# How To Use Excel

From adding data to writing a macro!

#### What is excel

- The ultimate software tool for financial analysis.
- Microsoft Excel is a program in the Office 365 suite typically used to store, sort, and manipulate data. Although Excel is not a database, it is often used in data analytics and finance careers to assess large amounts of information and create visualizations.
- Excel is a spreadsheet program in the Microsoft Office system. You can use Excel to create and format workbooks (a collection of spreadsheets) in order to analyze data and make more informed business decisions.
- Excel formulas enable you to perform calculations such as addition, subtraction, multiplication, and division. In addition to these, you can find out averages and calculate percentages in excel for a range of cells, manipulate date and time values, and do a lot more.

### Workbooks vs. spreadsheets

- There's something we should clear up before we move on.
- A <u>workbook</u> is an Excel file (which contains one or more spreadsheets). It usually has a file extension of .XLSX (if you're using an older version of Excel, it could be .XLS).
- A **spreadsheet** is a single sheet inside a workbook. There can be many sheets inside of a workbook, and they're accessed via the tabs at the bottom of the screen.
- A spreadsheet (a.k.a. a sheet/tab) contains all the cells you can see and use in the >1 million rows >16,000 columns.
- ► To muddy the water a **Spreadsheet** can also be a Libre Office Calc file (which contains one or more sheets). It usually has a file extension of .ods.

#### Create a new workbook

- Excel documents are called workbooks. Each workbook has sheets, typically called spreadsheets. You can add as many sheets as you want to a workbook, or you can create new workbooks to keep your data separate.
- Click File, and then click New.
- Under New, click the Blank workbook.

4	A	В	C	D
1	-	-2-		
2				
3				
4				
5				
6				
7				
8				
9				

Blank workbook

## Enter your data

- Click an empty cell.
  - For example, cell A1 on a new sheet. Cells are referenced by their location in the row and column on the sheet, so cell A1 is in the first row of column A.
- Type text or a number in the cell.
- Press Enter or Tab to move to the next cell.

### Apply cell borders

- Select the cell or range of cells that you want to add a border to.
- On the **Home** tab, in the Font group, click the arrow next to Borders, and then click the border style that you want.



## Apply cell shading

- Select the cell or range of cells that you want to apply cell shading to.
- On the **Home** tab, in the **Font** group, choose the arrow next to **Fill Colour**, and then under **Theme Colours** or **Standard Colours**, select the colour that you want.

### Use AutoSum to add your data

- When you've entered numbers in your sheet, you might want to add them up. A fast way to do that is by using AutoSum.
- Select the cell to the right or below the numbers you want to add.
- Click the Home tab, and then click AutoSum in the Editing group.



AutoSum adds up the numbers and shows the result in the cell you selected.

### Create a simple formula

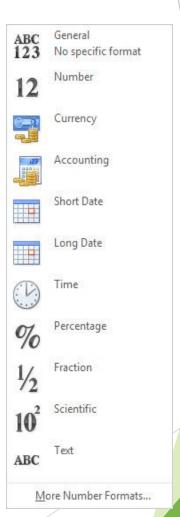
- Adding numbers is just one of the things you can do, but Excel can do other math as well. Try some simple formulas to add, subtract, multiply, or divide your numbers.
- ▶ Pick a cell, and then type an equal sign (=).
- That tells Excel that this cell will contain a formula.
- ➤ Type a combination of numbers and calculation operators, like the plus sign (+) for addition, the minus sign (-) for subtraction, the asterisk (\*) for multiplication, or the forward slash (/) for division.
- For example, enter =2+4, =4-2, =2\*4, or =4/2.
- Press Enter.
- This runs the calculation.
- You can also press Ctrl+Enter if you want the cursor to stay on the active cell.

### Apply a number format

- ► To distinguish between different types of numbers, add a format, like currency, percentages, or dates.
- Select the cells that have numbers you want to format.
- Click the Home tab, and then click the arrow in the General box.



- Pick a number format.
- If you don't see the number format you're looking for, click More Number Formats.



### Put your data in a table

- A simple way to access Excel's power is to put your data in a table. That lets you quickly filter or sort your data.
- Select your data by clicking the first cell and dragging to the last cell in your data.

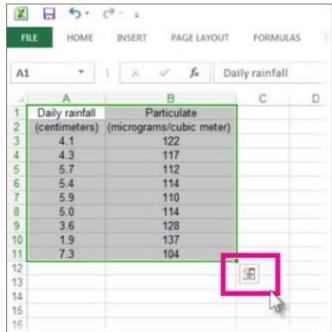
To use the keyboard, hold down Shift while you press the arrow keys to

select your data.

► Click the **Quick Analysis** button <a>[≦]</a> in the bottom-right corner of the selection.

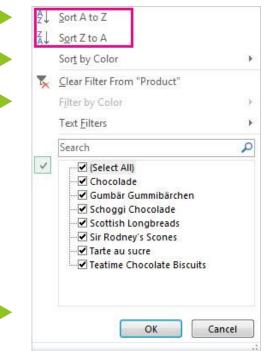
Click Tables, move your cursor to the Table button to preview your data, and then click the Table button.

FORMATTIN	G	CHARTS	TOTALS	TABLES	SPARKLINES
Table p	Blani				
ables balons		filler and	summarize da		



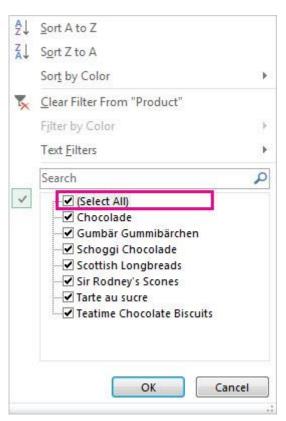
### Put your data in a table (cont.)

- ▶ Click the arrow in the table header of a column.
- To filter the data, clear the **Select All** check box, and then select the data you want to show in your table.



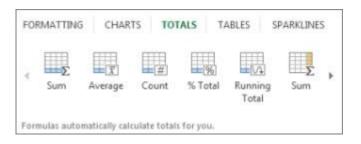
To sort the data, click **Sort A to Z** or **Sort Z to A**.

Click OK.



### Show totals for your numbers using Quick Analysis

- The Quick Analysis tool (available in Excel 2016 and Excel 2013 only) let you total your numbers quickly. Whether it's a sum, average, or count you want, Excel shows the calculation results right below or next to your numbers.
- Select the cells that contain numbers you want to add or count.
- Click the Quick Analysis button 🗐 in the bottom-right corner of the selection.
- Click **Totals**, move your cursor across the buttons to see the calculation results for your data, and then click the button to apply the totals.



### Add meaning to your data using Quick Analysis

- Conditional formatting or sparklines can highlight your most important data or show data trends. Use the Quick Analysis tool (available in Excel 2016 and Excel 2013 only) for a Live Preview to try it out.
- Select the data you want to examine more closely.
- Click the Quick Analysis button <a>[</a>
  in the bottom-right corner of the selection.
- Explore the options on the **Formatting** and **Sparklines** tabs to see how they affect your data.

  FORMATTING CHARTS TOTALS SPARKLINES

For example, pick a colour scale in the **Formatting** gallery to differentiate high, medium, and low temperatures.

Conditional Formatting uses rules to highlight interesting data

A B C D E F G H I J K L M

1 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

2 Avg High 40 38 44 46 51 56 67 72 70 59 45 41

3 Avg Low 34 33 38 41 45 48 51 55 54 45 41 38

4 Record High 61 69 79 83 95 97 100 101 94 87 72 66

5 Record Low 0 2 9 24 28 32 36 39 35 21 12 4

When you like what you see, click that option.

### Show your data in a chart using Quick Analysis

- ► The Quick Analysis tool (available in Excel 2016 and Excel 2013 only) recommends the right chart for your data and gives you a visual presentation in just a few clicks.
- Select the cells that contain the data you want to show in a chart.
- ▶ Click the Quick Analysis button <a>[≦]</a> in the bottom-right corner of the selection.
- Click the Charts tab, move across the recommended charts to see which one looks best for your data, and then click the one that you want.



Note: Excel shows different charts in this gallery, depending on what's recommended for your data.

### Sort your data

#### To quickly sort your data

- ▶ Select a range of data, such as A1:L5 (multiple rows and columns) or C1:C80 (a single column). The range can include titles that you created to identify columns or rows.
- Select a single cell in the column on which you want to sort.
- ▶ Click  $2 \downarrow$  to perform an ascending sort (A to Z or smallest number to largest).
- ► Click to perform a descending sort (Z to A or largest number to smallest).

#### To sort by specific criteria

- Select a single cell anywhere in the range that you want to sort.
- ▶ On the **Data** tab, in the **Sort & Filter** group, choose **Sort**.
- ► The **Sort** dialog box appears.
- ▶ In the **Sort by** list, select the first column on which you want to sort.
- ▶ In the Sort On list, select either Values, Cell Colour, Font Colour, or Cell Icon.
- ▶ In the **Order** list, select the order that you want to apply to the sort operation alphabetically or numerically ascending or descending (that is, A to Z or Z to A for text or lower to higher or higher to lower for numbers).

### Filter your data

- Select the data that you want to filter.
- On the Data tab, in the Sort & Filter group, click Filter.



- ► Click the arrow in the column header to display a list in which you can make filter choices.
- ► To select by values, in the list, clear the (Select All) check box. This removes the check marks from all the check boxes. Then, select only the values you want to see, and click OK to see the results.

## Save your work

► Click the Save button on the Quick Access Toolbar, or press Ctrl+S.



- If you've saved your work before, you're done.
- If this is the first time you've save this file:
  - ▶ Under Save As, pick where to save your workbook, and then browse to a folder.
  - ▶ In the **File name** box, enter a name for your workbook.
- Click Save.

## Print your work

- Click File, and then click Print, or press Ctrl+P.
- Preview the pages by clicking the Next Page and Previous Page arrows.
  - 4 1 of 3 ▶
- The preview window displays the pages in black and white or in colour, depending on your printer settings.
- If you don't like how your pages will be printed, you can change page margins or <u>add page breaks</u>.
- You can also select a range of cells only to print before pressing Ctrl+P. Remember to check that the option for what to print is set to 'Selection'.
- Click Print.

#### Activate and use an add-in

- ▶ On the **File** tab, choose **Options**, and then choose the **Add-Ins** category.
- Near the bottom of the Excel Options dialog box, make sure that Excel Addins is selected in the Manage box, and then click Go.
- In the **Add-Ins** dialog box, select the check boxes the add-ins that you want to use, and then click **OK**.
- If Excel displays a message that states it can't run this add-in and prompts you to install it, click **Yes** to install the add-ins.

### Find and apply a template

- Excel allows you:
  - to apply built-in templates,
  - to apply your own custom templates,
  - and to search from a variety of templates on Office.com.
- Office.com provides a wide selection of popular Excel templates, including budgets.

#### Write a Macro - What is a Macro?

- Macros for Excel are instructions you can customise to complete repetitive tasks automatically.
- Implementing macros in different types of software can help save users time when working on repetitive tasks, like filling in cells.
- Software developers can create macros by using the programming language Visual Basic for Applications.
- Macros provide an automated input sequence that allows users to imitate keystrokes, mouse actions and other basic inputs.
- Generally, macros are a way to automate repetitive tasks that are the same.
- ► Typically, these types of inputs are common in spreadsheet software applications like Excel.
- Using macros with little understanding of what they do can be problematic because nefarious users, such as hackers, can use macros as a route of entry to install viruses, malware or adware onto computers or networks.
- ▶ It's due to this threat that most programs, including Excel, disable macros by default.

#### Enabling macros in Excel for individual sessions

- ► Enabling macros for a single session of Excel gives you the option to use macros without changing the default settings of Excel.
- Once you complete your single session, it's best to automatically disable macro to ensure security.
- ▶ To enable macros in Excel for a single session, follow these steps.
  - ▶ Open 'Excel' and the 'macro file': Once you have Excel running, open the file that contains the macro you intend to use. Once you open this file, Excel is going to display a yellow box with a security warning to let you know that macros are currently disabled.
  - ▶ Click on the 'info' tab: Click on the 'file' option located at the upper left portion of the toolbar and select the 'info' option.
  - ▶ Enable macros: From the 'security warning' option, click on 'enable content' and you're going to see a drop down menu. From here, click 'advanced options', select 'enable content for this session' and click 'OK' to confirm that you have enabled macros for this session.
  - Make sure to disable macros for the next session: Although it typically occurs automatically, it's worthwhile to make sure during your next Excel session that macros remain disabled. In this case, you're going to see the same yellow box with the security warning.

## Enabling macros permanently in Excel

- If you are looking to use macros on a permanent basis in Excel, you can speak with the system administrator to discuss the risks.
- You are essentially keeping a door open which could let dangerous viruses into your network, so permanently enabling macros might be a serious risk.
- If you are sure you want to keep macros on permanently in Excel, follow these steps.
  - ▶ Open your 'Excel file': While in Excel, open the macro file that you wish to use. It's going to have a yellow security message box to let you know that macros are currently disabled.
  - ▶ Locate the Trust Center: The Trust Center is where you can alter and adjust the security and privacy settings within Excel and other Microsoft Office applications. You can locate it by clicking 'File', then 'Options' and 'Trust Center' from the navigation panel on the upper left portion of the screen.
  - Find 'Macro Settings': From within the Trust Center, you can adjust settings related to the security of data and documents. Click 'Trust Center Settings' and select 'Macro Settings'.
  - ► Enable all macros: From within macro settings, click on the 'Enable all macros' button and confirm it by clicking 'OK'. A warning message is going to appear which tells you to avoid enabling all macros due to the risks of dangerous code affecting your computer or network.
  - Know how to disable macros in the future: If you want to disable macros after permanently enabling them, you can return to the Trust Center and click on 'Disable all macros with notifications.'

## Changing macro settings in Excel

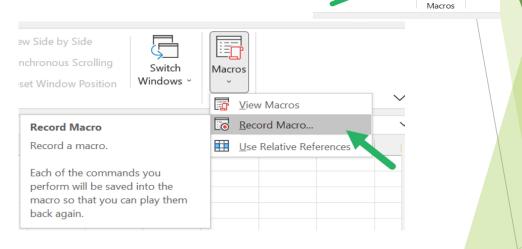
- ► Enabling macros temporarily or permanently can help you work smarter within Excel.
- If you want to get more value out of using macros, you can tweak macro settings from within Excel.
- ► To do this, follow these steps.
  - ▶ Open 'Microsoft Excel': To begin, launch Microsoft Excel on your computer to start the software.
  - ▶ Select the 'Options' tab: On the upper left of the screen, click the 'File' tab and scroll down until you can see the 'Options' menu. Click on it and a new window is going to open up.
  - Find the Trust Center: Scroll through the new window until you see the 'Trust Center' panel on the left side and click on it.
  - ► Change macro settings: In the Trust Center, you have several options to choose from when changing the settings, like disabling all macros without notification, disabling all macros with notification and disable all macros except digitally signed macros. Once you have selected one, click 'OK' to complete the process.

#### How to record Excel macros

Click on the View tab in the Excel ribbon

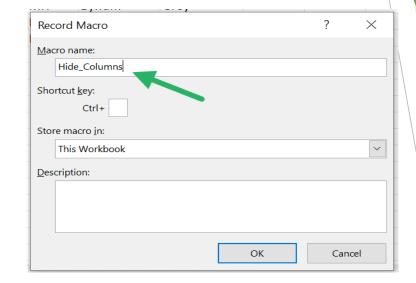


- This will open the **Macros** drop-down.
  - Click Record Macro.



- Enter a name for your macro, something like Hide\_Columns.
- Excel macros can be stored in the Personal Macro Workbook.
- This is saved in the system files of Microsoft Excel and macros saved here can be used in other workbooks.

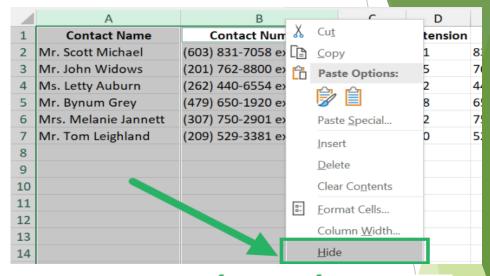
  Store macro in:



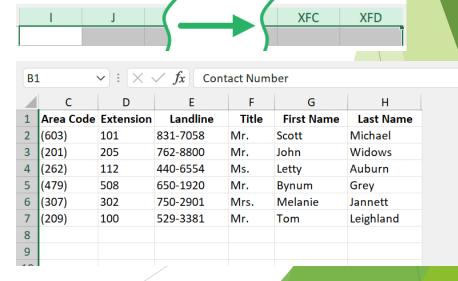
Personal Macro Workbook

- For this Excel macro tutorial, you only need to save the macros in the current Excel file.
- Select Store macro in: This Workbook then click the OK button.

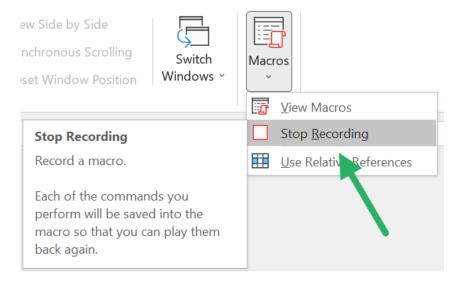
- Excel is now recording your actions to create a macro.
- Select Columns A & B and then right-click on the highlighted Column Bar to Hide them.



- Then select Column I and press Ctrl + Shift + Right Arrow to include all remaining columns on the right.
- Right-click on the highlighted Column Bar then click on Hide.
  - Your worksheet should now look like this:

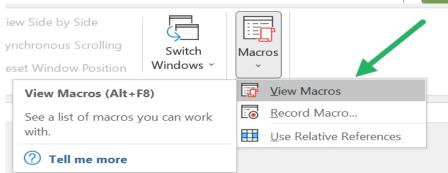


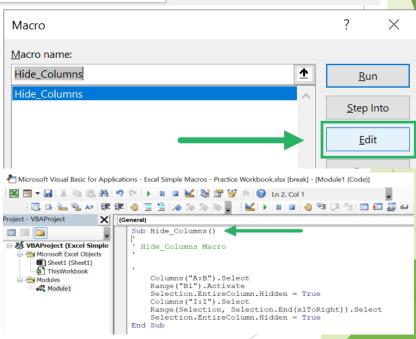
- To end the macro recording:
- On the View ribbon, click on Macros and select Stop Recording.



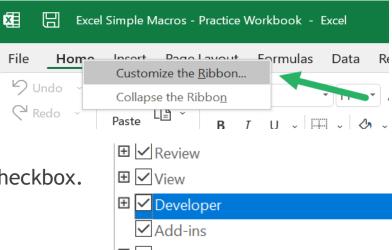
- Good job!
- You have created your first macro in Excel!

- But wait, where is the recorded macro?
- To view all of the available Excel macros:
  - Select View Macros.
  - This opens the Macro window. Saved macros will be listed here and you can Run whichever one you need.
  - You can also click on Edit to view the VBA code window.
  - The VBA code editor opens.
  - Notice the Hide\_Columns Sub procedure. You don't have to write or edit VBA code for the macro.
  - Excel automatically generated each code line based on the recorded keystrokes and mouse clicks.
  - ► The **Record Macro** feature is powerful enough for general spreadsheet automation needs.





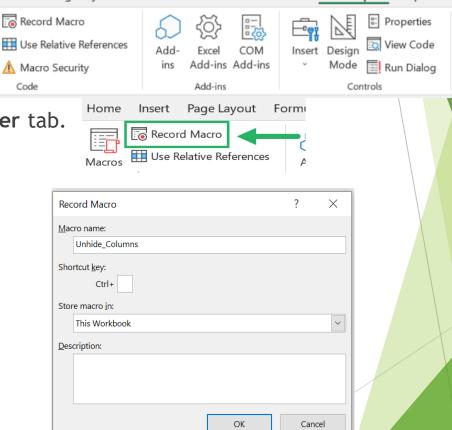
- Using the Developer tab
- Let's record another macro to Unhide the hidden columns.
- ▶ This time, you can record the macro from the **Developer** tab.
- ► The Developer tab gives you access to a lot of useful Microsoft Excel features such as the <u>Visual Basic Editor</u>. It also allows you to quickly insert form controls such as buttons and <u>checkboxes</u>.
- ► However, the <u>Developer tab</u> is not visible in the Excel ribbon by default.
- ► To add it:
  - Right-click on the Excel ribbon.
  - Select Customize the Ribbon.
  - ► This opens the **Customize Ribbon** window.
  - On the right side, check the **Developer** tab checkbox.



- You should now see the Developer tab.
- ▶ To start recording the Unhide macro:
  - ► Click on the **Record Macro** button in the **Developer** tab.
  - Name this macro Unhide\_Columns.

Click OK.

- The recording has started.
- Press Ctrl + A twice to select all cells.



Formulas Data Review

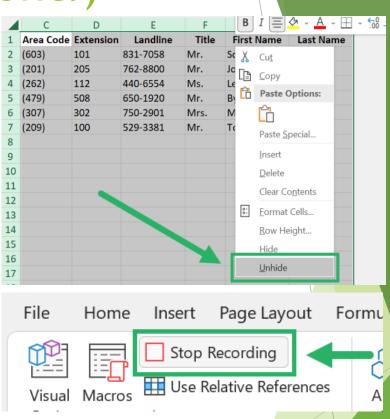
View **Developer** Help

Page Layout

Right-click anywhere on the Column Bar then click Unhide.

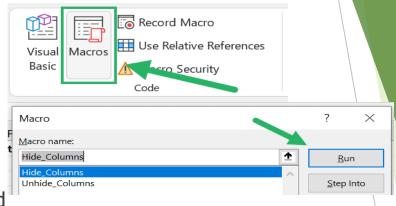
Click on the Stop Recording macro button to finish up.

- Great work!
- Now you have two recorded macros that can be executed.



#### How to run an Excel macro

- ► To run your macros:
  - ▶ Click on the Macros button from the Developer tab.
  - In the Macro window, select the macro Hide\_Columns and click on Run.
  - The macro executes the actions recorded earlier and hides the unnecessary columns.
  - You can also run macros from the View ribbon.
- Run Excel macro from the View tab
  - ► This time, run the **Unhide\_Columns** to show all the columns.
  - On the View ribbon, click the Macros button and select View Macros.
  - Select the Unhide\_Columns macro and Run it.
  - ▶ This unhides all the columns in the worksheet.
  - As you can see, the **Macro** window allows you to quickly run all the available macros.

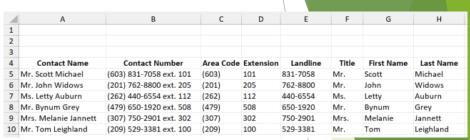


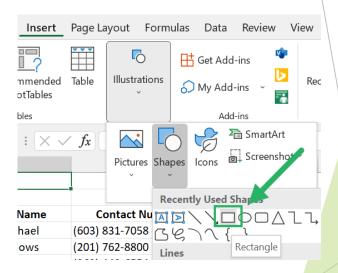


#### Run Excel macro from a button

- For this next example, you will assign macros to buttons which will be located on top of the table.
  - Insert 2 rows above the table headers. Select Row 1 then press Ctrl + Shift + Plus Sign(+) twice.
- To create a button, click on Insert > Illustrations > Shapes.
  - ► Then select the **Rectangle**.

- Draw a rectangle and format it as you'd like. Label it "HIDE".
- This will be your **HIDE** button. Place it between columns A & B so it will be hidden with the columns when the macro runs.





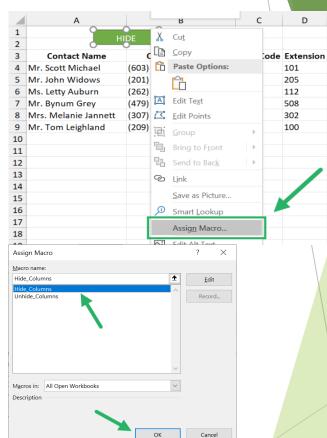


## Run Excel macro from a button (cont.)

► To assign a macro, right-click the shape and select **Assign Macro**.

In the **Assign Macro** window, select **Hide\_Columns** and click **OK**.

▶ The **Hide** button now works!



### Run Excel macro from a button (cont.)

- ▶ Now, do the same for the **Unhide\_Columns** macro.
  - ▶ 6. Create another rectangle button and label it "UNHIDE".



- Ass above, to assign a macro, right-click the shape and select **Assign Macro**.
- In the Assign Macro window, select Unhide\_Columns and click OK.
- ▶ The Unhide button now works!
- Now you can quickly run your macros using the **HIDE** and **UNHIDE** buttons.

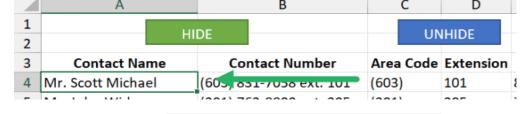
		_		_	_	_		
	A	В	С	D	E	F	G	Н
1	н	LIN	IHIDE					
2		IDE	UNHIDE					
3	Contact Name	Contact Number	Area Code	Extension	Landline	Title	First Name	Last Name
4	Mr. Scott Michael	(603) 831-7058 ext. 101	(603)	101	831-7058	Mr.	Scott	Michael
5	Mr. John Widows	(201) 762-8800 ext. 205	(201)	205	762-8800	Mr.	John	Widows
6	Ms. Letty Auburn	(262) 440-6554 ext. 112	(262)	112	440-6554	Ms.	Letty	Auburn
7	Mr. Bynum Grey	(479) 650-1920 ext. 508	(479)	508	650-1920	Mr.	Bynum	Grey
8	Mrs. Melanie Jannett	(307) 750-2901 ext. 302	(307)	302	750-2901	Mrs.	Melanie	Jannett
9	Mr. Tom Leighland	(209) 529-3381 ext. 100	(209)	100	529-3381	Mr.	Tom	Leighland
10								

#### Run Excel macro from a shortcut key

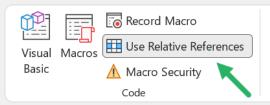
▶ It is sometimes better to run macros using a keyboard shortcut.

For this next example, you want to quickly highlight people on the list that expressed interest in the business.

- To create a macro for this:
  - ▶ Select any cell within the table.



On the Developer tab, toggle ON the Use Relative References button.



- Start recording with the Record Macro button on the Developer tab.
- Or, you can also click the Record Macro button on the Status Bar.



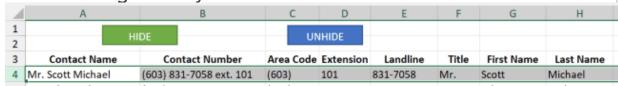
### Run Excel macro from a shortcut key (cont.)

- ▶ Name the macro Mark\_Interested.
- ► Then assign a shortcut key. For example, Ctrl + Q.
- Click OK. The recording has now started.



Highlight the row of the **Active Cell** using the keyboard

shortcut **Shift** + **Space Bar**.



- When selecting cells or expanding selections while recording a macro, it is best to use keyboard shortcuts.
- ► This is so that Excel can record the selections as **relative** references.
- For example, if you select **Row 4** by clicking on the **Row Bar**, Excel will record this as an **absolute reference**. This means it will always select Row 4 regardless of the currently **Active Cell**.

### Run Excel macro from a shortcut key (cont.)

- ▶ When you use the **Shift** + **Space Bar** shortcut instead, it tells Excel to select the row of the current **Active Cell**.
- Apply the formatting:
  - Fill using the color **Green**
  - ► Change font color to White
- End the macro recording from the Status Bar

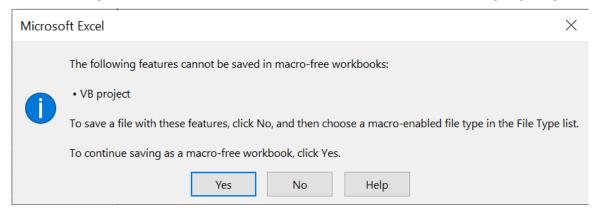


- All done!
- ► Try to use the shortcut Ctrl + Q to quickly apply formatting to entire rows.

Α	В	С	D	E	F	G	Н
HIDE		HINIHIDE					
п	ONHIDE						
Contact Name	Contact Number	Area Code	Extension	Landline	Title	First Name	Last Name
Mr. Scott Michael	(603) 831-7058 ext. 101	(603)	101	831-7058	Mr.	Scott	Michael
Mr. John Widows	(201) 762-8800 ext. 205	(201)	205	762-8800	Mr.	John	Widows
Ms. Letty Auburn	(262) 440-6554 ext. 112	(262)	112	440-6554	Ms.	Letty	Auburn
Mr. Bynum Grey	(479) 650-1920 ext. 508	(479)	508	650-1920	Mr.	Bynum	Grey
Mrs. Melanie Jannett	(307) 750-2901 ext. 302	(307)	302	750-2901	Mrs.	Melanie	Jannett
Mr. Tom Leighland	(209) 529-3381 ext. 100	(209)	100	529-3381	Mr.	Tom	Leighland
	Contact Name Mr. Scott Michael Mr. John Widows Ms. Letty Auburn Mr. Bynum Grey Mrs. Melanie Jannett	Contact Name Contact Number  Mr. Scott Michael (603) 831-7058 ext. 101  Mr. John Widows (201) 762-8800 ext. 205  Ms. Letty Auburn (262) 440-6554 ext. 112  Mr. Bynum Grey (479) 650-1920 ext. 508  Mrs. Melanie Jannett (307) 750-2901 ext. 302	Contact Name Contact Number Area Code Mr. Scott Michael (603) 831-7058 ext. 101 (603) Mr. John Widows (201) 762-8800 ext. 205 (201) Ms. Letty Auburn (262) 440-6554 ext. 112 (262) Mr. Bynum Grey (479) 650-1920 ext. 508 (479) Mrs. Melanie Jannett (307) 750-2901 ext. 302 (307)	Contact Name   Contact Number   Area Code   Extension	HIDE         UNHIDE           Contact Name         Contact Number         Area Code         Extension         Landline           Mr. Scott Michael         (603) 831-7058 ext. 101         (603)         101         831-7058           Mr. John Widows         (201) 762-8800 ext. 205         (201)         205         762-8800           Ms. Letty Auburn         (262) 440-6554 ext. 112         (262)         112         440-6554           Mr. Bynum Grey         (479) 650-1920 ext. 508         (479)         508         650-1920           Mrs. Melanie Jannett         (307) 750-2901 ext. 302         (307)         302         750-2901	HIDE         UNHIDE           Contact Name         Contact Number         Area Code         Extension         Landline         Title           Mr. Scott Michael         (603) 831-7058 ext. 101         (603)         101         831-7058         Mr.           Mr. John Widows         (201) 762-8800 ext. 205         (201)         205         762-8800         Mr.           Ms. Letty Auburn         (262) 440-6554 ext. 112         (262)         112         440-6554         Ms.           Mr. Bynum Grey         (479) 650-1920 ext. 508         (479)         508         650-1920         Mr.           Mrs. Melanie Jannett         (307) 750-2901 ext. 302         (307)         302         750-2901         Mrs.	Contact Name         Contact Number         Area Code Extension         Landline         Title         First Name           Mr. Scott Michael         (603) 831-7058 ext. 101         (603)         101         831-7058         Mr.         Scott           Mr. John Widows         (201) 762-8800 ext. 205         (201)         205         762-8800         Mr.         John           Ms. Letty Auburn         (262) 440-6554 ext. 112         (262)         112         440-6554         Ms.         Letty           Mr. Bynum Grey         (479) 650-1920 ext. 508         (479)         508         650-1920         Mr.         Bynum           Mrs. Melanie Jannett         (307) 750-2901 ext. 302         (307)         302         750-2901         Mrs.         Melanie

### Saving macro-enabled workbooks

If you save the practice workbook, this window will pop up:



- ► This is because the practice workbook is currently saved with the .xlsx file extension which does not support macro features.
- To save properly, change it to the .xlsm file extension for macro-enable workbooks by using the 'Save-As' option.
- Keep this in mind when saving your work.