



WORKBOOK

This course is designed for those who have a basic knowledge of Microsoft Excel but would like to take their skills to the next level.

Of course, the term "intermediate" can be subjective. Some who view themselves as beginners might use a feature that could be classified as 'advanced', while other experienced users may be unaware of some 'basic' function.

However, this short course aims to focus on topics that Microsoft does not include in its [basic features](#).

As you try these exercises, think beyond the specific examples or spreadsheets used here and ask yourself 'how might I use this or a similar feature in my work?'

NOTE

- ★ Excel has over 450 functions and these change from time to time. This workshop aims to whet your appetite to explore and search for additional features that can help you to manage your workload.

This OneNote notebook contains all of the exercises covered during the session. (A PDF version of this notebook generated by OneNote is [available here](#)).

Follow up videos are also provided to support participants after the session.

- ★ **Copyright©: This notebook is only for those attending our programme and should not be shared or copied for other purposes.**

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Walter Scott and Partners

This programme has been tailored for Walter Scott and Partners.

A number of Excel Workbooks are included with this course, which will be familiar to various teams.

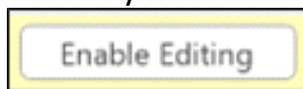
This data will not be used with other organisations.

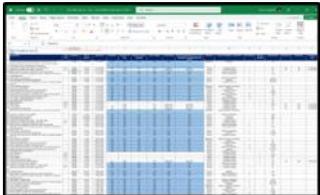
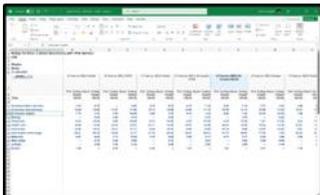
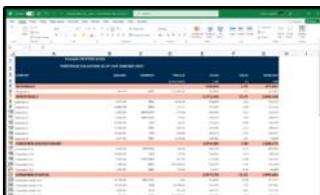
[You can download them here \(Compressed folder\).](#)

You will then need to extract the files and move them to a suitable location.

NOTE

- ★ You may need to enable Editing on each spreadsheet



File Name	
R&C Task List	
Sector Check	
MSCI Rank	

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Laying out data



Microsoft Excel has been designed to understand tables.

Data is laid out in a logical format that Excel can then easily manipulate.

	A	B	C
1	Country	Town	Value
2	United Kindgom	York	£ 1,500,000
3	Germany	Berlin	£ 1,600,000
4	France	Lyon	£ 1,400,000
5	Germany	Frankfurt	£ 1,100,000
6	Spain	Madrid	£ 900,000

Some of the benefits of using tables are:

- 1) Filtering and Sorting
- 2) Simple creation of pivot tables and charts
- 3) Autofill
- 4) Calculated columns
- 5) Headers (always present)
- 6) Totals
- 7) Quick formatting
- 8) Naming

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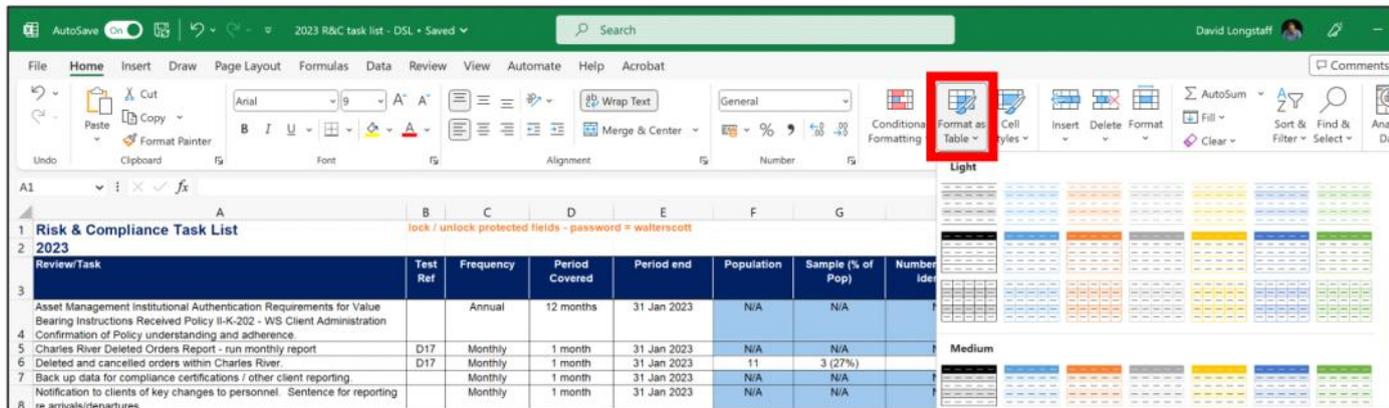
Exercise 1 - R&C Task List

Let's convert our R&C Task List to an Excel table.

Open your copy of the R&C Task List (WIP2023 spreadsheet).

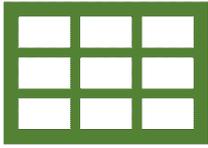
Select entire table (drag your mouse or select top left cell and use "Ctrl + Shift + Arrow" keys to select all columns/rows)

Now choose "Format as Table" (on this occasion, remember to check the box "My table has headers").



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Tables



It is easier if you are creating a new Workbook and set up tables from the beginning.

However, it is possible simply convert existing data into a table.

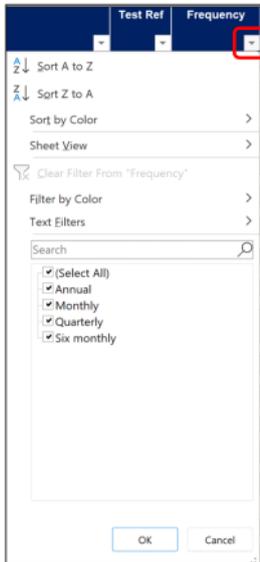
Once data is converted as a table, it is quick to filter, sort, add totals and more.

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Exercise 2 - R&C Task List

NOTE

- ★ Using the same worksheet, note filters and sorting at the top of each header row.



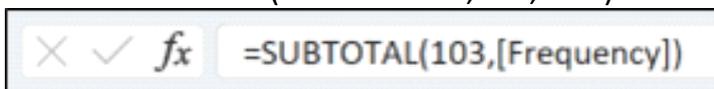
Now select the "Table Design" tab and try features such as "Total Row" and "Slicer"



Total Row allows you to quickly add count, sum, etc. of all or filtered rows.

Total		368	
			None
			Average
			Count
			Count Numbers
			Max
			Min
			Sum
			StdDev
			Var
			More Functions...

Note the formula (Subtotal 103,109, etc.) It has also named the column.

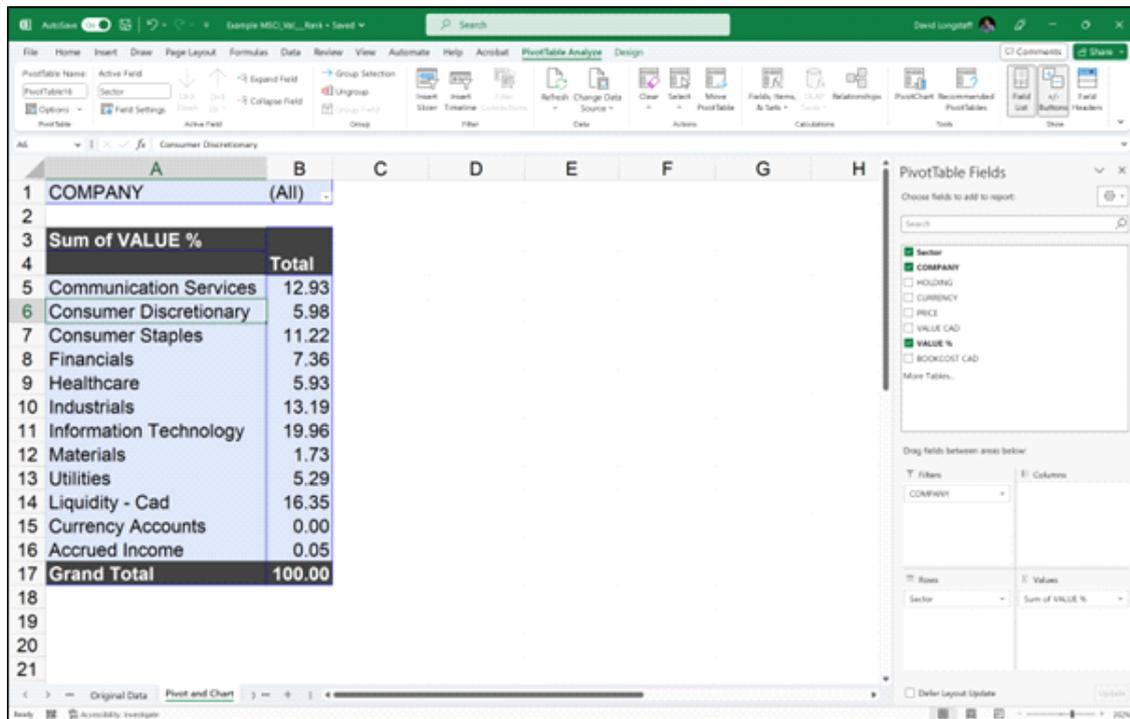


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PivotTables



A PivotTable allows you to quickly and easily summarize and analyse large amounts of data by reorganizing it into a more meaningful and useful format.



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Exercise 3 - R&C Task List

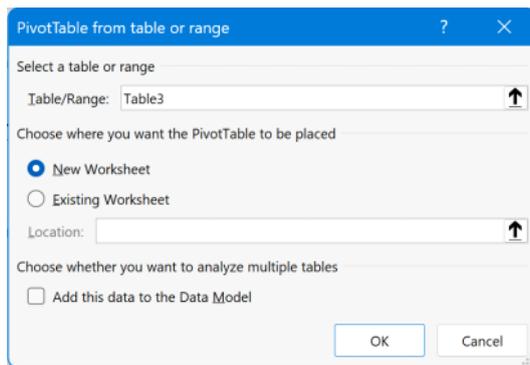
From the same worksheet in the previous exercise, select any cell from your worksheet table and choose the "Insert" tab.

NOTE

- ★ Before we create our PivotTable, notice the "Recommended PivotTables" option (Excel will attempt to suggest useful tables. If none of these are suitable, we can create one manually.)

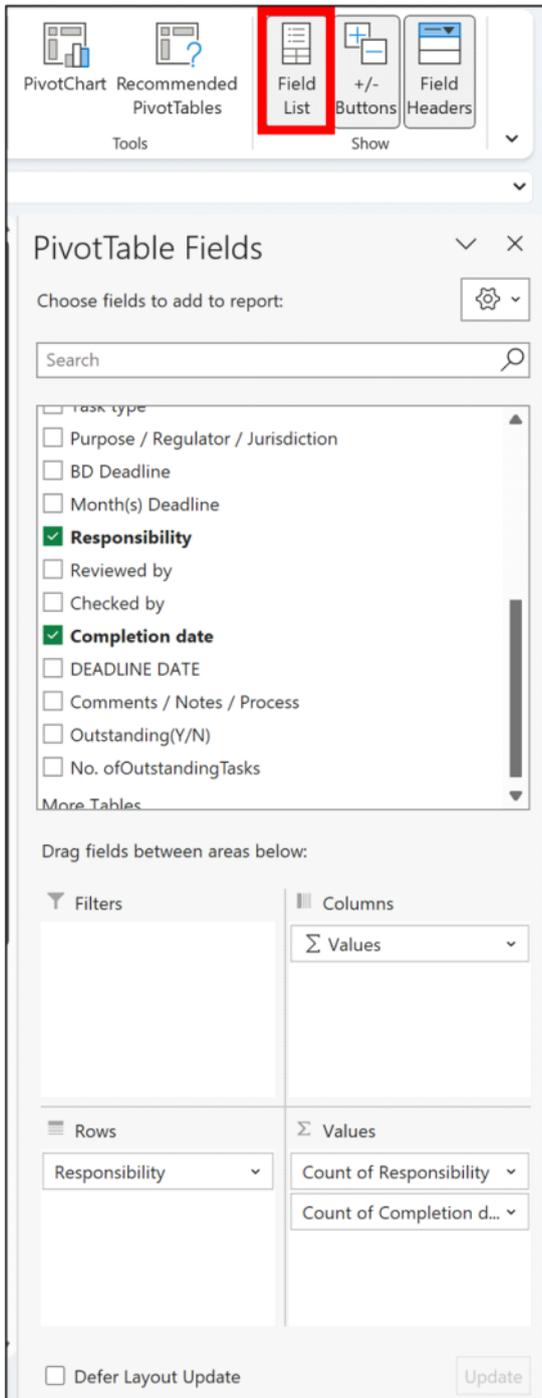
On this occasion, do not use Recommended PivotTables ... Select the first option "PivotTable".

The pop up box will have already selected your working table. Choose to place the PivotTable in a New Worksheet.



The PivotTable Fields will show to the right (these can be toggled on/off using the "Field List" on the PivotTable Analyze tab .

You can drag any fields between the filters, columns, rows and values.



For this example, add "Responsibility" to Rows
Add Count of Responsibility and Count of Completion Date to Values.
You can also customise the look of the PivotTable using the "Design" tab.

AutoSave On 2023 R&C task list - DSL - Upload Pending

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

Subtotals Grand Totals Report Layout Blank Rows

Layout PivotTable Style Options PivotTable Styles

Row Headers Banded Rows

Column Headers Banded Columns

C10

	A	B	C	D	E	F	G	H
1								
2								
3	Row Labels	Count of Responsibility	Count of Completion date					
4	ADD	4						
5	AN	15						
6	AP	40		3				
7	AP/JB	12		1				
8	AP/LEM	47						
9	BS	35						
10	BS/GM	14						
11	BS/JB/GM	1						
12	Finance	1						
13	Finance/ADD/AN	1						
14	Finance/TF/AN	26						
15	GM	28						
16	GM/AP	1						
17	JB	49		2				
18	LEM	38						
19	MC	7						
20	TF	45						
21	TF/AN	3						
22	TF/AN/Finance	1						
23	Grand Total	368		6				
24								

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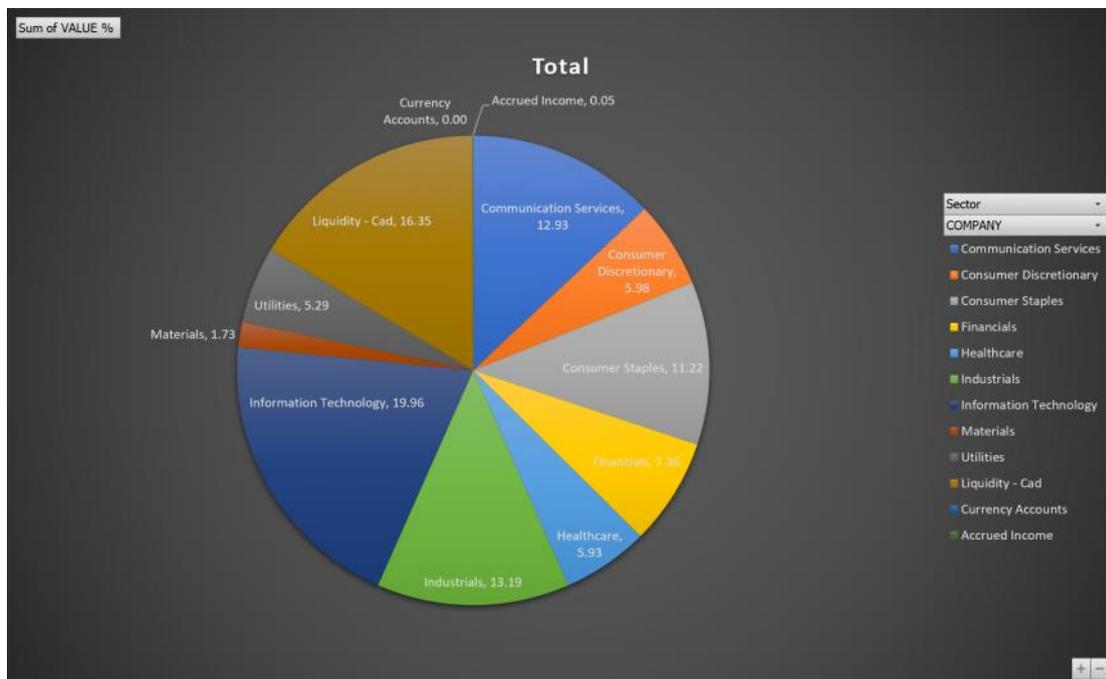
Graphs, Bars and Charts



Excel allows visualisation of your data using a variety of interactive charts.

This make it easier to understand large quantities of data and the relationship between different series of data.

Excel supports many types of charts to help you display data in ways that are useful to you and your audience.

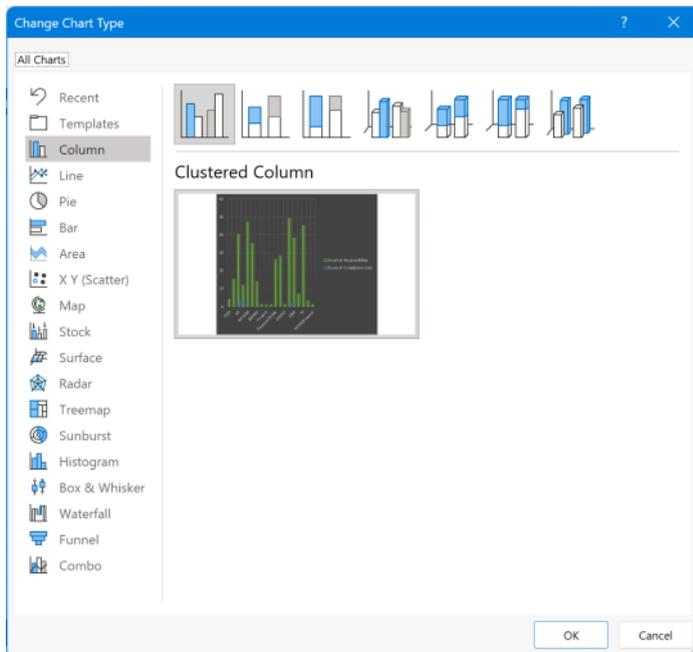


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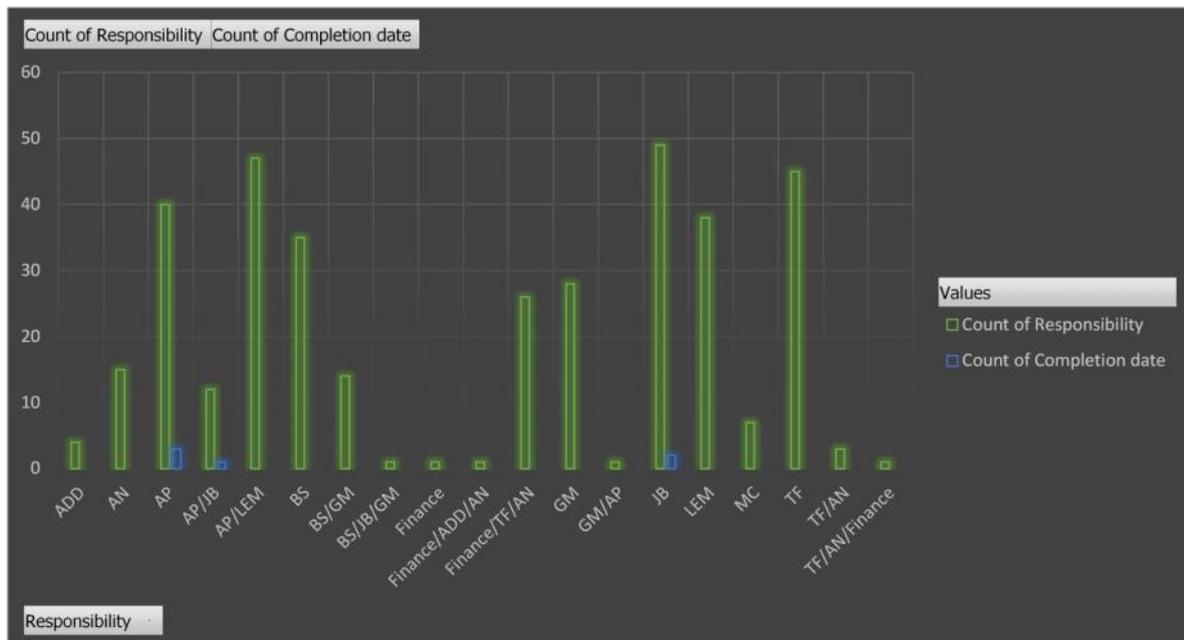
Exercise 4 - R&C Task List

Using the same PivotTable created in the previous exercise, now select Recommended Charts from the Insert tab.

Choose Clustered Column



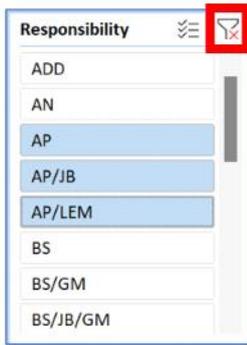
Now select the Design tab to try different colours, formatting, etc



In addition, we can create slicers. These are similar to filters but can "float" anywhere on the page.

SLICER

Add slicer - using the "Responsibility" field. Filter to show AP (hold 'CTRL' to select multiple)



Now remove filter

TIMELINES

Timelines are similar to slicers but create a filter if your model includes date-formatted information.

Add Timeline - click on February to show all items completed in February.



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Date functions



Excel has 25 different date and time functions which can be useful when making -based calculations.

A list of all functions is available on the [Microsoft website](#).

NOTE

★ Excel stores a date as a serial number starting at the year 1900.

1st January 1900 = 1

2nd January 1900 = 2

So 31st January 2023 = 44,957

This number will often be automatically converted back to a date format

Let's try a couple of these functions, EDATE and WORKDAY

These will calculate dates taking note of weekends and holidays.

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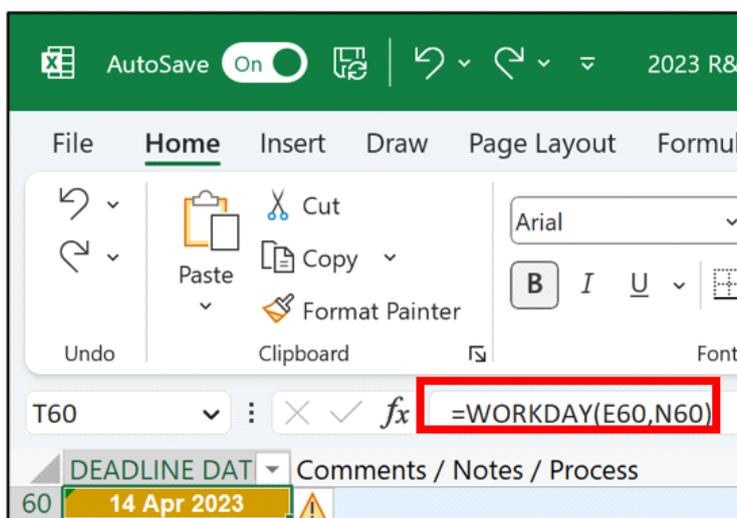
Exercise 5 - R&C Task List

Navigate to the R&C Task List (WIP 2023 worksheet)

WORKDAY

NOTE

- ★ You will see that cell T60 ("Deadline Date" column) uses the WORKDAY function.



`=WORKDAY(E60,N60)`

E60 = 31st March 2023

N60 = 10 days

WORKDAY omits weekends

So the date returned is Friday 14th April 2023

Without WORKDAY function (`=E60+N60`) = 10th April
Workday has missed out 2 full weekends.

WORKDAY can also omit bank holidays.

Create worksheet and name it Bank Holidays

Now copy and paste from either website:

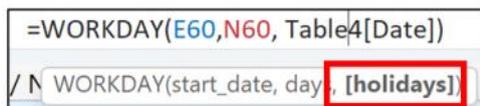
Scotland: [Public and bank holidays - mygov.scot](https://www.mygov.scot/public-and-bank-holidays))

OR

England: [UK bank holidays - GOV.UK \(www.gov.uk\)](https://www.gov.uk/bank-holidays)

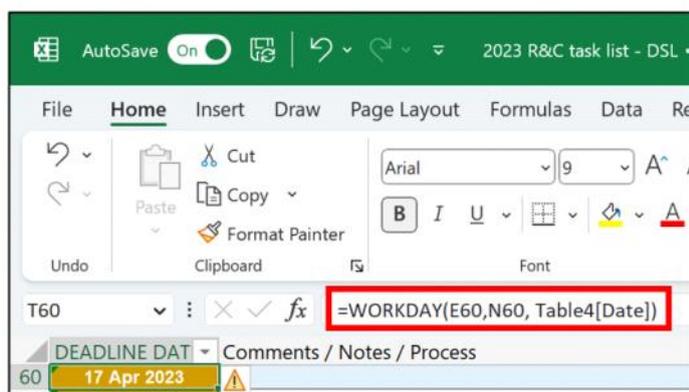
Format as table (just to practice!)

Now go back to WIP 2023 worksheet T60
Edit cell.



Add comma after N60, navigate to your new Bank Holidays worksheet and drag your mouse over the dates column.
Enter.

Your new formula should appear something like this:



Note that the date returned now changes to 17th April because Good Friday (7th April) has tipped it over next weekend.

★ WARNINGS

You can see the green triangles on some of the Deadline Date cells (eg. T60-T64, but not T65-T70 etc.)

These are not necessarily errors; but at least are noted as inconsistencies within the column which it assumes would have the same formula.

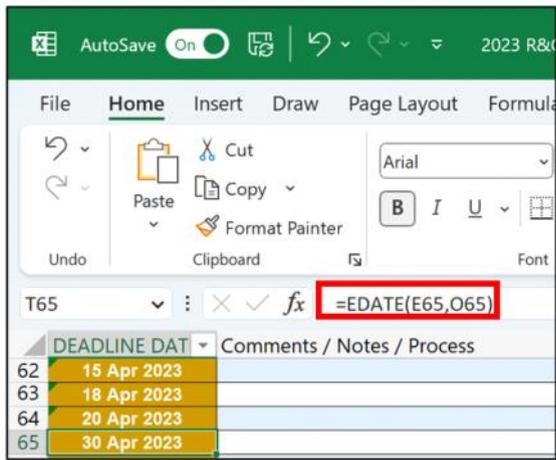
Some cells in this column use WORKDAY, others use EDATE, etc.

EDATE

The EDATE function (also used in this column) adds a specified number of months to a date and returns the result as a serial date.

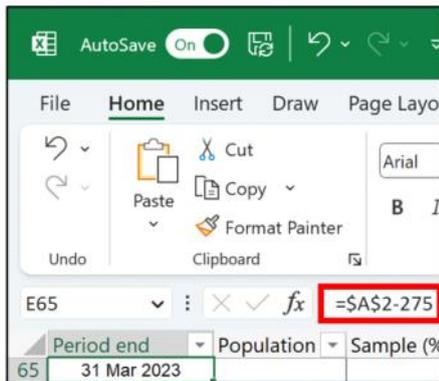
So T65 is =EDATE(E65,O65)

31st March 2023 + 1 month = 30th April



As a final note on dates, Column E (Period End) contains fixed cell reference, \$A\$2. The dollar sign makes the reference fixed rather than relative, so when copied to other rows or columns, the cell won't change.

The cell followed by adding a number manually (275, 348, 334, etc.)



This could be changed to a calculation if necessary.

A couple of other cells of note:

E223 is a date with no calculation

E371 = #REF!

The #REF! error shows when a formula refers to a cell that's not valid. This happens most often when cells that were referenced by formulas get deleted, or pasted over.

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IF and IFS



The IF function is popular as it allows logical comparisons between a value and expectations.

The IF statement can have two results. The first result is if your comparison is True, the second if your comparison is False.

For example, =IF(A1="Yes",1,2) means that if the cell = Yes, the result is 1, otherwise it returns 2).

While the IF function has been around for a long time, IFS is a newer function (2016) created for Microsoft 365 and is easier to use.

Let's try an example.

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Exercise 6 - R&C Task List

Using the main R&C Task List worksheet, select cell D4. Notice the formula is:

```
=IF(C4="Annual","12 months",IF(C4="Six monthly","6 months",IF(C4="Quarterly","3 months",IF(C4="Monthly","1 month"))))
```

These are nested IF functions - each "IF" ends and a new one begins. The statement concludes by closing each bracket separately. The traditional IF function will still work fine especially in legacy versions of Excel.

However, a new, easier option is to use the IFS function. The above cell

```
=IFS(C4="Annual","12 months",C4="Six monthly","6 months",C4="Quarterly","3 months",C4="Monthly","1 month",TRUE,"Other")
```

Note the final part of the statement says that if none of the previous options are met, return "Other". Only 1 bracket is needed to close the statement.

The screenshot shows the Excel interface with the 'Function Arguments' dialog box open for the IFS function. The formula bar at the top displays the formula: `=IFS(C4="Annual","12 months",C4="Six monthly","6 months",C4="Quarterly","3 months",C4="Monthly","1 month",TRUE,"Other")`. The dialog box lists the following arguments:

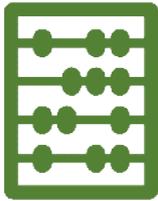
Argument	Value	Result
Logical_test1	C4="Annual"	= TRUE
Value_if_true1	"12 months"	= "12 months"
Logical_test2	C4="Six monthly"	= FALSE
Value_if_true2	"6 months"	= "6 months"
Logical_test3	C4="Quarterly"	= FALSE

The dialog box also includes a description: "Checks whether one or more conditions are met and returns a value corresponding to the first TRUE condition." and a note: "Logical_test1: is any value or expression that can be evaluated to TRUE or FALSE." The formula result is shown as "12 months".

If you ever want to check a formula, select the cell and then choose the **fx** options. This breaks down the function arguments showing what the cell will return.

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COUNTIF and SUMIF



The COUNTIF function, counts the number of cells that meet particular criteria.

An example would be to count the number of times a town appears in a customer list.

In its simplest form, COUNTIF says:

=COUNTIF(Where do you want to look?, What do you want to look for?)

The SUMIF function syntax is similar but sums the values of cells that meet a criteria.

	A	B	C
1	Country	Town	Value
2	United Kindgom	York	£ 1,500,000
3	Germany	Berlin	£ 1,600,000
4	France	Lyon	£ 1,400,000
5	Germany	Frankfurt	£ 1,100,000
6	Spain	Madrid	£ 900,000
7			£ 3,100,000

The formula bar above the table shows: =SUMIF([Value], ">1400000")

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Exercise 7 - R&C Task List

In your working spreadsheet at the bottom of the "Task Type" Column L (L:372), add a formula to keep a track of how many tasks are regulatory, routine and testing.

`=COUNTIF(Table1[Task type],"Testing")`

The search could also refer to a cell so instead of typing "Testing" this could be changed for K374.

The screenshot shows the Microsoft Excel interface. The title bar indicates the file is "2023 R&C task list - DSL" and is saved. The ribbon is set to "Home". The formula bar shows the formula `=COUNTIF(Table3[Task type], K374)` for cell L374. Below the formula bar, a table is visible with columns K, L, and M. The table contains task data, and cell L374 contains the value 129, which is the result of the formula.

	K	L	M
368	N/A	Regulatory	FCA
369	N/A	Regulatory	Financial Sector Conduct Authority
370	N/A	Routine	Internal recordkeeping
371		Testing	Compliance testing
372			
373			
374	Testing	129	
375	Routine	165	
376	Regulatory	74	
377			

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Splitting and Joining data and Removing Duplicates



If needed, data in cells can be divided (or joined together) to use in another format.

Microsoft Excel offers features such as Text to Columns, Concatenate (Concat) and Remove Duplicates.

Let's try these using our R&C Task List.

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Exercise 8 - R&C Task List

SPLITTING DATA

You may at times, especially if you've received data from a third party, need to split the information into multiple columns - this is a function I use frequently.

Let's try this in our R&C Task List workbook.

Create a new worksheet in the R&C Task List workbook.

Navigate to the PivotTable created earlier and Copy cells from the Responsibility field.

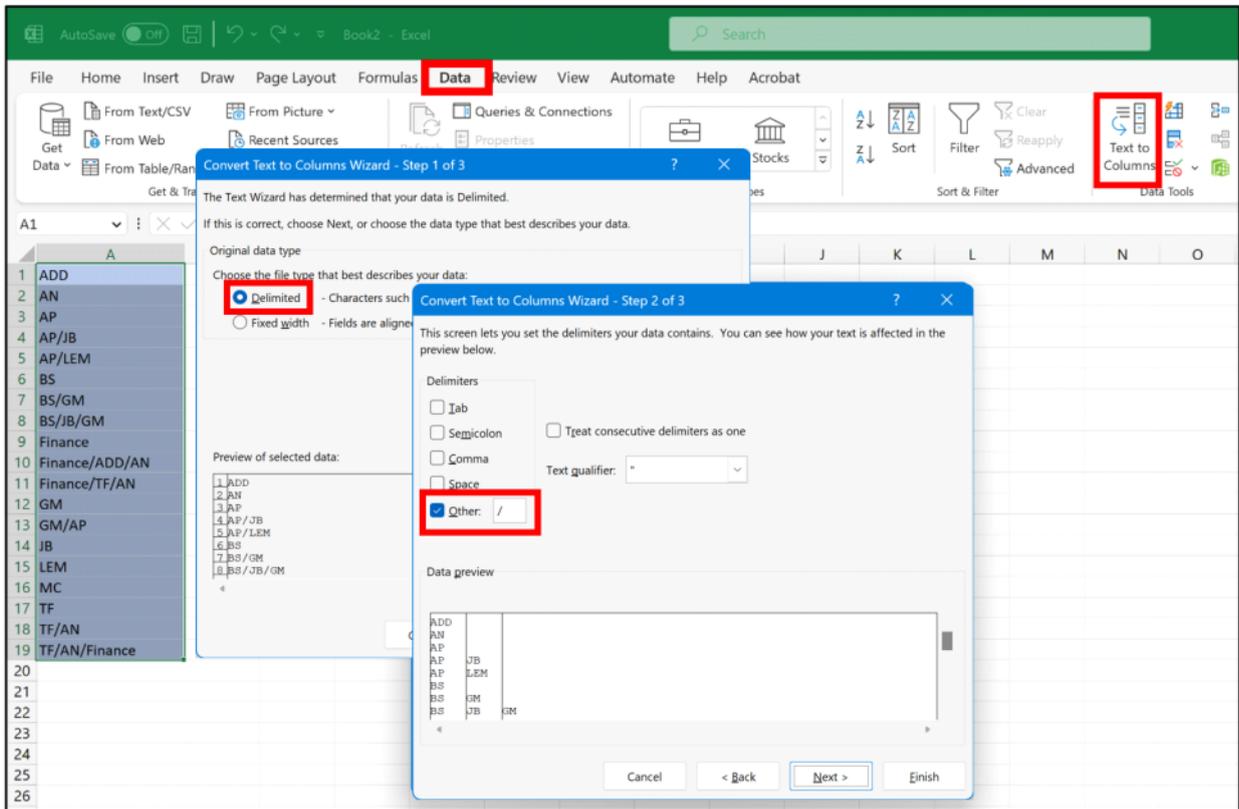
3	Row Labels	Count of Responsibility	Count of Completion date
4	ADD	4	
5	AN	15	
6	AP	40	3
7	AP/JP	12	1
8	AP/LEM	47	
9	BS	35	
10	BS/GM	14	
11	BS/JP/GM	1	
12	Finance	1	
13	Finance/ADD/AN	1	
14	Finance/TF/AN	26	
15	GM	28	
16	GM/AP	1	
17	JP	49	2
18	LEM	38	
19	MC	7	
20	TF	45	
21	TF/AN	3	
22	TF/AN/Finance	1	
23	Grand Total	368	6

Paste these into your new sheet

We will now split the data (to isolate individuals rather than teams)

Select column of data

Choose the Data tab, then "Text to columns" > Delimited > Other: /

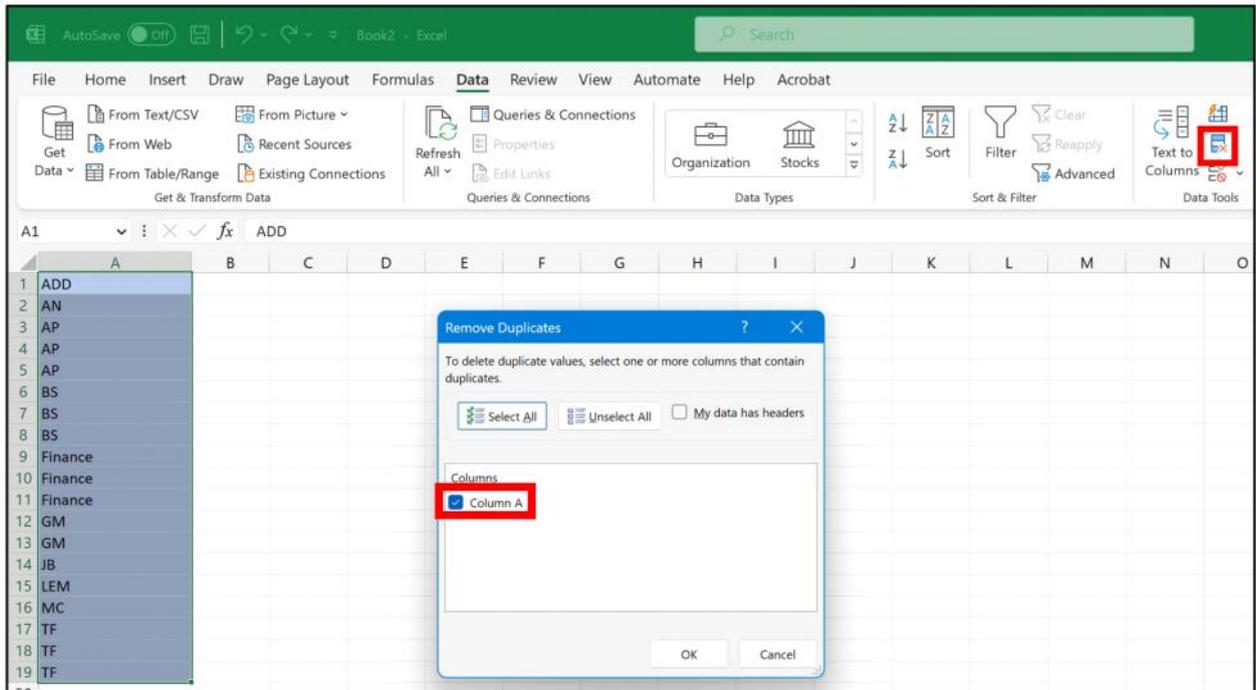


	A	B	C
1	ADD		
2	AN		
3	AP		
4	AP	JB	
5	AP	LEM	
6	BS		
7	BS	GM	
8	BS	JB	GM
9	Finance		
10	Finance	ADD	AN
11	Finance	TF	AN
12	GM		
13	GM	AP	
14	JB		
15	LEM		
16	MC		
17	TF		
18	TF	AN	
19	TF	AN	Finance

REMOVE DUPLICATES

Columns B and C can be discarded/deleted. You will however notice that we are left with some duplicate records in column A.

Now choose Data > Remove Duplicates (this is the icon next to the "Text to Columns" button)



Format as Table. In next two columns manually type some First and Last names.

JOINING DATA

Sometimes you may need to join data from cells; you can do this using CONCAT.

NOTE

- ★ This is similar to CONCATENATE, an earlier function, superseded in Excel 2019 by CONCAT.

Add an additional column called Full Name. Now use formula: **=CONCAT([@First], " ",[@Last])**

	A	B	C	D
1	Column1	First	Last	Full Name
2	ADD	Arthur	Doyle	Arthur Doyle
3	AN	Alfred	Nobel	Alfred Nobel
4	AP	Alex	Pushkin	Alex Pushkin
5	BS	Bruce	Springsteen	Bruce Springsteen
6	Finance			
7	GM	George	Michael	George Michael
8	JB	Julie	Bradley	Julie Bradley
9	LEM	Lewis	Mumford	Lewis Mumford
10	MC	Mel	Chisholm	Mel Chisholm
11	TF	Tina	Fey	Tina Fey

Let's stick with this table as we move to the next function.

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MID, LEFT and RIGHT



These functions extract the left, middle, or right portion of a string of text.

Left returns the beginning characters of a string.

Mid returns the middle characters of a string.

Right returns the ending characters of a string.

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Exercise 9 - R&C Task List

Continuing with the previous exercised, we will use the initial letter of both the First and Last name columns.

Create a final column (Initials)

Use the following:

```
=CONCAT(LEFT([@First],1),LEFT([@Last],1))
```



The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E
1	Column1	First	Last	Full Name	Initials
2	ADD	Arthur	Doyle	Arthur Doyle	AD
3	AN	Alfred	Nobel	Alfred Nobel	AN
4	AP	Alex	Pushkin	Alex Pushkin	AP
5	BS	Bruce	Springsteen	Bruce Springsteen	BS
6	Finance				
7	GM	George	Michael	George Michael	GM
8	JB	Julie	Bradley	Julie Bradley	JB
9	LEM	Lewis	Mumford	Lewis Mumford	LM
10	MC	Mel	Chisholm	Mel Chisholm	MC
11	TF	Tina	Fey	Tina Fey	TF

The result is a concatenation of the left hand side character in the First name column and the left hand side character in the Last name column. Increasing the number in the argument, adds additional letters to the string.

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VLOOKUP, HLOOKUP and XLOOKUP



The LOOKUP functions allow Excel to reference a cell to match values in another row or column against the cell and thereby retrieving the corresponding results from the respective rows and columns.

VLOOKUP matches vertically (by columns)

HLOOKUP (matches horizontally (by rows)

XLOOKUP (matches both - released in 2019 is simpler and more powerful to use).

I would recommend using XLOOKUP.

NOTE

- ★ XLOOKUP requires Microsoft Excel 2021 or later, Excel for MS365, Excel Online or Android/iOS.

For earlier versions of Excel, please use VLOOKUP/HLOOKUP

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Exercise 10 - MSCI Val Rank

We are now going to use the MSCI Val Rank Excel file.

NOTE

- ★ This file is generated by a third party and is **not** in an ideal Excel format.
 - Subtotals are at the top of each sector.
 - The Company and Sector data are in the same column.

Let's create a new format of the data that Excel can easily manipulate. The next time the data is provided, you can copy and paste your new data and your XLOOKUP sheet will read it and return an Excel-friendly format.

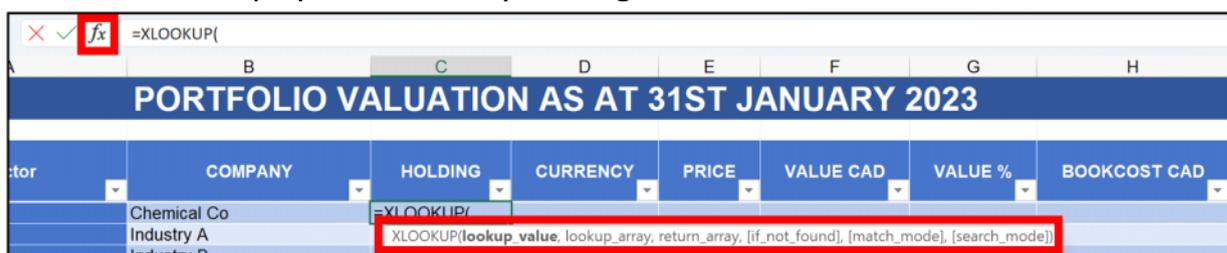
To save time, I've created a worksheet "Data - XLOOKUP" and manually populated column A with sector (originally in the same column as company). I've also manually added all the companies (using copy and paste) in column B.

Let's pull dynamic information from our "Original Data" worksheet into our new format.

Note cell A1 is pulling data from our original sheet A2). This will update each time you paste your new month's data.

Now select cell C3. Edit the cell to begin with =XLOOKUP

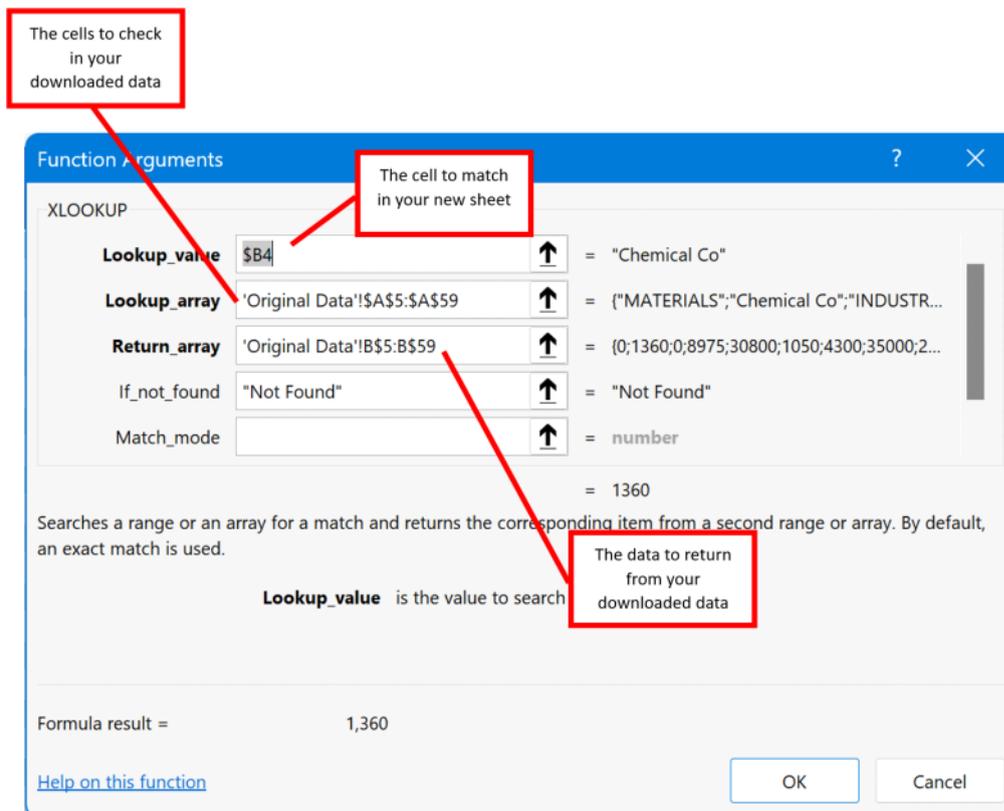
Note the cell helps you to identify the arguments:



Now paste the following in your formula

```
=XLOOKUP($B4,'Original Data'!$A$5:$A$59,'Original Data'!B$5:B$59,"Not Found")
```

As an aside, selecting the **fx** function symbol in any cell will present a step by step wizard (showing you what will be returned in the cell as you edit the parameters).



NOTE

- ★ From our above example, please notice Absolute vs Relative cell references. The \$ symbol creates an absolute reference (row, column or both). This reference will be fixed and not change when you copy the formula into adjacent cells.

=XLOOKUP(**\$B4**, - note absolute column and relative row in what it searches for. When we copy it down, it will move to each row but only look in column B

=XLOOKUP(\$B4,'Original Data'**!\$A\$5:\$A\$59**,' - this cell range (row and column) is absolute. When we copy it down it will still search the exact same cells.

=XLOOKUP(\$B4,'Original Data'**!\$A\$5:\$A\$59**,**'Original Data'!B\$5:B\$59**, this cell range has a relative column but absolute row. When we copy this across to other columns it will return the relevant columns

The first 3 elements are required:

- 1) Lookup value - what to search for
- 2) Lookup array - where to search
- 3) Return array - what to return

There are also optional elements:

- 1) If not found - what to return if no match is found
- 4) Match mode - whether the match should be exact or similar
- 5) Search mode - whether to search up first, or down, etc.

Benefits of this approach

Data is now stored in an Excel-readable format.

Pivot tables/charts are easy to create and maintain

The next time the data is updated/downloaded - simply copy and paste the data into the same original data sheet.

Older versions of Excel

To accomplish the same thing in Excel 2019 or earlier use VLOOKUP

```
=VLOOKUP([@COMPANY],'Original Data'!A5:G60,2,FALSE)
```

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Data validation



Data validation restricts the type of data or values that users enter into a cell.

This provides consistency and reduces errors.

One of the most common data validation uses is to create a drop-down list.

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Exercise 11 - R&C Task List

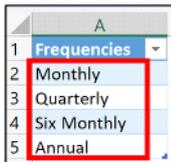
To avoid errors, it can be worthwhile limiting the data that users can enter. For this exercise, please revert to the R&C Task List. Note column C (Frequency).

The data used here is Monthly, Quarterly, Quarterly, Six monthly, Annual. This affects column D (Period Covered). See earlier [Exercise 6 - R&C Task List](#).

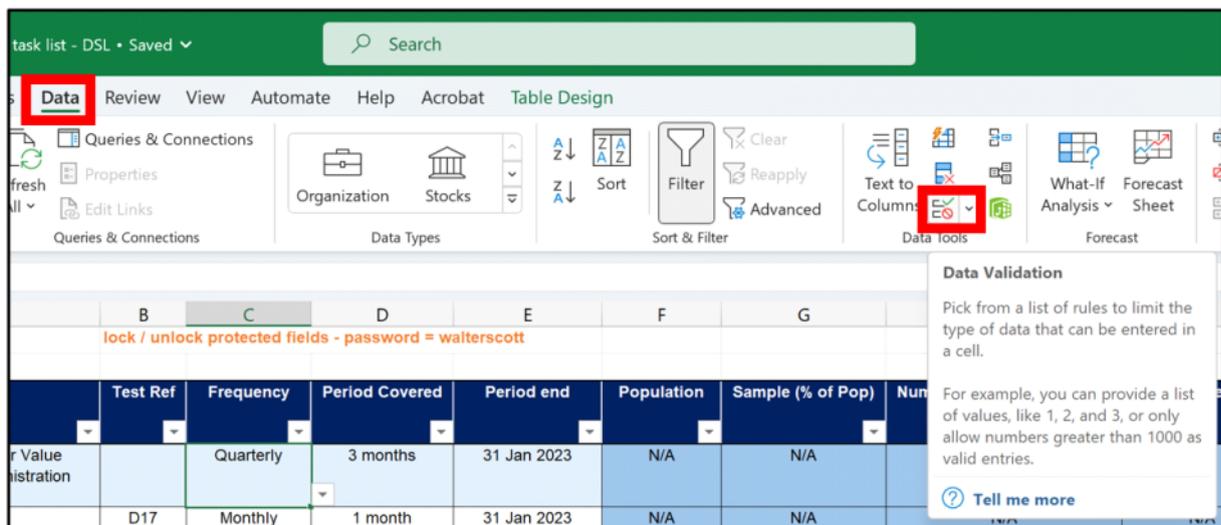
If someone typed "Annually" instead of "Annual", the column D formula will break. So to limit the entries, we can use Data Validation.

Create a new worksheet (called Frequencies). In this sheet type the frequencies in separate rows:

Monthly
Quarterly
Six Monthly
Annual

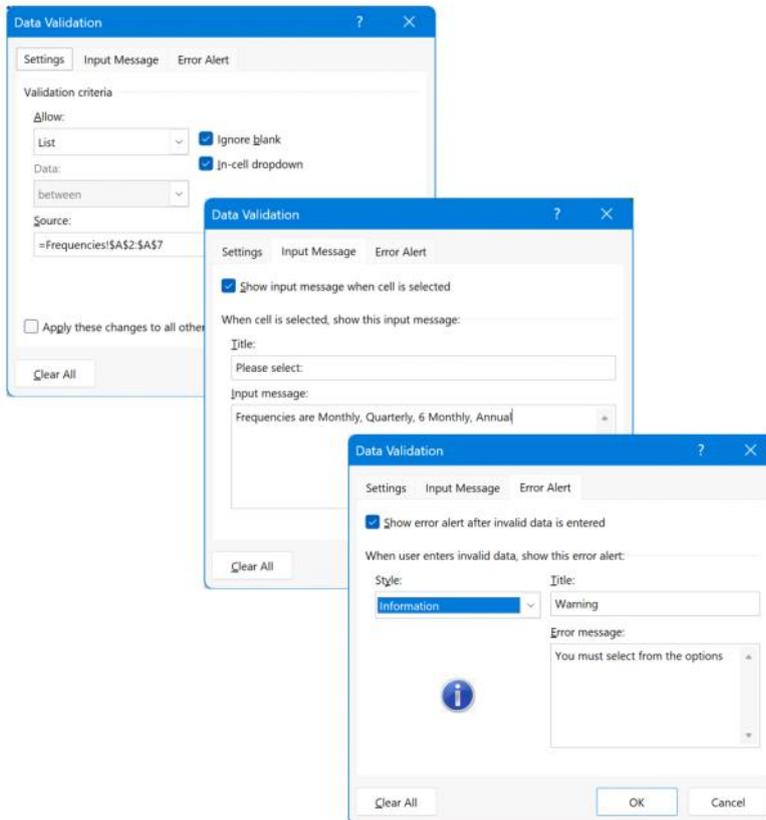


In the main working sheet, select the first cell in the Frequency column (likely C4) Choose: Data>Data Validation



In the settings change to List

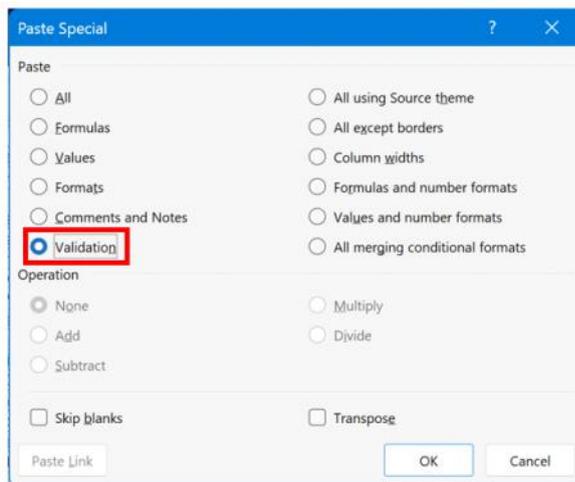
In the Source, choose the Up arrow and select cells from your new Frequencies sheet Add any input or warning messages. Choose OK.



NOTE

- ★ We now need to copy the data validation to all the other cells in the column. However, if you use the standard copy and paste, all the contents will change as well.

Instead, select the top cell, choose copy. Now select all the cells below and choose Paste Special > Validation. This will maintain the original data, but will protect the cells with data validation.



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Conditional Formatting



Conditional formatting makes it easy to highlight certain values or make particular cells easy to identify.

This changes the appearance of a cell range based on a condition (or criteria).

Here are just a few examples of how it can be used:

You can use conditional formatting to highlight cells that contain values which meet a certain condition.

Or you can format a whole cell range and vary the exact format as the value of each cell varies.

Temperature information with conditional formatting applied that shows top 10% and bottom 10% values.

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Exercise 12 - Sector Check

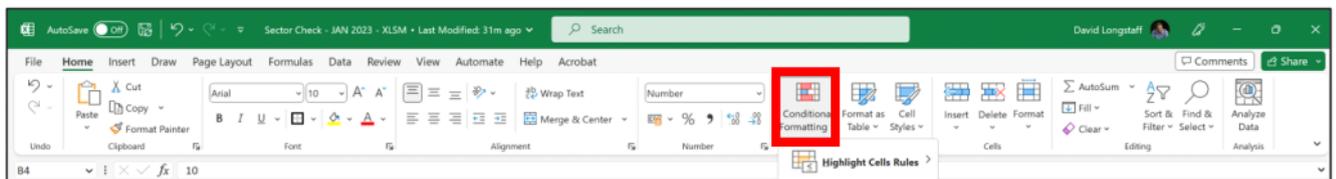
Open the Sector Check workbook. For this example, we will create a visual check that our portfolio fund is within a tolerance of the relevant benchmark. Insert a new row above the main tables for tolerance (this will be a percentage over the benchmark).

NOTE

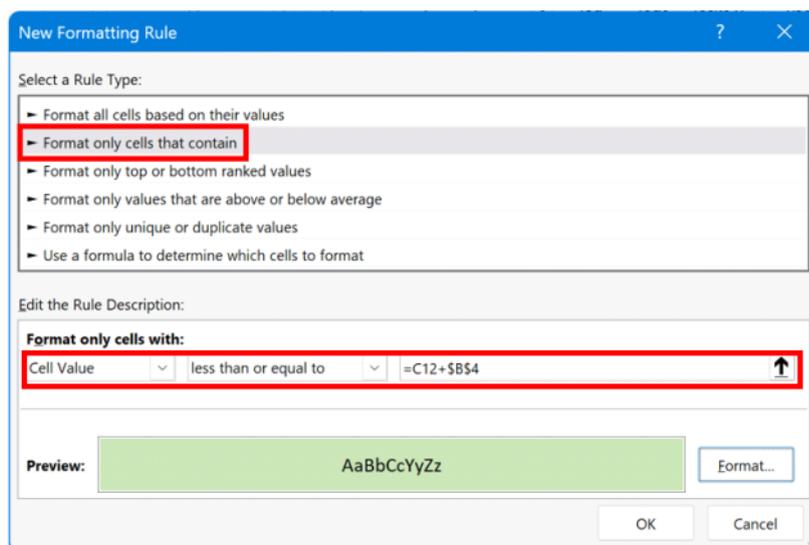
- ★ We will only create a single cell (the same check for each fund). However, each fund could have their own tolerance.

	A	B	C
1	Multiple Portfolios vs Default Benchmark	CLIENT:/POR1	DEFAULT
2	USD		
3			
4	Tolerance (Percentage above Benchmark)	10.00	
5	Weights		
6	Sector		
7	31-JAN-2023		

Now select the first column of investments (column B12:B23)



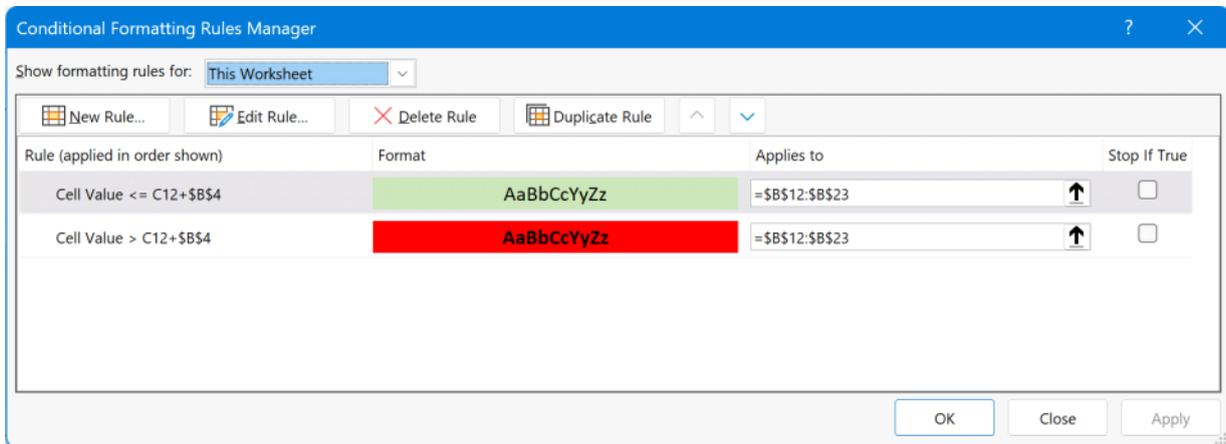
Choose the Conditional Formatting button on the Home tab. Choose to create a New Rule.



Select the 2nd option, "Format only cells that contain"

In the cell value, select "less than or equal to" -and type **=C12+\$B\$4** (note relative and absolute references). Now format it to Green, etc. Choose Ok and Apply.

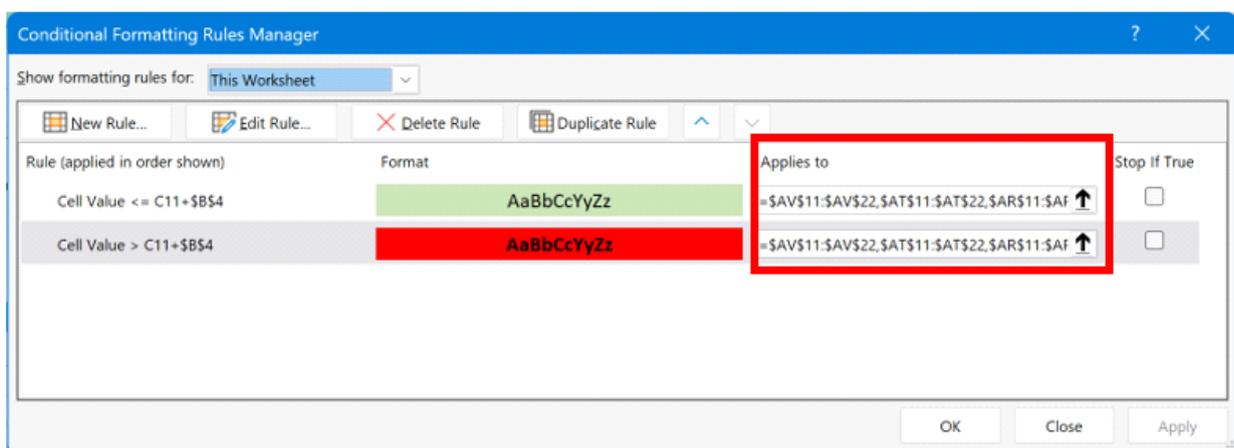
Now go back to Conditional Formatting and select "Manage Rules". Duplicate the rule you have just created, edit the copy and change the condition to "greater than". Change the formatting to Red, etc. Now apply and close the rule.



Now adjust the tolerance to see the cells highlight those higher than the allowed range.

Cheat: if you wish to apply this conditional formatting to the entire sheet, copy the following code into the "Applies to" fields (both the red and green rules):

=\$AX\$11:\$AX\$23,\$AV\$11:\$AV\$23,\$AT\$11:\$AT\$23,\$AR\$11:\$AR\$23,\$AP\$11:\$AP\$23,\$AN\$11:\$AN\$23,\$AL\$11:\$AL\$23,\$AJ\$11:\$AJ\$23,\$AH\$11:\$AH\$23,\$AF\$11:\$AF\$23,\$AD\$11:\$AD\$23,\$AB\$11:\$AB\$23,\$Z\$11:\$Z\$23,\$X\$11:\$X\$23,\$V\$11:\$V\$23,\$T\$11:\$T\$23,\$R\$11:\$R\$23,\$P\$11:\$P\$23,\$N\$11:\$N\$23,\$L\$11:\$L\$23,\$J\$11:\$J\$23,\$H\$11:\$H\$23,\$F\$11:\$F\$23,\$D\$11:\$D\$23,\$B\$11:\$B\$23

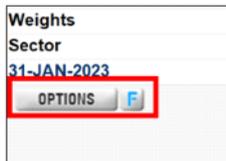


Any time your file data is regenerated, you can paste the new data into this sheet with conditional formatting.

OPTIONS F	A Fund vs. MSCI World		B Fund vs. MSCI EAFE		C Fund vs. MSCI World		D Fund vs. MSCI All Country World	
	Port. Ending Weight	Bench. Ending Weight	Port. Ending Weight	Bench. Ending Weight	Port. Ending Weight	Bench. Ending Weight	Port. Ending Weight	Bench. Ending Weight
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Communication services	3.78	6.72	--	4.46	4.18	6.72	4.15	7.14
Consumer discretionary	14.48	10.69	11.87	11.68	15.13	10.69	14.99	11.13
Consumer staples	7.75	7.47	7.05	10.09	5.64	7.47	8.12	7.33
Energy	--	5.45	1.68	4.70	--	5.45	--	5.35
Financials	6.33	14.54	5.69	18.99	6.13	14.54	4.35	15.30
Health care	19.86	13.54	23.58	12.81	23.11	13.54	19.87	12.46
Industrials	12.06	10.51	19.21	15.11	8.44	10.51	9.49	9.99
Information technology	29.31	20.74	16.00	8.17	31.79	20.74	32.69	20.61
Materials	4.47	4.63	7.71	8.04	3.16	4.63	5.06	5.11
Real estate	--	2.72	3.20	2.60	--	2.72	--	2.63
Utilities	--	2.99	1.50	3.34	--	2.99	--	2.96
[Cash]	1.96	--	2.58	--	2.42	--	1.35	--

NOTE

- ★ VBA and Macros are included in this file. For security purposes, this may be disabled or the script may be missing)



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Protecting data



To remove the risk of errors appearing in our spreadsheets, especially when shared with other users, consider password protecting your data.

You can still leave some cells unlocked to allow for editing, but locking complicated formulas to maintain the security of the spreadsheet data.

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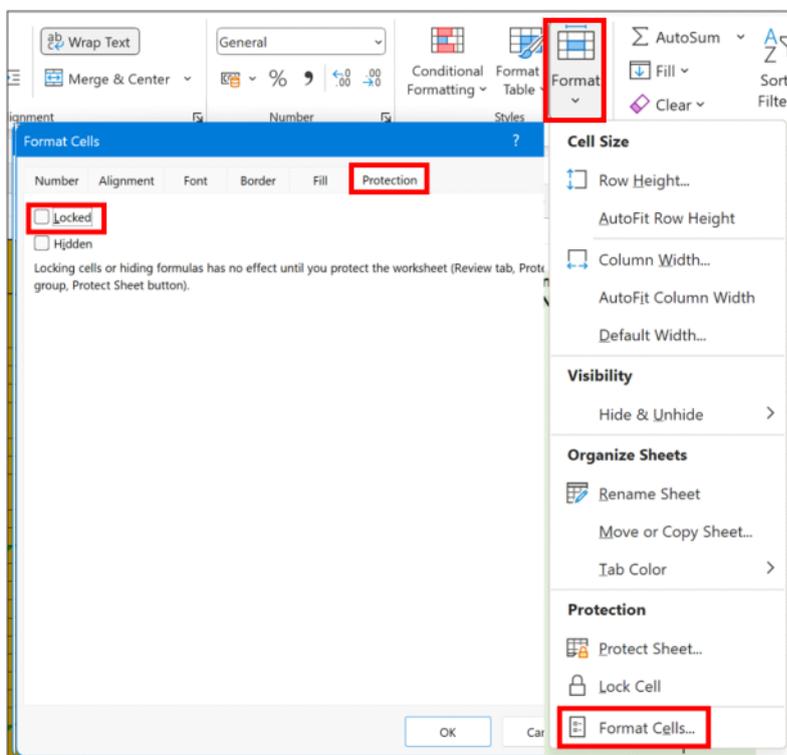
Exercise 13 - R&C Task List

Open the R&C Task List workbook

Let's assume you want to lock the entire spreadsheet apart from the "Reviewed by", "Checked by", "Completion Date" which can be updated by team members.

Select these entire columns and format the cells (columns Q,R,S).

Choose Home tab, Format, Format cells, choose the "Protection" tab and uncheck "Locked"



OPTIONAL

To highlight unprotected cells, create conditional formatting to highlight them.

Select the top left cell of the table (A3)

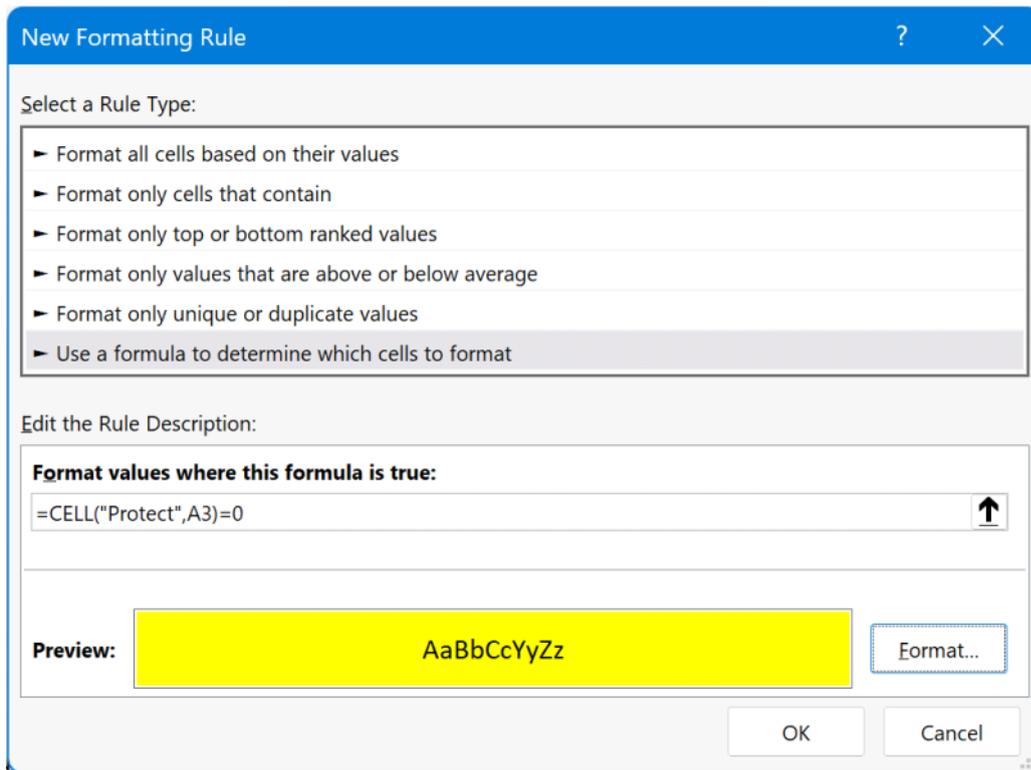
Choose Conditional Formatting

Use a Formula to determine which cells to format

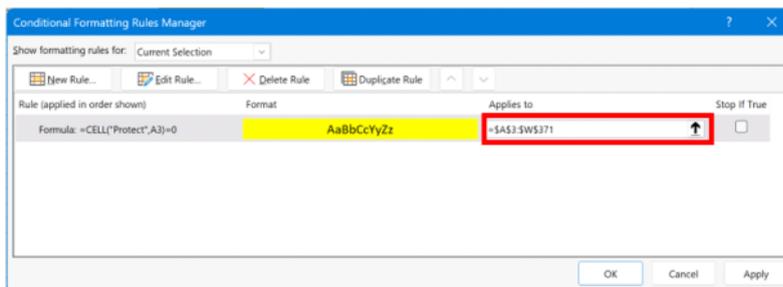
In the formula, type `=CELL("Protect",A3)=0` Note: change =0 to =1 to highlight protected cells.

Select some formatting (e.g. yellow background).

Choose Ok.

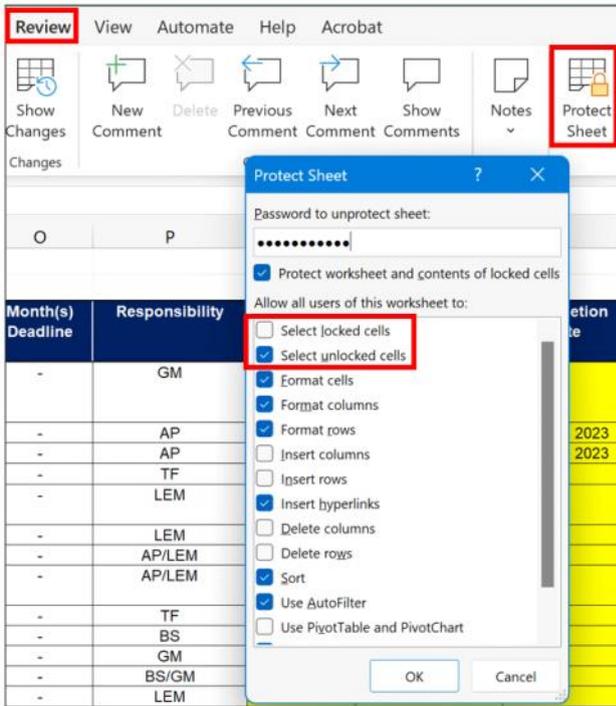


You will likely need to edit the rule to make sure "Applies to" selects at least all the unprotected cells. As a cheat, the "Applies to" should read **= $\$A\$4:\$W\372**



Choose Apply and Ok

Now select the Review tab > Protect Sheet.
Ensure "Select Unlocked Cells" is checked and use a memorable password (suggested "walterscott"). You will need to re-enter it after clicking "OK".



All other cells will now be protected. To unprotect the sheet, reverse the last process.

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