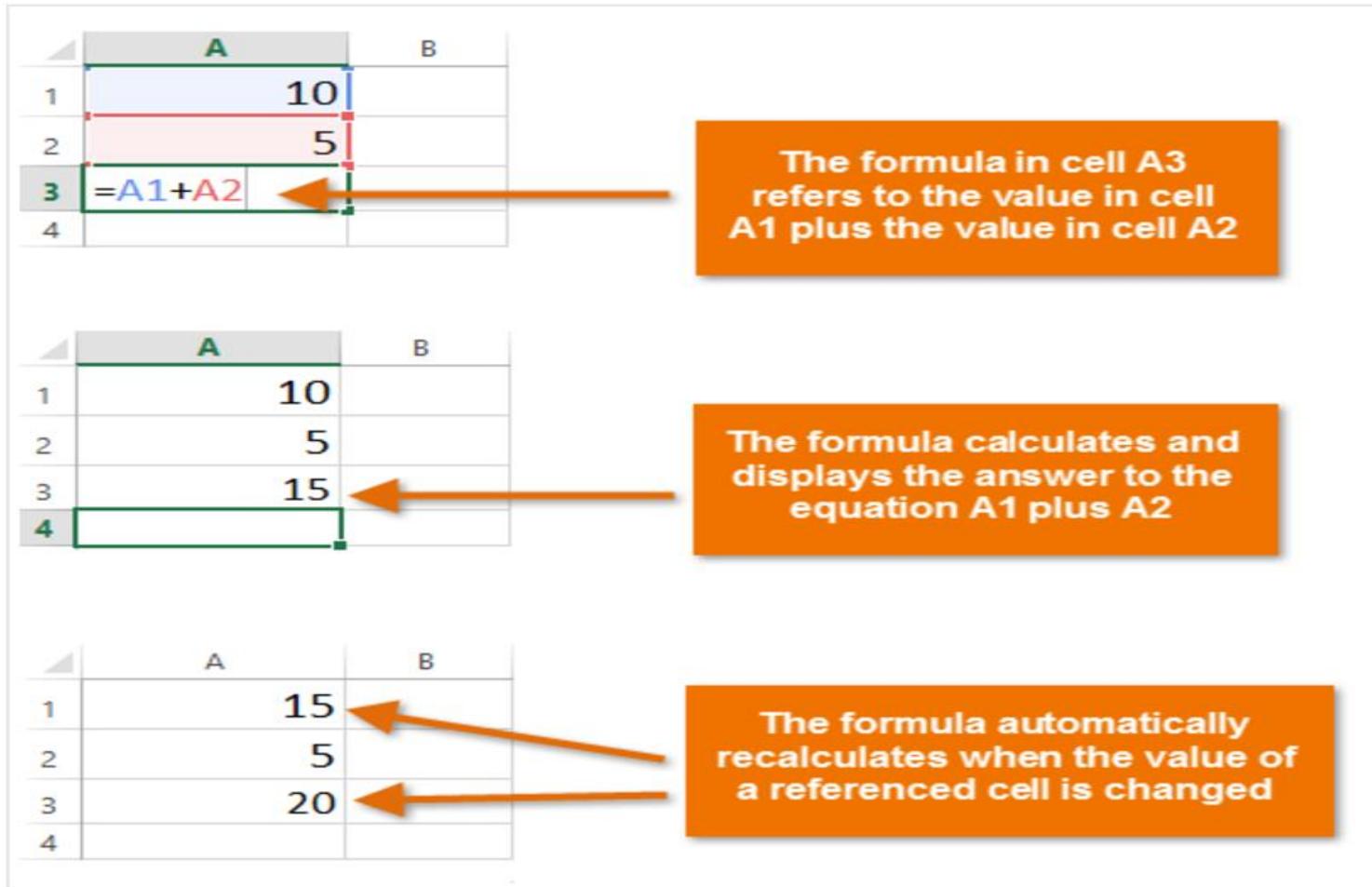
(For Example =**2+2** or =**5\*5**)

Most of the time you will use **cell addresses** to create a formula. This is known as making a **cell reference**.

Using cell references will ensure that your formulas are always accurate because you can change the value of referenced cells without having to rewrite the formula.

# Creating and Editing Formula

## Understanding Cell References



The first screenshot shows a spreadsheet with three rows and two columns. Row 1 contains values 10 and 5 in columns A and B respectively. Row 2 is empty. Row 3 contains the formula `=A1+A2` in column A, with a green border around the cell. An orange arrow points from the text box to the cell containing the formula.

**The formula in cell A3 refers to the value in cell A1 plus the value in cell A2**

The second screenshot shows the same spreadsheet after calculating the formula. The cell A3 now contains the value 15, with a green border. An orange arrow points from the text box to the cell containing the result.

**The formula calculates and displays the answer to the equation A1 plus A2**

The third screenshot shows the spreadsheet again, but with a change in cell A1. It now contains the value 15, while cell A2 remains at 5. The cell A3 now contains the value 20, indicating that the formula has automatically recalculated. An orange arrow points from the text box to the cell containing the result.

**The formula automatically recalculates when the value of a referenced cell is changed**

# Creating and Editing Formula

## Understanding Cell References

By combining a mathematical operator with cell references, you can create a variety of simple formulas in Excel. Formulas can also include a combination of cell references and numbers, as in the examples below:

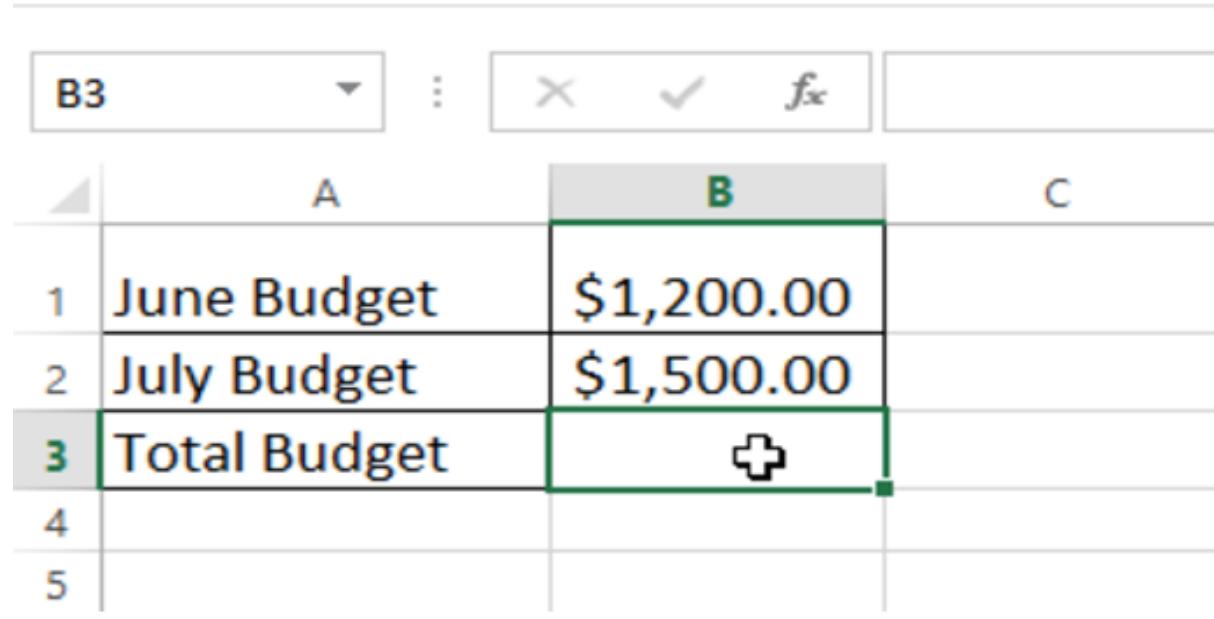
=A1+A2	Adds cells A1 and A2
=C4-3	Subtracts 3 from cell C4
=E7/J4	Divides cell E7 by J4
=N10*1.05	Multiplies cell N10 by 1.05
=R5^2	Finds the square of cell R5

# Creating and Editing Formula

## Creating Formula

We'll use a simple formula and cell references to calculate a budget.

1. Select the **cell** that will contain the formula. We'll select cell **B3**.

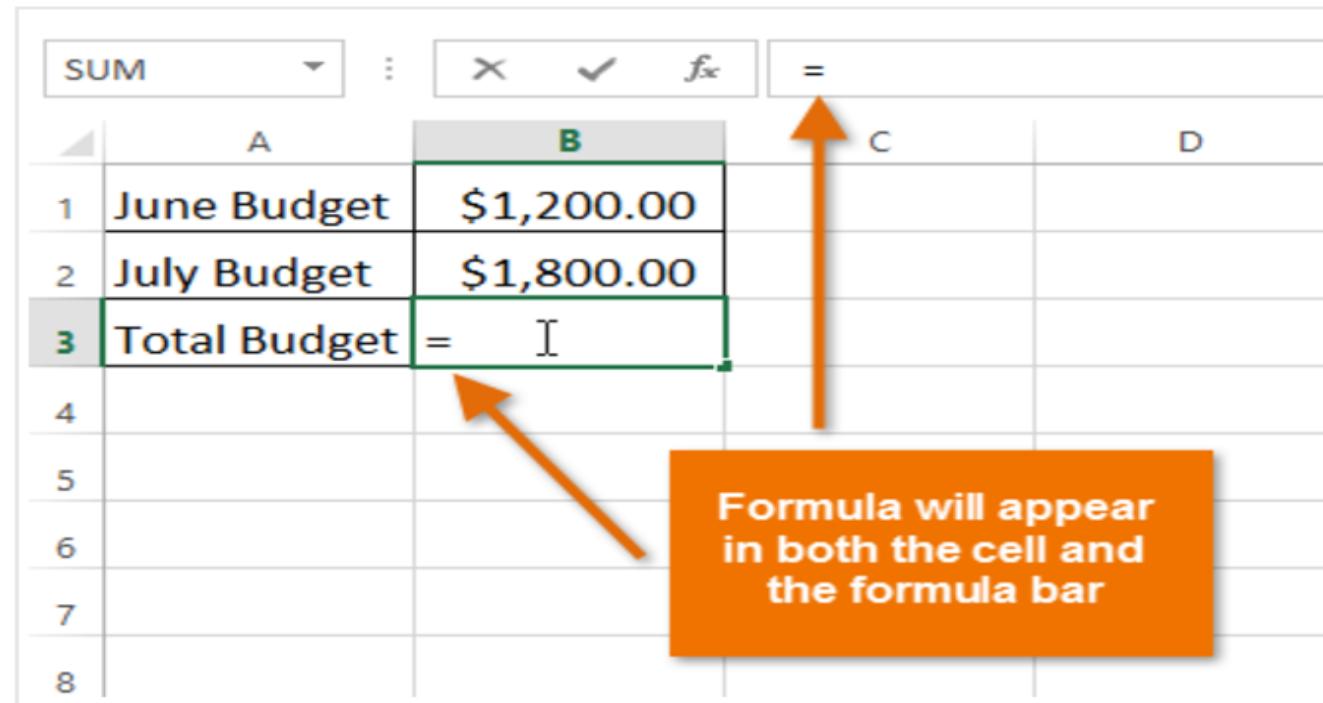


	A	B	C
1	June Budget	\$1,200.00	
2	July Budget	\$1,500.00	
3	Total Budget	+	
4			
5			

# Creating and Editing Formula

## Creating Formula

2. Type the **equals sign (=)**. Notice how it appears in both the **cell** and the **formula bar**.



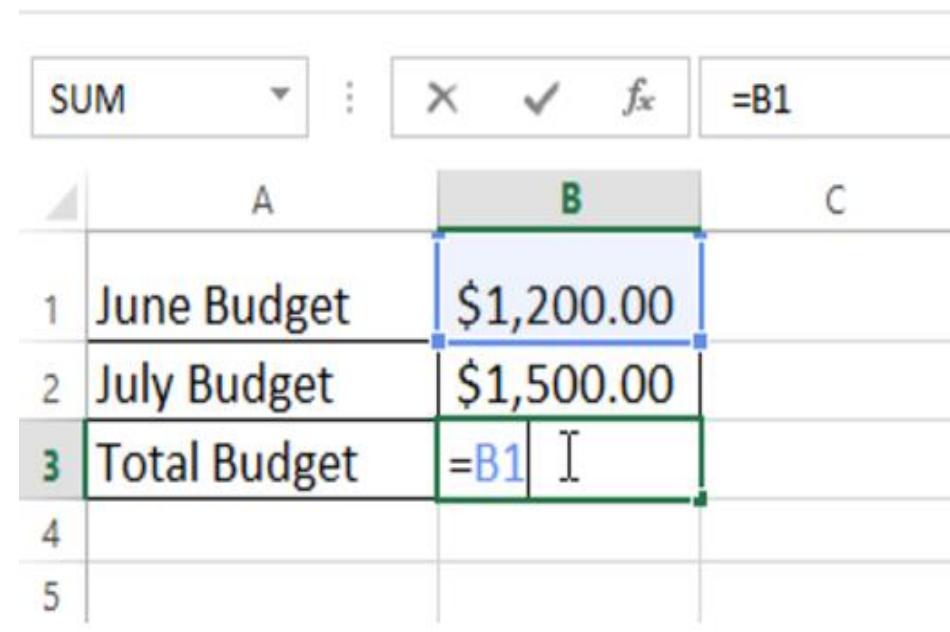
The screenshot shows a Microsoft Excel spreadsheet with three rows of budget data. Row 1 contains "June Budget" in cell A1 and "\$1,200.00" in cell B1. Row 2 contains "July Budget" in cell A2 and "\$1,800.00" in cell B2. Row 3 contains "Total Budget" in cell A3. In cell B3, the user has typed the equals sign (=) and the letter I, indicating they are starting to type a formula. The formula bar at the top of the screen also displays the equals sign (=). An orange callout box with the text "Formula will appear in both the cell and the formula bar" points to the cell B3.

	SUM	×	✓	f <sub>xc</sub>	=
A					C
1	June Budget	\$1,200.00			D
2	July Budget	\$1,800.00			
3	Total Budget	= I			
4					
5					
6					
7					
8					

# Creating and Editing Formula

## Creating Formula

3. Type the **cell address** of the cell you want to reference first in the formula: cell **B1** in our example. A **blue border** will appear around the referenced cell.



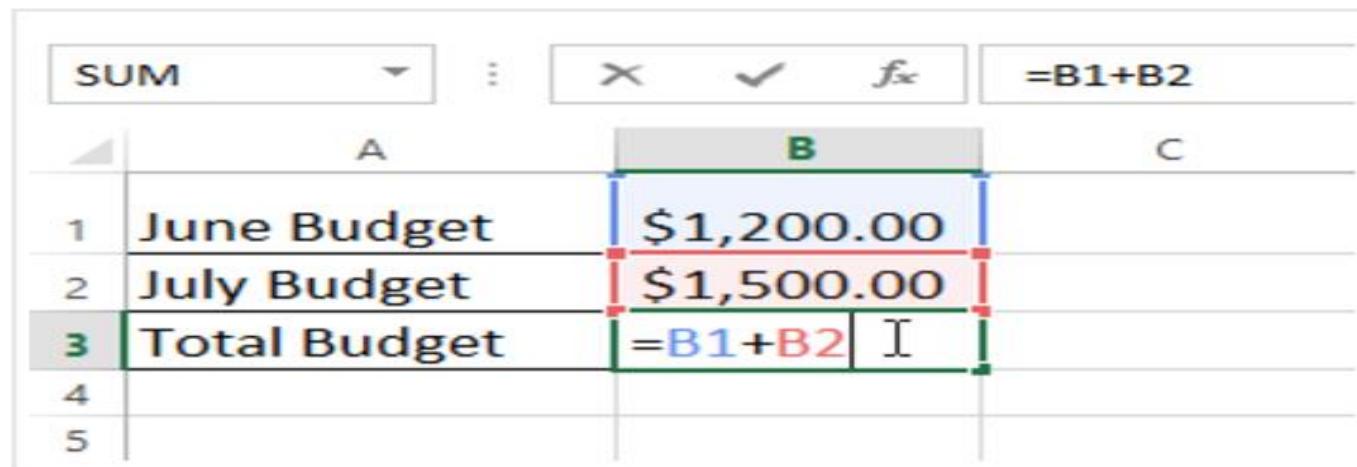
The screenshot shows a Microsoft Excel spreadsheet with three rows of data. Row 1 contains "June Budget" in column A and "\$1,200.00" in column B. Row 2 contains "July Budget" in column A and "\$1,500.00" in column B. Row 3 contains "Total Budget" in column A and the formula "=B1" in column B. The cell containing "=B1" has a blue border, indicating it is the active cell being edited. The formula bar at the top also displays "=B1".

	A	B	C
1	June Budget	\$1,200.00	
2	July Budget	\$1,500.00	
3	Total Budget	=B1	I
4			
5			

# Creating and Editing Formula

## Creating Formula

4. Type the **mathematical operator** you want to use. In our example, we'll type the **addition sign (+)**.
5. Type the **cell address** of the cell you want to reference second in the formula: cell **B2** in our example. A **red border** will appear around the referenced cell.



The screenshot shows a Microsoft Excel spreadsheet with three rows of data:

	A	B	C
1	June Budget	\$1,200.00	
2	July Budget	\$1,500.00	
3	Total Budget	=B1+B2	I
4			
5			

The formula bar at the top shows the formula `=B1+B2`. The cell `B2` is highlighted with a red border, indicating it is the active cell being referenced. The cell `B1` is highlighted with a green border, indicating it is the first cell in the formula.

# Creating and Editing Formula

## Creating Formula

6. Press **Enter** on your keyboard. The formula will be **calculated**, and the **value** will be displayed in the cell.

	A	B	C
1	June Budget	\$1,200.00	
2	July Budget	\$1,500.00	
3	Total Budget	\$2,700.00	
4			
5			

If the result of a formula is too large to be displayed in a cell, it may appear as **pound signs** ##### instead of a value.

This means the column is not wide enough to display the cell content.

Simply **increase the column width** to show the cell content.

# Creating and Editing Formula

## To create a formula using the point-and-click method

Rather than typing cell addresses manually, you can **point and click** on the cells you want to include in your formula. This method can save a lot of time and effort when creating formulas.

# Creating and Editing Formula

## Modifying values with cell references

The true advantage of cell references is that they allow you to **update data** in your worksheet without having to rewrite formulas.

In the example in the next slide, we have modified the value of cell B1 from \$1,200 to \$1,800. The formula in B3 will automatically recalculate and display the new value in cell B3.

# Creating and Editing Formula

## Modifying values with cell references

	A	B	C	D	E
1	June Budget	\$1,800.00			
2	July Budget	\$1,500.00			
3	Total Budget	\$3,300.00			
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

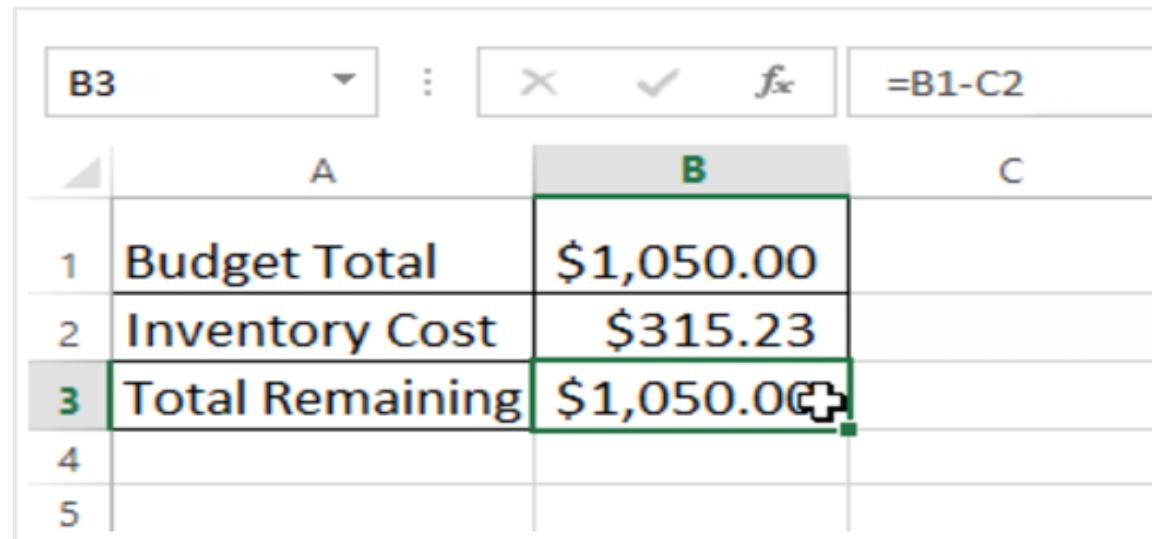
The screenshot shows a Microsoft Excel spreadsheet with three rows of budget data. Row 1 contains "June Budget" with value \$1,800.00. Row 2 contains "July Budget" with value \$1,500.00. Row 3 contains "Total Budget" with value \$3,300.00. Cell B3 contains the formula =B1+B2. A formula bar at the top shows B3, a dropdown arrow, a clear button (X), a checkmark button, an fx button, and the formula =B1+B2. An orange callout box points to cell B1 with the text "Changed the value of cell B1 from \$1200 to \$1800". Another orange callout box points to cell B3 with the text "Cell B3 recalculates and displays the new value because it contains the formula =B1+B2".

# Creating and Editing Formula

## Editing Formula

Sometimes you may want to modify an existing formula. In the next slides, we have entered an incorrect cell address in our formula, so we'll need to correct it.

1. Select the **cell** containing the formula you want to edit. In our example, we'll select cell **B3**.

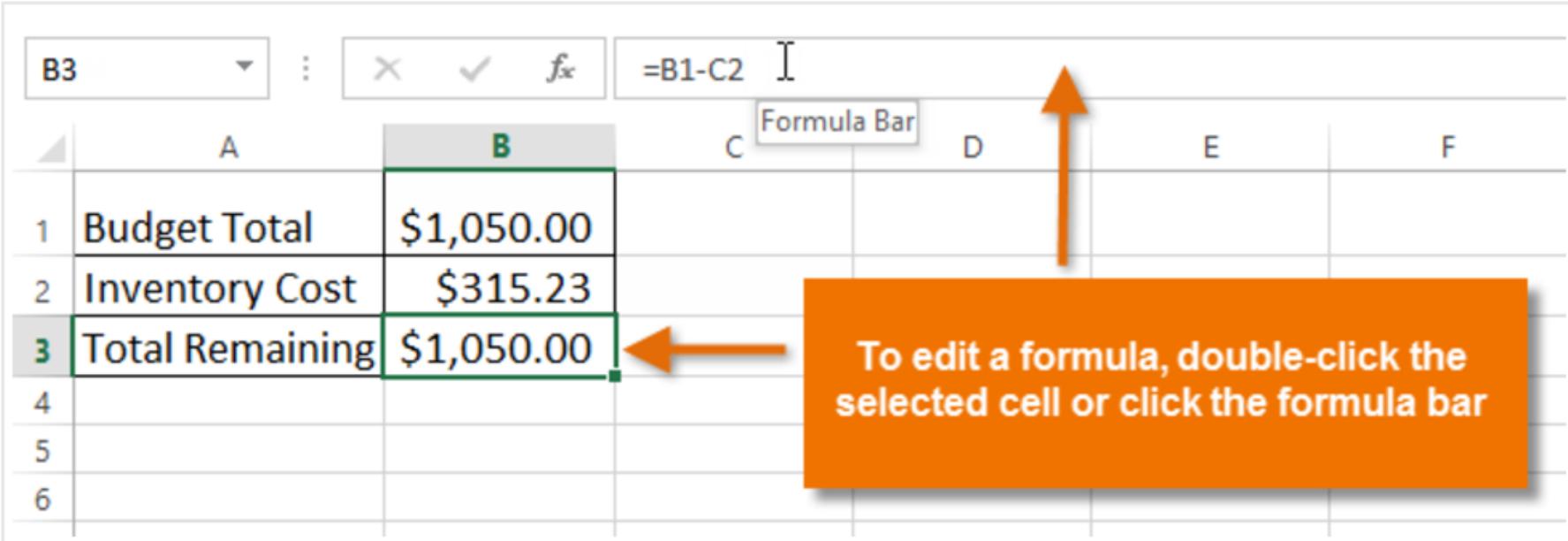


	A	B	C
1	Budget Total	\$1,050.00	
2	Inventory Cost	\$315.23	
3	Total Remaining	\$1,050.00	
4			
5			

# Creating and Editing Formula

## Editing Formula

2. Click the **formula bar** to edit the formula. You can also **double-click** the cell to view and edit the formula directly within the cell.



The screenshot shows a Microsoft Excel spreadsheet with three rows of data:

	A	B
1	Budget Total	\$1,050.00
2	Inventory Cost	\$315.23
3	Total Remaining	\$1,050.00
4		
5		
6		

The cell B3, which contains the formula  $=B1-C2$ , is selected. A callout box with an orange arrow points from the text "To edit a formula, double-click the selected cell or click the formula bar" to the formula bar above the spreadsheet. Another orange arrow points from the text box to the selected cell B3.

# Creating and Editing Formula

## Editing Formula

3. A **border** will appear around any referenced cells. In our example, we'll change the second part of the formula to reference cell **B2** instead of cell **C2**.

SUM		:	X	✓	f <sub>x</sub>	=B1-C2	I
	A	B	C	D			
1	Budget Total	\$1,050.00					
2	Inventory Cost	\$315.23					
3	Total Remaining	=B1-C2					
4							
5							

# Creating and Editing Formula

## Editing Formula

- When you're finished, press **Enter** on your keyboard or click the **checkmark** in the formula bar.

The screenshot shows a Microsoft Excel interface. At the top, the formula bar displays "SUM" with a dropdown arrow, a multiplication operator "x", a checkmark icon with a blue outline, the function button "fx", and the formula "=B1-B2". Below the formula bar is a table with three rows:

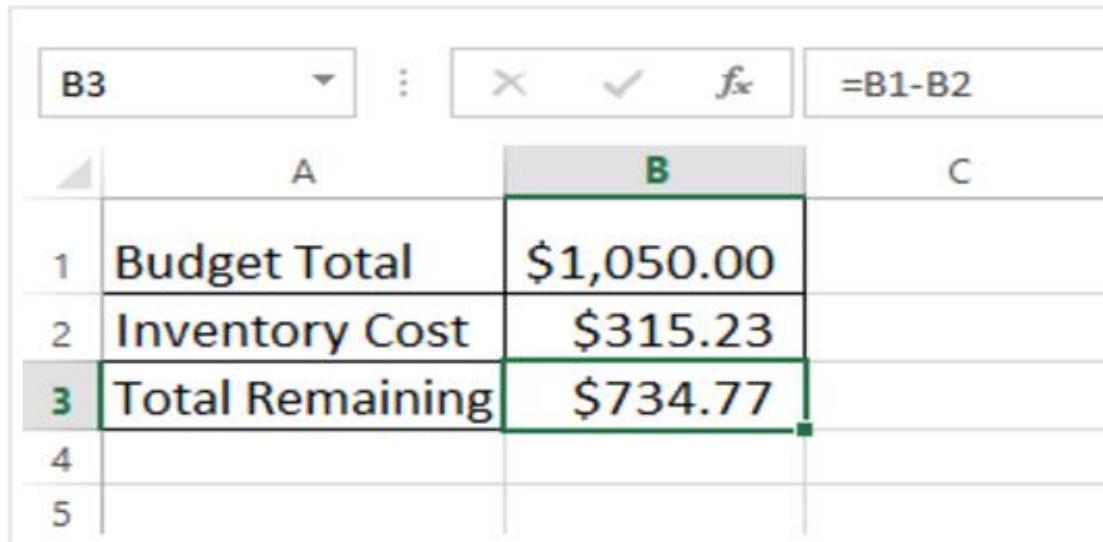
	A	C
1	Budget Total	\$1,050.00
2	Inventory Cost	\$315.23
3	Total Remaining	=B1-B2
4		
5		

The cell containing the formula (=B1-B2) is selected and has a green border. A cursor is positioned over the checkmark icon in the formula bar. A callout bubble labeled "Enter" points to the Enter key on the keyboard.

# Creating and Editing Formula

## Editing Formula

5. The formula will be **updated**, and the **new value** will be displayed in the cell.



	A	B	C
1	Budget Total	\$1,050.00	
2	Inventory Cost	\$315.23	
3	Total Remaining	\$734.77	
4			
5			

If you change your mind, you can press the **Esc** key on your keyboard to avoid accidentally making changes to your formula

# Referencing Techniques

- Relative Referencing
- Absolute Referencing



# Referencing Techniques

## Introduction

There are two types of cell references: **relative** and **absolute**.

Relative and absolute references behave differently when copied and filled to other cells.

Relative references **change** when a formula is copied to another cell.

Absolute references, on the other hand, remain **constant**, no matter where they are copied.

# Referencing Techniques

## Relative Referencing

By default, all cell references are **relative references**. When copied across multiple cells, they change based on the relative position of rows and columns.

For example, if you copy the formula **=A1+B1** from row 1 to row 2, the formula will become **=A2+B2**.

Relative references are especially convenient whenever you need to **repeat** the same calculation across multiple rows or columns.

# Referencing Techniques

## Relative Referencing

**To create and copy a formula using relative references:**

In the next slides, we want to create a formula that will multiply each item's **price** by the **quantity**. Instead of creating a new formula for each row, we can create a single formula in a cell and then copy it to the other rows.

We'll use relative references so the formula correctly calculates the total for each item.

# Referencing Techniques

## Relative Referencing

To create and copy a formula using relative references:

1. Select the **cell** that will contain the formula. We'll select cell **D2**.



	A	B	C	D	E
1	Menu Item	Price	Quantity	Total	
2	Empanadas: Beef Picadillo	\$2.99	15	+ =B2*C2	
3	Empanadas: Chipotle Shrimp	\$3.99	10		
4	Empanadas: Black Bean & Plantain	\$2.49	20		
5	Tamales: Chicken Tinga	\$2.29	20		
6	Tamales: Vegetable	\$2.29	30		
7	Arepas: Carnitas	\$2.89	10		
8	Arepas: Queso Blanco	\$2.49	20		
9	Empanadas: Apple Cinnamon	\$3.19	40		
10	Beverages: Horchata	\$1.89	25		
11	Beverages: Lemonade	\$1.89	35		
12	Beverages: Tamarindo	\$1.89	10		
13	Total				
14					

# Referencing Techniques

## Relative Referencing

To create and copy a formula using relative references:

1. Select the **cell** that will contain the formula. We'll select cell **D2**.



	A	B	C	D	E
1	Menu Item	Price	Quantity	Total	
2	Empanadas: Beef Picadillo	\$2.99	15	+ =B2*C2	
3	Empanadas: Chipotle Shrimp	\$3.99	10		
4	Empanadas: Black Bean & Plantain	\$2.49	20		
5	Tamales: Chicken Tinga	\$2.29	20		
6	Tamales: Vegetable	\$2.29	30		
7	Arepas: Carnitas	\$2.89	10		
8	Arepas: Queso Blanco	\$2.49	20		
9	Empanadas: Apple Cinnamon	\$3.19	40		
10	Beverages: Horchata	\$1.89	25		
11	Beverages: Lemonade	\$1.89	35		
12	Beverages: Tamarindo	\$1.89	10		
13	Total				
14					

# Referencing Techniques

## Relative Referencing

To create and copy a formula using relative references:

2. Enter the **formula** to calculate the desired value. In our example, we'll type **=B2\*C2**.



The screenshot shows a Microsoft Excel spreadsheet with a table of menu items. The table has columns for Menu Item, Price, Quantity, and Total. The Total column contains the formula =B2\*C2, which is copied down the column. The formula bar at the top also shows =B2\*C2.

	A	B	C	D	E
1	Menu Item	Price	Quantity	Total	
2	Empanadas: Beef Picadillo	\$2.99	15	=B2*C2	I
3	Empanadas: Chipotle Shrimp	\$3.99	10		
4	Empanadas: Black Bean & Plantain	\$2.49	20		
5	Tamales: Chicken Tinga	\$2.29	20		
6	Tamales: Vegetable	\$2.29	30		
7	Arepas: Carnitas	\$2.89	10		
8	Arepas: Queso Blanco	\$2.49	20		
9	Empanadas: Apple Cinnamon	\$3.19	40		
10	Beverages: Horchata	\$1.89	25		
11	Beverages: Lemonade	\$1.89	35		
12	Beverages: Tamarindo	\$1.89	10		
13	Total				
14					

# Referencing Techniques

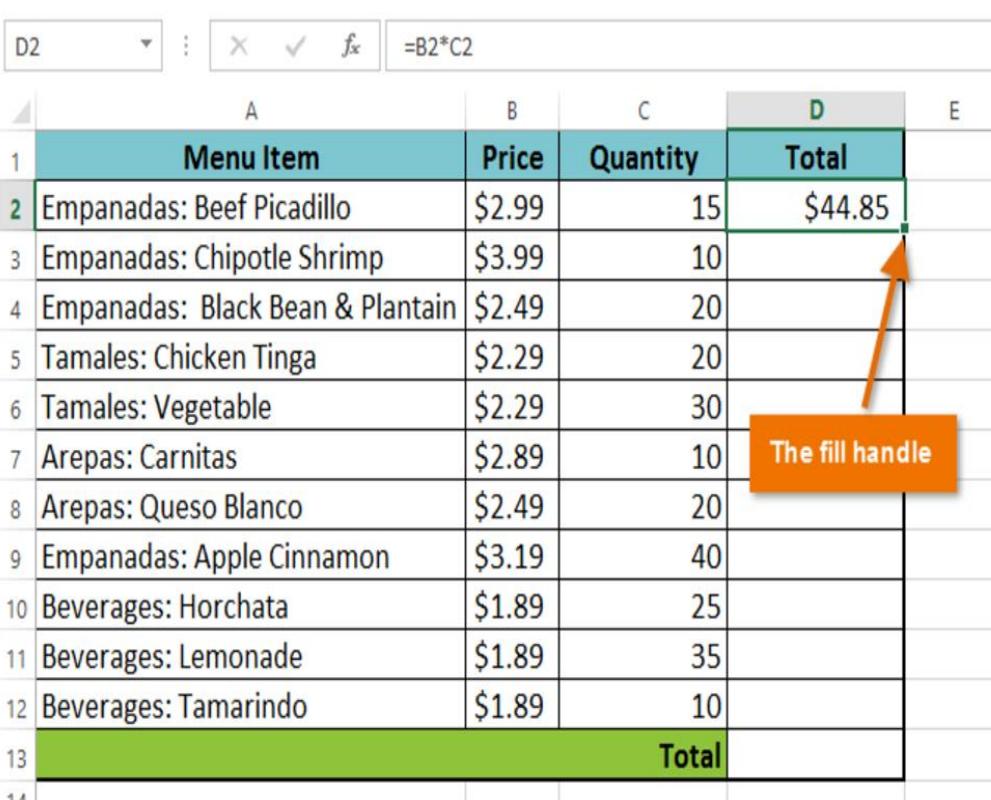
## Relative Referencing

To create and copy a formula using relative references:

3. Press **Enter** on your keyboard.

The formula will be **calculated**, and the result will be displayed in the cell.

4. Locate the **fill handle** in the bottom-right corner of the desired cell. In our example, we'll locate the fill handle for cell **D2**.



A screenshot of a Microsoft Excel spreadsheet titled "Referencing Techniques". The spreadsheet contains a table of menu items with columns for Menu Item, Price, Quantity, and Total. The formula `=B2*C2` is entered in cell D2, which is highlighted with a green background. An orange arrow points to the fill handle in the bottom-right corner of cell D2, with the text "The fill handle" written in an orange box. The status bar at the bottom shows "4 rows" and "4 columns".

	A	B	C	D	E
1	Menu Item	Price	Quantity	Total	
2	Empanadas: Beef Picadillo	\$2.99	15	\$44.85	
3	Empanadas: Chipotle Shrimp	\$3.99	10		
4	Empanadas: Black Bean & Plantain	\$2.49	20		
5	Tamales: Chicken Tinga	\$2.29	20		
6	Tamales: Vegetable	\$2.29	30		
7	Arepas: Carnitas	\$2.89	10		
8	Arepas: Queso Blanco	\$2.49	20		
9	Empanadas: Apple Cinnamon	\$3.19	40		
10	Beverages: Horchata	\$1.89	25		
11	Beverages: Lemonade	\$1.89	35		
12	Beverages: Tamarindo	\$1.89	10		
13	Total				

# Referencing Techniques

## Relative Referencing

To create and copy a formula using relative references:

5. Click, hold, and drag the **fill handle** over the cells you want to fill. In our example, we'll select cells **D3:D12**.

	A	B	C	D
1	Menu Item	Price	Quantity	Total
2	Empanadas: Beef Picadillo	\$2.99	15	\$44.85
3	Empanadas: Chipotle Shrimp	\$3.99	10	
4	Empanadas: Black Bean & Plantain	\$2.49	20	
5	Tamales: Chicken Tinga	\$2.29	20	
6	Tamales: Vegetable	\$2.29	30	
7	Arepas: Carnitas	\$2.89	10	
8	Arepas: Queso Blanco	\$2.49	20	
9	Empanadas: Apple Cinnamon	\$3.19	40	
10	Beverages: Horchata	\$1.89	25	
11	Beverages: Lemonade	\$1.89	35	
12	Beverages: Tamarindo	\$1.89	10	
13	Total			
14				

# Referencing Techniques

## Relative Referencing

To create and copy a formula using relative references:

6. Release the mouse. The formula will be **copied** to the selected cells

with **relative references**, and the values will be calculated in each cell.



The screenshot shows a Microsoft Excel spreadsheet with a table of menu items. The table has columns for Menu Item, Price, Quantity, and Total. The formula `=B2*C2` is entered in cell D2, which is highlighted with a green background. The formula is also displayed in the formula bar above the table. The table data is as follows:

	A	B	C	D	E
1	Menu Item	Price	Quantity	Total	
2	Empanadas: Beef Picadillo	\$2.99	15	\$44.85	
3	Empanadas: Chipotle Shrimp	\$3.99	10	\$39.90	
4	Empanadas: Black Bean & Plantain	\$2.49	20	\$49.80	
5	Tamales: Chicken Tinga	\$2.29	20	\$45.80	
6	Tamales: Vegetable	\$2.29	30	\$68.70	
7	Arepas: Carnitas	\$2.89	10	\$28.90	
8	Arepas: Queso Blanco	\$2.49	20	\$49.80	
9	Empanadas: Apple Cinnamon	\$3.19	40	\$127.60	
10	Beverages: Horchata	\$1.89	25	\$47.25	
11	Beverages: Lemonade	\$1.89	35	\$66.15	
12	Beverages: Tamarindo	\$1.89	10	\$18.90	
13	Total				
14					

# Referencing Techniques

## Relative Referencing

To create and copy a formula using relative references:

You can double-click the **filled cells** to check their formulas for accuracy. The relative cell references should be different for each cell, depending on their rows.

3	Empanadas: Chipotle Shrimp	\$3.99	10	\$39.90
4	Empanadas: Black Bean & Plantain	\$2.49	10	\$24.90
5	Tamales: Chicken Tinga	\$2.29	10	\$22.90
6	Tamales: Vegetable	\$2.29	10	\$22.90
7	Arepas: Carnitas	\$2.89	10	\$28.90
8	Arepas: Queso Blanco	\$2.49	20	=B8*C8
9	Empanadas: Apple Cinnamon	\$3.19	40	\$127.60
...	Dinner Plates	\$1.00	25	\$25.00

Cell references in row 8  
are relative to row 8

# Referencing Techniques

## Absolute Referencing

There may be times when you do not want a cell reference to change when filling cells.

Unlike relative references, **absolute references** do not change when copied or filled.

You can use an absolute reference to keep a row and/or column **constant**.

# Referencing Techniques

## Absolute Referencing

An absolute reference is designated in a formula by the addition of a **dollar sign (\$)**. It can precede the column reference, the row reference, or both.

\$A\$2	The column and the row do not change when copied
A\$2	The row does not change when copied
\$A2	The column does not change when copied

You will generally use the **\$A\$2** format when creating formulas that contain absolute references. The other two formats are used much less frequently.

When writing a formula, you can press the **F4** key on your keyboard to switch between relative and absolute cell references. This is an easy way to quickly insert an absolute reference.

# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

In our example, we'll use 7.5% sales tax rate in cell to calculate the sales tax for all items in **column D**. We'll need to use the absolute cell reference **\$E\$1** in our formula.

Because each formula is using the same tax rate, we want that reference to remain constant when the formula is copied and filled to other cells

# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

1. Select the **cell** that will contain the formula. In our example, we'll select cell **D3**.



	A	B	C	D	E
1			Sales Tax		7.5%
2	Menu Item	Price	Quantity	Sales Tax	Total
3	Empanadas: Beef Picadillo	\$2.99	15	+ =C3*\$E\$1	
4	Empanadas: Chipotle Shrimp	\$3.99	10		
5	Empanadas: Black Bean & Plantain	\$2.49	20		
6	Tamales: Chicken Tinga	\$2.29	20		
7	Tamales: Vegetable	\$2.29	30		
8	Arepas: Carnitas	\$2.89	10		
9	Arepas: Queso Blanco	\$2.49	20		
10	Empanadas: Apple Cinnamon	\$3.19	40		
11	Beverages: Horchata	\$1.89	25		
12	Beverages: Lemonade	\$1.89	35		
13	Beverages: Tamarindo	\$1.89	10		
14	Total				

# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

2. Enter the **formula** to calculate the desired value. In our example, we'll type  **$=(B3*C3)*$E$1$** .



The screenshot shows a Microsoft Excel spreadsheet with a table of menu items. The table has columns for Menu Item, Price, Quantity, Sales Tax, and Total. The Sales Tax column contains the formula  $=(B3*C3)*$E$1$ , where \$E\$1 is an absolute reference to the sales tax rate. The Total column is highlighted in green.

	A	B	C	D	E
1			Sales Tax		7.5%
2	Menu Item	Price	Quantity	Sales Tax	Total
3	Empanadas: Beef Picadillo	\$2.99	10	$=(B3*C3)*$E$1$	
4	Empanadas: Chipotle Shrimp	\$3.99	20		
5	Empanadas: Black Bean & Plantain	\$2.49	20		
6	Tamales: Chicken Tinga	\$2.29	30		
7	Tamales: Vegetable	\$2.29	10		
8	Arepas: Carnitas	\$2.89	20		
9	Arepas: Queso Blanco	\$2.49	40		
10	Empanadas: Apple Cinnamon	\$1.89	25		
11	Beverages: Horchata	\$1.89	35		
12	Beverages: Lemonade	\$1.89	10		
13	Beverages: Tamarindo	\$1.89			
14				Total	
15					

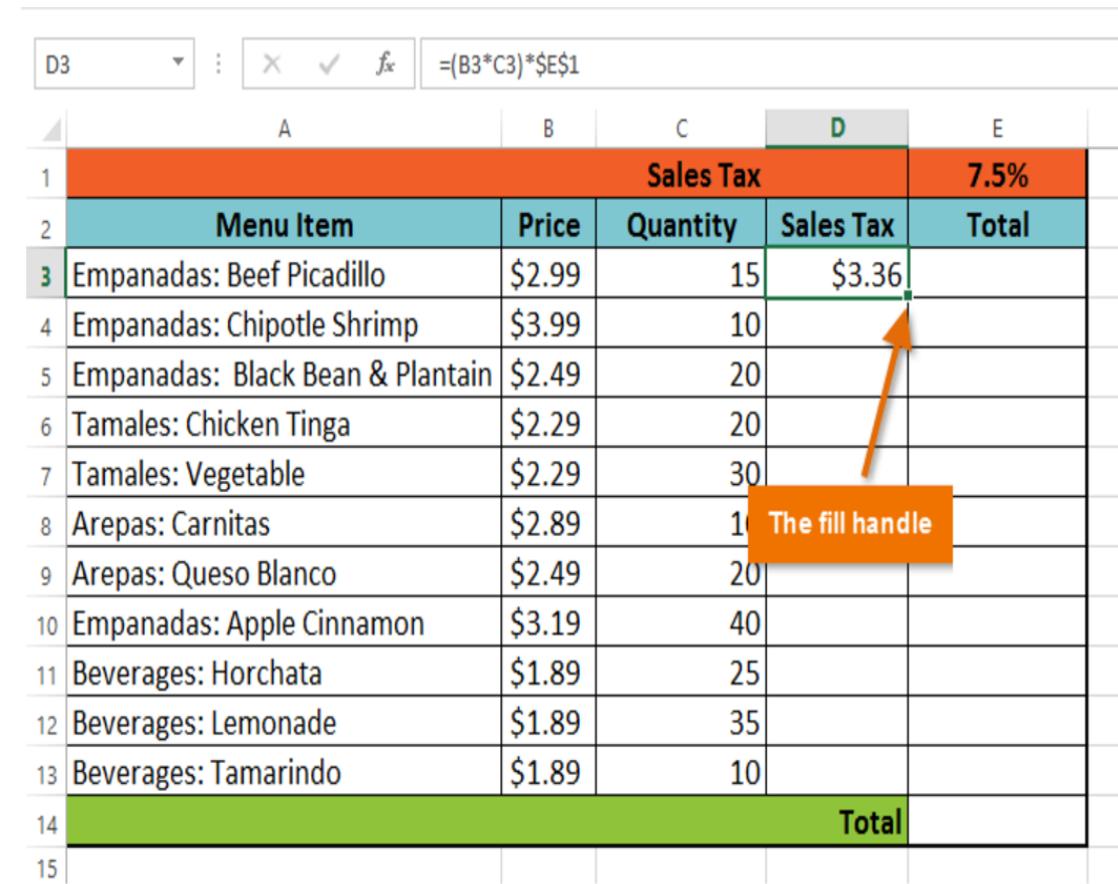
# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

3. Press **Enter** on your keyboard. The formula will calculate, and the result will display in the cell.

4. Locate the **fill handle** in the bottom-right corner of the desired cell. In our example, we'll locate the fill handle for cell **D3**



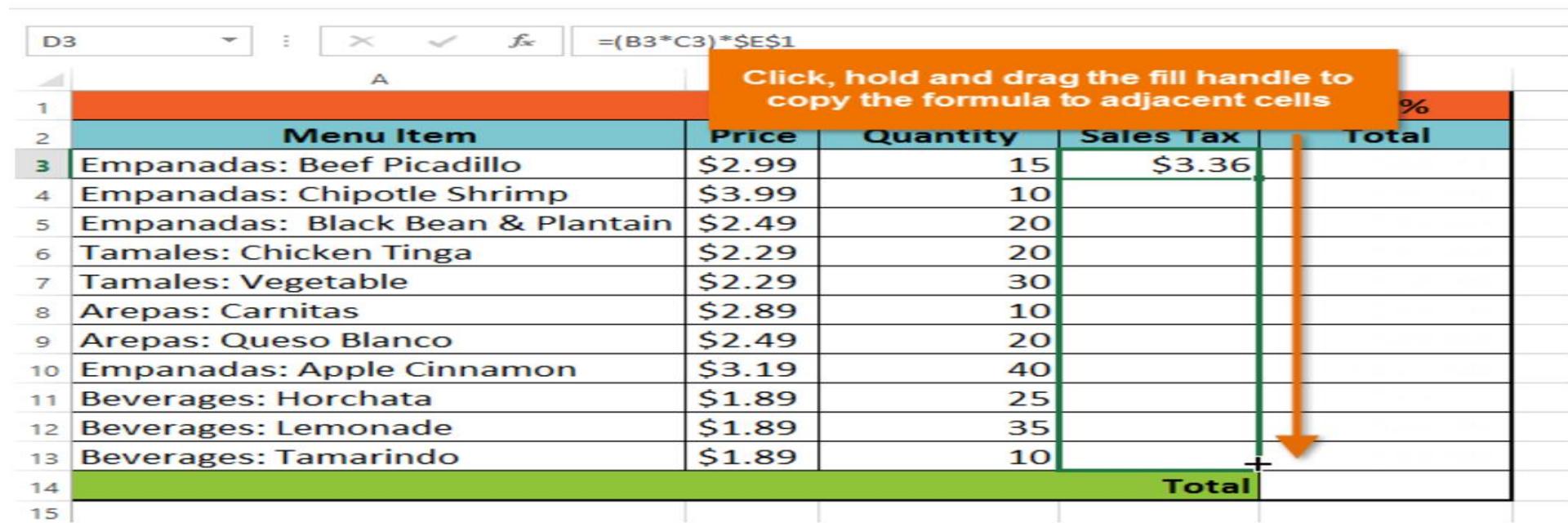
	A	B	C	D	E
1		Sales Tax			7.5%
2	Menu Item	Price	Quantity	Sales Tax	Total
3	Empanadas: Beef Picadillo	\$2.99	15	\$3.36	
4	Empanadas: Chipotle Shrimp	\$3.99	10		
5	Empanadas: Black Bean & Plantain	\$2.49	20		
6	Tamales: Chicken Tinga	\$2.29	20		
7	Tamales: Vegetable	\$2.29	30		
8	Arepas: Carnitas	\$2.89	10		
9	Arepas: Queso Blanco	\$2.49	20		
10	Empanadas: Apple Cinnamon	\$3.19	40		
11	Beverages: Horchata	\$1.89	25		
12	Beverages: Lemonade	\$1.89	35		
13	Beverages: Tamarindo	\$1.89	10		
14	Total				
15					

# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

5. Click, hold, and drag the **fill handle** over the cells you want to fill: cells **D4:D13** in our example.



The screenshot shows a Microsoft Excel spreadsheet with a table of menu items and their sales data. The table has columns for Menu Item, Price, Quantity, Sales Tax, and Total. Row 3 contains the formula `=(B3*C3)*$E$1`. A tooltip box with the text "Click, hold and drag the fill handle to copy the formula to adjacent cells" is overlaid on the cell D3. An orange arrow points downwards from the fill handle of cell D3 towards cell D13, indicating the range of cells to be filled.

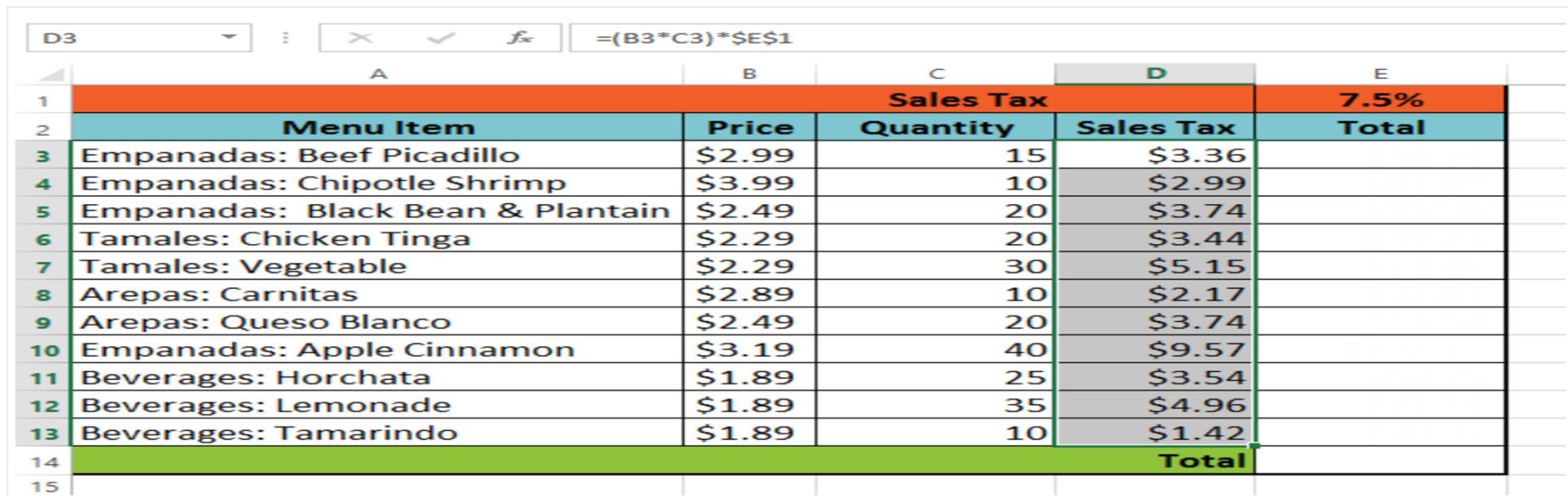
	Menu Item	Price	Quantity	Sales Tax	Total
1					
2					
3	Empanadas: Beef Picadillo	\$2.99	15	\$3.36	
4	Empanadas: Chipotle Shrimp	\$3.99	10		
5	Empanadas: Black Bean & Plantain	\$2.49	20		
6	Tamales: Chicken Tinga	\$2.29	20		
7	Tamales: Vegetable	\$2.29	30		
8	Arepas: Carnitas	\$2.89	10		
9	Arepas: Queso Blanco	\$2.49	20		
10	Empanadas: Apple Cinnamon	\$3.19	40		
11	Beverages: Horchata	\$1.89	25		
12	Beverages: Lemonade	\$1.89	35		
13	Beverages: Tamarindo	\$1.89	10		
14					Total
15					

# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

6. Release the mouse. The formula will be **copied** to the selected cells with an **absolute reference**, and the values will be calculated in each cell.



The screenshot shows a Microsoft Excel spreadsheet with a table of menu items. The table has columns for Menu Item, Price, Quantity, Sales Tax, and Total. The Sales Tax column contains the formula  $=B3*C3*\$E\$1$ . The Total column contains the formula  $=D3+E3$ . The E column header is labeled "7.5%" and the E row header is labeled "Total". The table has 14 rows, numbered 3 to 16. Row 16 is a green header row for totals. Row 15 is a blank row. Row 14 is a green footer row for totals. The formula bar at the top shows the formula for cell D3:  $=B3*C3*\$E\$1$ .

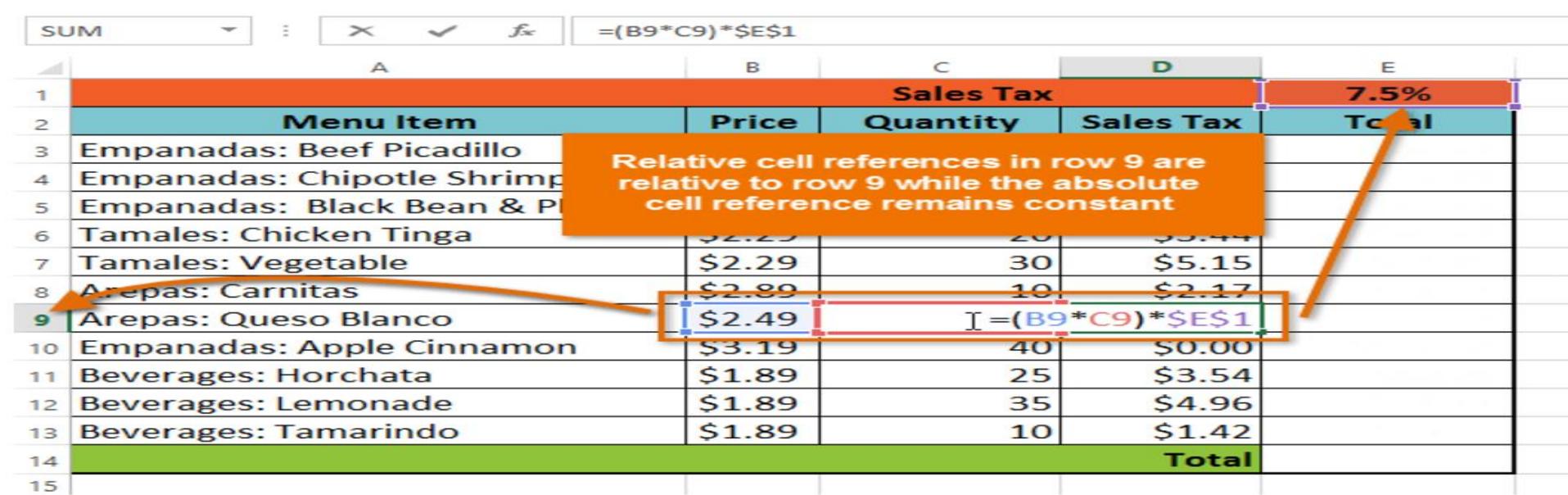
	A	B	C	D	E
1			Sales Tax		
2	Menu Item	Price	Quantity	Sales Tax	Total
3	Empanadas: Beef Picadillo	\$2.99	15	\$3.36	
4	Empanadas: Chipotle Shrimp	\$3.99	10	\$2.99	
5	Empanadas: Black Bean & Plantain	\$2.49	20	\$3.74	
6	Tamales: Chicken Tinga	\$2.29	20	\$3.44	
7	Tamales: Vegetable	\$2.29	30	\$5.15	
8	Arepas: Carnitas	\$2.89	10	\$2.17	
9	Arepas: Queso Blanco	\$2.49	20	\$3.74	
10	Empanadas: Apple Cinnamon	\$3.19	40	\$9.57	
11	Beverages: Horchata	\$1.89	25	\$3.54	
12	Beverages: Lemonade	\$1.89	35	\$4.96	
13	Beverages: Tamarindo	\$1.89	10	\$1.42	
14	Total				
15					

# Referencing Techniques

## Absolute Referencing

To create and copy a formula using absolute references:

You can double-click the **filled cells** to check their formulas for accuracy. The absolute reference should be the same for each cell, while the other references are relative to the cell's row.



	SUM	X	✓	f(x)	= $(B9*C9)*\$E\$1$
1	A	B	C	D	E
2	Menu Item	Price	Quantity	Sales Tax	Total
3	Empanadas: Beef Picadillo				
4	Empanadas: Chipotle Shrimp				
5	Empanadas: Black Bean & P				
6	Tamales: Chicken Tinga	\$2.29	20	\$5.44	
7	Tamales: Vegetable	\$2.29	30	\$5.15	
8	Arepas: Carnitas	\$2.89	10	\$2.17	
9	Arepas: Queso Blanco	\$2.49	10	\$1.24	$=(B9*C9)*\$E\$1$
10	Empanadas: Apple Cinnamon	\$3.19	40	\$0.00	
11	Beverages: Horchata	\$1.89	25	\$3.54	
12	Beverages: Lemonade	\$1.89	35	\$4.96	
13	Beverages: Tamarindo	\$1.89	10	\$1.42	
14	Total				
15					

# Referencing Techniques

## Absolute Referencing

### Using cell references with multiple worksheets:

Excel allows you to refer to any cell on any **worksheet**, which can be especially helpful if you want to reference a specific value from one worksheet to another.

To do this, you'll simply need to begin the cell reference with the **worksheet name** followed by an **exclamation point (!)**.

# Referencing Techniques

## Absolute Referencing

### Using cell references with multiple worksheets:

Excel allows you to refer to any cell on any **worksheet**, which can be especially helpful if you want to reference a specific value from one worksheet to another.

To do this, you'll simply need to begin the cell reference with the **worksheet name** followed by an **exclamation point (!)**.

# Referencing Techniques

## Absolute Referencing

**To reference cells across worksheets:**

In our example in the next slides, we'll refer to a cell with a calculated value between two worksheets. This will allow us to use the **exact same value** on two different worksheets without rewriting the formula or copying data between worksheets.

# Referencing Techniques

## Absolute Referencing

To reference cells across worksheets:

1. Locate the cell you want to reference, and note its worksheet. In our example, we want to reference cell **E14** on the **Menu Order worksheet**.

	A	B	C	D	E
5	Empanadas: Black Bean & Plantain	\$2.49	20	\$3.74	\$53.54
6	Tamales: Chicken Tinga	\$2.29	20	\$3.44	\$49.24
7	Tamales: Vegetable	\$2.29	30	\$5.15	\$73.85
8	Arepas: Carnitas	\$2.89	10	\$2.17	\$31.07
9	Arepas: Queso Blanco	\$2.49	20	\$3.74	\$53.54
10	Empanadas: Apple Cinnamon	\$3.19	40	\$9.57	\$137.17
11	Beverages: Horchata	\$1.89	25	\$3.54	\$50.79
12	Beverages: Lemonade	\$1.89	35	\$4.96	\$71.11
13	Beverages: Tamarindo	\$1.89	10	\$1.42	\$20.32
14			Total		\$587.65
15					
16					

Menu Order Catering Invoice

# Referencing Techniques

## Absolute Referencing

To reference cells across worksheets:

2. Navigate to the desired **worksheet**. In our example, we'll select the **Catering Invoice** worksheet.

12	Beverages: Lemonade	\$1.89	35	\$4.96	\$71.11
13	Beverages: Tamarindo	\$1.89	10	\$1.42	\$20.32
14			Total	\$587.65	
15					
16					

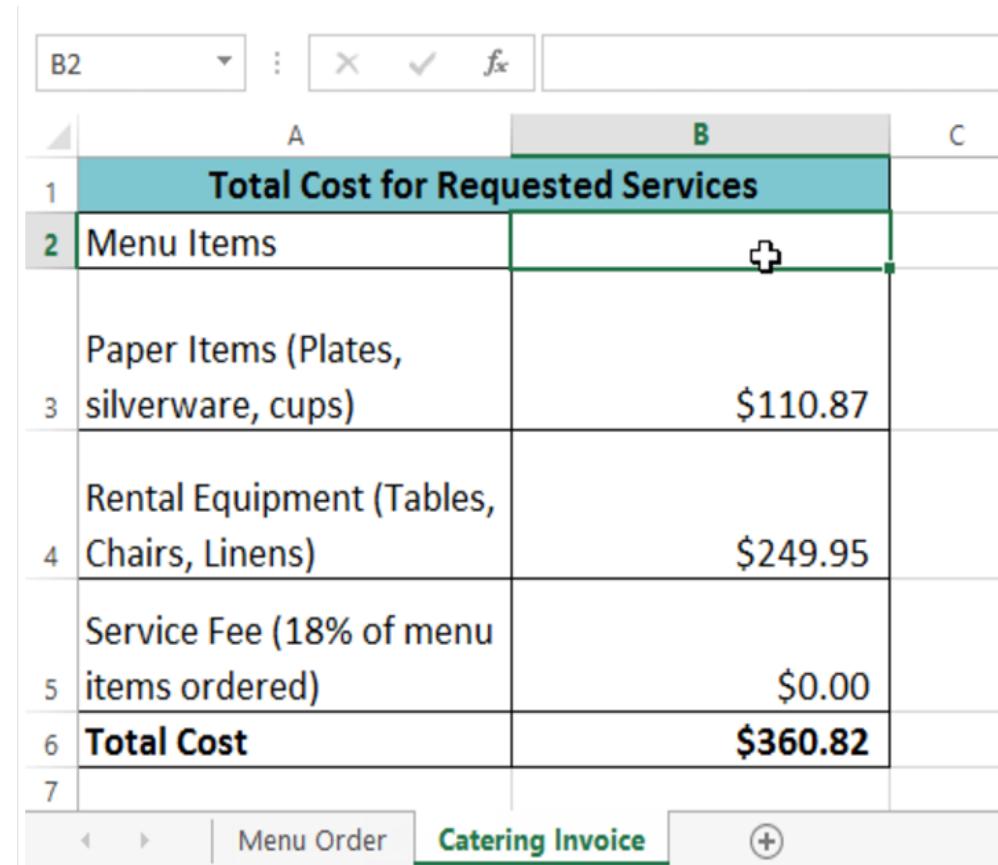
Menu Order Catering Invoice +

# Referencing Techniques

## Absolute Referencing

To reference cells across worksheets:

3. The **selected worksheet** will appear.
4. Locate and select the **cell** where you want the value to appear. In our example, we'll select cell **B2**.



The screenshot shows a Microsoft Excel spreadsheet titled "Catering Invoice". The spreadsheet contains a table with the following data:

Total Cost for Requested Services		
Menu Items		
Paper Items (Plates, silverware, cups)		\$110.87
Rental Equipment (Tables, Chairs, Linens)		\$249.95
Service Fee (18% of menu items ordered)		\$0.00
<b>Total Cost</b>		<b>\$360.82</b>

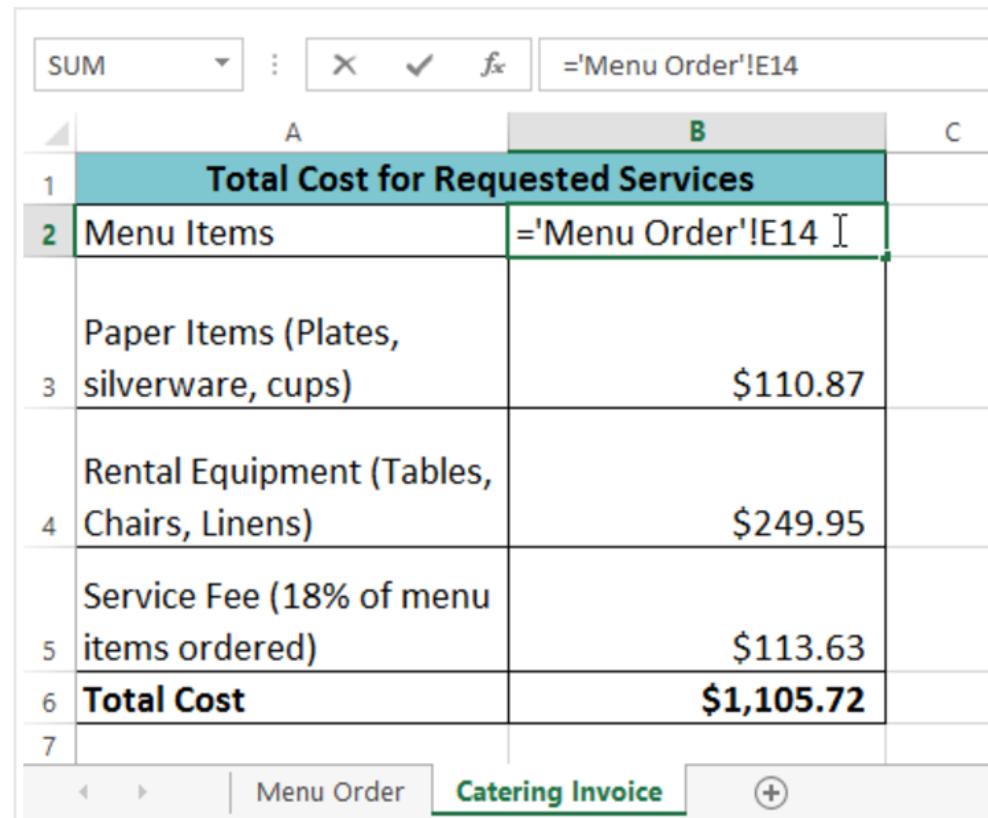
The cell B2 is selected, indicated by a green border. The formula bar at the top shows "B2". The ribbon tabs at the bottom include "Menu Order" and "Catering Invoice", with "Catering Invoice" being the active tab.

# Referencing Techniques

## Absolute Referencing

To reference cells across worksheets:

5. Type the **equals sign (=)**, the **sheet name** followed by an **exclamation point (!)**, and the **cell address**. In our example, we'll type **='Menu Order'!E14**.



The screenshot shows a Microsoft Excel interface. The formula bar at the top contains the text '=Menu Order!E14'. Below the formula bar is a table with the following data:

Total Cost for Requested Services	
2	Menu Items
3	Paper Items (Plates, silverware, cups)
4	Rental Equipment (Tables, Chairs, Linens)
5	Service Fee (18% of menu items ordered)
6	<b>Total Cost</b>
7	<b>\$1,105.72</b>

The table has columns A and B. The formula bar also shows the cell address E14. The status bar at the bottom indicates the sheet name is 'Catering Invoice'.

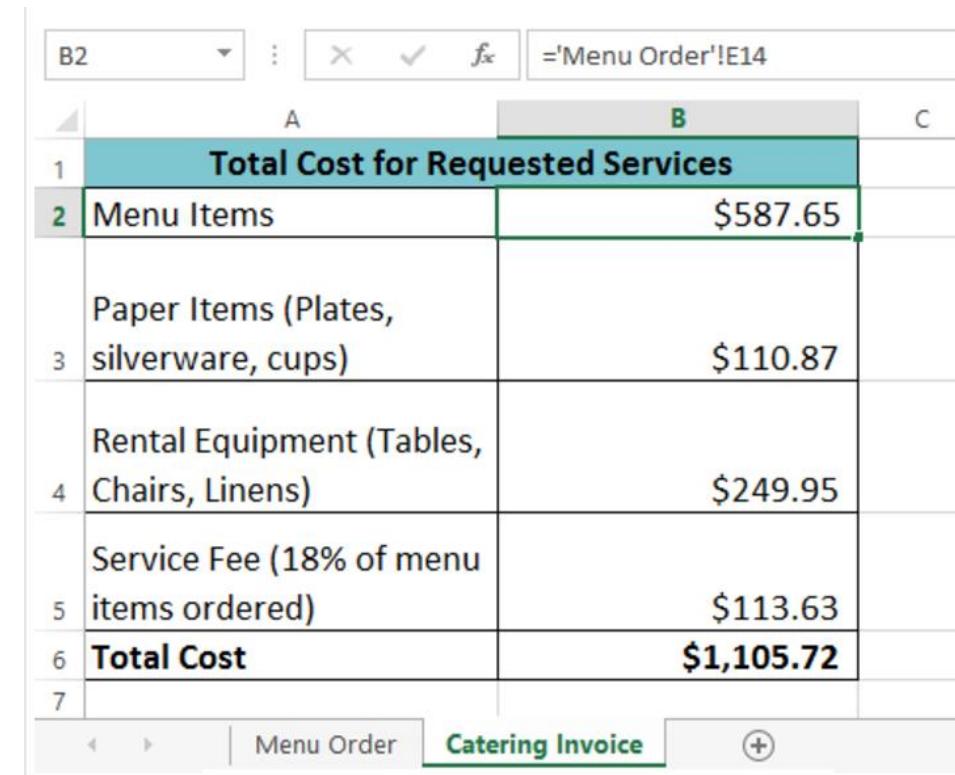
# Referencing Techniques

## Absolute Referencing

To reference cells across worksheets:

6. Press **Enter** on your keyboard.  
The **value** of the referenced cell will appear.

If the **value** of cell E14 changes on the Menu Order worksheet, it will be **updated** automatically on the Catering Invoice worksheet.



	A	B	C
1	Total Cost for Requested Services		
2	Menu Items	\$587.65	
3	Paper Items (Plates, silverware, cups)		\$110.87
4	Rental Equipment (Tables, Chairs, Linens)		\$249.95
5	Service Fee (18% of menu items ordered)		\$113.63
6	Total Cost		\$1,105.72
7			

# Referencing Techniques

## Exercise

1. Open your [practice workbook](#).
2. Create a formula that uses a **relative reference**. Use the **fill handle** to fill in the formula in cells **E4** through **E14**. Double-click a cell to see the copied formula and the relative cell references.
3. Create a formula that uses an **absolute reference**. Correct the formula in cell **D4** to refer only to the tax rate in cell **E2** as an **absolute reference**, then use the fill handle to fill the formula from cells **D4** to **D14**.
4. Try referencing a cell across **worksheets**. Create a cell reference in cell **B3** on the **Catering Invoice** worksheet for cell **E15** on the **Menu Order** worksheet.

# Questions



# Thank You





TURBOCHARGED  
FOR SUCCESS



## Advanced Data Analytics using Excel

September 2021



# Table of Contents

## Excel Basics

- Getting Started with Essential Features
- Entering Data
- Customizing Excel
- Managing and Navigating Large workbooks
- Creating and Editing Formulae
- Referencing Techniques
- **Managing Formulas and Function**
- **Formatting and Proofing**
- Data Management Skills

# Managing Formulas and Function

- Understanding Order of Mathematical Operations
- Creating Complex Formulas
- Using Basic Functions
- Working with Function Arguments
- Using AutoSum Command
- Function Library



# Managing Formulas and Function

## Introduction

A simple formula is a mathematical expression with one operator, such as **7+9**. A **complex formula** has more than one mathematical operator, such as **5+2\*8**. When there is more than one operation in a formula, the **order of operations** tells Excel which operation to calculate first.

In order to able to manage formulas in Excel, one will need to understand the order of operations.

# Managing Formulas and Function

## Managing Formulas

### The order of operations

Excel calculates formulas based on the following **order of operations**:

1. Operations enclosed in **parentheses**
2. **Exponential** calculations ( $3^2$ , for example)
3. **Multiplication** and **division**, whichever comes first
4. **Addition** and **subtraction**, whichever comes first

A mnemonic that can help you remember the order is **PEMDAS**,  
or **Please Excuse My Dear Aunt Sally.** ☺

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

P  
E  
M  
D  
A  
S

$$10 + (6 - 3) / 2^2 * 4 - 1$$

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

Parentheses

$10 + (6 - 3) / 2^2 * 2 - 1$

E

M

D

A

S

# Managing Formulas and Function

## Managing Formulas

The order of operations

### Using the Order of Operations

P

Exponents

M

D

A

S

$$10 + (6-3)/2^2 * 4 - 1$$

$$10 + 3/2^2 * 4 - 1$$

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

P

E

Multiplication

Division

Whichever comes first!

A

S

$$10 + (6-3)/2^2*4-1$$

$$10 + 3/2^2*4-1$$

$$10 + 3/4*4-1$$

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

P

E

Multiplication

Division Whichever comes first!

A

S

$$10 + (6-3)/2^2*4-1$$

$$10 + 3/2^2*4-1$$

$$10 + 3/4*4-1$$

$$10 + 0.75*4-1$$

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

P

$$10 + (6 - 3) / 2^2 * 4 - 1$$

E

$$10 + 3 / 2^2 * 4 - 1$$

M

$$10 + 3 / 4 * 4 - 1$$

D

$$10 + 0.75 * 4 - 1$$

Addition      Whichever comes first!  
Subtraction

$$10 + 3 - 1$$

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

P

$$10 + (6 - 3) / 2^2 * 4 - 1$$

E

$$10 + 3 / 2^2 * 4 - 1$$

M

$$10 + 3 / 4 * 4 - 1$$

D

$$10 + 0.75 * 4 - 1$$

Addition      Whichever comes first!  
Subtraction

$$10 + 3 - 1$$

$$13 - 1$$

# Managing Formulas and Function

## Managing Formulas

### The order of operations

#### Using the Order of Operations

P  
E  
M  
D  
A  
S

$$\begin{aligned} & 10 + (6-3)/2^2 * 4 - 1 \\ & 10 + 3/2^2 * 4 - 1 \\ & 10 + 3/4 * 4 - 1 \\ & 10 + 0.75 * 4 - 1 \\ & 10 + 3 - 1 \\ & 13 - 1 = 12 \end{aligned}$$

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula

In the next slides, we will demonstrate how Excel solves a complex formula using the order of operations. Here, we want to calculate the cost of **sales tax** for a catering invoice.

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula

To do this, we'll write our formula as **= $(D2+D3)*0.075$**  in cell **D4**. This formula will add the prices of our items together and then multiply that value by the 7.5% tax rate (which is written as 0.075) to calculate the cost of sales tax.



	A	B	C	D	E
1	Menu Item	Price	Quantity	Total	
2	Empanadas: Beef Picadillo	\$2.99	15	\$44.85	
3	Empanadas: Chipotle Shrimp	\$3.99	10	\$39.90	
4			Tax	= $(D2+D3)*0.075$	
5			Total		
6					

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula

Excel follows the order of operations and first adds the values inside the parentheses: **(44.85+39.90) = \$84.75**. It then multiplies that value by the tax rate: **\$84.75\*0.075**. The result will show that the sales tax is **\$6.36**.

Order of Operations				
	A	B	C	D
1	Menu Item	Price	Quantity	Total
2	Empanadas: Beef Picadillo	\$2.99	15	\$44.85
3	Empanadas: Chipotle Shrimp	\$3.99	10	\$39.90
4		Tax		\$6.36
5	Total			
6				

The formula bar shows the formula `=(D2+D3)*0.075` entered into cell D4.



# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula

It is especially important to enter complex formulas with the correct order of operations. Otherwise, Excel will not calculate the results accurately.

In our example, if the **parentheses** are not included, the multiplication is calculated first and the result is incorrect. (as shown in next slide)

Parentheses are the best way to define which calculations will be performed first in Excel.

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula

Without parentheses, multiplication is performed before addition, leading to an incorrect result

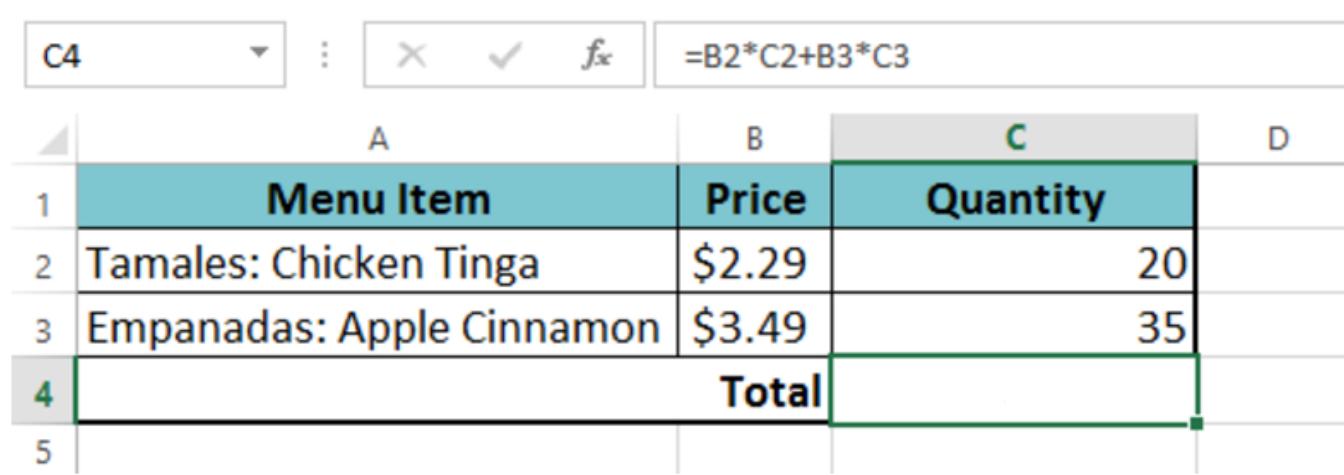
Tax = D2+D3 \*0.075

A	B	C	
1	Menu Item	Price	
2	Empanadas: Beef Picadillo	\$2.99	
3	Empanadas: Chipotle Shrimp	\$3.99	
4		10	\$39.90
5	Total		
6		Tax	\$47.84
		Total	

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula ( Exercise)



The screenshot shows a Microsoft Excel interface. The formula bar at the top displays the cell reference "C4" and the formula "=B2\*C2+B3\*C3". Below the formula bar is a table with four rows and three columns. The columns are labeled "A", "B", and "C". The first row contains the column headers: "Menu Item", "Price", and "Quantity". The second row contains the data for "Tamales: Chicken Tinga": "\$2.29" and "20". The third row contains the data for "Empanadas: Apple Cinnamon": "\$3.49" and "35". The fourth row, which is highlighted with a green border, contains the label "Total" in the "Price" column. The "Quantity" column for this row is empty. The formula bar indicates that the formula for cell C4 is the sum of the products of Price and Quantity for the first two items.

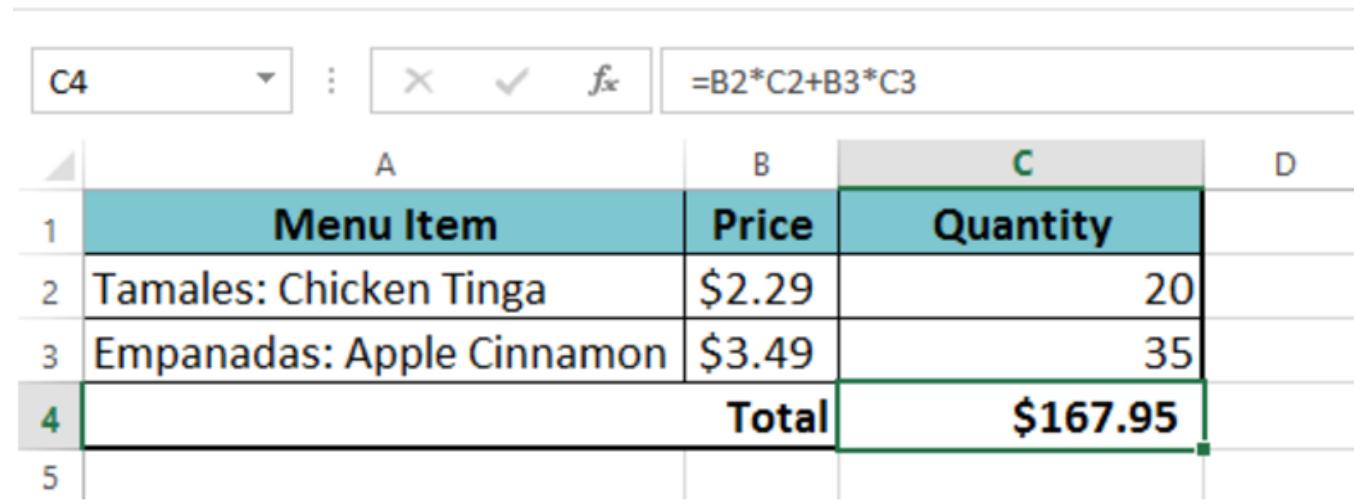
	A	B	C	D
1	Menu Item	Price	Quantity	
2	Tamales: Chicken Tinga	\$2.29	20	
3	Empanadas: Apple Cinnamon	\$3.49	35	
4	Total			
5				

What is the answer?

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula ( Exercise)



The screenshot shows a Microsoft Excel interface. The formula bar at the top displays the cell reference "C4" and the formula "=B2\*C2+B3\*C3". Below the formula bar is a table with four rows and four columns. The columns are labeled A, B, C, and D. The first row contains the column headers: "Menu Item", "Price", "Quantity", and an empty cell D. The second row contains the data for "Tamales: Chicken Tinga": "\$2.29" in column B and "20" in column C. The third row contains the data for "Empanadas: Apple Cinnamon": "\$3.49" in column B and "35" in column C. The fourth row is highlighted with a green border and contains the labels "Total" in column B and "\$167.95" in column C.

	A	B	C	D
1	Menu Item	Price	Quantity	
2	Tamales: Chicken Tinga	\$2.29	20	
3	Empanadas: Apple Cinnamon	\$3.49	35	
4		Total	\$167.95	
5				

# Managing Formulas and Function

## Managing Formulas

### Creating Complex Formula ( Exercise)

COUNTA				⋮	X	✓	f <sub>x</sub>	= $(B2*C2)+(B3*C3)$
A	B	C	D					
1	Menu Item	Price	Quantity					
2	Tamales: Chichen Tinga	\$2.29	20					
3	Empanadas: Apple Cinnamon	\$3.49	35					
4	Total	= $(B2*C2)+(B3*C3)$						
5								

What is the answer?

# Managing Formulas and Function

## Exercise



1. Open your [practice workbook](#).
2. Create a complex formula that will perform addition before multiplication.  
Create a formula in cell **D6** that first **adds** the values of cells **D3**, **D4**, and **D5** and then **multiplies** their total by **7.5%**.

Hint: You'll need to think about the order of operations for this to work correctly.

# Managing Formulas and Function

## Managing Functions

### Introduction

A **function** is a **predefined formula** that performs calculations using specific values in a particular order. Excel includes many common functions that can be useful for quickly finding the **sum**, **average**, **count**, **maximum value**, and **minimum value** for a range of cells.

In order to use functions correctly, you'll need to understand the different **parts of a function** and how to create **arguments** to calculate values and cell references.

# Managing Formulas and Function

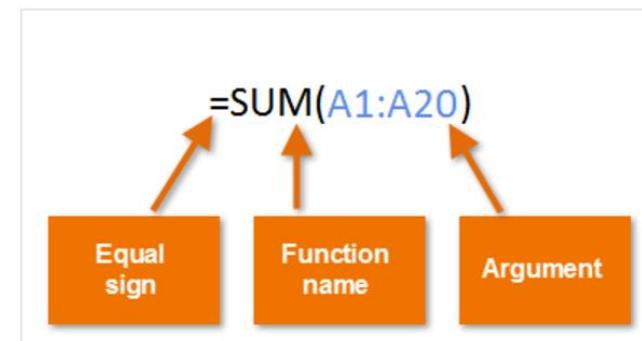
## Managing Functions

### Part of a Function

In order to work correctly, a function must be written a specific way, which is called the **syntax**.

The basic syntax for a function is the **equals sign (=)**, the **function name (SUM, for example)**, and one or more **arguments**.

Arguments contain the information you want to calculate. The function in the example below would add the values of the cell range A1:A20.



# Managing Formulas and Function

## Managing Functions

### Working with Arguments

Arguments can refer to both **individual cells** and **cell ranges** and must be enclosed within **parentheses**.

You can include one argument or multiple arguments, depending on the syntax required for the function.

For example, the function **=AVERAGE(B1:B9)** would calculate the **average** of the values in the cell range B1:B9. This function contains only one argument.

COUNTA	A	B	C
	1	5	
	2	8	
	3	9	
	4	7	
	5	5	
	6	1	
	7	3	
	8	2	
	9	7	
	10	=AVERAGE(B1:B9)	
	11		

# Managing Formulas and Function

## Managing Functions

### Working with Arguments

Multiple arguments must be separated by a **comma**.

For example, the function **=SUM(A1:A3, C1:C2, E1)** will **add** the values of all the cells in the three arguments.

COUNTA		:	X	✓	f <sub>x</sub>	=SUM(A1:A3,C1:C2,E1)
A	7					
1	4					
2	23					
3						
4						
5	=SUM(A1:A3,C1:C2,E1)					
6						

# Managing Formulas and Function

## Managing Functions

### Using Basic functions

Excel has a variety of functions available. Here are some of the most common functions you'll use:

**SUM:** This function **adds** all of the values of the cells in the argument.

**AVERAGE:** This function determines the **average** of the values included in the argument. It calculates the sum of the cells and then divides that value by the number of cells in the argument.

**COUNT:** This function **counts** the number of cells with numerical data in the argument. This function is useful for quickly counting items in a cell range.

**MAX:** This function determines the **highest cell value** included in the argument.

**MIN:** This function determines the **lowest cell value** included in the argument.

# Managing Formulas and Function

## Managing Functions

### Using Basic functions

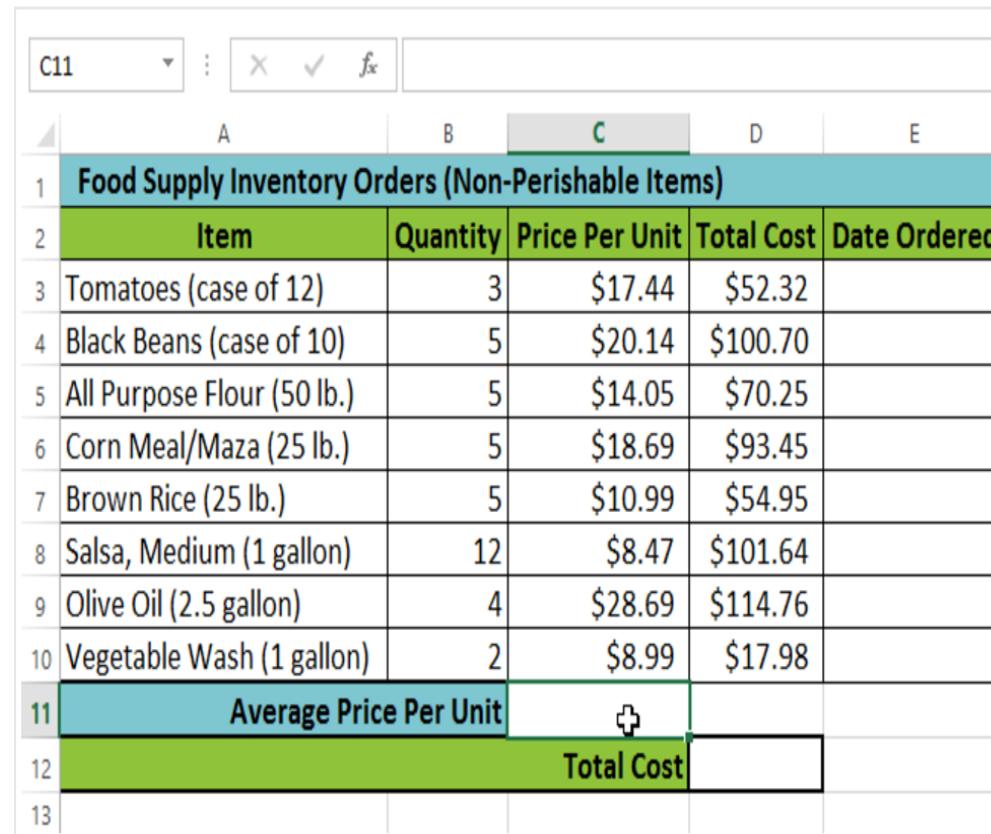
In the next slides , we'll create a basic function to calculate the **average price per unit** for a list of recently ordered items using the AVERAGE function.

# Managing Formulas and Function

## Managing Functions

### Using Basic functions

1. Select the **cell** that will contain the function. In our example, we'll select cell **C11**.



	A	B	C	D	E
1	Food Supply Inventory Orders (Non-Perishable Items)				
2	Item	Quantity	Price Per Unit	Total Cost	Date Ordered
3	Tomatoes (case of 12)	3	\$17.44	\$52.32	
4	Black Beans (case of 10)	5	\$20.14	\$100.70	
5	All Purpose Flour (50 lb.)	5	\$14.05	\$70.25	
6	Corn Meal/Maza (25 lb.)	5	\$18.69	\$93.45	
7	Brown Rice (25 lb.)	5	\$10.99	\$54.95	
8	Salsa, Medium (1 gallon)	12	\$8.47	\$101.64	
9	Olive Oil (2.5 gallon)	4	\$28.69	\$114.76	
10	Vegetable Wash (1 gallon)	2	\$8.99	\$17.98	
11	Average Price Per Unit				
12	Total Cost				
13					

# Managing Formulas and Function

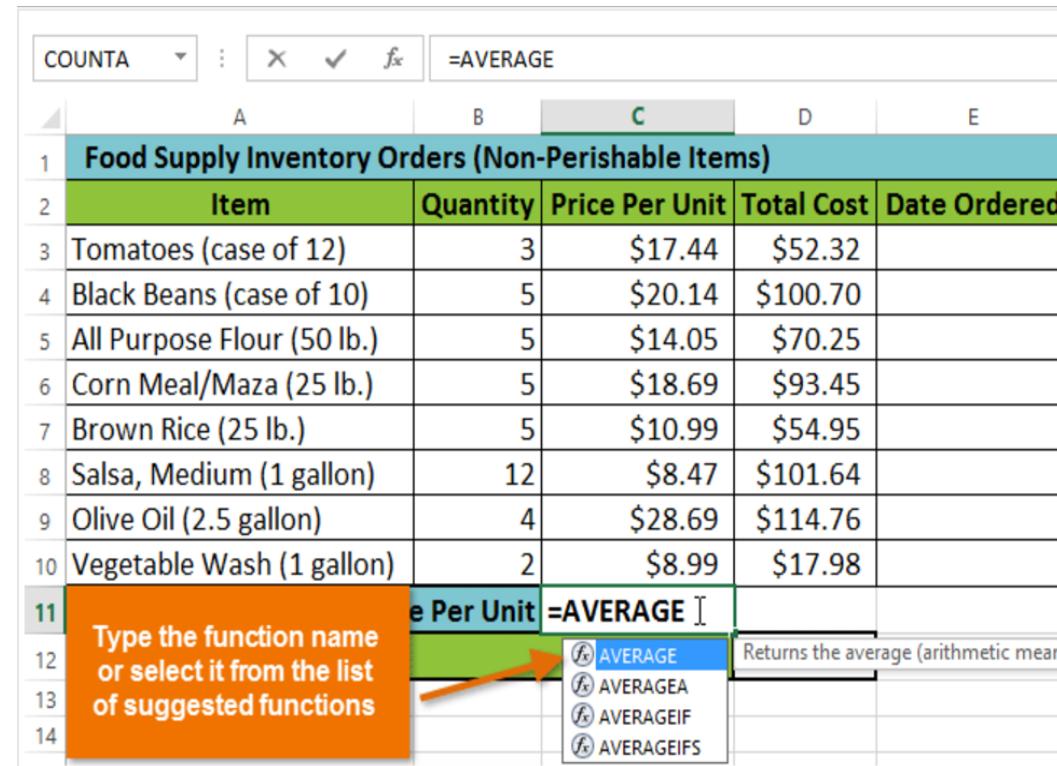
## Managing Functions

### Using Basic functions

- Type the **equals sign (=)** and enter the desired **function name**.

You can also select the desired function from the list of **suggested functions** that will appear below the cell as you type.

In our example, we'll type **=AVERAGE**.



The screenshot shows a Microsoft Excel spreadsheet titled "Food Supply Inventory Orders (Non-Perishable Items)". The formula bar at the top has the text "=AVERAGE". Below the formula bar is a table with columns: Item, Quantity, Price Per Unit, Total Cost, and Date Ordered. Row 11 is currently selected, showing the formula =AVERAGE in the Price Per Unit column. A tooltip box with the text "Type the function name or select it from the list of suggested functions" is overlaid on the formula bar. A dropdown menu is open, listing four functions: AVERAGE, AVERAGEA, AVERAGEIF, and AVERAGEIFS. An orange arrow points from the tooltip to the AVERAGE option in the dropdown menu. The description "Returns the average (arithmetic mean)" is visible next to the AVERAGE option.

COUNTA	X	✓	fx	=AVERAGE	
A	B	C	D	E	
1 Food Supply Inventory Orders (Non-Perishable Items)					
	Item	Quantity	Price Per Unit	Total Cost	Date Ordered
3	Tomatoes (case of 12)	3	\$17.44	\$52.32	
4	Black Beans (case of 10)	5	\$20.14	\$100.70	
5	All Purpose Flour (50 lb.)	5	\$14.05	\$70.25	
6	Corn Meal/Maza (25 lb.)	5	\$18.69	\$93.45	
7	Brown Rice (25 lb.)	5	\$10.99	\$54.95	
8	Salsa, Medium (1 gallon)	12	\$8.47	\$101.64	
9	Olive Oil (2.5 gallon)	4	\$28.69	\$114.76	
10	Vegetable Wash (1 gallon)	2	\$8.99	\$17.98	
11			=AVERAGE		
12					
13					
14					

# Managing Formulas and Function

## Managing Functions

### Using Basic functions

3. Enter the **cell range** for the **argument** inside **parentheses**.

In our example, we'll type **(C3:C10)**. This formula will add the values of cells C3:C10 and then divide that value by the total number of cells in the range to determine the average.

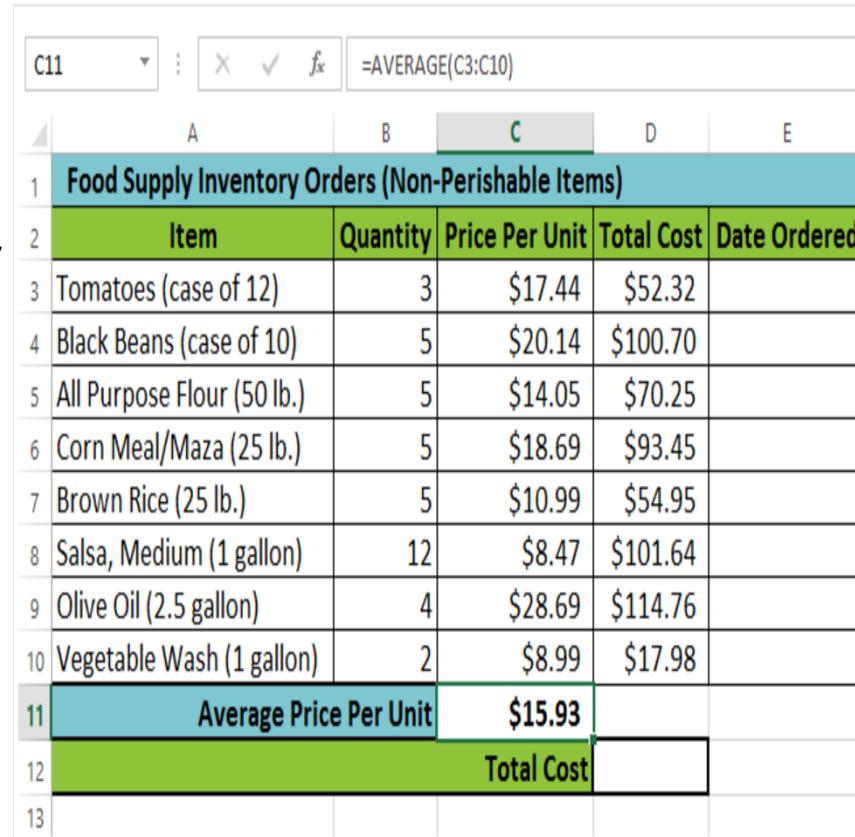
Food Supply Inventory Orders (Non-Perishable Items)				
	Item	Quantity	Price Per Unit	Total Cost
3	Tomatoes (case of 12)	3	\$17.44	\$52.32
4	Black Beans (case of 10)	5	\$20.14	\$100.70
5	All Purpose Flour (50 lb.)	5	\$14.05	\$70.25
6	Corn Meal/Maza (25 lb.)	5	\$18.69	\$93.45
7	Brown Rice (25 lb.)	5	\$10.99	\$54.95
8	Salsa, Medium (1 gallon)	12	\$8.47	\$101.64
9	Olive Oil (2.5 gallon)	4	\$28.69	\$114.76
10	Vegetable Wash (1 gallon)	2	\$8.99	\$17.98
11	Average Price Per Unit	$=AVERAGE(C3:C10)$		
12	Total Cost			
13				

# Managing Formulas and Function

## Managing Functions

### Using Basic functions

4. Press **Enter** on your keyboard. The function will be **calculated**, and the **result** will appear in the cell. In our example, the average price per unit of items ordered was **\$15.93**.



	A	B	C	D	E
1	Food Supply Inventory Orders (Non-Perishable Items)				
2	Item	Quantity	Price Per Unit	Total Cost	Date Ordered
3	Tomatoes (case of 12)	3	\$17.44	\$52.32	
4	Black Beans (case of 10)	5	\$20.14	\$100.70	
5	All Purpose Flour (50 lb.)	5	\$14.05	\$70.25	
6	Corn Meal/Maza (25 lb.)	5	\$18.69	\$93.45	
7	Brown Rice (25 lb.)	5	\$10.99	\$54.95	
8	Salsa, Medium (1 gallon)	12	\$8.47	\$101.64	
9	Olive Oil (2.5 gallon)	4	\$28.69	\$114.76	
10	Vegetable Wash (1 gallon)	2	\$8.99	\$17.98	
11	Average Price Per Unit	\$15.93			
12	Total Cost				
13					

# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

The **AutoSum** command allows you to automatically insert the most common functions into your formula, including SUM, AVERAGE, COUNT, MIN, and MAX.

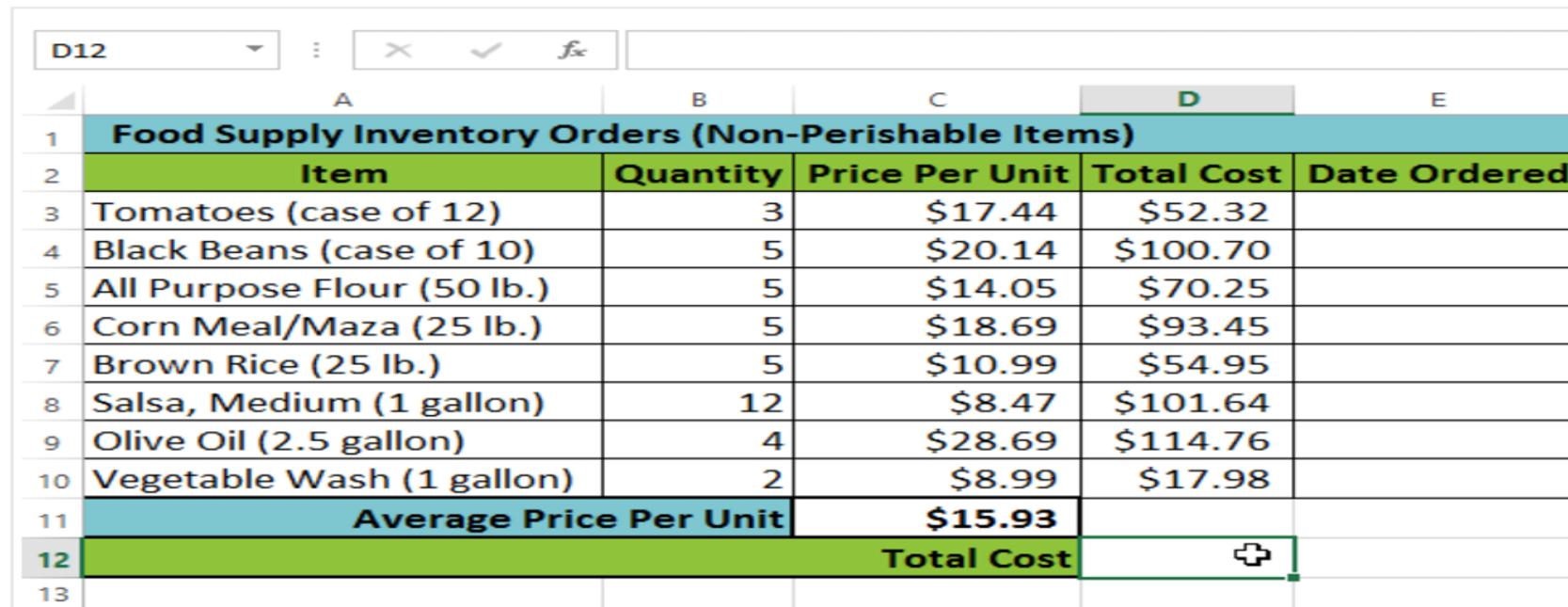
In the next slides, we'll create a function to calculate the **total cost** for a list of recently ordered items using the SUM function.

# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

1. Select the **cell** that will contain the function. In our example, we'll select cell **D12**.



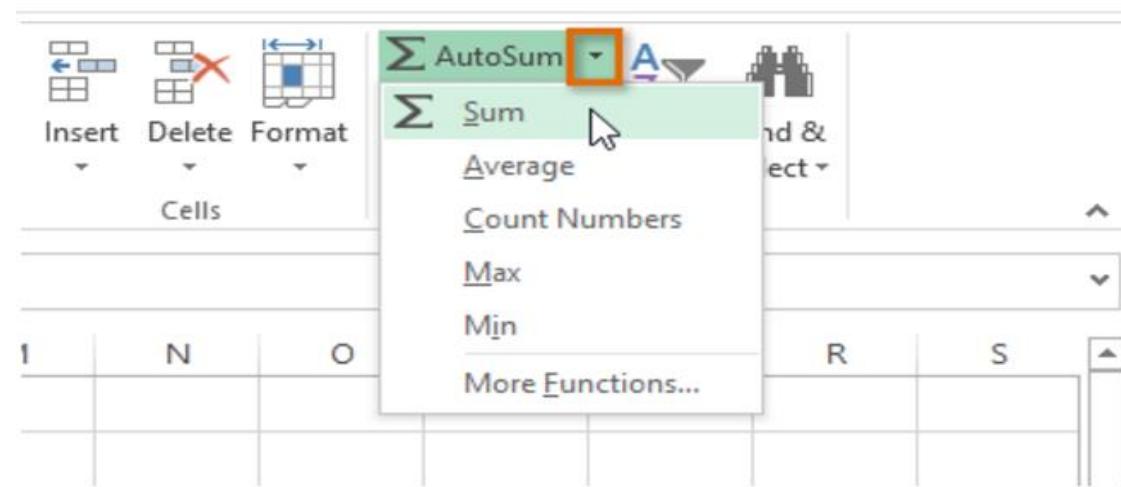
Food Supply Inventory Orders (Non-Perishable Items)					
	Item	Quantity	Price Per Unit	Total Cost	Date Ordered
3	Tomatoes (case of 12)	3	\$17.44	\$52.32	
4	Black Beans (case of 10)	5	\$20.14	\$100.70	
5	All Purpose Flour (50 lb.)	5	\$14.05	\$70.25	
6	Corn Meal/Maza (25 lb.)	5	\$18.69	\$93.45	
7	Brown Rice (25 lb.)	5	\$10.99	\$54.95	
8	Salsa, Medium (1 gallon)	12	\$8.47	\$101.64	
9	Olive Oil (2.5 gallon)	4	\$28.69	\$114.76	
10	Vegetable Wash (1 gallon)	2	\$8.99	\$17.98	
11	Average Price Per Unit		\$15.93		
12	Total Cost			+ 	
13					

# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

2. On the **Home** tab, locate and select the **arrow** next to the **AutoSum** command and then choose the **desired function** from the drop-down menu. In our example, we'll select **Sum**.



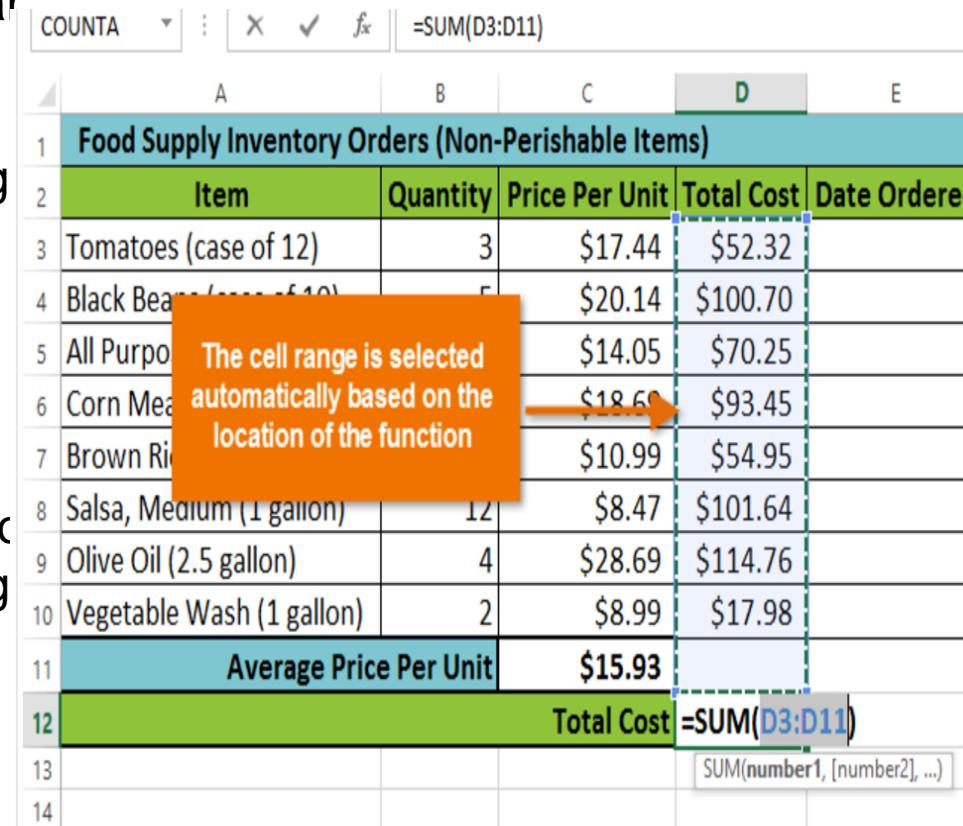
# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

3. The selected **function** will appear in the cell. If logically placed, the AutoSum command will **automatically** select a cell range for the argument.

In our example, cells **D3:D11** were selected automatically and their values will be **added** together to calculate the total cost. You can also manually enter the desired cell range into the argument.



	A	B	C	D	E
1	Food Supply Inventory Orders (Non-Perishable Items)				
2	Item	Quantity	Price Per Unit	Total Cost	Date Ordered
3	Tomatoes (case of 12)	3	\$17.44	\$52.32	
4	Black Beans (case of 10)	5	\$20.14	\$100.70	
5	All Purpose Flour (5 lb bag)	10	\$14.05	\$70.25	
6	Corn Meal (5 lb bag)	10	\$18.60	\$186.00	
7	Brown Rice (5 lb bag)	10	\$10.99	\$54.95	
8	Salsa, Medium (1 gallon)	12	\$8.47	\$101.64	
9	Olive Oil (2.5 gallon)	4	\$28.69	\$114.76	
10	Vegetable Wash (1 gallon)	2	\$8.99	\$17.98	
11	Average Price Per Unit		\$15.93		
12	Total Cost		=SUM(D3:D11)		
13				SUM(number1, [number2], ...)	
14					

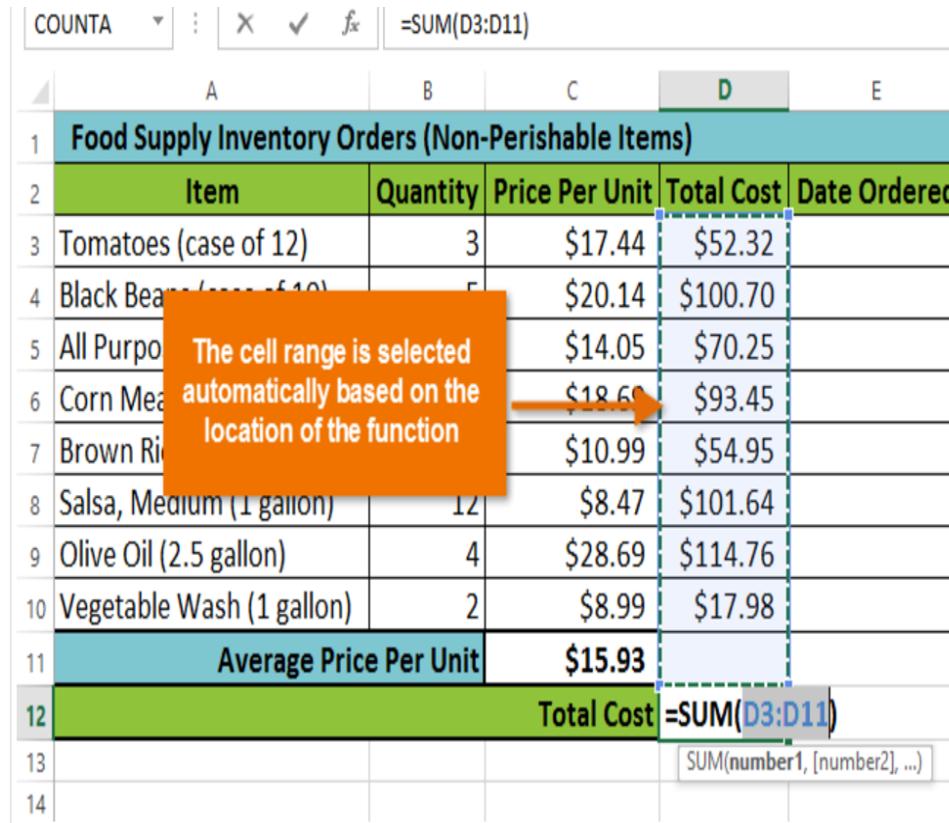
# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

4. Press **Enter** on your keyboard.
- The function will be **calculated**, and the **result** will appear in the cell.

In our example, the sum of D3:D11 is **\$606.05**.



The cell range is selected automatically based on the location of the function

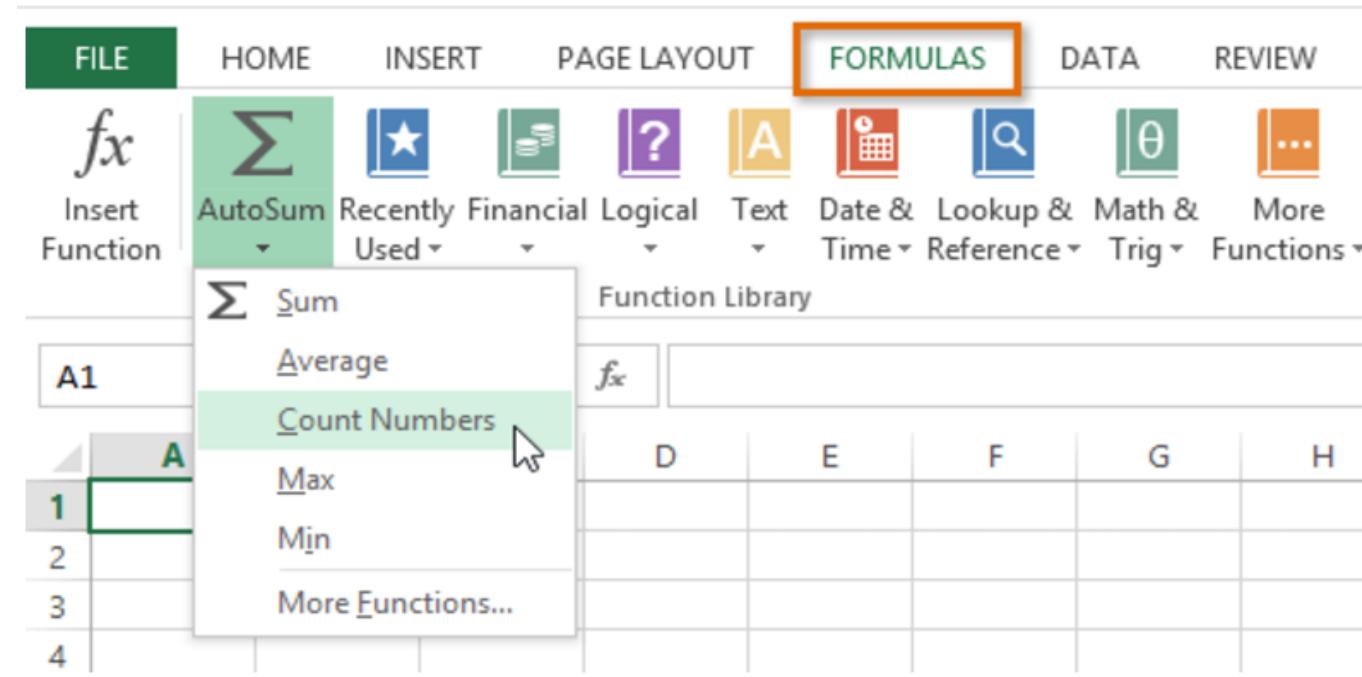
COUNTA	X	✓	fx	=SUM(D3:D11)
A	B	C	D	E
Food Supply Inventory Orders (Non-Perishable Items)				
Item	Quantity	Price Per Unit	Total Cost	Date Ordered
Tomatoes (case of 12)	3	\$17.44	\$52.32	
Black Beans (can - 5 lb)	5	\$20.14	\$100.70	
All Purpose Flour (5 lb)	10	\$14.05	\$70.25	
Corn Meal (5 lb)	6	\$18.60	\$93.45	
Brown Rice (5 lb)	7	\$10.99	\$54.95	
Salsa, Medium (1 gallon)	12	\$8.47	\$101.64	
Olive Oil (2.5 gallon)	4	\$28.69	\$114.76	
Vegetable Wash (1 gallon)	2	\$8.99	\$17.98	
Average Price Per Unit		\$15.93		
Total Cost			=SUM(D3:D11)	
SUM(number1, [number2], ...)				
13				
14				

# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

The **AutoSum** command can also be accessed from the **Formulas** tab on the **Ribbon**.

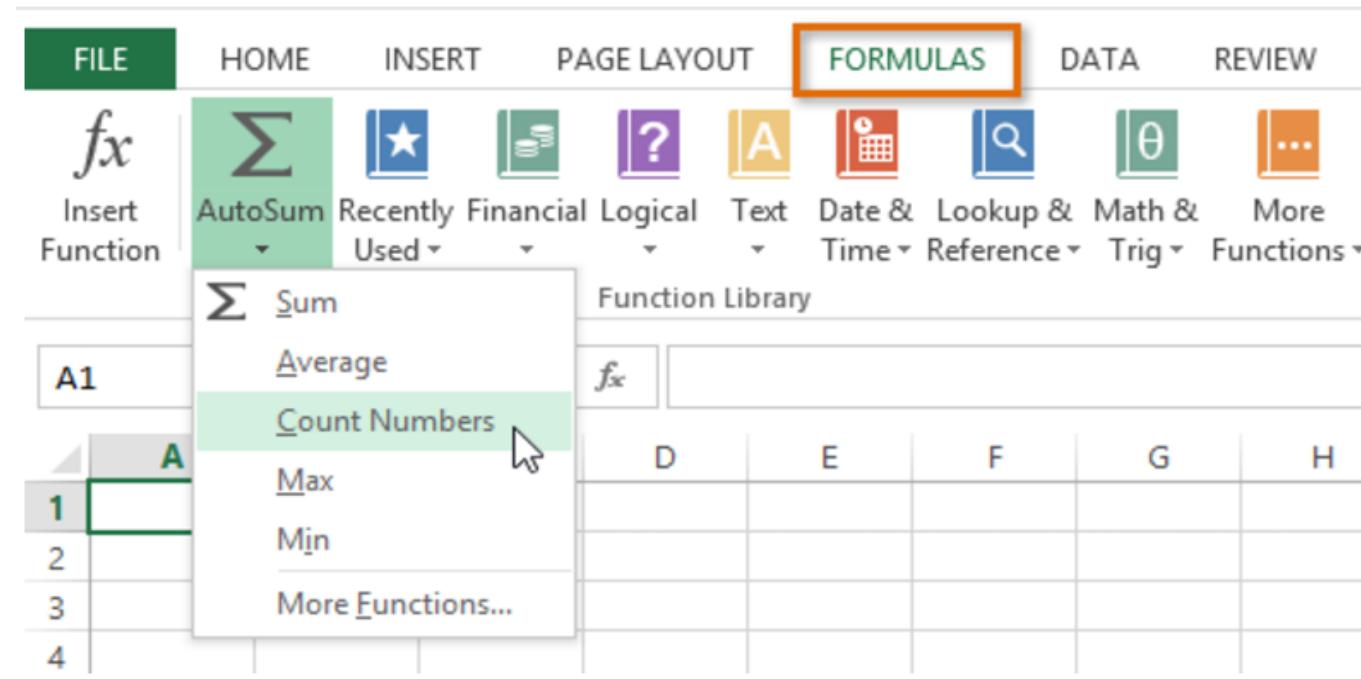


# Managing Formulas and Function

## Managing Functions

### Using the AutoSum command:

The **AutoSum** command can also be accessed from the **Formulas** tab on the **Ribbon**.



# Managing Formulas and Function

## Managing Functions

### The Function Library

While there are hundreds of functions in Excel, the ones you use most frequently will depend on the **type of data** your workbooks contains.

There is no need to learn every single function, but exploring some of the different **types of functions** will be helpful as you create new projects.

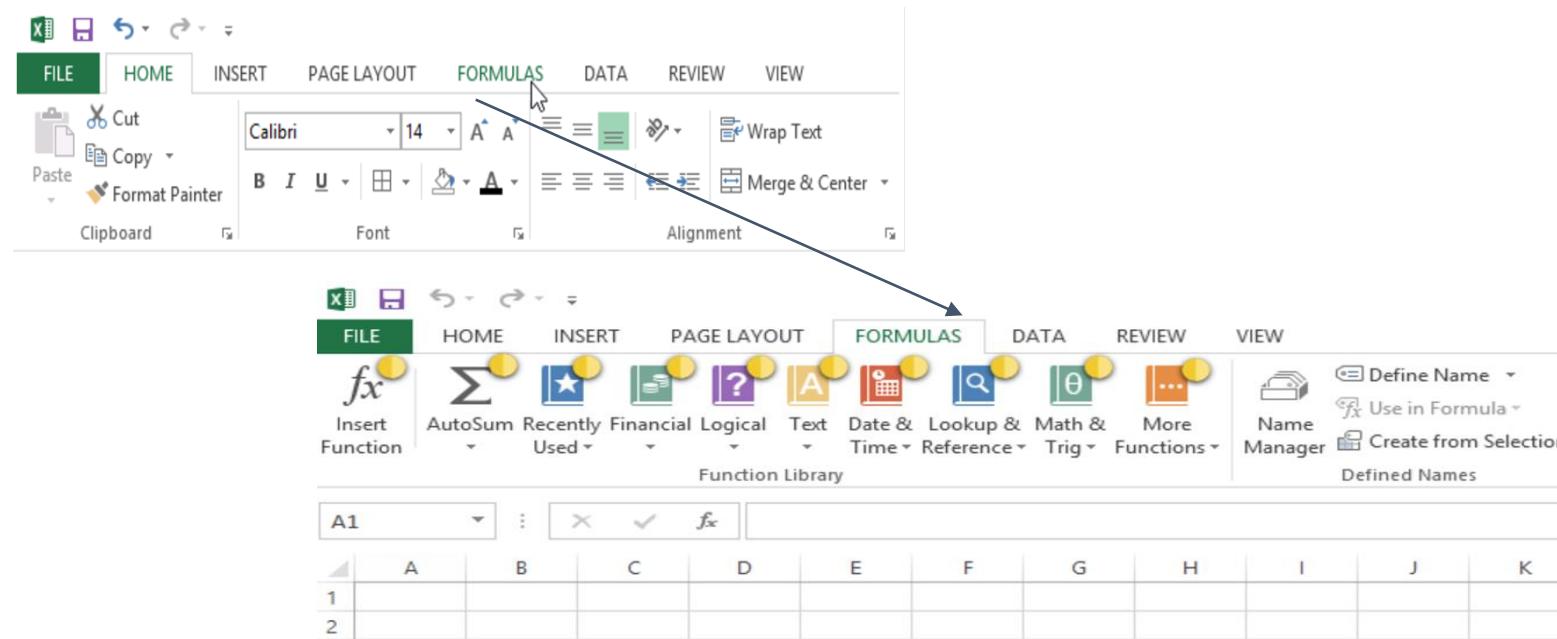
You can search for functions **by category**, such as **Financial**, **Logical**, **Text**, **Date & Time**, and more from the **Function Library** on the **Formulas** tab.

# Managing Formulas and Function

## Managing Functions

### The Function Library

To access the **Function Library**, select the **Formulas** tab on the **Ribbon**.  
The **Function Library** will appear.



# Formatting and Proofing

- Using Spell Check
- Using Find and Replace
- Formatting Cell Contents
- Conditional Formatting



# Formatting and Proofing

## Proofing

### Introduction

Before sharing a workbook, you'll want to make sure it doesn't include any spelling errors.

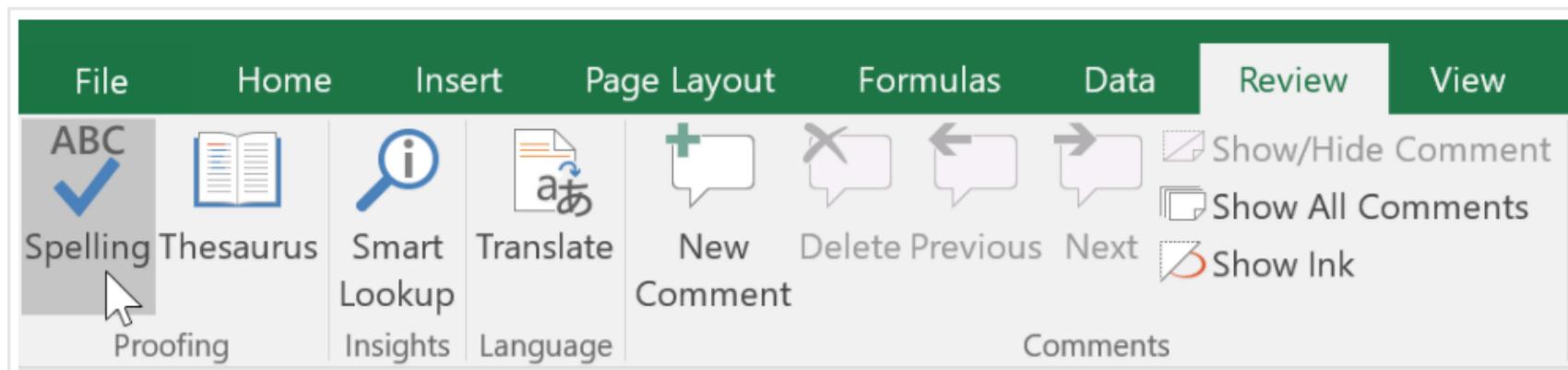
Fortunately, Excel includes a **Spell Check** tool you can use to make sure everything in your workbook is spelled correctly.

# Formatting and Proofing

## Proofing

### To use the Spelling Check

1. From the **Review** tab, click the **Spelling** command.

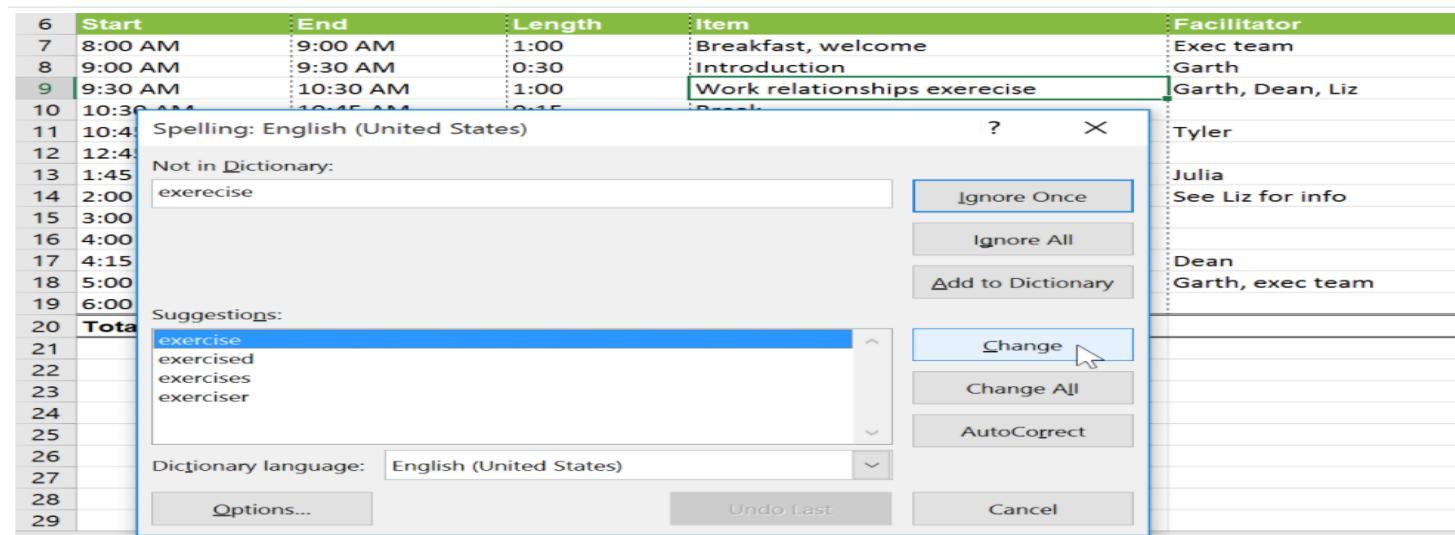


# Formatting and Proofing

## Proofing

### To use the Spelling Check

2. The **Spelling** dialog box will appear. For each spelling error in your worksheet, Spell Check will try to offer **suggestions** for the correct spelling. Choose a suggestion, then click **Change** to correct the error.

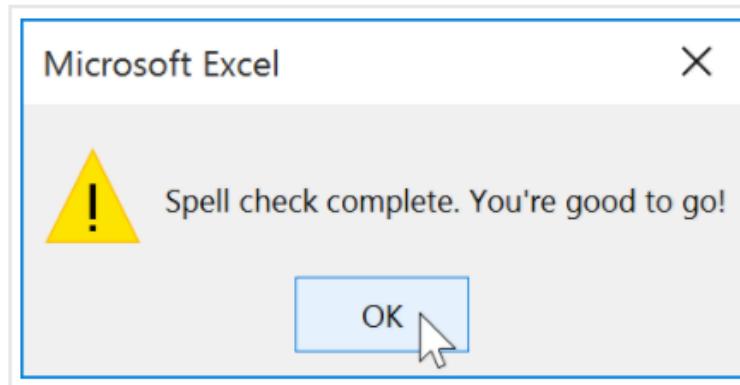


# Formatting and Proofing

## Proofing

### To use the Spelling Check

3. A dialog box will appear after reviewing all spelling errors. Click **OK** to close Spell Check.



**NB:** If there are no appropriate suggestions, you can also enter the correct spelling manually.

# Formatting and Proofing

## Proofing

### Using Find and Replace

When working with a lot of data in Excel, it can be difficult and time consuming to locate specific information.

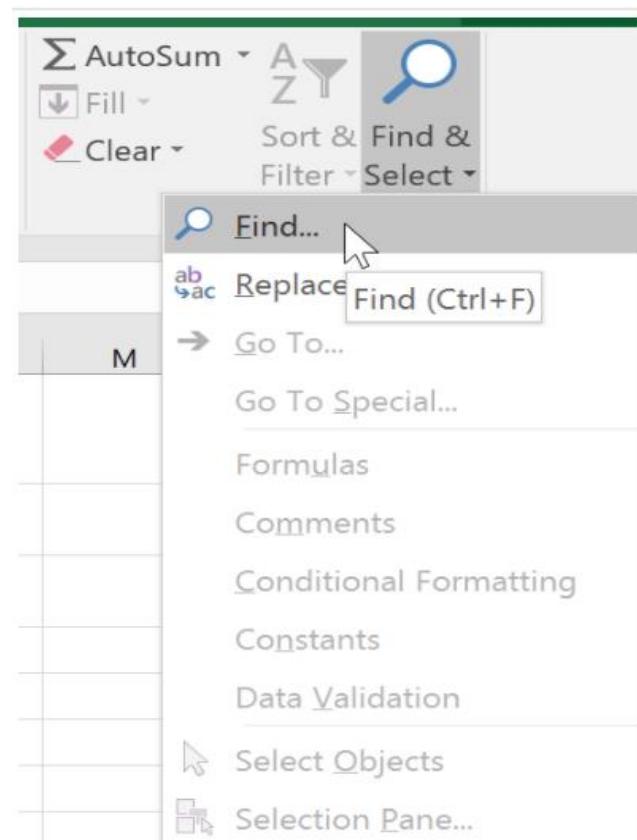
One can easily search your workbook using the **Find** feature, which also allows you to modify content using the **Replace** feature.

# Formatting and Proofing

## Proofing

### Using Find and Replace

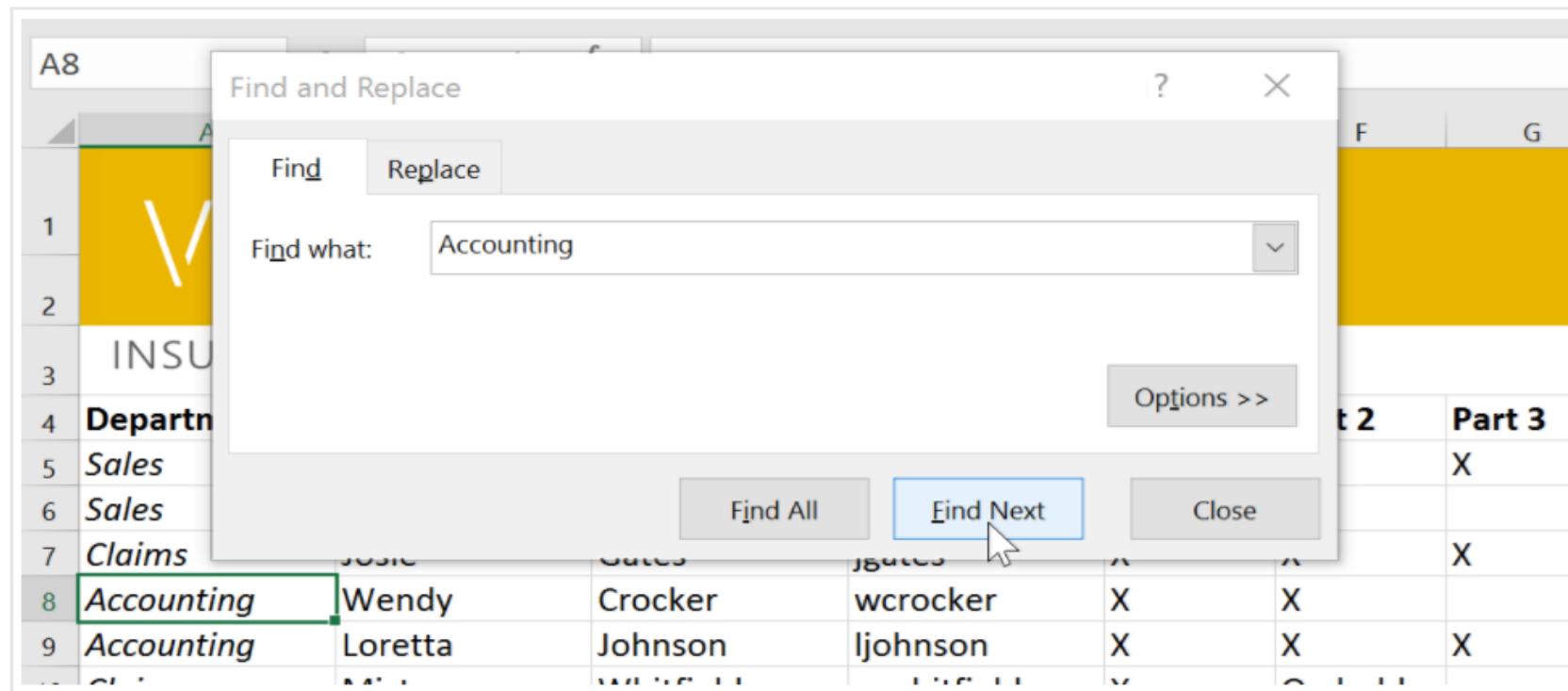
1. From the **Home** tab, click the **Find and Select** command, then select **Find** from the drop-down menu
2. The **Find and Replace** dialog box will appear. Enter the **content** you want to find. In our example, we'll type the department's name.
3. Click **Find Next**. If the content is found, the cell containing that content will be **selected**.



# Formatting and Proofing

## Proofing

### Using Find and Replace



The screenshot shows a Microsoft Excel spreadsheet with a 'Find and Replace' dialog box open. The dialog box has tabs for 'Find' and 'Replace', with 'Find' selected. The 'Find what:' field contains the text 'Accounting'. Below the dialog box is a table with the following data:

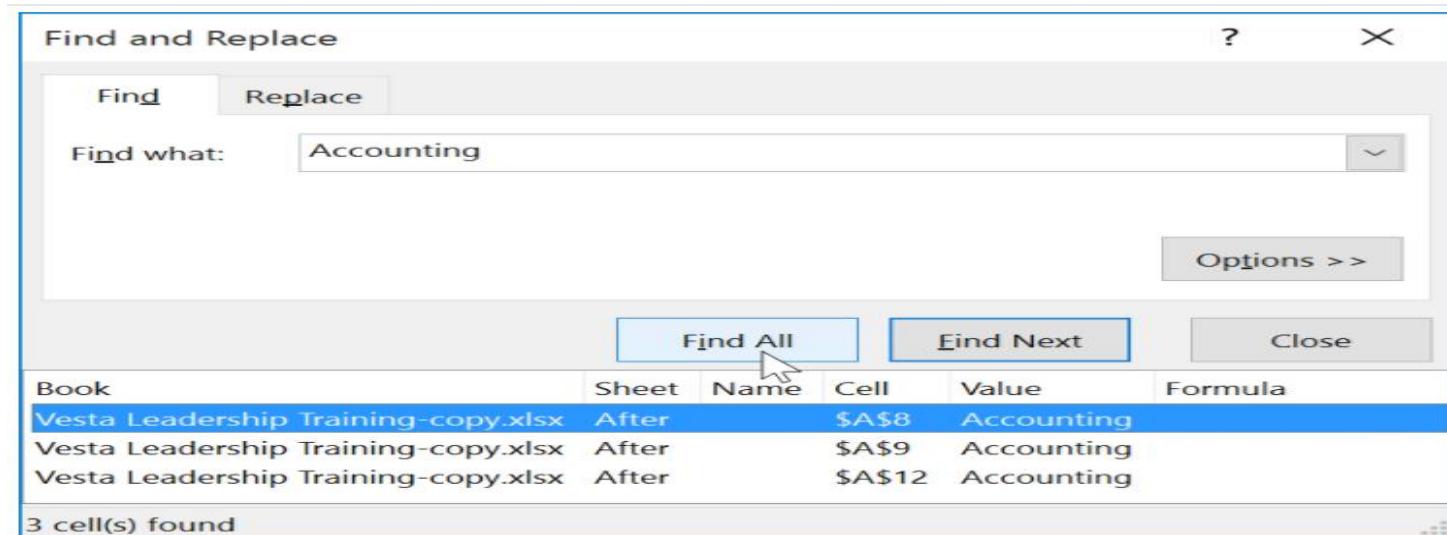
	Basic	Gates	Jobes	wcrocker	X	X
1	V					
2	INSU					
3						
4	<b>Departm</b>					
5	Sales					
6	Sales					
7	Claims					
8	Accounting	Wendy	Crocker	wcrocker	X	X
9	Accounting	Loretta	Johnson	ljohnson	X	X
10						X

# Formatting and Proofing

## Proofing

### Using Find and Replace

Click **Find Next** to find further instances or **Find All** to see every instance of the search term.



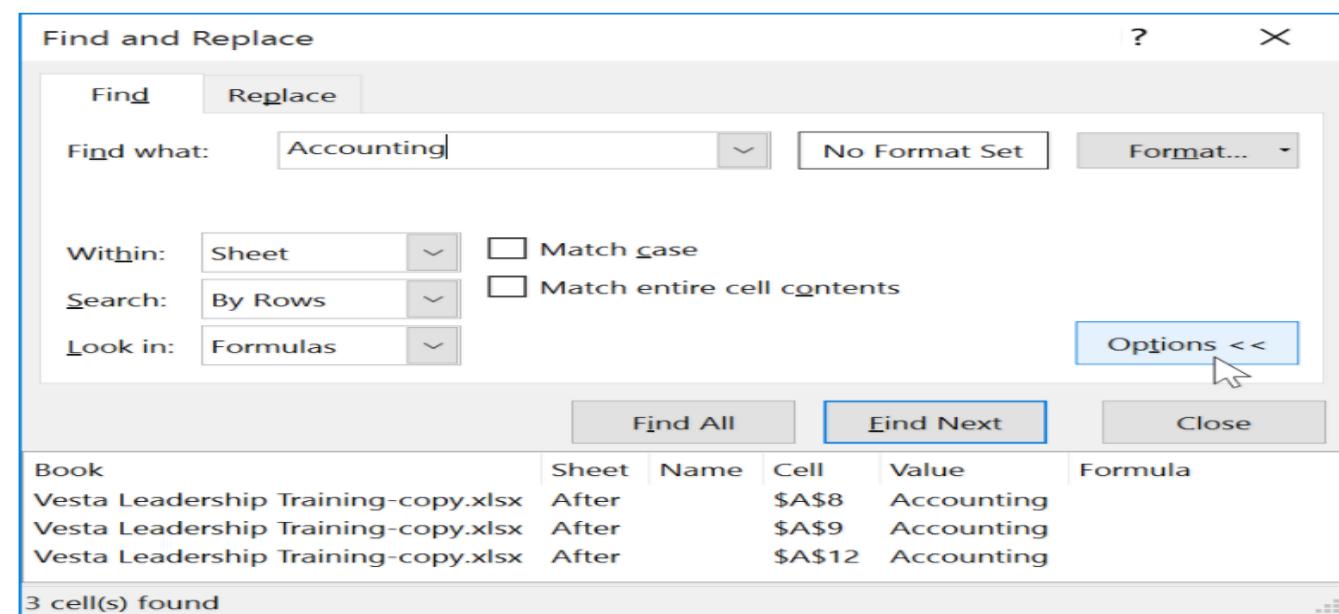
You can also access the Find command by pressing **Ctrl+F** on your keyboard.

# Formatting and Proofing

## Proofing

### Using Find and Replace

Click **Options** to see advanced search criteria in the Find and Replace dialog box.



# Formatting and Proofing

## Proofing

### To replace cell content

At times, you may discover that you've repeatedly made a mistake throughout your workbook (such as misspelling someone's name) or that you need to exchange a particular word or phrase for another.

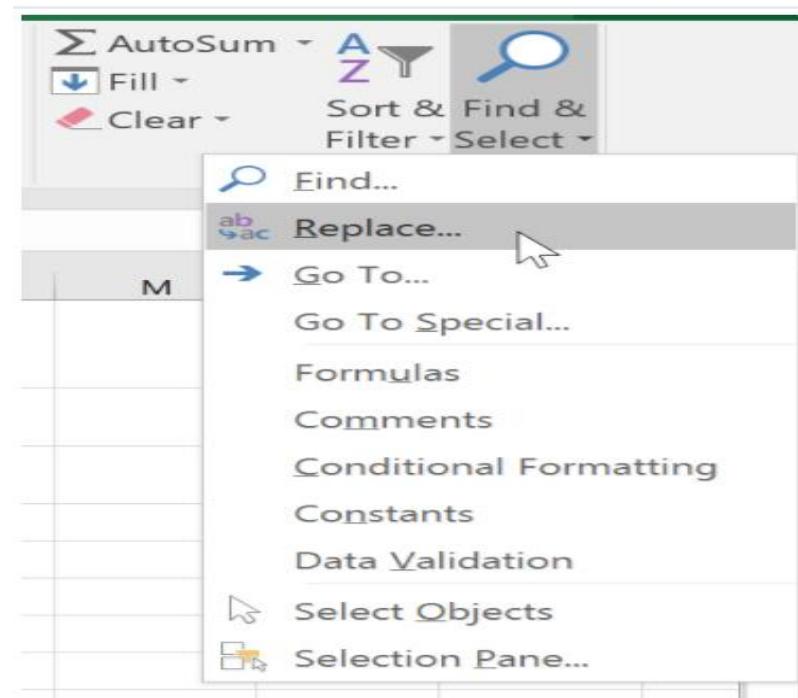
You can use Excel's **Find and Replace** feature to make quick revisions

# Formatting and Proofing

## Proofing

### To replace cell content

1. From the **Home** tab, click the **Find and Select** command, then select **Replace** from the drop-down menu.



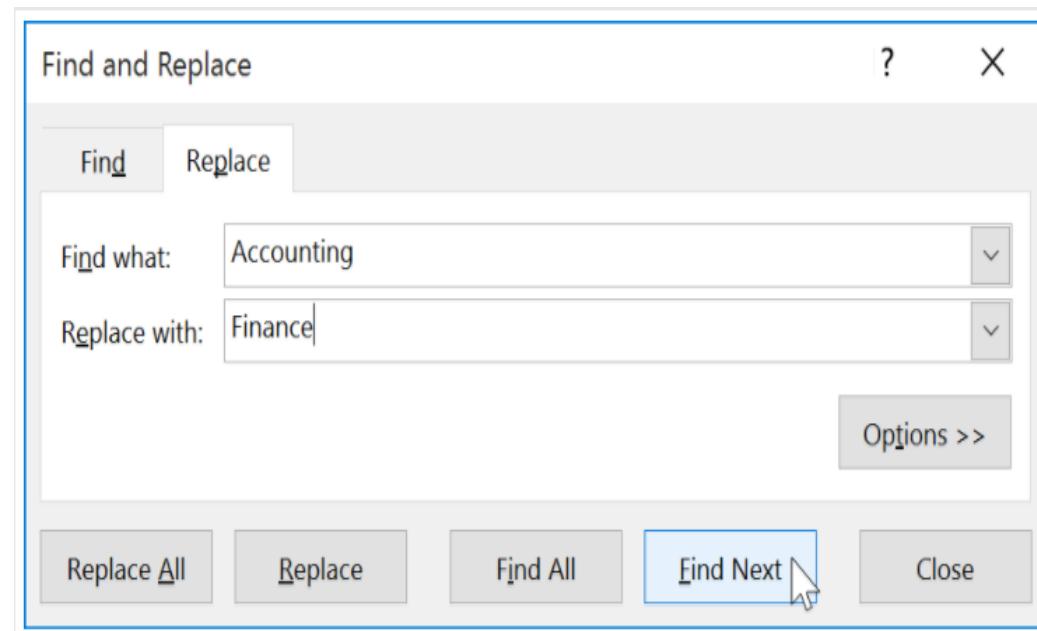
# Formatting and Proofing

## Proofing

### To replace cell content

2. The **Find and Replace** dialog box will appear. Type the text you want to find in the **Find what:** field.

3. Type the text you want to replace it with in the **Replace with:** field, then click **Find Next**.



# Formatting and Proofing

## Proofing

### To replace cell content

If the content is found, the cell containing that content will be **selected**.

**Review** the text to make sure you want to replace it.

If you want to replace it, select one of the **replace** options.

Choosing **Replace** will replace individual instances,

while **Replace All** will replace every instance of the text throughout the workbook.

# Formatting and Proofing

## Formatting

### Introduction

All cell content uses the same **formatting** by default, which can make it difficult to read a workbook with a lot of information.

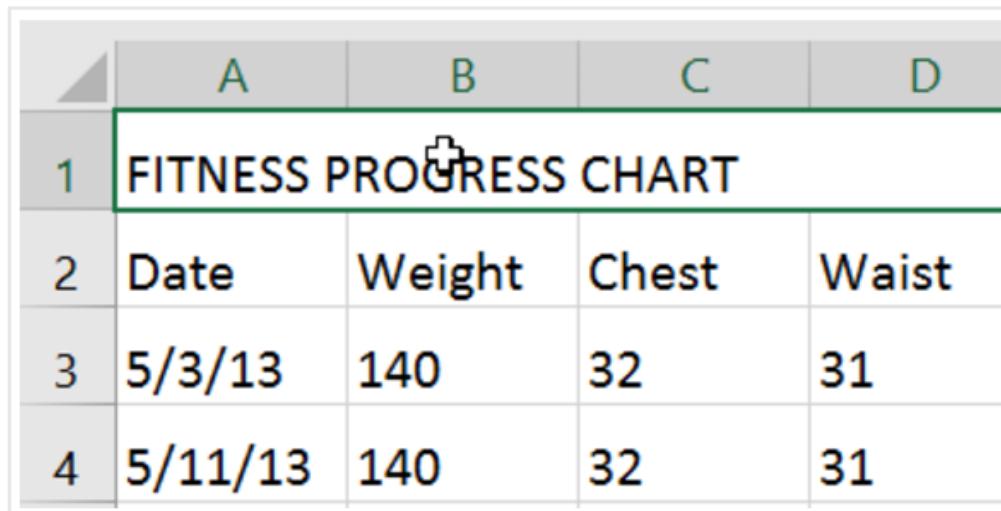
Basic formatting can customize the **look and feel** of your workbook, allowing you to draw attention to specific sections and making your content easier to view and understand.

# Formatting and Proofing

## Formatting

To change the font size:

1. Select the **cell(s)** you want to modify.



A screenshot of a Microsoft Excel spreadsheet titled "FITNESS PROGRESS CHART". The table has four columns labeled A, B, C, and D. Row 1 contains the title "FITNESS PROGRESS CHART". Row 2 contains the column headers "Date", "Weight", "Chest", and "Waist". Rows 3 and 4 contain data points: (5/3/13, 140, 32, 31) and (5/11/13, 140, 32, 31) respectively. The first two rows are highlighted with a green border, indicating they are selected for modification.

	A	B	C	D
1	FITNESS PROGRESS CHART			
2	Date	Weight	Chest	Waist
3	5/3/13	140	32	31
4	5/11/13	140	32	31

# Formatting and Proofing

## Formatting

To change the font size:

2. On the **Home** tab, click the **drop-down arrow** next to the **Font Size** command, then select the desired **font size**. In our example, we will choose **24** to make the text **larger**.

	FITNESS PROGRESS CH	
	Date	Weight
1	5/3/13	140
2	5/11/13	140

# Formatting and Proofing

## Formatting

To change the font size:

3. The text will change to the **selected font size**.

	A	B	C	D	E	F
1	FITNESS PROGRESS CHART					
2	Date	Weight	Chest	Waist	Hips	Forearm
3	5/3/13	140	32	31	40	11.5
4	5/11/13	140	32	31	39.5	11.5

NB: You can also use the **Increase Font Size** and **Decrease Font Size** commands or enter a **custom font size** using your keyboard.

# Formatting and Proofing

## Formatting

### To change the font:

By default, the font of each new workbook is set to Calibri. However, Excel provides many other fonts you can use to customize your cell text.

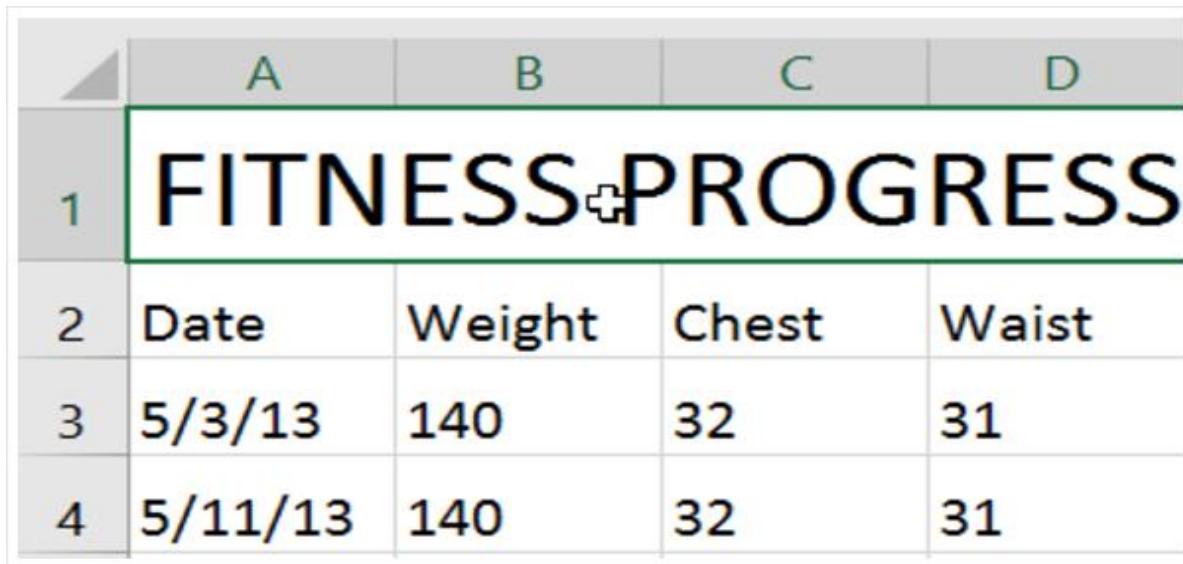
In the next slides , we'll format our **title cell** to help distinguish it from the rest of the worksheet.

# Formatting and Proofing

## Formatting

To change the font:

1. Select the **cell(s)** you want to modify.



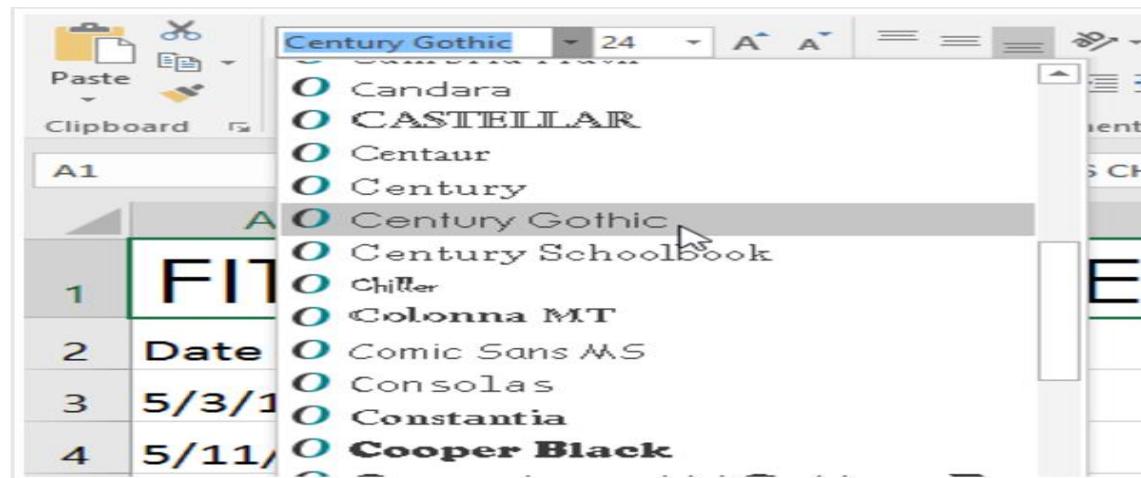
	A	B	C	D
1	FITNESS+PROGRESS			
2	Date	Weight	Chest	Waist
3	5/3/13	140	32	31
4	5/11/13	140	32	31

# Formatting and Proofing

## Formatting

To change the font:

2. On the **Home** tab, click the **drop-down arrow** next to the **Font** command, then select the desired **font**. In our example, we'll choose **Century Gothic**.



# Formatting and Proofing

## Formatting

**To change the font:**

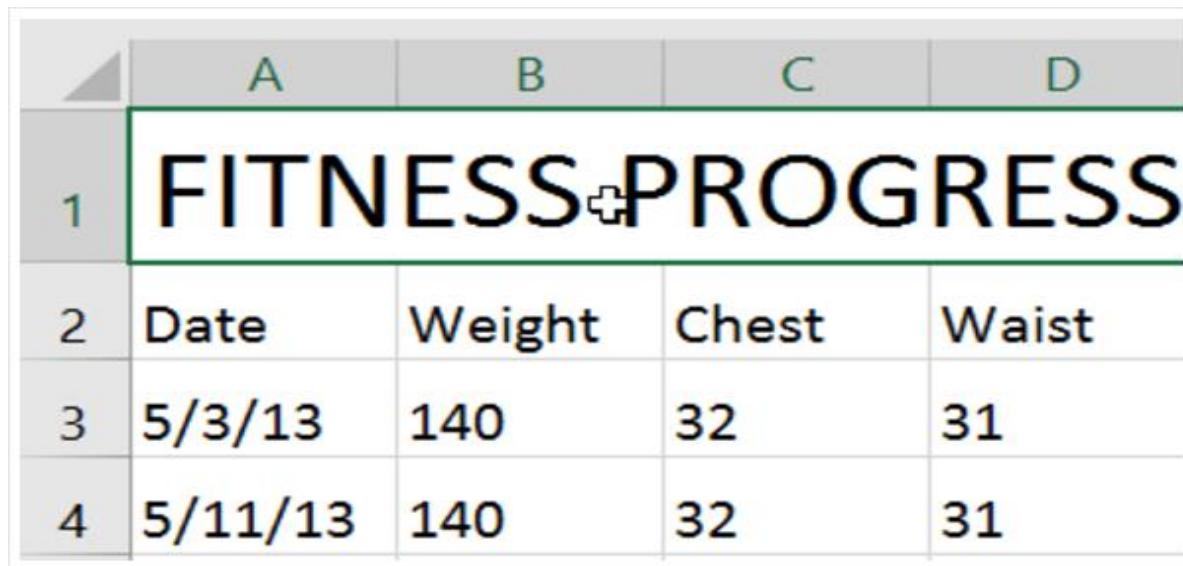
3. The text will change to the **selected font**.

# Formatting and Proofing

## Formatting

To change the font color:

1. Select the **cell(s)** you want to modify.



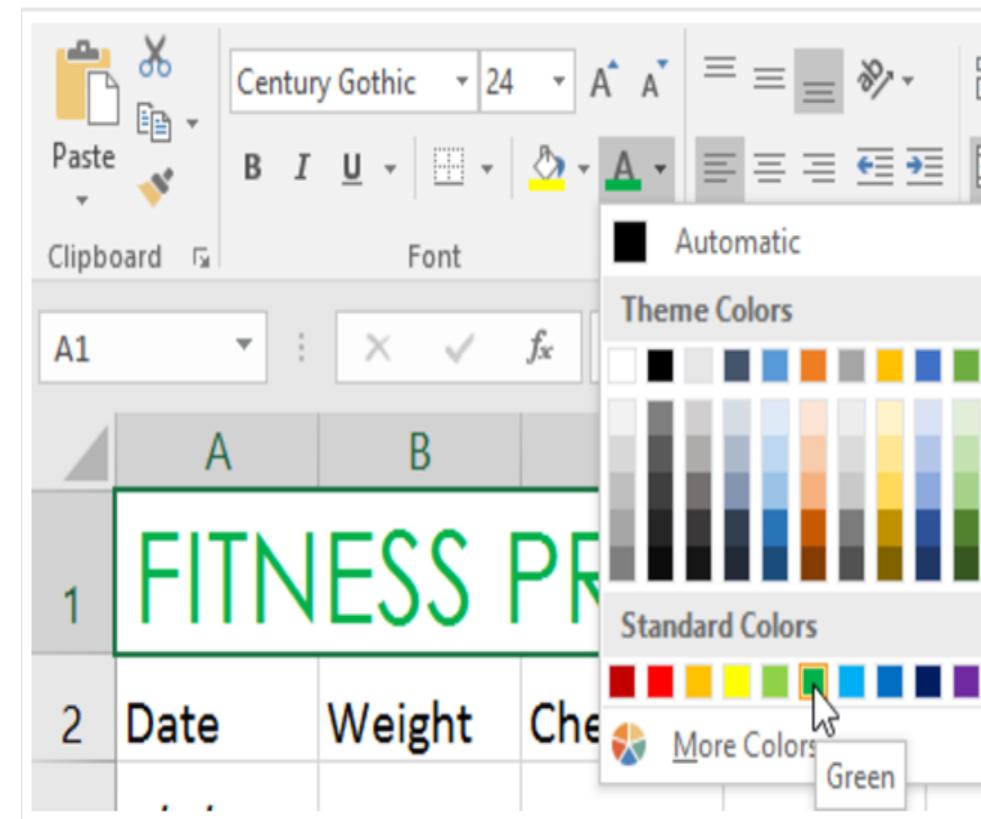
	A	B	C	D
1	FITNESS+PROGRESS			
2	Date	Weight	Chest	Waist
3	5/3/13	140	32	31
4	5/11/13	140	32	31

# Formatting and Proofing

## Formatting

To change the font color:

2. On the **Home** tab, click the **drop-down arrow** next to the **Font Color** command, then select the desired **font color**. In our example, we'll choose **Green**.



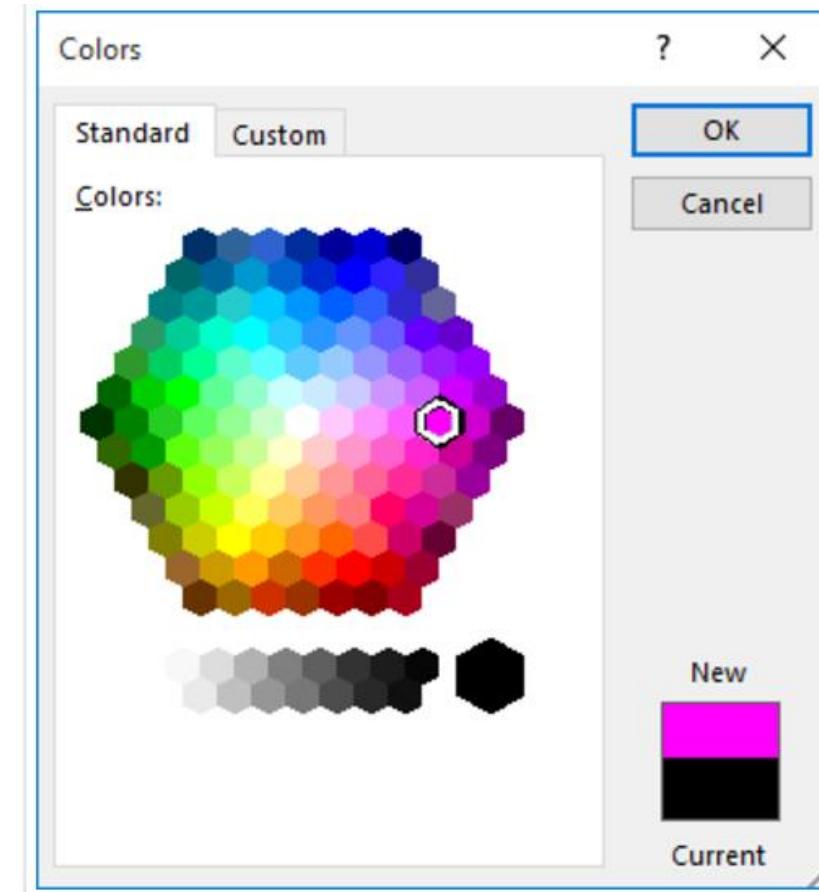
# Formatting and Proofing

## Formatting

To change the font color:

3. The text will change to the **selected font color**.

Select **More Colors** at the bottom of the menu to access additional color options.

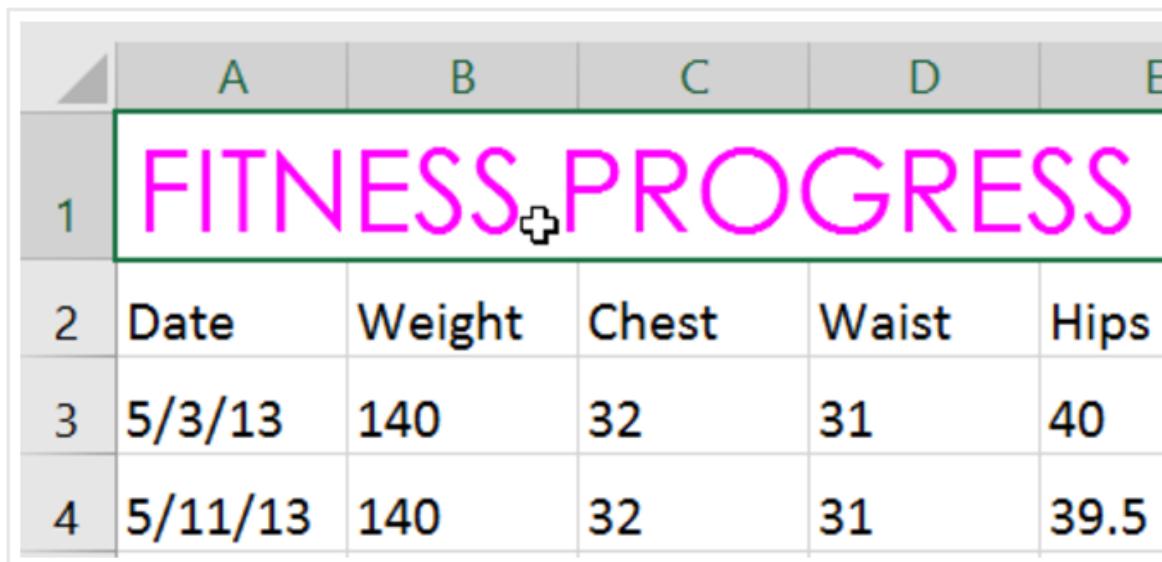


# Formatting and Proofing

## Formatting

To use the Bold, Italic, and Underline commands

1. Select the **cell(s)** you want to modify.



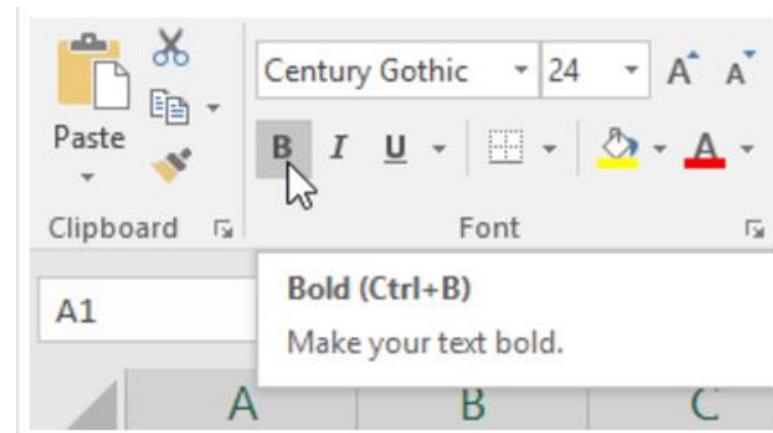
	A	B	C	D	E
1	FITNESS+PROGRESS				
2	Date	Weight	Chest	Waist	Hips
3	5/3/13	140	32	31	40
4	5/11/13	140	32	31	39.5

# Formatting and Proofing

## Formatting

### To use the Bold, Italic, and Underline commands

2. Click the Bold (**B**), Italic (*I*), or Underline (U) command on the **Home** tab. In our example, we'll make the selected cells **bold**.

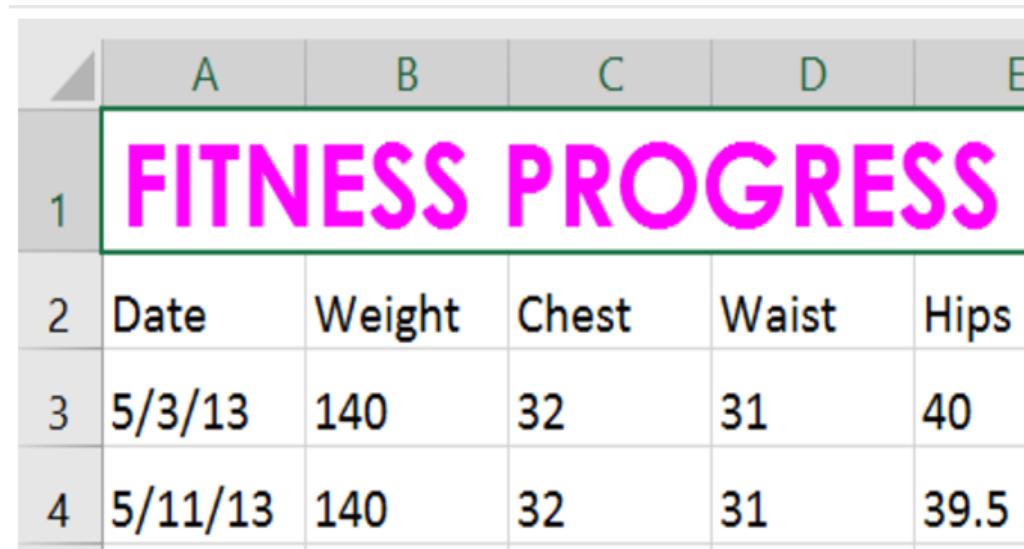


# Formatting and Proofing

## Formatting

### To use the Bold, Italic, and Underline commands

3. The **selected style** will be applied to the text.



	A	B	C	D	E
1	FITNESS PROGRESS				
2	Date	Weight	Chest	Waist	Hips
3	5/3/13	140	32	31	40
4	5/11/13	140	32	31	39.5

NB: You can also press **Ctrl+B** on your keyboard to make selected text **bold**, **Ctrl+I** to apply **italics**, and **Ctrl+U** to apply an **underline**.

# Formatting and Proofing

## Formatting

### Cell borders and fill colors

**Cell borders** and **fill colors** allow you to create clear and defined boundaries for different sections of your worksheet.

In the next slides , we'll add cell borders and fill color to our **header cells** to help distinguish them from the rest of the worksheet.

# Formatting and Proofing

## Formatting

### Cell borders and fill colors

#### To add a fill color

1. Select the **cell(s)** you want to modify.

A	B	C	D	E	F	G	H	I	
1	FITNESS PROGRESS CHART								
2	Date	Weight	Chest	Waist	Hips	Forearm	Estimated Lean Body	Estimated Body Fat	Estimated Body Fat %
3	5/3/13	140	32	31	40	11.5	103.8	36.2	0.259
4	5/11/13	140	32	31	39.5	11.5	103.9	36.1	0.258
5	5/19/13	139	32	31	39.5	11.5	103.2	35.8	0.258
6	5/26/13	138	31	30	39	11	103.4	35.6	0.256
7	6/1/13	138	31	30	39	11	103.4	35.6	0.256

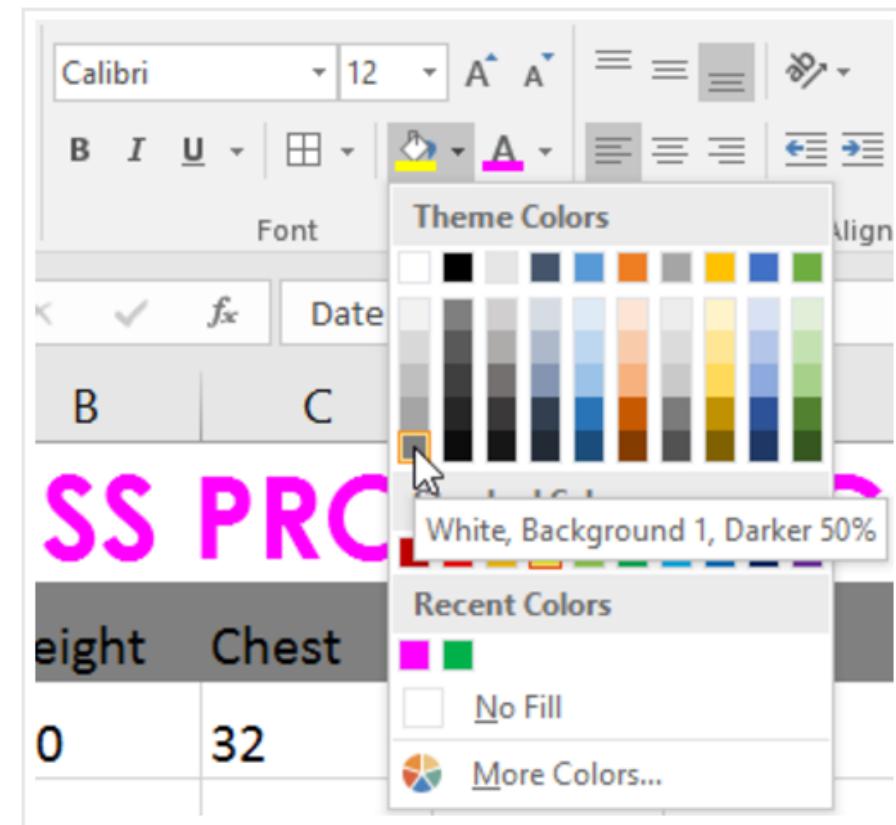
# Formatting and Proofing

## Formatting

### Cell borders and fill colors

#### To add a fill color

2. On the **Home** tab, click the **drop-down arrow** next to the **Fill Color** command, then select the **fill color** you want to use. In our example, we'll choose a dark gray.



# Formatting and Proofing

## Formatting

### Cell borders and fill colors

#### To add a fill color

3. The **selected fill color** will appear in the selected cells. We've also changed the **font color** to **white** to make it more readable with this dark fill color.

	A	B	C	D	E	F	G	H	I
1	FITNESS PROGRESS CHART								
2	Date	Weight	Chest	Waist	Hips	Forearm	Estimated Lean Body	Estimated Body Fat	Estimated Body Fat %
3	5/3/13	140	32	31	40	11.5	103.8	36.2	0.259
4	5/11/13	140	32	31	39.5	11.5	103.9	36.1	0.258
5	5/19/13	139	32	31	39.5	11.5	103.2	35.8	0.258
6	5/26/13	138	31	30	39	11	103.4	35.6	0.256
7	6/1/13	138	31	30	39	11	103.4	35.6	0.256

# Formatting and Proofing

## Formatting

### Cell borders and fill colors

You can also apply cell style, Text Alignment etc

# Formatting and Proofing

## Exercise



1. Open your [practice workbook](#).
2. Click the **Challenge** worksheet tab in the bottom-left of the workbook.
3. Change the **cell style** in cells **A2:H2** to **Accent 3**.
4. Change the **font size** of row 1 to **36** and the font size for the rest of the rows to **18**.
5. **Bold** and **underline** the text in row 2.
6. **Change the font** of row 1 to a font of your choice.
7. **Change the font** of the rest of the rows to a different font of your choice.
8. **Change the font color** of row 1 to a color of your choice.
9. Select all of the text in the worksheet, and change the **horizontal alignment** to center align and the **vertical alignment** to middle align.

# Formatting and Proofing

## Exercise

When you're finished, your worksheet should look something like this:



Menu Plan for November								
Week of:	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
11/1 - 11/7	Turkey Tacos	Spaghetti Squash Casserole	Veggie Pizza	Leftovers	Chicken Tetrazini	Eat Out/Take Out	Chicken Stir Fry	
11/8 - 11/14	Steak and Veggies	Leftovers	Steak Tacos	Buffalo Chicken Casserole	Soup and Sandwiches	Eat Out/Take Out	Burrito Bowls	
11/15 - 11/21	Pad Thai	Grilled Chicken and Salad	Leftovers	Tomato Soup and Grilled Cheese	Beef Stroganoff	Eat Out/Take Out	Baked Ziti	
11/22 - 11/28	Chicken and Rice	Leftovers	Pork Chops	Hot dogs and hamburgers	Thanksgiving Dinner	Leftovers	Turkey Pot Pie	

# Formatting and Proofing

## Conditional Formatting

### Introduction

Let's say you have a worksheet with thousands of rows of data. It would be extremely difficult to see patterns and trends just from examining the raw information.

Similar to charts, **conditional formatting** provides another way to visualize data and make worksheets easier to understand.

# Formatting and Proofing

## Conditional Formatting

### Understanding conditional formatting

Conditional formatting allows you to automatically apply formatting—such as **colors**, **icons**, and **data bars**—to one or more cells based on the **cell value**.

For example, a conditional formatting rule might be: **If the value is less than \$2000, color the cell red.** By applying this rule, you will be able to quickly see which cells contain values less than \$2000.

# Formatting and Proofing

## Conditional Formatting

### Understanding conditional formatting

	A	B	C	D	E
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
5	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
6	Brennan, Michael	\$4,964.00	\$3,152.00	\$11,601.00	\$1,122.00
7	Carlson, David	\$2,327.00	\$4,056.00	\$3,726.00	\$1,135.00
8	Collman, Harry	\$3,967.00	\$4,906.00	\$9,007.00	\$2,113.00
9	Counts, Elizabeth	\$4,670.00	\$521.00	\$4,505.00	\$1,024.00
10	David, Chloe	\$3,379.00	\$3,428.00	\$3,973.00	\$1,716.00

# Formatting and Proofing

## Conditional Formatting

**To create a conditional formatting rule:**

### Scenario

We have a worksheet containing sales data, and we will like to see which salespeople are meeting their monthly sales goals. The sales goal is \$4000 per month, so we'll create a conditional formatting rule for any cells containing a value higher than 4000.

# Formatting and Proofing

## Conditional Formatting

To create a conditional formatting rule:

1. Select the **desired cells** for the conditional formatting rule.

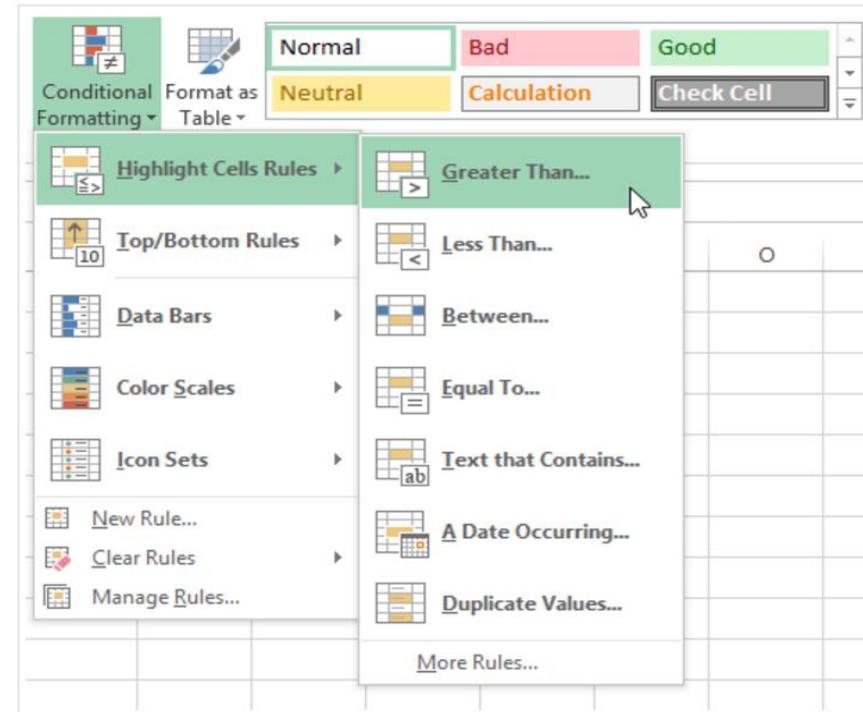
	A	B	C	D	E
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
5	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
6	Brennan, Michael	\$4,964.00	\$3,152.00	\$11,601.00	\$1,122.00
7	Carlson, David	\$2,327.00	\$4,056.00	\$3,726.00	\$1,135.00
8	Collman, Harry	\$3,967.00	\$4,906.00	\$9,007.00	\$2,113.00
9	Counts, Elizabeth	\$4,670.00	\$521.00	\$4,505.00	\$1,024.00
10	David, Chloe	\$3,379.00	\$3,428.00	\$3,973.00	\$1,716.00

# Formatting and Proofing

## Conditional Formatting

To create a conditional formatting rule:

2. From the **Home** tab, click the **Conditional Formatting** command. A drop-down menu will appear.
  
3. Hover the mouse over the desired **conditional formatting type**, then select the **desired rule** from the menu that appears. In our example, we want to **highlight cells** that are **greater than** \$4000.



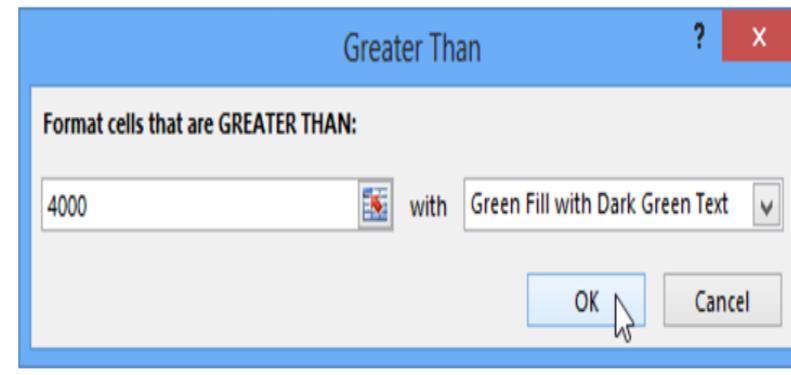
# Formatting and Proofing

## Conditional Formatting

To create a conditional formatting rule:

4. A dialog box will appear. Enter the **desired value(s)** into the blank field. In our example, we'll enter 4000 as our value.

5. Select a **formatting style** from the drop-down menu. In our example, we'll choose **Green Fill with Dark Green Text**, then click **OK**.



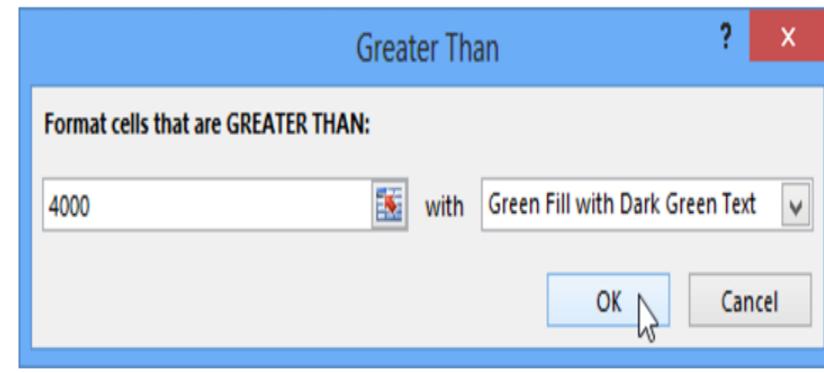
# Formatting and Proofing

## Conditional Formatting

To create a conditional formatting rule:

4. A dialog box will appear. Enter the **desired value(s)** into the blank field. In our example, we'll enter 4000 as our value.

5. Select a **formatting style** from the drop-down menu. In our example, we'll choose **Green Fill with Dark Green Text**, then click **OK**.



# Formatting and Proofing

## Conditional Formatting

To create a conditional formatting rule:

6. The conditional formatting will be applied to the selected cells. In our example, it's easy to see which salespeople reached the \$4000 sales goal for each month.

	A	B	C	D	E
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
5	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
6	Brennan, Michael	\$4,964.00	\$3,152.00	\$11,601.00	\$1,122.00
7	Carlson, David	\$2,327.00	\$4,056.00	\$3,726.00	\$1,135.00
8	Collman, Harry	\$3,967.00	\$4,906.00	\$9,007.00	\$2,113.00
9	Counts, Elizabeth	\$4,670.00	\$521.00	\$4,505.00	\$1,024.00
10	David, Chloe	\$3,379.00	\$3,428.00	\$3,973.00	\$1,716.00

# Formatting and Proofing

## Conditional Formatting

To create a conditional formatting rule:

**NB:** You can apply multiple conditional formatting rules to a cell range or worksheet, allowing you to visualize different trends and patterns in your data.

	A	B	C	D	E
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
5	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
6	Brennan, Michael	\$4,964.00	\$3,152.00	\$11,601.00	\$1,122.00
7	Carlson, David	\$2,327.00	\$4,056.00	\$3,726.00	\$1,135.00
8	Collman, Harry	\$3,967.00	\$4,906.00	\$9,007.00	\$2,113.00
9	Counts, Elizabeth	\$4,670.00	\$521.00	\$4,505.00	\$1,024.00
10	David, Chloe	\$3,379.00	\$3,428.00	\$3,973.00	\$1,716.00

# Formatting and Proofing

## Conditional Formatting

**To remove conditional formatting:**

Click the **Conditional Formatting** command. A drop-down menu will appear.

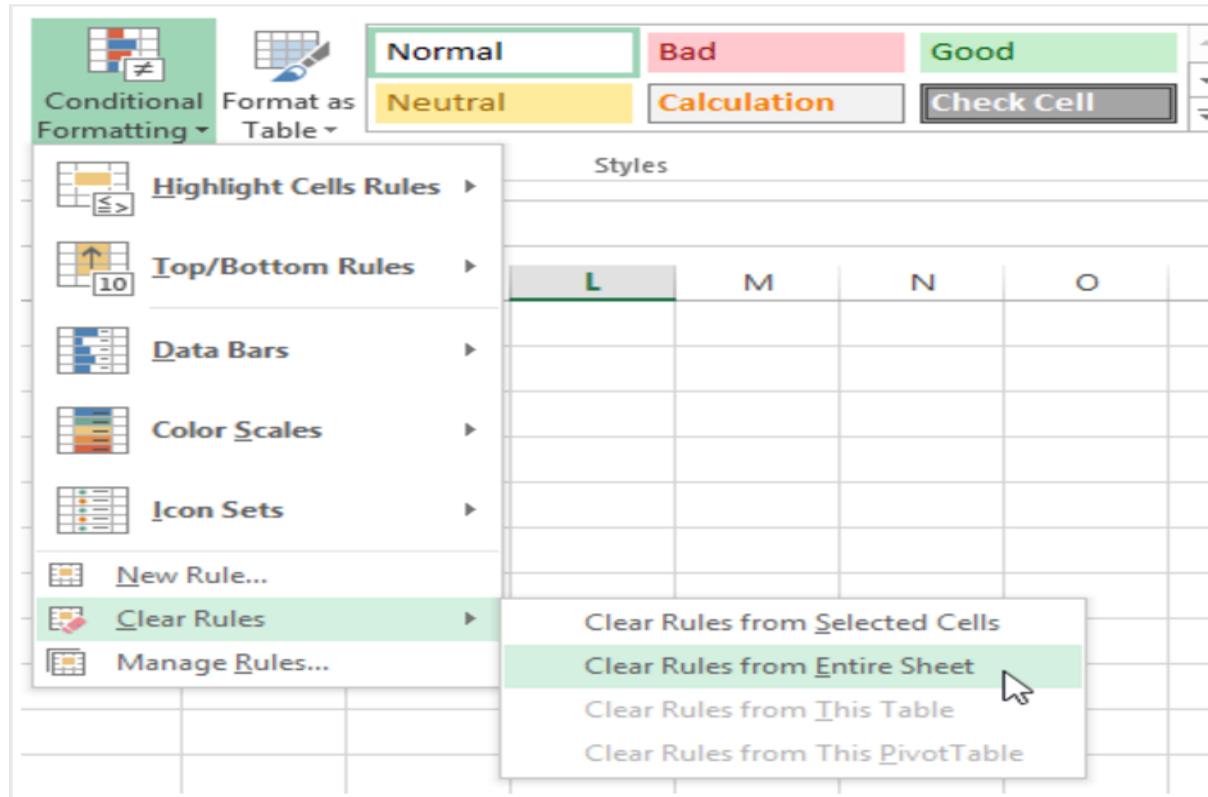
Hover the mouse over **Clear Rules**, and choose which rules you want to clear.

In our example, we'll select **Clear Rules from Entire Sheet** to remove all conditional formatting from the worksheet.

# Formatting and Proofing

## Conditional Formatting

To remove conditional formatting:

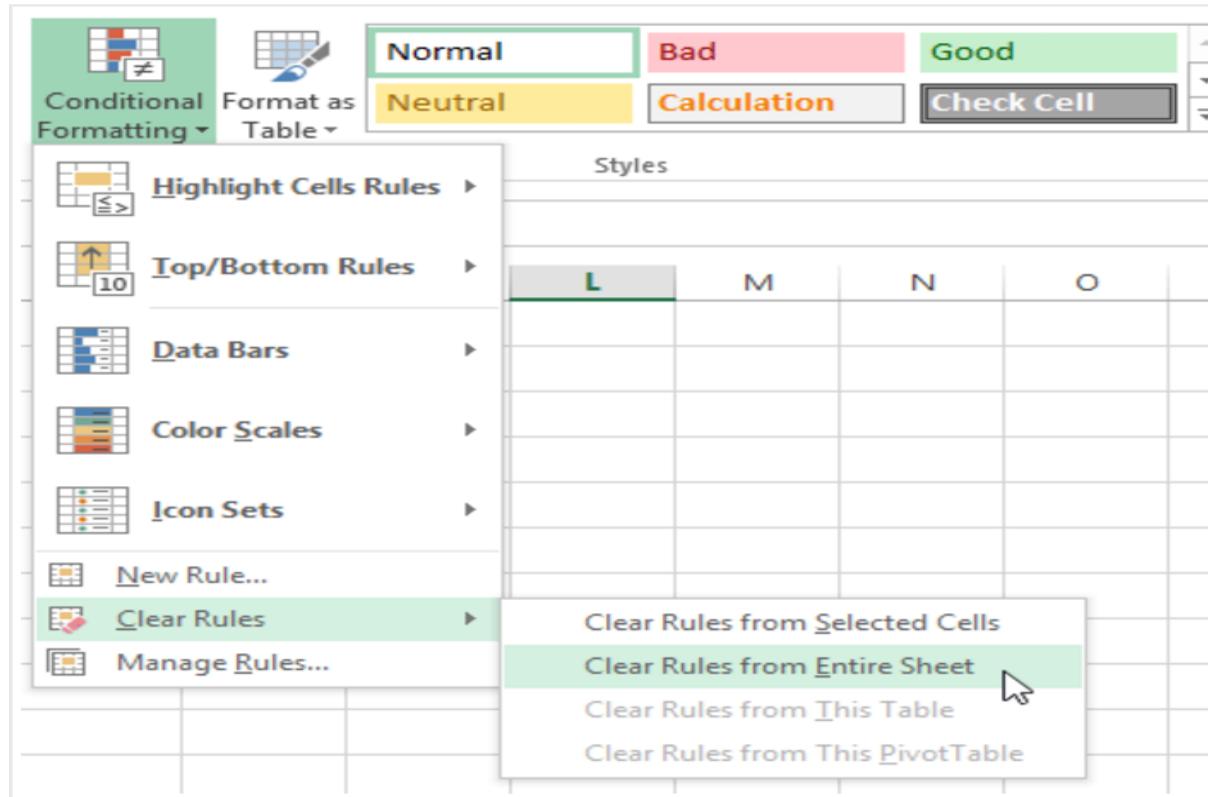


The conditional  
formatting will be  
removed.

# Formatting and Proofing

## Conditional Formatting

To remove conditional formatting:

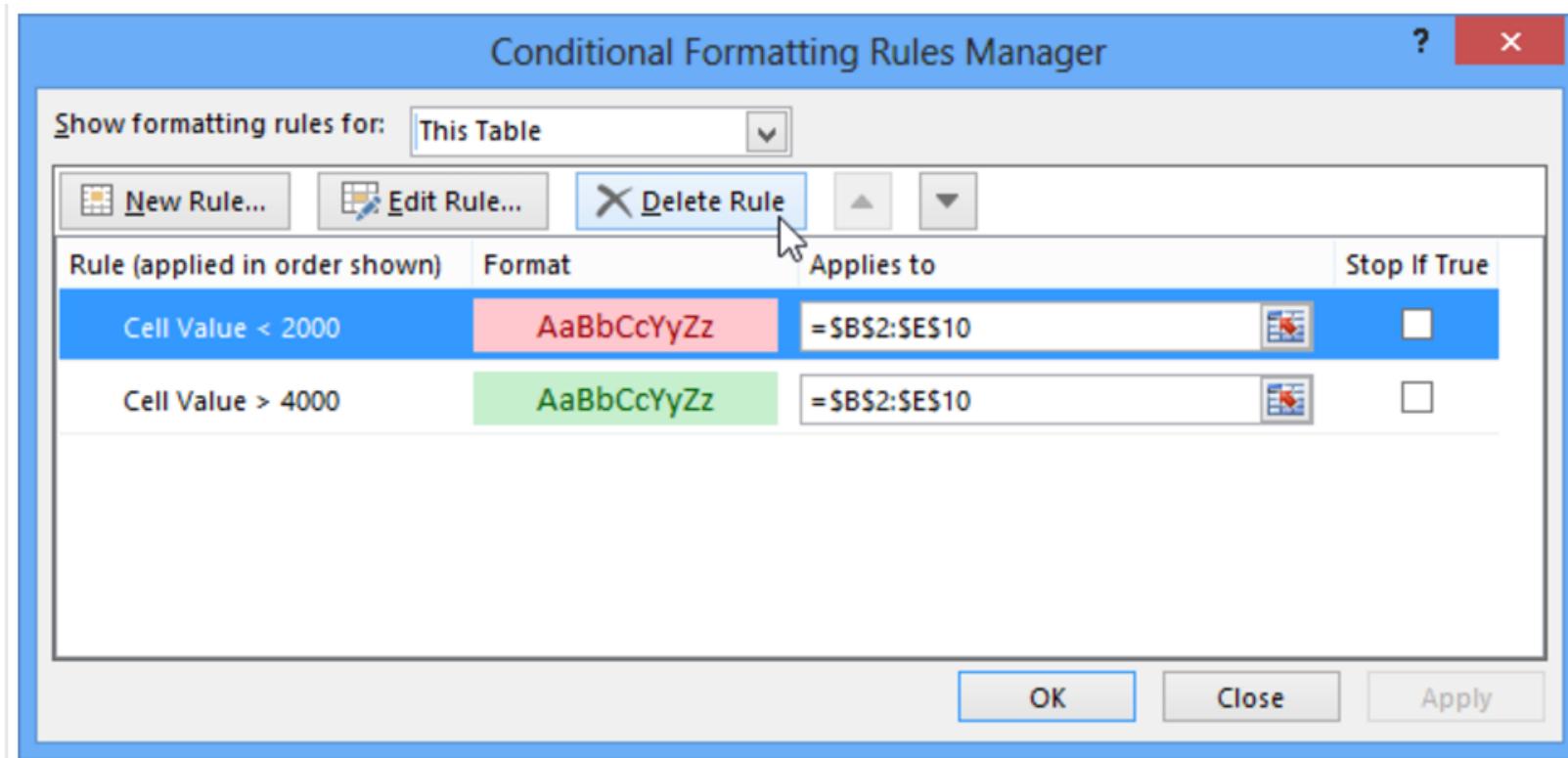


The conditional  
formatting will be  
removed.

# Formatting and Proofing

## Conditional Formatting

### Managing Rules



# Formatting and Proofing

## Conditional Formatting

### Conditional formatting presets

Excel has several predefined styles—or **presets**—you can use to quickly apply conditional formatting to your data. They are grouped into three categories:

**Data Bars**

**Color Scales**

**Icon Sets**

# Formatting and Proofing

## Conditional Formatting

### Conditional formatting presets

#### Data Bars

**Data Bars** are horizontal bars added to each cell, much like a **bar graph**.

\$3,863.00	\$1,117.00	\$8,237.00	\$8,690.00
\$9,355.00	\$1,100.00	\$10,185.00	\$18,749.00
\$6,702.00	\$2,116.00	\$13,452.00	\$8,046.00
\$4,415.00	\$1,089.00	\$4,404.00	\$20,114.00

# Formatting and Proofing

## Conditional Formatting

### Conditional formatting presets

#### Color Scales

**Color Scales** change the color of each cell based on its value. Each color scale uses a **two- or three-color gradient**. For example, in the **Green - Yellow - Red** color scale, the **highest** values are green, the **average** values are yellow, and the **lowest** values are red.

\$3,863.00	\$1,117.00	\$8,237.00	\$8,690.00
\$9,355.00	\$1,100.00	\$10,185.00	\$18,749.00
\$6,702.00	\$2,116.00	\$13,452.00	\$8,046.00
\$4,415.00	\$1,089.00	\$4,404.00	\$20,114.00

# Formatting and Proofing

## Conditional Formatting

### Conditional formatting presets

#### Icon Sets

**Icon Sets** add a specific icon to each cell based on its value.

⬇ \$3,863.00	⬇ \$1,117.00	⬇ \$8,237.00	⬇ \$8,690.00
⬇ \$9,355.00	⬇ \$1,100.00	⬇ \$10,185.00	⬆ \$18,749.00
⬇ \$6,702.00	⬇ \$2,116.00	↗ \$13,452.00	⬇ \$8,046.00
⬇ \$4,415.00	⬇ \$1,089.00	⬇ \$4,404.00	⬆ \$20,114.00

# Formatting and Proofing

## Conditional Formatting

To use preset conditional formatting:

1. Select the **desired cells** for the conditional formatting rule.

	A	B	C	D	E
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
5	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
6	Brennan, Michael	\$4,964.00	\$3,152.00	\$11,601.00	\$1,122.00
7	Carlson, David	\$2,327.00	\$4,056.00	\$3,726.00	\$1,135.00
8	Collman, Harry	\$3,967.00	\$4,906.00	\$9,007.00	\$2,113.00
9	Counts, Elizabeth	\$4,670.00	\$521.00	\$4,505.00	\$1,024.00
10	David, Chloe	\$3,379.00	\$3,428.00	\$3,973.00	\$1,716.00

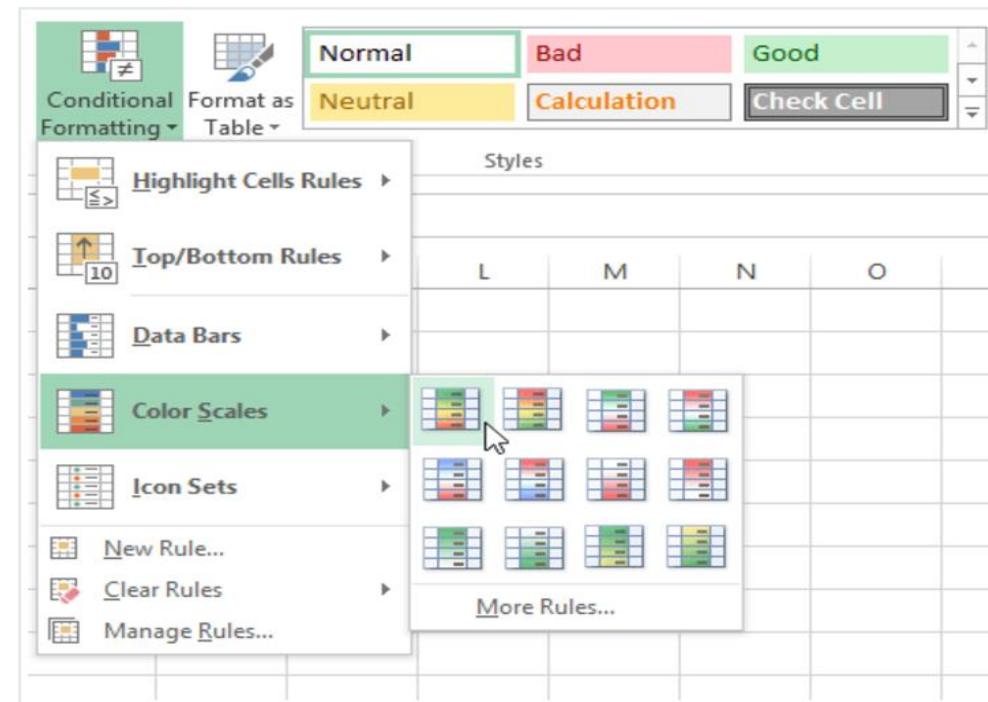
# Formatting and Proofing

## Conditional Formatting

To use preset conditional formatting:

2. Click the **Conditional Formatting** command. A drop-down menu will appear.

3. Hover the mouse over the **desired preset**, then choose a **preset style** from the menu that appears.



# Formatting and Proofing

## Conditional Formatting

To use preset conditional formatting:

4. The conditional formatting will be applied to the selected cells.

	A	B	C	D	E
1	Salesperson	May	June	July	Aug.
2	Albertson, Kathy	\$3,947.00	\$557.00	\$3,863.00	\$1,117.00
3	Allenson, Carol	\$4,411.00	\$1,042.00	\$9,355.00	\$1,100.00
4	Altman, Zoey	\$2,521.00	\$3,072.00	\$6,702.00	\$2,116.00
5	Bittiman, William	\$4,752.00	\$3,755.00	\$4,415.00	\$1,089.00
6	Brennan, Michael	\$4,964.00	\$3,152.00	\$11,601.00	\$1,122.00
7	Carlson, David	\$2,327.00	\$4,056.00	\$3,726.00	\$1,135.00
8	Collman, Harry	\$3,967.00	\$4,906.00	\$9,007.00	\$2,113.00
9	Counts, Elizabeth	\$4,670.00	\$521.00	\$4,505.00	\$1,024.00
10	David, Chloe	\$3,379.00	\$3,428.00	\$3,973.00	\$1,716.00

# Formatting and Proofing

## Exercise



1. Open your [practice workbook](#).
2. Apply conditional formatting to a range of cells with **numerical values**. Specifically, apply a rule for the sales data (cells B3:G23) that will fill cells with green if their values are more than \$9000.
3. Apply a second conditional formatting rule to the same set of cells. Specifically, apply a **preset** conditional formatting rule.
4. **Clear all** previous formatting
5. **Create a new rule** that highlights the **Top 50%** sales record in green

# Questions



# Thank You





TURBOCHARGED  
FOR SUCCESS



## Advanced Data Analytics using Excel

September 2021



# Table of Contents

## Excel Basics

- Getting Started with Essential Features
- Entering Data
- Customizing Excel
- Managing and Navigating Large workbooks
- Creating and Editing Formulae
- Referencing Techniques
- Managing Formulas and Function
- Formatting and Proofing
- **Data Management Skills**

# Data Management Skills

- Sorting Data
- Filtering Data
- Working with Tables



# Data Management Skills

## Sorting Data

### Introduction

As you add more content to a worksheet, organizing this information becomes especially important. You can quickly **reorganize** a worksheet by **sorting** your data.

For example, you could organize a list of banks by their names. Content can be sorted alphabetically, numerically, and in many other ways.

# Data Management Skills

## Sorting Data

### Type of Sorting

When sorting data, it's important to first decide if you want the sort to apply to the

- **entire worksheet** or
- just a **cell range**.

# Data Management Skills

## Sorting Data

### Type of Sorting

**Sort sheet** organizes all of the data in your worksheet by one column. Related information across each row is kept together when the sort is applied.

In the example , the **Contact Name** column (column A) has been sorted to display the names in alphabetical order.

	A	B	C	D
1	Customer Contact List			
2	CONTACT NAME	BILLING ADDRESS	PHONE	EMAIL ADDRESS
3	Bell, William	2201 Treasure Court	206-555-2303	wbell@bishopresearch.com
4	Dean, Hank	3034 Foggy Wharf	308-555-1050	hdean@venturebrewing.com
5	Figgis, Mallory	3520 Sleepy Hearth Dr	425-555-5370	malloryf@archerproperties.com
6	Finn, Jake	1407 Dusty Fawn Ln	605-555-6435	jake@adventureoutfitters.com
7	Kinkade, Chris	1028 Quiet Dale Rd	443-555-4942	chris.kinkade@placervilleins.com
8	Lawson, Miranda	5316 Colonial Pkwy	575-555-9255	mlawson@massairlines.com
9	Reyes, Felicia	8544 Lazy Bluff Ave	316-555-3256	felicia@everlypublishing.com
10	Sebastian, Lil	9060 Easy Evening Ln	207-555-7225	lil@knopeequestrian.com
11	Silva, Vivica	8595 Thunder Brook	360-555-4289	vivica@rileygardensupply.com
12	Stark, Katie	971 Cinder Butterfly St	603-555-2460	katie.stark@ariarealestate.com
13	Torrance, Jill	3160 Amber Gate Rd	605-555-4495	jtorrance@overlookinn.com
14	Yuen, Phillip	5108 Crystal Gate Blvd	913-555-5928	yuenp@corepharmaceuticals.com

# Data Management Skills

## Sorting Data

### Type of Sorting

**Sort range** sorts the data in a range of cells, which can be helpful when working with a sheet that contains several tables. Sorting a range will not affect other content on the worksheet.

A	B	C	D	E
1				
2	EXERCISES	SET 1		SET 2
3		REPS	WEIGHT (lbs)	REPS
4	Bench Press	14	65	12
5	Bench Press ( Decline )	10	60	8
6	Triceps Extension	15	35	20
7	Average	13.9	50.5	12.5
8				
9	Running Log			
10	Date	Distance (miles)	Time (hrs:mins)	
11	25-Jun	2.8	0:45	
12	26-Jun	3	0:44	
13	27-Jun	2.75	0:42	
14	29-Jun	3.25	0:44	
15	30-Jun	3.25	0:45	
16	2-Jul	2.5	0:44	
17	3-Jul	3	0:30	
18	Total	20.55		
19				

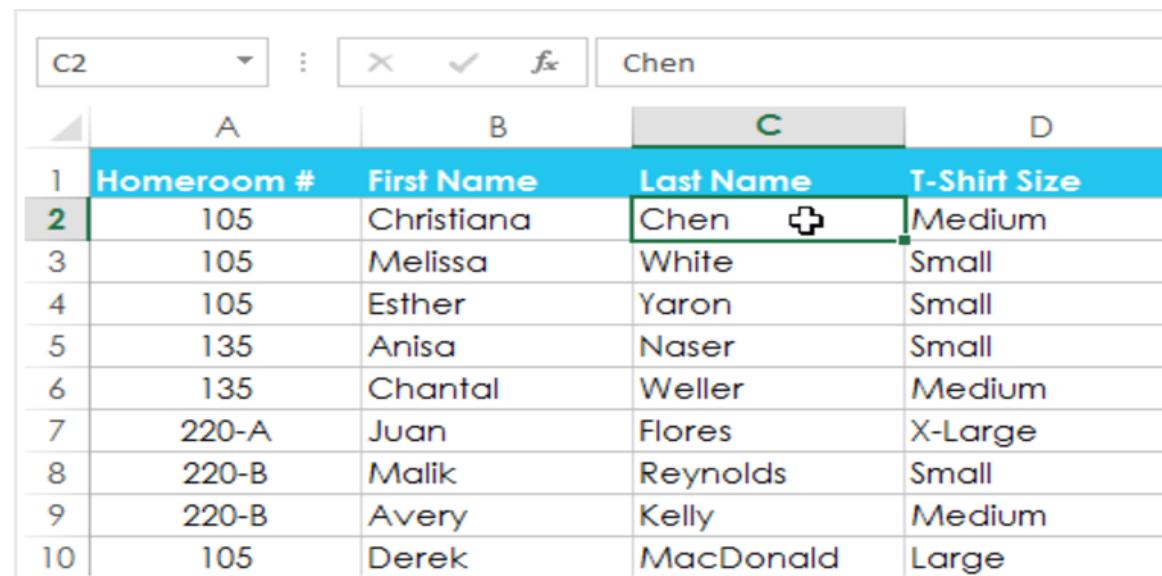
# Data Management Skills

## Sorting Data

### To sort a sheet:

In our example, we'll sort a T-shirt order form alphabetically by **Last Name** (column **C**).

1. Select a **cell** in the column you want to sort by. In our example, we will select cell **C2**.



	A	B	C	D
1	Homeroom #	First Name	Last Name	T-Shirt Size
2	105	Christian	Chen	Medium
3	105	Melissa	White	Small
4	105	Esther	Yaron	Small
5	135	Anisa	Naser	Small
6	135	Chantal	Weller	Medium
7	220-A	Juan	Flores	X-Large
8	220-B	Malik	Reynolds	Small
9	220-B	Avery	Kelly	Medium
10	105	Derek	MacDonald	Large

# Data Management Skills

## Sorting Data

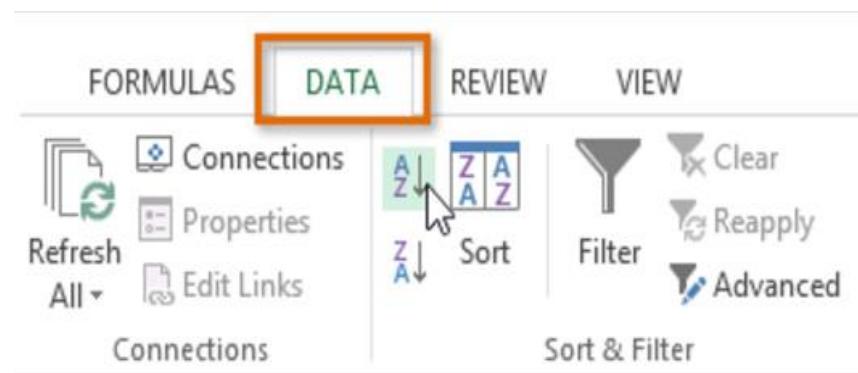
To sort a sheet:

2. Select the **Data** tab on the **Ribbon**, then click the **Ascending** command to Sort A to Z,

Z  
A

or the **Descending** command to Sort Z to A.

In our example, we'll click the **Ascending** command.



# Data Management Skills

## Sorting Data

To sort a sheet:

3. The worksheet will be **sorted** by the selected column. In our example, the worksheet is now sorted by **last name**



The screenshot shows an Excel spreadsheet with data in rows 1 through 10. The columns are labeled A through F. Row 1 contains column headers: Homeroom #, First Name, Last Name, T-Shirt Size, and Payment Method. Row 2 contains data: Homeroom # 110, First Name Kris, Last Name Ackerman, T-Shirt Size Large, and Payment Method Money Order. Rows 3 through 10 show other student records. The "Last Name" column is highlighted with a green border, indicating it is the active column for sorting. The status bar at the bottom of the screen shows the text "Last Name".

	A	B	C	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	110	Kris	Ackerman	Large	Money Order	
3	105	Nathan	Albee	Medium	Check	
4	220-B	Samantha	Bell	Medium	Check	
5	110	Matt	Benson	Medium	Money Order	
6	105	Christiana	Chen	Medium	Cash	
7	110	Gabriel	Del Toro	Medium	Cash	
8	220-A	Brigid	Ellison	Small	Cash	
9	220-A	Juan	Flores	X-Large	Pending	
10	220-B	Tyrese	Hanlon	X-Large	Debit Card	

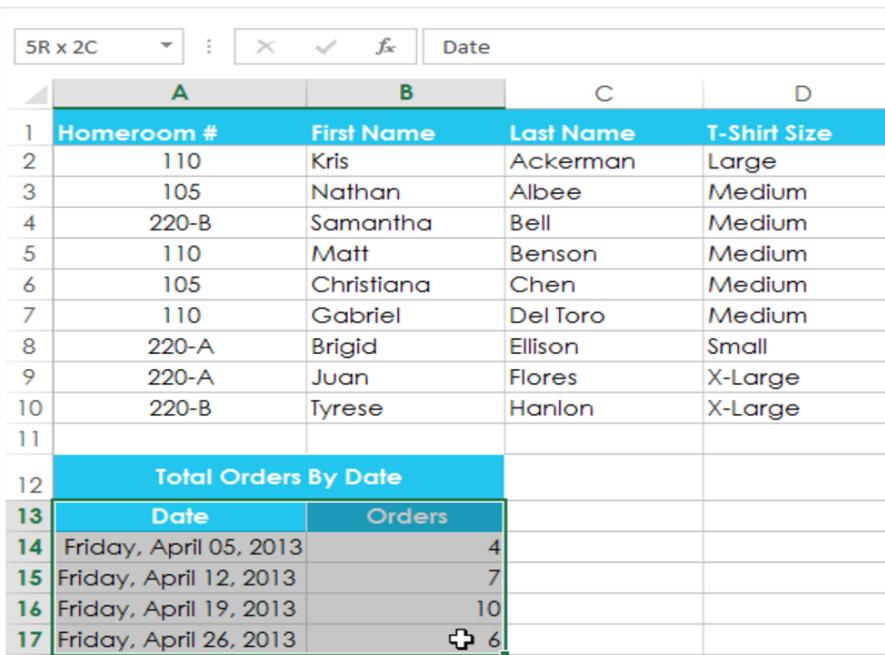
# Data Management Skills

## Sorting Data

### To sort a range:

In our example, we'll select a **separate table** in our T-shirt order form to sort the number of shirts that were ordered on different dates.

1. Select the **cell range** you want to sort. In our example, we'll select cell range **A13:B17**.



The screenshot shows an Excel spreadsheet with two main sections. The top section contains student data from row 1 to 11, with columns A through D labeled. The bottom section contains a separate table from row 12 to 17, titled "Total Orders By Date", with columns A and B labeled. Row 12 is a header row. Rows 13 through 17 show the total number of orders for specific dates in April 2013.

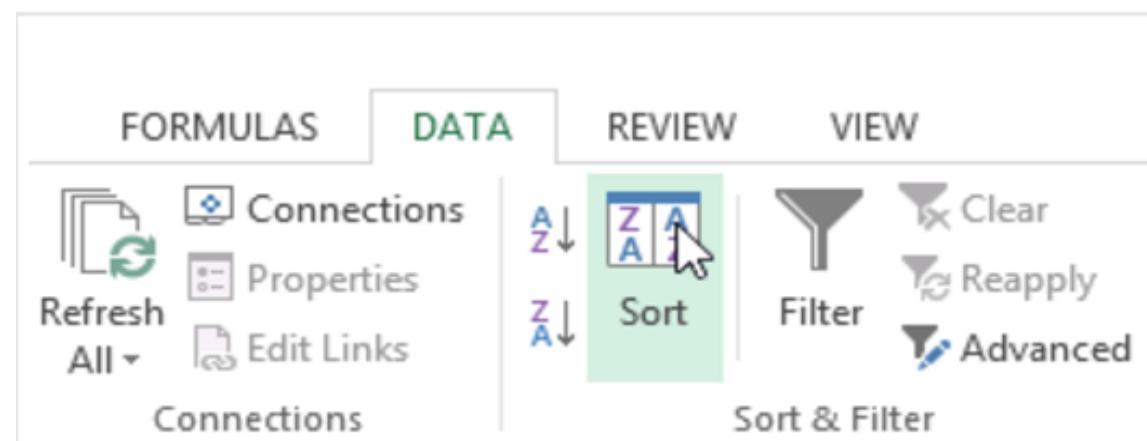
	A	B	C	D
1	Homeroom #	First Name	Last Name	T-Shirt Size
2	110	Kris	Ackerman	Large
3	105	Nathan	Albee	Medium
4	220-B	Samantha	Bell	Medium
5	110	Matt	Benson	Medium
6	105	Christiana	Chen	Medium
7	110	Gabriel	Del Toro	Medium
8	220-A	Brigid	Ellison	Small
9	220-A	Juan	Flores	X-Large
10	220-B	Tyrese	Hanlon	X-Large
11				
12	Total Orders By Date			
13	Date	Orders		
14	Friday, April 05, 2013	4		
15	Friday, April 12, 2013	7		
16	Friday, April 19, 2013	10		
17	Friday, April 26, 2013	6		

# Data Management Skills

## Sorting Data

**To sort a range:**

2. Select the **Data** tab on the **Ribbon**, then click the **Sort** command.

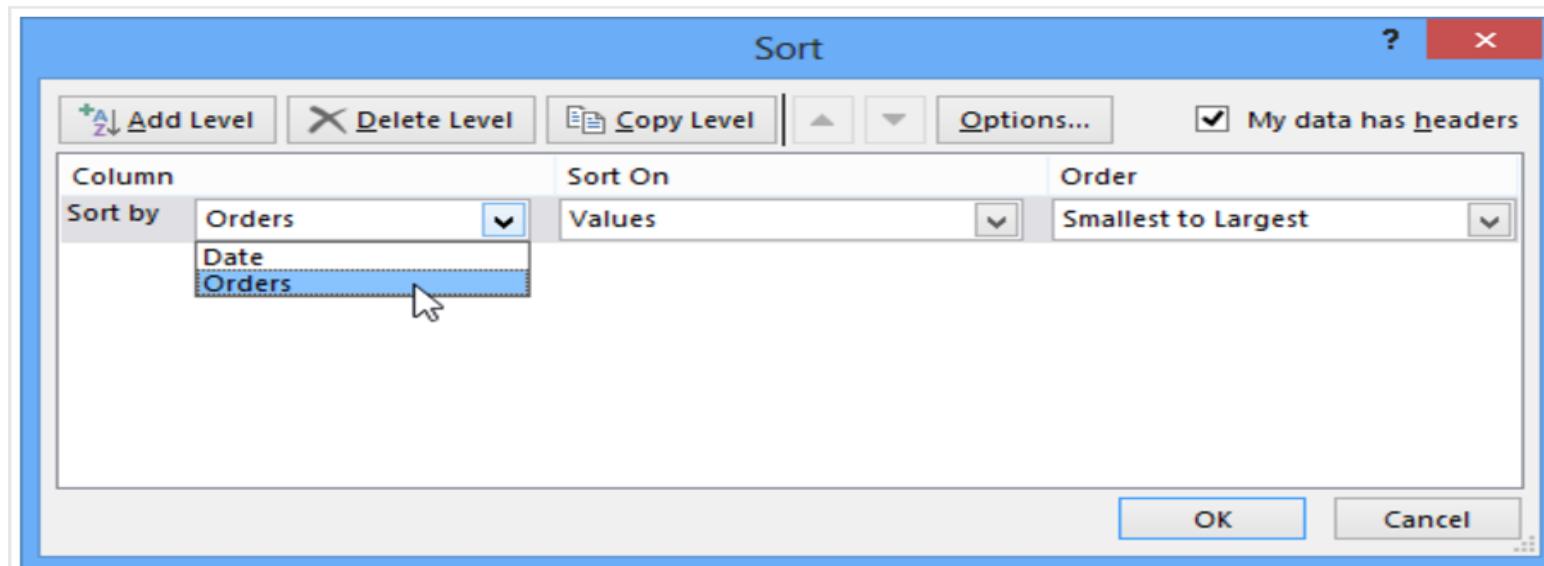


# Data Management Skills

## Sorting Data

To sort a range:

3. The **Sort** dialog box will appear. Choose the **column** you want to sort by. In our example, we want to sort the data by the number of T-shirt orders, so we'll select **Orders**.



# Data Management Skills

## Sorting Data

To sort a range:

4. Decide the **sorting order** (either ascending or descending). In our example, we'll use **Smallest to Largest**.
5. Once you're satisfied with your selection, click **OK**.

# Data Management Skills

## Sorting Data

To sort a range:

6. The cell range will be **sorted** by the selected column. In our example, the Orders column will be sorted from **lowest to highest**.

**Notice that the other content in the worksheet was not affected by the sort.**

Total Orders By Date		
	Date	Orders
12		
13		
14	Friday, April 05, 2013	4
15	Friday, April 26, 2013	6
16	Friday, April 12, 2013	7
17	Friday, April 19, 2013	10
18		

# Data Management Skills

## Sorting Data

### Custom Sorting

Sometimes you may find that the default sorting options can't sort data in the order you need. Fortunately, Excel allows you to create a **custom list** to define your own sorting order.

# Data Management Skills

## Sorting Data

**To create a custom sort:**

In our example in the next slides, we want to sort the worksheet by **T-Shirt Size** (column **D**). A regular sort would organize the sizes alphabetically, which would be incorrect. Instead, we'll create a custom list to sort from smallest to largest.

# Data Management Skills

## Sorting Data

To create a custom sort:

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell **D2**.



The screenshot shows a Microsoft Excel spreadsheet with a sorting dialog box open over the data. The dialog box has the following fields: 'D2' in the 'Select range' dropdown, a colon separator, and three buttons: 'X' (cancel), '✓' (ok), and 'fx' (function). To the right of the buttons is the word 'Large'. The main part of the screen displays a table with 10 rows of data. The columns are labeled A through F. Row 1 contains the headers: Homeroom #, First Name, Last Name, T-Shirt Size, and Payment Method. Row 2 is selected, and its value 'Large' in the 'T-Shirt Size' column is highlighted with a green border. The 'Payment Method' column for row 2 is also highlighted with a green border. The rest of the table data is as follows:

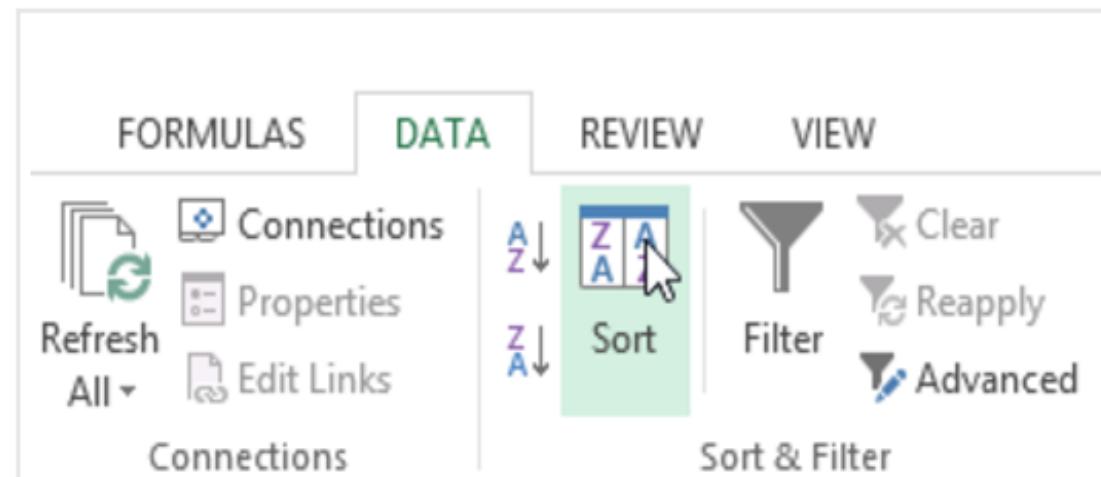
	A	B	C	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	110	Kris	Ackerman	Large 	Money Order	
3	105	Nathan	Albee	Medium	Check	
4	220-B	Samantha	Bell	Medium	Check	
5	110	Matt	Benson	Medium	Money Order	
6	105	Christiana	Chen	Medium	Cash	
7	110	Gabriel	Del Toro	Medium	Cash	
8	220-A	Brigid	Ellison	Small	Cash	
9	220-A	Juan	Flores	X-Large	Pending	
10	220-B	Tyrese	Hanlon	X-Large	Debit Card	

# Data Management Skills

## Sorting Data

To create a custom sort:

2. Select the **Data** tab, then click the **Sort** command.

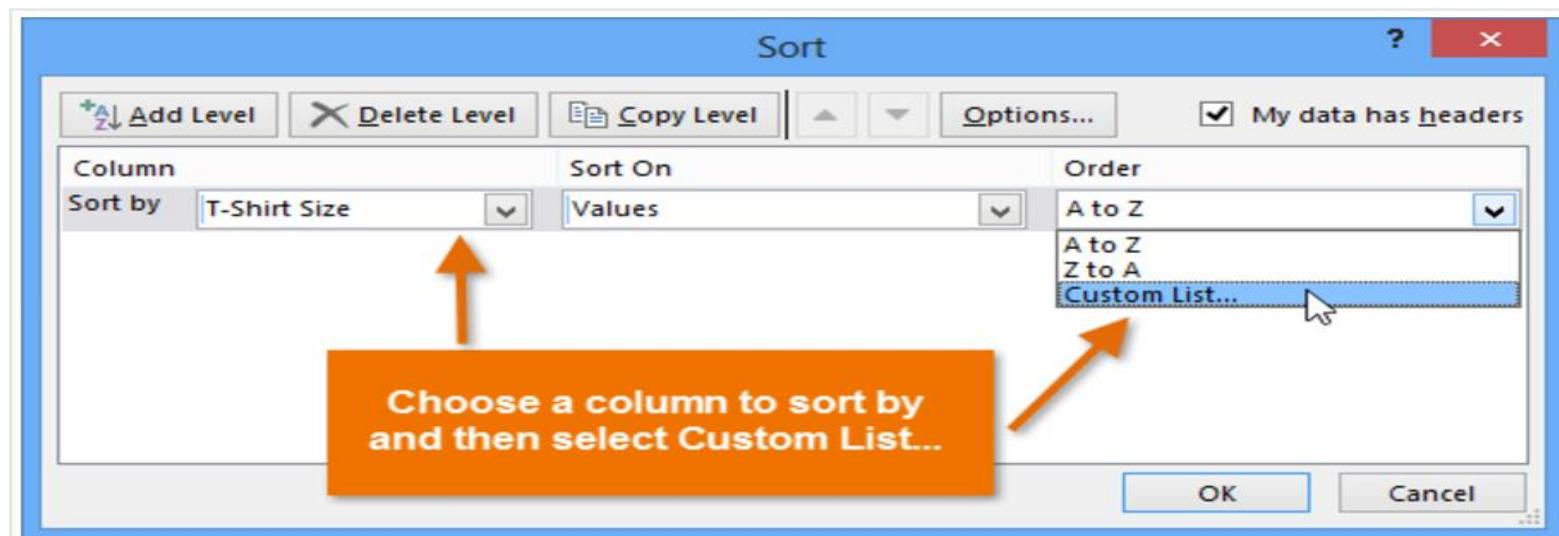


# Data Management Skills

## Sorting Data

To create a custom sort:

3. The **Sort** dialog box will appear. Select the **column** you want to sort by, then choose **Custom List...** from the **Order** field. In our example, we will choose to sort by **T-Shirt Size**.



# Data Management Skills

## Sorting Data

To create a custom sort:

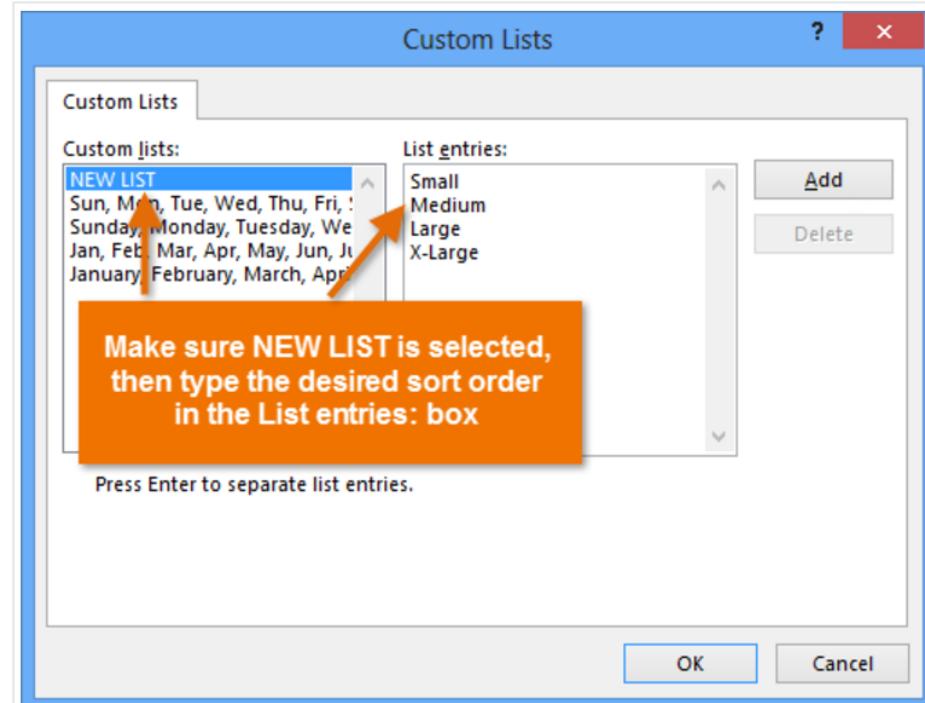
4. The **Custom Lists** dialog box will appear. Select **NEW LIST** from the **Custom Lists:** box.

# Data Management Skills

## Sorting Data

To create a custom sort:

5. Type the items in the desired custom order in the **List entries:** box. In our example, we want to sort our data by T-shirt size from **smallest** to **largest**, so we'll type **Small, Medium, Large, and X-Large**, pressing **Enter** on the keyboard after each item.

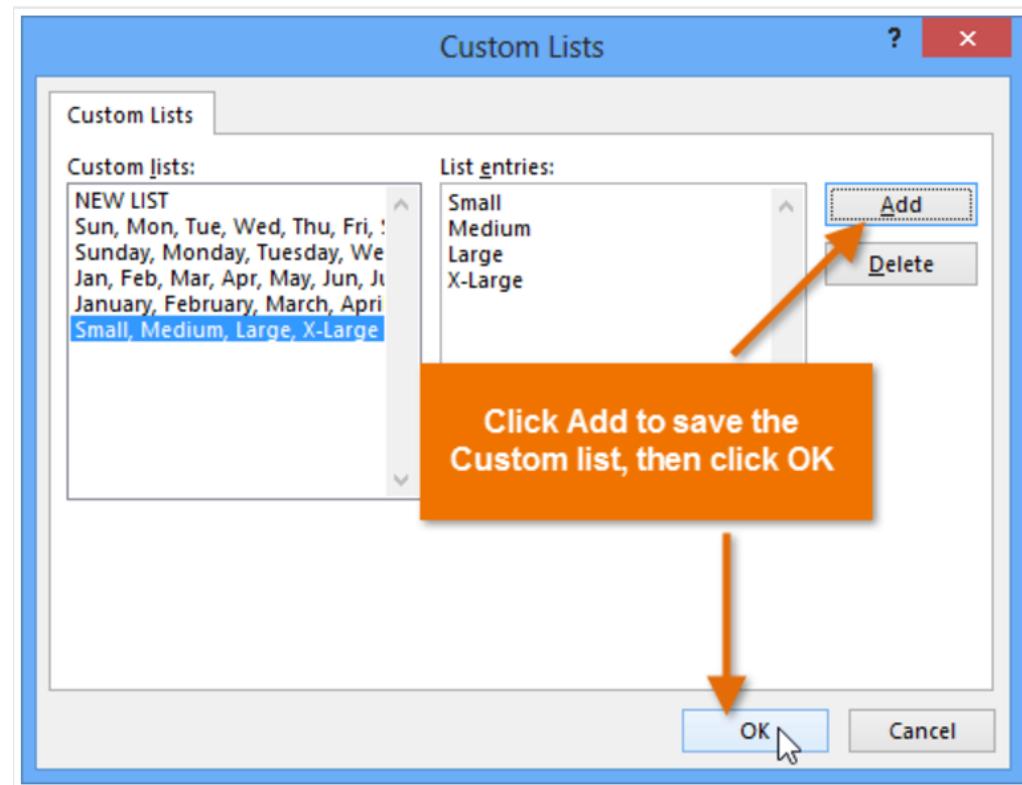


# Data Management Skills

## Sorting Data

To create a custom sort:

6. Click **Add** to save the new sort order. The new list will be added to the **Custom lists:** box. Make sure the new list is **selected**, then click **OK**.

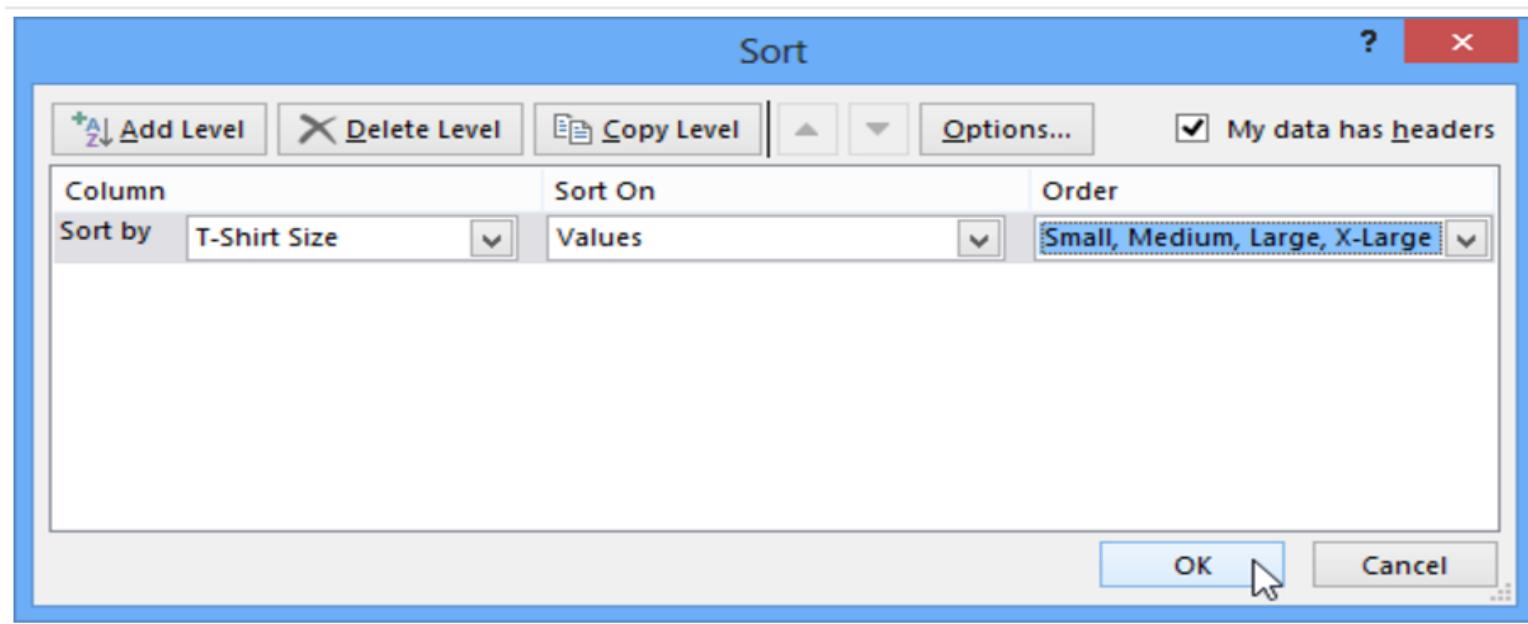


# Data Management Skills

## Sorting Data

To create a custom sort:

7. The **Custom Lists** dialog box will close. Click **OK** in the **Sort** dialog box to perform the custom sort.



# Data Management Skills

## Sorting Data

To create a custom sort:

8. The worksheet will be **sorted** by the custom order. In our example, the worksheet is now organized by T-shirt size from smallest to largest.

	A	B	C	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	220-A	Brigid	Ellison	Small	Cash	
3	220-B	Michael	Lazar	Small	Cash	
4	135	Anisa	Naser	Small	Pending	
5	220-A	Christopher	Peyton-Gomez	Small	Check Bounced	
6	220-B	Malik	Reynolds	Small	Cash	
7	220-B	Windy	Shaw	Small	Cash	
8	105	Melissa	White	Small	Debit Card	
9	105	Esther	Yaron	Small	Check	
10	105	Nathan	Albee	Medium	Check	
11	220-B	Samantha	Bell	Medium	Check	
12	220-B	Avery	Kelly	Medium	Debit Card	
13	220-A	Chevonne	Means	Medium	Money Order	
14	135	James	Panarello	Medium	Check	
15	135	Chantal	Weller	Medium	Cash	
16	110	Kris	Ackerman	Large	Money Order	
17	105	Derek	MacDonald	Large	Cash	

# Data Management Skills

## Sorting Data

To sort by **cell formatting**:

You can also choose to sort your worksheet by **formatting** rather than cell content. This can be especially helpful if you add color coding to certain cells.

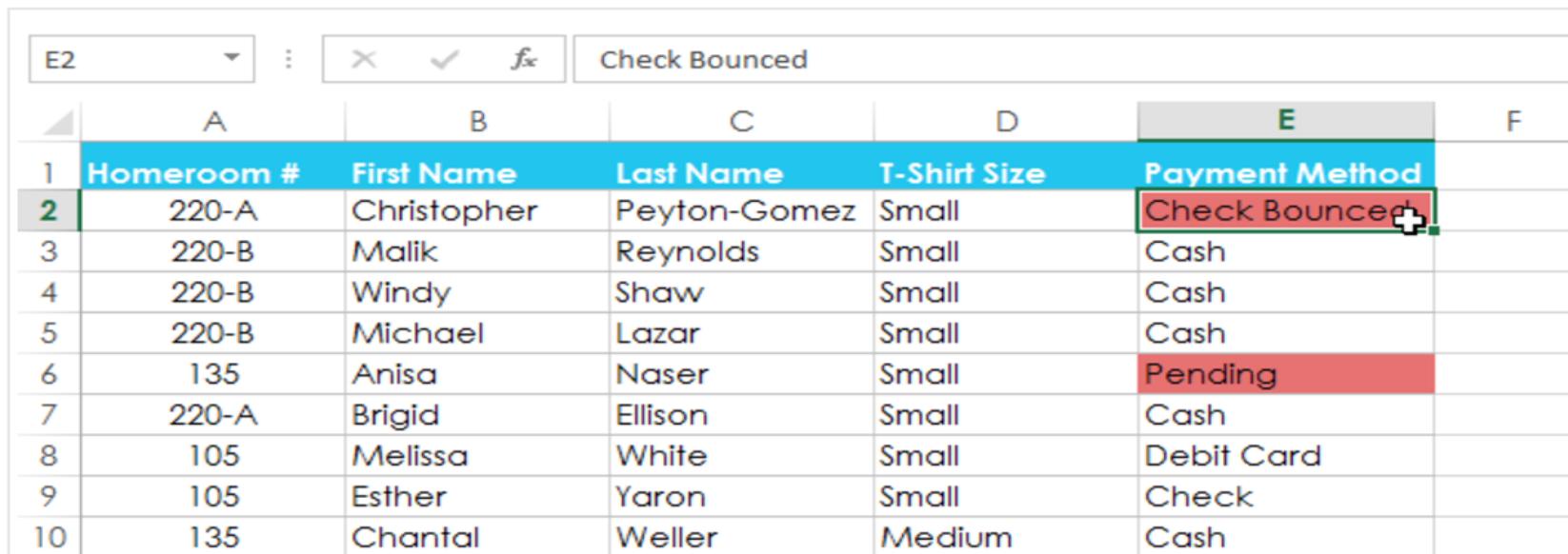
In our example below, we'll sort by **cell color** to quickly see which T-shirt orders have outstanding payments.

# Data Management Skills

## Sorting Data

To sort by cell formatting:

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell **E2**.



The screenshot shows a Microsoft Excel spreadsheet with a table of student information. The table has columns for Homeroom #, First Name, Last Name, T-Shirt Size, and Payment Method. Row 1 contains the column headers. Row 2 is selected, highlighting the 'Check Bounced' value in the Payment Method column. The Payment Method column is sorted in descending order, with 'Check Bounced' at the top and 'Pending' at the bottom. Other rows show various payment methods like Cash and Debit Card.

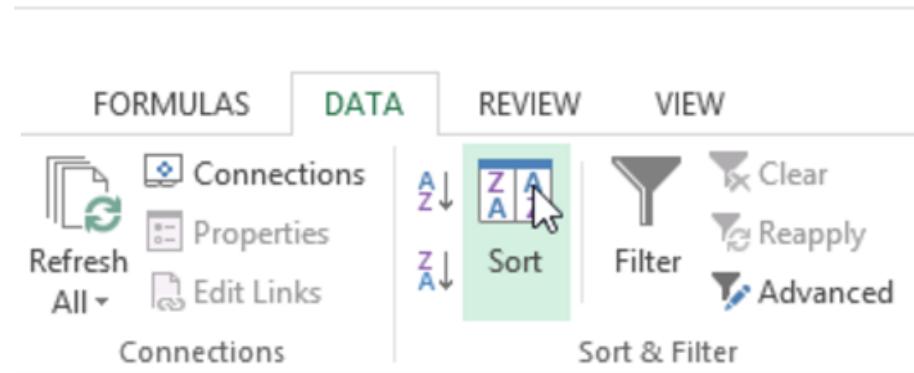
	A	B	C	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	220-A	Christopher	Peyton-Gomez	Small	Check Bounced	
3	220-B	Malik	Reynolds	Small	Cash	
4	220-B	Windy	Shaw	Small	Cash	
5	220-B	Michael	Lazar	Small	Cash	
6	135	Anisa	Naser	Small	Pending	
7	220-A	Brigid	Ellison	Small	Cash	
8	105	Melissa	White	Small	Debit Card	
9	105	Esther	Yaron	Small	Check	
10	135	Chantal	Weller	Medium	Cash	

# Data Management Skills

## Sorting Data

To sort by cell formatting:

2. Select the **Data** tab, then click the **Sort** command.

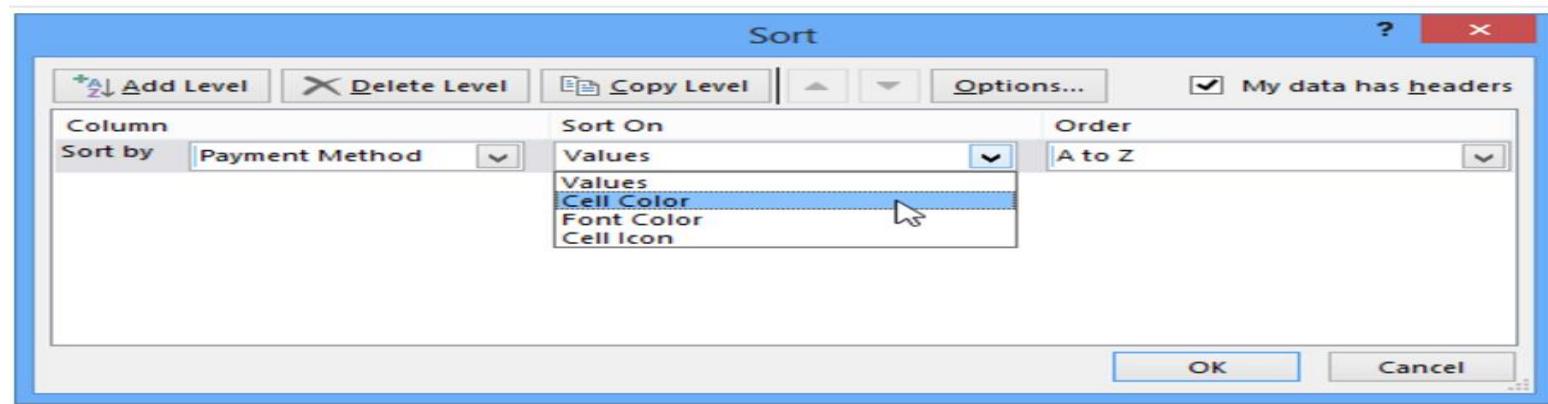


# Data Management Skills

## Sorting Data

To sort by **cell** formatting:

3. The **Sort** dialog box will appear. Select the column you want to sort by, then decide whether you'll sort by **Cell Color**, **Font Color**, or **Cell Icon** from the **Sort On** field. In our example, we'll sort by **Payment Method**(column **E**) and **Cell Color**.

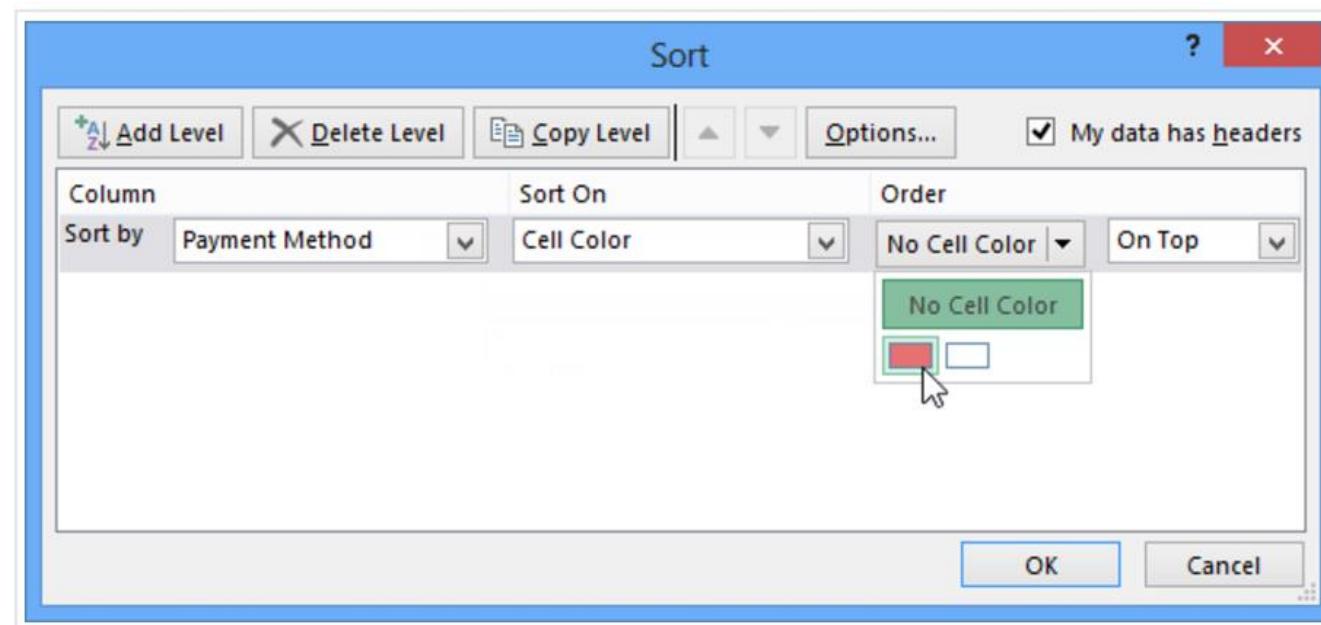


# Data Management Skills

## Sorting Data

To sort by cell formatting:

4. Choose a **color** to sort by from the **Order** field. In our example, we'll choose **light red**.



# Data Management Skills

## Sorting Data

To sort by cell formatting:

5. Click **OK**. In our example, the worksheet is now sorted by **cell color**, with the light red cells on top. This allows us to see which orders still have outstanding payments



The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	220-A	Christopher	Peyton-Gomez	Small	Check Bounced	
3	105	Sidney	Kelly	Medium	Check Bounced	
4	135	Anisa	Naser	Small	Pending	
5	110	Regina	Olivera	Large	Pending	
6	220-A	Juan	Flores	X-Large	Pending	
7	135	Alex	Yuen	Large	Wrong Amount	
8	220-B	Malik	Reynolds	Small	Cash	
9	220-B	Windy	Shaw	Small	Cash	
10	220-B	Michael	Lazar	Small	Cash	

# Data Management Skills

## Sorting Data

### Sorting levels

If you need more control over how your data is sorted, you can add multiple **levels** to any sort. This allows you to sort your data by **more than one column**.

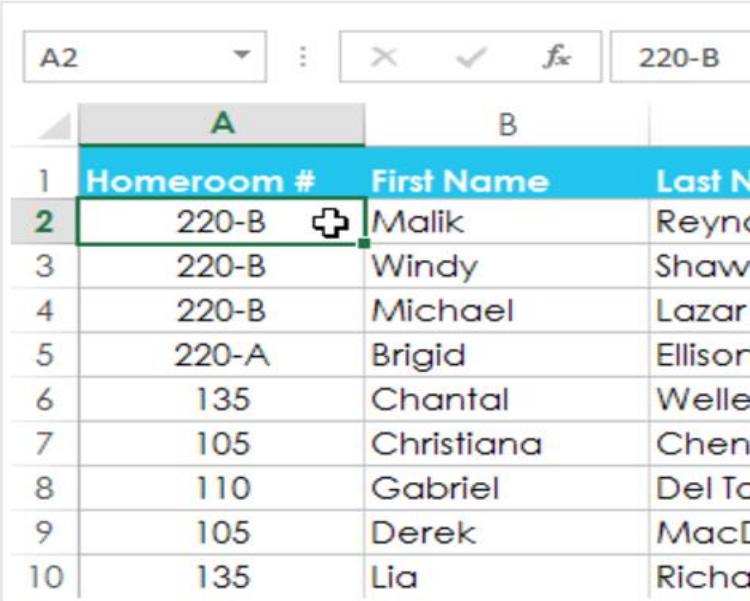
# Data Management Skills

## Sorting Data

### Sorting levels

In our example below, we'll sort the worksheet by **Homeroom Number** (column A), then by **Last Name** (column C).

1. Select a **cell** in the column you want to sort by. In our example, we'll select cell **A2**.



	A	B	C	D
1	Homeroom #	First Name	Last N	
2	220-B	Malik	Reyno	
3	220-B	Windy	Shaw	
4	220-B	Michael	Lazar	
5	220-A	Brigid	Ellisor	
6	135	Chantal	Welle	
7	105	Christiana	Chen	
8	110	Gabriel	Del Tc	
9	105	Derek	MacD	
10	135	Lia	Richa	

# Data Management Skills

## Sorting Data

### Sorting levels

2. Click the **Data** tab, then select the **Sort** command.
  
3. The **Sort** dialog box will appear. Select the first column you want to sort by. In this example, we will sort by **Homeroom #** (column A).

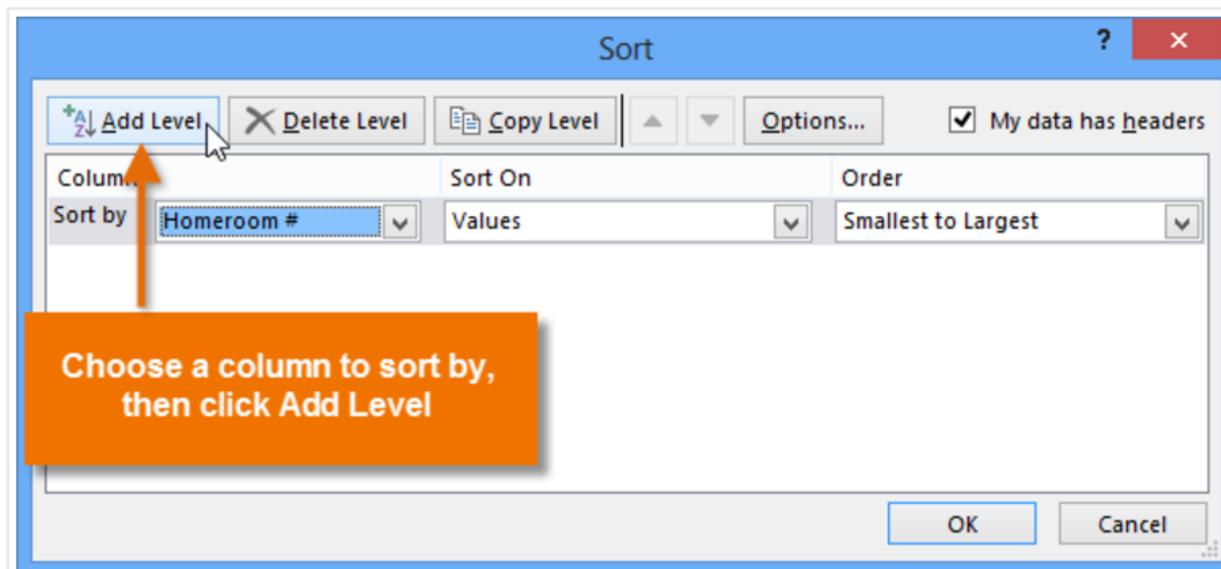


# Data Management Skills

## Sorting Data

### Sorting levels

4. Click **Add Level** to add another column to sort by.

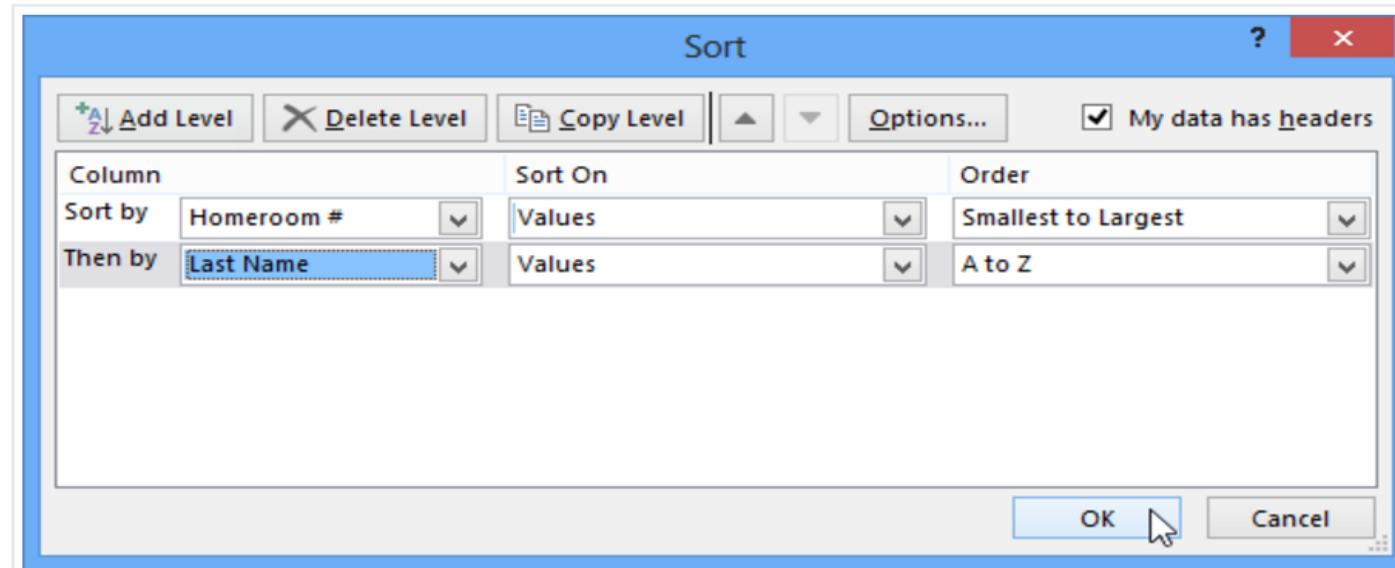


# Data Management Skills

## Sorting Data

### Sorting levels

5. Select the next column you want to sort by, then click **OK**. In our example, we'll sort by **Last Name** (column **C**).

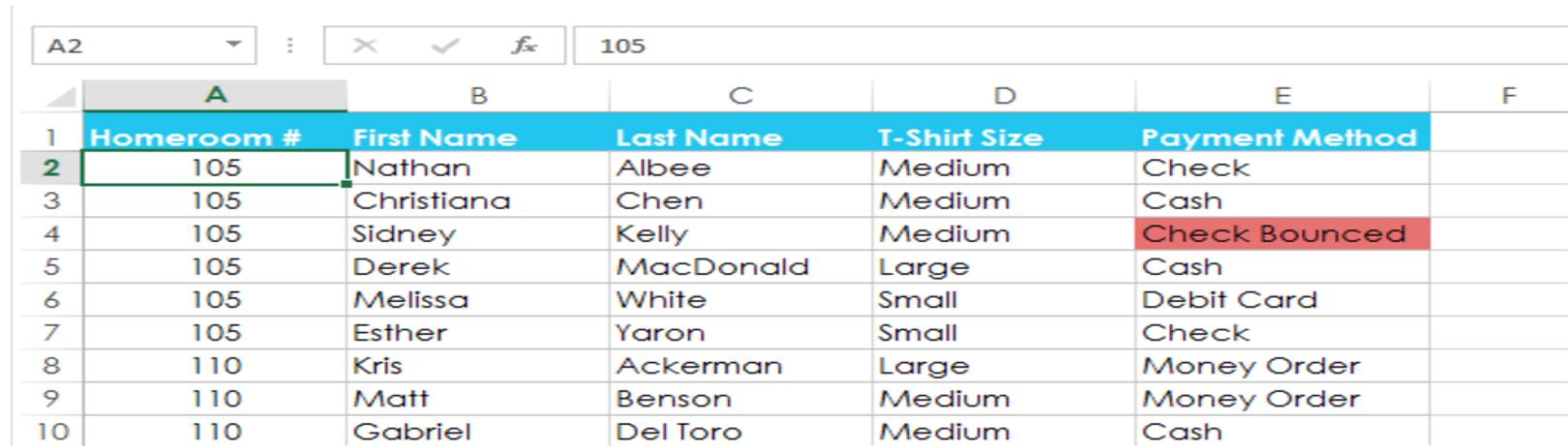


# Data Management Skills

## Sorting Data

### Sorting levels

6. The worksheet will be **sorted** according to the selected order. In our example, the homeroom numbers are sorted numerically. Within each homeroom, students are sorted alphabetically by last name.



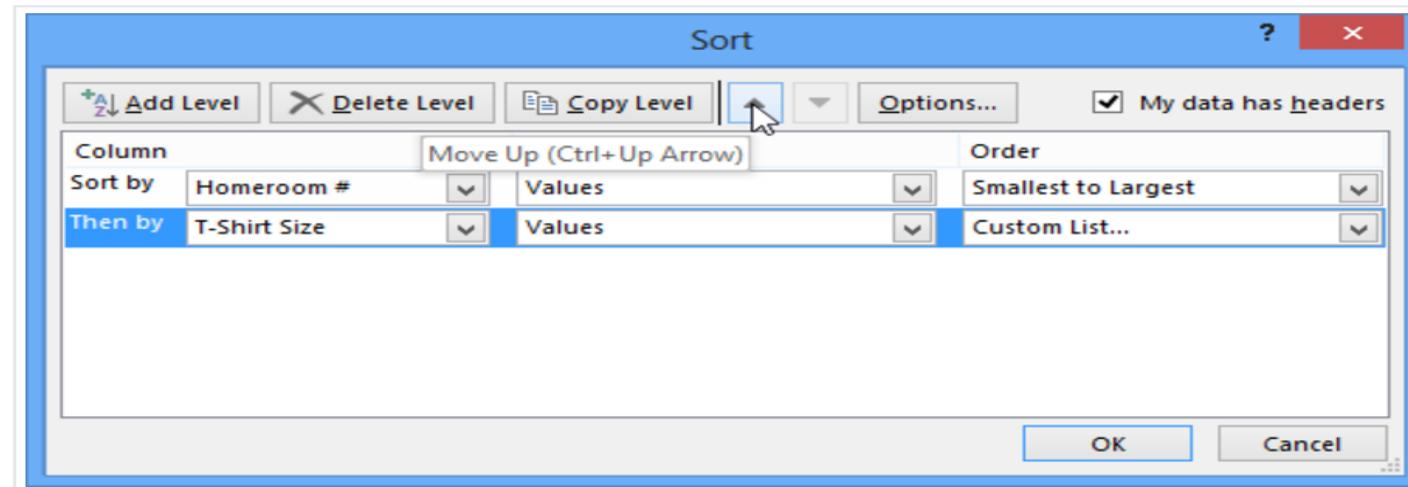
	A	B	C	D	E	F
1	Homeroom #	First Name	Last Name	T-Shirt Size	Payment Method	
2	105	Nathan	Albee	Medium	Check	
3	105	Christiana	Chen	Medium	Cash	
4	105	Sidney	Kelly	Medium	Check Bounced	
5	105	Derek	MacDonald	Large	Cash	
6	105	Melissa	White	Small	Debit Card	
7	105	Esther	Yaron	Small	Check	
8	110	Kris	Ackerman	Large	Money Order	
9	110	Matt	Benson	Medium	Money Order	
10	110	Gabriel	Del Toro	Medium	Cash	

# Data Management Skills

## Sorting Data

### Sorting levels

NB: If you need to change the order of a multilevel sort, it's easy to control which column is sorted first. Simply select the desired **column**, then click the **Move Up** or **Move Down** arrow to adjust its priority.



# Data Management Skills



Microsoft Excel  
Worksheet



## Exercise

1. Open your [practice workbook](#).
2. Sort the worksheet in descending sort order. Sort by Homeroom # (column A).
3. Sort the Total order table in the cell range **G3:H7** from highest to lowest by **Orders** (column H).
4. Add a second level to sort Column E by **cell color**.
5. Add another level, and sort it using a **custom list**. Create a custom list to sort by **T-Shirt Size** (column D) in the order of X-Large, Large, Medium and Small
6. Change the **sorting priority**. If you are using the example, reorder the list to sort first by **T-Shirt Size** (column D) then by **Homeroom #** (column A) and lastly by **cell color** (column E).

# Data Management Skills

## Filtering Data

### Introduction

#### To filter data:

In our example, we'll apply a filter to an equipment log worksheet to display only the laptops and projectors that are available for checkout.

1. In order for filtering to correctly, your worksheet should include a **header row**, which is used to identify the name of each column. In our example, our worksheet is organized into different columns identified by the header cells in the first row.

# Data Management Skills

## Filtering Data

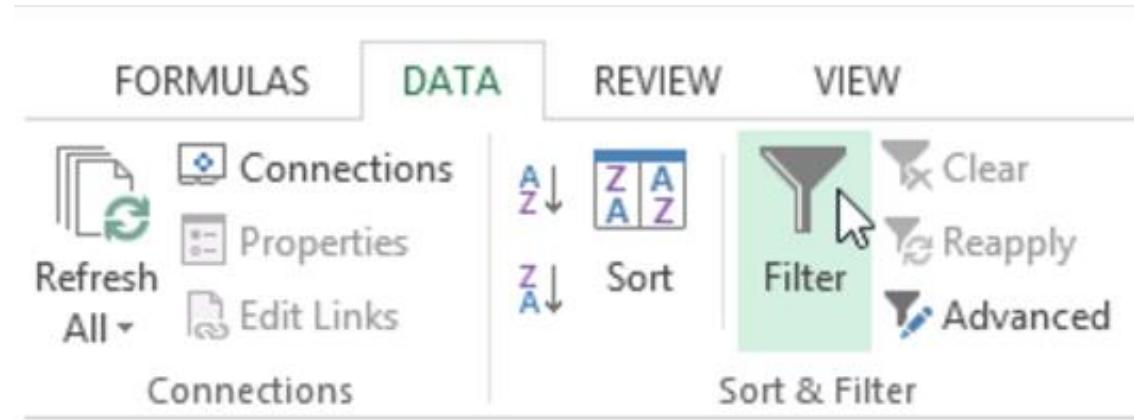
To filter data:

A	B	C	D	E	F	
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-13	15-May-13	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-13	06-Aug-13	Sela Shepard
4	3070	Camera	Omega PixL Digital Camcorder	06-Oct-13		Min Seung
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	01-Oct-13	Sofie Ragnar
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	16-Aug-13	Hank Sorenson
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	15-Aug-13	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-13	04-Oct-13	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-13	26-Sep-13	George D'Agosta

# Data Management Skills

## Filtering Data

2. Select the **Data** tab, then click the **Filter** command.



# Data Management Skills

## Filtering Data

3. A drop down arrow will appear beside the header for each column.
4. Click the **drop-down arrow** for the column you want to filter. In our example, we will filter column **B** to view only certain types of equipment.

A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In
2	3000	Camera	Saris Lumina Digital Camera	12-May-13	15-May-13
3	3005	Camera	Nikon Z-60 Digital Camera	27-Jul-13	06-Aug-13
4	3070	Camera	Omega PixL Digital Camcorder	06-Oct-13	Min Seung
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	Sofie Ragnar
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	Hank Sorenson
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-13	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13	Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13	Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-13	George D'Agosta

# Data Management Skills

## Filtering Data

5. The **Filter** menu will appear.

6. Uncheck the box next to **Select All** to quickly deselect all data.

A	B	C	D
1	ID #	Type	Equipment Detail
<input type="button" value="Sort A to Z"/>			igital Camera 12-May-13
<input type="button" value="Sort Z to A"/>			Digital Camera 27-Jul-13
<input type="button" value="Sort by Color"/>			igital Camcorder 06-Oct-13
<input type="button" type""="" value="Clear Filter From "/>			L200-3 15-Sep-13
<input type="button" value="Filter by Color"/>			L200-3 14-Aug-13
<input type="button" value="Text Filters"/>			L200-3 08-Aug-13
<input type="button" value="Search"/>			L200-4X 26-Sep-13
<input checked="" type="checkbox"/> (Select All)			aptop 04-Oct-13
<input checked="" type="checkbox"/> Camera			aptop 19-Sep-13
<input checked="" type="checkbox"/> Laptop			aptop 24-Sep-13
<input checked="" type="checkbox"/> Other			aptop 25-Aug-13
<input checked="" type="checkbox"/> Projector			500-1 05-Oct-13
<input checked="" type="checkbox"/> Tablet			500-1 01-Oct-13
<input checked="" type="checkbox"/> TV			am Printer II 04-Aug-13
			Maker 13-Jun-13
			ra Travel Bag 27-Jul-13
			Laptop Case 04-Oct-13
			Laptop Case 04-Oct-13
			28-Sep-13 26-Sep-13
			22-Aug-13

The screenshot shows a Microsoft Excel spreadsheet titled "Equipment Detail". Column A contains "ID #", column B contains "Type", column C contains "Equipment Detail", and column D contains "Checked Out". A filter menu is open over the "Type" column header, showing options like "Sort A to Z", "Sort Z to A", "Sort by Color", "Clear Filter From "Type"" (disabled), "Filter by Color", and "Text Filters". Below these are "Search" and a list of items under "(Select All)". The list includes Camera, Laptop, Other, Projector, Tablet, and TV, with all checkboxes checked. At the bottom of the filter menu are "OK" and "Cancel" buttons. The status bar at the bottom of the screen shows "22 6102 Projector Omega VisX 1.0".

# Data Management Skills

## Filtering Data

7. Check the boxes next to the data you want to filter, then click **OK**. In this example, we will check **Laptop** and **Tablet** to view only those types of equipment. After which we click OK.

A	B	C	D
1	ID #	Type	Equipment Detail
			Digital Camera 12-May-13
			Digital Camera 27-Jul-13
			Digital Camcorder 06-Oct-13
			DL200-3 15-Sep-13
			DL200-3 14-Aug-13
			DL200-3 08-Aug-13
			DL200-4X 26-Sep-13
			Laptop 04-Oct-13
			Laptop 19-Sep-13
			Laptop 24-Sep-13
			Maker 13-Jun-13
			Micro Travel Bag 27-Jul-13
			Laptop Case 04-Oct-13
			Laptop Case 04-Oct-13
			28-Sep-13
			26-Sep-13

The screenshot shows a Microsoft Excel spreadsheet with data in columns A through D. Column A contains row numbers, column B contains equipment IDs, column C contains equipment types, and column D contains check-in dates. A dropdown menu is open over the Type column header, specifically over the filter icon. The menu includes options like 'Sort A to Z', 'Sort Z to A', 'Sort by Color', 'Clear Filter From "Type"', 'Filter by Color', and 'Text Filters'. The 'Text Filters' section is expanded, showing a search bar and a list of filter criteria. Two checkboxes are checked: 'Laptop' and 'Tablet'. An orange callout box with the text 'Check only the data you want to view, then click OK' has arrows pointing to the 'Laptop' and 'Tablet' checkboxes. Another arrow points from the callout box to the 'OK' button at the bottom of the filter dialog. The 'Cancel' button is also visible.

Check only the data you want to view, then click OK

# Data Management Skills

## Filtering Data

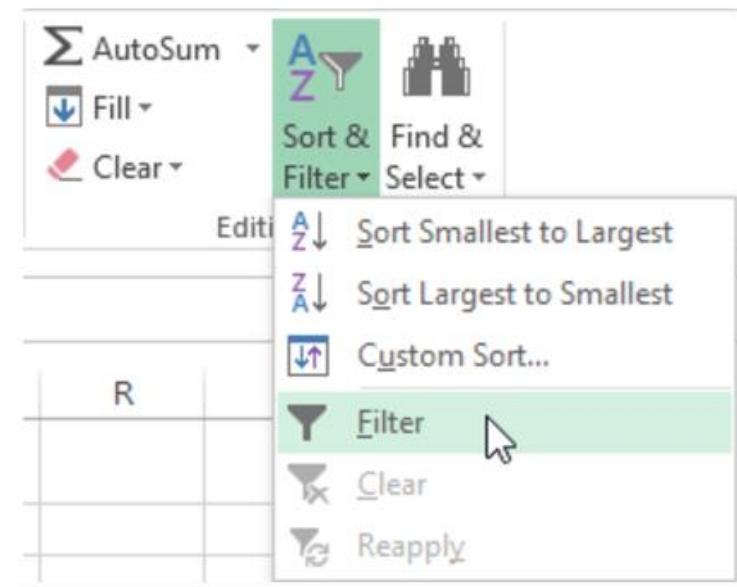
8. The data will be **filtered**, temporarily hiding any content that doesn't match the criteria. In our example, only laptops and tablets are visible.

A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In
4	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	01-Oct-13
5	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	16-Aug-13
6	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	15-Aug-13
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-13	04-Oct-13
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13	
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13	
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-13	26-Sep-13
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-13	27-Aug-13
26	1011	Tablet	Saris SlimPro	04-Oct-13	
27	1012	Tablet	Saris SlimPro	29-Sep-13	

# Data Management Skills

## Filtering Data

9. Filtering options can also be accessed from the **Sort & Filter** command on the **Home** tab.



# Data Management Skills

## Filtering Data

### To apply multiple filters:

Filters are **cumulative**, which means you can apply **multiple filters** to help narrow down your results.

Previously, we've already filtered our worksheet to show laptops and projectors. Now, we will narrow it down further to only show laptops and Tablet that were checked out in August.

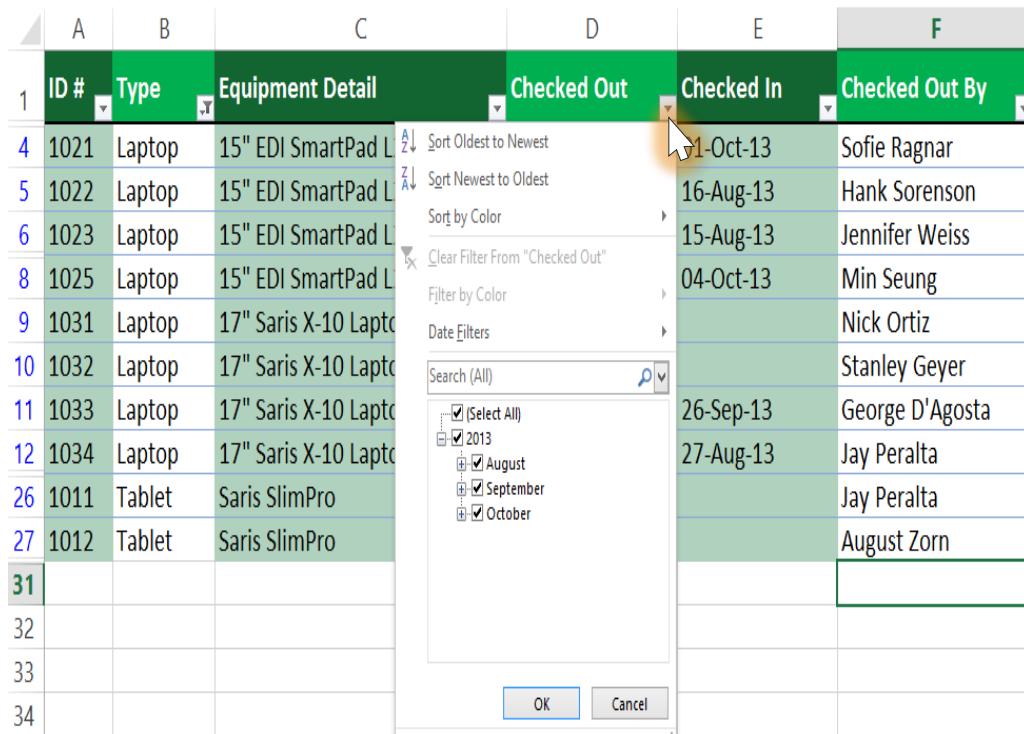
# Data Management Skills

## Filtering Data

To apply multiple filters:

1. Click the **drop-down arrow** for the column you want to filter. In this example, we will add a filter to column D to view information by date

2. The **Filter menu** will appear.



The screenshot shows a portion of an Excel spreadsheet with columns A through F. Column A contains row numbers 1 through 34. Columns B, C, and F contain equipment details and names. Column D is titled 'Checked Out' and contains dates. Column E is titled 'Checked In'. A dropdown arrow in the 'Checked Out' column header is clicked, revealing a filter menu. The menu includes options like 'Sort Oldest to Newest', 'Sort Newest to Oldest', 'Sort by Color', 'Clear Filter From "Checked Out"', 'Filter by Color', 'Date Filters', and a search bar. Below the search bar is a tree view of filters: '(Select All)' is checked, followed by '2013' which is expanded to show 'August', 'September', and 'October', all of which are checked. At the bottom of the filter menu are 'OK' and 'Cancel' buttons.

A	B	C	D	E	F	
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L	1-Oct-13	Sofie Ragnar	
5	1022	Laptop	15" EDI SmartPad L	16-Aug-13	Hank Sorenson	
6	1023	Laptop	15" EDI SmartPad L	15-Aug-13	Jennifer Weiss	
8	1025	Laptop	15" EDI SmartPad L	04-Oct-13	Min Seung	
9	1031	Laptop	17" Saris X-10 Laptop		Nick Ortiz	
10	1032	Laptop	17" Saris X-10 Laptop		Stanley Geyer	
11	1033	Laptop	17" Saris X-10 Laptop	26-Sep-13	George D'Agosta	
12	1034	Laptop	17" Saris X-10 Laptop	27-Aug-13	Jay Peralta	
26	1011	Tablet	Saris SlimPro		Jay Peralta	
27	1012	Tablet	Saris SlimPro		August Zorn	
31						
32						
33						
34						

# Data Management Skills

## Filtering Data

To apply multiple filters:

**3. Check or uncheck** the boxes depending on the data you want to filter, then click **OK**. Here, we'll uncheck everything except for **August**.

A	B	C	D	E	F
ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	Laptop	15" EDI SmartPad L200-3	1	Sort Oldest to Newest Sort Newest to Oldest Sort by Color Clear Filter From "Checked In" Filter by Color Date Filters Search (All)	Sofie Ragnar
5	Laptop	15" EDI SmartPad L200-3	1		Hank Sorenson
6	Laptop	15" EDI SmartPad L200-3	0		Jennifer Weiss
8	Laptop	15" EDI SmartPad L200-4X	2		Min Seung
9	Laptop	17" Saris X-10 Laptop	0		Nick Ortiz
10	Laptop	17" Saris X-10 Laptop	1		Stanley Geyer
11	Laptop	17" Saris X-10 Laptop	2		George D'Agosta
12	Laptop	17" Saris X-10 Laptop	2		Jay Peralta
26	Tablet	Saris SlimPro	0		Jay Peralta
27	Tablet	Saris SlimPro	2		August Zorn
31					
32					

# Data Management Skills

## Filtering Data

To apply multiple filters:

4. The new filter will be applied. In our example, the worksheet is now filtered to show only laptops and tablets that were checked out in August.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
5	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	16-Aug-13	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	15-Aug-13	Jennifer Weiss
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-13	27-Aug-13	Jay Peralta
26	1011	Tablet	Saris SlimPro	04-Aug-13		Jay Peralta

# Data Management Skills

## Filtering Data

**To clear a filter:**

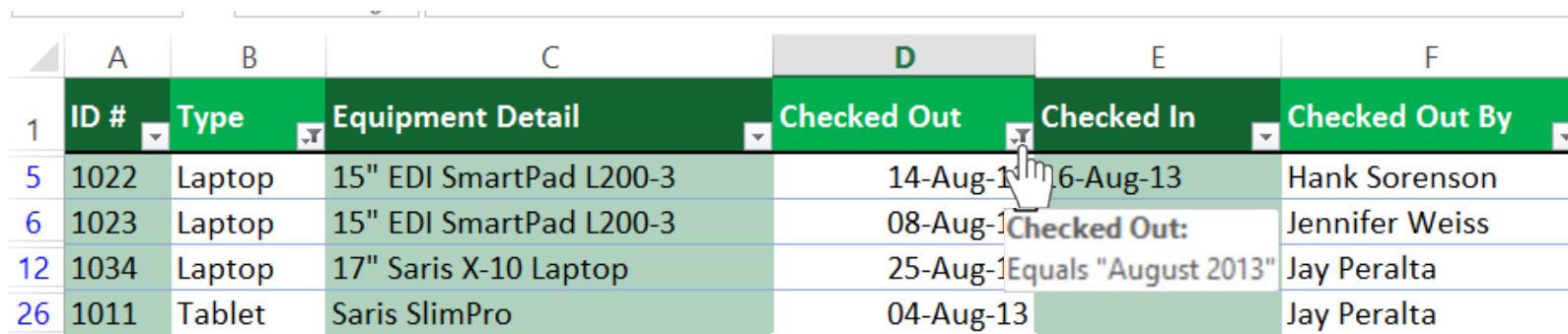
After applying a filter, you may want to remove—or **clear**—it from your worksheet so you'll be able to filter content in different ways.

# Data Management Skills

## Filtering Data

To clear a filter:

1. Click the **drop-down arrow** for the filter you want to clear. In our example, we'll clear the filter in column D.



	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
5	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	16-Aug-13	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	Checked Out: Equals "August 2013"	Jennifer Weiss
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-13		Jay Peralta
26	1011	Tablet	Saris SlimPro	04-Aug-13		Jay Peralta

# Data Management Skills

## Filtering Data

To clear a filter:

2. The **Filter** menu will appear.

3. Choose **Clear Filter From [COLUMN NAME]** from the Filter menu. In our example, we'll select **Clear Filter From "Checked Out"**.

A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In
6	1022	Laptop	15" E	Sort Oldest to Newest	16-Aug-13 Hank Sorenson
7	1023	Laptop	15" E	Sort Newest to Oldest	15-Aug-13 Jennifer Weiss
12	1034	Laptop	17" S	Sort by Color	27-Aug-13 Jay Peralta
26	1011	Tablet	10" S	Clear Filter From "Checked Out"	Jay Peralta
31				Filter by Color	
32				Date Filters	
33				Search (All)	
34				(Select All)	
35				2013	
36				August	
37				September	
38				October	
39				OK	
40				Cancel	
41					
42					
43					
44					
45					
46					
47					

# Data Management Skills

## Filtering Data

To clear a filter:

4. The filter will be cleared from the column. The previously hidden data will be displayed.

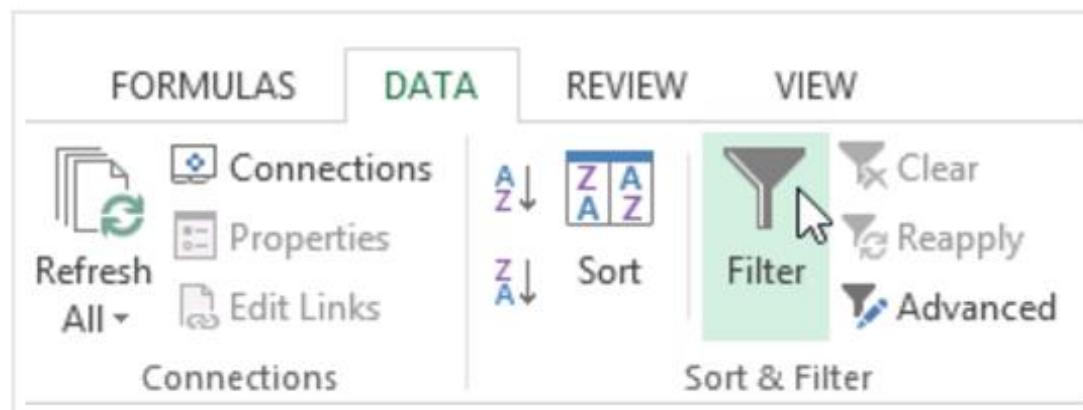
	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
4	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	21-Oct-13 Checked Out: (Showing All)	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	15-Aug-13	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	15-Aug-13	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-13	04-Oct-13	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-13	26-Sep-13	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-13	27-Aug-13	Jay Peralta
26	1011	Tablet	Saris SlimPro	04-Oct-13		Jay Peralta
27	1012	Tablet	Saris SlimPro	29-Sep-13		August Zorn

# Data Management Skills

## Filtering Data

To clear a filter:

5. To remove all filters from your worksheet, click the **Filter** command on the **Data** tab.



# Data Management Skills

## Filtering Data

### Advanced filtering

If you need to filter for something specific, basic filtering may not give you enough options. Fortunately, Excel includes many **advanced filtering tools**, including **search**, **text**, **date**, and **number filtering**, which can narrow your results to help find exactly what you need.

# Data Management Skills

## Filtering Data

### Advanced filtering

To filter with search:

Excel allows you to **search** for data that contains an exact phrase, number, date, and more. In our example, we'll use this feature to show only **Saris** brand products in our equipment log.

1. Select the **Data** tab, then click the **Filter** command. A **drop-down arrow** will appear in the header cell for each column. (Note: If you've already added filters to your worksheet, you can skip this step)
2. Click the **drop-down arrow** for the column you want to filter. In our example, we'll filter column **C**.

# Data Management Skills

## Filtering Data

### Advanced filtering

To filter with search:

A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In
2	3000	Camera	Saris Lumina Digital Camera	12-May-13 Equipment Detail: (Showing All)	15-May-13
3	3005	Camera	Saris Zoom Z-60 Digital Camer	06-Aug-13	Sela Shepard
4	3070	Camera	Omega PixL Digital Camcorder	00-OCT-13	Min Seung
5	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	Sofie Ragnar
6	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	Hank Sorenson
7	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	Jennifer Weiss
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-13	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13	Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13	Stanley Geyer

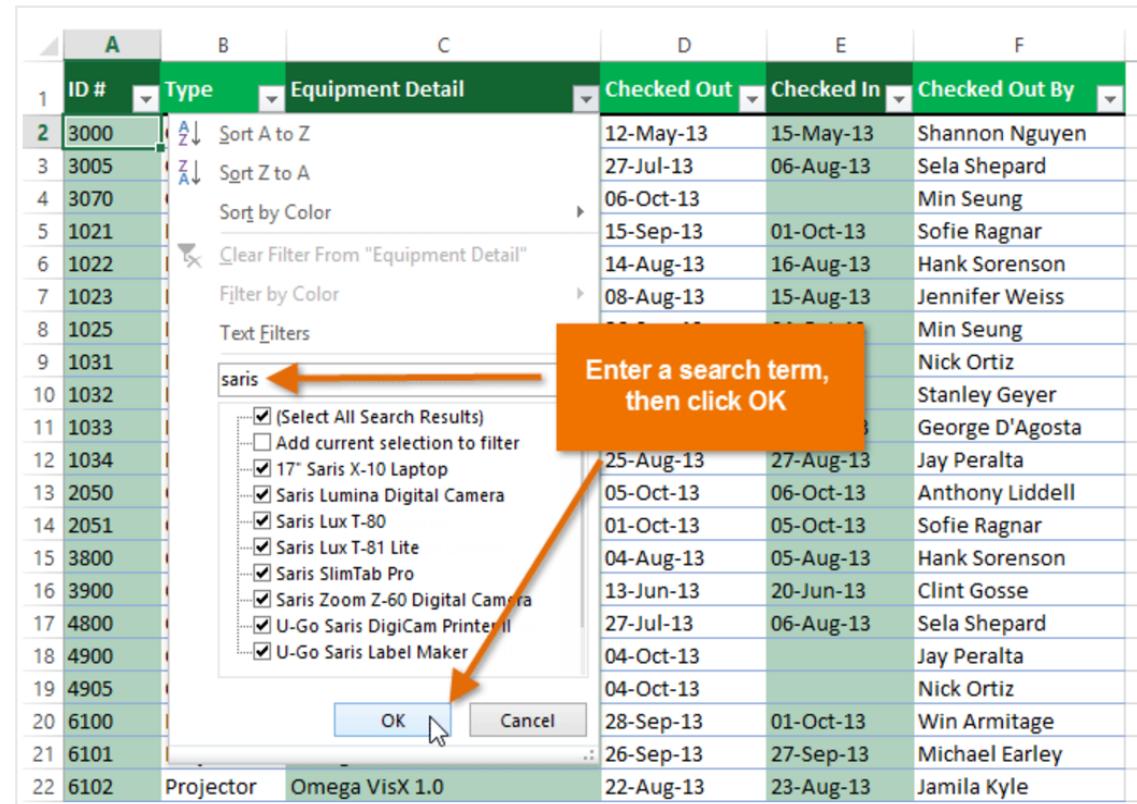
# Data Management Skills

## Filtering Data

### Advanced filtering

To filter with search:

3. The **Filter menu** will appear. Enter a **search term** into the **search box**. Search results will appear automatically below the **Text Filters** field as you type. In our example, we'll type **saris** to find all Saris brand equipment. Then click on done.



The screenshot shows a Microsoft Excel spreadsheet with data about equipment. The columns are labeled A through F: ID #, Type, Equipment Detail, Checked Out, Checked In, and Checked Out By. Row 2 contains the header information. Rows 3 through 22 contain data entries. A context menu is open over the 'Equipment Detail' column header, specifically over row 2. The menu includes options like 'Sort A to Z', 'Sort Z to A', 'Sort by Color', 'Clear Filter From "Equipment Detail"', and 'Filter by Color'. Below this, a 'Text Filters' section is visible. An orange arrow points from the text input field to the word 'saris'. Another orange arrow points from the 'OK' button in the filter dialog to a callout box containing the text 'Enter a search term, then click OK'. The filter dialog also lists several checked items under '(Select All Search Results)'.

A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In
2	3000			12-May-13	15-May-13
3	3005			27-Jul-13	06-Aug-13
4	3070			06-Oct-13	
5	1021			15-Sep-13	01-Oct-13
6	1022			14-Aug-13	16-Aug-13
7	1023			08-Aug-13	15-Aug-13
8	1025				
9	1031				
10	1032				
11	1033				
12	1034				
13	2050				
14	2051				
15	3800				
16	3900				
17	4800				
18	4900				
19	4905				
20	6100				
21	6101	Projector	Omega VisX 1.0	22-Aug-13	23-Aug-13
22	6102				

# Data Management Skills

## Filtering Data

### Advanced filtering

To filter with search:

5. The worksheet will be **filtered** according to your search term. In our example, the worksheet is now filtered to show only Saris brand equipment.

A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In
2	3000	Camera	Saris Lumina Digital Camera	12-May-13	15-May-13
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-13	06-Aug-13
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13	Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13	Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-13	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-13	Jay Peralta
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-13	05-Aug-13
16	3900	Other	U-Go Saris Label Maker	13-Jun-13	20-Jun-13
23	6200	Projector	Saris Lux T-80	01-Sep-13	04-Sep-13
24	6301	Projector	Saris Lux T-81 Lite	10-Sep-13	Marques Herndon
25	6302	Projector	Saris Lux T-81 Lite	08-Sep-13	15-Sep-13
26	1011	Tablet	Saris SlimTab Pro	04-Aug-13	Jay Peralta
27	1012	Tablet	Saris SlimTab Pro	29-Sep-13	August Zorn
31					
32					

# Data Management Skills

## Filtering Data

### Advanced filtering

### Advanced text filters

This can be used to display more specific information, such as cells that contain a certain number of characters, or data that excludes a specific word or number. In our example, we've already filtered our worksheet to only show items with **Other** in the Type column, but we'd like to exclude any item containing the word **case**.

1. Select the Data tab, then click the Filter command. A drop-down arrow will appear in the header cell for each column. Note: If you've already added filters to your worksheet, you can skip this step.

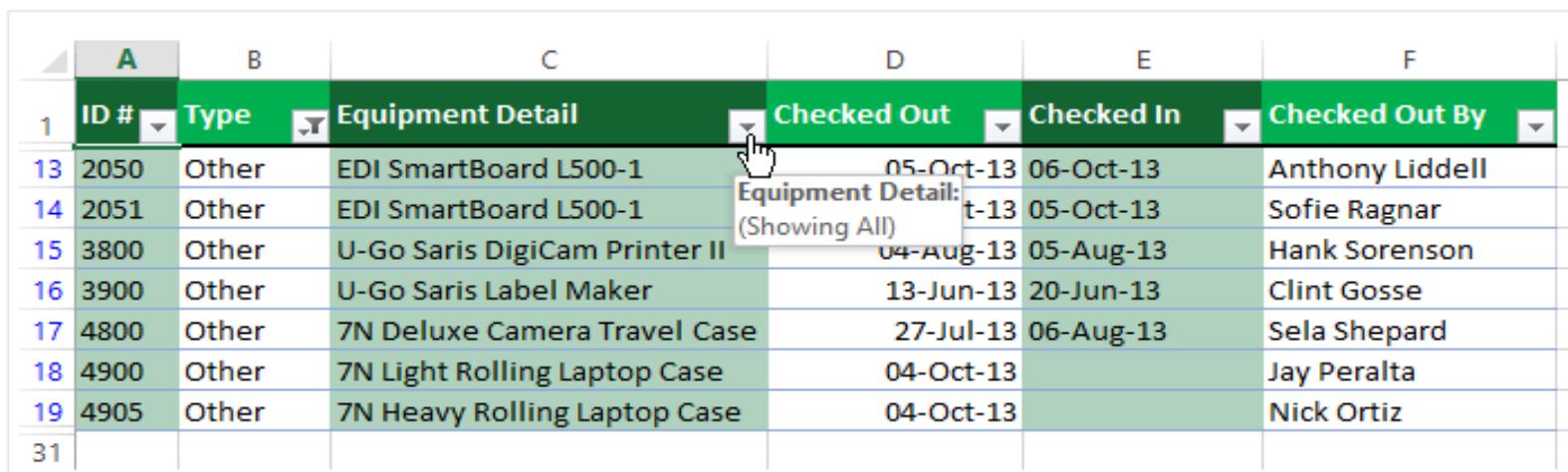
# Data Management Skills

## Filtering Data

### Advanced filtering

### Advanced text filters

2. Click the **drop-down arrow** for the column you want to filter. In our example, we'll filter column C.



	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
13	2050	Other	EDI SmartBoard L500-1	05-Oct-13	06-Oct-13	Anthony Liddell
14	2051	Other	EDI SmartBoard L500-1	t-13	05-Oct-13	Sofie Ragnar
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-13	05-Aug-13	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-13	20-Jun-13	Clint Gosse
17	4800	Other	7N Deluxe Camera Travel Case	27-Jul-13	06-Aug-13	Sela Shepard
18	4900	Other	7N Light Rolling Laptop Case	04-Oct-13		Jay Peralta
19	4905	Other	7N Heavy Rolling Laptop Case	04-Oct-13		Nick Ortiz
31						

# Data Management Skills

## Filtering Data

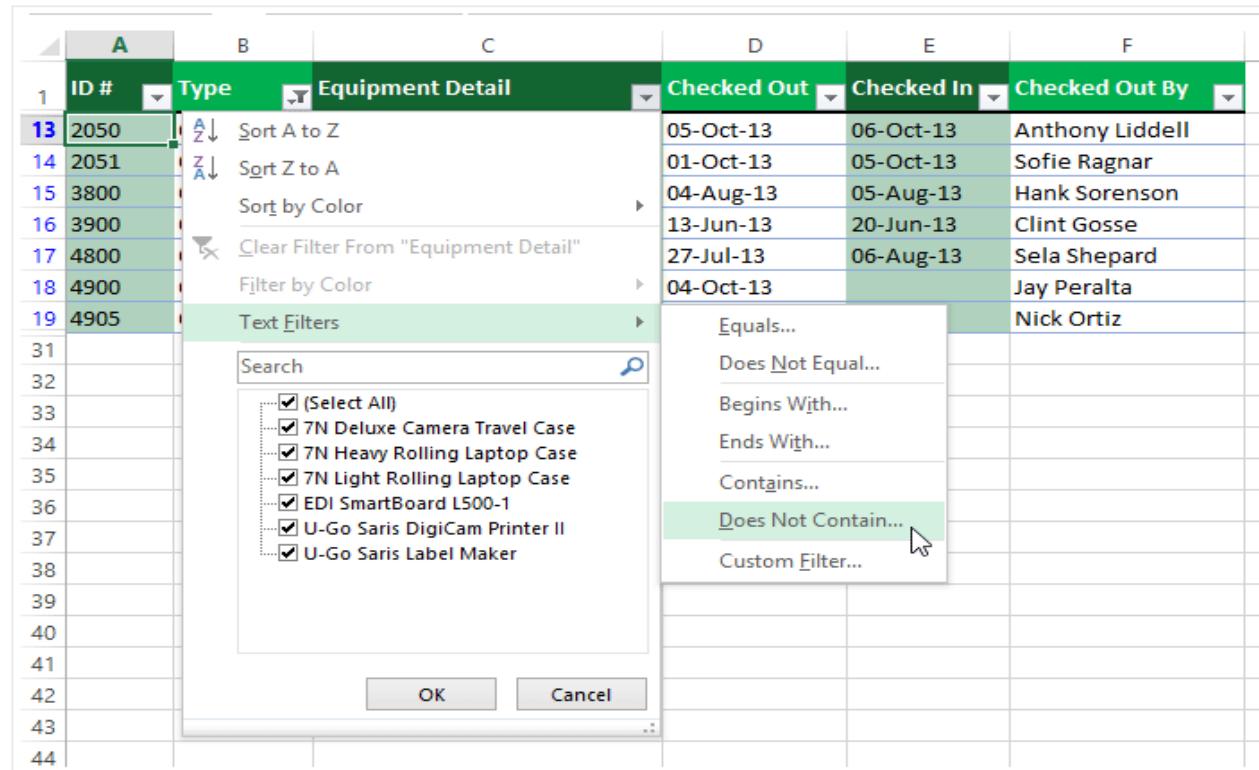
### Advanced filtering: Advanced text filters

3. The **Filter menu** will appear. Hover the mouse over **Text Filters**, then select the desired text filter from the drop-down menu. In our example, we'll choose **Does Not Contain...** to view data that does not contain specific text

# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced text filters



The screenshot shows a Microsoft Excel spreadsheet with data about equipment management. The columns are labeled A through F. Column A contains 'ID #' values from 1 to 19. Column B contains 'Type' names. Column C is titled 'Equipment Detail'. Column D contains 'Checked Out' dates. Column E contains 'Checked In' dates. Column F contains 'Checked Out By' names.

A context menu is open over the first row of data (row 1). The 'Text Filters' option is selected, opening a sub-menu. The 'Does Not Contain...' option is highlighted with a green background and a cursor is hovering over it. Other filter options shown include 'Select All', '7N Deluxe Camera Travel Case', '7N Heavy Rolling Laptop Case', '7N Light Rolling Laptop Case', 'EDI SmartBoard L500-1', 'U-Go Saris DigiCam Printer II', and 'U-Go Saris Label Maker'. Below the sub-menu are 'OK' and 'Cancel' buttons.

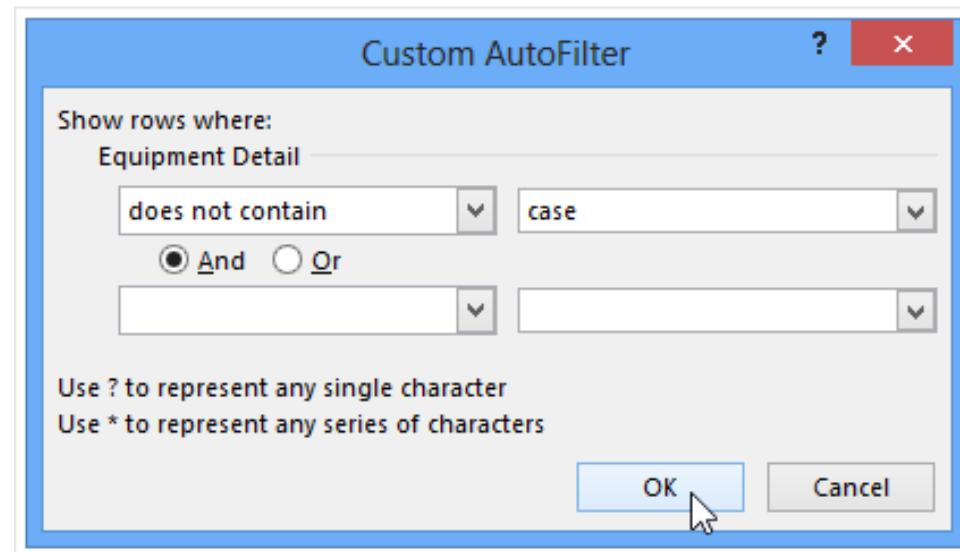
ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
13	2050		05-Oct-13	06-Oct-13	Anthony Liddell
14	2051		01-Oct-13	05-Oct-13	Sofie Ragnar
15	3800		04-Aug-13	05-Aug-13	Hank Sorenson
16	3900		13-Jun-13	20-Jun-13	Clint Gosse
17	4800		27-Jul-13	06-Aug-13	Sela Shepard
18	4900		04-Oct-13		Jay Peralta
19	4905				Nick Ortiz

# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced text filters

The **Custom AutoFilter** dialog box will appear. Enter the **desired text** to the right of the filter, then click **OK**. In our example, we'll type **case** to exclude any items containing this word.



# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced text filters

5. The data will be filtered by the selected text filter. In our example, our worksheet now displays items in the **Other** category that do not contain the word **case**.

A	B	C	D	E	F	
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
13	2050	Other	EDI SmartBoard L500-1	05-Oct-13	06-Oct-13	Anthony Liddell
14	2051	Other	EDI SmartBoard L500-1	01-Oct-13	05-Oct-13	Sofie Ragnar
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-13	05-Aug-13	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-13	20-Jun-13	Clint Gosse
31						

# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced number filters

These allow you to manipulate numbered data in different ways. In this example, we will display only certain types of equipment based on the range of ID numbers.

1. Select the Data tab, then click the Filter command. A drop-down arrow will appear in the header cell for each column. Note: If you've already added filters to your worksheet, you can skip this step.

# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced data filters

2. Click the **drop-down arrow** for the column you want to filter. In our example, we'll filter column **A** to view only a certain range of ID numbers.

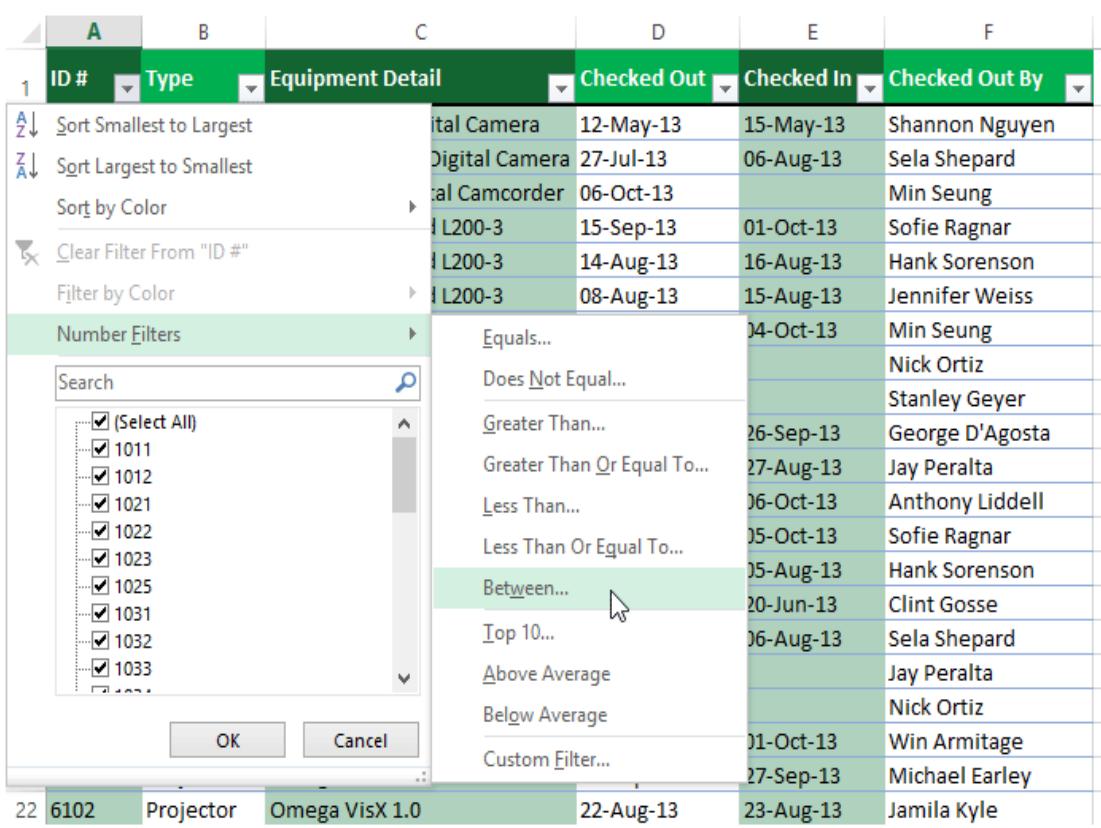
1	A	B	C	D	E	F
	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	ID #:	Saris Lumina Digital Camera	12-May-13	15-May-13	Shannon Nguyen
3	3005	(Showing All)	Saris Zoom Z-60 Digital Camera	27-Jul-13	06-Aug-13	Sela Shepard
4	1021	Laptop	15" EDI SmartPad L200-3	15-Sep-13	01-Oct-13	Sofie Ragnar
5	1022	Laptop	15" EDI SmartPad L200-3	14-Aug-13	16-Aug-13	Hank Sorenson
6	1023	Laptop	15" EDI SmartPad L200-3	08-Aug-13	15-Aug-13	Jennifer Weiss
7	3070	Camera	Omega PixL Digital Camcorder	06-Oct-13		Min Seung
8	1025	Laptop	15" EDI SmartPad L200-4X	26-Sep-13	04-Oct-13	Min Seung
9	1031	Laptop	17" Saris X-10 Laptop	04-Oct-13		Nick Ortiz
10	1032	Laptop	17" Saris X-10 Laptop	19-Sep-13		Stanley Geyer
11	1033	Laptop	17" Saris X-10 Laptop	24-Sep-13	26-Sep-13	George D'Agosta
12	1034	Laptop	17" Saris X-10 Laptop	25-Aug-13	27-Aug-13	Jay Peralta

# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced data filters

3. The **Filter** menu will appear. Hover the mouse over **Number Filters**, then select the desired number filter from the drop-down menu. In our example, we will choose **Between** to view ID numbers between a specific number range.



The screenshot shows a Microsoft Excel spreadsheet with columns A through F. Column A contains equipment IDs, column B contains types, column C contains equipment details, column D contains check-out dates, column E contains check-in dates, and column F contains checked-out-by names. A filter menu is open over column A, specifically over the 'ID #' header. The menu is titled 'Number Filters' and includes options like 'Equals...', 'Does Not Equal...', 'Greater Than...', 'Greater Than Or Equal To...', 'Less Than...', 'Less Than Or Equal To...', 'Between...', 'Top 10...', 'Above Average', 'Below Average', and 'Custom Filter...'. The 'Between...' option is highlighted with a green background and a cursor is hovering over it. The data in the spreadsheet includes entries for various cameras and camcorders checked out between August 2013 and September 2013, and checked in by various staff members.

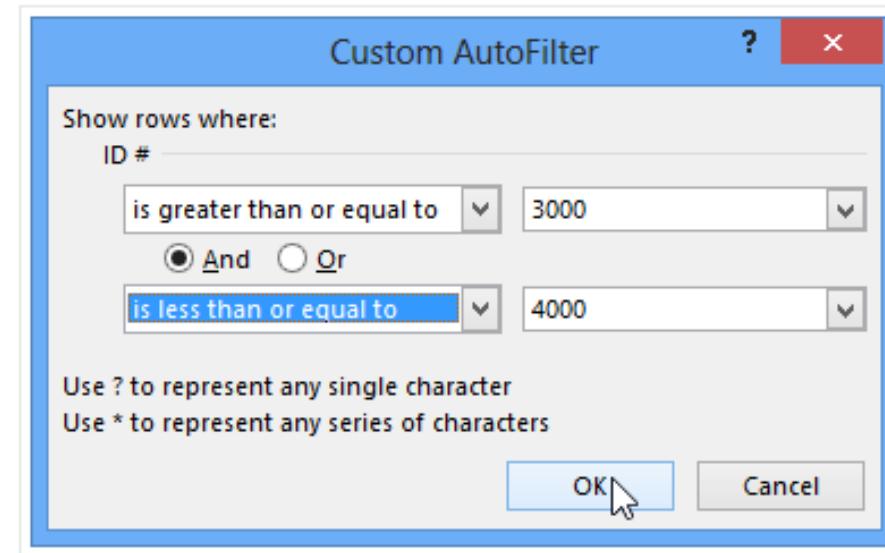
A	B	C	D	E	F	
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
A <sub>2</sub>	Sort Smallest to Largest	igital Camera	12-May-13	15-May-13	Shannon Nguyen	
Z <sub>2</sub>	Sort Largest to Smallest	Digital Camera	27-Jul-13	06-Aug-13	Sela Shepard	
A <sub>3</sub>	Sort by Color	igital Camcorder	06-Oct-13		Min Seung	
		L200-3	15-Sep-13	01-Oct-13	Sofie Ragnar	
		L200-3	14-Aug-13	16-Aug-13	Hank Sorenson	
		L200-3	08-Aug-13	15-Aug-13	Jennifer Weiss	
			04-Oct-13		Min Seung	
			Does Not Equal...		Nick Ortiz	
			Greater Than...		Stanley Geyer	
			Greater Than Or Equal To...		George D'Agosta	
			Less Than...		Jay Peralta	
			Less Than Or Equal To...		Anthony Liddell	
			Between...		Sofie Ragnar	
			Top 10...		Hank Sorenson	
			Above Average		Clint Gosse	
			Below Average		Sela Shepard	
			Custom Filter...		Jay Peralta	
22	6102	Projector	Omega VisX 1.0	22-Aug-13	23-Aug-13	Jamila Kyle

# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced data filters

4. The **Custom AutoFilter** dialog box will appear. Enter the desired **number(s)** to the right of each filter, then click **OK**. In our example, we want to filter for ID numbers greater than or equal to **3000** but less than or equal to **4000**, which will display ID numbers in the 3000-4000 range.



# Data Management Skills

## Filtering Data

### Advanced filtering: Advanced data filters

5. The data will be filtered by the selected number filter. In our example, only items with an ID number between **3000** and **4000** are visible.

	A	B	C	D	E	F
1	ID #	Type	Equipment Detail	Checked Out	Checked In	Checked Out By
2	3000	Camera	Saris Lumina Digital Camera	12-May-13	15-May-13	Shannon Nguyen
3	3005	Camera	Saris Zoom Z-60 Digital Camera	27-Jul-13	06-Aug-13	Sela Shepard
4	3070	Camera	Omega PixL Digital Camcorder	06-Oct-13		Min Seung
15	3800	Other	U-Go Saris DigiCam Printer II	04-Aug-13	05-Aug-13	Hank Sorenson
16	3900	Other	U-Go Saris Label Maker	13-Jun-13	20-Jun-13	Clint Gosse
31						

# Data Management Skills

## Exercise



1. Open your [practice workbook](#).
2. Apply a **filter** to a column. If you are using the example, filter the **Type** column (column **B**) so it displays only **laptops** and **cameras**.
3. Add another filter by **searching**. If you are using the example, search for **EDI** brand equipment in the **Equipment Detail** column (column **C**).
4. **Clear** both filters.
5. Use an advanced **text filter** to view data that does not contain a certain word or phrase. If you are using the example, display data that **does not contain** the word **saris** (this should exclude all Saris brand equipment).
6. Use an advanced **date filter** to view data from a certain time period. If you are using the example, display only the equipment that was **checked out** in **September 2013**.
7. Use an advanced **number filter** to view numbers **less than** a certain amount. If you are using the example, display all items with an **ID#** below **3000**.

# Data Management Skills

## Tables

### Formatting data as a table

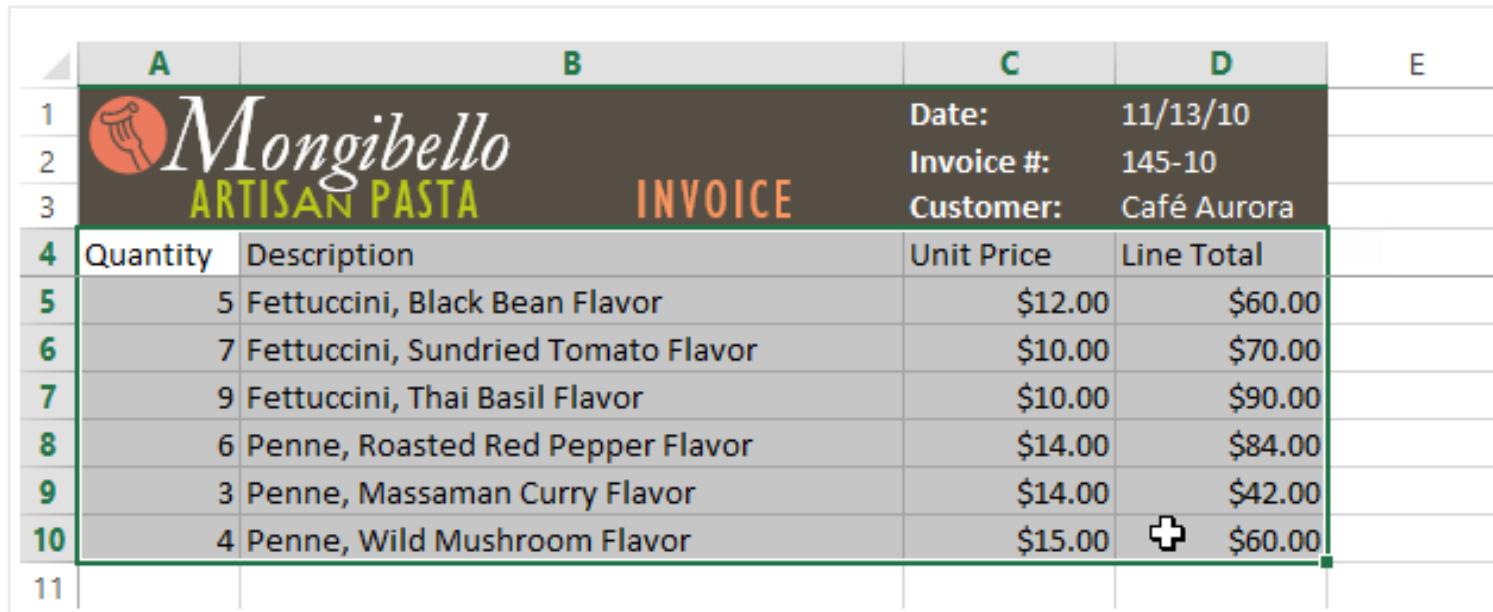
Once you've entered information into a worksheet, you may want to format your data as a **table**. Just like regular formatting, tables can improve the **look and feel** of your workbook, but they'll also help to **organize** your content and make your data easier to use. Excel includes several **tools** and **predefined table styles**, allowing you to create tables quickly and easily

# Data Management Skills

## Tables

### Formatting data as a table

1. Select the **cells** you want to format as a table. In our example, we'll select the cell range **A4:D10**.



The screenshot shows a Microsoft Excel spreadsheet with a table of pasta invoices. The table has columns for Quantity, Description, Unit Price, and Line Total. The data starts from row 4 and ends at row 10. Row 11 is a blank row.

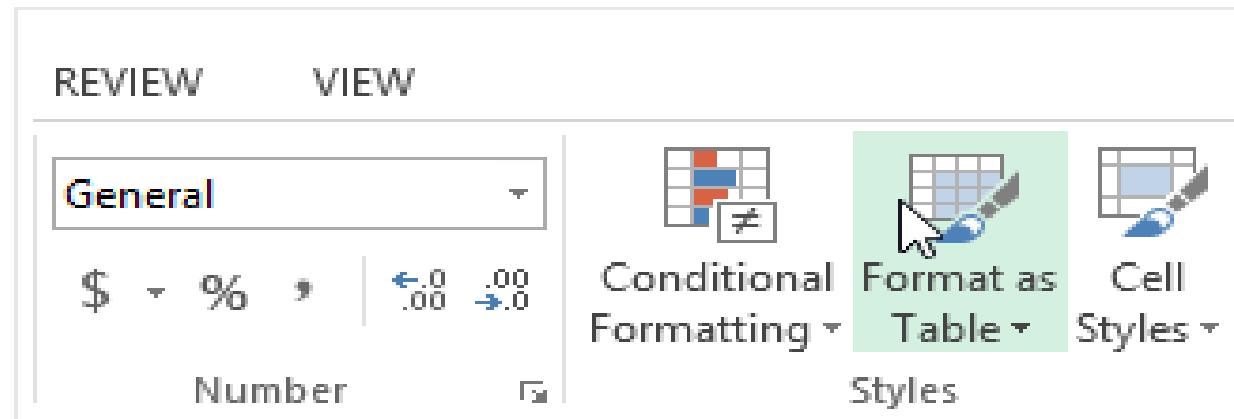
Quantity	Description	Unit Price	Line Total
5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00
7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
3	Penne, Massaman Curry Flavor	\$14.00	\$42.00
4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00

# Data Management Skills

## Tables

### Formatting data as a table

2. From the **Home** tab, click the **Format as Table** command in the **Styles** group

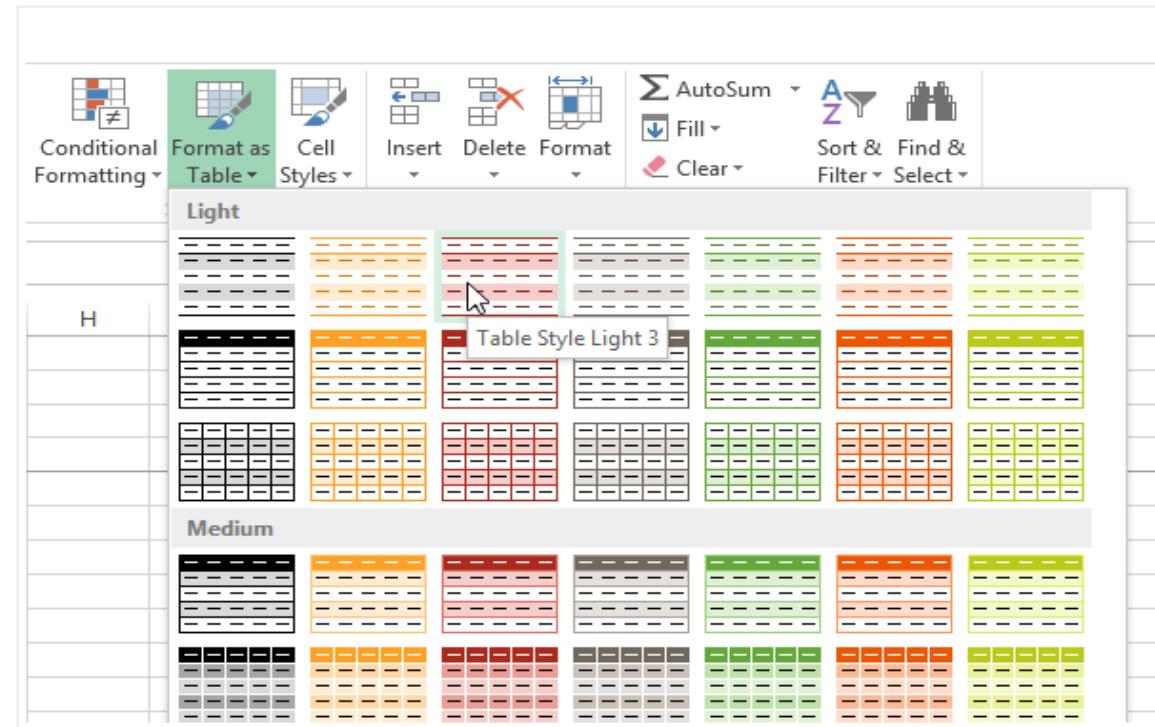


# Data Management Skills

## Tables

### Formatting data as a table

3. Select a **table style** from the drop-down menu.

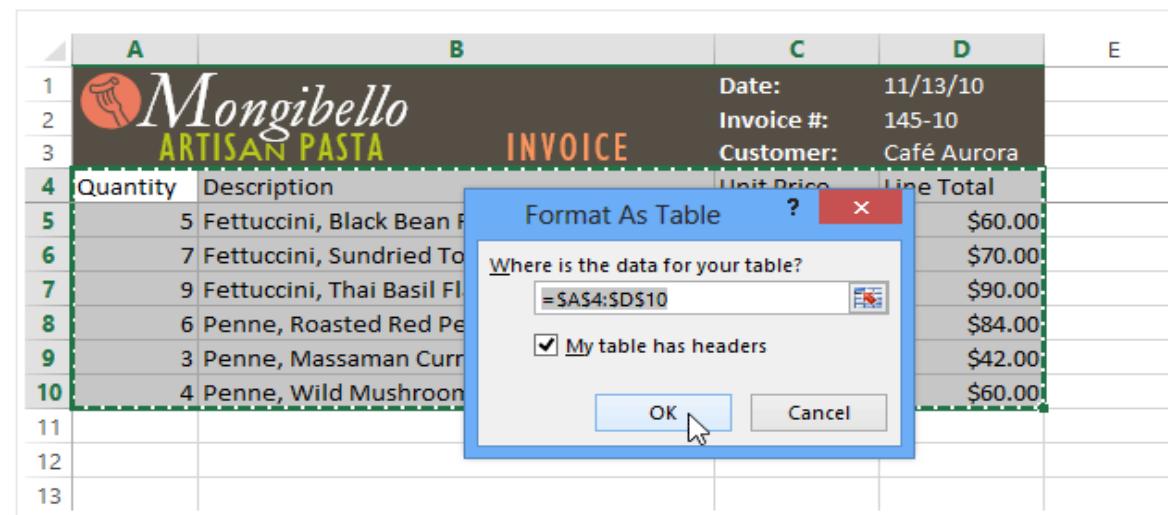


# Data Management Skills

## Tables

### Formatting data as a table

4. A dialog box will appear, confirming the selected **cell range** for the table.
5. If your table has **headers**, check the box next to **My table has headers**, then click **OK**



# Data Management Skills

## Tables

### Formatting data as a table

6. The cell range will be formatted in the selected table style.

Note that, tables include **filtering** by default. You can filter your data at any time using the **drop-down arrows** in the header cells.

A	B	C	D	E
1	 Mongibello ARTISAN PASTA	Date:	11/13/10	
2		Invoice #:	145-10	
3		Customer:	Café Aurora	
4	Quantity	Description	Unit Price	Line Total
5	5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00
6	7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
7	9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
8	6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
9	3	Penne, Massaman Curry Flavor	\$14.00	\$42.00
10	4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11				

# Data Management Skills

## Tables

### Modifying tables: Adding rows or columns to a table

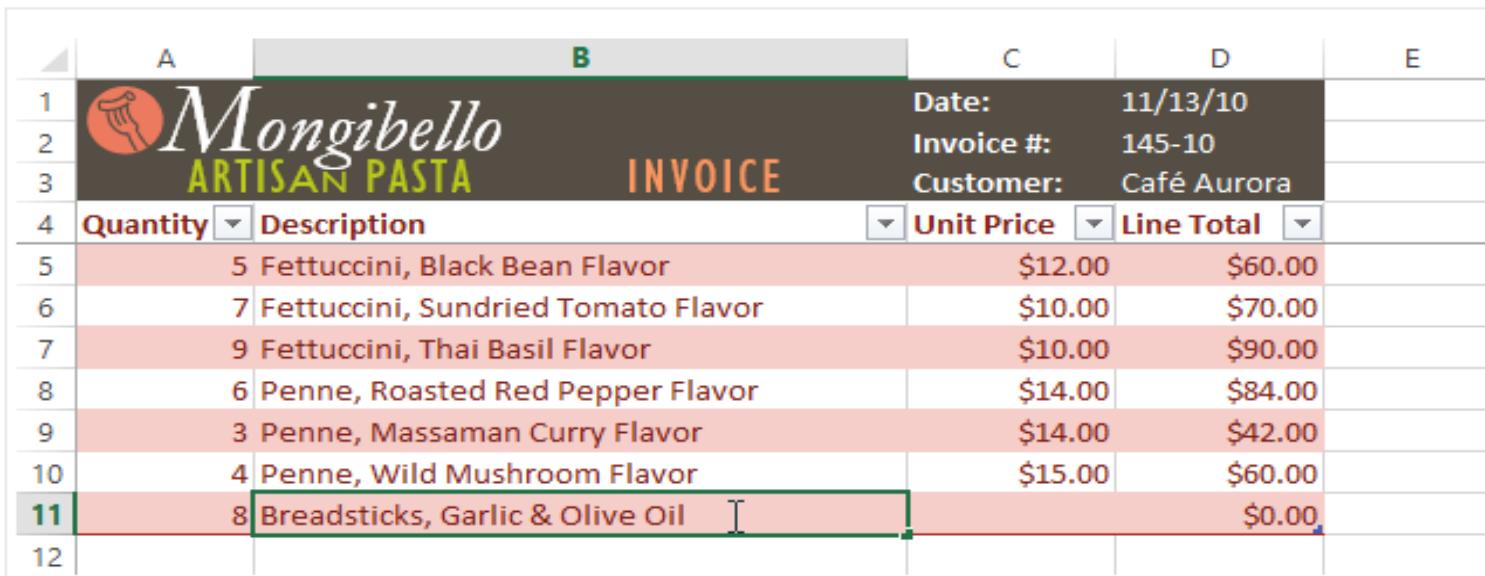
If you need to fit more content in your table, Excel allows you to modify the **table size** by including additional rows and columns. There are two simple ways to change the table size:

# Data Management Skills

## Tables

### Modifying tables: Adding rows or columns to a table

Begin typing new content after the last row or column in the table. The row or column will be included in the table automatically.



The screenshot shows an Excel spreadsheet with a table for an invoice from Mongibello Artisan Pasta. The table includes columns for Quantity, Description, Unit Price, and Line Total. A new row is being added at the bottom.

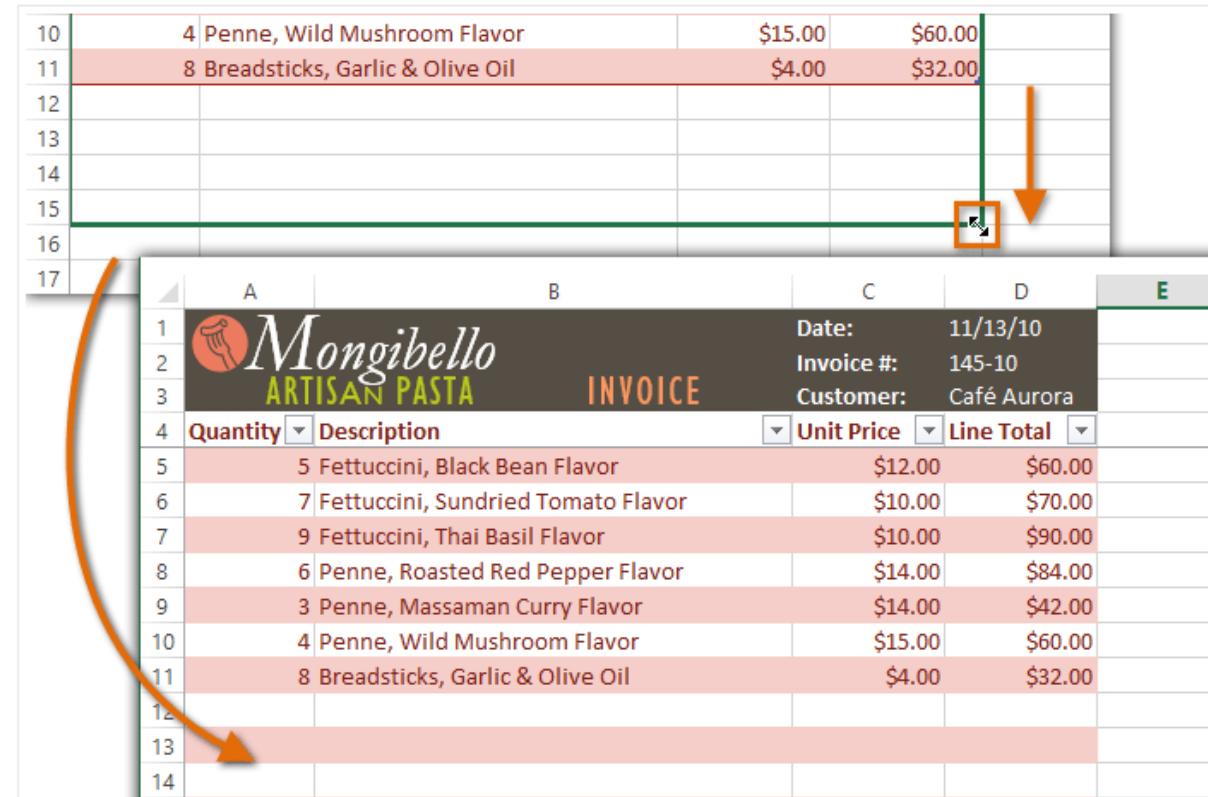
A	B	C	D	E
1	 <b>Mongibello</b> ARTISAN PASTA	<b>INVOICE</b>	Date:	11/13/10
2			Invoice #:	145-10
3			Customer:	Café Aurora
4	Quantity	Description	Unit Price	Line Total
5		5 Fettuccini, Black Bean Flavor	\$12.00	\$60.00
6		7 Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
7		9 Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
8		6 Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
9		3 Penne, Massaman Curry Flavor	\$14.00	\$42.00
10		4 Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11		8 Breadsticks, Garlic & Olive Oil		\$0.00
12				

# Data Management Skills

## Tables

### Modifying tables: Adding rows or columns to a table

Another way is to Click, hold, and drag the **bottom-right corner** of the table to create additional rows or columns.



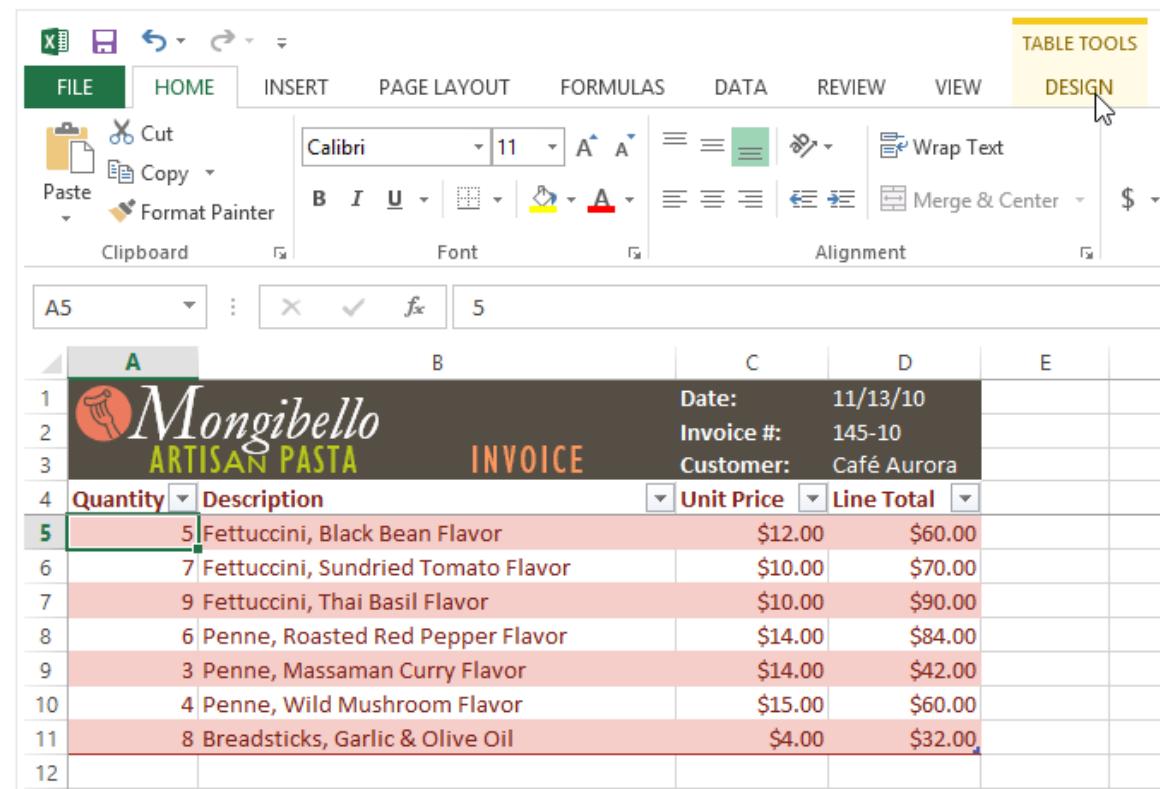
10	4 Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11	8 Breadsticks, Garlic & Olive Oil	\$4.00	\$32.00
12			
13			
14			
15			
16			
17			
A	B	C	D
1	 Mongibello ARTISAN PASTA	INVOICE	Date: 11/13/10
2			Invoice #: 145-10
3			Customer: Café Aurora
4	Quantity ▾ Description	Unit Price ▾	Line Total ▾
5	5 Fettuccini, Black Bean Flavor	\$12.00	\$60.00
6	7 Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
7	9 Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
8	6 Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
9	3 Penne, Massaman Curry Flavor	\$14.00	\$42.00
10	4 Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11	8 Breadsticks, Garlic & Olive Oil	\$4.00	\$32.00
12			
13			
14			

# Data Management Skills

## Tables

### Modifying tables: Changing table style

1. Select **any cell** in your table, then click the **Design** tab.



The screenshot shows a Microsoft Excel spreadsheet with a table containing Mongibello Artisan Pasta invoice data. The 'Design' tab is active in the ribbon. A cell in the table, specifically row 5, column A, is selected and highlighted with a green border. The table has columns for Quantity, Description, Unit Price, and Line Total. The data includes various pasta items and their prices.

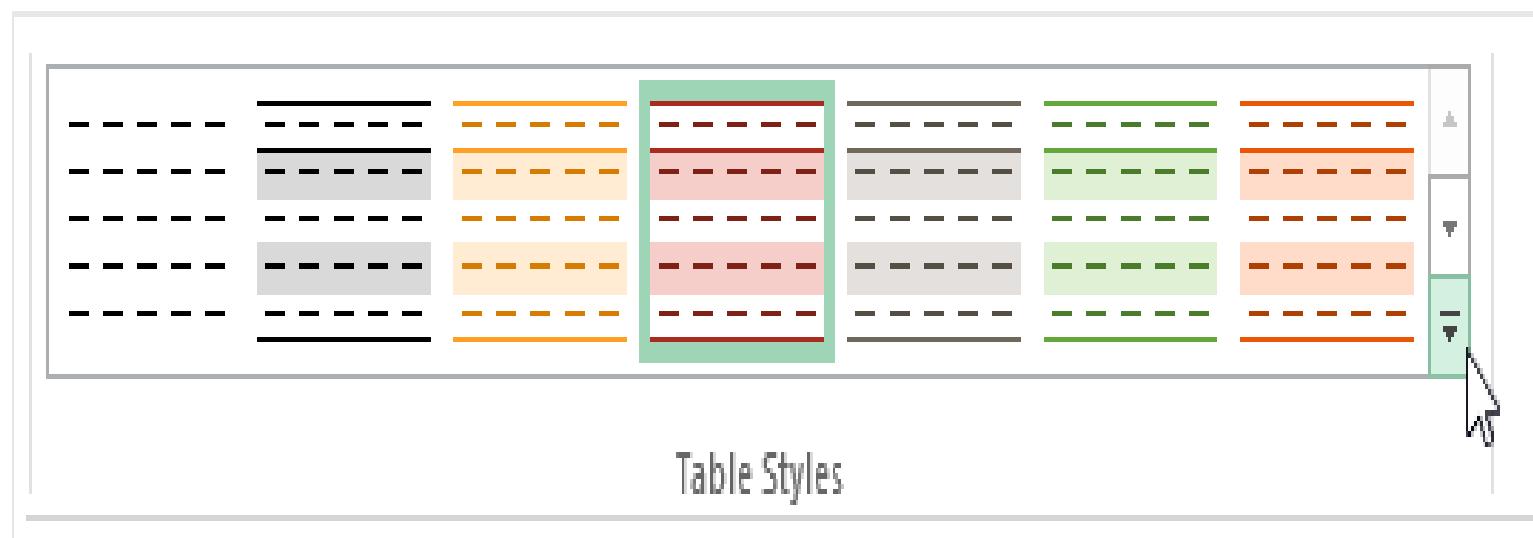
	A	B	C	D	E	F
1	 Mongibello ARTISAN PASTA	INVOICE	Date:	11/13/10		
2			Invoice #:	145-10		
3			Customer:	Café Aurora		
4	Quantity	Description	Unit Price	Line Total		
5	5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00		
6	7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00		
7	9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00		
8	6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00		
9	3	Penne, Massaman Curry Flavor	\$14.00	\$42.00		
10	4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00		
11	8	Breadsticks, Garlic & Olive Oil	\$4.00	\$32.00		
12						

# Data Management Skills

## Tables

### Modifying tables: Changing table style

2. Locate the **Table Styles** group, then click the **More** drop-down arrow to see all available table styles.

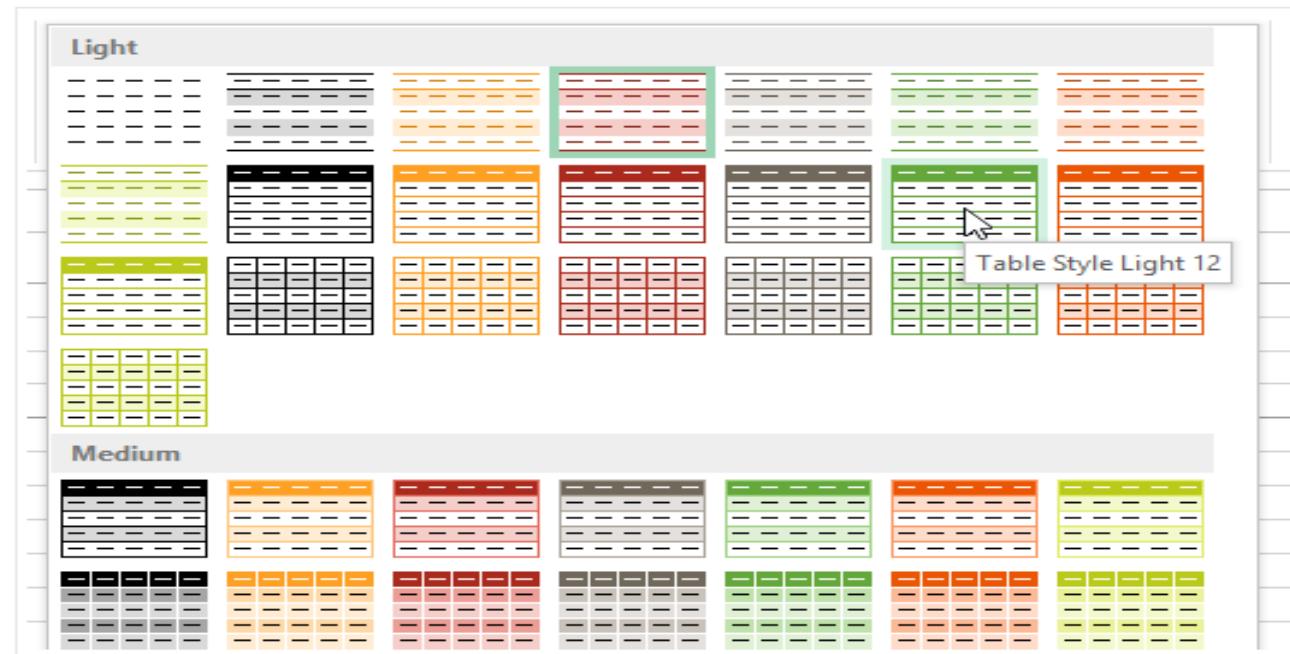


# Data Management Skills

## Tables

### Modifying tables: Changing table style

3. Select the **desired style**.

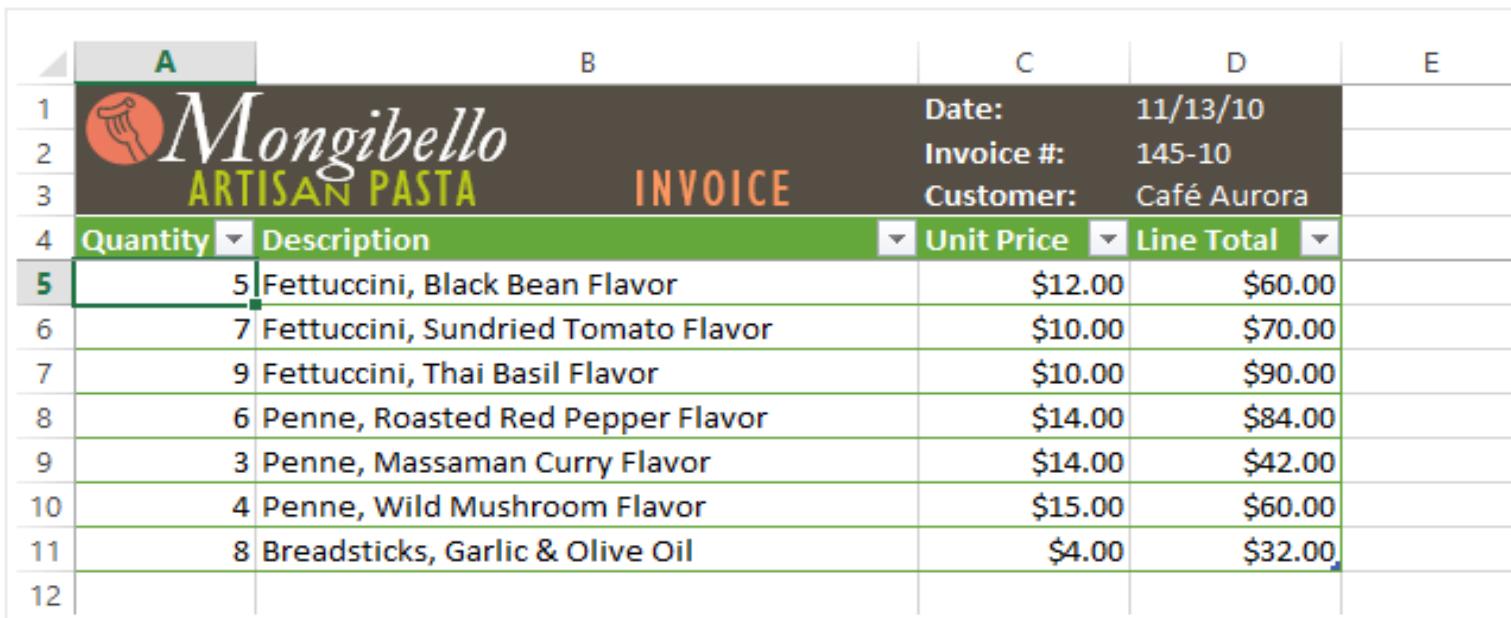


# Data Management Skills

## Tables

### Modifying tables: Changing table style

4. The selected **table style** will appear.



A	B	C	D	E
1	 <b>Mongibello</b> ARTISAN PASTA	Date:	11/13/10	
2		Invoice #:	145-10	
3		Customer:	Café Aurora	
4	Quantity	Description	Unit Price	Line Total
5	5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00
6	7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
7	9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
8	6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
9	3	Penne, Massaman Curry Flavor	\$14.00	\$42.00
10	4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11	8	Breadsticks, Garlic & Olive Oil	\$4.00	\$32.00
12				

# Data Management Skills

## Tables

### Modifying tables: modifying the table style options

You can turn various options **on** or **off** to change the appearance of any table. There are six options: **Header Row**, **Total Row**, **Banded Rows**, **First Column**, **Last Column**, and **Banded Columns**.

# Data Management Skills

## Tables

### Modifying tables: modifying the table style options

1. Select **any cell** in your table.
2. From the **Design** tab,  
**check or uncheck** the desired  
options in the **Table Style  
Options** group. In our example,  
we'll check **Total Row** to  
automatically include a **total** for  
our table.



# Data Management Skills

## Tables

### Modifying tables: modifying the table style options

3. The table style will be modified. In our example, a **new row** has been added to the table with a **formula** that will automatically calculate the total value of the cells in column D.

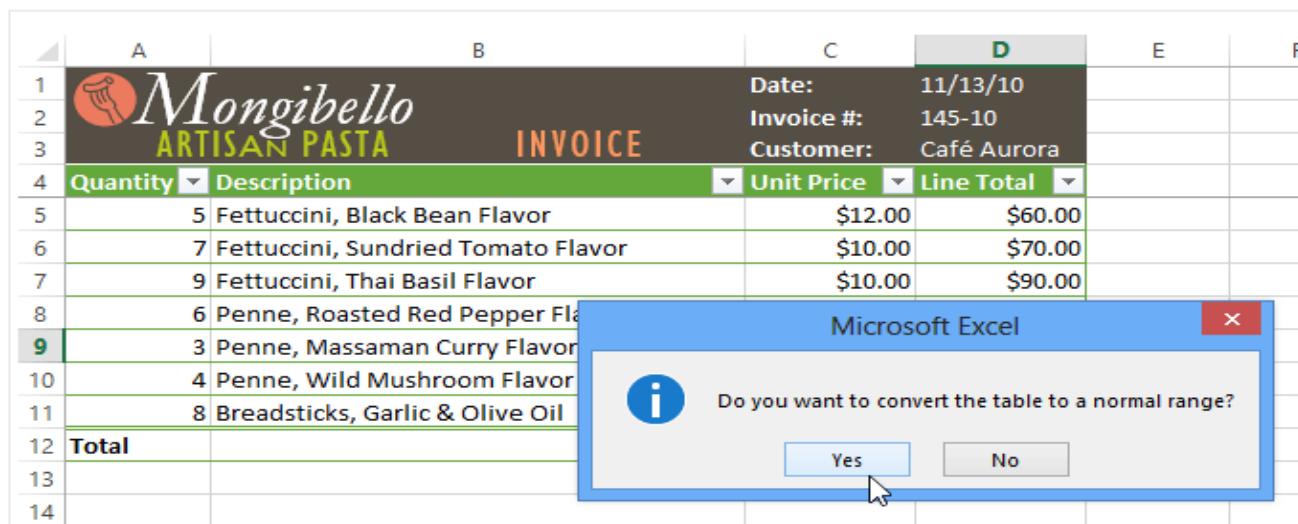
A	B	C	D	E
1	 <b>Mongibello</b> ARTISAN PASTA	Date:	11/13/10	
2		Invoice #:	145-10	
3		Customer:	Café Aurora	
4	Quantity	Description	Unit Price	Line Total
5	5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00
6	7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00
7	9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00
8	6	Penne, Roasted Red Pepper Flavor	\$14.00	\$84.00
9	3	Penne, Massaman Curry Flavor	\$14.00	\$42.00
10	4	Penne, Wild Mushroom Flavor	\$15.00	\$60.00
11	8	Breadsticks, Garlic & Olive Oil	\$4.00	\$32.00
12	Total			\$438.00
13				

# Data Management Skills

## Tables

### Modifying tables: Removing the table options

1. Select **any cell** in your table. The **Design** tab will appear.
2. Click the **Convert to Range** command in the **Tools** group.
3. A dialog box will appear. Click **Yes**.



The screenshot shows a Microsoft Excel spreadsheet titled "Mongibello ARTISAN PASTA INVOICE". The table includes columns for Quantity, Description, Unit Price, and Line Total. Row 4 contains the header information: Date (11/13/10), Invoice # (145-10), and Customer (Café Aurora). Rows 5 through 11 list various pasta items with their descriptions, unit prices, and line totals. Row 12 is labeled "Total". A cursor is hovering over the "Yes" button in a Microsoft Excel dialog box that appears over the table. The dialog box has the title "Microsoft Excel" and the message "Do you want to convert the table to a normal range?".

A	B	C	D	E	F
1	 Mongibello		Date:	11/13/10	
2	ARTISAN PASTA		Invoice #:	145-10	
3			Customer:	Café Aurora	
4	Quantity	Description	Unit Price	Line Total	
5	5	Fettuccini, Black Bean Flavor	\$12.00	\$60.00	
6	7	Fettuccini, Sundried Tomato Flavor	\$10.00	\$70.00	
7	9	Fettuccini, Thai Basil Flavor	\$10.00	\$90.00	
8	6	Penne, Roasted Red Pepper Fl			
9	3	Penne, Massaman Curry Flavor			
10	4	Penne, Wild Mushroom Flavor			
11	8	Breadsticks, Garlic & Olive Oil			
12	Total				
13					
14					

# Data Management Skills



## Exercise

1. Open your [practice workbook](#).
2. Format a range of cells as a **table**. If you are using the example, format the cell range **A1:G25**.
3. **Add** a row or column to the table.
4. Choose a new **table style**.
5. Change the **table style options** to include a **monthly total** row.
6. **Remove** the table.

# Questions



# Thank You

