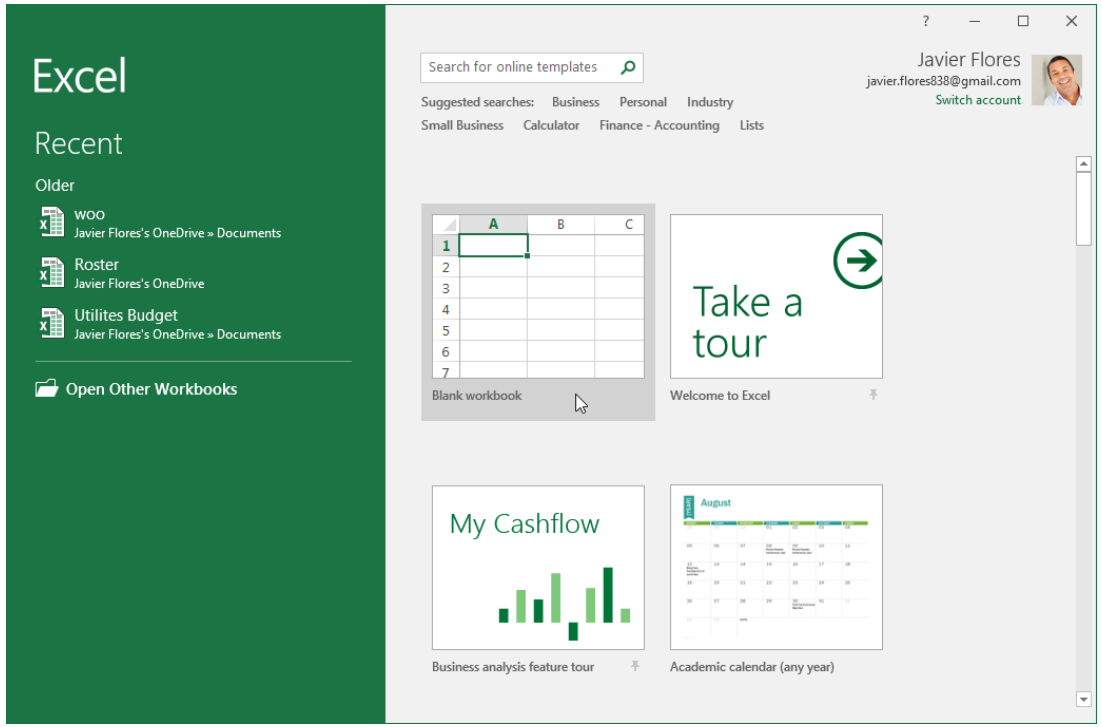
MS EXCEL

Excel is a **spreadsheet program** that allows you to **store**, **organize**, and **analyze information**. While you may think Excel is only used by certain people to process complicated data, anyone can learn how to take advantage of the program's **powerful features**. Whether you're keeping a budget, organizing a training log, or creating an invoice, Excel makes it easy to work with different types of data.

THE EXCEL START SCREEN

- When you open Excel for the first time, the **Excel Start Screen** will appear. From here, you'll be able to create a **new workbook**, choose a **template**, and access your **recently edited workbooks**.
- From the **Excel Start Screen**, locate and select **Blank workbook** to access the Excel interface.



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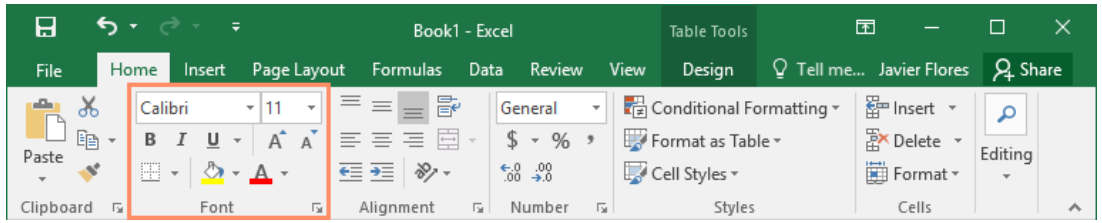
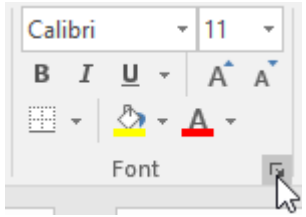
THE RIBBON

Excel uses a **tabbed Ribbon system** instead of traditional menus. **The Ribbon** contains **multiple tabs**, each with several **groups of commands**. You will use these tabs to perform the most **common tasks** in Excel.



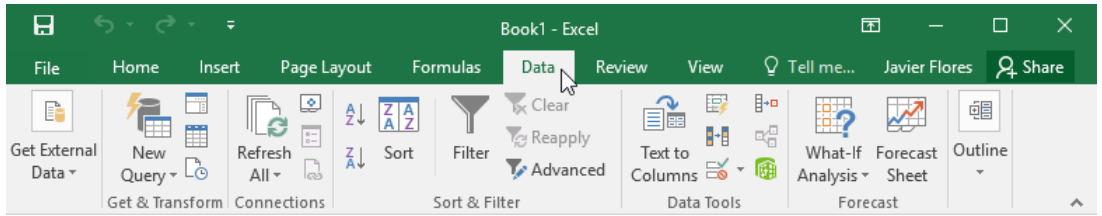
Each tab will have one or more groups.

Some groups will have an arrow you can click for more options.

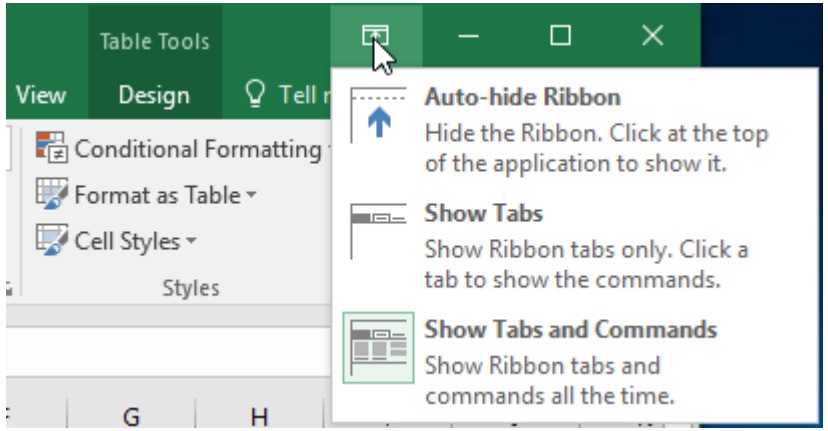


THE RIBBON

- Click a tab to see more commands.



- You can adjust how the Ribbon is displayed with the Ribbon Display Options.

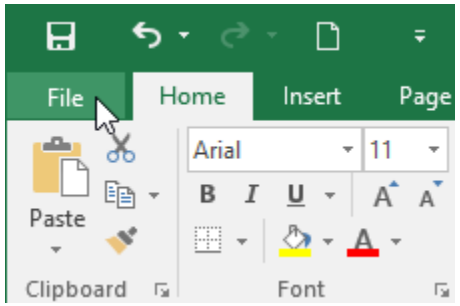


CREATING AND OPENING WORKBOOKS

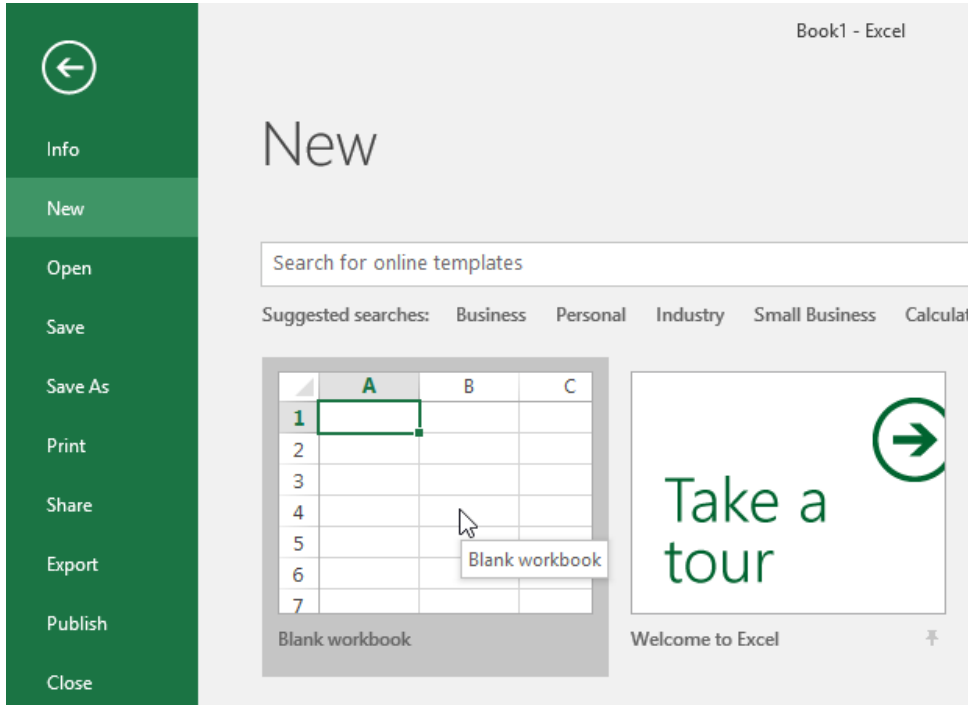
Excel files are called **workbooks**. Whenever you start a new project in Excel, you'll need to **create a new workbook**. There are several ways to start working with a workbook in Excel. You can choose to **create a new workbook**—either with a **blank workbook** or a predesigned **template**—or **open an existing** workbook.

TO CREATE A NEW BLANK WORKBOOK

- Select the **File** tab. **Backstage view** will appear.



- Select **New**, then click **Blank workbook**. A new blank workbook will appear.



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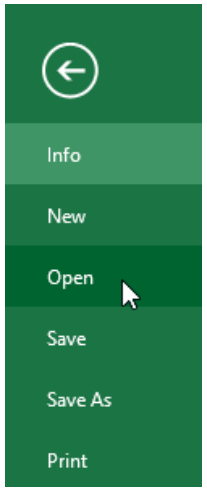
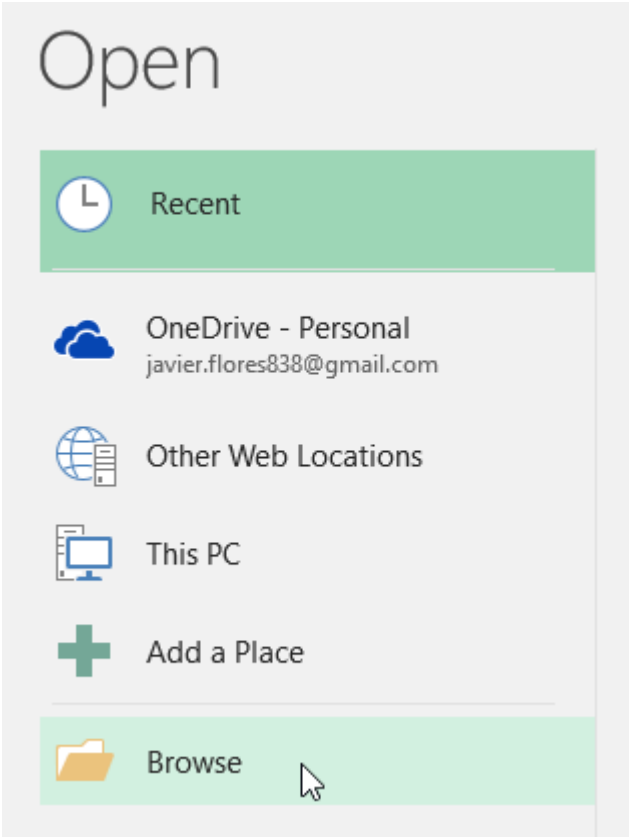
TO OPEN AN EXISTING WORKBOOK

- In addition to creating new workbooks, you'll often need to open a workbook that was previously saved.

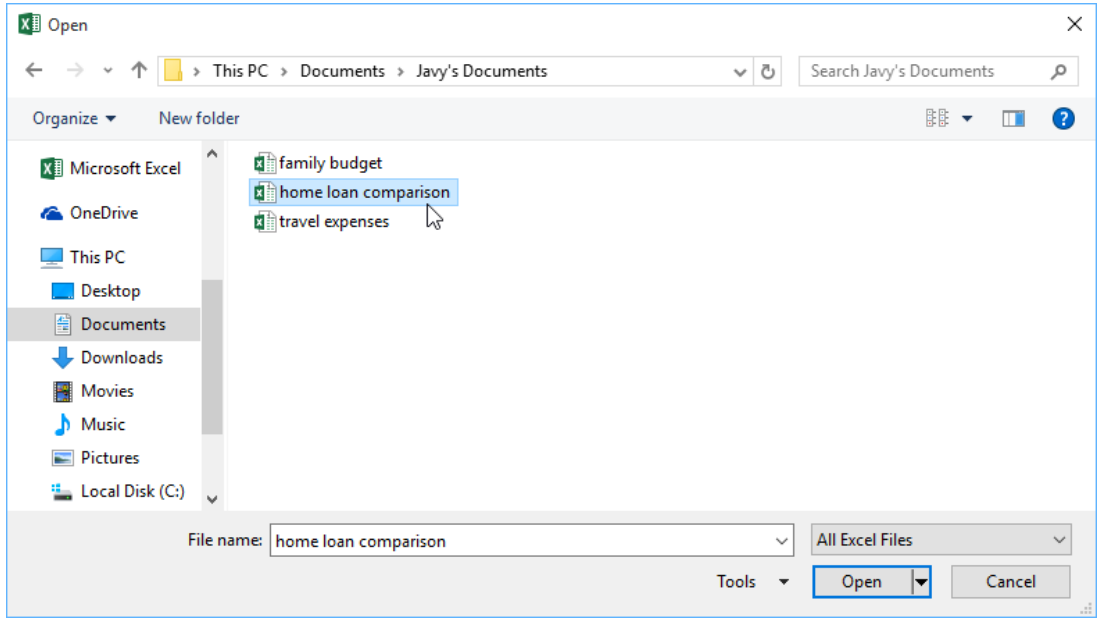
- Navigate to **Backstage view**, then click **Open**.
- Select **Computer**, then click **Browse**. You can also choose **OneDrive** to open files stored on your **OneDrive**.





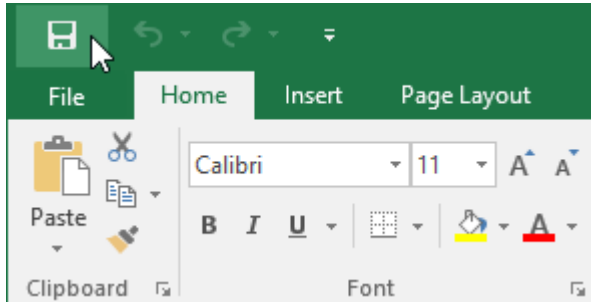
TO OPEN AN EXISTING WORKBOOK

- The **Open** dialog box will appear. Locate and select your **workbook**, then click **Open**.



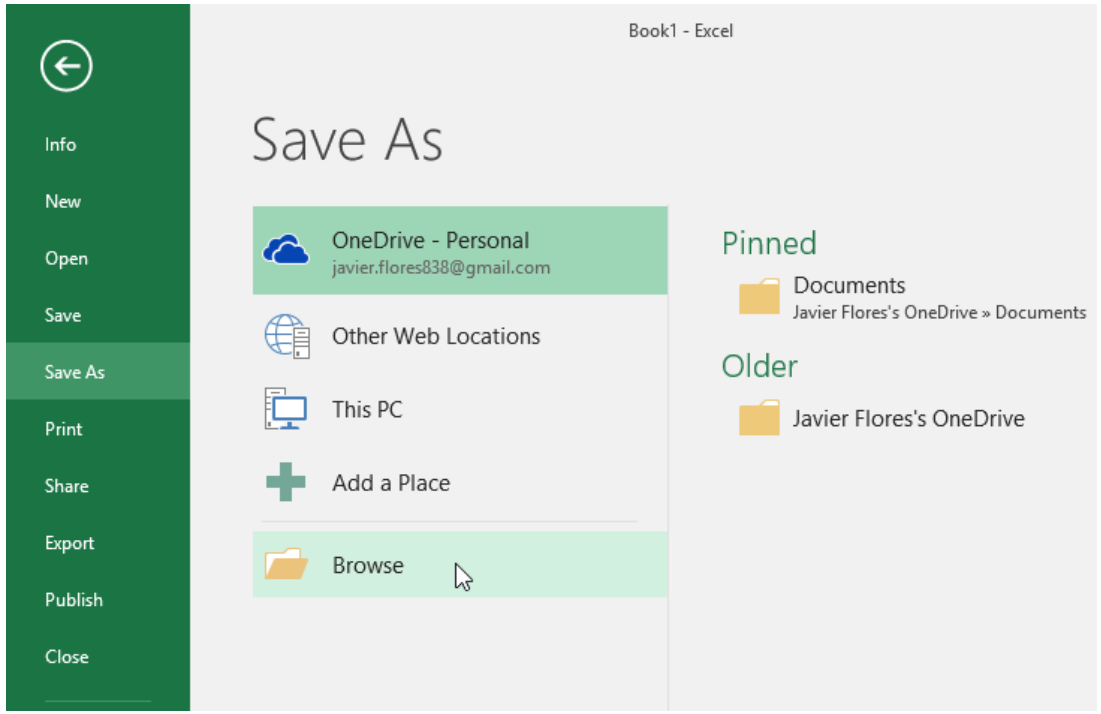
TO SAVE A WORKBOOK

- It's important to **save your workbook** whenever you start a new project or make changes to an existing one. Saving early and often can prevent your work from being lost. You'll also need to pay close attention to **where you save** the workbook so it will be easy to find later.
- Locate and select the **Save** command on the **Quick Access Toolbar**.



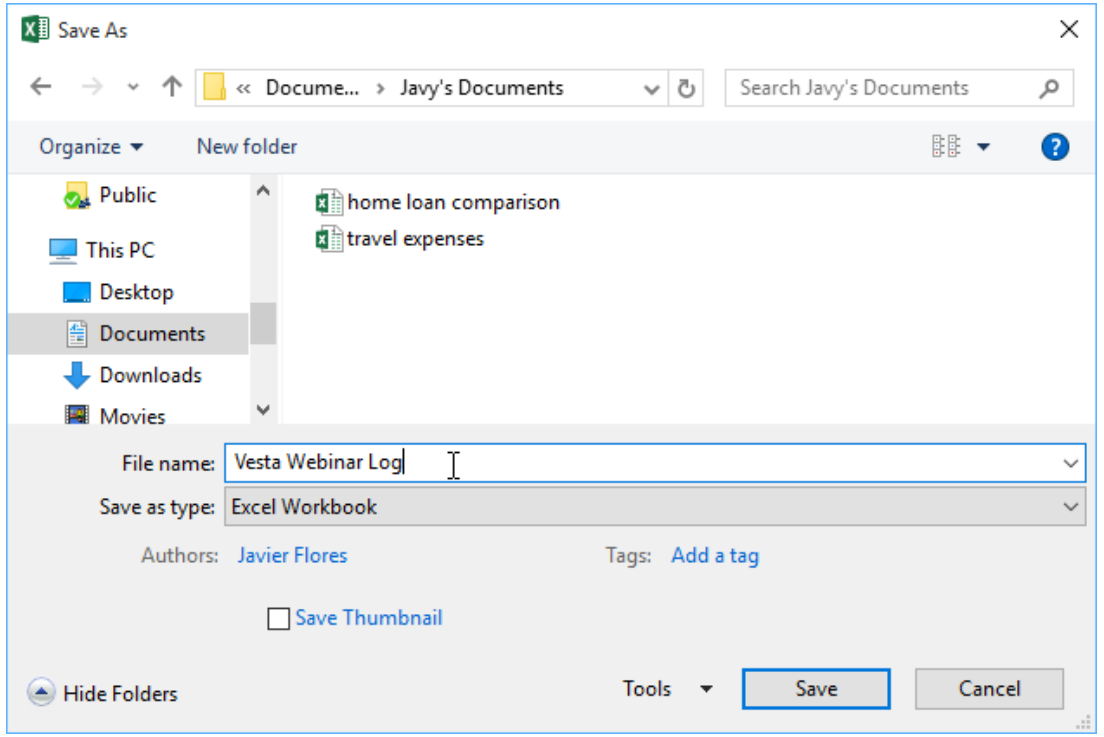
TO SAVE A WORKBOOK

- If you're saving the file for the first time, the **Save As** pane will appear in **Backstage view**.
- You'll then need to choose **where to save** the file and give it a **file name**. To save the workbook to your computer, select **Computer**, then click **Browse**. You can also click **OneDrive** to save the file to your OneDrive.



TO SAVE A WORKBOOK

- The **Save As** dialog box will appear. Select the **location** where you want to save the workbook.
- Enter a **file name** for the workbook, then click **Save**.
- The workbook will be **saved**. You can click the **Save** command again to save your changes as you modify the workbook.



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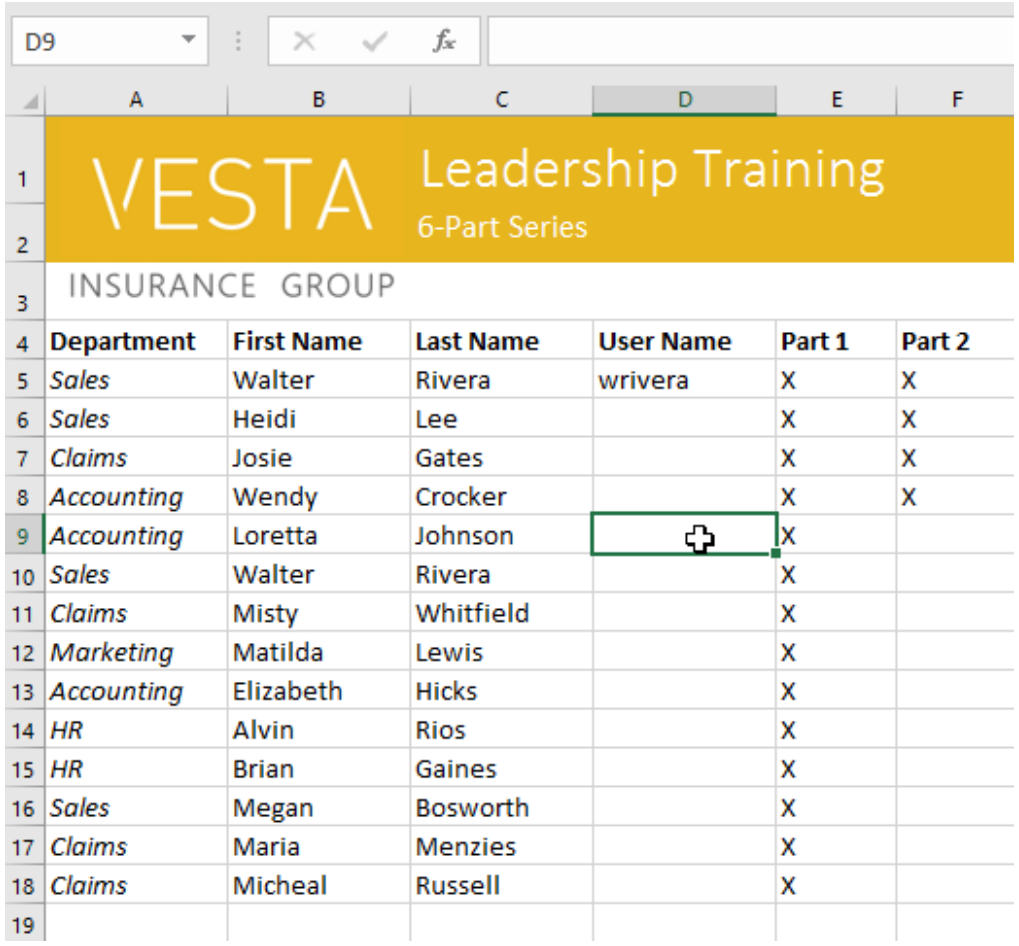
CELL BASICS

Whenever you work with Excel, you'll enter information—or **content**—into **cells**. Cells are the basic building blocks of a worksheet. You'll need to learn the basics of **cells** and **cell content** to calculate, analyze, and organize data in Excel.

TO SELECT A CELL

- To input or edit cell content, you'll first need to **select** the cell.
- Click a **cell** to select it. In our example, we'll select cell **D9**.
- A **border** will appear around the selected cell, and the **column heading** and **row heading** will be highlighted. The cell will remain selected until you click another cell in the worksheet.

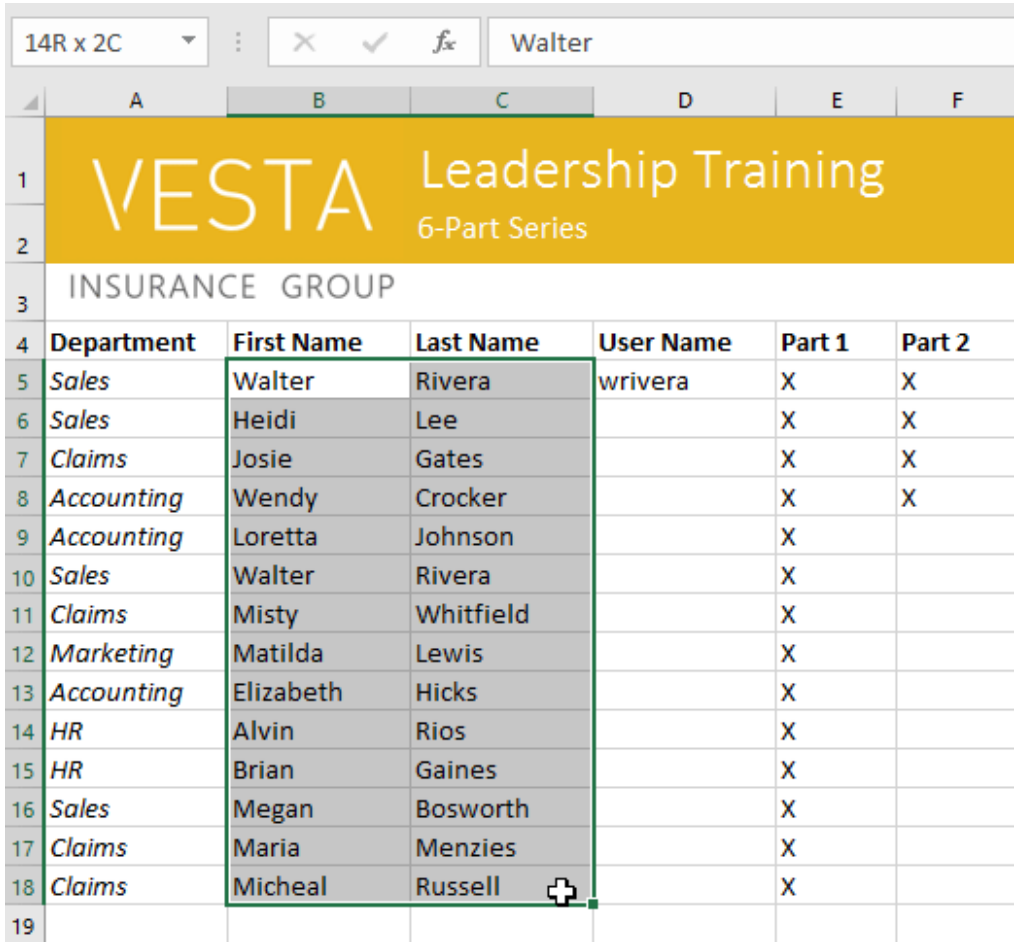


	A	B	C	D	E	F
4	**Department**	**First Name**	**Last Name**	**User Name**	**Part 1**	**Part 2**
5	*Sales*	Walter	Rivera	wrivera	X	X
6	*Sales*	Heidi	Lee		X	X
7	*Claims*	Josie	Gates		X	X
8	*Accounting*	Wendy	Crocker		X	X
9	*Accounting*	Loretta	Johnson		X	
10	*Sales*	Walter	Rivera		X	
11	*Claims*	Misty	Whitfield		X	
12	*Marketing*	Matilda	Lewis		X	
13	*Accounting*	Elizabeth	Hicks		X	
14	*HR*	Alvin	Rios		X	
15	*HR*	Brian	Gaines		X	
16	*Sales*	Megan	Bosworth		X	
17	*Claims*	Maria	Menzies		X	
18	*Claims*	Micheal	Russell		X	
19						

TO SELECT A CELL RANGE

- Sometimes you may want to select a larger group of cells, or a **cell range**.

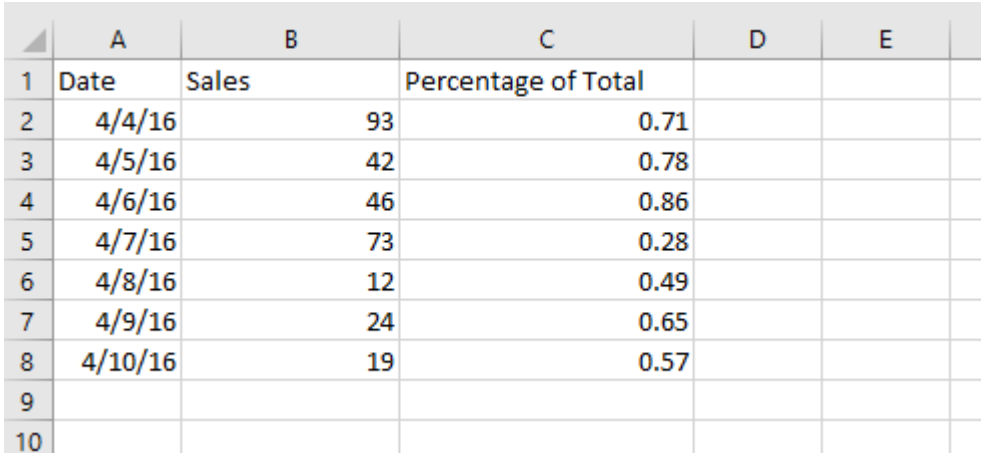
1. Click and drag the mouse until all of the **adjoining cells** you want to select are **highlighted**. In our example, we'll select the cell range **B5:C18**.
2. Release the mouse to **select** the desired cell range. The cells will remain selected until you click another cell in the worksheet.



	A	B	C	D	E	F
4	**Department**	**First Name**	**Last Name**	**User Name**	**Part 1**	**Part 2**
5	*Sales*	Walter	Rivera	wrivera	X	X
6	*Sales*	Heidi	Lee		X	X
7	*Claims*	Josie	Gates		X	X
8	*Accounting*	Wendy	Crocker		X	X
9	*Accounting*	Loretta	Johnson		X	
10	*Sales*	Walter	Rivera		X	
11	*Claims*	Misty	Whitfield		X	
12	*Marketing*	Matilda	Lewis		X	
13	*Accounting*	Elizabeth	Hicks		X	
14	*HR*	Alvin	Rios		X	
15	*HR*	Brian	Gaines		X	
16	*Sales*	Megan	Bosworth		X	
17	*Claims*	Maria	Menzies		X	
18	*Claims*	Micheal	Russell		X	
19						

CELL CONTENT

- Any information you enter into a spreadsheet will be stored in a cell. Each cell can contain different types of **content**, including **text**, **formatting**, **formulas**, and **functions**.
- **Text**: Cells can contain **text**, such as letters, numbers, and dates.



	A	B	C	D	E
1	Date	Sales	Percentage of Total		
2	4/4/16	93	0.71		
3	4/5/16	42	0.78		
4	4/6/16	46	0.86		
5	4/7/16	73	0.28		
6	4/8/16	12	0.49		
7	4/9/16	24	0.65		
8	4/10/16	19	0.57		
9					
10					

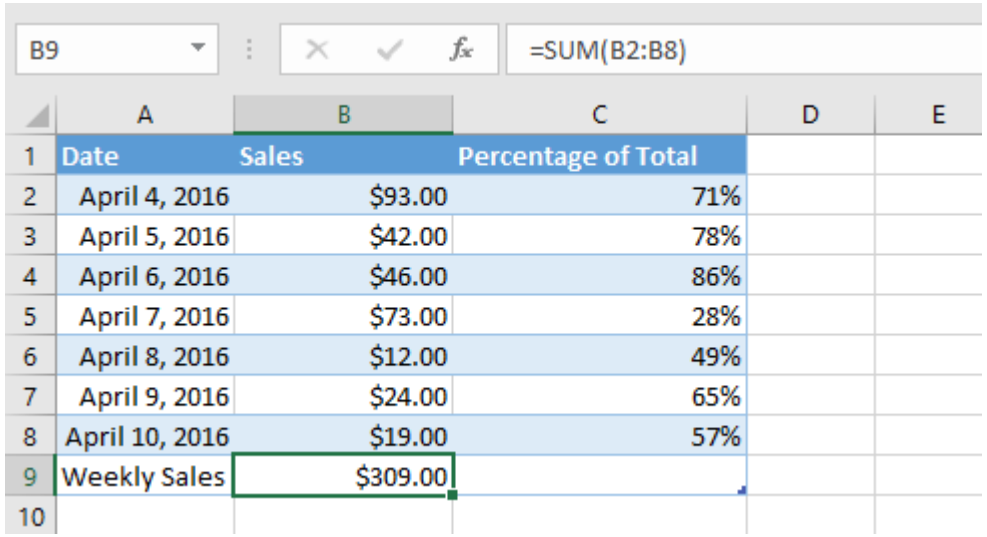
CELL CONTENT

- **Formatting attributes**: Cells can contain **formatting attributes** that change the way letters, numbers, and dates are displayed. For example, percentages can appear as 0.15 or 15%. You can even change a cell's **text** or **background color**.

	A	B	C	D	E
1	Date	Sales	Percentage of Total		
2	April 4, 2016	$93.00	71%		
3	April 5, 2016	$42.00	78%		
4	April 6, 2016	$46.00	86%		
5	April 7, 2016	$73.00	28%		
6	April 8, 2016	$12.00	49%		
7	April 9, 2016	$24.00	65%		
8	April 10, 2016	$19.00	57%		
9					
10					

CELL CONTENT

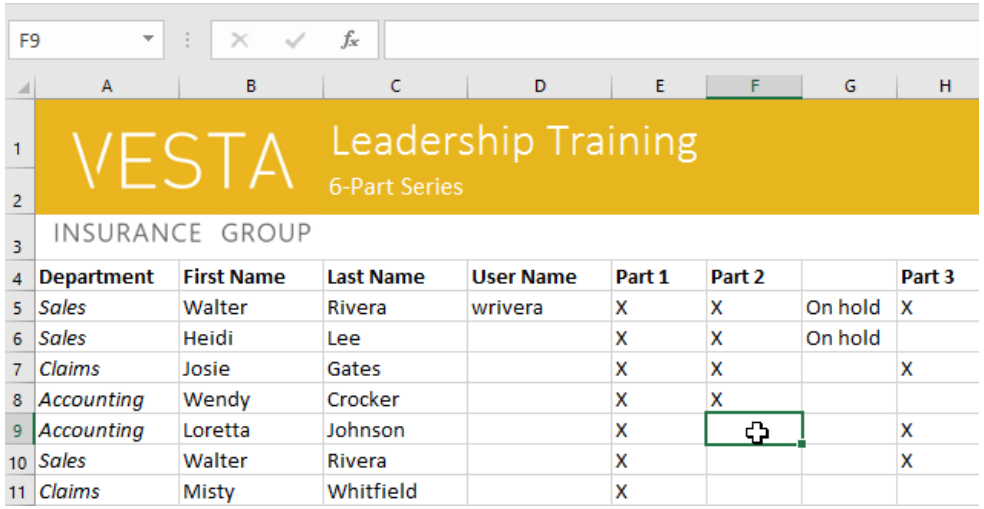
- **Formulas and functions**: Cells can contain **formulas** and **functions** that calculate cell values. In our example, **SUM(B2:B8)** adds the value of each cell in the cell range B2:B8 and displays the total in cell B9.



	A	B	C	D	E
1	Date	Sales	Percentage of Total		
2	April 4, 2016	$93.00	71%		
3	April 5, 2016	$42.00	78%		
4	April 6, 2016	$46.00	86%		
5	April 7, 2016	$73.00	28%		
6	April 8, 2016	$12.00	49%		
7	April 9, 2016	$24.00	65%		
8	April 10, 2016	$19.00	57%		
9	Weekly Sales	$309.00			
10					

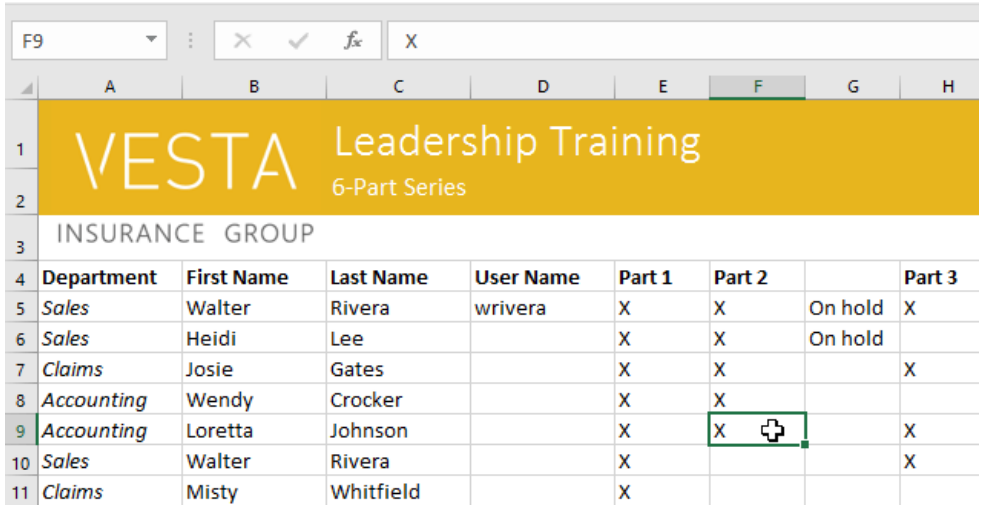
TO INSERT CONTENT

- Click a **cell** to select it. In our example, we'll select cell **F9**.



Department	First Name	Last Name	User Name	Part 1	Part 2		Part 3
Sales	Walter	Rivera	wrivera	X	X	On hold	X
Sales	Heidi	Lee		X	X	On hold	
Claims	Josie	Gates		X	X		X
Accounting	Wendy	Crocker		X	X		
Accounting	Loretta	Johnson		X			X
Sales	Walter	Rivera		X			X
Claims	Misty	Whitfield		X			

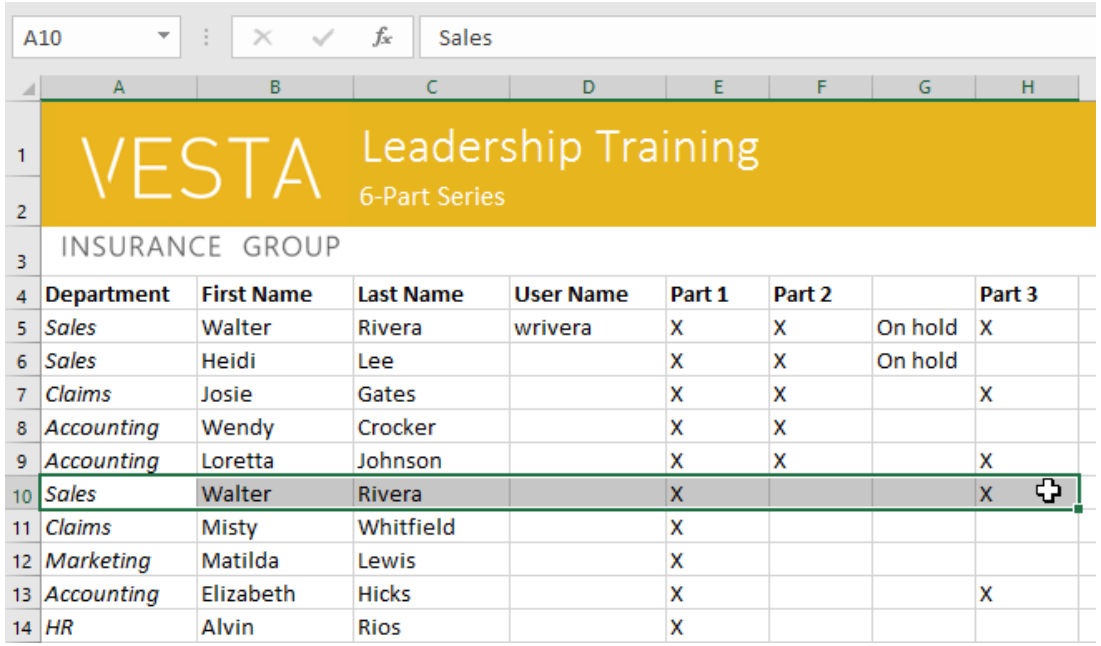
- Type something into the selected cell, then press **Enter** on your keyboard. The content will appear in the **cell** and the **formula bar**. You can also input and edit cell content in the formula bar.



Department	First Name	Last Name	User Name	Part 1	Part 2		Part 3
Sales	Walter	Rivera	wrivera	X	X	On hold	X
Sales	Heidi	Lee		X	X	On hold	
Claims	Josie	Gates		X	X		X
Accounting	Wendy	Crocker		X	X		
Accounting	Loretta	Johnson		X	X		X
Sales	Walter	Rivera		X			X
Claims	Misty	Whitfield		X			

TO DELETE (OR CLEAR) CELL CONTENT

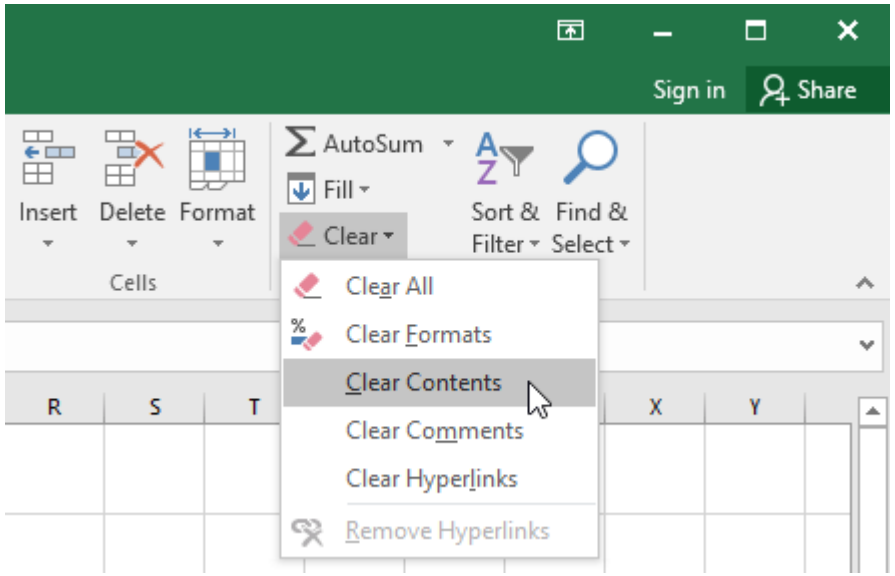
- Select the **cell(s)** with content you want to delete. In our example, we'll select the cell range **A10:H10**.



	Department	First Name	Last Name	User Name	Part 1	Part 2		Part 3
5	*Sales*	Walter	Rivera	wrivera	X	X	On hold	X
6	*Sales*	Heidi	Lee		X	X	On hold	
7	*Claims*	Josie	Gates		X	X		X
8	*Accounting*	Wendy	Crocker		X	X		
9	*Accounting*	Loretta	Johnson		X	X		X
10	*Sales*	Walter	Rivera		X			X
11	*Claims*	Misty	Whitfield		X			
12	*Marketing*	Matilda	Lewis		X			
13	*Accounting*	Elizabeth	Hicks		X			X
14	*HR*	Alvin	Rios		X			

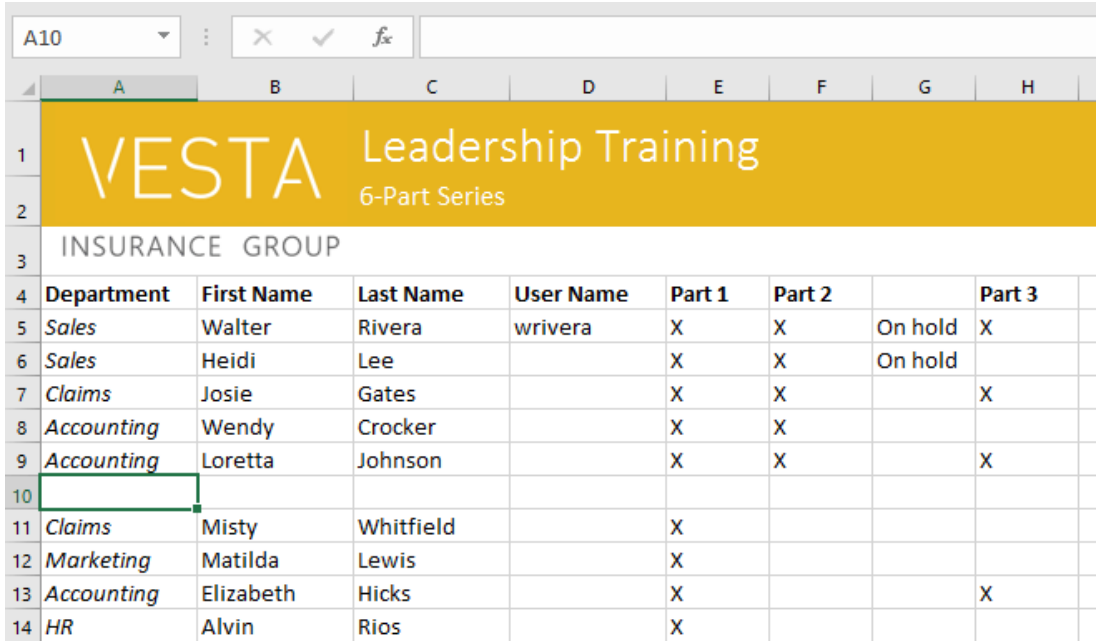
TO DELETE (OR CLEAR) CELL CONTENT

- Select the **Clear** command on the **Home** tab, then click **Clear Contents**.



TO DELETE (OR CLEAR) CELL CONTENT

- The cell contents will be deleted.

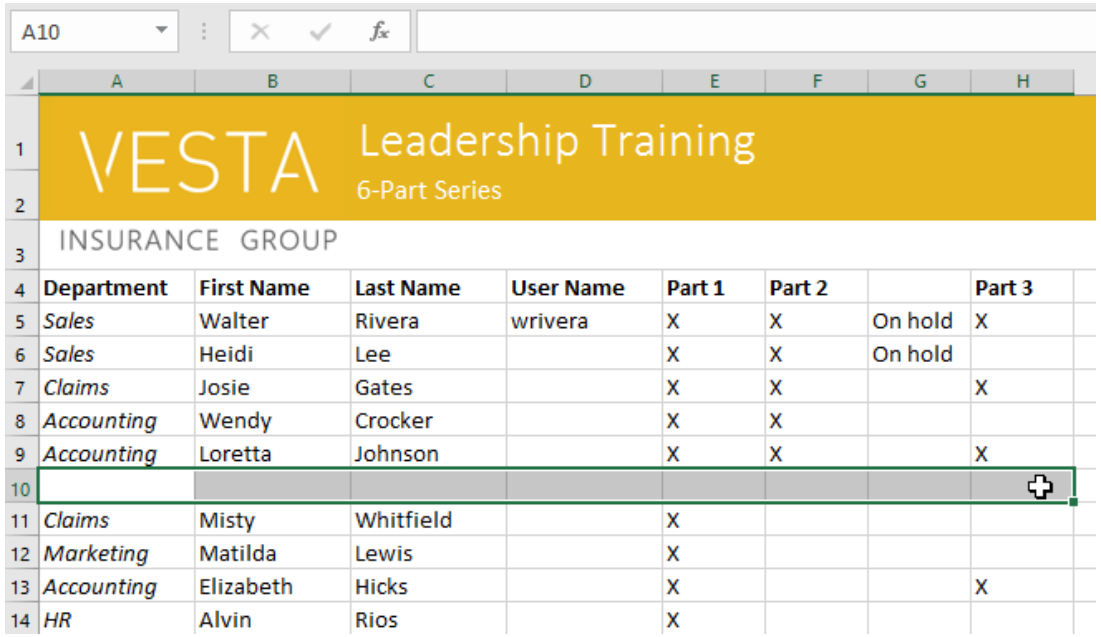


Department	First Name	Last Name	User Name	Part 1	Part 2		Part 3
Sales	Walter	Rivera	wrivera	X	X	On hold	X
Sales	Heidi	Lee		X	X	On hold	
Claims	Josie	Gates		X	X		X
Accounting	Wendy	Crocker		X	X		
Accounting	Loretta	Johnson		X	X		X
Claims	Misty	Whitfield		X			
Marketing	Matilda	Lewis		X			
Accounting	Elizabeth	Hicks		X			X
HR	Alvin	Rios		X			

You can also use the **Delete** key on your keyboard to delete content from **multiple cells** at once.
The **Backspace** key will only delete content from one cell at a time.

TO DELETE CELL

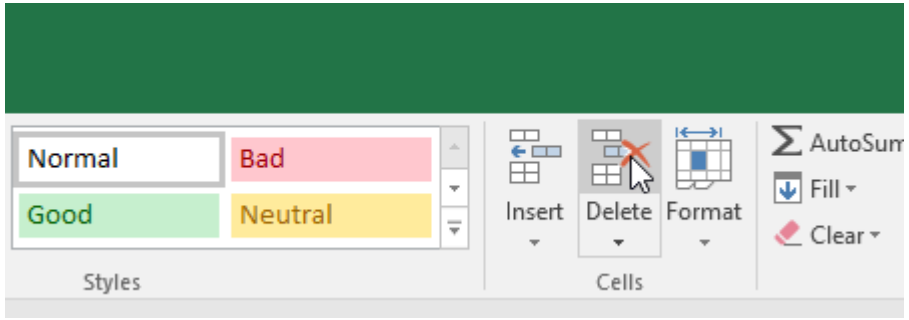
- There is an important difference between deleting the content of a cell and **deleting the cell itself**. If you delete the entire cell, the cells below it will **shift to fill in the gaps** and **replace the deleted cells**.
- Select the **cell(s)** you want to delete. In our example, we'll select **A10:H10**.



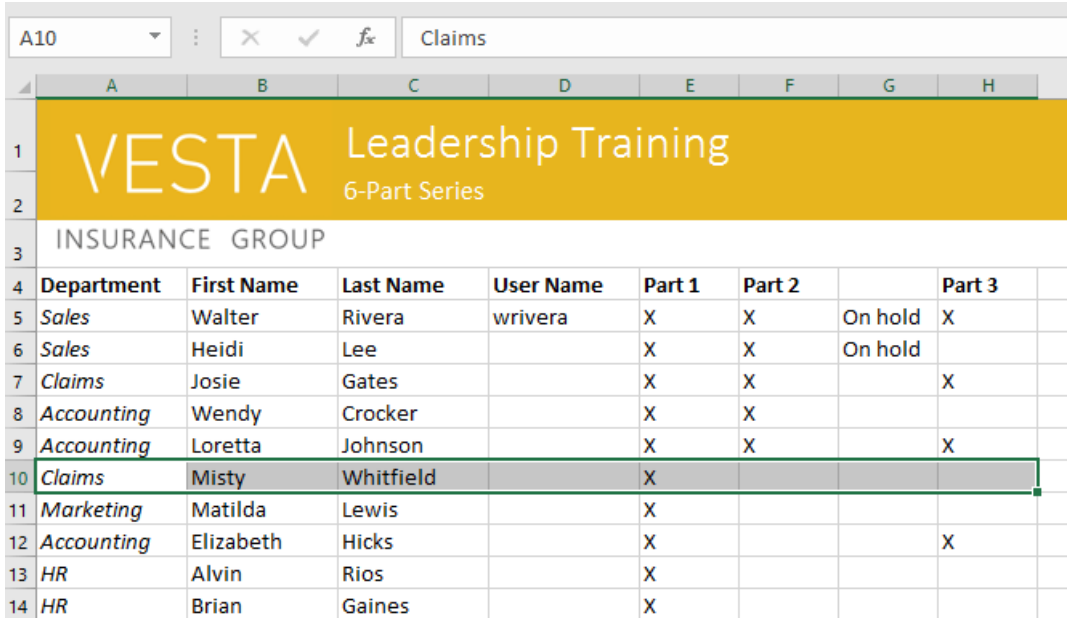
	A	B	C	D	E	F	G	H
4	**Department**	**First Name**	**Last Name**	**User Name**	**Part 1**	**Part 2**		**Part 3**
5	*Sales*	Walter	Rivera	wrivera	X	X	On hold	X
6	*Sales*	Heidi	Lee		X	X	On hold	
7	*Claims*	Josie	Gates		X	X		X
8	*Accounting*	Wendy	Crocker		X	X		
9	*Accounting*	Loretta	Johnson		X	X		X
10								
11	*Claims*	Misty	Whitfield		X			
12	*Marketing*	Matilda	Lewis		X			
13	*Accounting*	Elizabeth	Hicks		X			X
14	*HR*	Alvin	Rios		X			

TO DELETE CELL

- Select the **Delete** command from the **Home** tab on the **Ribbon**.



- The cells below will **shift up** and **fill in the gaps**.



Department	First Name	Last Name	User Name	Part 1	Part 2		Part 3
Sales	Walter	Rivera	wrivera	X	X	On hold	X
Sales	Heidi	Lee		X	X	On hold	
Claims	Josie	Gates		X	X		X
Accounting	Wendy	Crocker		X	X		
Accounting	Loretta	Johnson		X	X		X
Claims	Misty	Whitfield		X			
Marketing	Matilda	Lewis		X			
Accounting	Elizabeth	Hicks		X			X
HR	Alvin	Rios		X			
HR	Brian	Gaines		X			

INSERT, DELETE, MOVE, HIDE ROWS AND COLUMNS

After you've been working with a workbook for a while, you may find that you want to **insert new** columns or rows, **delete** certain rows or columns

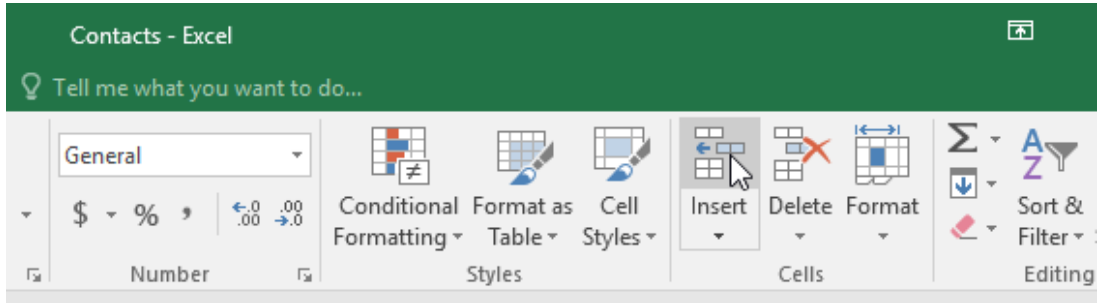
TO INSERT ROWS

- Select the **row heading** below where you want the new row to appear. In this example, we want to insert a row between rows 4 and 5, so we'll select **row 5**.

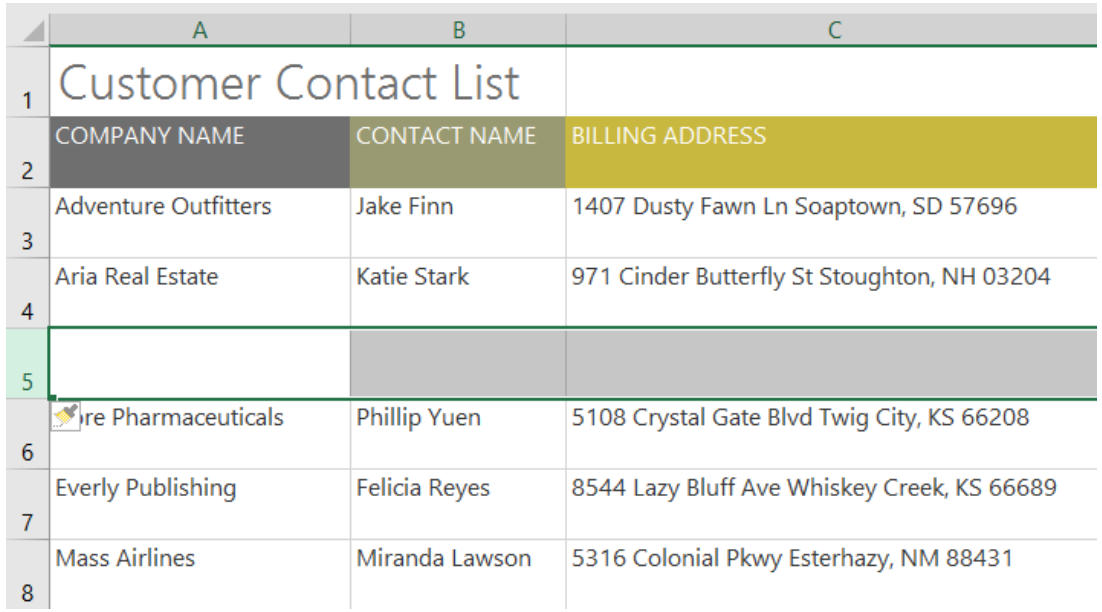
	A	B	C
1	Customer Contact List		
2	COMPANY NAME	CONTACT NAME	BILLING ADDRESS
3	Adventure Outfitters	Jake Finn	1407 Dusty Fawn Ln Soaptown, SD 57696
4	Aria Real Estate	Katie Stark	971 Cinder Butterfly St Stoughton, NH 03204
5	Core Pharmaceuticals	Phillip Yuen	5108 Crystal Gate Blvd Twig City, KS 66208
6	Everly Publishing	Felicia Reyes	8544 Lazy Bluff Ave Whiskey Creek, KS 66689
7	Mass Airlines	Miranda Lawson	5316 Colonial Pkwy Esterhazy, NM 88431

TO INSERT ROWS

- Click the **Insert** command on the **Home** tab.



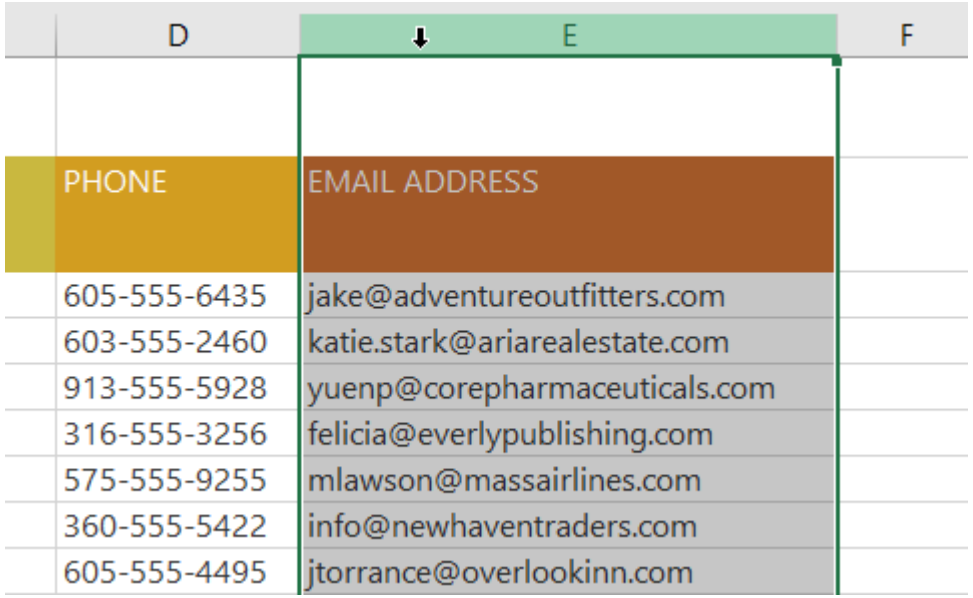
- The **new row** will appear **above** the selected row.



	A	B	C
1	Customer Contact List		
2	COMPANY NAME	CONTACT NAME	BILLING ADDRESS
3	Adventure Outfitters	Jake Finn	1407 Dusty Fawn Ln Soaptown, SD 57696
4	Aria Real Estate	Katie Stark	971 Cinder Butterfly St Stoughton, NH 03204
5			
6	re Pharmaceuticals	Phillip Yuen	5108 Crystal Gate Blvd Twig City, KS 66208
7	Everly Publishing	Felicia Reyes	8544 Lazy Bluff Ave Whiskey Creek, KS 66689
8	Mass Airlines	Miranda Lawson	5316 Colonial Pkwy Esterhazy, NM 88431

TO INSERT COLUMNS

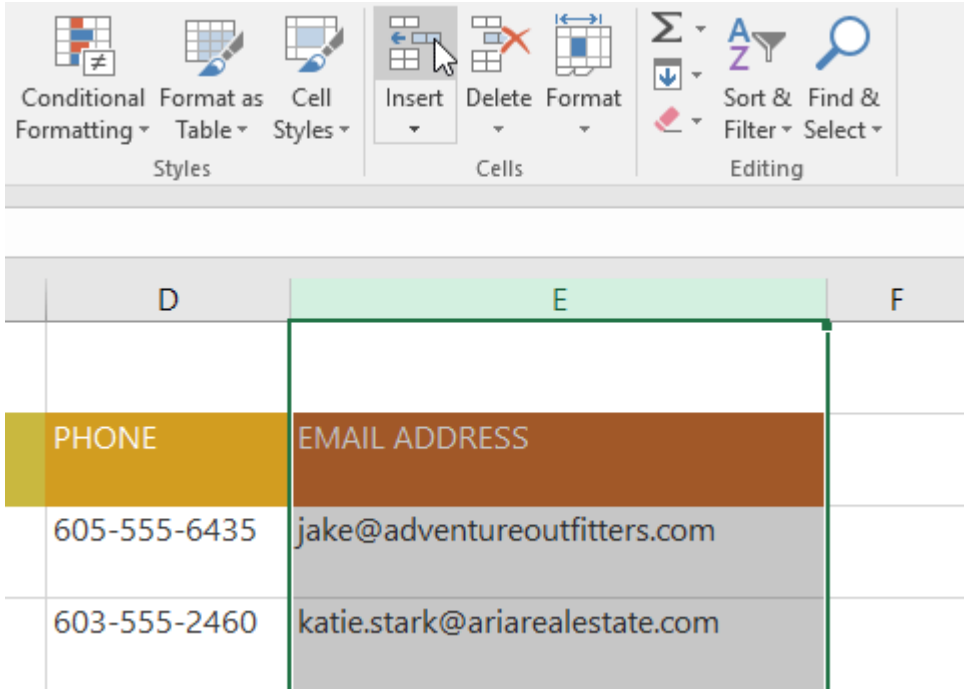
- Select the **column heading** to the right of where you want the new column to appear. For example, if you want to insert a column between columns D and E, select **column E**.



	D	E	F
	PHONE	EMAIL ADDRESS	
	605-555-6435	jake@adventureoutfitters.com	
	603-555-2460	katie.stark@ariarealestate.com	
	913-555-5928	yuenp@corepharmaceuticals.com	
	316-555-3256	felicia@everlypublishing.com	
	575-555-9255	mlawson@massairlines.com	
	360-555-5422	info@newhaventraders.com	
	605-555-4495	jtorrance@overlookinn.com	

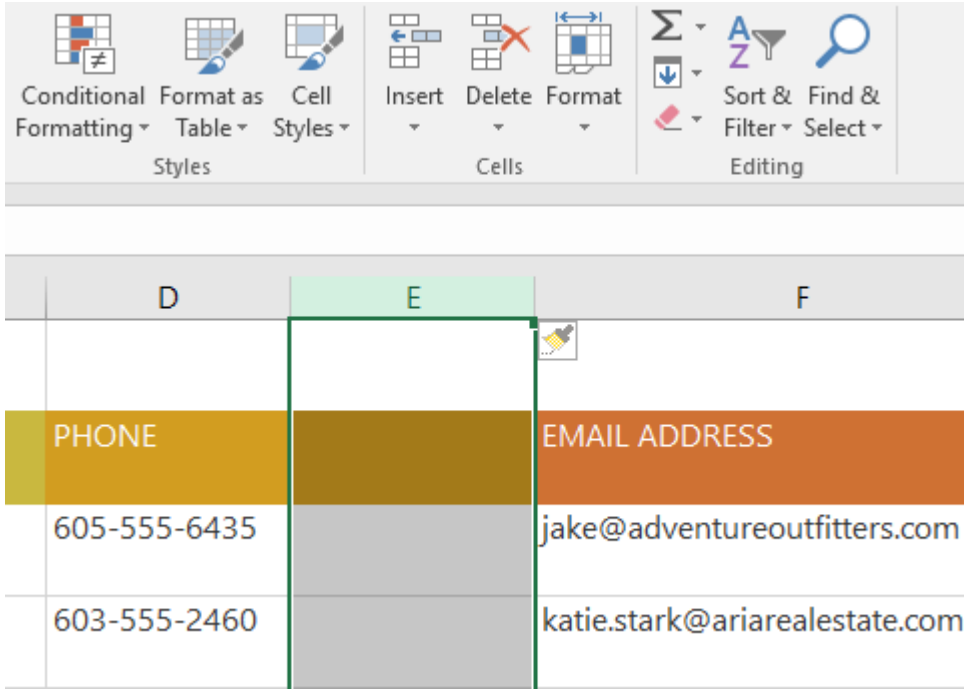
TO INSERT COLUMNS

- Click the **Insert** command on the **Home** tab.



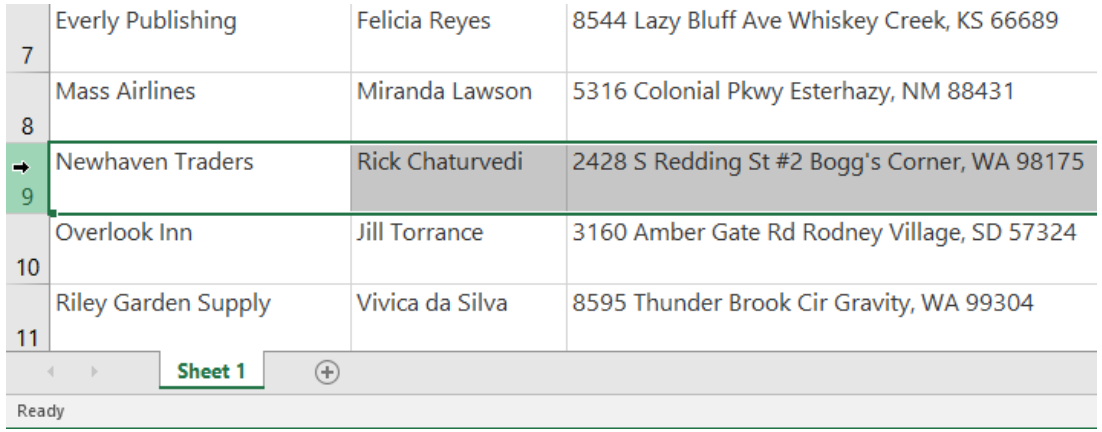
TO INSERT COLUMNS

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



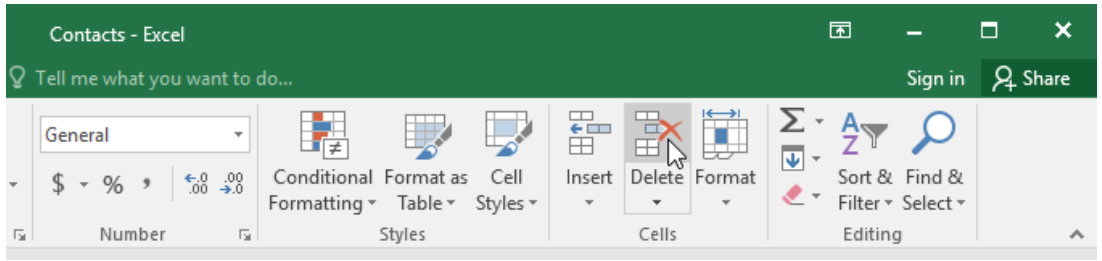
TO DELETE ROW OR COLUMNS

- It's easy to delete a row or column that you no longer need. In our example we'll delete a row, but you can delete a column the same way.
- Select the **row** you want to delete. In our example, we'll select **row 9**.

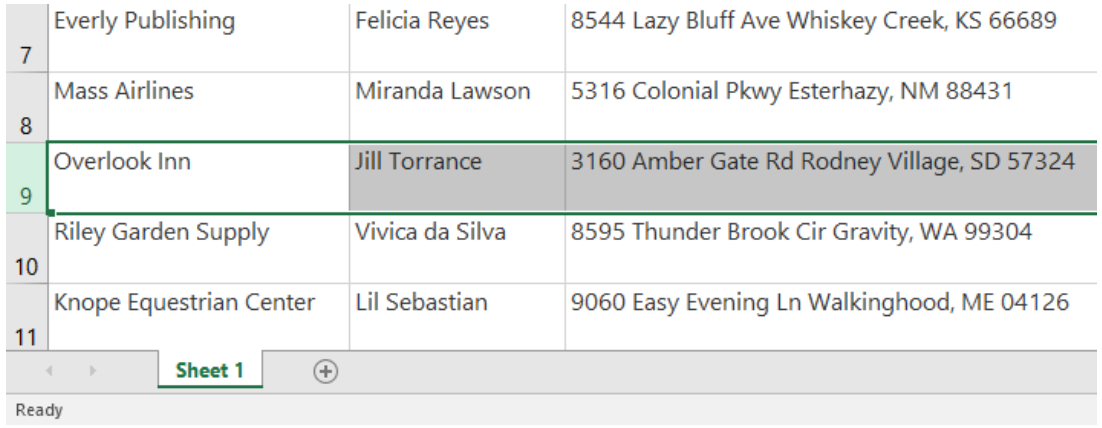


TO DELETE ROW OR COLUMNS

- Click the **Delete** command on the **Home** tab.

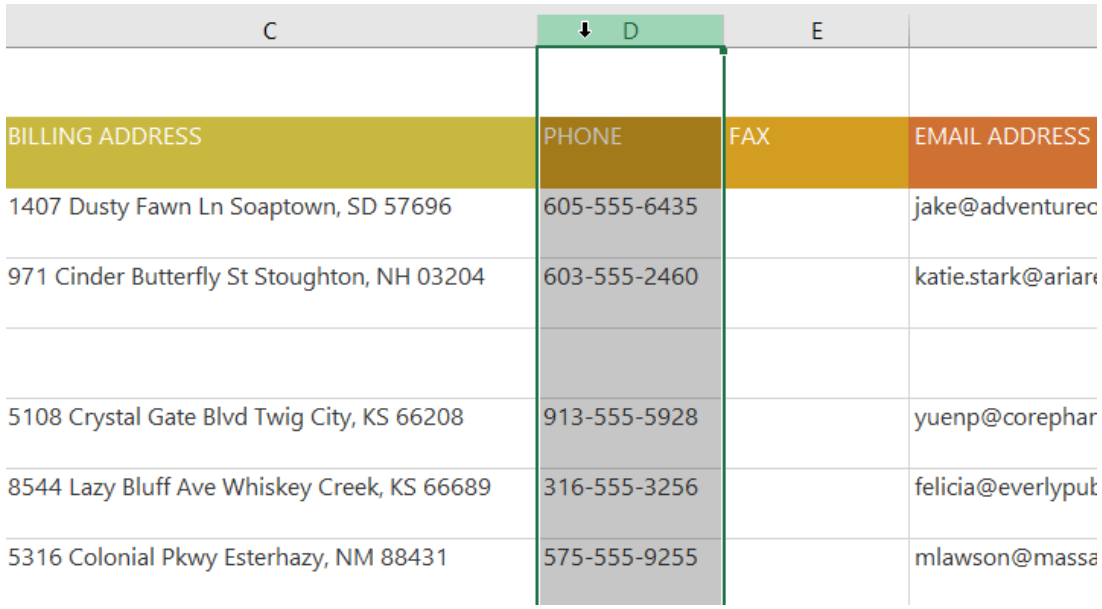


- The **selected row** will be deleted, and those around it will **shift**. In our example, **row 10** has moved up, so it's now **row 9**.



TO MOVE A ROW OR COLUMNS

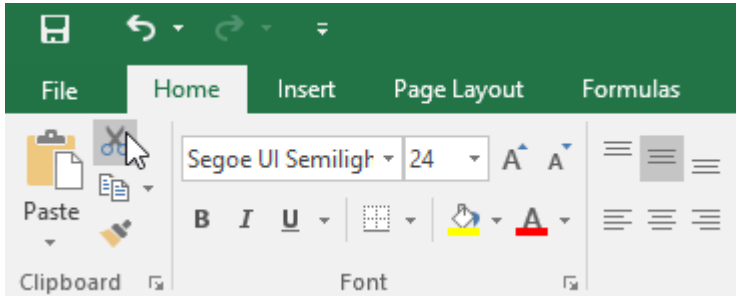
- Sometimes you may want to **move** a column or row to rearrange the content of your worksheet. In our example we'll move a column, but you can move a row in the same way.
- Select the desired **column heading** for the column you want to move.



C	D	E	
BILLING ADDRESS	PHONE	FAX	EMAIL ADDRESS
1407 Dusty Fawn Ln Soaptown, SD 57696	605-555-6435		jake@adventurec
971 Cinder Butterfly St Stoughton, NH 03204	603-555-2460		katie.stark@ariare
5108 Crystal Gate Blvd Twig City, KS 66208	913-555-5928		yuenp@corephar
8544 Lazy Bluff Ave Whiskey Creek, KS 66689	316-555-3256		felicia@everlypub
5316 Colonial Pkwy Esterhazy, NM 88431	575-555-9255		mlawson@massa

TO MOVE A ROW OR COLUMNS

- Click the **Cut** command on the **Home** tab, or press **Ctrl+X** on your keyboard.

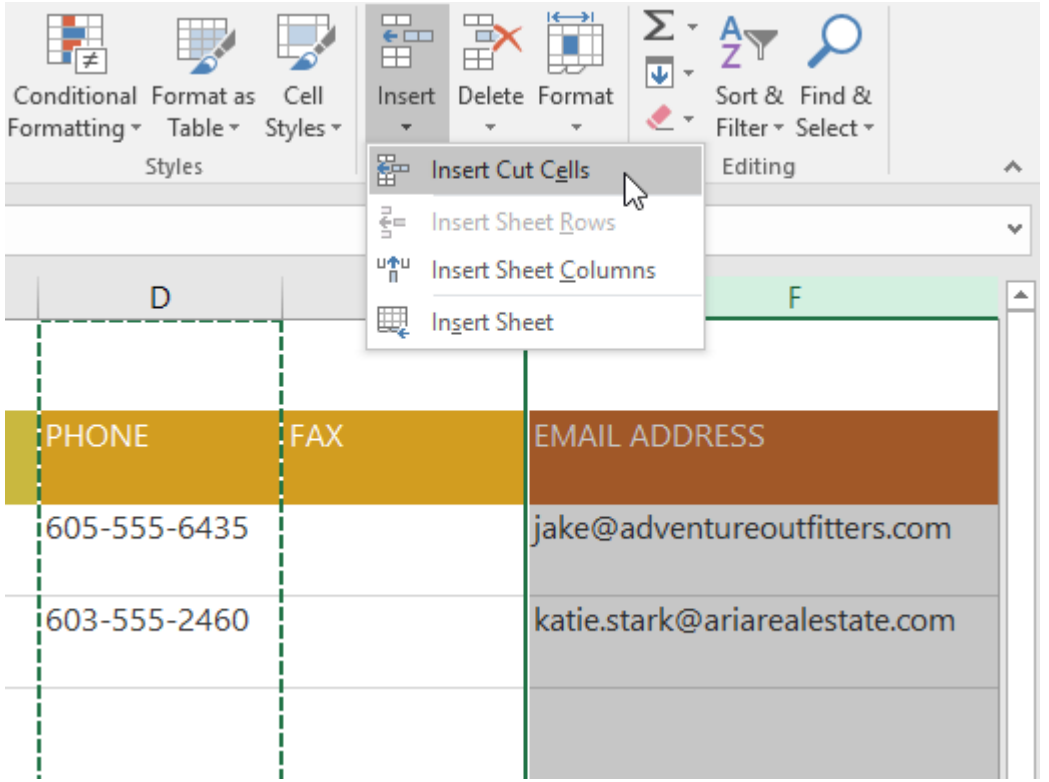


- Select the **column heading** to the right of where you want to move the column. For example, if you want to move a column between columns E and F, select **column F**.

C	D	E	F
BILLING ADDRESS	PHONE	FAX	EMAIL ADDRESS
1407 Dusty Fawn Ln Soaptown, SD 57696	605-555-6435		jake@adventureoutfitte
971 Cinder Butterfly St Stoughton, NH 03204	603-555-2460		katie.stark@ariarealesta
5108 Crystal Gate Blvd Twig City, KS 66208	913-555-5928		yuenp@corepharmaceu
8544 Lazy Bluff Ave Whiskey Creek, KS 66689	316-555-3256		felicia@everlypublishin
5316 Colonial Pkwy Esterhazy, NM 88431	575-555-9255		mlawson@massairlines

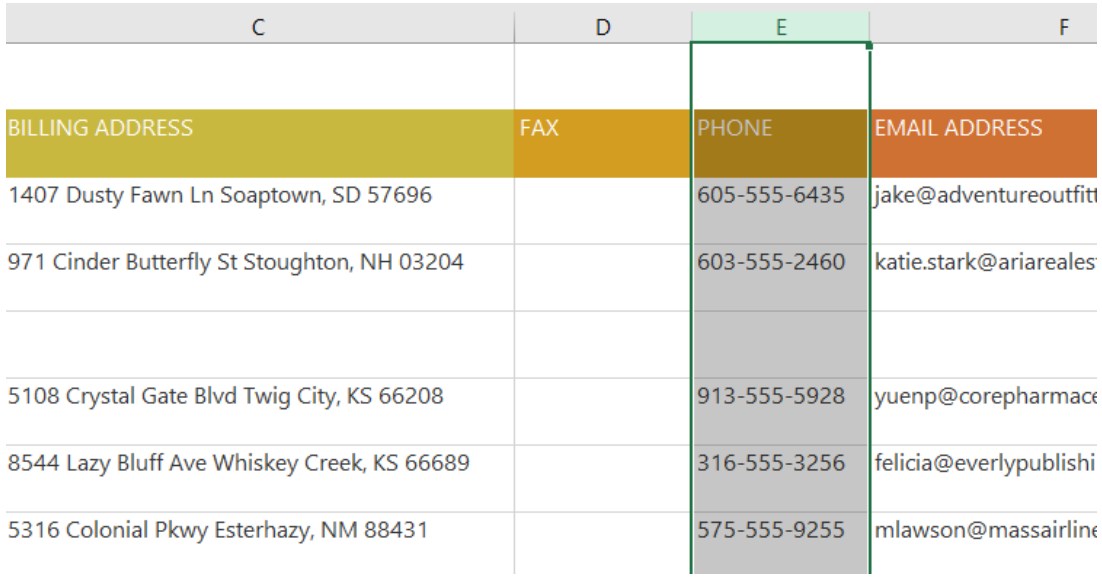
TO MOVE A ROW OR COLUMNS

- Click the **Insert** command on the **Home** tab, then select **Insert Cut Cells** from the drop-down menu.



TO MOVE A ROW OR COLUMNS

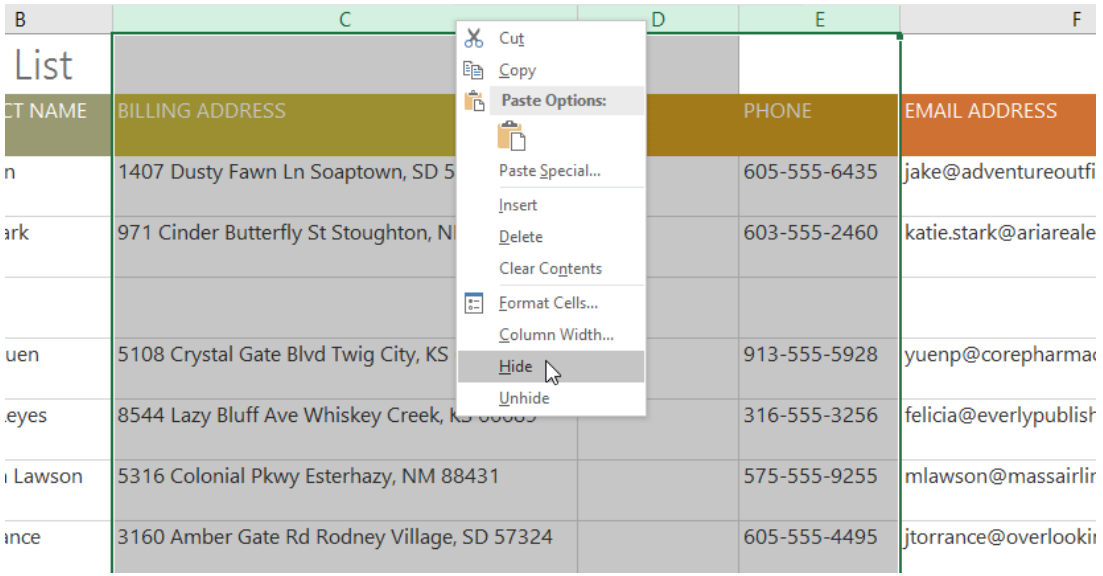
- The column will be **moved** to the selected location, and the columns around it will shift.



C	D	E	F
BILLING ADDRESS	FAX	PHONE	EMAIL ADDRESS
1407 Dusty Fawn Ln Soaptown, SD 57696		605-555-6435	jake@adventureoutfitt
971 Cinder Butterfly St Stoughton, NH 03204		603-555-2460	katie.stark@ariareales
5108 Crystal Gate Blvd Twig City, KS 66208		913-555-5928	yuenp@corepharmace
8544 Lazy Bluff Ave Whiskey Creek, KS 66689		316-555-3256	felicia@everlypublishi
5316 Colonial Pkwy Esterhazy, NM 88431		575-555-9255	mlawson@massairline

TO HIDE AND UNHIDE A ROW OR COLUMNS

- At times, you may want to **compare** certain rows or columns without changing the organization of your worksheet. To do this, Excel allows you to **hide** rows and columns as needed. In our example we'll hide a few columns, but you can hide rows in the same way.
- Select the **columns** you want to **hide**, right-click the mouse, then select **Hide** from the **formatting** menu. In our example, we'll hide columns C, D, and E.



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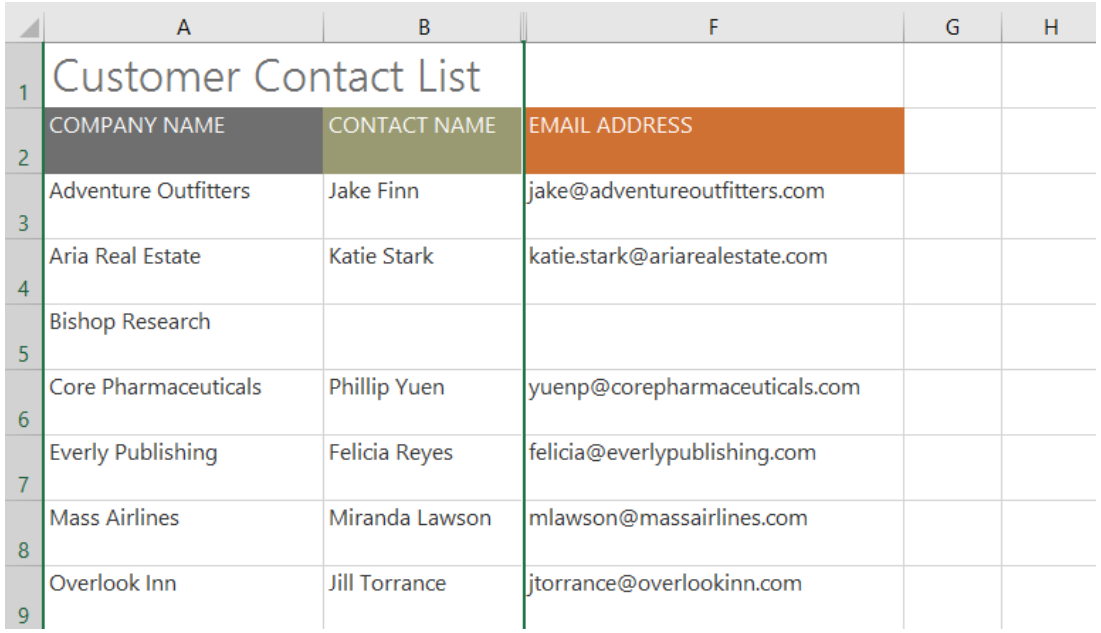
TO HIDE AND UNHIDE A ROW OR COLUMNS

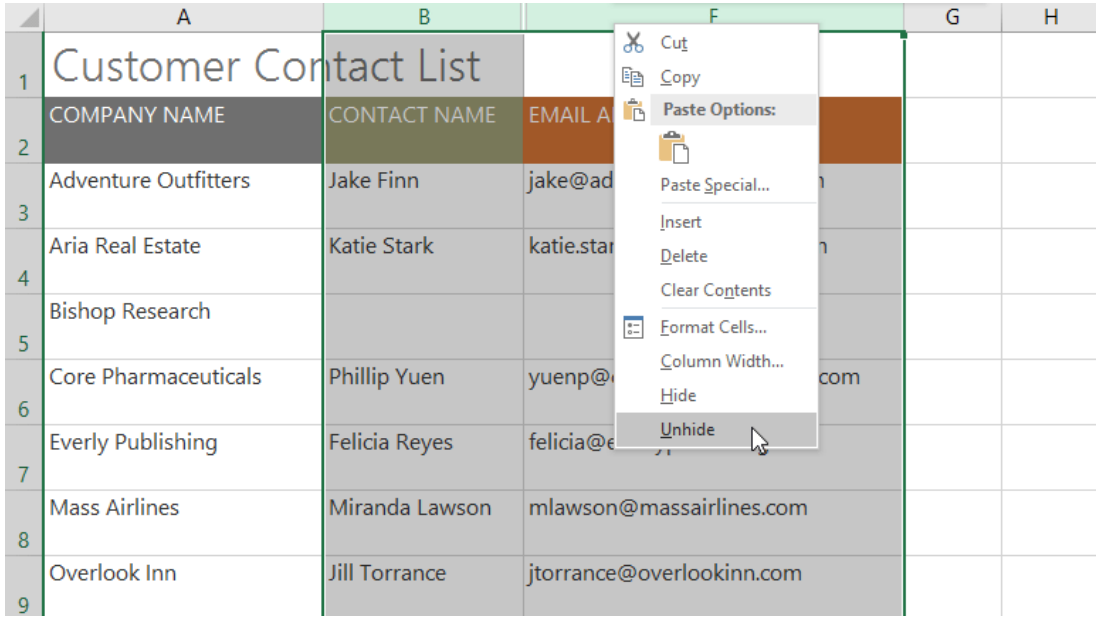
- The columns will be **hidden**. The **green column line** indicates the location of the hidden columns.



	A	B	F	G	H
1	Customer Contact List				
2	COMPANY NAME	CONTACT NAME	EMAIL ADDRESS		
3	Adventure Outfitters	Jake Finn	jake@adventureoutfitters.com		
4	Aria Real Estate	Katie Stark	katie.stark@ariarealestate.com		
5	Bishop Research				
6	Core Pharmaceuticals	Phillip Yuen	yuenp@corepharmaceuticals.com		
7	Everly Publishing	Felicia Reyes	felicia@everlypublishing.com		
8	Mass Airlines	Miranda Lawson	mlawson@massairlines.com		
9	Overlook Inn	Jill Torrance	jtorrance@overlookinn.com		

TO HIDE AND UNHIDE A ROW OR COLUMNS

- To **unhide** the columns, select the columns on **both sides** of the hidden columns. In our example, we'll select columns **B** and **F**. Then right-click the mouse and select **Unhide** from the **formatting** menu.



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TO HIDE AND UNHIDE A ROW OR COLUMNS

- The hidden columns will reappear.

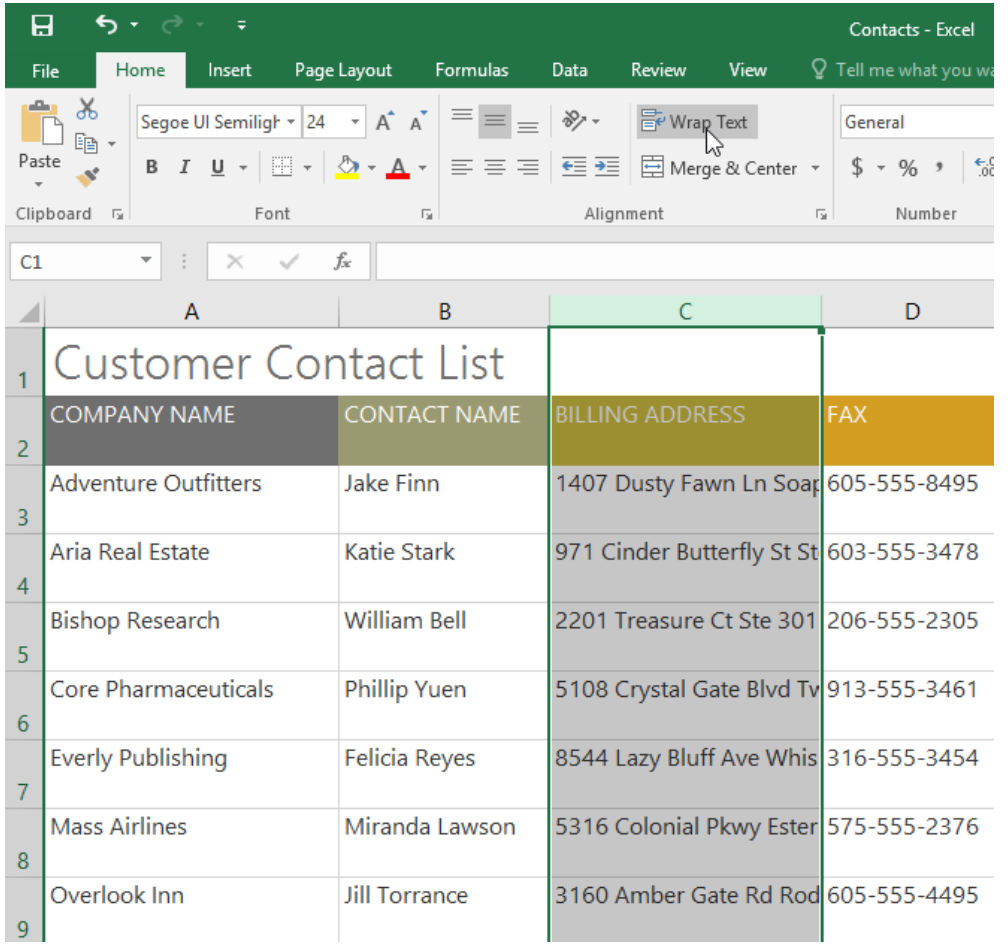
B	C	D	E	F
List				
T NAME	BILLING ADDRESS	FAX	PHONE	EMAIL ADDRESS
n	1407 Dusty Fawn Ln Soaptown, SD 57696		605-555-6435	jake@adventureoutf
rk	971 Cinder Butterfly St Stoughton, NH 03204		603-555-2460	katie.stark@ariareale
uen	5108 Crystal Gate Blvd Twig City, KS 66208		913-555-5928	yuenp@corepharma
eyes	8544 Lazy Bluff Ave Whiskey Creek, KS 66689		316-555-3256	felicia@everlypublish
Lawson	5316 Colonial Pkwy Esterhazy, NM 88431		575-555-9255	mlawson@massairli
nce	3160 Amber Gate Rd Rodney Village, SD 57324		605-555-4495	jtorrance@overlooki

WRAPPING TEXT AND MERGING CELLS

Whenever you have too much cell content to be displayed in a single cell, you may decide to **wrap the text** or **merge** the cell rather than resize a column. Wrapping the text will automatically modify a cell's **row height**, allowing cell contents to be displayed **on multiple lines**. Merging allows you to combine a cell with adjacent empty cells to create **one large cell**.

TO WRAP TEXT IN CELLS

- Select the cells you want to wrap. In this example, we'll select the cells in **column C**.
- Click the **Wrap Text** command on the **Home** tab.



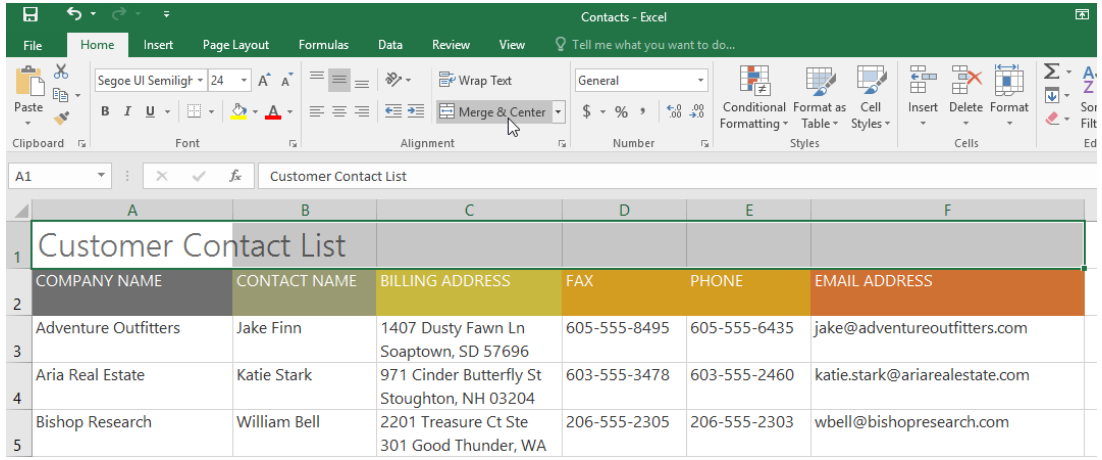
TO WRAP TEXT IN CELLS

- The text in the selected cells will be **wrapped**.
- Click the **Wrap Text** command again to **unwrap** the text.

	A	B	C	D
1	Customer Contact List			
2	COMPANY NAME	CONTACT NAME	BILLING ADDRESS	FAX
3	Adventure Outfitters	Jake Finn	1407 Dusty Fawn Ln Soaptown, SD 57696	605-555-8495
4	Aria Real Estate	Katie Stark	971 Cinder Butterfly St Stoughton, NH 03204	603-555-3478
5	Bishop Research	William Bell	2201 Treasure Ct Ste 301 Good Thunder, WA	206-555-2305
6	Core Pharmaceuticals	Phillip Yuen	5108 Crystal Gate Blvd Twig City, KS 66208	913-555-3461
7	Everly Publishing	Felicia Reyes	8544 Lazy Bluff Ave Whiskey Creek, KS	316-555-3454
8	Mass Airlines	Miranda Lawson	5316 Colonial Pkwy Esterhazy, NM 88431	575-555-2376
9	Overlook Inn	Jill Torrance	3160 Amber Gate Rd Rodney Village, SD	605-555-4495

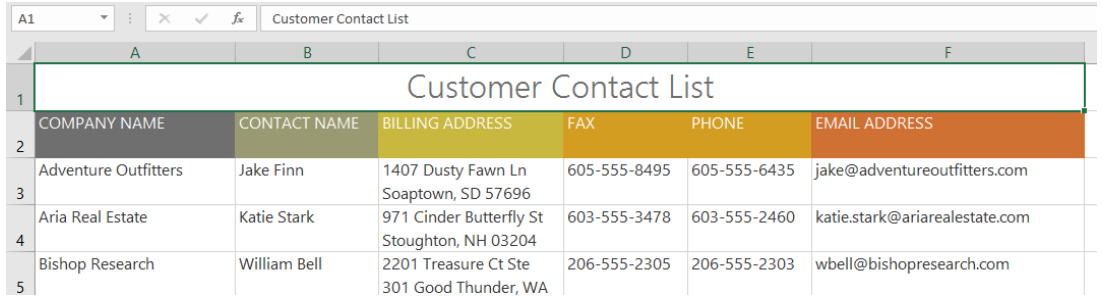
TO MERGE CELLS

- Select the **cell range** you want to merge. In our example, we'll select **A1:F1**.
- Click the **Merge & Center** command on the **Home** tab. In our example, we'll select the cell range **A1:F1**.



	A	B	C	D	E	F
1	Customer Contact List					
2	COMPANY NAME	CONTACT NAME	BILLING ADDRESS	FAX	PHONE	EMAIL ADDRESS
3	Adventure Outfitters	Jake Finn	1407 Dusty Fawn Ln Soaptown, SD 57696	605-555-8495	605-555-6435	jake@adventureoutfitters.com
4	Aria Real Estate	Katie Stark	971 Cinder Butterfly St Stoughton, NH 03204	603-555-3478	603-555-2460	katie.stark@ariarealestate.com
5	Bishop Research	William Bell	2201 Treasure Ct Ste 301 Good Thunder, WA	206-555-2305	206-555-2303	wbell@bishopresearch.com

- The selected cells will be **merged**, and the text will be **centered**.



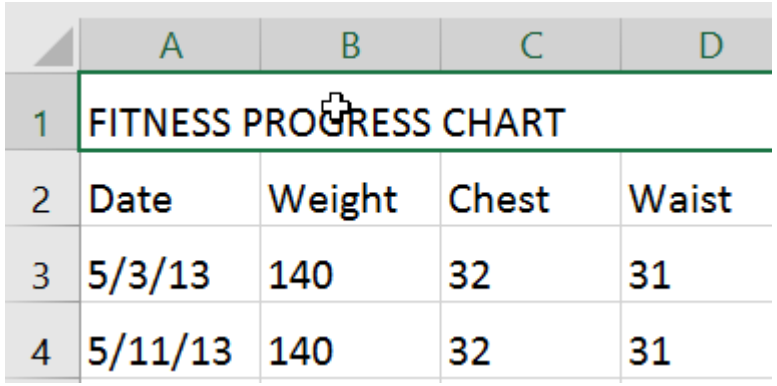
	A	B	C	D	E	F
1	Customer Contact List					
2	COMPANY NAME	CONTACT NAME	BILLING ADDRESS	FAX	PHONE	EMAIL ADDRESS
3	Adventure Outfitters	Jake Finn	1407 Dusty Fawn Ln Soaptown, SD 57696	605-555-8495	605-555-6435	jake@adventureoutfitters.com
4	Aria Real Estate	Katie Stark	971 Cinder Butterfly St Stoughton, NH 03204	603-555-3478	603-555-2460	katie.stark@ariarealestate.com
5	Bishop Research	William Bell	2201 Treasure Ct Ste 301 Good Thunder, WA	206-555-2305	206-555-2303	wbell@bishopresearch.com

FORMATTING CELLS

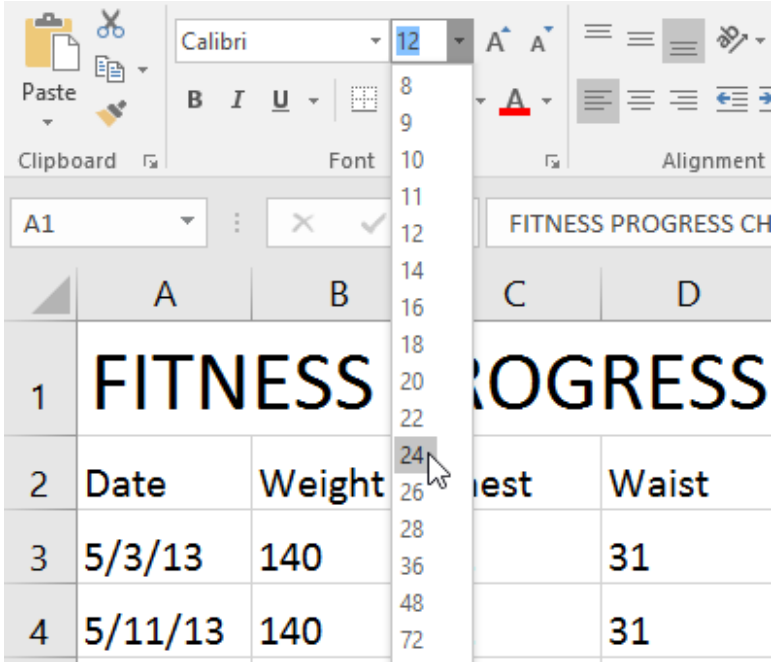
All cell content uses the same **formatting** by default, which can make it difficult to read a workbook with a lot of information. Basic formatting can customize the **look and feel** of your workbook, allowing you to draw attention to specific sections and making your content easier to view and understand.

TO CHANGE THE FONT SIZE

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



- 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**.



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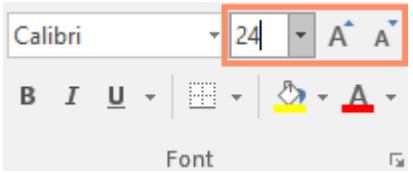
TO CHANGE THE FONT SIZE

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

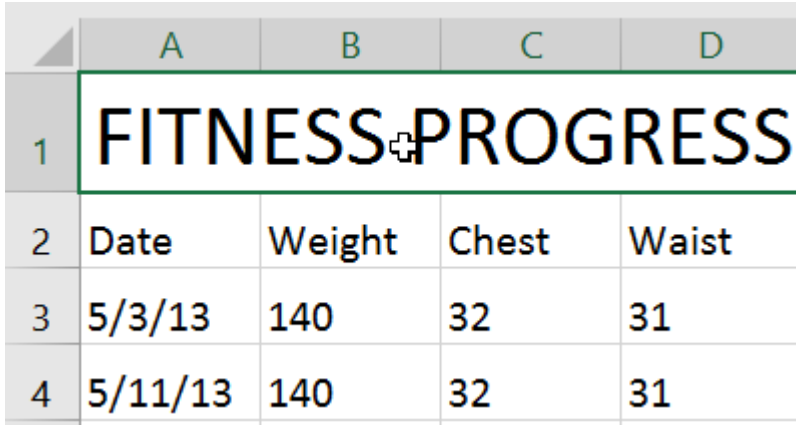
	A	B	C	D	E	F
1	FITNESS PROGRESS CHART					
2	Date	Weight	Chest	Waist	Hips	Forearm
3	5/3/13	140	32	31	40	11.5
4	5/11/13	140	32	31	39.5	11.5

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



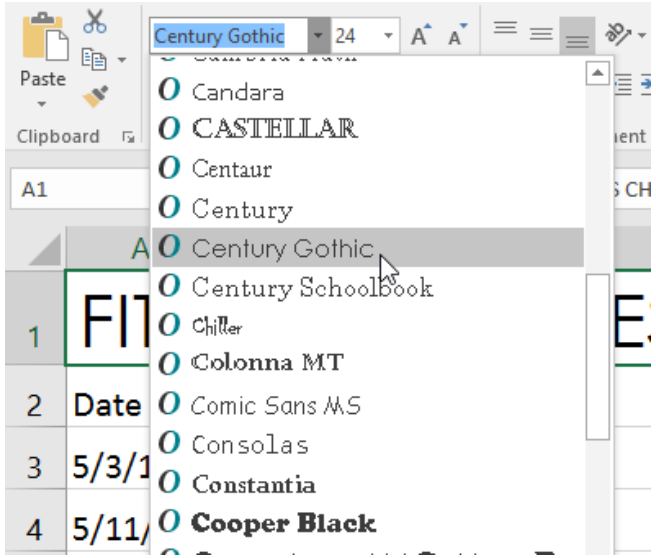
TO CHANGE THE FONT

- 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 example below, we'll format our **title cell** to help distinguish it from the rest of the worksheet.
- Select the **cell(s)** you want to modify.



TO CHANGE THE FONT

- 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**.

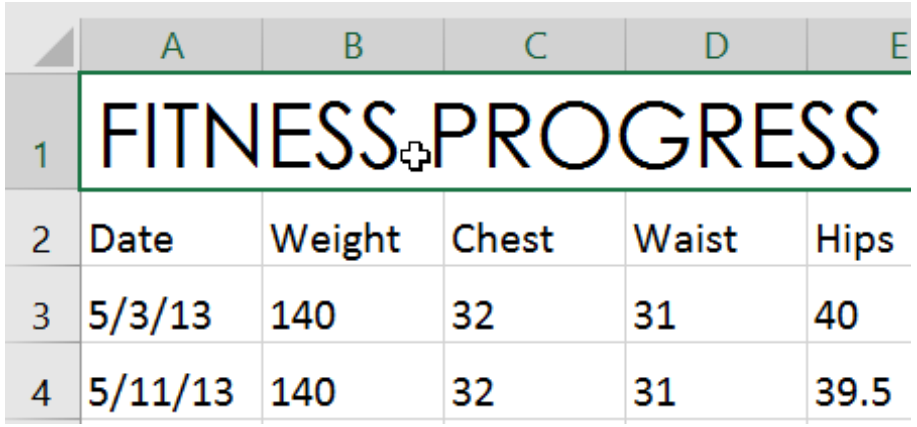


- The text will change to the **selected font**.

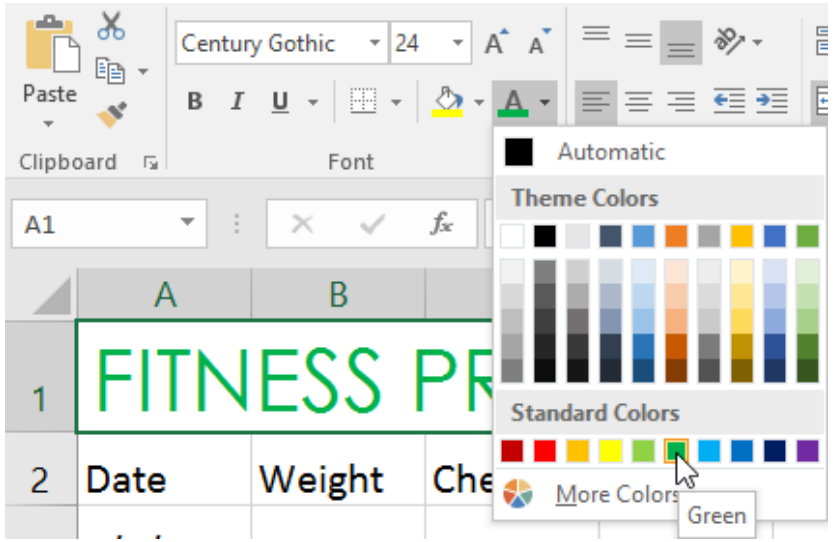
	A	B	C	D
1	FITNESS PROGRE			
2	Date	Weight	Chest	Waist
3	5/3/13	140	32	31
4	5/11/13	140	32	31

TO CHANGE THE FONT COLOR

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



- 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**.



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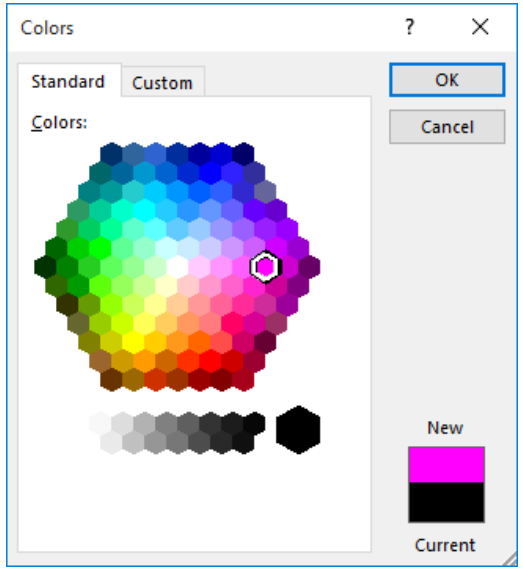
TO CHANGE THE FONT COLOR

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

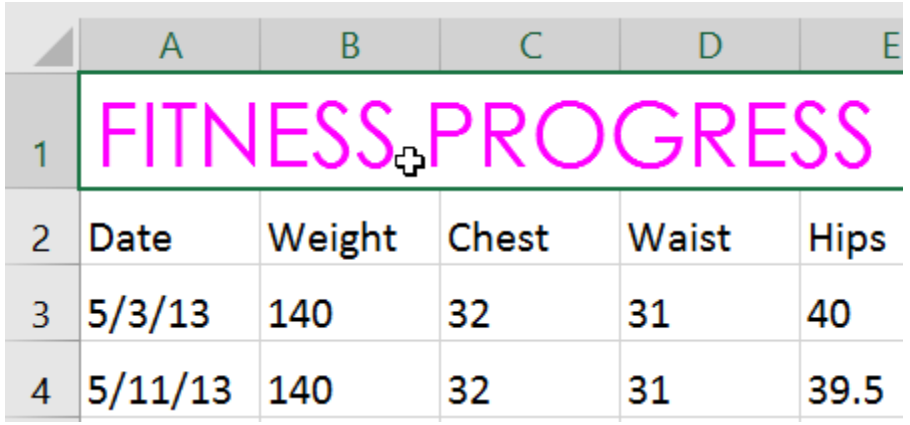
	A	B	C	D	E
1	FITNESS PROGRESS				
2	Date	Weight	Chest	Waist	Hips
3	5/3/13	140	32	31	40
4	5/11/13	140	32	31	39.5

- Select **More Colors** at the bottom of the menu to access additional color options. We've changed the font color to a bright pink.



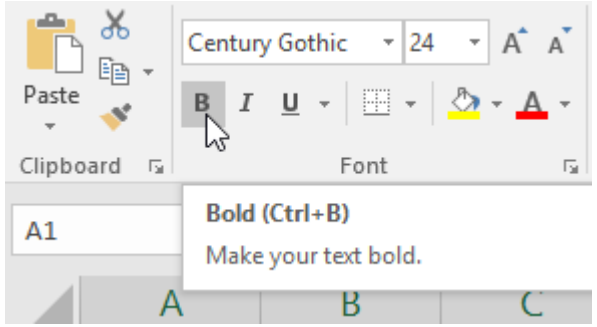
TO USE THE BOLD, ITALIC, AND UNDERLINE

- 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

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



TO USE THE BOLD, ITALIC, AND UNDERLINE

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

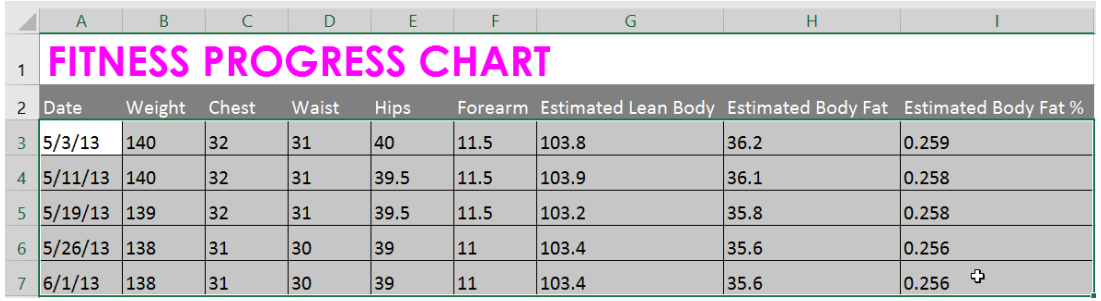
	A	B	C	D	E
1	FITNESS PROGRESS				
2	Date	Weight	Chest	Waist	Hips
3	5/3/13	140	32	31	40
4	5/11/13	140	32	31	39.5

CELL STYLES

Instead of formatting cells manually, you can use Excel's **predesigned cell styles**. Cell styles are a quick way to include professional formatting for different parts of your workbook, like **titles** and **headers**.

TO APPLY A CELL STYLE

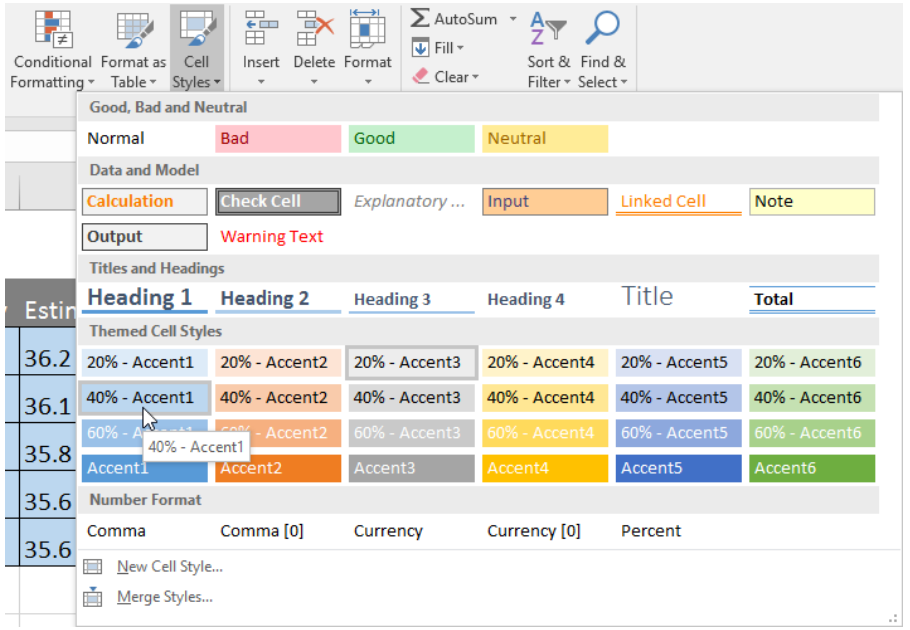
- In our example, we'll apply a new cell style to our existing **title** and **header cells**.
- Select the **cell(s)** you want to modify.



	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

TO APPLY A CELL STYLE

- Click the **Cell Styles** command on the **Home** tab, then choose the **desired style** from the drop-down menu.



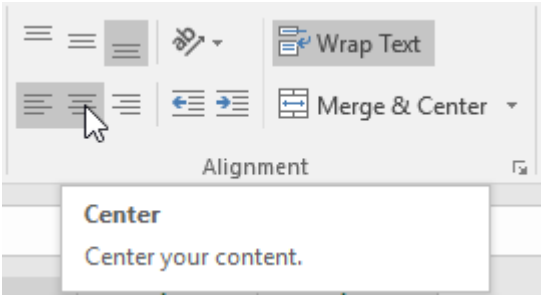
- The **selected cell style** will appear.

	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

TO CHANGE HORIZONTAL TEXT ALIGNMENT

- In our example below, we'll modify the alignment of our **title** cell to create a more polished look and further distinguish it from the rest of the worksheet.
- Select the **cell(s)** you want to modify.
- Select one of the three **horizontal alignment** commands on the **Home** tab. In our example, we'll choose **Center Align**.
- The text will **realign**.

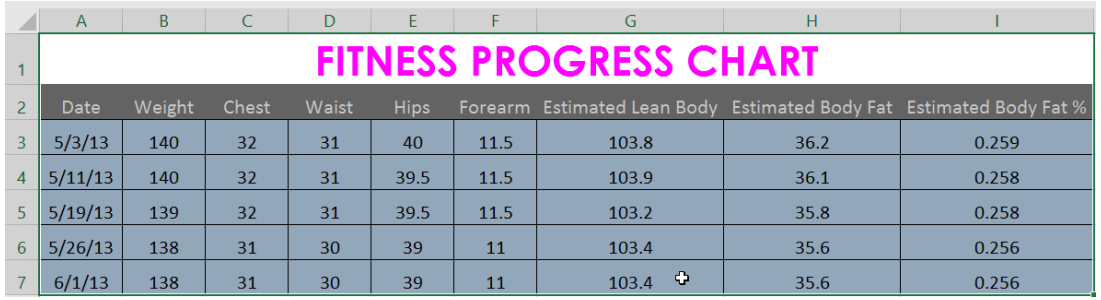
	A	B	C	D	E	F	G	H	I
1	FITNESS PROGRESS CHART								
2	Date	Weight	Chest	Waist	Hips	Forearm	Estimated Lean Body	Estimated Body Fat	Estimated Body Fat %
3	5/3/13	140	32	31	40	11.5	103.8	36.2	0.259
4	5/11/13	140	32	31	39.5	11.5	103.9	36.1	0.258
5	5/19/13	139	32	31	39.5	11.5	103.2	35.8	0.258
6	5/26/13	138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



	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

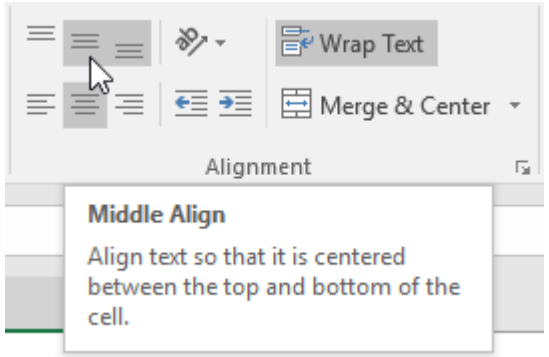
TO CHANGE VERTICAL TEXT ALIGNMENT

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

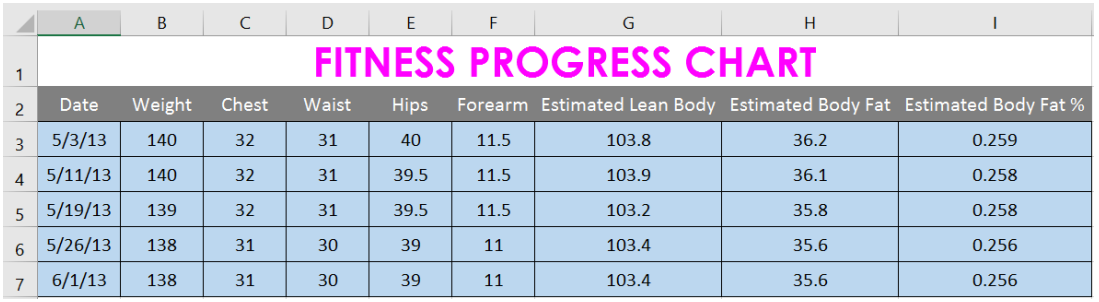


	A	B	C	D	E	F	G	H	I
1	FITNESS PROGRESS CHART								
2	Date	Weight	Chest	Waist	Hips	Forearm	Estimated Lean Body	Estimated Body Fat	Estimated Body Fat %
3	5/3/13	140	32	31	40	11.5	103.8	36.2	0.259
4	5/11/13	140	32	31	39.5	11.5	103.9	36.1	0.258
5	5/19/13	139	32	31	39.5	11.5	103.2	35.8	0.258
6	5/26/13	138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

- Select one of the three **vertical alignment** commands on the **Home** tab. In our example, we'll choose **Middle Align**.



- The text will **realign**.



	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

FORMULAS

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. In this lesson, we'll show you how to use **cell references** to create simple formulas.

MATHEMATICAL OPERATORS

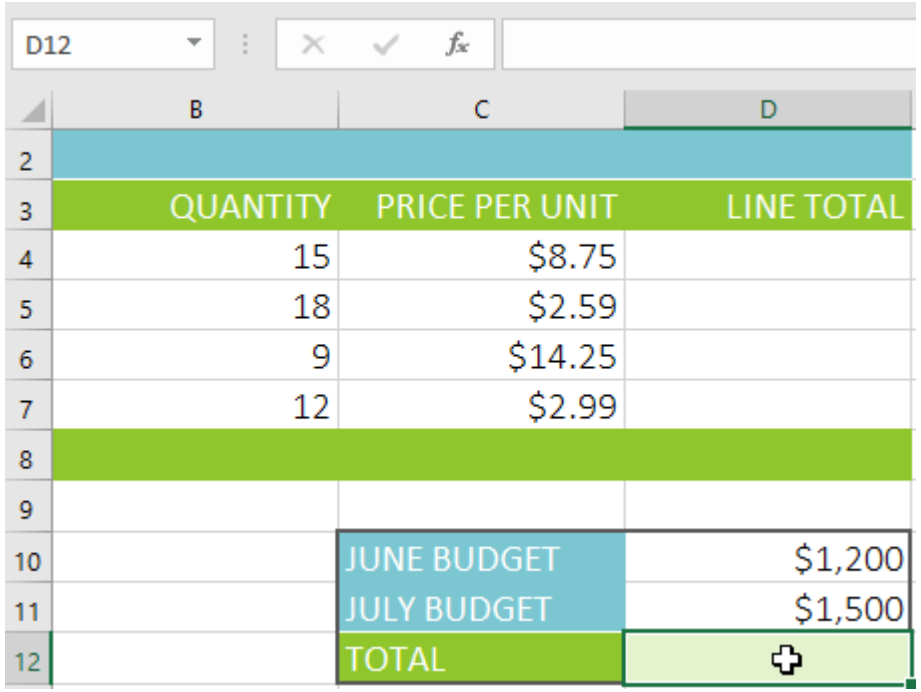
- Excel uses standard operators for formulas: a **plus sign** for addition (**+**), **minus sign** for subtraction (**-**), **asterisk** for multiplication (*****), **forward slash** for division (**/**), and **caret** (**^**) for exponents.
- All formulas in Excel must begin with an **equals sign** (**=**). This is because the cell contains, or is equal to, the formula and the value it calculates.

Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponents	^

TO CREATE A FORMULA

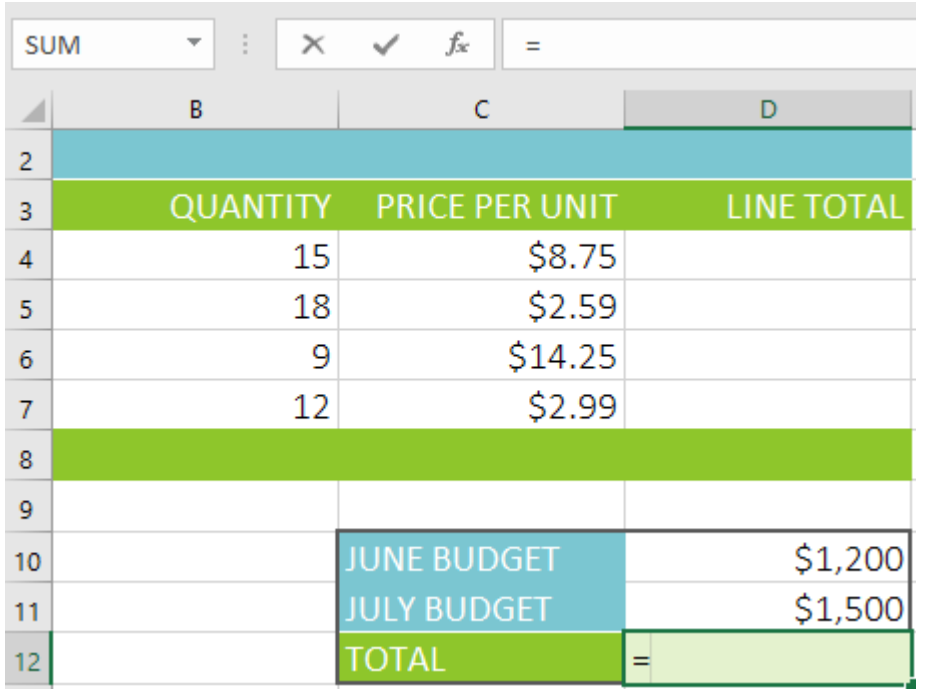
- In our example below, we'll use a simple formula and cell references to calculate a budget.

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



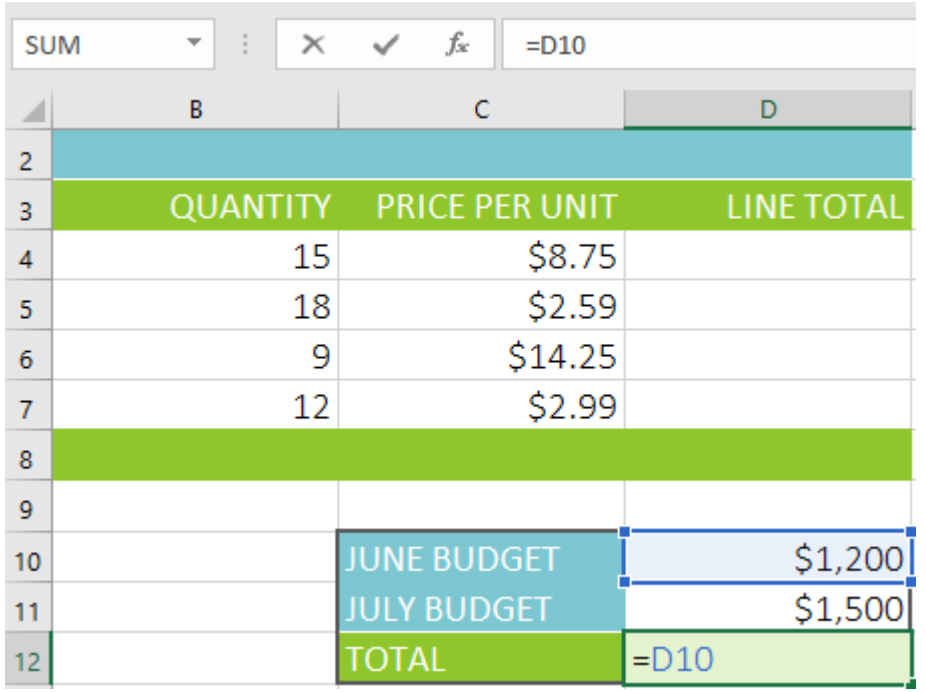
TO CREATE A FORMULA

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



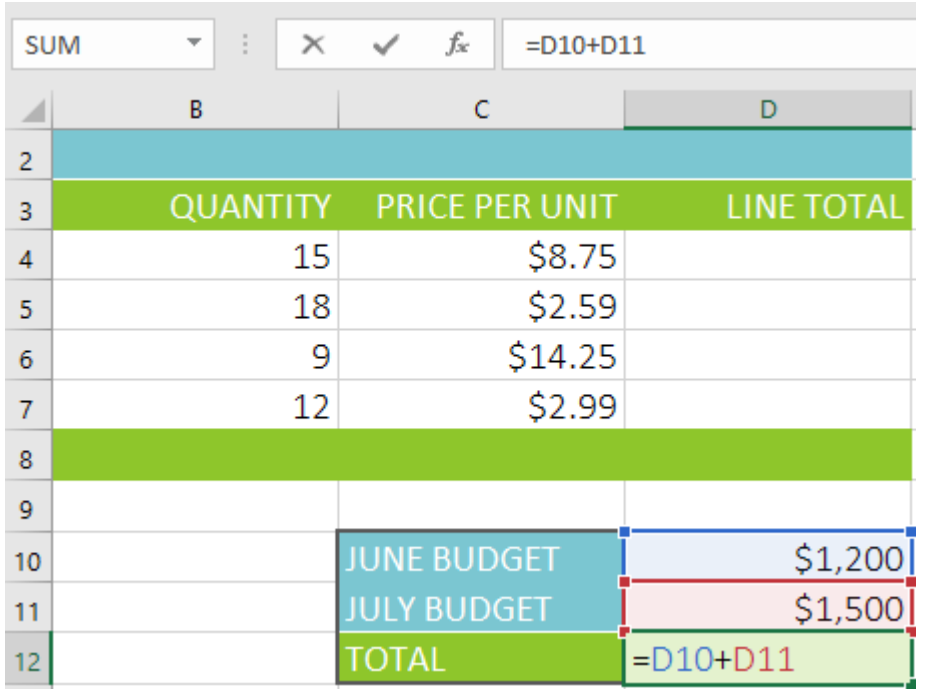
TO CREATE A FORMULA

- Type the **cell address** of the cell you want to reference first in the formula: cell **D10** in our example. A **blue border** will appear around the referenced cell.



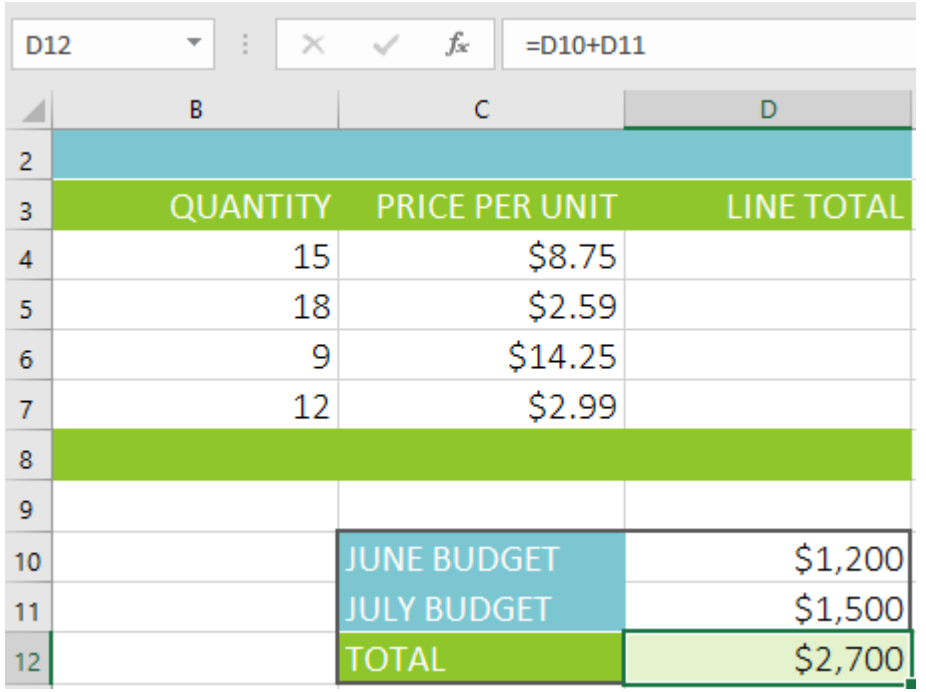
TO CREATE A FORMULA

- Type the **mathematical operator** you want to use. In our example, we'll type the **addition sign** (**+**).
- Type the **cell address** of the cell you want to reference second in the formula: cell **D11** in our example. A **red border** will appear around the referenced cell.



TO CREATE A FORMULA

- Press **Enter** on your keyboard. The formula will be **calculated**, and the **value** will be displayed in the cell. If you select the cell again, notice that the cell displays the result, while the formula bar displays the formula.



CREATING A FUNCTION

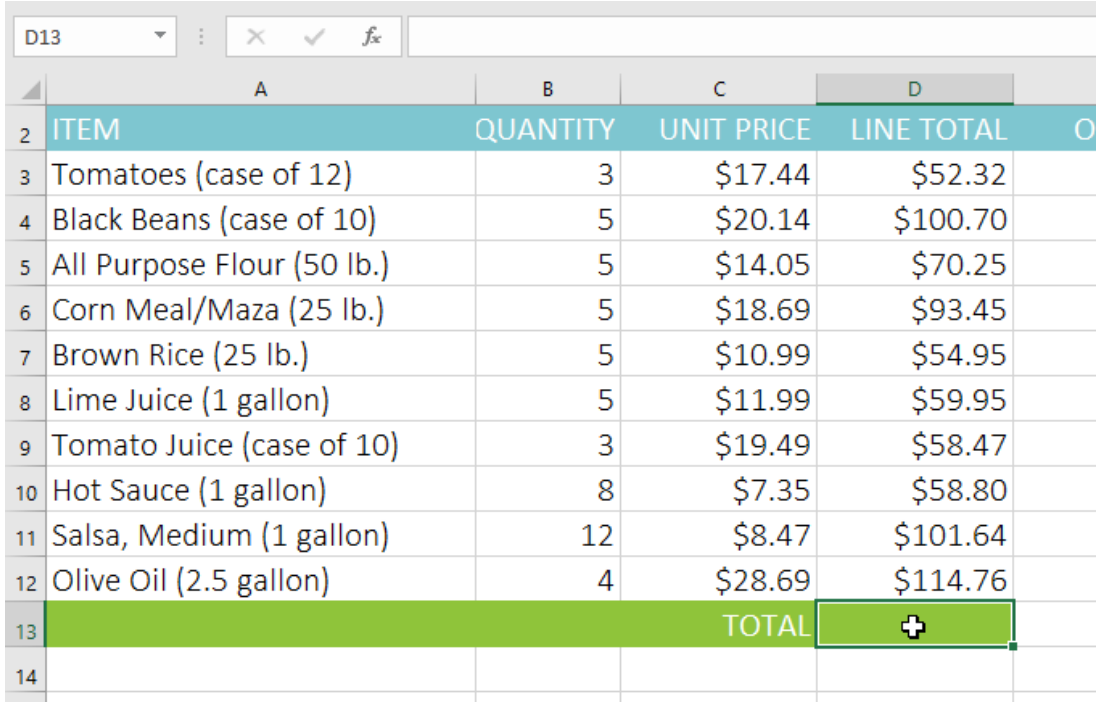
CREATING A FUNCTION

There are a variety of functions available in Excel. 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.

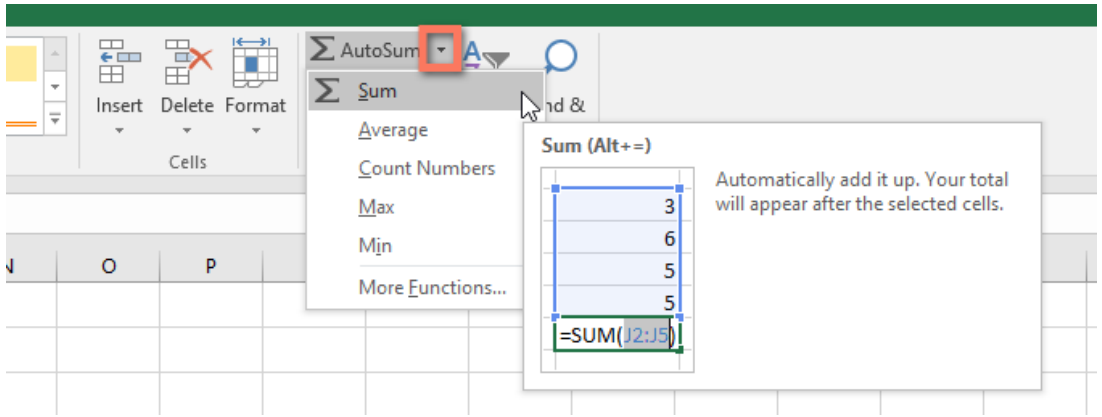
TO CREATE A FUNCTION USING THE AUTOSUM

- The **AutoSum** command allows you to automatically insert the most common functions into your formula, including SUM, AVERAGE, COUNT, MAX, and MIN. In the example below, we'll use the **SUM** function to calculate the **total cost** for a list of recently ordered items.
- Select the **cell** that will contain the function. In our example, we'll select cell **D13**.



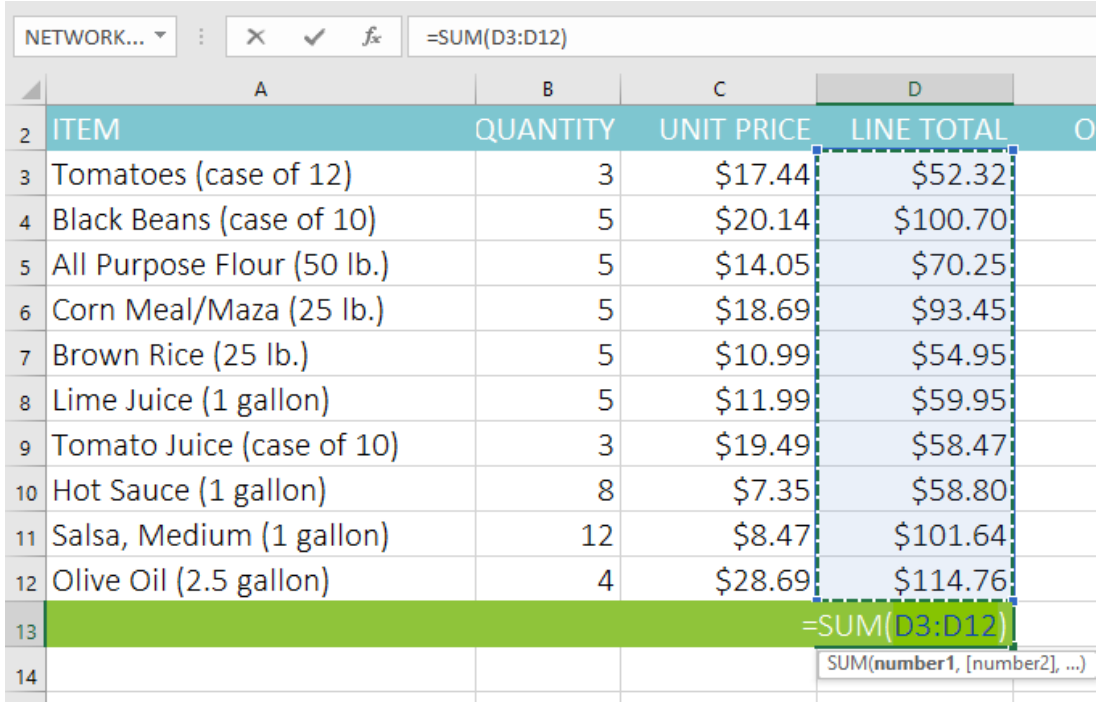
TO CREATE A FUNCTION USING THE AUTOSUM

- In the **Editing** group on the **Home** tab, click the **arrow** next to the **AutoSum** command. Next, choose the **desired function** from the drop-down menu. In our example, we'll select **Sum**.



TO CREATE A FUNCTION USING THE AUTOSUM

- Excel will place the **function** in the cell and automatically select a **cell range** for the argument. In our example, cells **D3:D12** were selected automatically; their values will be **added** to calculate the total cost. If Excel selects the wrong cell range, you can manually enter the desired cells into the argument.



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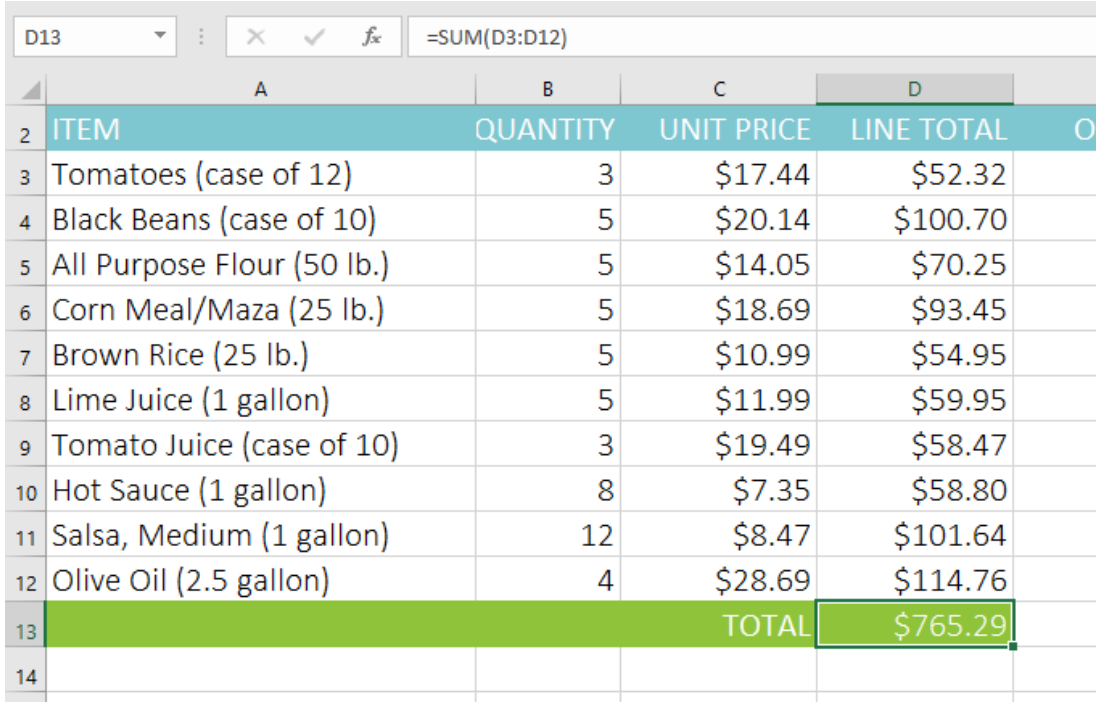
TO CREATE A FUNCTION USING THE AUTOSUM

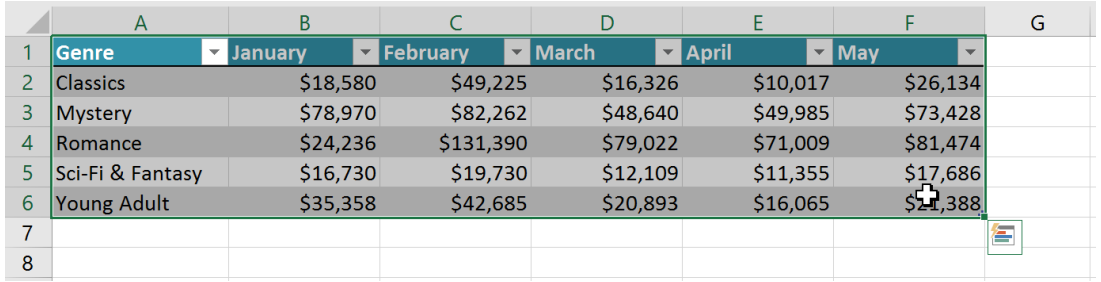
- Press **Enter** on your keyboard. The function will be **calculated**, and the **result** will appear in the cell. In our example, the sum of D3:D12 is **$765.29**.



	A	B	C	D
2	ITEM	QUANTITY	UNIT PRICE	LINE TOTAL
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	Lime Juice (1 gallon)	5	$11.99	$59.95
9	Tomato Juice (case of 10)	3	$19.49	$58.47
10	Hot Sauce (1 gallon)	8	$7.35	$58.80
11	Salsa, Medium (1 gallon)	12	$8.47	$101.64
12	Olive Oil (2.5 gallon)	4	$28.69	$114.76
13			TOTAL	$765.29
14				

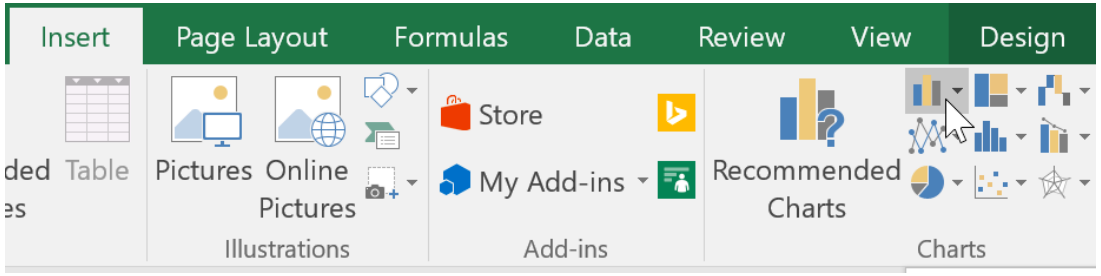
TO INSERT A CHART

- Select the **cells** you want to chart, including the **column titles** and **row labels**. These cells will be the source data for the chart. In our example, we'll select cells A1:F6.



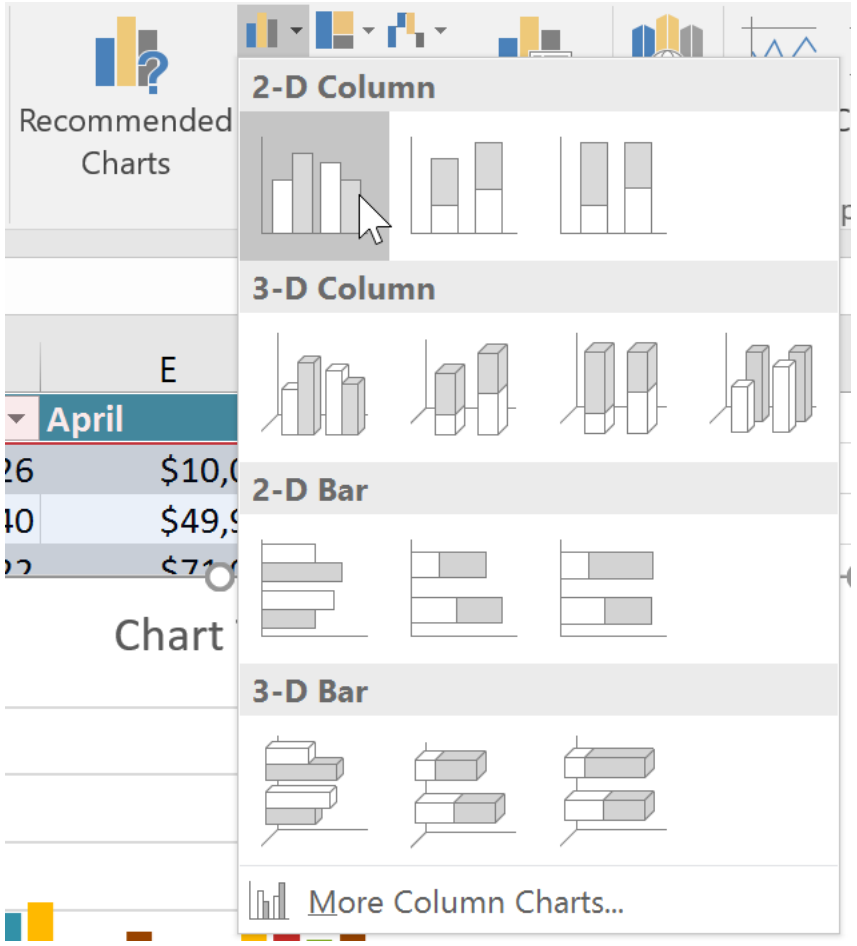
	A	B	C	D	E	F	G
1	Genre	January	February	March	April	May	
2	Classics	$18,580	$49,225	$16,326	$10,017	$26,134	
3	Mystery	$78,970	$82,262	$48,640	$49,985	$73,428	
4	Romance	$24,236	$131,390	$79,022	$71,009	$81,474	
5	Sci-Fi & Fantasy	$16,730	$19,730	$12,109	$11,355	$17,686	
6	Young Adult	$35,358	$42,685	$20,893	$16,065	$21,388	
7							
8							

- From the **Insert** tab, click the desired **Chart** command. In our example, we'll select **Column**.



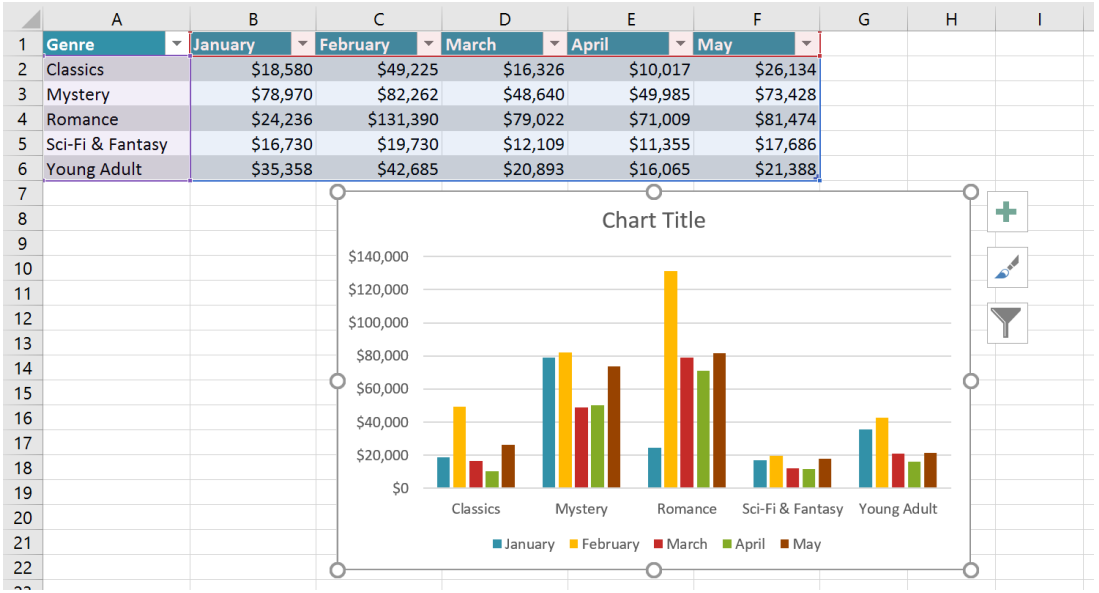
TO INSERT A CHART

- Choose the desired **chart type** from the drop-down menu.



TO INSERT A CHART

- The Selected chart will be inserted into the worksheet.



	A	B	C	D	E	F
1	Genre	January	February	March	April	May
2	Classics	$18,580	$49,225	$16,326	$10,017	$26,134
3	Mystery	$78,970	$82,262	$48,640	$49,985	$73,428
4	Romance	$24,236	$131,390	$79,022	$71,009	$81,474
5	Sci-Fi & Fantasy	$16,730	$19,730	$12,109	$11,355	$17,686
6	Young Adult	$35,358	$42,685	$20,893	$16,065	$21,388

CHART AND LAYOUT STYLE

After inserting a chart, there are several things you may want to change about the way your data is displayed. It's easy to edit a chart's **layout** and **style** from the **Design** tab.

CHART AND LAYOUT STYLE

- Excel allows you to add **chart elements**—including **chart titles**, **legends**, and **data labels**—to make your chart easier to read. To add a chart element, click the **Add Chart Element** command on the **Design** tab, then choose the **desired element** from the drop-down menu.

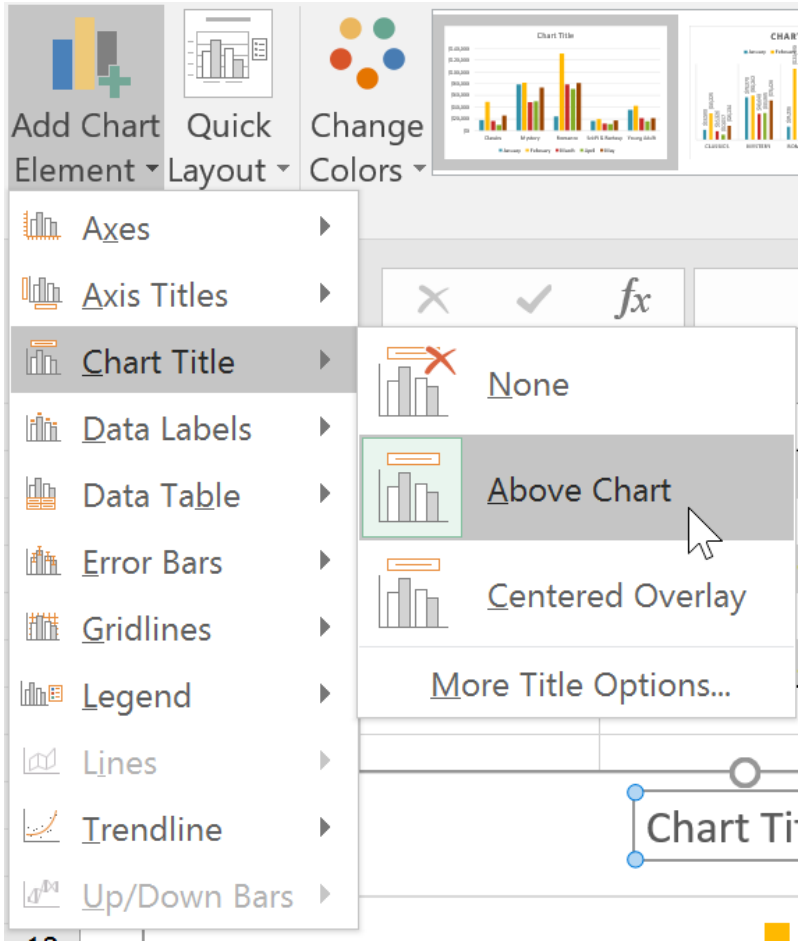


CHART AND LAYOUT STYLE

- To **edit** a chart element, like a **chart title**, simply double-click the **placeholder** and begin typing.

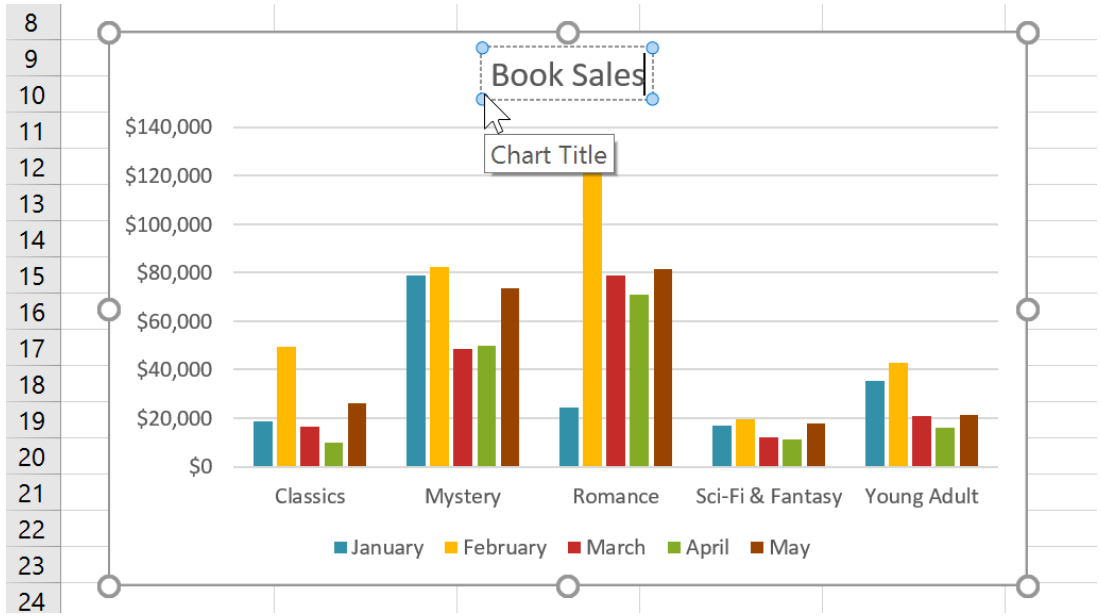


CHART AND LAYOUT STYLE

- If you don't want to add chart elements individually, you can use one of Excel's predefined layouts. Simply click the **Quick Layout** command, then choose the **desired layout** from the drop-down menu.

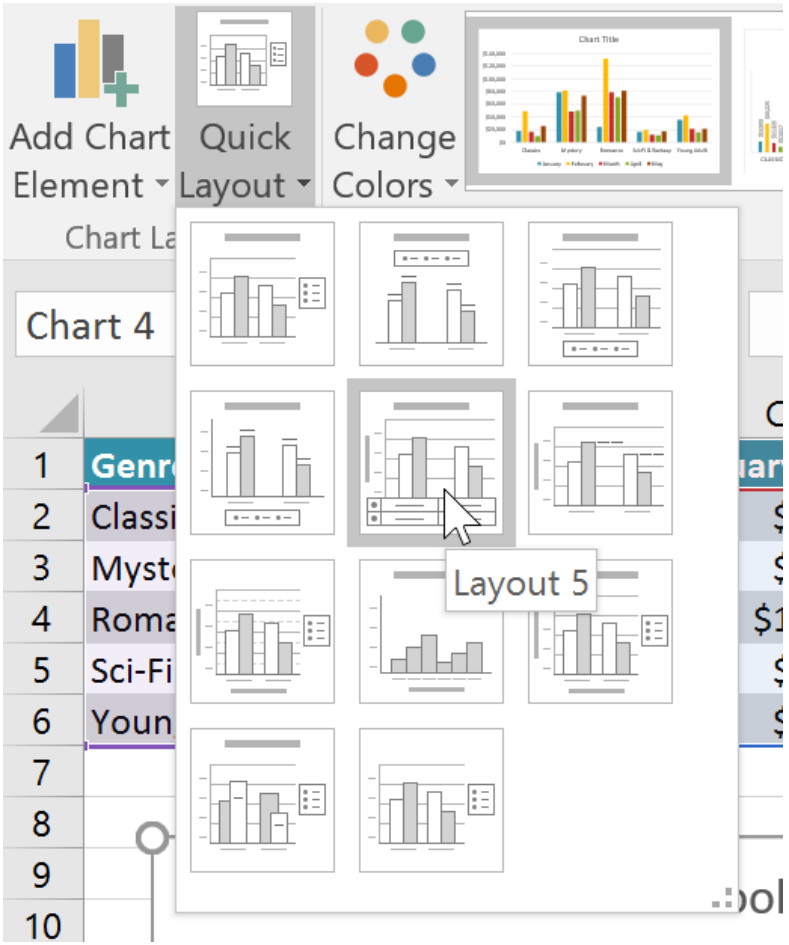
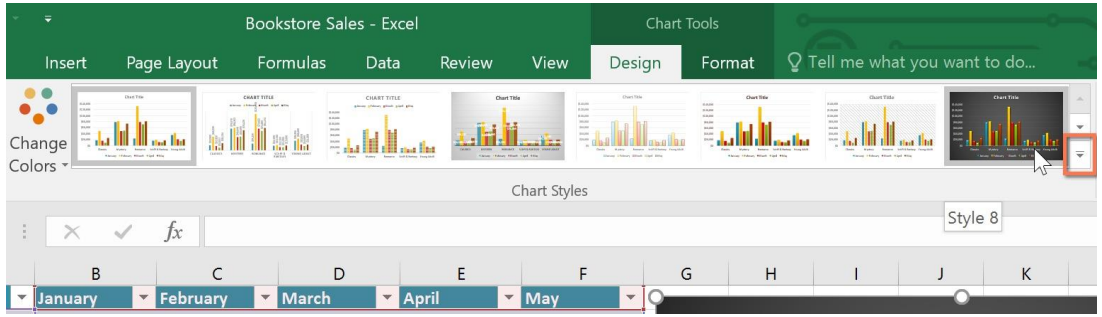
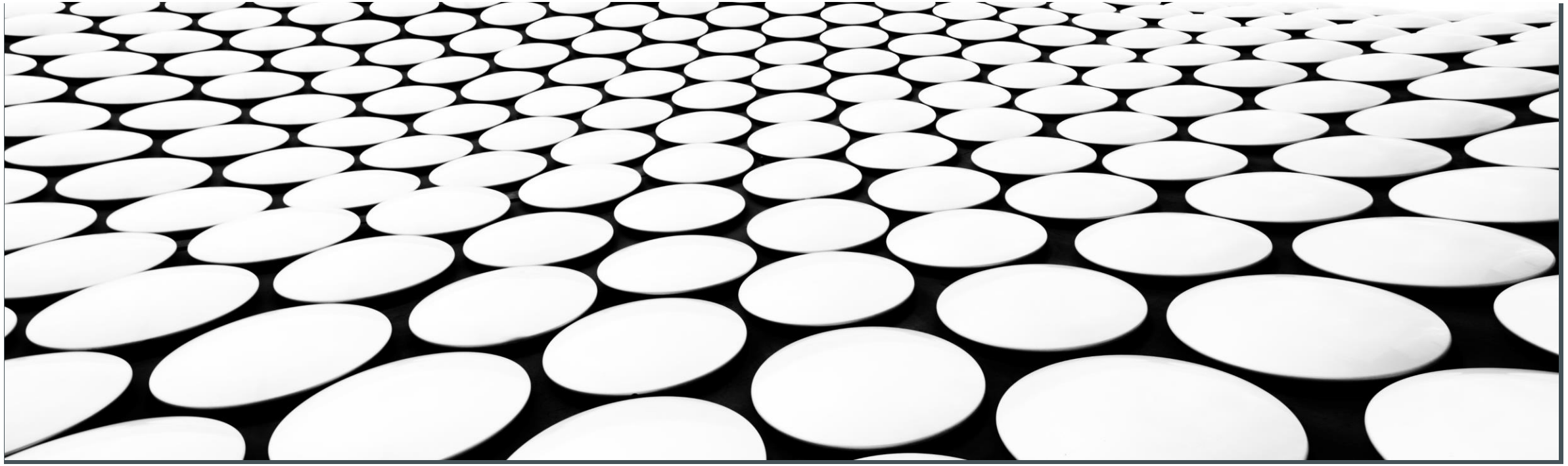


CHART AND LAYOUT STYLE

- Excel also includes several **chart styles**, which allow you to quickly modify the look and feel of your chart. To change the chart style, select the **desired style** from the **Chart styles** group. You can also click the drop-down arrow on the right to see more styles.



THE DATA ANALYTICS PROCESS IN EXCEL

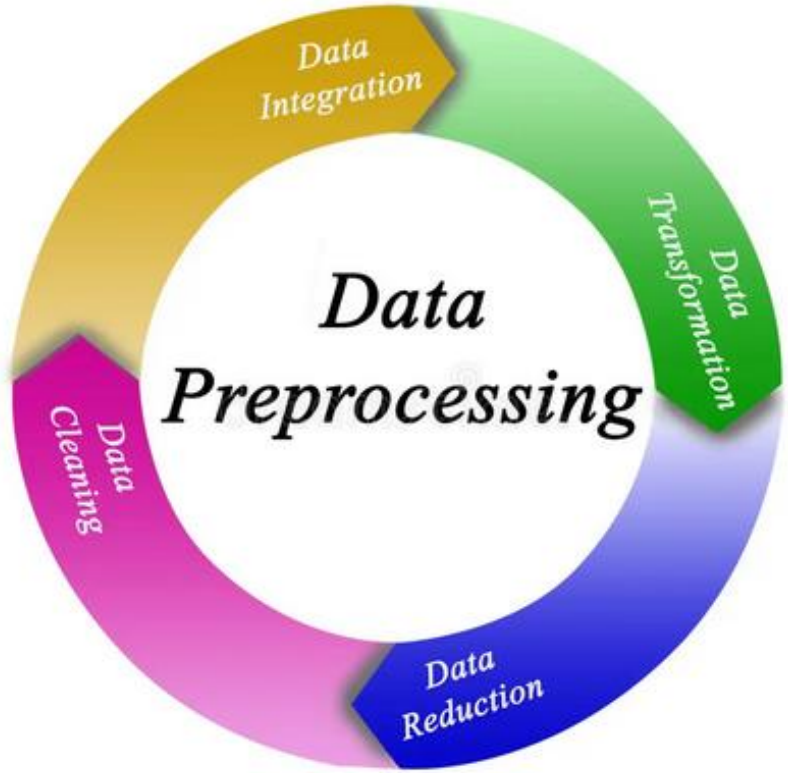


DATA CLEANING: TRANSFORMING MESSY DATA INTO MEANINGFUL INFORMATION

- Identifying and correcting errors:
  - Missing values
  - Inconsistent formatting
  - Typos and data inconsistencies
- Using formulas and tools for data manipulation:
  - VLOOKUP, INDEX MATCH
  - Text to Columns, Remove Duplicates

DATA PREPROCESSING

- Data preprocessing involves the transformation of the raw dataset into an understandable format.
- Preprocessing data is a fundamental stage in data mining to improve data efficiency.
- The data preprocessing methods directly affect the outcomes of any analytic algorithm.



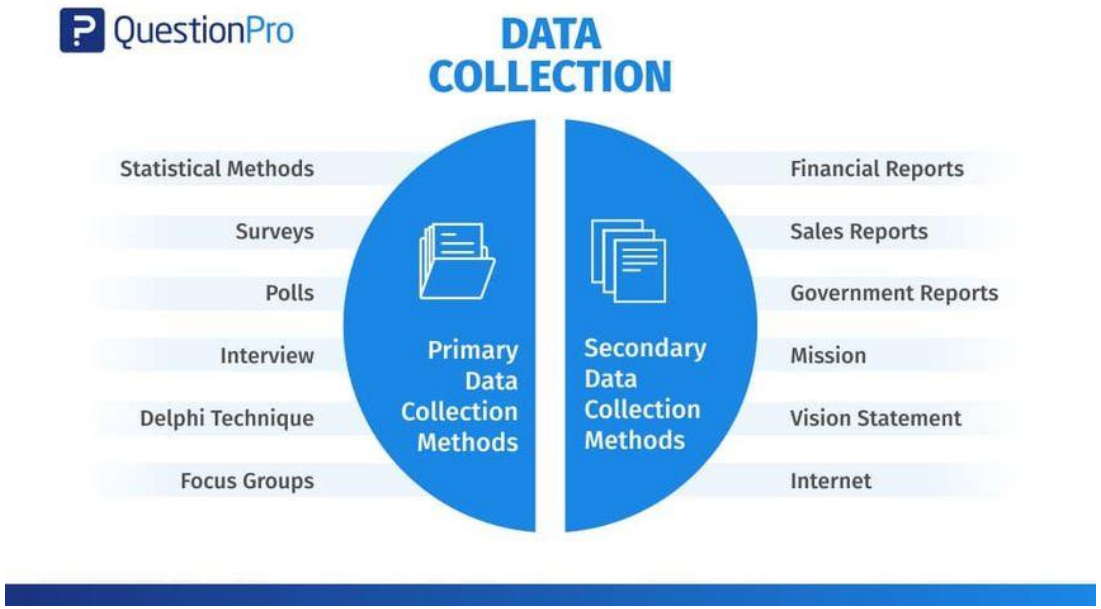
STEPS IN DATA PREPROCESSING

Data preprocessing is generally carried out in 7 simple steps:

- Gathering the data
- Import the dataset & Libraries
- Dealing with Missing Values
- Divide the dataset into Dependent & Independent variable
- Dealing with Categorical values
- Split the dataset into training and test set
- Feature Scaling

DATA COLLECTION: GATHERING THE RAW MATERIALS

- Importing data from various sources:
  - Text files (.txt, .csv)
  - Databases
  - Web services (using Power Query)
- Ensuring data accuracy and completeness



GATHERING THE DATA

- Data is raw information, its the representation of both human and machine observation of the world. Dataset entirely depends on what type of problem you want to solve. Each problem in machine learning has its own unique approach.
- Here are some websites where one can get the dataset :

Kaggle: Kaggle is the mostly used website to get the dataset.

https://www.kaggle.com/datasets

UCI Machine Learning Repository: One of the oldest sources on the web to get the dataset.

http://mlr.cs.umass.edu/ml/

GitHub repository: This has high-quality datasets.

https://github.com/awesomedata/awesome-public-datasets

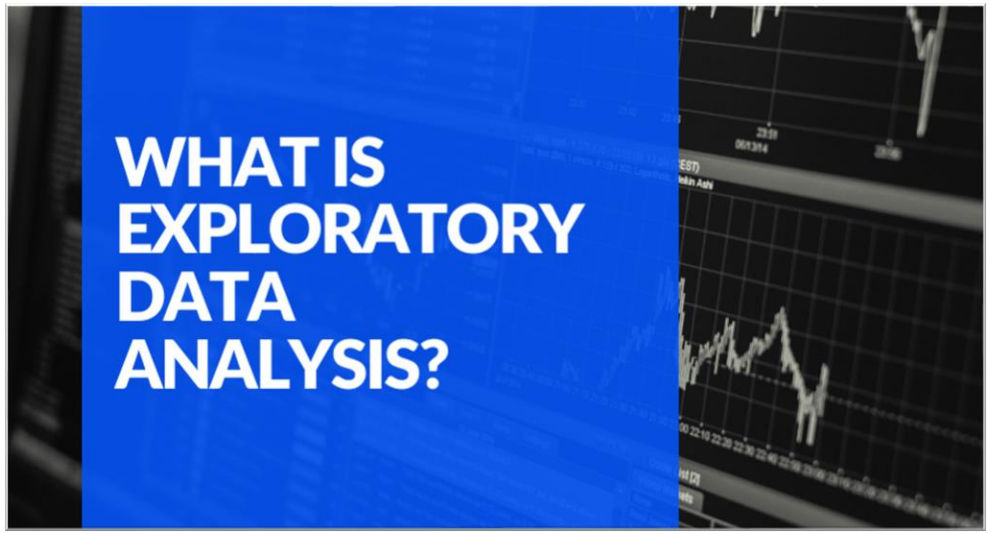
GATHERING THE DATA

And if you are looking for Government's Open Data then here is few of them:

- **Indian Government:** http://data.gov.in
- **US Government:** https://www.data.gov/
- **British Government:** https://data.gov.uk/
- **France Government:** https://www.data.gouv.fr/en/

DATA EXPLORATION

- Data exploration, also known as exploratory data analysis (EDA), is a process where users look at and understand their data with statistical and visualization methods. This step helps identifying patterns and problems in the dataset, as well as deciding which model or algorithm to use in subsequent steps.
- In other words, data exploration is pruning of data to remove unusable parts and identify potential relationships between different types of data



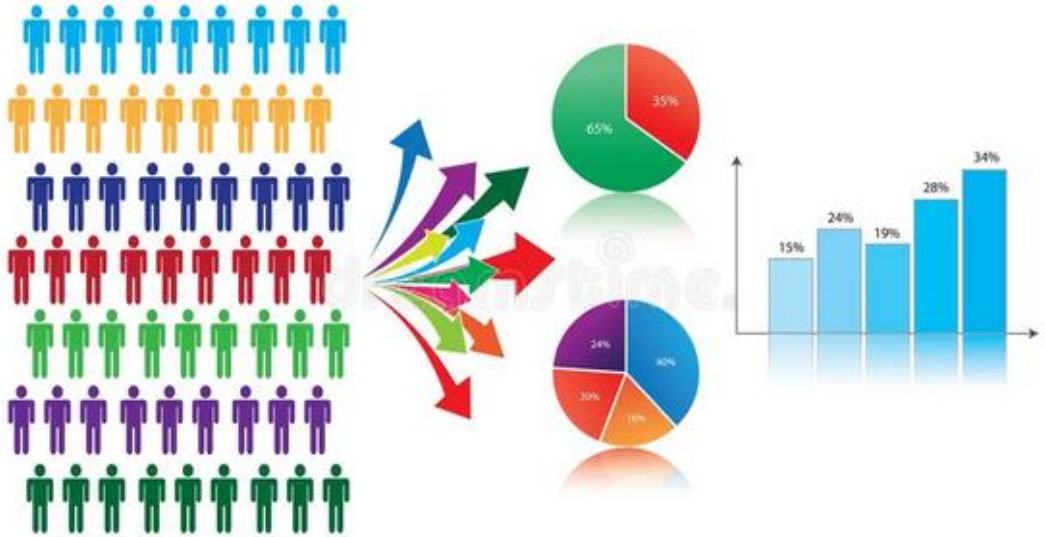
DATA EXPLORATION: UNCOVERING HIDDEN PATTERNS AND TRENDS

- Sorting and filtering data to focus on specific areas
- Using descriptive statistics:
  - Mean, median, mode, standard deviation
- Creating pivot tables and charts for visual exploration

PURPOSE OF EDA

Technically, the primary motive of EDA is to:

- Examine the data distribution
- Handling missing values of the dataset
- Handling the outliers
- Removing duplicate data
- Encoding the categorical variables
- Normalizing and Scaling



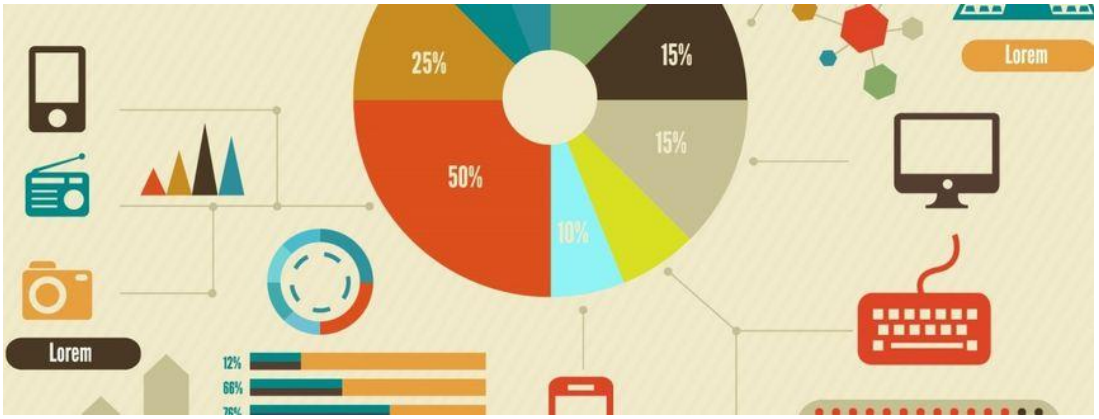
WHY IS DATA EXPLORATION IMPORTANT?

It enables deeper understanding of gathered datasets

It is also a practical process to perform in order to narrow down datasets to a manageable size, optimize the analysis

DATA VISUALIZATION: TELLING THE STORY WITH CHARTS AND GRAPHS

- Choosing the right chart type for your data:
  - Bar charts for comparisons
  - Line charts for trends over time
  - Pie charts for part-to-whole relationships
- Formatting charts for clarity and impact:
  - Clear labels, titles, and legends
  - Consistent color scheme and data formatting



THANK YOU

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