

Excel @ Excel

Texas Association of County Auditors Spring 2019



- Upgrading your Excel Skills

Detail notes to be downloaded or printed for future Reference

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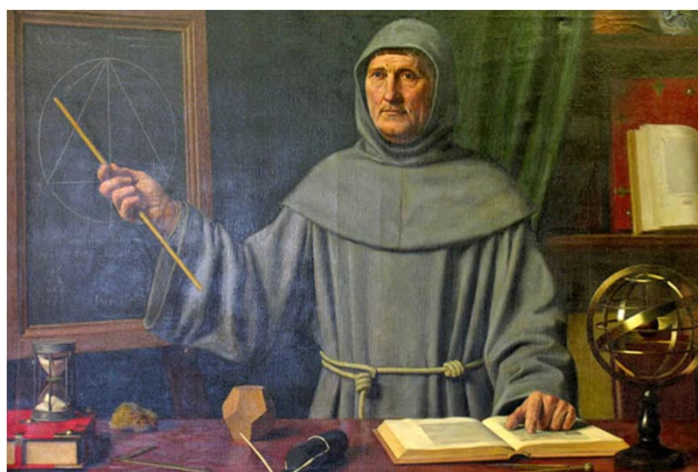
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Overview

- History
- Navigation
- Formulas
- Tables / Filters
- Formatting
- FlashFill / AutoFill
- Graphs
- Cool Tips

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Luca Pacioli



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History

100 BC	Columnar Pads (Paper)
500 BC	Abacus
1960	Calculator
1978	VisiCalc
1983	Lotus 123
1985	Excel

5

Notes

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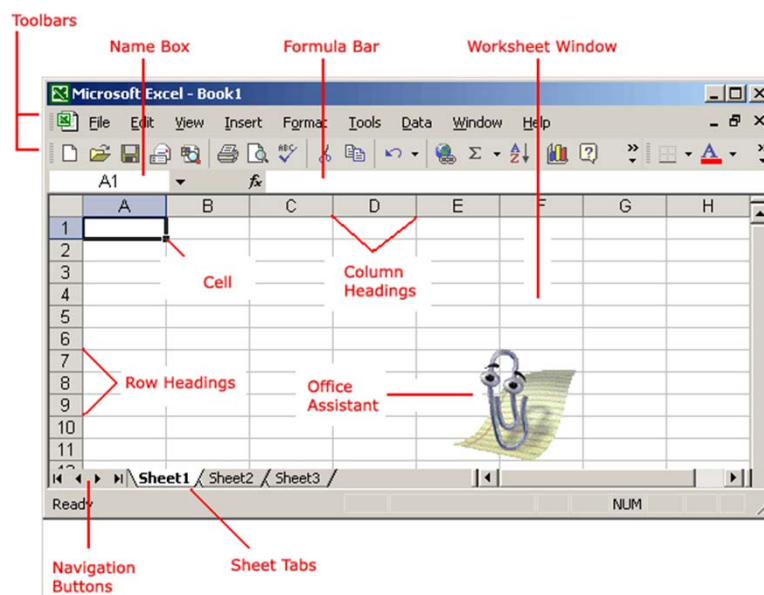
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Navigating

- By the end of this lesson, you should be able to:
 - Identify the parts of the Excel window
 - Understand workbooks and worksheets
 - Know how to change Excel Options
 - Use shortcut keys for data entry
 - Move around a workbook quickly and easily

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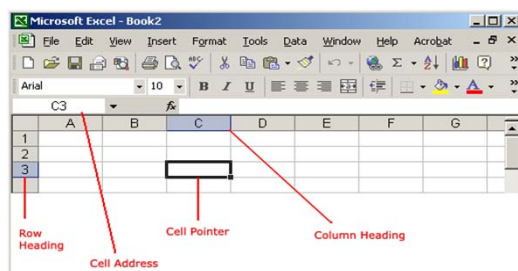
The Excel Window



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The Cell

An Excel worksheet is made up of columns and rows. Where these columns and rows intersect, they form little boxes called **cells**. The active cell—or the cell that can be acted upon—reveals a dark border. All other cells reveal a light gray border. Each cell has a name. Its name is comprised of two parts: the column letter and the row number.



In the following picture, the cell C3—formed by the intersection of column C and row 3—contains the dark border. It is the active cell.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						

Important terms

- Each cell has a unique **cell address** composed of a cell's column and row.
- The **active cell** is the cell that receives the data or command you give it.
- A darkened border, called the **cell pointer**, identifies it.

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Navigating

Workbook

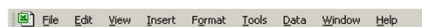
Also called a spreadsheet, the workbook is a unique file created by Excel.

Title bar



The title bar displays both the name of the application and the name of the spreadsheet.

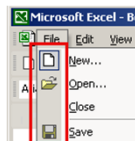
Menu bar



The menu bar displays all of the menus available for use in Excel. The contents of any

Toolbar

Some commands in the menus have pictures or icons associated with them. These pictures may also appear as shortcuts in the toolbar.



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Navigating

Column headings



Each Excel spreadsheet contains 256 columns. Each column is named by a letter or combination of letters.

Row headings



Each spreadsheet contains 65,536 rows. Each row is named by a number.

Name box



This shows the address of the current selection or active cell.

Formula bar

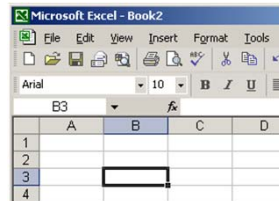


The formula bar displays information entered—or being entered as you type—in the current or active cell. The contents of a cell can also be edited in the formula bar.

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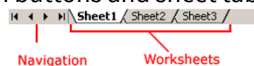
Navigating

Cell



A cell is an intersection of a column and row. Each cell has a unique cell address. In the picture above, the cell address of the selected cell is B3. The heavy border around the selected cell is called the cell pointer.

Navigation buttons and sheet tabs



Navigation buttons allow you to move to another worksheet in an Excel workbook. They are used to display the first, previous, next, and last worksheets in the workbook. Sheet tabs separate a workbook into specific worksheets. A workbook defaults to three worksheets. A workbook must contain at least one worksheet.

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Navigating

Workbooks and worksheets

A **workbook** automatically shows in the workspace when you open Microsoft Excel.

Each workbook contains three **worksheets**.

A worksheet is a grid of cells consisting of 1,048,576 rows by 256 columns.

	A	B	C	D	E	F
1						
2						
3						
4						
5						

Column headings are referenced by alphabetic characters in the gray boxes that run across the Excel screen, beginning with column A and ending with column IV.

Rows are referenced by numbers that appear on the left and then run down the Excel screen. The first row is named row 1, while the last row is named 65536.

Important terms

- A **workbook** is made up of three worksheets.
- The worksheets are labeled **Sheet1**, **Sheet2**, and **Sheet3**.
- Each Excel worksheet is made up of columns and rows.

In order to access a **worksheet**, click the tab that says **Sheet#**.

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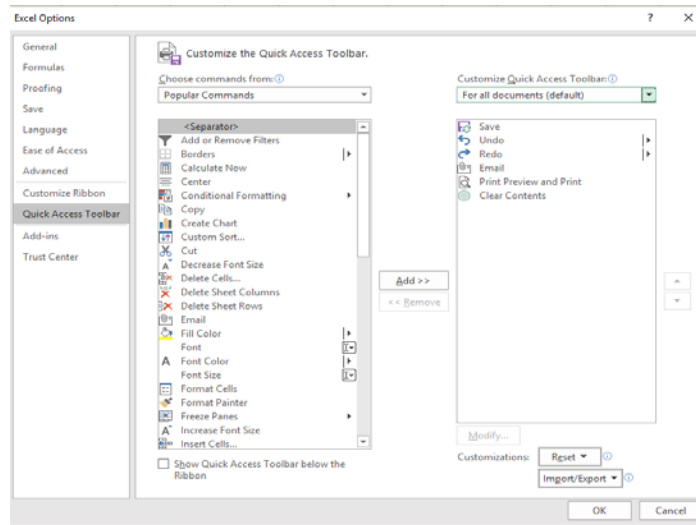
Navigation Commands

Movement Shortcuts

Press This . . .	To Move . . .
Arrow keys	One cell in the direction of the arrow
Tab	One cell to the right
Shift+Tab	One cell to the left
Ctrl+any arrow key	To the edge of the current data region in a worksheet (the first or last cell that isn't empty)
End	To the cell in the lower-right corner of the window (This works only when the Scroll Lock key has been pressed on your keyboard to turn on the Scroll Lock function.)
Ctrl+End	To the last cell in the worksheet, in the lowest used row of the rightmost used column
Home	To the beginning of the row containing the active cell
Ctrl+Home	To the beginning of the worksheet (cell A1)
Page Down	One screen down (The cell cursor moves, too.)
Alt+Page Down	One screen to the right
Ctrl+Page Down	To the next sheet in the workbook
Page Up	One screen up (The cell cursor moves, too.)
Alt+Page Up	One screen to the left
Ctrl+Page Up	To the previous sheet in the workbook

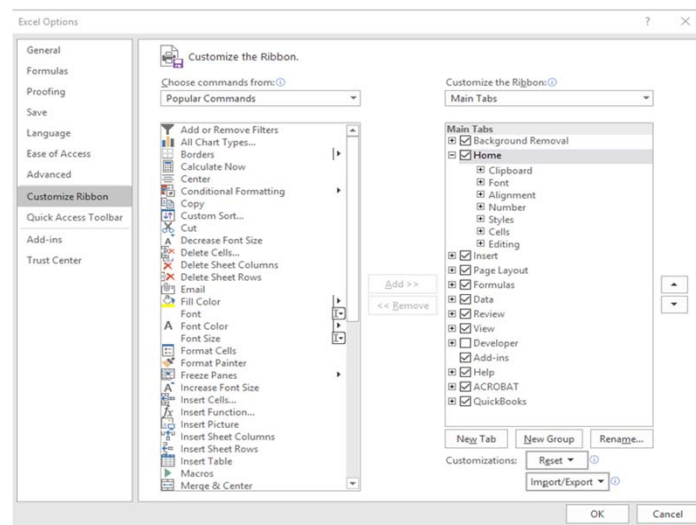
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Customize IT



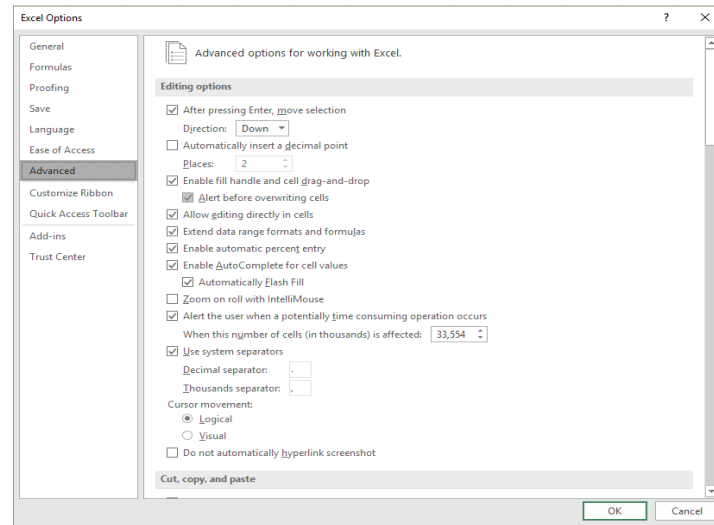
15

Customize IT



16

Customize IT



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Notes

[illegible]

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Formulas

- By the end of this lesson, you should be able to:
 - Know the difference in a formula and a function
 - Enter basic formulas in Excel
 - Understand the Formula Wizard
 - Quickly access totals, sums and averages
 - Know when to use absolute formula references

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Formulas

- Formula vs Function

The **difference** is that a **function** is a built-in calculation, while a **formula** is a user-defined calculation. A **formula** could just use a single **function**.

For example, if you enter =AVERAGE(A1:A56) , that is a **formula**, using the AVERAGE **function**

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Formulas

- **The basics of Excel formulas**
- **Formula** is an expression that calculates the value of a cell. For example, `=A2+A2+A3+A4` is a **formula** that adds up the values in cells A2 to A4.
- Function is a predefined **formula** already available in **Excel**.

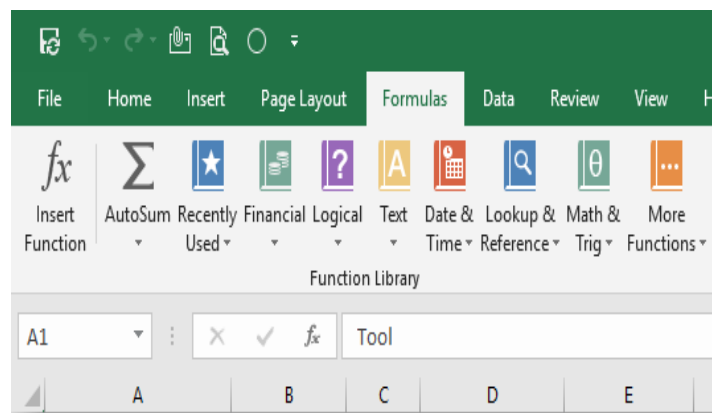
	A	B	C
1	Value A	ValueB	Product of A*B
2	10	2	<code>=A2*B2</code>
3	4	4	<code>=A3*B3</code>
4	4	2	<code>=A4*B4</code>
5	43	23	<code>=A5*B5</code>
6	12	3	<code>=A6*B6</code>
7			<code>=sum(D2:D6)</code>

The screenshot shows the Excel interface. The formula bar at the top contains the formula `=sum(b2,c2)`, which is circled in red with a '1'. Below it, a worksheet is visible with a table of sales data. The table has columns for Month, Sales 2010, Sales 2009, and Totals. The formula `=sum(b2,c2)` is entered in cell D2, which is also circled in red with a '2'. Red arrows labeled 'a' and 'b' point to the formula bar and the cell D2 respectively.

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Formulas

- **Formula Bar**



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Formulas

$$\bullet f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$$

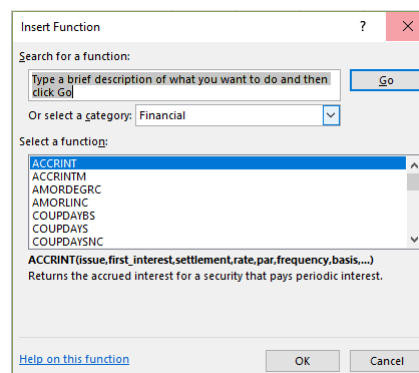
Σ AutoSum ▼

Σ AutoSum ▼

X 2

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Formulas



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Notes

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Tables Filters & Lists

- By the end of this lesson, you should be able to:
 - Know how to quickly create a table in Excel
 - Use filters in your table
 - Use advanced filtering
 - Add summary data to your table
 - Use Quick Analysis
 - Clear your formats and filters

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Tables Filters & Lists

• Tables

What is an Excel Table?

In Excel 2007, and later versions, you can use the Table command to convert a list of data into a formatted Excel Table. Tables have many features, such as sorting and filtering, that will help you organize and view your data.

	A	B	C	D	E	F	G	H
1	Product Sales							
3	Date	Region	Product	Qty	Cost	Amt	Tax	Total
4	1-Apr	East	Paper	73	12.95	945.35	66.17	1,011.52
5	2-Apr	West	Pens	40	2.19	87.60	6.13	93.73
6	1-Apr	West	Paper	33	12.95	427.35	29.91	457.26
7	3-Apr	East	Paper	21	12.95	271.95	19.04	290.99
8	2-Apr	East	Pens	14	2.19	30.66	2.15	32.81
9	3-Apr	West	Paper	10	12.95	129.50	9.07	138.57

An Excel Table makes an excellent source for a pivot table, so you should use this feature if you plan to create a Pivot Table from the data.

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Tables Filters & Lists

Preparing Your Data

Before you create the formatted Excel Table, follow these guidelines for organizing your data.

- The data should be **organized in rows and columns**, with each row containing information about one record, such as a sales order, or inventory transaction.
- In the first row of the list, each column should contain a short, descriptive and **unique heading**.
- Each column in the list should contain **one type of data**, such as dates, currency, or text.
- Each row in the list should contain the **details for one record**, such as a sales order. If possible, include a unique identifier for each row, such as an order number.
- The list should have **no blank rows** within it, and no completely blank columns.
- The list should be **separated from any other data** on the worksheet, with at least one blank row and one blank column between the list and the other data.

	A	B	C	D	E	F	G	H	I
1	Product Sales								
2									
3	Date	Region	Product	Qty	Cost	Amt	Tax	Total	
4	1-Apr	East	Paper	73	12.95	945.35	66.17	1,011.52	
5	1-Apr	West	Paper	33	12.95	427.35	29.91	457.26	
6	2-Apr	East	Pens	14	2.19	30.66	2.15	32.81	
7	2-Apr	West	Pens	40	2.19	87.60	6.13	93.73	
8	3-Apr	East	Paper	21	12.95	271.95	19.04	290.99	
9	3-Apr	West	Paper	10	12.95	129.50	9.07	138.57	
10									
11									

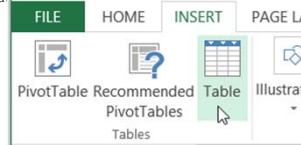
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Tables Filters & Lists

Creating an Excel Table

After your data is organized, as described above, you're ready to create the formatted Table.

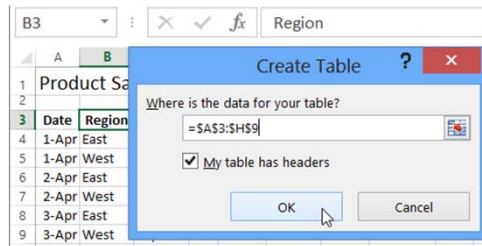
1. Select a cell in the list of data that you prepared.
2. On the Ribbon, click the Insert tab.



3. In the Tables group, click the Table command.

4. In the Create Table dialog box, the range for your data should automatically appear, and the *My table has headers* option is checked. If necessary, you can adjust the range, and check box.

5. Click OK to accept these settings.



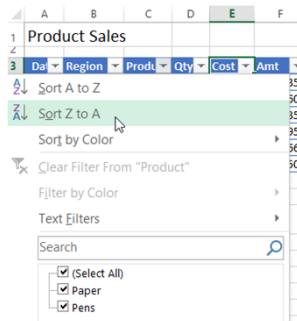
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Tables Filters & Lists

• Sort & Filter the Data

Your list is now an Excel Table, and is automatically formatted with a default Table Style, which you can change.

The heading cells have drop down arrows that you can use to sort or filter the data.



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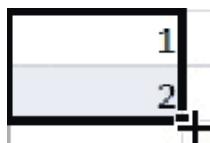
AutoFill

- By the end of this lesson, you should be able to:
 - Add Numbers/Patterns/Alphabet/Months/Dates
 - Customize Lists for AutoFill - Alpha
 - Quickly Drag & Drop Data with the “Handle”

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AutoFill

- How to Use the Fill Handle to Autofill
- The fastest way to autofill is to use Excel's Fill Handle: a plus sign that displays when the mouse hovers over the bottom right corner of a selected cell.
- Select the cell(s) containing the data you entered, drag the Fill Handle to select the cells to autofill, and release the mouse.



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AutoFill

- Autofill Cells with the Same Value:
- For adjacent cells, type the starting value in the first cell, select that cells and those to autofill, and press Ctrl + D.
- Another method is after typing the first entry. hover the mouse in that cell until the Fill Handle displays, and drag the Fill Handle to select and fill the other cells.
- Autofill non-adjacent cells or cell ranges? First, select the cells while pressing the Ctrl key. Type the value to be replicated, and press Ctrl + Enter.

	A
1	Sub-total
2	Sub-total
3	Sub-total
4	Sub-total
5	Sub-total

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AutoFill

- Autofill Dates in Excel:
- A common use of the autofill function of Excel is to autofill dates. For sequential dates, which is the default, just type the first date and drag with the Fill Handle to select and autofill additional cells.
- The easiest way to autofill non-sequential dates is to enter the first two dates and drag with the Fill Handle to select and autofill additional cells. We cover other methods in How to Autofill Dates. Or you can enter the first date, press and hold the right-mouse button, and drag the Fill Handle to select the cells to be filled. Then click "Series" on the menu that displays, enter the desired Step Value, and click OK.

	A
1	01/01/19
2	01/02/19
3	01/03/19
4	01/04/19
5	01/05/19

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AutoFill

- Autofill a Linear Series:
- In a linear series of numbers, the same constant is added to each number to arrive at the next number. Autofilling a linear series in Excel is easy! Enter the first two numbers, click in these cells and drag the Fill Handle up, down, left, or right to select and autofill additional cells.
- Our tutorial, How to Autofill a Linear Series, discusses other methods for autofilling a Linear Series, and how to autofill when the data cells are not contiguous, e.g. rows or columns are skipped.

	A
1	1000
2	1050
3	1100
4	1150
5	1200

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AutoFill

- Autofill a Growth Series:
- In a growth series, the next number is always found by multiplying by a constant. To autofill a growth series, enter the first two numbers, select these cells and drag the Fill Handle with the right-mouse button pressed, and click "Growth Trend" from the menu that displays.
- If you don't like using the Fill Handle, enter the first number, select it and the cells to autofill, bring up the Series Dialog Box (Fill) from the Editing section of the ribbon, click "Growth" and enter your "Step Value."

	A
1	100
2	200
3	400
4	800
5	1600

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AutoFill

- Autofill Days and Weekdays:
- Excel can autofill days of the week! For sequential days, enter the first day and drag the Fill Handle to select the cells to autofill. For non-sequential days, enter the first two days and drag with the Fill Handle.
- For weekdays, enter the first day, press the right mouse button and drag the Fill Handle to select the cells to be filled, and click "Fill Weekdays" from the menu that appears.

	A
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday

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Notes

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FlashFill

- By the end of this lesson, you should be able to:
 - Quickly manipulate large amounts of data
 - Change number formats
 - Change name formats
 - Enable FlashFill
 - Disable FlashFill

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FlashFill

- To use FlashFill:
- Enter the desired information into your worksheet. A FlashFill preview will appear below the selected cell whenever FlashFill is available, previewing FlashFill data.
- Press Enter. The FlashFill data will be added to the worksheet. The entered FlashFill data.

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FlashFill

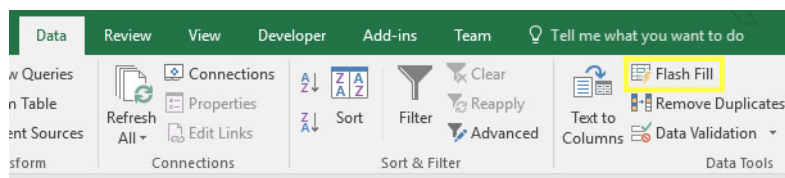
- Column A contains first names, column B has last names, and you want to fill column C with first and last names combined. If you establish a pattern by typing the full name in column C, Excel's FlashFill feature will fill in the rest for you based on the pattern you provide.

	A	B	C
1	First Name	Last Name	Full Name
2	Jay	Shasthri	Jay Shasthri
3	Pratap	Pillai	Pratap Pillai
4	Madhu	Srivastava	Madhu Srivastava
5	Victoria	Marsh	Victoria Marsh
6	David	Pizarro	David Pizarro

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FlashFill

- If FlashFill doesn't generate the preview, it might not be turned on. You can go to Data > FlashFill to run it manually, or press CTRL+E. To turn FlashFill on, go to Tools > Options > Advanced > Editing Options > check the Automatically FlashFill box.



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1	No.	Recipient	Design	Address	Zip Code
2	1	Jeff Albertson	Polar Bear	184 Sycamore Avenue, Springfield, 74298	74298
3	2	Jasper Beardly	Snowman	Springfield Retirement Castle, Springfield, 51368	
4	3	Wendell Bordon	Penguins	989 Evergreen Terrace, Springfield, 63512	
5	4	Kent Brockman	Polar Bear	222 East Oak Street, Springfield, 62624	
6	5	Gary Chalmers	Snowman	77 Spruce Boulevard, Shelbyville, 15248	
7	6	John Frink	Penguins	121 Main Street, Springfield, 55482	
8	7	Constance Harm	Polar Bear	108 Eask Oak Street, Springfield, 62624	
9	8	Elizabeth Hoover	Snowman	123 Fake Street, Springfield, 12345	
10	9	Dewey Largo	Penguins	800 West Oak Street, Springfield, 69542	
	A	B	C	D	E
1	No.	Recipient	Design	Address	Zip Code
2	1	Jeff Albertson	Polar Bear	184 Sycamore Avenue, Springfield, 74298	74298
3	2	Jasper Beardly	Snowman	Springfield Retirement Castle, Springfield, 51368	51368
4	3	Wendell Bordon	Penguins	989 Evergreen Terrace, Springfield, 63512	63512
5	4	Kent Brockman	Polar Bear	222 East Oak Street, Springfield, 62624	62624
6	5	Gary Chalmers	Snowman	77 Spruce Boulevard, Shelbyville, 15248	15248
7	6	John Frink	Penguins	121 Main Street, Springfield, 55482	55482
8	7	Constance Harm	Polar Bear	108 Eask Oak Street, Springfield, 62624	62624
9	8	Elizabeth Hoover	Snowman	123 Fake Street, Springfield, 12345	12345
10	9	Dewey Largo	Penguins	800 West Oak Street, Springfield, 69542	69542

Notes

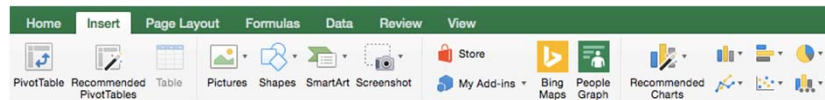
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Graphs

- By the end of this lesson, you should be able to:
 - Quickly create a Graph
 - Understand Graphs and Data relationships
 - Change your Graphs to suite your needs
 - Print & Preview Graphs with ease

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Graphs



HOW TO MAKE A CHART IN EXCEL

Once you input your data and select the cell range, you're ready to choose your chart type to display your data. In this example, we'll create a clustered column chart from the data we used in the previous section.

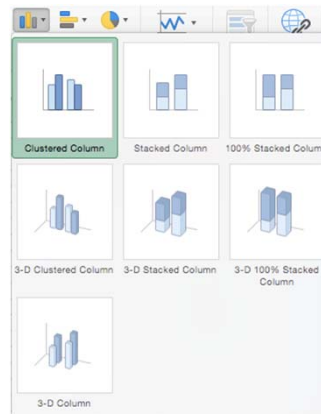
Step 1: Select Chart Type

Once your data is highlighted in the Workbook, click the Insert tab on the top banner. About halfway across the toolbar is a section with several chart options. Excel provides Recommended Charts based on popularity, but you can click any of the dropdown menus to select a different template.

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Graphs

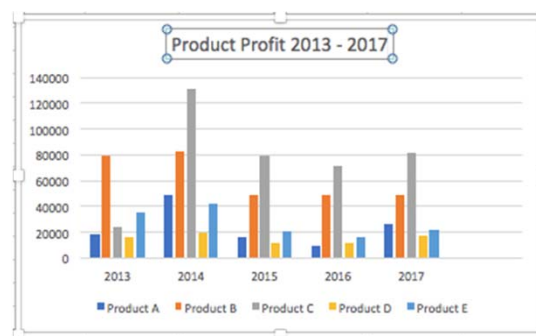
- **Step 2: Create Your Chart**
- From the *Insert* tab, click the column chart icon and select *Clustered Column*.



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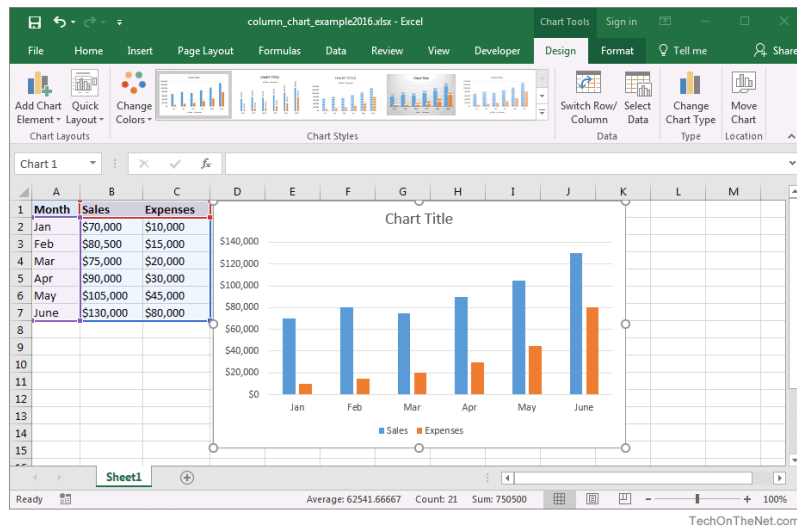
Graphs

- Excel will automatically create a clustered chart column from your selected data. The chart will appear in the center of your workbook.
- To name your chart, double click the *Chart Title* text in the chart and type a title. We'll call this chart "Product Profit 2013 - 2017."



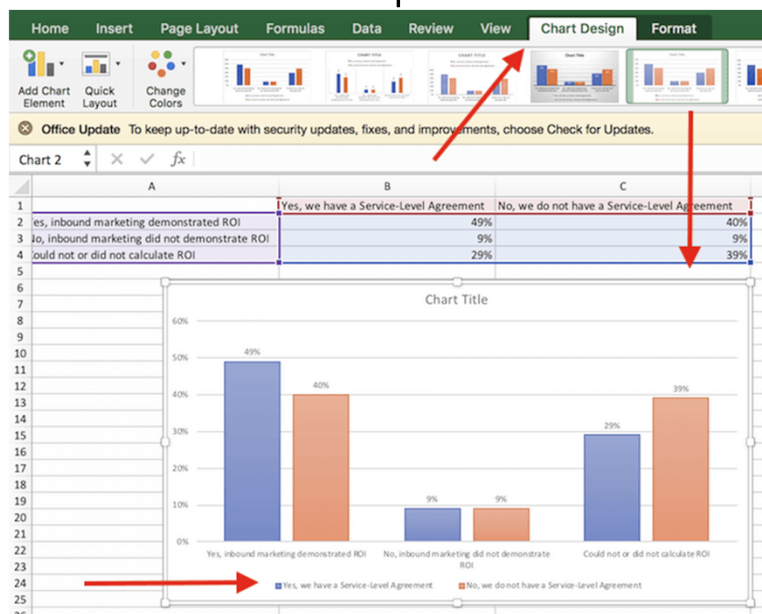
50

Graphs



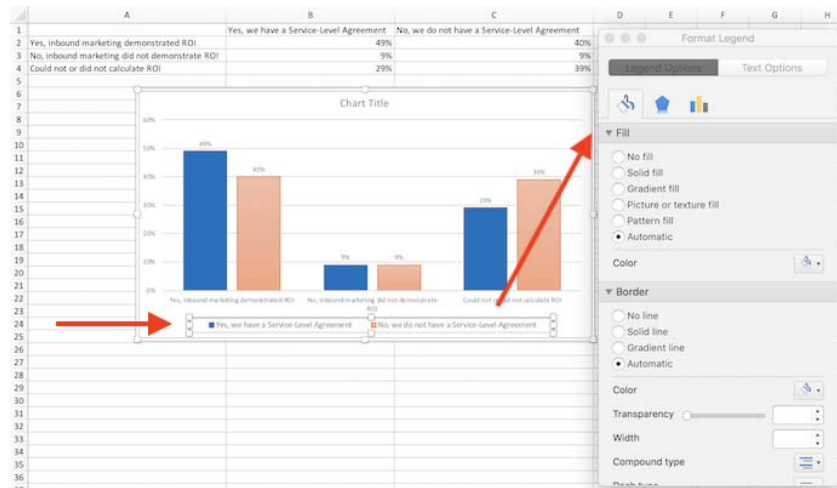
51

Graphs



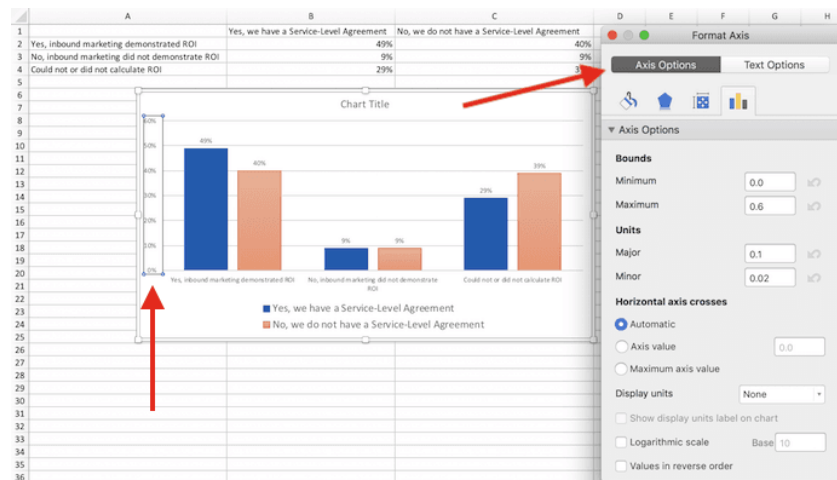
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Graphs



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Graphs



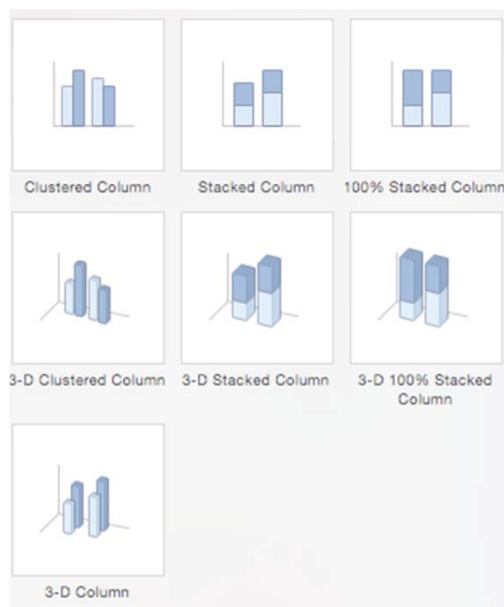
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Graphs

- **Column Charts:**
- Some of the most commonly used charts, column charts, are best used to compare information or if you have multiple categories of one variable (for example, multiple products or genres). Excel offers seven different column chart types: clustered, stacked, 100% stacked, 3-D clustered, 3-D stacked, 3-D 100% stacked, and 3-D, pictured below. Pick the visualization that will best tell your data's story.

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Graphs



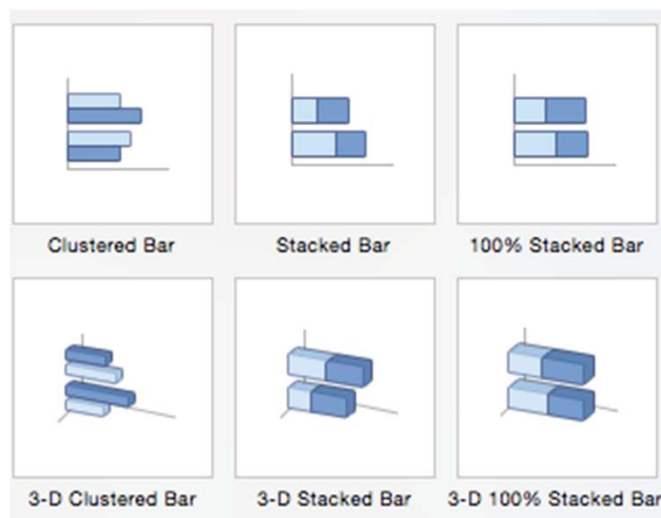
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Graphs

- Bar Charts:
- The main difference between bar charts and column charts are that the bars are horizontal instead of vertical. You can often use bar charts interchangeably with column charts, although some prefer column charts when working with negative values because it is easier to visualize negatives vertically, on a y-axis.

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Graphs



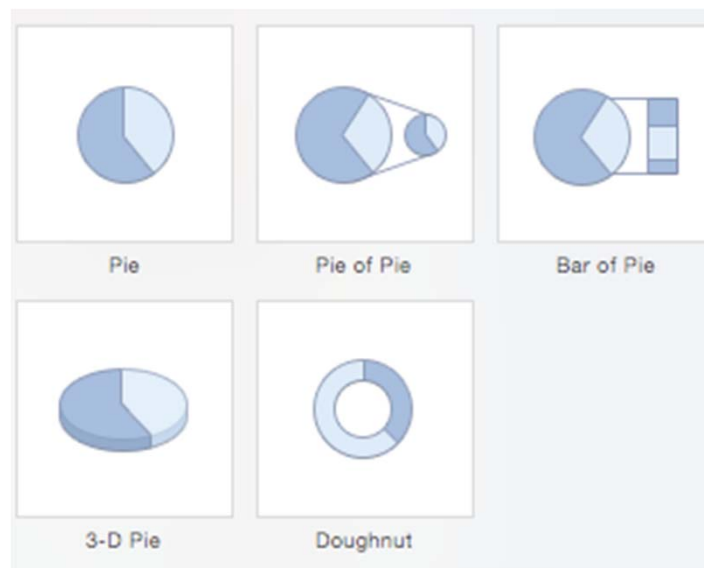
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Graphs

- Pie Charts:
- Use pie charts to compare percentages of a whole (“whole” is the total of the values in your data). Each value is represented as a piece of the pie so you can identify the proportions. There are five pie chart types: pie, pie of pie (this breaks out one piece of the pie into another pie to show its sub-category proportions), bar of pie, 3-D pie, and doughnut.

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Graphs



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Notes

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Must Know Commands

- | | |
|---------------|------------------------------|
| ▪ Undo/Redo | Stress relief |
| ▪ Save Button | Do it regularly |
| ▪ F1 | Help |
| ▪ F2 | Edit |
| ▪ F3 | Displays paste range name |
| ▪ F4 | Repeat previous |
| ▪ F4 | Cycle through cell reference |
| ▪ F7 | Spell check |
| ▪ F11 | Insert chart |
| ▪ F12 | Save as |

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Must Know Commands

- | | |
|---------------|---------------------------|
| ▪ CTRL C | Copy |
| ▪ CTRL V | Paste |
| ▪ CTRL ALT V | Paste Special |
| ▪ CTRL X | Cut |
| ▪ CTRL ~ | Show / Hide Formulas |
| ▪ CTRL ENTER | Enter Data without moving |
| ▪ CTRL ; | Inserts Current Date |
| ▪ CTRL SHFT ; | Inserts Current Time |
| ▪ CTRL + | Insert Row / Column |
| ▪ CTRL - | Delete Row / Column |

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Must Know Commands

- | | |
|--------------------|---------------------------|
| ▪ Password Protect | Keep Data Safe |
| ▪ SHIFT F11 | Insert new worksheet |
| ▪ <i>fx</i> | Formula assistant |
| ▪ Σ AutoSum | Auto sum |
| ▪ Clear | Clear all/formats/content |

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Must Know Commands

- View – Freeze Panes

- > Greater than
- < Less than
- >= Greater than or equal to
- <> Not equal to
- " " Is blank
- @if If this, then that

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