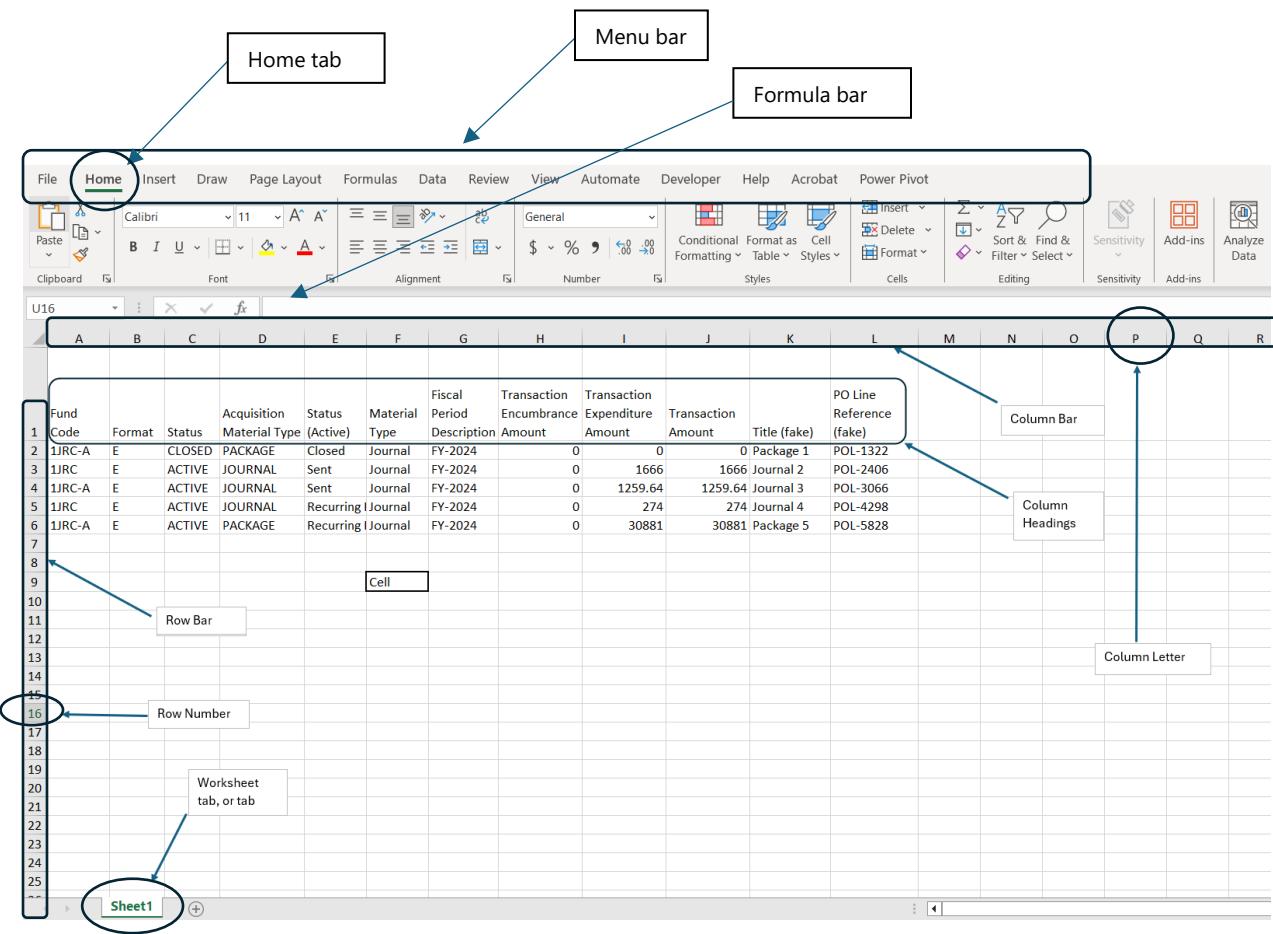


Contents

Basic vocabulary of the Excel interface	2
Download, Investigate, and Format the purchase order data	3
Download the first dataset.....	3
Format column headings to improve legibility (Learn: column & row sizing, wrap text).....	4
Review the data (Learn: Filter).....	6
Delete unneeded columns (Learn: Right-click delete, Keyboard shortcut delete)	7
Re-label columns (Learn: single cell data/ text revisions)	8
Move columns (Learn: Insert Columns, Drag & Drop Columns)	9
Format column data (Learn: Basic formatting).....	10
Sort the data (Learn: Sorting).....	11
Summarize the purchase order data	12
Create a new worksheet and rename the worksheets (Learn: Data organization)	12
Create a pivot table to summarize payments by fund code (Learn: Pivot table).....	14
Project Inflation, the very simple approach (Learn: Copy & Paste as Values, Basic Calculations, Autofill).....	18
Project FY25 costs at the purchase order level.....	19
Download the second dataset.....	19
Calculate FY25 POL Projections for each purchase order (Learn: Xlookup, Combined Functions).....	20
Re-summarize using a pivot table (Learn: Update pivot table).....	24
Update the worksheet labels (Learn: Workbook organization & legibility)	28
Update the report later in the fiscal year (If there is time ... Review Learning)	29
Download the third dataset.....	29
Compare the Project1_Update data to the previous data.....	30
Update the Budget Projections based on the Project 1_Update data	32

Basic vocabulary of the Excel interface



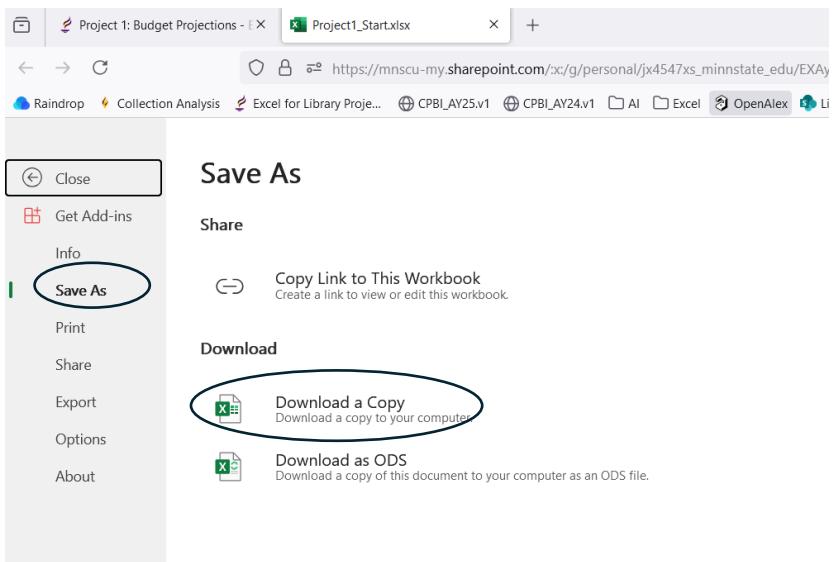
Download, Investigate, and Format the purchase order data

Download the first dataset

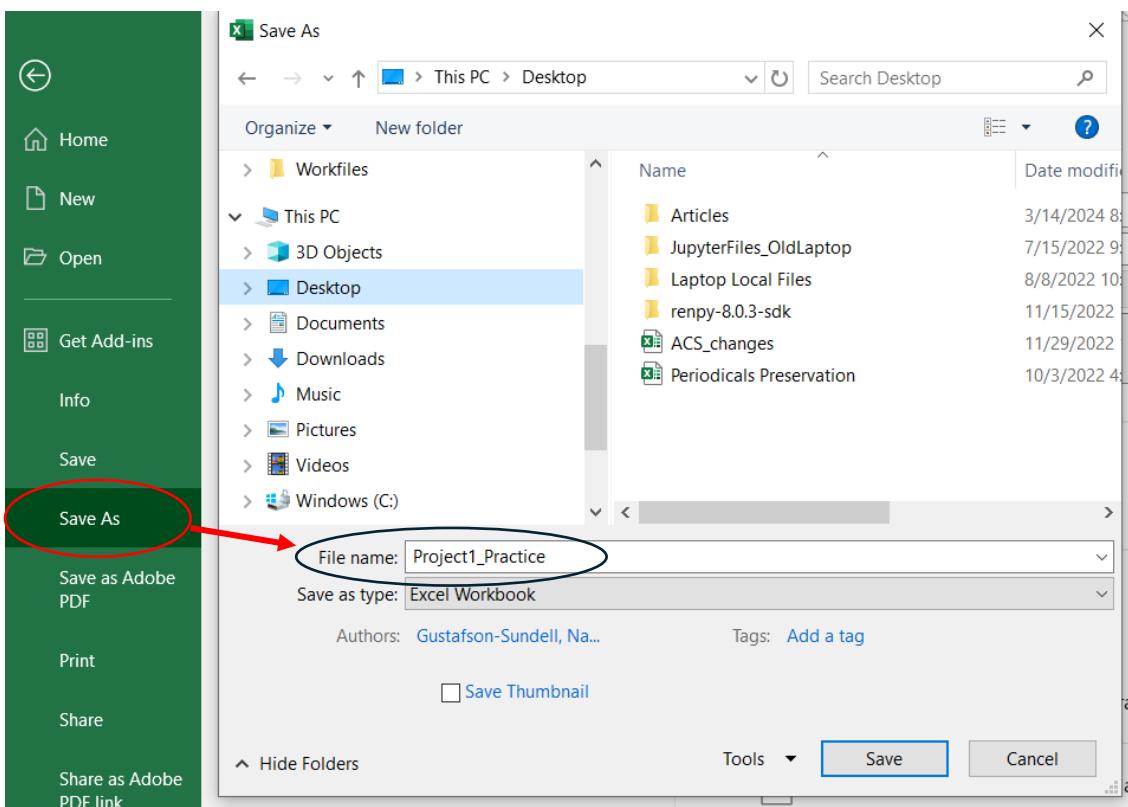
- Navigate to the **Excel for Library Projects** libguide, <https://link.mnsu.edu/minitex-excel>.
 - Click on the tab: Project 1: Budget Projections

The screenshot shows a web browser window with the title 'Project 1: Budget Projections'. The URL in the address bar is <https://libguides.mnsu.edu/c.php?g=1417174&p=10503521>. The page header includes the Minnesota State University Mankato logo and navigation links for About the University, Admissions & Aid, Academics, Athletics, University Life, and Giving. Below the header, there's a breadcrumb trail: Library Services Home / Library Class and Subject Guides / Excel for Library Projects / Project 1: Budget Projections. The main content area has a sidebar with project links: HOME, PROJECT 1: BUDGET PROJECTIONS (which is highlighted in a dark box), PROJECT 2: THE WEEDING REPORT, PROJECT 3: DATA CLEANING FOR COLLECTION ANALYSIS, and PROJECT 4: COLLECTION ANALYSIS REPORT PRODUCTION. The main content area contains three sections: 'Series Introduction' (with a link to 'Series Introduction Slide Deck'), 'Project 1 Resources' (with a link to 'Project 1 How To'), and 'Project 1 Data' (with links to 'Project1_Start' and 'Project1_Inflation'). A purple oval highlights the 'Project1_Start' link.

- In the box, Project 1 Resources, click on the link **Project1_Start** to open
 - It's REALLY IMPORTANT to perform the work demonstrated in this workshop using the Excel desktop app. The online version has limited functionality, so I ALWAYS work in the desktop app.
- Click on File, Save As, Download a Copy.



- After opening the downloaded copy, enable editing, then save your copy wherever you prefer as Project1_Practice.



Format column headings to improve legibility (Learn: column & row sizing, wrap text)

- To change row size, click on the dividing line between the numbers on the row bar and drag it to the desired size.

[Return to TOC](#)

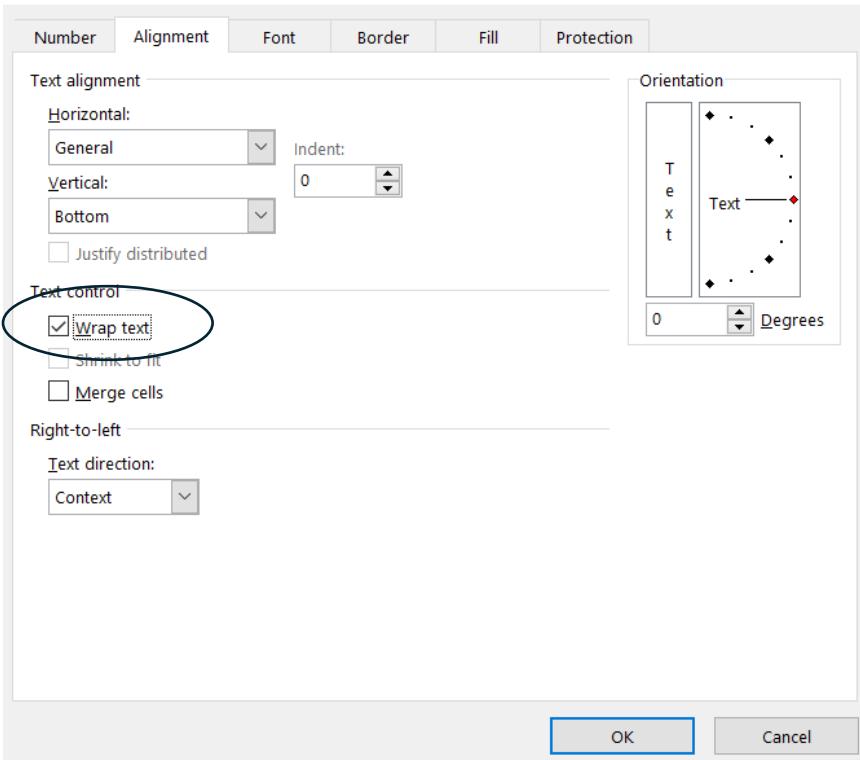
	Fund Code	Format	Status	Acquisition & Status (Activi Material Typ Fiscal Period Transaction Transaction Transaction Title (fake))	PO Line Reference (fake)
1	1JRC-A	E	CLOSED	PACKAGE Closed Journal FY-2024 0 0 0 Package 1	POL-1322
2	1JRC	E	ACTIVE	JOURNAL Sent Journal FY-2024 0 1666 1666 Journal 2	POL-2406
3	1JRC-A	E	ACTIVE	JOURNAL Sent Journal FY-2024 0 1259.64 1259.64 Journal 3	POL-3066
4	1JRC	E	ACTIVE	JOURNAL Recurring Re Journal FY-2024 0 274 274 Journal 4	POL-4298
5	1JRC-A	E	ACTIVE	PACKAGE Recurring Re Journal FY-2024 0 30881 30881 Package 5	POL-5828
6	1JRC	E	ACTIVE	PACKAGE Recurring Re Journal FY-2024 0 1250 1250 Package 6	POL-6421
7	1JRC-A	E	ACTIVE	JOURNAL Recurring Re Journal FY-2024 0 254 254 Journal 7	POL-7260
8	1JRC-A	E	ACTIVE	JOURNAL Sent Journal FY-2024 0 590 590 Journal 8	POL-8523
9	1JRC	E	ACTIVE	JOURNAL Recurring Re Journal FY-2024 0 668 668 Journal 9	POL-9297
10	1JRC-A	E	ACTIVE	JOURNAL Recurring Re Journal FY-2024 0 534 534 Journal 10	POL-10928
11	1JRC	E	ACTIVE	JOURNAL Recurring Re Journal FY-2024 0 1610 1610 Journal 11	POL-11774
12	1PER	P	ACTIVE	JOURNAL Recurring Re Issue FY-2024 0 19575 19575 Package 12	POL-12510
13	1JRC	E	ACTIVE	PACKAGE Recurring Re Journal FY-2024 0 2898 2898 Journal 13	POL-13358
14	1JRC	E	ACTIVE	JOURNAL Recurring Re Journal FY-2024 0 316 316 Journal 14	POL-14408

- To wrap the text of the column headings, right click on row number (1), then left click on Format Cells.

	Fund Code	Format	Status	Acquisition & Status (Activi Material Typ Fiscal Period Transaction Transaction Transaction Title (fake))	PO Line Reference (fake)
1	Search the menus			PACKAGE Closed Journal FY-2024 0 0 0 Package 1	POL-1322
2	X Cut			JOURNAL Sent Journal FY-2024 0 1666 1666 Journal 2	POL-2406
3	Copy			JOURNAL Sent Journal FY-2024 0 1259.64 1259.64 Journal 3	POL-3066
4	Paste Options:			JOURNAL Recurring Re Journal FY-2024 0 274 274 Journal 4	POL-4298
5	PACKAGE			PACKAGE Recurring Re Journal FY-2024 0 30881 30881 Package 5	POL-5828
6	Recurring Re Journal			PACKAGE Recurring Re Journal FY-2024 0 1250 1250 Package 6	POL-6421
7	Recurring Re Journal			JOURNAL Recurring Re Journal FY-2024 0 254 254 Journal 7	POL-7260
8	Recurring Re Journal			JOURNAL Sent Journal FY-2024 0 590 590 Journal 8	POL-8523
9	Recurring Re Journal			JOURNAL Recurring Re Journal FY-2024 0 668 668 Journal 9	POL-9297
10	Recurring Re Journal			JOURNAL Recurring Re Journal FY-2024 0 534 534 Journal 10	POL-10928
11	Recurring Re Issue			JOURNAL Recurring Re Issue FY-2024 0 1610 1610 Journal 11	POL-11774
12	PACKAGE			PACKAGE Recurring Re Journal FY-2024 0 19575 19575 Package 12	POL-12510
13	Recurring Re Journal			JOURNAL Recurring Re Journal FY-2024 0 2898 2898 Journal 13	POL-13358
14	Recurring Re Journal			JOURNAL Recurring Re Journal FY-2024 0 316 316 Journal 14	POL-14408
15	Recurring Re Journal			JOURNAL Recurring Re Journal FY-2024 0 316 316 Journal 15	POL-15409
16	PACKAGE			PACKAGE Waiting for N Journal FY-2024 0 2458.42 2458.42 Package 16	POL-16175
17	Waiting for N Journal			PACKAGE Recurring Re Journal FY-2024 0 21875 21875 Package 17	POL-17138
18	Recurring Re Journal			JOURNAL Recurring Re Issue FY-2024 0 75 75 Journal 18	POL-18009
19	Recurring Re Issue			JOURNAL Waiting for N Issue FY-2024 0 79.95 79.95 Journal 19	POL-19223
20	Waiting for N Issue			JOURNAL Recurring Re Issue FY-2024 0 75 75 Journal 20	POL-20515
21	Recurring Re Issue			JOURNAL Recurring Re Issue FY-2024 0 15038 15038 Package 21	POL-21348
22	1JRC-A	E	ACTIVE	PACKAGE Recurring Re Journal FY-2024 0 15038 15038 Package 21	POL-21348
23	1PER	P	ACTIVE	JOURNAL Recurring Re Issue FY-2024 0 129 129 Journal 22	POL-22517
24	1PER	P	ACTIVE	JOURNAL Recurring Re Issue FY-2024 0 12 12 Journal 23	POL-23770
25	1PER	P	CLOSED	JOURNAL Closed Issue FY-2024 0 0 0 Journal 24	POL-24788

- Click on the Alignment tab
 - Click on Wrap text
 - Click on Ok

Format Cells



Review the data (Learn: Filter)

- To turn on column filters
 - Click into any cell on the top row, among the column headings
 - Then, on the Home tab, click on Sort & Filter

The screenshot shows the Excel ribbon with the 'Home' tab selected. In the 'Editing' group on the far right, the 'Sort & Filter' button is circled in red. Below the ribbon is a table with 16 rows and 14 columns, showing various data points such as Fund Code, Status, and Transaction amounts.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Fund Code	Format	Status	Acquisition Material Type	Status (Active)	Material Type	Fiscal Period Description	Transaction Encumbrance	Transaction Expenditure Amount	Transaction Amount	Title (fake)	PO Line Reference (fake)					
2	1JRC-A	E	CLOSED	PACKAGE	Closed	Journal	FY-2024	0	0	0	Package 1	POL-1322					
3	1JRC	E	ACTIVE	JOURNAL	Sent	Journal	FY-2024	0	1666	1666	Journal 2	POL-2406					
4	1JRC-A	E	ACTIVE	JOURNAL	Sent	Journal	FY-2024	0	1259.64	1259.64	Journal 3	POL-3066					
5	1JRC	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024	0	274	274	Journal 4	POL-4298					
6	1JRC-A	E	ACTIVE	PACKAGE	Recurring Re	Journal	FY-2024	0	30881	30881	Package 5	POL-5828					
7	1JRC	E	ACTIVE	PACKAGE	Recurring Re	Journal	FY-2024	0	1250	1250	Package 6	POL-6421					
8	1JRC-A	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024	0	254	254	Journal 7	POL-7260					
9	1JRC	E	ACTIVE	JOURNAL	Sent	Journal	FY-2024	0	590	590	Journal 8	POL-8523					
10	1JRC-A	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024	0	668	668	Journal 9	POL-9297					
11	1JRC	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024	0	534	534	Journal 10	POL-10928					
12	1PER	P	ACTIVE	JOURNAL	Recurring Re	Issue	FY-2024	0	1610	1610	Journal 11	POL-11774					
13	1JRC	E	ACTIVE	PACKAGE	Recurring Re	Journal	FY-2024	0	19575	19575	Package 12	POL-12510					
14	1JRC	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024	0	2898	2898	Journal 13	POL-13358					
15	1JRC	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024	0	316	316	Journal 14	POL-14400					

- Click on Filter to activate the filters. (You can turn them off by clicking on Filter again.)

	A	B	C	D	E	F	G	H	I	J	K	L
1	Fund Code	Format	Status	Acquisition Material	Status (Active)	Material Type	Fiscal Period	Transaction Encumbrance	Transaction Expenditure Amount	Transaction Amount	Title (fake)	PO Line Reference (fake)
2	1JRC-A	E	CLOSED	PACKAGE	Closed	Journal	FY-2024		0	0	0 Package 1	POL-1322
3	1JRC	E	ACTIVE	JOURNAL	Sent	Journal	FY-2024		0	1666	1666 Journal 2	POL-2406
4	1JRC-A	E	ACTIVE	JOURNAL	Sent	Journal	FY-2024		0	1259.64	1259.64 Journal 3	POL-3066
5	1JRC	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024		0	274	274 Journal 4	POL-4298
6	1JRC-A	E	ACTIVE	PACKAGE	Recurring Re	Journal	FY-2024		0	30881	30881 Package 5	POL-5828
7	1JRC	E	ACTIVE	PACKAGE	Recurring Re	Journal	FY-2024		0	1250	1250 Package 6	POL-6421
8	1JRC-A	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024		0	254	254 Journal 7	POL-7260
9	1JRC	E	ACTIVE	JOURNAL	Sent	Journal	FY-2024		0	590	590 Journal 8	POL-8523
10	1JRC-A	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024		0	668	668 Journal 9	POL-9297
11	1JRC	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024		0	534	534 Journal 10	POL-10928
12	1PFR	P	ACTIVE	INIRNAI	Recurring Re	Issue	FY-2024		0	1610	1610 Journal 11	POL-11774

- Investigate the data values in a column by clicking on the filter boxes for each column.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Fund Code	Form	Status	Acquisition Material	Status (Active)	Material Type	Fiscal Period	Transaction Encumbrance	Transaction Expenditure Amount	Transaction Amount	Title (fake)	PO Line Reference (fake)		
2	1JRC-A	E	Z	Sort A to Z		Journal	FY-2024		0	0	0 Package 1	POL-1322		
3	1JRC	E	Z	Sort Z to A		Journal	FY-2024		0	1666	1666 Journal 2	POL-2406		
4	1JRC-A	E	Sort by Color			Journal	FY-2024		0	1259.64	1259.64 Journal 3	POL-3066		
5	1JRC	E	Sheet View			Journal	FY-2024		0	274	274 Journal 4	POL-4298		
6	1JRC-A	E	Clear Filter from "Status (Active)"			Journal	FY-2024		0	30881	30881 Package 5	POL-5828		
7	1JRC	E	Filter by Color			Journal	FY-2024		0	1250	1250 Package 6	POL-6421		
8	1JRC-A	E	Text Filters			Journal	FY-2024		0	254	254 Journal 7	POL-7260		
9	1JRC	E				Journal	FY-2024		0	590	590 Journal 8	POL-8523		
10	1JRC-A	E				Journal	FY-2024		0	668	668 Journal 9	POL-9297		
11	1JRC	E				Journal	FY-2024		0	534	534 Journal 10	POL-10928		
12	1PER	F				Issue	FY-2024		0	1610	1610 Journal 11	POL-11774		
13	1JRC	F				Journal	FY-2024		0	19575	19575 Package 12	POL-12510		
14	1JRC	F				Journal	FY-2024		0	2898	2898 Journal 13	POL-13358		
15	1JRC	F				Journal	FY-2024		0	316	316 Journal 14	POL-14408		
16	1JRC	F				Journal	FY-2024		0	316	316 Journal 15	POL-15409		
17	1JRC	F				Journal	FY-2024		0	2458.42	2458.42 Package 16	POL-16175		
18	1JRC	F				Journal	FY-2024		0	21875	21875 Package 17	POL-17138		
19	1PER	F				Issue	FY-2024		0	75	75 Journal 18	POL-18009		
20	1PER	F				Issue	FY-2024		0	79.95	79.95 Journal 19	POL-19223		
21	1PER	F				Issue	FY-2024		0	75	75 Journal 20	POL-20515		
22	1JRC-A	F				Journal	FY-2024		0	15038	15038 Package 21	POL-21348		
23	1PER	F				Issue	FY-2024		0	129	129 Journal 22	POL-22517		
24	1PER	F				Issue	FY-2024		0	12	12 Journal 23	POL-23770		
25	1PER	F				Issue	FY-2024		0	0	0 Journal 24	POL-24788		
26	1JRC-A	E	ACTIVE	JOURNAL	Recurring Re	Journal	FY-2024		0	78.75	78.75 Journal 25	POL-25258		

- After we've investigated the data, we can make decisions about which columns will be useful for our purposes

Delete unneeded columns (Learn: Right-click delete, Keyboard shortcut delete)

- Delete columns

[Return to TOC](#)

- One method to delete columns is to select the columns you want to delete by clicking on the letter(s) for selected column(s)
- Right click over the selected column(s), then left-click on delete
 - Hint: By left clicking on a column letter and holding down the mouse button, then dragging the mouse pointer across more than one letter, we can select multiple columns. We would then right-click to delete all of the selected columns.

The screenshot shows an Excel spreadsheet titled "Project1_Practice". A context menu is open over the column header "E". The menu includes options such as Cut, Copy, Paste Options, Insert, Delete (which is circled in red), Clear Contents, Format Cells, Column Width, Hide, and Unhide. The spreadsheet contains data with columns labeled Fund Code, Format, Status, Material Type, Status (Active), Mate, Transaction Expenditure Amount, Transaction Amount, Title (fake), and PO Line Reference. The "Delete" option in the context menu is highlighted with a red circle.

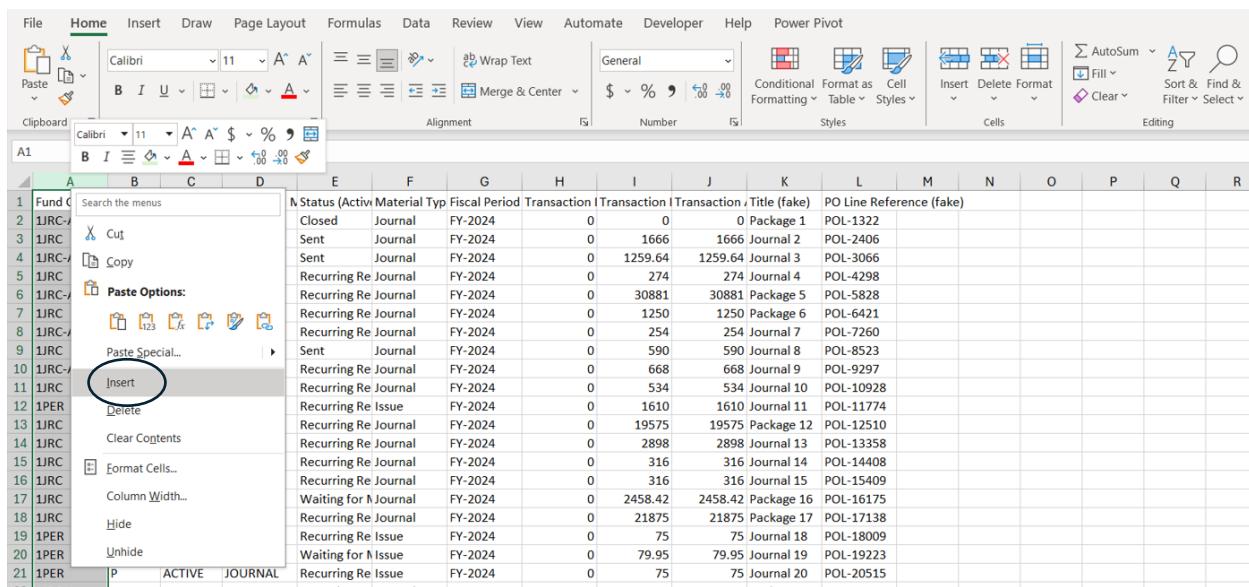
- Another method to delete a column is to use a keyboard shortcut. Keyboard shortcuts can save a lot of time!!
 - Most people are already familiar with common shortcuts:
 - Copy: **ctrl + c** (where "+" indicates you should click on the buttons simultaneously)
 - Paste: **ctrl + v**
 - Undo: **ctrl + z** (one of my favorite shortcuts)
 - Redo: **ctrl + y**
 - More shortcuts:
 - Delete a row: **alt -> e -> d -> r -> enter** (where "->" indicates you should click on the buttons sequentially)
 - Delete a column: **alt -> e -> d -> c -> enter**
 - Insert a row (above): **alt -> i -> r -> enter**
 - Insert a column (to the left): **alt -> i -> c -> enter**
- **DELETE:** Status (Active), Material Type, Fiscal Period Description, Transaction Amount

Re-label columns (Learn: single cell data/ text revisions)

- If we click on the cell, then start typing, Excel will automatically delete the previous text and replace it with the new text.
- If we click on the cell, then click into the formula bar where the text appears, we can revise the text without automatically deleting it.
- RE-LABEL: Transaction Encumbrance Amount as Encumbrance, Transaction Expenditure Amount as Expenditure

Move columns (Learn: Insert Columns, Drag & Drop Columns)

- To move an existing column, there must be a blank column where we want to move the existing column. We can insert a blank column either of two ways. In both cases, the new column will be created to the left of a selected column.
 - To select a column and insert a new blank column to the left of it, right-click on any cell in the column, then left-click Insert -> Entire Column.



- Alternatively, left-click on any cell in the column, then use a keystroke shortcut to insert the new column, alt -> i -> c -> enter.
- To insert multiple blank columns, we would first select as many columns as we want to create (by left clicking on a column letter and holding down the mouse button, then dragging the mouse pointer across more than one letter). Next right-click over the selected columns, then left-click Insert.
- INSERT: 2 Blank Columns on the far left (these should be A & B)
- To move a column or multiple columns, start by selecting the column(s).
 - Move the column(s) by cutting and pasting the selected columns to the blank columns previously created,
 - Or drag & drop the selected columns.
 - MOVE: Title (fake) & PO Line Reference (fake) to A & B

[Unfortunately, there's no good way to capture these latter steps as screenshots, but the demonstration recording should show these steps adequately.]

Format column data (Learn: Basic formatting)

- To format the contents of a column, select the column, then, on the Home tab, select the desired format. (Or, alternatively, you could right click on the selected column, then left click on Format Cells, then select the desired format.)

The screenshot shows the Microsoft Excel ribbon with the 'Home' tab selected. In the 'Cells' group of the ribbon, the 'Number' dropdown is highlighted with a red circle and a blue arrow pointing to it. Below the ribbon, a table is displayed with columns A through M. Columns G and H are selected. The 'Number' dropdown menu is open, showing various format options like General, Number, Currency, Accounting, and others.

	A	B	C	D	E	F	G	H	I	J	K	L	M
		PO Line Reference				Acquisition Material Type							
1	Title (fake) (fake)	Fund Code	Format	Status	Type	Encumbrance	Expenditure						
2	Package 1 POL-1322	1JRC-A	E	CLOSED	PACKAGE	0	0						
3	Journal 2 POL-2406	1JRC	E	ACTIVE	JOURNAL	0	1666						
4	Journal 3 POL-3066	1JRC-A	E	ACTIVE	JOURNAL	0	1259.64						
5	Journal 4 POL-4298	1JRC	E	ACTIVE	JOURNAL	0	274						
6	Package 5 POL-5828	1JRC-A	E	ACTIVE	PACKAGE	0	30881						

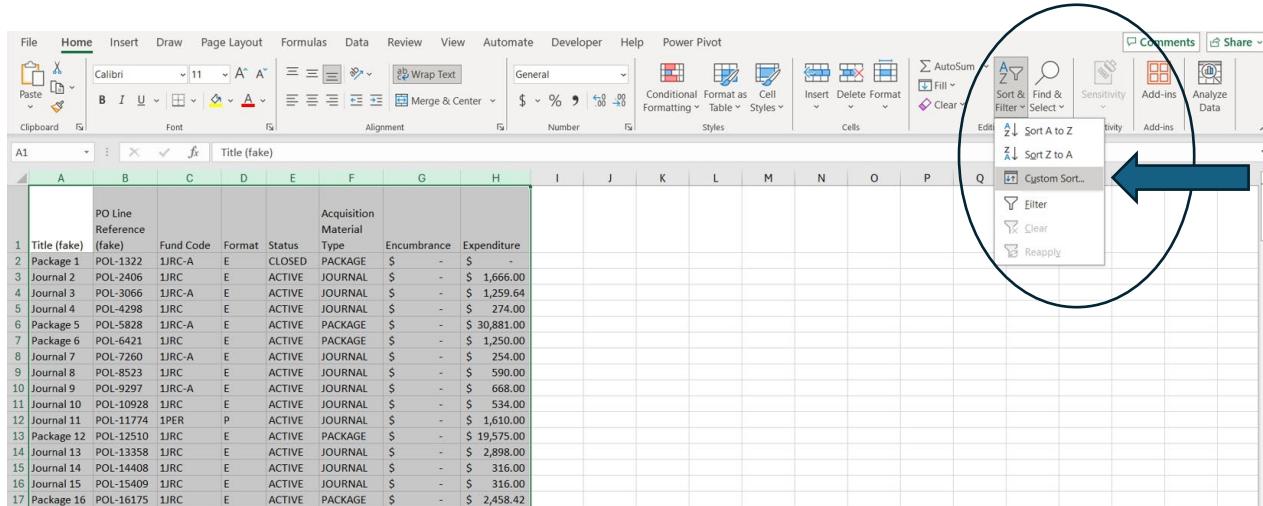
The screenshot shows the Microsoft Excel ribbon with the 'Home' tab selected. In the 'Cells' group of the ribbon, the 'Number' dropdown is highlighted with a red circle and a blue arrow pointing to it. Below the ribbon, a table is displayed with columns A through M. Columns G and H are selected. The 'Number' dropdown menu is open, showing various format options like General, Number, Currency, Accounting, and others. The 'Accounting' option is highlighted with a red circle.

	A	B	C	D	E	F	G	H	I	J	K	L	M
		PO Line Reference				Acquisition Material Type							
1	Title (fake) (fake)	Fund Code	Format	Status	Type	Encumbrance	Expenditure						
2	Package 1 POL-1322	1JRC-A	E	CLOSED	PACKAGE	0	0						
3	Journal 2 POL-2406	1JRC	E	ACTIVE	JOURNAL	0	1666						
4	Journal 3 POL-3066	1JRC-A	E	ACTIVE	JOURNAL	0	1259.64						
5	Journal 4 POL-4298	1JRC	E	ACTIVE	JOURNAL	0	274						
6	Package 5 POL-5828	1JRC-A	E	ACTIVE	PACKAGE	0	30881						
7	Package 6 POL-6421	1JRC	E	ACTIVE	PACKAGE	0	125						
8	Journal 7 POL-7260	1JRC-A	E	ACTIVE	JOURNAL	0	25						
9	Journal 8 POL-8523	1JRC	E	ACTIVE	JOURNAL	0	58						
10	Journal 9 POL-9297	1JRC-A	E	ACTIVE	JOURNAL	0	66						
11	Journal 10 POL-10928	1JRC	E	ACTIVE	JOURNAL	0	53						
12	Journal 11 POL-11774	1PER	P	ACTIVE	JOURNAL	0	161						
13	Package 12 POL-12510	1JRC	E	ACTIVE	PACKAGE	0	1957						
14	Journal 13 POL-13558	1JRC	E	ACTIVE	JOURNAL	0	285						
15	Journal 14 POL-14408	1JRC	E	ACTIVE	JOURNAL	0	31						
16	Journal 15 POL-15409	1JRC	E	ACTIVE	JOURNAL	0	31						
17	Package 16 POL-16175	1JRC	E	ACTIVE	PACKAGE	0	2458.4						
18	Package 17 POL-17138	1JRC	E	ACTIVE	PACKAGE	0	21875						
19	Journal 18 POL-18009	1PER	P	ACTIVE	JOURNAL	0	75						
20	Journal 19 POL-19223	1PER	P	ACTIVE	JOURNAL	0	79.95						
21	Journal 20 POL-20515	1PER	P	ACTIVE	JOURNAL	0	75						
22	Package 21 POL-21348	1JRC-A	E	ACTIVE	PACKAGE	0	15038						
23	Journal 22 POL-22517	1PER	P	ACTIVE	JOURNAL	0	129						
24	Journal 23 POL-23770	1PER	P	ACTIVE	JOURNAL	0	12						
25	Journal 24 POL-24788	1PFR	P	CLOSED	JOurnal	0	0						

- If you select the entire columns using the column letters, the column headers will also be reformatted. You might not want to do this. For example, if you format the column using the Accounting format, the text of the column headers will be shifted slightly.
- You can select just the column contents, without the headers. A quick method is to start by clicking into the top cell you'd like to select. Next, simultaneously click on the Control button, the Shift button, and the Down arrow, to highlight all populated cells in the direction of the arrow, **ctrl + shift + ↓**.
 - Depending on your device, there might be other keyboard shortcuts.
- FORMAT Encumbrance and Expenditure using the Accounting Format

Sort the data (Learn: Sorting)

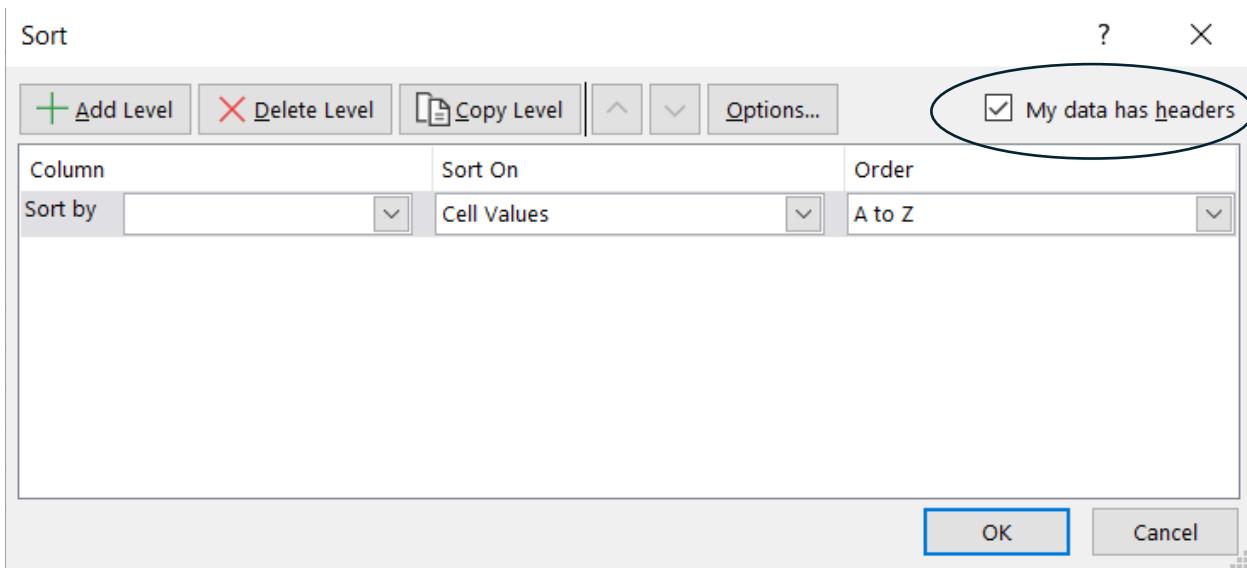
- To sort the data in a worksheet, select the columns, then on the Home tab, click on Sort & Filter.
 - It's very important to select all the data on a worksheet to ensure it sorts together. If you select only some of the data, you will sort only that data, leaving the other data unsorted and out of sync with the sorted data.



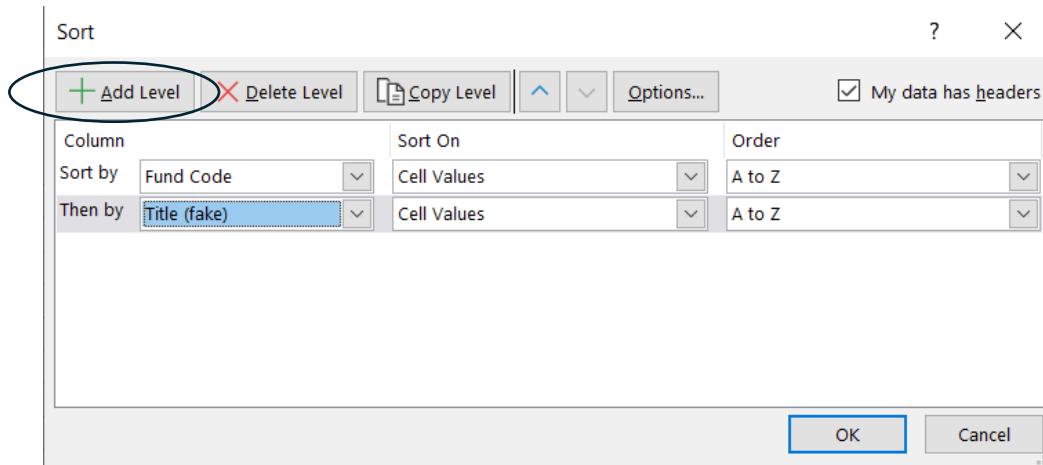
The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Title (fake)	PO Line Reference (fake)	Fund Code	Format	Status	Acquisition Material Type	Encumbrance	Expenditure									
2	Package 1	POL-1322	1JRC-A	E	CLOSED	PACKAGE	\$ -	\$ -									
3	Journal 2	POL-2406	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,666.00									
4	Journal 3	POL-3066	1JRC-A	E	ACTIVE	JOURNAL	\$ -	\$ 1,259.64									
5	Journal 4	POL-4298	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 274.00									
6	Package 5	POL-5828	1JRC-A	E	ACTIVE	PACKAGE	\$ -	\$ 30,881.00									
7	Package 6	POL-6421	1JRC	E	ACTIVE	PACKAGE	\$ -	\$ 1,250.00									
8	Journal 7	POL-7260	1JRC-A	E	ACTIVE	JOURNAL	\$ -	\$ 254.00									
9	Journal 8	POL-8523	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 590.00									
10	Journal 9	POL-9297	1JRC-A	E	ACTIVE	JOURNAL	\$ -	\$ 668.00									
11	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00									
12	Journal 11	POL-11774	1PER	P	ACTIVE	JOURNAL	\$ -	\$ 1,610.00									
13	Package 12	POL-12510	1JRC	E	ACTIVE	PACKAGE	\$ -	\$ 19,575.00									
14	Journal 13	POL-13358	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,898.00									
15	Journal 14	POL-14408	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 316.00									
16	Journal 15	POL-15409	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 316.00									
17	Package 16	POL-16175	1JRC	E	ACTIVE	PACKAGE	\$ -	\$ 2,458.42									

- Select Custom Sort. If you selected the entire columns, make sure the box, "My data has headers," is checked.



- We could sort on multiple criteria simply by clicking "Add Level."
- SORT by Fund Code AND Title (fake)



Summarize the purchase order data

Create a new worksheet and rename the worksheets (Learn: Data organization)

- To add a new worksheet, click on the "+" next to the worksheet tab.

		PO Line Reference			Acquisition Material Type							
1	Title (fake)	(fake)	Fund Code	Format	Status	Encumbrance	Expenditure					
2	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00				
3	Journal 103	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 306.64				
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,495.00				
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -				
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,375.00				
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,566.00				
8	Journal 126	POL-126504	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 10,900.61				
9	Journal 127	POL-127363	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 269.60				
10	Journal 129	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,593.00				
11	Journal 13	POL-13358	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,898.00				
12	Journal 130	POL-130836	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 120.00				
13	Journal 132	POL-132516	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 110.00				
14	Journal 136	POL-136138	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -				
15	Journal 137	POL-137139	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,335.00				
16	Journal 14	POL-14408	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 316.00				
17	Journal 143	POL-143511	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 280.00				
18	Journal 15	POL-15409	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 316.00				
19	Journal 151	POL-151009	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 13,106.83				
20	Journal 153	POL-153477	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,800.00				
21	Journal 155	POL-155778	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 524.79				
22	Journal 166	POL-166488	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -				
23	Journal 167	POL-167069	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 215.00				
24	Journal 168	POL-168147	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 399.00				
25	Journal 173	POL-173510	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 145.00				
26	Journal 179	POL-179512	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 85.00				

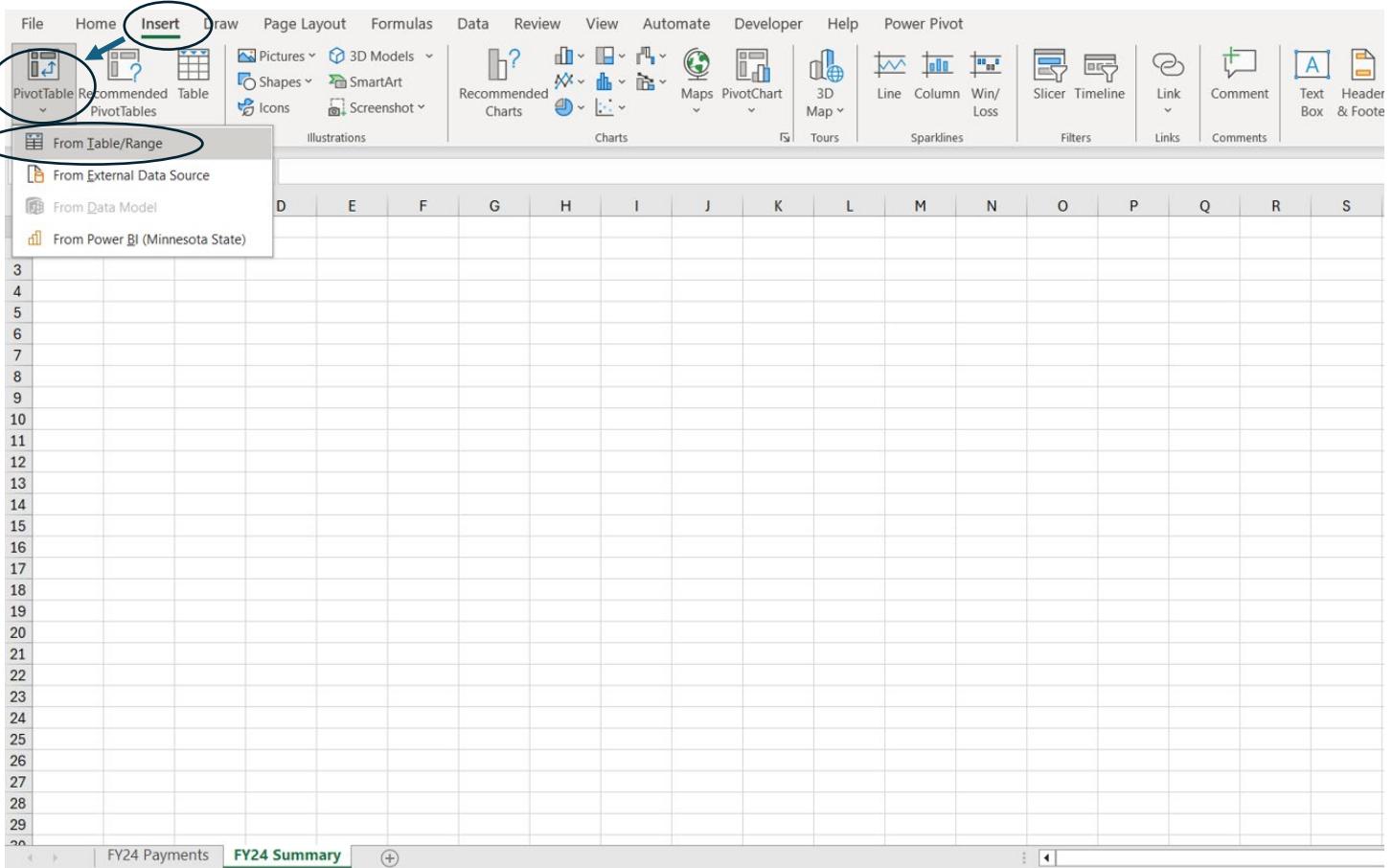
- To re-label each worksheet tab, right click on the tab and select Rename.
 - Re-name the first worksheet, FY24 Payments.
 - Re-name the second worksheet, FY24 Summary

A screenshot of a Microsoft Excel spreadsheet titled "Journal 10". The spreadsheet contains a table with columns labeled A through K. The first few rows of data are as follows:

	PO Line Reference	Fund Code	Format	Status	Acquisition Material Type	Encumbrance	Expenditure
1	Title (fake)	(fake)					
2	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 534.00
3	Journal 103	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 306.64
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 2,495.00
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ - \$ -
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 1,375.00
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 2,566.00
8	Journal 126	POL-126504	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 10,900.61
9	Journal 127	POL-127363	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 269.60
10	Journal 129	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 1,593.00
11	Journal 13	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 2,898.00
12	Journal 130	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 120.00
13	Journal 132	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 110.00
14	Journal 136	POL-129527	1JRC	E	CLOSED	JOURNAL	\$ - \$ -
15	Journal 137	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 2,335.00
16	Journal 14	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 316.00
17	Journal 143	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 280.00
18	Journal 15	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 316.00
19	Journal 151	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 13,106.83
20	Journal 153	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 1,800.00
21	Journal 155	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 524.79
22	Journal 166	POL-129527	1JRC	E	CLOSED	JOURNAL	\$ - \$ -
23	Journal 167	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 215.00
24	Journal 168	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 399.00
25	Journal 173	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 145.00
26	Journal 179	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ - \$ 85.00

Create a pivot table to summarize payments by fund code (Learn: Pivot table)

- On the FY24 Summary worksheet, click into cell A1.
- Click on the Insert tab on the menu bar, select PivotTable -> From Table/ Range.



- Click on the FY24 Payments worksheet and select the entire data range by clicking and dragging your mouse across the column letters. Click OK.
 - **Note: We are taking the simplest approach to pivot tables. We will not be adding the data to the Data Model, which is typically a best practice.**
- Select the data to include in the Pivot Table. Drag any selected fields to the appropriate box.
 - When number fields are added to Values, they will automatically Sum. We could change this behavior by changing the Value Field Settings. For now, let's just let Excel sum the values, because that's what we want.
 - If Excel automatically Counts the values instead of summing the values, it means Excel does not recognize the field as a number, which is easy to fix, but a topic for another day.
- As we select fields, the Pivot Table will start to auto-populate with data.
 - ADD Fund Code to Rows and Expenditure to Values

A screenshot of Microsoft Excel showing a PivotTable in the foreground and the PivotTable Fields pane on the right. The PivotTable displays data with rows for 'Fund Code' (1JRC, 1JRC-A, 1PER) and a Grand Total. The PivotTable Fields pane shows fields like Fund Code, Status, Acquisition Material Type, Encumbrance, and Expenditure, with 'Fund Code' and 'Expenditure' checked. A blue arrow points from the Row Labels dropdown in the PivotTable to the '(blank)' option in the PivotTable Fields pane.

- Clean up or reformat as appropriate.
 - For example, we could click on the Row Labels dropdown to de-select (blanks).

A screenshot of Microsoft Excel showing the Row Labels dropdown open, with '(blank)' selected. The PivotTable Fields pane is visible on the right, showing fields like Fund Code, Status, Acquisition Material Type, Encumbrance, and Expenditure, with 'Fund Code' and 'Expenditure' checked. The PivotTable in the background shows data for Fund Codes 1JRC, 1JRC-A, and 1PER, along with a Grand Total.

- We could change the number format of the Values we selected.
 - Click on the Sum of Expenditure dropdown. Select Value Field Settings...

The screenshot shows a Microsoft Excel interface with a PivotTable Fields dialog box open. The PivotTable Fields dialog box is titled "PivotTable Fields" and contains a search bar and a list of fields: PO Line Reference (fake), Fund Code, Format, Status, Acquisition Material Type, Encumbrance, and Expenditure. The "Expenditure" field is checked. Below the list are sections for "Filters", "Columns", "Rows", and "Values". The "Values" section currently has "Fund Code" selected and "Sum of Expenditure" listed. A context menu is open over the "Value Field Settings..." button in the "Values" section, with the "Value Field Settings..." option highlighted and circled.

- Click on Number Format...

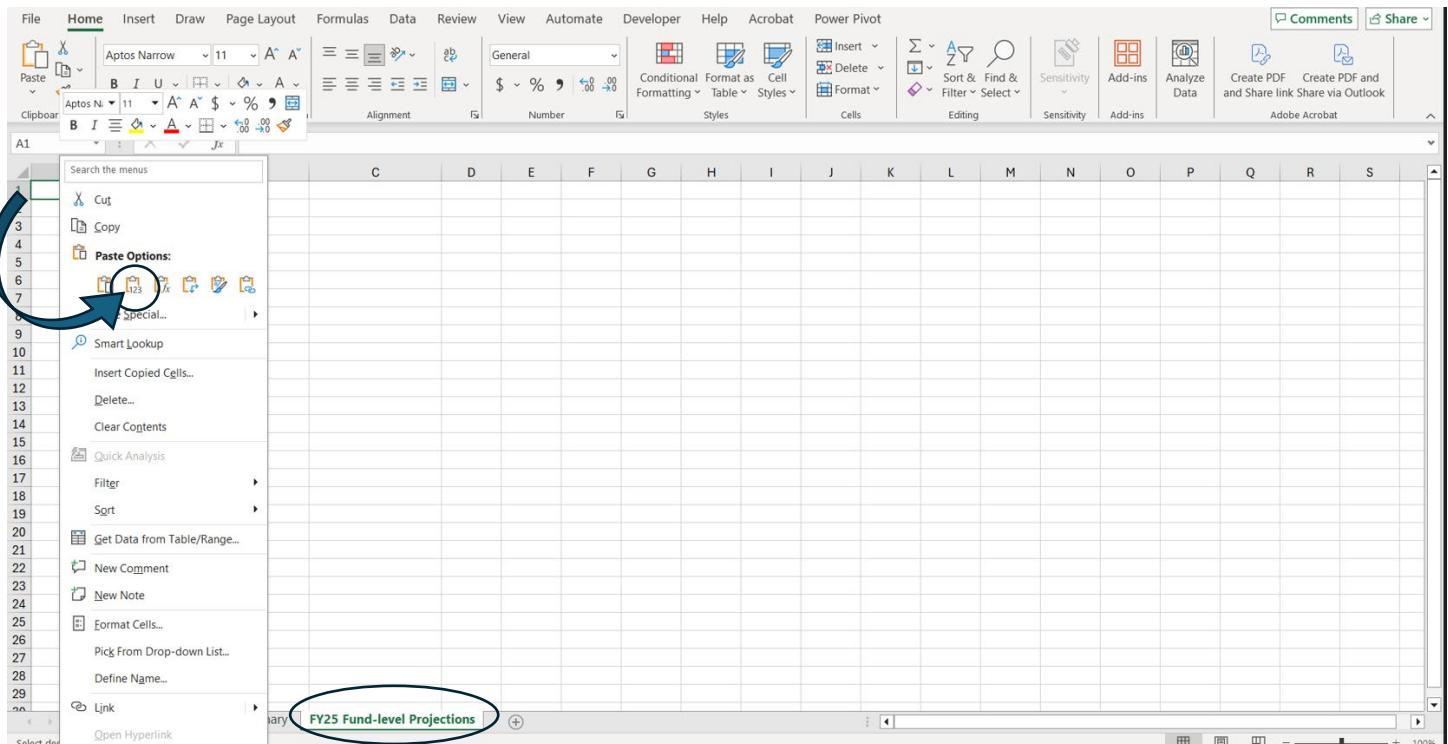
The screenshot shows the "Value Field Settings" dialog box open. It includes fields for "Source Name" (Expenditure), "Custom Name" (Sum of Expenditure), and a dropdown for "Summarize Values By" (Set to "Sum"). Below this is a section for "Summarize value field by" with a dropdown menu showing options: Sum, Count, Average, Max, Min, and Product. At the bottom are "OK" and "Cancel" buttons. The "Number Format" button is highlighted and circled.

- Click on Accounting.

[Return to TOC](#)

Project Inflation, the very simple approach (Learn: Copy & Paste as Values, Basic Calculations, Autofill)

- For our purposes right now, we will not perform calculations directly on data in the pivot table using the GetPivotData() function because this might lead into more advanced topics and tangents.
 - For this project, we're treating our data as static snapshots.
- Instead, we'll copy the pivot table to a third worksheet, which we'll call FY25 Fund-level Projections.
 - Create a third worksheet and relabel it, FY25 Fund-level Projections
 - Highlight the entire pivot table, right click and select copy (or ctrl + c)
 - On the FY25 Fund Projections worksheet, right click on cell A1 and select Paste as Values.



- Adjust the column widths and revise formatting as appropriate.

A screenshot of Microsoft Excel showing a pivot table in the 'FY25 Fund-level Projections' sheet. The table has three columns: Fund Code, Sum of Expenditure, and a blank column C. The data includes rows for 1JRC, 1JRC-A, 1PER, and Grand Total. The pivot table is located in the range A1:C5.

	A	B	C
1	Fund Code	Sum of Expenditure	
2	1JRC	\$ 176,057.17	
3	1JRC-A	\$ 967,022.40	
4	1PER	\$ 23,273.37	
5	Grand Total	\$ 1,166,352.94	

- Create FY25 inflation projections
 - In cell C1, add a column heading, FY25 Fund Projection.
 - In cell C2, add a cell reference calculation. Let's presume 4% inflation.
 - $=B2*1.04$
 - To copy the calculation down to the other cells in the column, double-click on the little square in the bottom-right corner of cell C2.
 - **Excel will automatically update the cell references.**

The screenshot shows the Microsoft Excel interface with the 'Home' tab selected. A formula bar at the top displays the formula $=B2*1.04$. Below it, a table is displayed with columns labeled A, B, and C. The first row contains headers: 'Fund Code', 'Sum of Expenditure', and 'FY25 Fund Projection'. The second row contains data: '1JRC', '\$ 176,057.17', and '\$ 183,099.46'. A green circular arrow icon is located in the bottom-right corner of the cell containing '\$ 183,099.46'. A large blue arrow points downwards from this cell towards the bottom of the table, indicating that the formula is being copied down the column. The table below shows the result of this copying process.

A	B	C
Fund Code	Sum of Expenditure	FY25 Fund Projection
1JRC	\$ 176,057.17	\$ 183,099.46
1JRC-A	\$ 967,022.40	\$ 1,005,703.30
1PER	\$ 23,273.37	\$ 24,204.30
Grand Total	\$ 1,166,352.94	\$ 1,213,007.06

A	B	C
Fund Code	Sum of Expenditure	FY25 Fund Projection
1JRC	\$ 176,057.17	\$ 183,099.46
1JRC-A	\$ 967,022.40	\$ 1,005,703.30
1PER	\$ 23,273.37	\$ 24,204.30
Grand Total	\$ 1,166,352.94	\$ 1,213,007.06

Project FY25 costs at the purchase order level

Download the second dataset

- In the Project1_Practice workbook, add a worksheet and label it "FY25 POL Inflation"
- Navigate to the Excel for Library Projects libguide, <https://libguides.mnstate.edu/minitex-excel>.
 - Click on the tab: Project 1: Budget Projections
 - In the box, Project 1 Resources, click on the link **Project1_Inflation** to open
 - We can copy the data from the open file, or download it first, then copy the data. If we download first, it's easier to copy the data.

- Copy and paste the data from Project1_Inflation to the Project1_Practice worksheet "FY25 POL Inflation"

Calculate FY25 POL Projections for each purchase order (Learn: Xlookup, Combined Functions)

- We will build up a combined function to project FY25 costs.
 - First, on the FY24 Payments worksheet, add a column heading, FY25 Projection, to the right of Expenditure. (The new column heading should be in column I.)
 - We will use an Xlookup() function alone as a way to check our data. This Xlookup() will also provide the core for a combined function to calculate FY25 projections at the POL level.
 - [Click here to learn more about the Xlookup\(\) function.](#)
 - To enter the function, we could use an Excel wizard. It is much quicker to type the function directly into Excel, so that's what I'll show you, but if you want to explore Excel functions using a wizard to help you, go to the Formulas tab on the menu bar, then click on different functions. You can also look up functions by name on the web.
 - When typing a function, we always start by entering an equals sign (=). The equals sign is only used once no matter how many functions are combined. If we type the start of the function, Excel will provide some information how to complete the function, much like the wizard.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Title (fake)	PO Line Reference (fake)				Acquisition Material			FY25								
2	Package 1	POL-1322	1JRC-A	E	CLOSED	PACKAGE	\$ -	\$ -	Projection								
3	Journal 2	POL-2406	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,856.00	=xlookup(XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode])							
4	Journal 3	POL-3066	1JRC-A	E	ACTIVE	JOURNAL	\$ -	\$ 1,259.64									
5	Journal 4	POL-4298	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 274.00									
6	Package 5	POL-5828	1JRC-A	E	ACTIVE	PACKAGE	\$ -	\$ 30,881.00									
7	Package 6	POL-6421	1JRC	E	ACTIVE	PACKAGE	\$ -	\$ 1,250.00									

- The Xlookup() function can take up to 6 arguments, only 3 of which are required. We're using 3 arguments: (1) the lookup value as a cell reference, (2) the lookup array as a column, (3) the return array as a column.
=XLOOKUP(lookup_value,lookup_array,return_array)
▪ In cell I2, enter the function:

=XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E)

- We'll use 3 arguments for the Xlookup() function, separated by commas,

- B2 is a cell reference on the same worksheet (FY24 Payments). The function uses the data in B2, POL-10928.

=XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E)

- The function looks up the data from B2 on the FY25 POL Inflation worksheet. It is looking for a match in column B.

=XLOOKUP(B2,'**FY25 POL Inflation**'!B:B,'FY25 POL Inflation'!E:E)

- If the function finds a match in column B, the function will return a value from column E, from the same row where it found a match in column B.

=XLOOKUP(B2,'FY25 POL Inflation'!B:B,'**FY25 POL Inflation**'!E:E)

The screenshot shows an Excel spreadsheet with the Home tab selected. The formula bar at the top displays the formula =XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E). The cell I2 contains the value 0.05. The table below has columns labeled PO Line Reference, Fund Code, Format, Status, Acquisition Material Type, Encumbrance, Expenditure, and FY25 Projection. Rows 2 through 7 show data for various journal entries, with the last two rows having closed status and therefore no matching data in the FY25 POL Inflation worksheet.

	PO Line Reference	Fund Code	Format	Status	Acquisition Material Type	Encumbrance	Expenditure	FY25 Projection
1	Title (fake)	(fake)						
2	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00
3	Journal 103	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 306.64
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,495.00
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,375.00
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,566.00

- To copy the calculation down to the other cells in the column, double-click on the little square in the bottom-right corner of cell I2. Excel will automatically update the cell references, as we've seen before.
- Immediately, we can see some errors, #N/A. In this case, the errors indicate there is no match on the POL # in the cell reference.
 - If we quickly scroll through the data, it becomes apparent the errors, in this case, all resulted because those POLs were closed, so there is no matching data on the FY25 POL Inflation worksheet.
- The best approach to handle errors will depend on what causes them. In some cases, there might be work to do to resolve the errors or fix the data, but in this case, we can use a simple error handling method.
 - In cell I2, we'll wrap the Xlookup() function inside an IfError() function.
 - The IfError() function can be used to return a more meaningful result than an error. Alternatively, we could use the 4th and optional argument for Xlookup(),

'result if not found,' but it's handy to know IfError() because it can be used with many other functions. (It's also important for us to start learning that functions can be nested.)

- [Click here to learn more about the IfError\(\) function.](#)
- The IfError() function takes 2 arguments. The first is a function or calculation that can result in an error. The second is the result to return if the function or calculation does result in an error. If the function or calculation doesn't result in an error, then the original result will be returned.
- To revise the function, click on cell I2, then, in the formula bar, revise the text as follows,

=IFERROR(XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E),0)

- We'll use 2 arguments for the IfError() function.
 - The first parameter is the Xlookup() function itself. If an error is returned by the Xlookup() function, IfError() will recognize there is an error and intercept it, so to speak. Instead of returning #N/A, IfError() will return the second argument. If there was no error, IfError() will return the result from the Xlookup()

=IFERROR(**XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E)**,0)

- The second argument is the result we want to get if the Xlookup() returned an error, instead of #N/A. The second argument result will replace #N/A. In this case, the argument is 0 (zero). This will return a number zero. We could alternatively return other results. To return a blank, we'd use "" (2 quotation marks with nothing between them).
 - If you want to return text, you must use quotation marks, such as "None"
 - If you use quotation marks with a number, Excel will think the number is text.

=IFERROR(XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E),**0**)

- Copy the calculation down to the other cells in the column by double-clicking on the little square in the bottom-right corner of cell I2.

	A	B	C	D	E	F	G	H	I
	PO Line Reference (fake)	Fund Code	Format	Status	Acquisition Material Type	Encumbrance	Expenditure	FY25 Projection	
1	Title (fake)	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00	0.05
2	Journal 10	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 306.64	0.03
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,495.00	0.08
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -	0
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,375.00	0.05
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,566.00	0.08

- Finally, revise the combined function to calculate the FY25 Projection,

=IFERROR(H2*(1+XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E)),0)

- Explanation: To project the FY25 cost for POL-10928, we must multiply the FY24 Expenditure by 100% + the expected inflation, 5%. For our calculation, $1 + .05 = 105\%$.
- First, enter a cell reference to look up the FY24 Expenditure, then type an asterisk (*) so that it will multiply

=IFERROR(H2*(1+XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E)),0)

- Second, add parentheses to ensure the correct order of operations and add 1 to the Xlookup() function

=IFERROR(H2*(1+XLOOKUP(B2,'FY25 POL Inflation'!B:B,'FY25 POL Inflation'!E:E)),0)

- Copy the calculation down to the other cells in the column by double-clicking on the little square in the bottom-right corner of cell I2.
- Highlight the column, then copy the column and paste as values over the column. Personally, I almost always copy and paste my functions as values, to remove the possibility the functions could cause errors later on if I continue to move the data around. Functions also use more memory than values. If you're using several functions across many columns on big data, Excel can slow down significantly.

(Congratulations, by the way, this is a fairly complex combined function. The combined function includes a data look up, error handling, and a calculation.)

- We could take additional steps to clean up the data.
- I also like to apply formatting, if it's needed, to make the worksheet easier to read.

	A	B	C	D	E	F	G	H	I
	PO Line Reference		Acquisition Material			FY25			
1	Title (fake)	(fake)	Fund Code	Format	Status	Type	Encumbrance	Expenditure	Projection
2	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00	\$ 560.70
3	Journal 103	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 306.64	\$ 315.84
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,495.00	\$ 2,694.60
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -	\$ -
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,375.00	\$ 1,443.75
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,566.00	\$ 2,771.28
8	Journal 126	POL-126504	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 10,900.61	\$ 11,205.83
9	Journal 127	POL-127363	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 269.60	\$ 277.69
10	Journal 129	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,593.00	\$ 1,720.44
11	Journal 13	POL-13358	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,898.00	\$ 2,984.94

Re-summarize using a pivot table (Learn: Update pivot table)

- Click on any cell in the pivot table on the worksheet, FY24 Summary.
- When we click into a pivot table, we should see additional tabs on the menu bar, including PivotTableAnalyze and Design.
- Excel will automatically open the PivotTableAnalyze tab.

The screenshot shows a Microsoft Excel spreadsheet titled 'FY24 Summary'. A pivot table is present in the range A1:B5, with the formula `=SUM(Expenditure)` in cell B3. The pivot table displays data grouped by Fund Code, showing the sum of expenditure for each category. The ribbon at the top has the 'PivotTable Analyze' tab selected. On the right, the 'PivotTable Fields' pane is open, listing various fields like Title (fake), Fund Code, Format, Status, etc., with 'Fund Code' and 'Expenditure' checked. A blue arrow points from the 'Sum of Expenditure' cell in the pivot table to the 'PivotTable Analyze' tab.

- Let's update the data source to include the new column we created, FY25 Projection.
- Click on Change Data Source

PivotTable Name: PivotTable1

Active Field: Sum of Expenditure

PivotTable Fields pane shows 'Fund Code' checked.

Row Labels	Sum of Expenditure
1 JRC	\$ 176,057.17
3 JRC-A	\$ 967,022.40
4 PER	\$ 23,273.37
Grand Total	\$ 1,166,352.94

- Revise the Table/Range to include Column I.

File Home Insert Draw Page Layout Formulas Data Review View Automate Developer Help Acrobat Power Pivot PivotTable Analyze Design

PivotTable Fields pane shows 'Fund Code' checked.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
	PO Line Reference				Acquisition Material			FY25							
1	Title (fake)	(fake)	Fund Code	Format	Status	Type	Encumbrance	Expenditure	Projection						
2	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00	\$ 560.70						
3	Journal 103	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 306.64	\$ 315.84						
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,495.00	\$ 2,694.60						
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -	\$ -						
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,375.00	\$ 1,443.75						
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,566.00	\$ 2,771.28						
8	Journal 126	POL-126504	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 10,900.61	\$ 11,205.83						
9	Journal 127	POL-127363	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 269.60	\$ 1,						
10	Journal 129	POL-129527	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,593.00	\$ 1,						
11	Journal 13	POL-13358	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,898.00	\$ 2,						
12	Journal 130	POL-130836	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 120.00	\$ 1,						
13	Journal 132	POL-132516	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 110.00	\$ 1,						
14	Journal 136	POL-136138	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -	\$ -						
15	Journal 137	POL-137139	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,335.00	\$ 2,						
16	Journal 14	POL-14408	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 316.00	\$ 1,						
17	Journal 143	POL-143511	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 280.00	\$ 1,						
18	Journal 15	POL-15409	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 316.00	\$ 1,						
19	Journal 151	POL-151009	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 13,106.83	\$ 13,						
20	Journal 153	POL-153477	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,800.00	\$ 1,890.00						
21	Journal 155	POL-155778	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 524.79	\$ 540.53						

Change PivotTable Data Source dialog box:

- Select a table or range: `Table/Range: 'FY24 Payments'!$A:$I`
- Use an external data source
- Choose Connection...
- Connection name:
- OK
- Cancel

- The added column should appear on the PivotTable Fields list. Let's add it to the Values box.

PivotTable Fields

- Fund Code
- Format
- Status
- Acquisition Material Type
- Encumbrance
- Expenditure
- FY25 Projection

Drag fields between areas below:

	Columns
Filters	
Row Labels	
Values	<input type="button" value="Sum of Expenditure"/> <input type="button" value="Sum of FY25 Projection"/>

- As we progress on a report, we might realize that our labels or field names need to be revised.
 - On the FY24 Payments worksheet, the column heading "Expenditure" could be revised to "FY24 Expenditure."

	A	B	C	D	E	F	G	H	I	J
1	Title (fake)	PO Line Reference (fake)	Fund Code	Format	Status	Acquisition Material Type	Encumbrance	FY24 Expenditure	FY25 Projection	
2	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 534.00	\$ 560.70	
3	Journal 103	POL-103440	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 306.64	\$ 315.84	
4	Journal 108	POL-108223	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,495.00	\$ 2,694.60	
5	Journal 111	POL-111508	1JRC	E	CLOSED	JOURNAL	\$ -	\$ -	\$ -	
6	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 1,375.00	\$ 1,443.75	
7	Journal 123	POL-123519	1JRC	E	ACTIVE	JOURNAL	\$ -	\$ 2,566.00	\$ 2,771.28	

- Now, on the FY24 Summary worksheet, we can refresh the pivot table to update the field names.
 - Right-click on the pivot table and select Refresh.

A screenshot of Microsoft Excel showing a context menu for a pivot table cell. The cell contains the value "1002212.348". The context menu is open, and the "Refresh" option is highlighted with a red oval.

	A	B	C
1 Row Labels	Sum of Expenditure	Sum of FY25 Project	
2 1JRC	\$ 176,057.17	185290.	
3 1JRC-A	\$ 967,022.40	1002212.348	
4 1PER	\$ 23,273.37	24853.	
5 Grand Total	\$ 1,166,352.94	1212355	

- The Expenditure field will disappear from the pivot table.

A screenshot of Microsoft Excel showing the PivotTable Fields pane. The 'FY24 Expenditure' checkbox is unselected, while 'FY25 Projection' is selected and highlighted with a red oval.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1 Row Labels	Sum of FY25 Projection														
2 1JRC	185290.1252														
3 1JRC-A	1002212.348														
4 1PER	24853.1595														
5 Grand Total	1212355.633														

- We'll need to re-add FY24 Expenditure by dragging it to the values box, as we've done before.

The screenshot shows a Microsoft Excel interface with a PivotTable Fields pane on the right and a worksheet below it.

PivotTable Fields pane:

- Choose fields to add to report:
- Search: Fund Code
- Selected items (checked):
 - Fund Code
 - Format
 - Status
 - Acquisition Material Type
 - Encumbrance
 - FY24 Expenditure** (highlighted with a red oval)
 - FY25 Projection** (highlighted with a red oval)
- More Tables...

Worksheet Data:

Row Labels	Sum of FY24 Expenditure	Sum of FY25 Projection
1JRC	176057.17	185290.1252
1JRC-A	967022.4	1002212.348
1PER	23273.37	24853.1595
Grand Total	1166352.94	1212355.633

Update the worksheet labels (Learn: Workbook organization & legibility)

- We might also realize our worksheet labels could be better for our purposes. We could update these to anything that makes more sense for us or any audience we might have.
 - Personally, because I will update my budget projections throughout the year with new snapshots after payments have been made, I prefer to use simple descriptive labels and timestamps.
 - For time stamps, I always use the convention year-month-day, YYMMDD. This convention is particularly helpful for file naming, so it's a good habit. When I use this convention for file naming, the files will sort in chronological order.
 - Instead of FY24 Payments, I'll use POL Detail 240701. When I download new POL Detail later in the year, I'll label it with the later date.
 - I'll also change FY24 Summary to POL Summary 240701.

A	B	C	D	E	F	G	H	I
1 Row Labels	Sum of FY24 Expenditure	Sum of FY25 Projection						
2 1JRC	176057.17	185290.1252						
3 1JRC-A	967022.4	1002212.348						
4 1PER	23273.37	24853.1595						
5 Grand Total	1166352.94	1212355.633						
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

- Because I can presume my pivot table on the worksheet "POL Summary 240701" provides a more accurate projection than the FY25 Fund-level Projections worksheet, I'll just delete the latter.
 - Right-click on the tab, "FY25 Fund-level Projections," select Delete.

Update the report later in the fiscal year (If there is time ... Review Learning)

Download the third dataset

- In the Project1_Practice workbook, add a worksheet and label it "POL Detail 240913"
 - To add the tab for the new worksheet to the right of "POL Detail 240701," first click on the tab for "POL Detail 240701," then click on the "+" as we have done previously.
 - New tabs always appear to the right of the active worksheet.
 - We can also re-order tabs simply by clicking on them and dragging them
- Navigate to the Excel for Library Projects libguide, <https://libguides.mnsu.edu/minitex-excel>.
 - Click on the tab: Project 1: Budget Projections

- In the box, Project 1 Resources, click on the link **Project1_Update** to open
- Copy and paste the data from Project1_Update to the Project1_Practice worksheet "POL Detail 240913"
- Format, re-order, and re-label the data as we did in Step 1.
 - Instead of using the column headings "Encumbrance" and "Expenditure," let's add "FY25."

1	Title (fake)	PO Line Reference (fake)	Fund Code	Format	Status	Acquisition Material Type	FY25 Encumbrance	FY25 Expenditure
2	Journal 15: POL-151009	1JRC	E	ACTIVE	JOURNAL	13106.83	0	
3	Journal 20: POL-203842	1JRC	E	ACTIVE	JOURNAL	661	0	
4	Journal 92: POL-92858	1JRC	E	ACTIVE	JOURNAL	270	0	
5	Journal 16: POL-168147	1JRC	E	ACTIVE	JOURNAL	399	0	
6	Journal 18: POL-184226	1JRC	E	ACTIVE	JOURNAL	688	0	
7	Journal 12: POL-121493	1JRC	E	ACTIVE	JOURNAL	0	1440	
8	Journal 82: POL-82632	1JRC	E	ACTIVE	JOURNAL	505	0	
9	Package 1: POL-17138	1JRC	E	CLOSED	PACKAGE	0	0	
10	Package 6: POL-6421	1JRC	E	ACTIVE	PACKAGE	1250	0	
11	Journal 4: POL-4298	1JRC	E	ACTIVE	JOURNAL	274	0	
12	Journal 84: POL-84372	1JRC	E	ACTIVE	JOURNAL	735.74	0	
13	Journal 10: POL-103440	1JRC	E	ACTIVE	JOURNAL	306.64	0	
14	Journal 34: POL-34934	1JRC	E	ACTIVE	JOURNAL	2799	0	
15	Journal 15: POL-155778	1JRC	E	ACTIVE	JOURNAL	524.79	0	
16	Journal 13: POL-130836	1JRC	E	ACTIVE	JOURNAL	120	0	
17	Journal 12: POL-127363	1JRC	E	ACTIVE	JOURNAL	269.6	0	
18	Package 1: POL-12510	1JRC	E	ACTIVE	PACKAGE	19575	0	
19	Package 1: POL-147016	1JRC	E	ACTIVE	PACKAGE	500	0	
20	Journal 55: POL-55954	1JRC	E	ACTIVE	JOURNAL	1211	0	
21	Journal 27: POL-27874	1JRC	E	ACTIVE	JOURNAL	4923	0	
22	Journal 81: POL-81891	1JRC	E	ACTIVE	JOURNAL	2058	0	
23	Package 1: POL-164028	1JRC	E	ACTIVE	PACKAGE	34916	0	
24	Journal 20: POL-202513	1JRC	E	ACTIVE	JOURNAL	244	0	
25	Journal 10: POL-10928	1JRC	E	ACTIVE	JOURNAL	534	0	

Compare the Project1_Update data to the previous data

- Whenever I start using a new version of data, I like to compare it to the old version, just to see if there is anything surprising or unexpected in the new data. We can use the Xlookup() function to compare the datasets.
 - Create a temporary column heading, "Check", in column I.
 - In cell I2, enter the function,

```
=XLOOKUP(B2,'POL Detail 240701'!B:B,'POL Detail 240701'!I:I)
```

- We are looking up the POL # in cell B2, checking it against the POL #'s in the old data ('POL Detail 240701'!B:B) and returning the projected FY25 cost.
- Copy the function down to the rest of the column by clicking on the little square in the bottom right corner of I2.
- We're mostly interested in any errors we find.

The screenshot shows a Microsoft Excel interface with the 'Home' tab selected. The formula bar at the top displays the formula =XLOOKUP(B119,'POL Detail 240701'!B:B,'POL Detail 240701'!I:I). The main area contains a table with columns A through J. Column A has row numbers 113 to 124. Column B contains POL numbers like 'POL-69273', 'POL-150857', etc. Column I contains values like 54286.15, 588, 372.75, etc. Column J contains values like 588, 294, 14933, etc. Cell I19 is highlighted with a green border and contains the error '#N/A'. The table has a light gray background and white borders between cells.

	A	B	C	D	E	F	G	H	I	J
113	Package 6: POL-69273	1JRC-A	E	ACTIVE	PACKAGE	52705	0	54286.15		
114	Journal 15 POL-150857	1JRC-A	E	ACTIVE	JOURNAL	560	0	588		
115	Journal 16 POL-169275	1JRC-A	E	ACTIVE	JOURNAL	355	0	372.75		
116	Journal 79 POL-79276	1JRC-A	E	ACTIVE	JOURNAL	280	0	294		
117	Package 6: POL-64252	1JRC-A	E	ACTIVE	PACKAGE	14221.9	0	14933		
118	Package 2: POL-221710	1JRC-A	E	ACTIVE	PACKAGE	0	152519.12	152348.3		
119	Journal 32 POL-222651	1JRC-A	E	ACTIVE	JOURNAL	2125	0	#N/A		
120	Journal 50 POL-225222	1JRC-A	E	ACTIVE	JOURNAL	9000	0	#N/A		
121	Journal 40 POL-40814	1PER	P	ACTIVE	JOURNAL	19.97	0	20.9685		
122	Journal 17 POL-174513	1PER	P	ACTIVE	JOURNAL	139	0	145.95		
123	Journal 20 POL-20515	1PER	P	ACTIVE	JOURNAL	75	0	82.5		
124	Journal 17 POL-171516	1PER	P	ACTIVE	JOURNAL	29.99	0	31.4895		

- To check the error, we could take a variety of steps.
 - There's always the chance we did something wrong when we entered the Xlookup() function, so we could look up the POL #222651 in the POL Details 240701 worksheet manually.
 - Just copy the POL#, click on the POL Details 240701 tab, click on the column letter B to search the POL #'s, type ctrl + F to open the Find and Replace box, paste the POL #, and click Find Next.

	A	B	C	D	E	F	G	H	I	J	K
1	Title (fake)	PO Line Reference (fake)	Fund Code		Acquisition Material			FY24	FY25		
2	Package 1	POL-1322	1JRC-A								
3	Journal 2	POL-2406	1JRC								
4	Journal 3	POL-3066	1JRC-A								
5	Journal 4	POL-4298	1JRC								
6	Package 5	POL-5828	1JRC-A								
7	Package 6	POL-6421	1JRC								
8	Journal 7	POL-7260	1JRC-A								
9	Journal 8	POL-8523	1JRC								
10	Journal 9	POL-9297	1JRC-A								
11	Journal 10	POL-10928	1JRC	E	ACTIVE	JOURNAL	\$	-	\$ 534.00	\$ 560.70	
12	Journal 11	POL-11774	1PER	P	ACTIVE	JOURNAL	\$	-	\$ 1,610.00	\$ 1,690.50	
13	Package 12	POL-12510	1JRC	E	ACTIVE	PACKAGE	\$	-	\$ 19,575.00	\$ 20,749.50	
14	Journal 13	POL-13358	1JRC	E	ACTIVE	JOURNAL	\$	-	\$ 2,898.00	\$ 2,984.94	
15	Journal 14	POL-14408	1JRC	E	ACTIVE	JOURNAL	\$	-	\$ 316.00	\$ 322.32	
16	Journal 15	POL-15409	1JRC	E	ACTIVE	JOURNAL	\$	-	\$ 316.00	\$ 322.32	
17	Package 16	POL-16175	1JRC	E	ACTIVE	PACKAGE	\$	-	\$ 2,458.42	\$ 2,630.51	
18	Package 17	POL-17138	1JRC	E	ACTIVE	PACKAGE	\$	-	\$ 21,875.00	\$ 22,968.75	
19	Journal 18	POL-18009	1PER	P	ACTIVE	JOURNAL	\$	-	\$ 75.00	\$ 78.75	
20	Journal 19	POL-19223	1PER	P	ACTIVE	JOURNAL	\$	-	\$ 79.95	\$ 83.95	

- This approach doesn't yield a result.
- Maybe there's some other issue. Our next step could be to look up the POL in the Integrated Library System.
 - In this case, the reason the POL #222651 doesn't match the July 1 data is because the POL is new. It was created after July 1 for a new order.

Update the Budget Projections based on the Project 1_Update data

- Let's create a new projection of expected FY25 costs based on both inflation projections and any actual payments already made.
 - If a payment was already made, then we want to use that number, but if a payment was not made yet, then we want to use the inflation projection. We'll need a combined function capable of processing the data according to our priorities.
 - To keep our work clear and understandable, let's start by deleting the Check column. We could re-use the Xlookup() function we already created, but let's start from scratch.
 - Click on the column letter I to highlight the column, right click and select delete.
 - In cell I1, add a new column heading, FY25 Projection
 - We'll start by checking for payments in column H. If there was a payment, we want to use the actual amount paid. We'll use the If() function. It's one of my favorite functions and very powerful.
 - [Click here to learn more about the If\(\) function.](#)

- =IF(logical_test,result_if_true,result_if_false)
 - In cell I2, enter the function,
- =IF(H2>0,H2,G2)
- We'll use 3 arguments for the If() function, separated by commas. The If() function will check if the first argument is True, then, if the first argument is True, it will perform the second argument, otherwise (else), if the first argument is False, it will perform the third argument.
 - H2 is a cell reference on the same worksheet (POL Detail 240913). The function is checking if the number in H2 is greater than 0. It will return True if the number is greater than 0. It will return False if the number is equal to or less than 0.

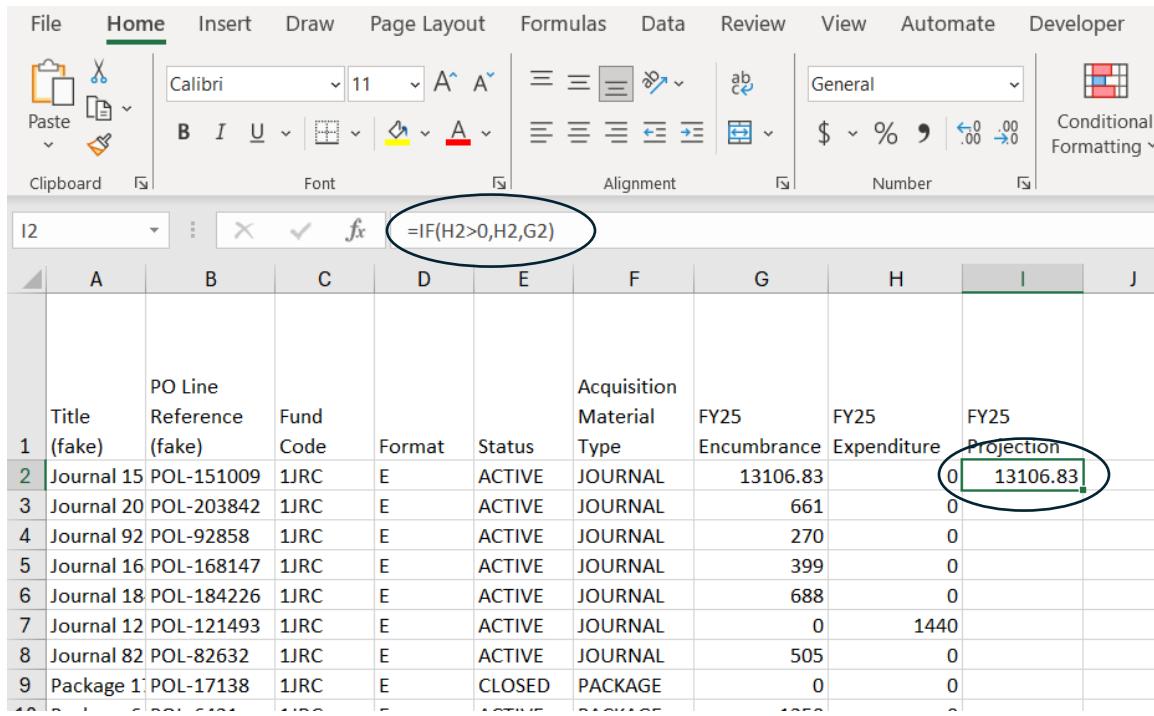
=if(H2>0,H2,G2)

- The second argument is simply a cell reference. This will copy the data from cell H2 into cell I2 if the first argument is True.

=if(H2>0,H2,G2)

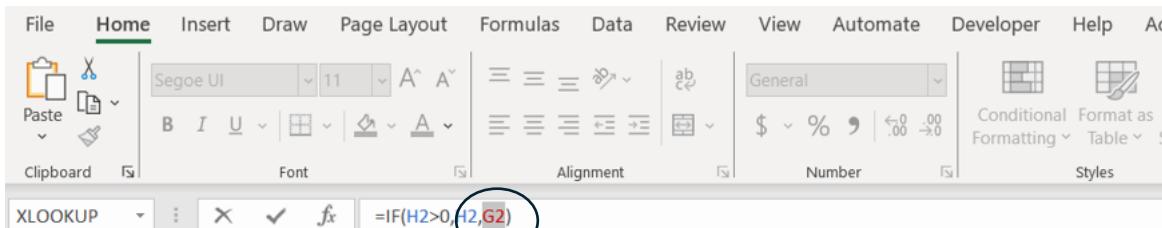
- The third argument is also a cell reference. This will copy the data from cell G2 into cell I2 if the first argument is False. Right now, this third argument is just a placeholder. We'll replace it in a moment.

=if(H2>0,H2,G2)



	A	B	C	D	E	F	G	H	I	J
1	Title (fake)	PO Line Reference (fake)	Fund Code	Format	Acquisition Material Status	FY25 Type	FY25 Encumbrance	FY25 Expenditure	Projection	
2	Journal 15	POL-151009	1JRC	E	ACTIVE	JOURNAL	13106.83	0	13106.83	
3	Journal 20	POL-203842	1JRC	E	ACTIVE	JOURNAL	661	0		
4	Journal 92	POL-92858	1JRC	E	ACTIVE	JOURNAL	270	0		
5	Journal 16	POL-168147	1JRC	E	ACTIVE	JOURNAL	399	0		
6	Journal 18	POL-184226	1JRC	E	ACTIVE	JOURNAL	688	0		
7	Journal 12	POL-121493	1JRC	E	ACTIVE	JOURNAL	0	1440		
8	Journal 82	POL-82632	1JRC	E	ACTIVE	JOURNAL	505	0		
9	Package 1	POL-17138	1JRC	E	CLOSED	PACKAGE	0	0		

- Copy the calculation down to the other cells in the column by double-clicking on the little square in the bottom-right corner of cell I2.
- In the IF() function, we are returning the FY25 Encumbrance from cell G2 if there has been no FY25 Expenditure so far. Let's change the IF() function so that the third argument looks up the inflation projection from our worksheet labelled POL Detail 240701. We'll replace G2 with an Xlookup() function.
 - To revise the function, click on cell I2, then, in the formula bar, highlight the text to replace. In this case, we'll highlight G2.



	A	B	C	Material	FY25	FY25	FY25	
1	Title (fake)	Reference (fake)	Fund Code	Status	Type	Encumbrance	Expenditure	Projection
2	Journal 151	POL-151009	1JRC	E	ACTIVE	JOURNAL	13106.83	(H2,G2)
3	Journal 203	POL-203842	1JRC	E	ACTIVE	JOURNAL	661	0
4	Journal 92	POL-92858	1JRC	E	ACTIVE	JOURNAL	270	0
5	Journal 168	POL-168147	1JRC	E	ACTIVE	JOURNAL	399	0
6	Journal 184	POL-184226	1JRC	E	ACTIVE	JOURNAL	688	0
7	Journal 121	POL-121493	1JRC	E	ACTIVE	JOURNAL	0	1440
8	Journal 82	POL-82632	1JRC	E	ACTIVE	JOURNAL	505	0
9	Package 17	POL-17138	1JRC	E	CLOSED	PACKAGE	0	0
10	Package 6	POL-6421	1JRC	E	ACTIVE	PACKAGE	1250	0
11	Journal 144	POL-144000	1JRC	E	ACTIVE	JOURNAL	274	0

- After highlighting the text to replace, type in the Xlookup() function,
- =IF(H2>0,H2,XLOOKUP(B2,'POL Detail 240701'!B:B,'POL Detail 240701'!I:I))**
- Within the Xlookup(), we are looking up the POL # in cell B2, checking it against the POL #s in the old data ('POL Detail 240701'!B:B) and returning the FY25 Projection.

1	Title (fake)	PO Line Reference (fake)	Fund Code	Format	Status	Acquisition Material Type	FY25 Encumbrance	FY25 Expenditure	FY25 Projection
2	Journal 15	POL-151009	1JRC	E	ACTIVE	JOURNAL	13106.83	0	13631.1032
3	Journal 20	POL-203842	1JRC	E	ACTIVE	JOURNAL	661	0	661
4	Journal 92	POL-92858	1JRC	E	ACTIVE	JOURNAL	270	0	270
5	Journal 16	POL-168147	1JRC	E	ACTIVE	JOURNAL	399	0	399
6	Journal 18	POL-184226	1JRC	E	ACTIVE	JOURNAL	688	0	688

- Copy the calculation down to the other cells in the column by double-clicking on the little square in the bottom-right corner of cell I2.
- We should always check the results of our functions for errors. In this case, we see the same errors we saw previously in the Check column. We see these errors because the number in cell H2 is not greater than zero AND because there is no matching POL when we use the Xlookup() to return the FY25 Projection.

116	A	B	C	D	E	F	G	H	I	J
117	Journal 79	POL-7927b	1JRC-A	E	ACTIVE	JOURNAL	280	0	294	
118	Package 64	POL-64252	1JRC-A	E	ACTIVE	PACKAGE	14221.9	0	14932.995	
119	Package 221	POL-221710	1JRC-A	E	ACTIVE	PACKAGE	0	152519.12	152519.12	
120	Journal 321	POL-222651	1JRC-A	E	ACTIVE	JOURNAL	2125	0	#N/A	
121	Journal 500	POL-225222	1JRC-A	E	ACTIVE	JOURNAL	9000	0	#N/A	
122	Journal 40	POL-40814	1PER	P	ACTIVE	JOURNAL	19.97	0	20.9685	
123	Journal 174	POL-174513	1PER	P	ACTIVE	JOURNAL	139	0	145.95	
	Journal 20	POL-20515	1PER	P	ACTIVE	JOURNAL	75	0	82.5	

- We need to wrap our entire combined function in an IfError() function. In this case, because there hasn't been a payment yet and because there is no data to return from the worksheet POL Detail 240701, we want the IfError() function to return the FY25 encumbrance amount in column G,

=IFERROR(IF(H2>0,H2,XLOOKUP(B2,'POL Detail 240701'!B:B,'POL Detail 240701'!I:I)),G2)

- After revising the function in cell I12 and copying it down, we can see that we have fixed the error.

The screenshot shows a Microsoft Excel spreadsheet with the following details:

- Clipboard:** Contains icons for Paste, Cut, Copy, and Undo/Redo.
- Font:** Set to Calibri, Size 11, with bold and italic options.
- Alignment:** General alignment.
- Number:** General format with thousands separator and decimal places.
- Styles:** Conditional Formatting, Format as Table, and Cell Styles.
- Cell I119:** Contains the formula =IFERROR(IF(H119>0,H119,XLOOKUP(B119,'POL Detail 240701'!B:B,'POL Detail 240701'!I:I)),G119).
- Data:** A table with columns A through K. Row 119 is highlighted in green. Column F contains the formula =IF(H119>0,H119,XLOOKUP(B119,'POL Detail 240701'!B:B,'POL Detail 240701'!I:I)). The value 2125 is circled in red in cell H119, and the formula is circled in red in cell I119.

A	B	C	D	E	F	G	H	I	J	K
Journal 79	POL-79276	1JRC-A		ACTIVE	JOURNAL	280	U	294		
117 Package 64	POL-64252	1JRC-A	E	ACTIVE	PACKAGE	14221.9	0	14932.995		
118 Package 221	POL-221710	1JRC-A	E	ACTIVE	PACKAGE	0	152519.12	152519.12		
119 Journal 321	POL-222651	1JRC-A	E	ACTIVE	JOURNAL	2125	0	2125		
120 Journal 500	POL-225222	1JRC-A	E	ACTIVE	JOURNAL	9000	0	9000		
121 Journal 40	POL-40814	1PER	P	ACTIVE	JOURNAL	19.97	0	20.9685		
122 Journal 174	POL-174513	1PER	P	ACTIVE	JOURNAL	139	0	145.95		
123 Journal 20	POL-20515	1PER	P	ACTIVE	JOURNAL	75	0	82.5		
124 Journal 171	POL-171516	1PER	P	ACTIVE	JOURNAL	29.99	0	31.4895		

- Finally, we can copy & paste as values, then format as appropriate.
- Let's summarize the new data with a new pivot table.
 - Add a worksheet and label it "POL Summary 240913"
 - To add the tab for the new worksheet to the right of "POL Summary 240701," first click on the tab for "POL Summary 240701," then click on the "+" as we have done previously, then rename the tab.
 - On the POL Summary 240913 worksheet, in cell A1, insert a pivot table, From Table/ Range: POL Detail 240913, highlight all the populated columns (A:I)

The screenshot shows the Microsoft Excel ribbon with the 'Insert' tab selected. Below the ribbon, there are several icons for creating charts and tables. A table is selected on the worksheet, and a context menu is open, showing options like 'PivotTable from table or range'. The 'PivotTable from table or range' dialog box is displayed, prompting the user to select a table or range ('Table/Range: POL Detail 240913!\$A:\$I'), choose a location ('Existing Worksheet'), and decide whether to analyze multiple tables ('Add this data to the Data Model').

Title	PO Line Reference	Fund Code	Format	Status	Acquisition Material Type	FY25 Encumbrance	FY25 Expenditure	FY25 Projection
1 (fake)	(fake)							
2 Journal 15	POL-151009	IJRC	E	ACTIVE	JOURNAL	13106.83	0	13631.1032
3 Journal 20	POL-203842	IJRC	E	ACTIVE	JOURNAL	661	0	694.05
4 Journal 92	POL-92858	IJRC	E	ACTIVE	JOURNAL	270	0	283.5
5 Journal 16	POL-168147	IJRC	E	ACTIVE	JOURNAL	399	0	418.95
6 Journal 18	POL-184226	IJRC	E	ACTIVE	JOURNAL	688	0	722.4
7 Journal 12	POL-121493	IJRC	E	ACTIVE	JOURNAL	0	1440	1440
8 Journal 82	POL-82632	IJRC	E	ACTIVE	JOURNAL	505		
9 Package 1	POL-17138	IJRC	E	CLOSED	PACKAGE	0		
10 Package 6	POL-6421	IJRC	E	ACTIVE	PACKAGE	1250		
11 Journal 4	POL-4298	IJRC	E	ACTIVE	JOURNAL	274		
12 Journal 84	POL-84372	IJRC	E	ACTIVE	JOURNAL	735.74		
13 Journal 10	POL-103440	IJRC	E	ACTIVE	JOURNAL	306.64		
14 Journal 34	POL-34934	IJRC	E	ACTIVE	JOURNAL	2799		
15 Journal 15	POL-155778	IJRC	E	ACTIVE	JOURNAL	524.79		
16 Journal 13	POL-130836	IJRC	E	ACTIVE	JOURNAL	120		
17 Journal 12	POL-127363	IJRC	E	ACTIVE	JOURNAL	269.6		
18 Package 1	POL-12510	IJRC	E	ACTIVE	PACKAGE	19575		
19 Package 1	POL-147016	IJRC	E	ACTIVE	PACKAGE	500		
20 Journal 55	POL-55954	IJRC	E	ACTIVE	JOURNAL	1211		
21 Journal 27	POL-27874	IJRC	E	ACTIVE	JOURNAL	4923	0	5218.38
22 Journal 81	POL-81891	IJRC	E	ACTIVE	JOURNAL	2058	0	2222.64
23 Package 1	POL-164028	IJRC	E	ACTIVE	PACKAGE	34916	0	34915.5374
24 Journal 20	POL-202513	IJRC	E	ACTIVE	JOURNAL	244	0	263.52
25 Journal 10	POL-10928	IJRC	E	ACTIVE	JOURNAL	534	0	560.7

- For this pivot table, we'll add Fund Code to the Rows box, and the FY25 Projection to the Values box.

The screenshot shows the Microsoft Excel ribbon with the 'PivotTable Analyze' tab selected. The 'PivotTable Fields' pane is open on the right side of the screen. It lists fields from the source table: Fund Code, Format, Status, Acquisition Material Type, FY25 Encumbrance, FY25 Expenditure, and FY25 Projection. The 'Fund Code' and 'FY25 Projection' fields are checked. The 'Rows' section of the 'PivotTable Fields' pane is highlighted, showing 'Fund Code' assigned to it. The 'Values' section is also highlighted, showing 'Sum of FY25 Projection' assigned to it.

[Return to TOC](#)

- Good job! The new POL Summary shows updated, presumably more accurate numbers for FY25.
- We could take additional steps...
 - We could combine the data from our 2 Summary pivot table in one table to show trends.
 - We could update our FY25 POL Inflation table to include the 2 new POLs that were causing errors.