

Excel(ling) at Data



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Getting your data

Clipboard Font Alignment

A1

	A	B	C	D	E	F
1	ItemBarcode	Collection	CallNumber			
2	3.21E+13	artsnraft	746.43 COM arts			
3	3.21E+13	artsnraft	745.54 RIC arts			
4	3.21E+13	artsnraft	738.5 CHE arts			
5	3.21E+13	artsnraft	751.45 BAS arts			
6	3.21E+13	artsnraft	746 GRA arts			
7	3.21E+13	artsnraft	745.594 POL arts			
8	3.21E+13	artsnraft	746.46 FAL arts			
9	3.21E+13	artsnraft	739.27 MCG arts			
10	3.21E+13	artsnraft	746.44 HAS arts			
11	3.21E+13	artsnraft	739.27 COD arts			
12	3.21E+13	artsnraft	751.42 LOV arts			
13	3.21E+13	artsnraft	746.46 PIG arts			
14	3.21E+13	artsnraft	745.593 ANN arts			
15	3.21E+13	artsnraft	745.7 LEI arts			

webBP On Search 3/14/23

Export ITEM Information

Fields to be exported

Line	Type	Field
1	b	TITLE
2	BIBLIOGRAPHIC	RECORD #
3	ITEM	RECORD #
4	ITEM	CALL NO
5	ITEM	VOLUME
6	ITEM	LOCATION
7	ITEM	BARCODE
8	ITEM	STATUS
9	ITEM	SUPPRESS
10	ITEM	LOAN DATE

Append
Insert
Delete

Field delimiter *
Text qualifier "
Repeated field delimiter }
Maximum field length (0-1000) <none>

File: Browse

OK Apply Saved Export Save This Export Close



Functions & Formulas





Keep it tidy

=TRIM(cell or text) removes leading and trailing spaces, and any double spaces from a text string.

Font	Alignment	Number	Styles
=TRIM(B3)			
B	C	D	
BrowseAuthor		BrowseAuthor	
Abbot, Judi, author, artist.		Abbot, Judi, author, artist.	
Byrne, Lara, author.		Byrne, Lara, author.	
Hamilton, Duncan M., author.		Hamilton, Duncan M., author.	
Allen, Kari, author.		Allen, Kari, author.	
Bardugo, Leigh, author.		Bardugo, Leigh, author.	
Ellison, J. T., author.		Ellison, J. T., author.	
Funke, Cornelia Caroline , author.		Funke, Cornelia Caroline , author.	
Jonsberg, Barry, 1951- author.		Jonsberg, Barry, 1951- author.	
Kunderman, Suzie Scholin, author.		Kunderman, Suzie Scholin, author.	
Messier, Mireille, 1971- author.		Messier, Mireille, 1971- author.	
Oda, Eiichirō, 1975- author, artist.		Oda, Eiichirō, 1975- author, artist.	
Zhuang, Qing (Illustrator) author, illustrator.		Zhuang, Qing (Illustrator) author, illustrator.	



Make your case

=UPPER, =LOWER, and =PROPER

	B	C	D	E	F	G	H
	MeSSy		UPPER		lower		Proper
	Council Members		COUNCIL MEMBERS		council members		Council Members
	aLBERS, Paula		ALBERS, PAULA		albers, paula		Albers, Paula
	aRNold, hEATHER		ARNOLD, HEATHER		arnold, heather		Arnold, Heather
	Hovis, JANICE		HOVIS, JANICE		hovis, janice		Hovis, Janice
	MILLER, CINDY		MILLER, CINDY		miller, cindy		Miller, Cindy
	Moore, JENNIFER		MOORE, JENNIFER		moore, jennifer		Moore, Jennifer
	Phelps, Erin		PHELPS, ERIN		phelps, erin		Phelps, Erin
	Schroeder, Paul		SCHROEDER, PAUL		schroeder, paul		Schroeder, Paul
	Smith, Katy		SMITH, KATY		smith, katy		Smith, Katy
	WALSH, NICOLE		WALSH, NICOLE		walsh, nicole		Walsh, Nicole



Switch it around

=TRANSPOSE

Formula bar: `{=TRANSPOSE(B3:E8)}`

	B	C	D	E	F	G	H	I	J	K	L
		Hold									
		Success	Fail	All Hold Calls			3/1/2023	3/2/2023	3/3/2023	3/4/2023	3/5/2023
3/1/2023		22	0	22		Success	22	17	15	23	9
3/2/2023		17	1	18		Fail	0	1	0	0	1
3/3/2023		15	0	15		All Hold Calls	22	18	15	23	10
3/4/2023		23	0	23							
3/5/2023		9	1	10							



Lock it down

Use \$ or F4 to create absolute cell references in formulas

Formula bar: `=[@Count]/H17`

Count	% of Count
5,933	65%
43	#DIV/0!
293	#DIV/0!
2,309	#DIV/0!
180	#DIV/0!
16	#DIV/0!
10	#DIV/0!
6	#DIV/0!
64	#DIV/0!
183	#DIV/0!
8	#DIV/0!
22	#DIV/0!
1	#DIV/0!
52	#DIV/0!
9,120	

Formula bar: `=[@Count]/H17`

Count	% of Count
5,933	65%
43	0%
293	3%
2,309	25%
180	2%
16	0%
10	0%
6	0%
64	1%
183	2%
8	0%
22	0%
1	0%
52	1%
9,120	



Lock it down

After writing the formula, click into it, select what needs to be locked and enter a \$ in front, or hit F4.

- **A1** - Column and row are relative.
- **\$A1** - Column is absolute, row is relative.
- **A\$1** - Row is absolute, column is relative.
- **\$A\$1** - Column and row are absolute.

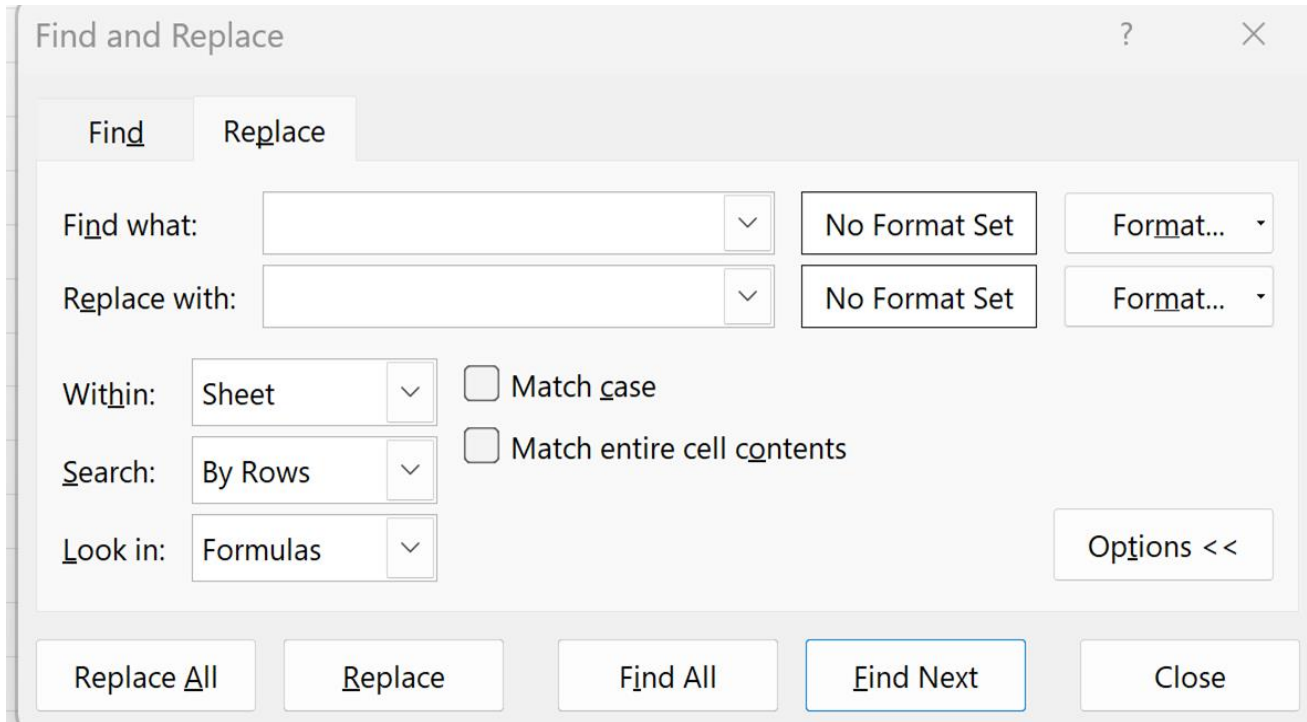


Make it count

=DAYS and =NETWORKDAYS count between two dates

B	C	D	E	F
Sent By	Sent Date	Received By	Received Date	Days in Transit
Lib 2	2/1/2023	Lib 6	2/2/2023	2
Lib 4	2/5/2023	Lib 4	2/6/2023	1
Lib 2	2/6/2023	Lib 6	2/7/2023	2
Lib 2	2/13/2023	Lib 6	2/14/2023	2
Lib 2	2/13/2023	Lib 5	2/14/2023	2
Lib 3	2/14/2023	Lib 6	2/15/2023	2
Lib 1	2/18/2023	Lib 5	2/21/2023	2
Lib 2	2/18/2023	Lib 1	2/21/2023	2
Lib 4	2/20/2023	Lib 3	2/22/2023	3
Lib 2	2/23/2023	Lib 6	2/24/2023	2
Lib 2	2/23/2023	Lib 1	2/24/2023	2
Lib 2	2/26/2023	Lib 9	2/27/2023	1
Lib 2	2/28/2023	Lib 9	3/1/2023	2
				1.92

Find and replace- advanced options

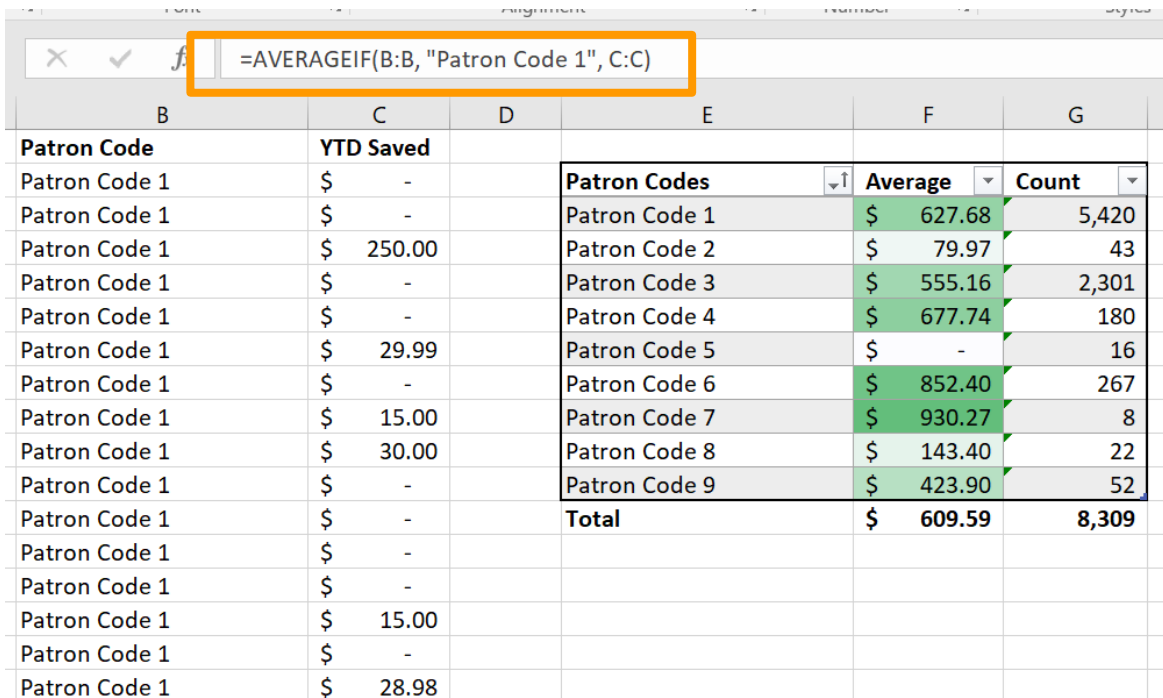


The image shows a 'Find and Replace' dialog box with the following elements:

- Find** and **Replace** tabs.
- Find what:** A text input field with a dropdown arrow.
- Replace with:** A text input field with a dropdown arrow.
- No Format Set** buttons for both 'Find what' and 'Replace with'.
- Format...** dropdown buttons for both 'Find what' and 'Replace with'.
- Within:** A dropdown menu set to 'Sheet'.
- Search:** A dropdown menu set to 'By Rows'.
- Look in:** A dropdown menu set to 'Formulas'.
- Two checkboxes: **Match case** and **Match entire cell contents**.
- Options <<** button.
- Bottom buttons: **Replace All**, **Replace**, **Find All**, **Find Next** (highlighted with a blue border), and **Close**.

IF it works

Add conditions to your favorite Excel math functions



The screenshot shows an Excel spreadsheet with a pivot table. The formula bar at the top displays the formula `=AVERAGEIF(B:B, "Patron Code 1", C:C)`, which is highlighted with an orange box. The pivot table summarizes the 'YTD Saved' data by 'Patron Code'.

Patron Code	YTD Saved
Patron Code 1	\$ -
Patron Code 1	\$ -
Patron Code 1	\$ 250.00
Patron Code 1	\$ -
Patron Code 1	\$ -
Patron Code 1	\$ 29.99
Patron Code 1	\$ -
Patron Code 1	\$ 15.00
Patron Code 1	\$ 30.00
Patron Code 1	\$ -
Patron Code 1	\$ -
Patron Code 1	\$ -
Patron Code 1	\$ 15.00
Patron Code 1	\$ -
Patron Code 1	\$ 28.98

Patron Codes	Average	Count
Patron Code 1	\$ 627.68	5,420
Patron Code 2	\$ 79.97	43
Patron Code 3	\$ 555.16	2,301
Patron Code 4	\$ 677.74	180
Patron Code 5	\$ -	16
Patron Code 6	\$ 852.40	267
Patron Code 7	\$ 930.27	8
Patron Code 8	\$ 143.40	22
Patron Code 9	\$ 423.90	52
Total	\$ 609.59	8,309



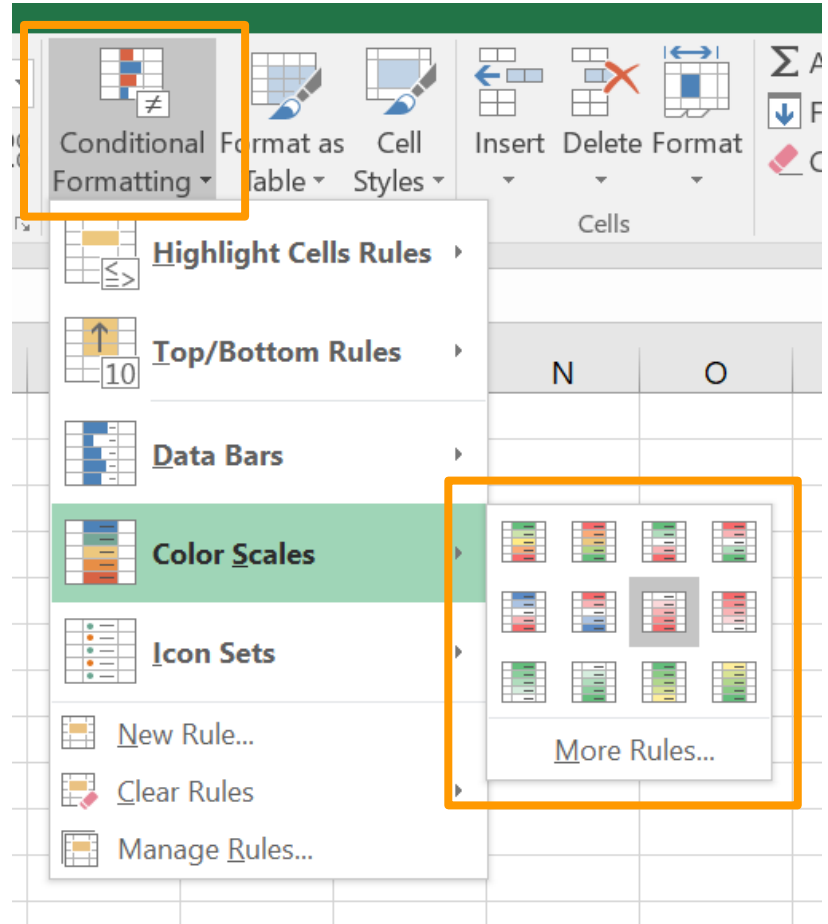
Conditional Formatting





Color scales

Select the desired cells
and then pick your
scheme



Highlighting top (or bottom!) values

Conditional Formatting > New rule

		Oct-21	Nov-21	Dec-21
Library 1	To	2.0	1.9	3.3
	From	3.5	3.3	3.0
Library 2	To	1.9	2.0	1.9
	From	3.3	3.5	3.4
Library 3	To	3.6	3.1	3.1
	From	1.9	3.1	3.3
Library 4	To	3.2	3.4	3.8
	From	3.4	3.4	3.5
Library 5	To	3.0	3.4	3.5
	From	3.3	3.4	3.8

New Formatting Rule

Select a Rule Type:

- Format all cells based on their values
- Format only cells that contain
- Format only top or bottom ranked values
- Format only values that are above or below average
- Format only unique or duplicate values
- Use a formula to determine which cells to format

Edit the Rule Description:

Format values that rank in the:

Top % of the selected range

Preview: AaBbCcYyZz

Using multiple conditions

Conditional Formatting Rules Manager

Show formatting rules for: Current Selection

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

Rule (applied in order shown)	Format	Applies to	Stop If True
Cell Value between TO...	AaBbCcYyZz	= \$C\$2:\$C\$964	<input type="checkbox"/>
Cell Value between TO...	AaBbCcYyZz	= \$C\$2:\$C\$964	<input type="checkbox"/>
Cell Value between TO...	AaBbCcYyZz	= \$C\$2:\$C\$964	<input type="checkbox"/>
Cell Value <= TODAY()...	AaBbCcYyZz	= \$C\$2:\$C\$964	<input type="checkbox"/>
Cell Value = "Complete"	AaBbCcYyZz	= \$C\$2:\$C\$964	<input type="checkbox"/>

OK Close Apply



Keep projects moving . . .

A	B	C	E
Collection	Department	Most Recent Weed Date	Comp. %
Archives		4/1/2023	
Audiobook Fiction CD		4/5/2023	
Audiobook NonFiction CD		4/4/2023	
Biography		Complete	2.31%
Blu-ray		Complete	0.02%
DVD		3/31/23	
Equipment		3/1/2023	
Exam Prep		Complete	0.26%
Fiction			
Graphic Novel			
Interlibrary Loan			



Duplicate detection and removal

	B	C	D
	PROP_ADD		StreetOne
	1 CHERRYWOOD LN		10340 Manchester Rd
	1 CHURCHILL LN		884 Craigs Forest Lane
	1 CRAGS KNOB RD		#4 Norton Pl.
	1 DICKSON CT		1 Forest Glen Ln.
	1 DOUGLAS LN		1 Cherrywood Lane
	1 E GLENWOOD LN		1 Churchill Ln.
	1 FORESTED GLEN LN		1 Dickson Ct
	1 GARDENER LN		1 Dickson Ct
	1 HAWBROOK LN		1 Douglas Ln.
	1 HILLCREST PL		1 E. Glenwood Ln.
	1 IRONWOOD DR		1 Forested Glen Lane
	1 IVANHOE WOODS ST		1 Forested Glen Ln.
	1 LARKSPUR LN		1 Garden Ln.
	1 LEMP DR		4 Harwood Ln



Duplicate detection and removal

Using:

- Trim
- Find and replace (Dr instead of Drive, remove hashtags, identify addresses with Apt in them)

We were able to remove an additional 400 duplicate addresses from the mailing - that's a lot of stamps!



Preserving and Presenting Data

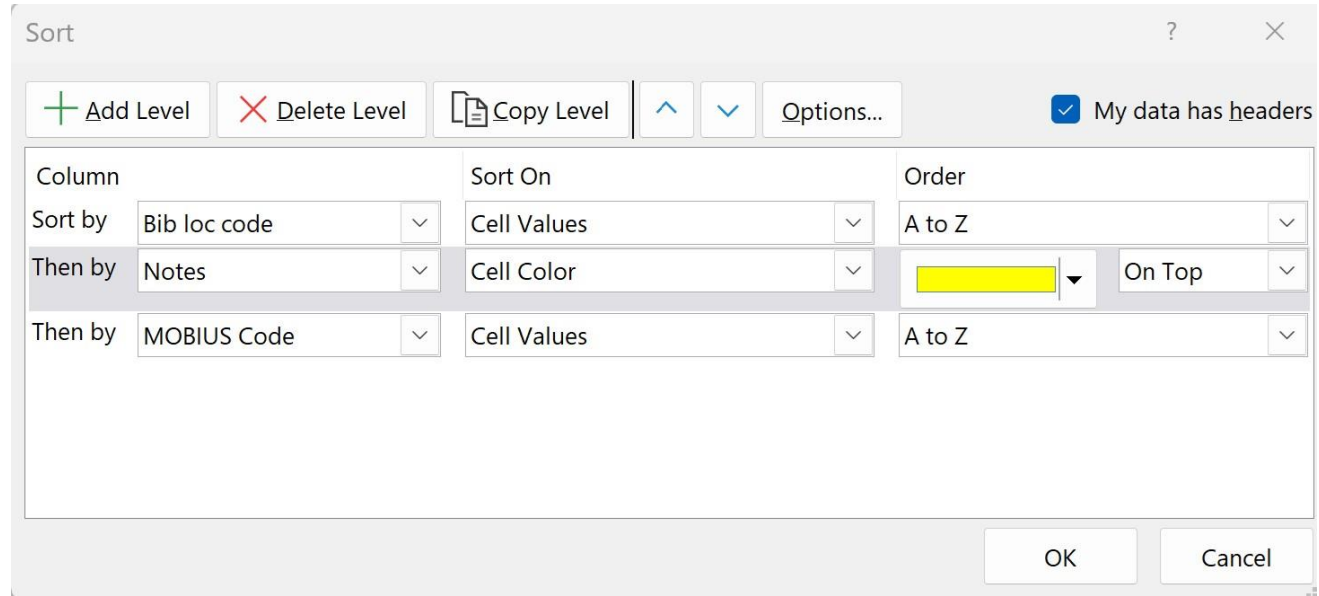
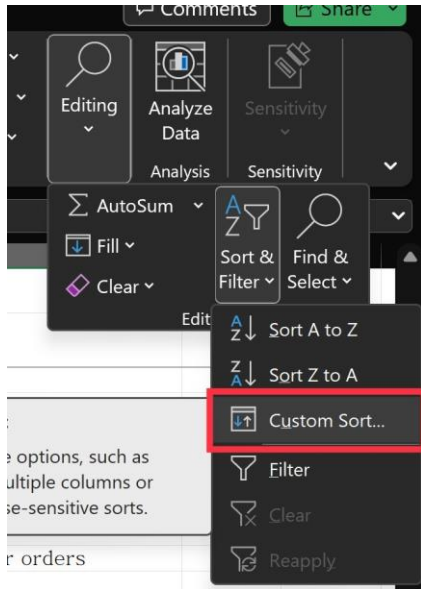




Protect your work

- **Make a copy of a tab**
- **Copying data and pasting only values**
- **Copying visible cells only (Find and Select > Go To Special > Visible Cells Only)**
- **Sharing with others? Lock the cells then protect the spreadsheet.**

Fancy sorting - sorting by color, adding levels





BONUS: Use Ctrl+Shift+↓ or Ctrl+Shift+→ to select all of your data in a column/row



IFERROR

Avoiding the dreaded #DIV/0!

Clipboard		Font		Alignment		Number		Styles		Cells						
V4		✕ ✓ f_x		=AVERAGEIFS(\$E:\$E, \$C:\$C, "Library 6", \$A:\$A, "Library 1")												
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	Sent by	Sent Date	Rcv By	Rcv Date	Days in Transit											
2	Library 2	3/18/2023	Library 1	3/21/2023	2											
										Library 1	Library 2	Library 3	Library 4	Library 5	Library 6	Library 7
3	Library 2	3/8/2023	Library 1	3/10/2023	3		Library 1	To	x	2.5	2.7	2.4	2.7	2.6	2.0	
4	Library 2	3/7/2023	Library 1	3/9/2023	3			From	x	2.1	1.8	1.9	1.9	#DIV/0!	1.9	
5	Library 2	3/18/2023	Library 1	3/21/2023	2		Library 2	To	2.5	x	1.7	1.7	2.5	3.0	1.3	
5	Library 2	3/23/2023	Library 1	3/24/2023	2			From	2.1	x	1.7	1.7	2.5	3.0	2.3	
7	Library 6	3/21/2023	Library 1	3/22/2023	2		Library 3	To	2.7	2.5	x	2.5	2.5	2.5	2.5	
8	Library 6	3/15/2023	Library 1	3/16/2023	2			From	1.8	2.5	x	2.5	2.5	2.5	2.5	

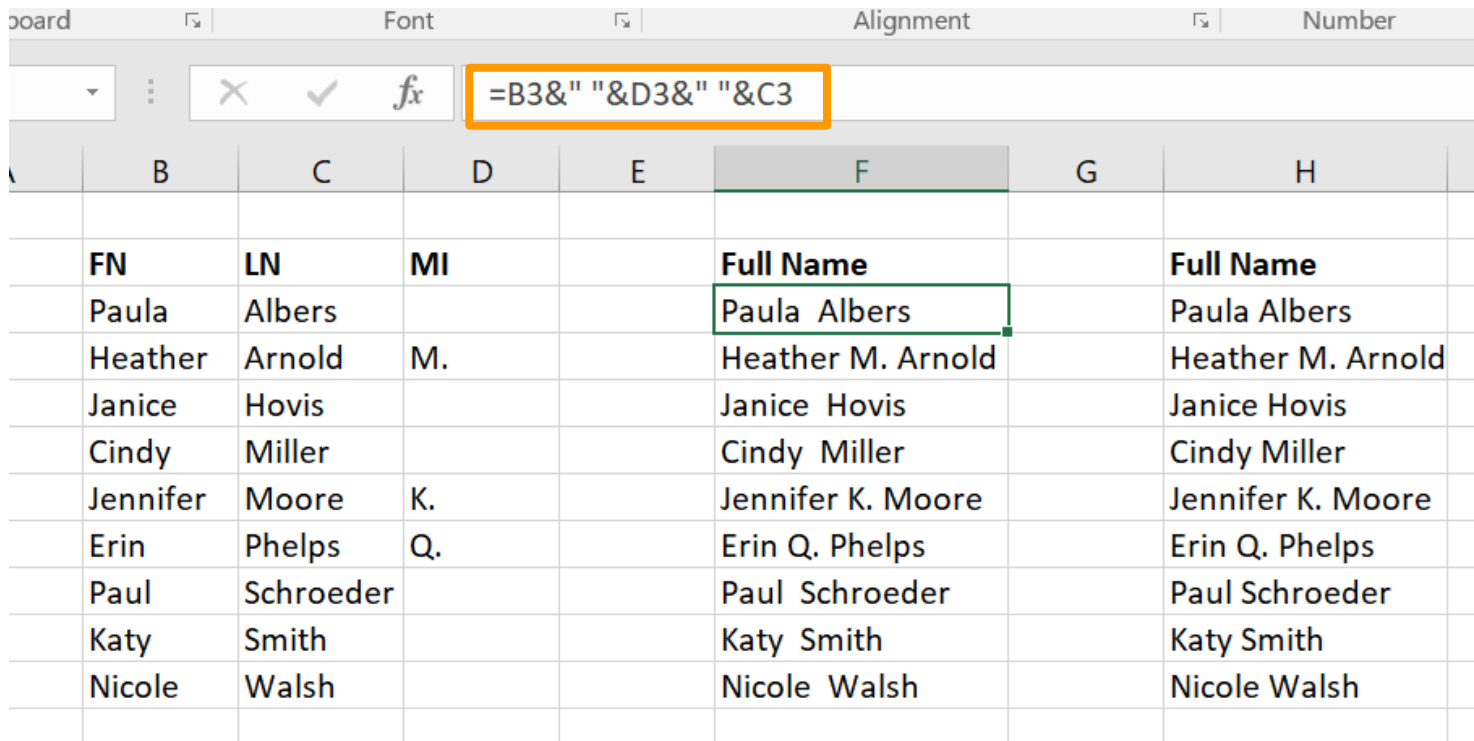
IFERROR

Use a nested statement to return a different value.

fx =IFERROR(AVERAGEIFS(\$E:\$E, \$C:\$C, "Library 6", \$A:\$A, "Library 1"), "-")

	G	H	I	J	K	L	M	N	O
/S									
			Library 1	Library 2	Library 3	Library 4	Library 5	Library 6	Library 7
Library 1	To	x	2.5	2.7	2.4	2.7	2.6	3.0	
	From	x	2.1	1.8	1.9	1.9	-	1.9	
Library 2	To	2.5	x	1.7	1.7	2.5	3.0	2.3	
	From	2.1	x	1.7	1.7	2.5	3.0	2.3	
Library 3	To	2.7	2.5	x	2.5	2.5	2.5	2.5	
	From	1.8	2.5	x	2.5	2.5	2.5	2.5	

Combining text from multiple cells



The screenshot shows a spreadsheet interface with a formula bar at the top. The formula bar contains the formula `=B3&" "&D3&" "&C3`, which is highlighted with an orange border. Below the formula bar, the spreadsheet grid is visible. The columns are labeled B, C, D, E, F, G, and H. The rows contain data for names and their components. The formula in cell F2 is used to concatenate the first name (FN), last name (LN), and middle initial (MI) from the previous columns into a full name.

	B	C	D	E	F	G	H
	FN	LN	MI		Full Name		Full Name
	Paula	Albers			Paula Albers		Paula Albers
	Heather	Arnold	M.		Heather M. Arnold		Heather M. Arnold
	Janice	Hovis			Janice Hovis		Janice Hovis
	Cindy	Miller			Cindy Miller		Cindy Miller
	Jennifer	Moore	K.		Jennifer K. Moore		Jennifer K. Moore
	Erin	Phelps	Q.		Erin Q. Phelps		Erin Q. Phelps
	Paul	Schroeder			Paul Schroeder		Paul Schroeder
	Katy	Smith			Katy Smith		Katy Smith
	Nicole	Walsh			Nicole Walsh		Nicole Walsh

Split the text from one column to many

The screenshot shows the 'Convert Text to Columns Wizard - Step 2 of 3' dialog box in Microsoft Excel. The 'Data' tab is highlighted in the ribbon. The dialog box is set to use 'Comma' as the delimiter. The 'Data preview' section shows the following data:

LOCATION	wsgh	wsz	wsvi
web	wsgh	wsz	wsvi
web	wsgh	wsz	wsvi
web	wsgh	wsz	wsvi
web	wsgh	wsz	wsvi
web	kgb	wsgh	wsz wsvi
web	wsgh	wsz	wsvi



Filling values and series

	A	B	C	D	E	F	G	
1	1	1	1	1	3/1/2023	3/1/2023	3/3/2023	Mar-23
2	1	2	3	3/2/2023	3/8/2023	3/17/2023	Apr-23	
3	1	3	5	3/3/2023	3/15/2023	3/31/2023	May-23	
4	1	4	7	3/4/2023	3/22/2023	4/14/2023	Jun-23	
5	1	5	9	3/5/2023	3/29/2023	4/28/2023	Jul-23	
6	1	6	11	3/6/2023	4/5/2023	5/12/2023	Aug-23	
7	1	7	13	3/7/2023	4/12/2023	5/26/2023	Sep-23	
8	1	8	15	3/8/2023	4/19/2023	6/9/2023	Oct-23	
9	1	9	17	3/9/2023	4/26/2023	6/23/2023	Nov-23	
10								



Let's open it up!

- **What are your most-used functions?**
- **Tell us about your favorite spreadsheet.**
- **Share any good learning resources for Excel.**
- **What's an Excel problem the group can help you solve?**
- **What Excel skill do you want to learn? Get & Transform, macros, pivot tables?**