EXCEL
2023
FROM ZERO TO HERO

7 MINUTES CRASH COURSE

MOST POPULAR EXCEL FORMULAS

HOW TO BECOME A MASTER OF MICROSOFT EXCEL IN LESS THAN 7 MINUTES A DAY WITH THE MOST UPDATED GUIDE (STEP-BY-STEP TUTORIAL INCLUDED) + BONUS: THE 10 MOST ESSENTIAL FORMULAS REQUESTED BY ANY COMPANY

KEN SHEPARD

EXCEL 2023 FROM ZERO TO HERO

HOW TO BECOME A MASTER OF MICROSOFT EXCEL IN LESS THAN 7 MINUTES A DAY WITH THE MOST UPDATED GUIDE (STEP-BY-STEP TUTORIAL INCLUDED) + BONUS: THE 10 MOST ESSENTIAL FORMULAS REQUESTED BY ANY COMPANY

By

KEN SHEPARD

Contents

Introduction

Excel, part of Microsoft's Office suite of business software, is a spreadsheet tool. Microsoft Excel makes spreadsheet formatting, organization, and calculation possible. Data analysts plus other users may make information simpler to examine when data is added or altered by organizing data using tools like Excel. A vast number of cells organized in columns and rows make up Excel. This is where the information will go. In addition to being included in and fully interoperable with the rest of Microsoft's Office (also Office 365), Excel is a useful and widely used program. The spreadsheet program is cross-platform, working with Windows, Android, macOS, and iOS.

Excel's primary domain of usage is in the corporate world. Business analysis, operations management, HR management, & performance reporting are just a few areas where it finds application. Excel's ability to manipulate, store data and perform mathematical functions depends on its extensive usage of predefined cell formats. Graphing tools, pivot tables, and algorithms let users organize data on the spreadsheet. Visual Basics for Applications is the spreadsheet program's macro programming language.

Multiple mathematical computations may be performed in MS Excel. It can perform operations on large numbers in parallel, including addition, multiplication, subtraction, and division, because it uses many formulas. And if the value must be adjusted or added to, it's simple to redo.

Formatting features in Excel, such as highlighting, italics, colors, etc., provide companies flexibility in presenting and emphasizing key data in various ways. The Excel file has more than 16 thousand columns and over 10 million rows. You may add images, import data, and insert other items

through the insert tab. With Excel, you can consolidate your data from several sources.

Excel is an essential tool for running a company. Using Excel has become so commonplace that even company owners use it. Excel's use in the corporate world varies widely from one establishment to the next. A company may utilize Microsoft Excel for its planning, budgeting, and other functions.

Excel has enabled the company to efficiently manage its day-to-day activities. A lot of the credit for the company's success goes to the financial calculations developed in Excel. The IF formula in Microsoft Excel is quite useful for doing many calculations in commercial use logic. As a business tool, Microsoft Excel is very useful. To get its full functionality, just go to the menu designated for templates. You save time since you won't have to start using a pre-made template from scratch.

These days, everyone is in a rush. Their everyday routine requires them to conduct several tasks. However, kids need to complete some math to conduct these tasks. But how can they readily conduct calculations? It has been shown that using Excel to solve this problem is the most efficient method.

Excel reduces the time it takes to conduct complex calculations, which benefits both people and corporations. Spreadsheet programs like Microsoft Excel are quite common. You will talk about how you use Excel at work and at home. The functions of Excel will be discussed in detail throughout this chapter, but first, you need to understand the basic features of MS Excel. This guide will help you master basic, advanced, regularly, and professionally used functions and formulas.

Chapter 1: Getting Started With Excel

Microsoft Excel is popular. The software is a spreadsheet for recording and analyzing numbers. This book describes Microsoft Excel's features, how to use it, and its numerous benefits. They supplied Excel Q&A examples.

1.1 History Of Excel

Microsoft Excel was initially released in 1982 as Multiplan, a successful CP/M program, while Lotus 1-2-3 was more popular on MS-DOS. By 1988, Microsoft Excel v 2.0 for Windows had outsold Lotus 1-2-3 & QuatroPro. Microsoft introduced Excel v 5.0 for Windows in 1993 with VBA/Macros. This opened endless automation options for process automation, number crunching, and corporate data presentation.

1.2 Present Day Microsoft Excel

With the newest edition of Excel 2019 & Excel365, Excel is the most familiar, adaptable, and frequently used business program worldwide. When combined with Word, PowerPoint, Outlook, etc., there is nothing this formidable combo can't do.

Microsoft Excel & Office Suite have been almost unlimited. Let's look at the 10 most powerful and popular Excel built-in features.

- Model and analyze data efficiently
- Find data rapidly
- Single-cell charts
- Access spreadsheets anywhere
- When working together, share, connect, and achieve more.
- Use dynamic Pivot Charts
- Enhance data presentations
- Improve efficiency
- Build larger, more complicated spreadsheets.
- Excel Services publishing

Add the flexibility to modify and automate any function using VBA, and you have a value-added BI platform that can manage any business demand.

Excel for business? Believe Excel Support. The excel experts have managed all small and big enterprises in every sector. You can optimize your operations using Microsoft Excel from major brands to mom-and-pop enterprises.

1.3 The Future Of Excel

What's next? With the internet vital to your life and business, the demands of many will triumph. Keeping up with Microsoft's evolving platforms is a full-time job. Microsoft Excel will remain the premier platform for data analysis, chart creation, and BI processes.

Data accessibility and cooperation are driving businesses to cloud computing. In the next several years, experts expect Microsoft Excel to enable multi-user access to vast data for reporting, analysis, and efficiency & productivity enhancements.

To sustain earnings and competitiveness, custom solutions are needed in today's competitive corporate climate. Microsoft Excel consultants are experts in developing technologies. Having an experienced advisor on retainer is crucial for 21st-century competition. Excel solutions & training available.

1.4 Basics Of MS Excel

Microsoft Excel is among the best spreadsheet tools where one may record data in table formats. Excel makes data analysis easier. Image of an Excel spreadsheet:
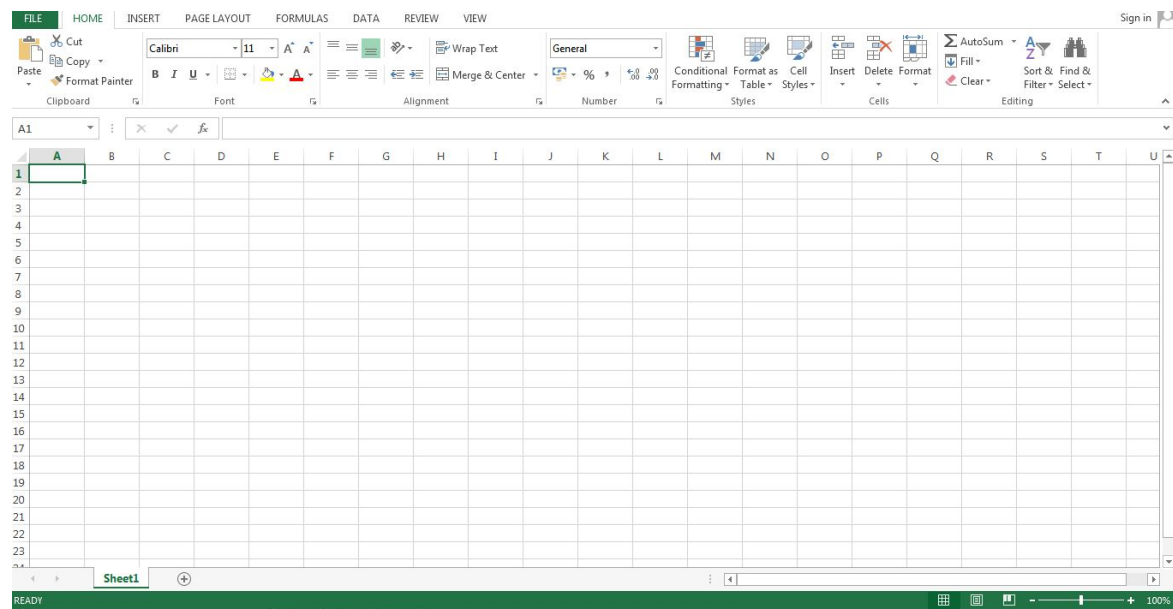
How can you open Excel?

Follow these steps to open Microsoft Excel:

- Start-All Programs
- Click Microsoft Office.

- Choose MS-Excel.
- Click Start & type Microsoft Excel to find

Cell

Spreadsheets are rows & columns. A cell is a rectangle at the row-column intersection. Cell image:
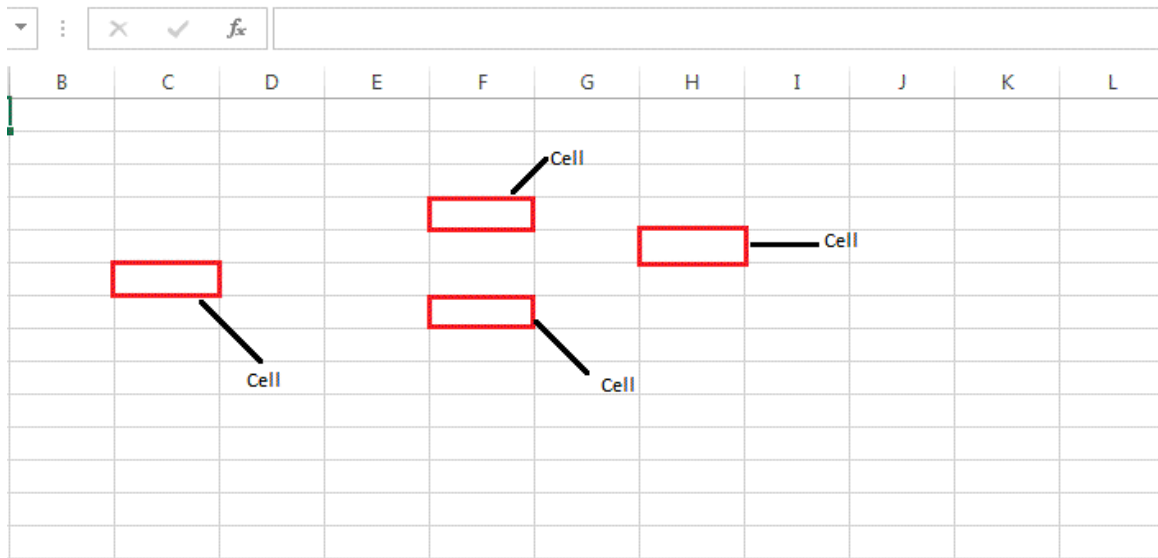
Cell Address

You may refer to a specific cell by its address, which is its unique name. For instance, column G's cell address that is relevant to row 7 is G7.

Features of Excel

Excel allows you flexible formatting & editing options. The many MS Excel capabilities will be discussed here.

The picture below depicts the Excel feature composition:
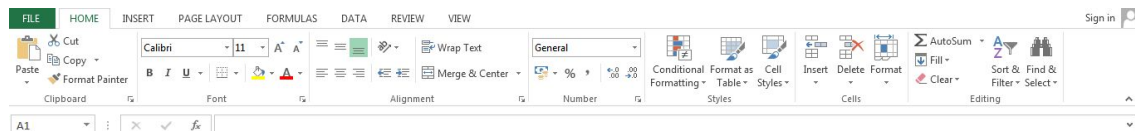
Home

Includes font size, background color, font color, font styles, alignment, formatting choices and styles, cell insertion, deletion, & editing options

Insert

Includes table format & style, inserting photos and figures, charts, sparklines, graphs, header & footer settings, equations & symbols.

Page Layout

Page layout includes themes, orientation, & page arrangement.

Formulas

Since MS Excel can build tables with a lot of data, you can add formulae and obtain faster results.

Data

This area includes adding external (web) data, filtering, plus data tools.

Review

A reader may comment on an excel sheet's review category (such as spell check).

View

Here you can alter the spreadsheet's view. This category includes zoom & pane options.

1.5 Benefits Of Using MS Excel

Microsoft Excel is frequently used since storing data and adding and deleting the information is simple.

Microsoft Excel's advantages are listed below.

Easy To Store Data: MS Excel is commonly used to preserve or analyze data since it will save an unlimited quantity of information. Excel filters data easily.

Easy For Recovering Data: Excel spreadsheets make discovering information faster than paper. Easy data recovery.

Applications of Mathematical Formula: MS Excel's formulae make computations simpler and faster.

More Secure: Spreadsheets may be password-protected on a computer or Laptop, making them less likely to be lost than paper records.

Data at a Place: Previously, data was held in separate files or registers. Multiple worksheets may now be added to a single Microsoft Excel file.

Clearer and Neater Visibility of the Information: Tables make data analysis simpler. Therefore, information is an accessible spreadsheet.

Chapter 2: Understanding Workbook And Worksheet

Any workbook has a worksheet. You should create many worksheets to organize your workbook and make it easier to find material. Group spreadsheets to simply apply data to many.

2.1 Renaming The Worksheet

New Excel workbooks have a Sheet1 worksheet. Name the worksheet to reflect its content.

- Right-click each worksheet you want to rename, then choose the worksheet menu.
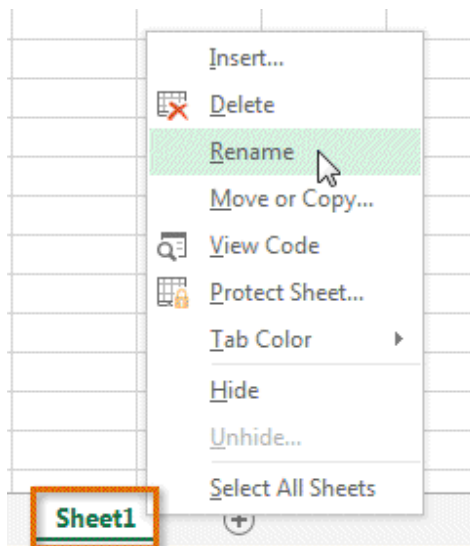
- Enter the desired name for the worksheet here.
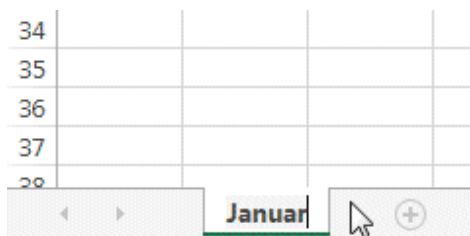
- To enter text outside your worksheet, either click or press Enter on the keyboard. The name of the spreadsheet would be modified.
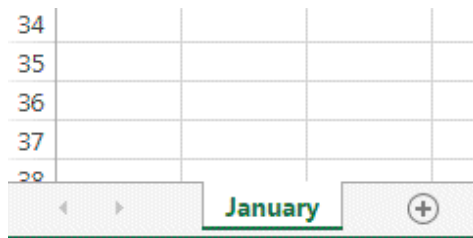
2.2 Inserting A New Worksheet

- Find and click the new sheet key.
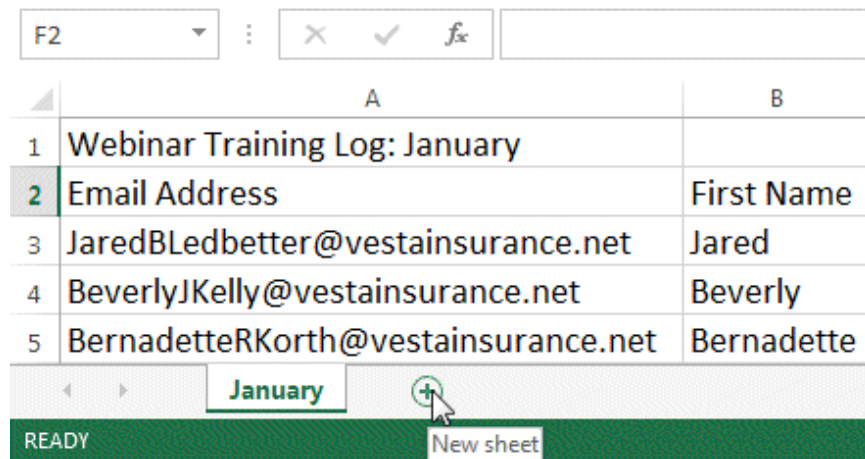
- The screen would then display a fresh, blank worksheet.
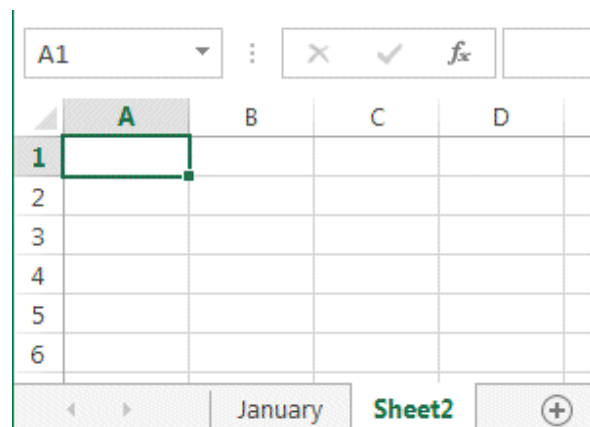
When creating a new workbook, you may change the default number of worksheets by going to Backstage preview, pressing Options, and choosing

the right number.
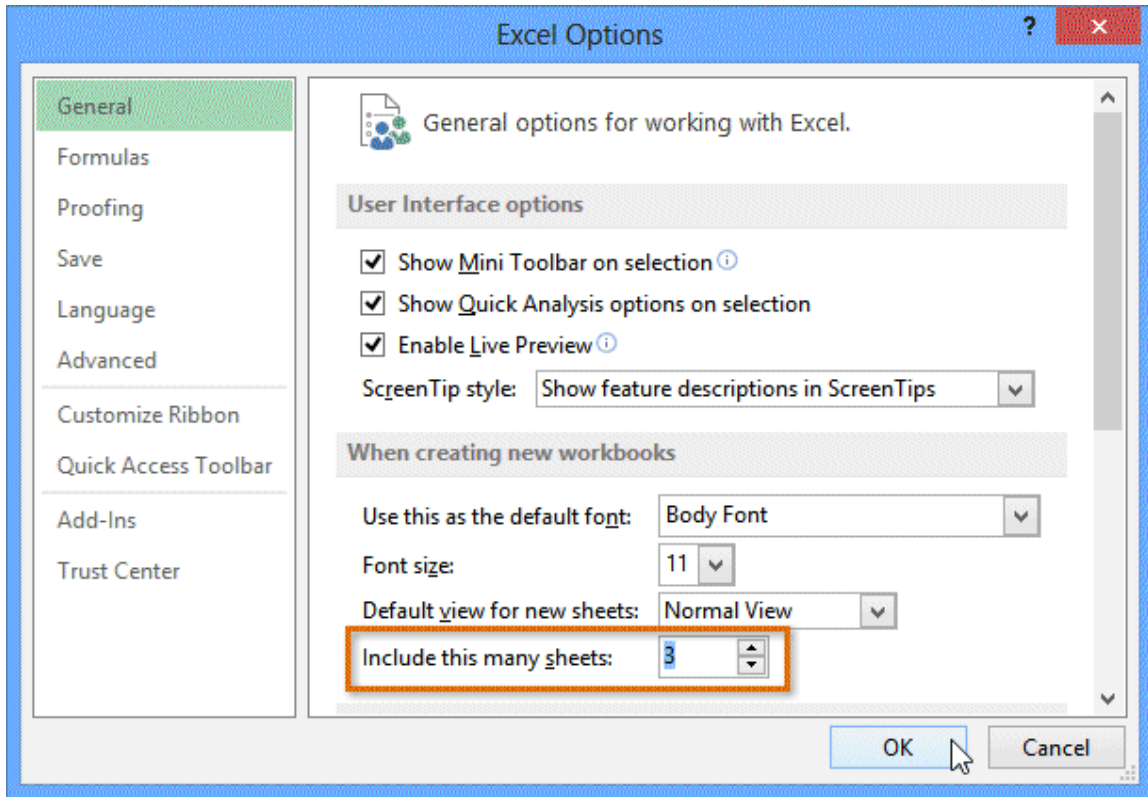
2.3 Deleting A Worksheet

After right clicking a worksheet, you want to remove, choose Delete from the worksheet menu.
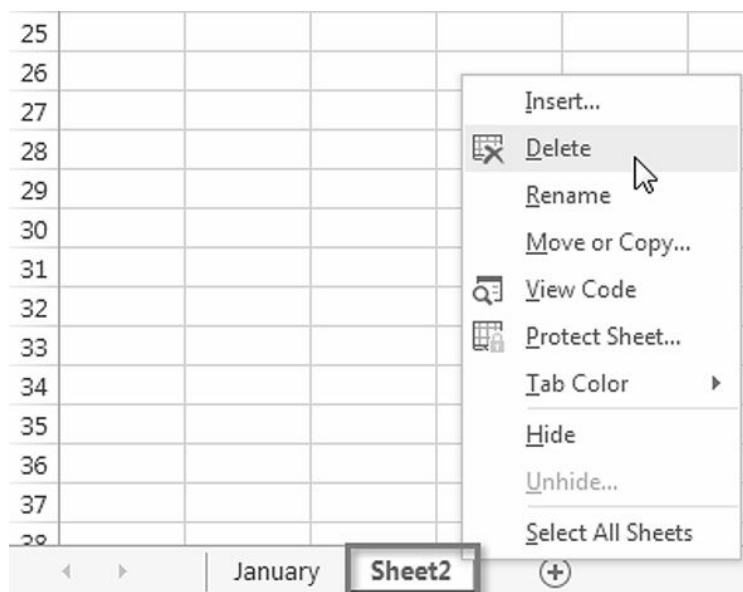
The worksheet in your workbook would be deleted.
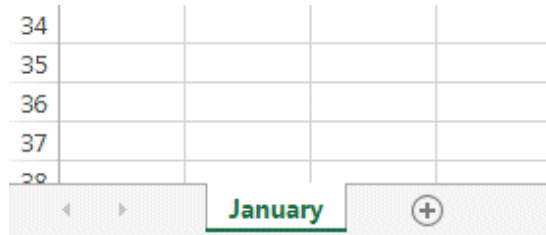
By right clicking a worksheet you want to secure and selecting Protect sheet from the worksheet menu, you may prevent certain worksheets from being updated or deleted.
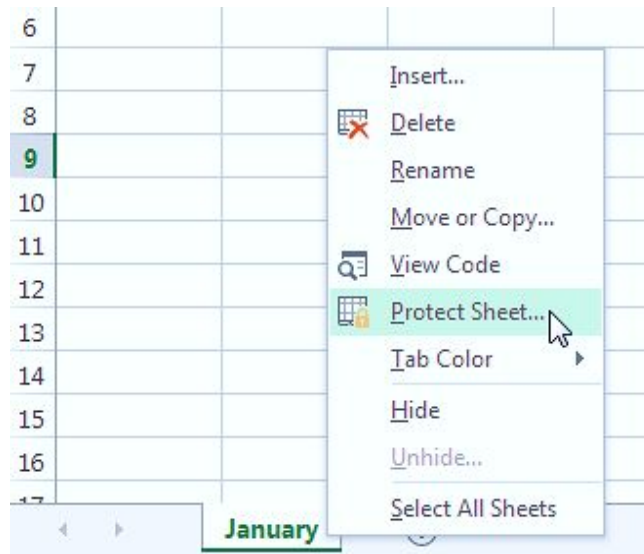
2.4 Coping A Worksheet

If you wish to transfer its contents to another worksheet, Excel may be used to replicate a current worksheet.

If you want to copy a worksheet, right-click it and then choose Move or Transfer from the worksheet menu.
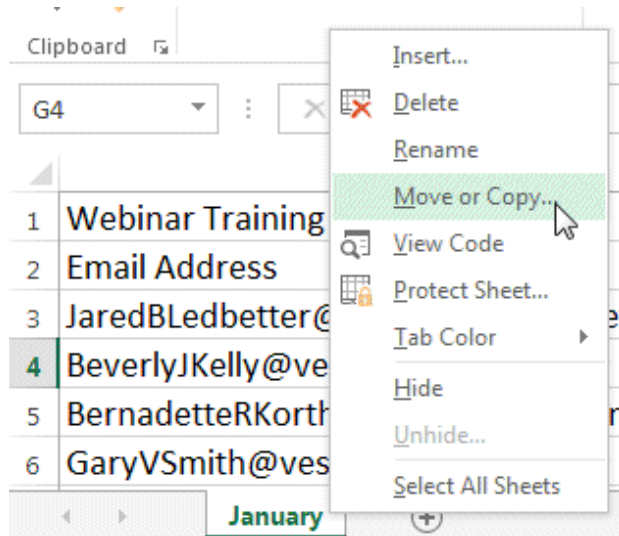
The "Move / Copy" dialogue box would then appear. Indicate where your sheet should appear in the Before sheet: area. In this instance, you will relocate the worksheet to the right of the worksheet you are now using (move towards the end).

Choose to Create the copy from the drop-down option, then click OK.
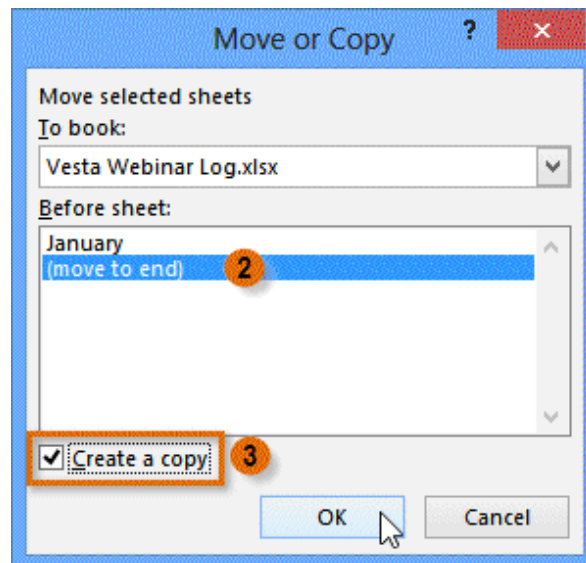
The worksheet would be duplicated. The name and version number would be the same as the worksheet. Your newer worksheet is titled January since you duplicated a January worksheet in your instance (2). All the

information from the original January worksheet has been duplicated into the worksheet January (2).

It is also possible to copy a worksheet to another workbook. Any accessible workbook is available in the drop-down option for books.
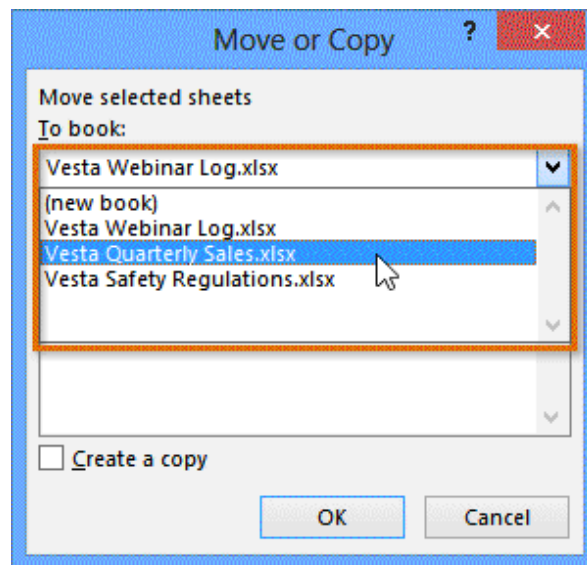
2.5 Moving A Worksheet

You may have to switch your worksheet to organize the workbook.

Select the worksheet where you want to make the change. The cursor can change into a little worksheet symbol.

Before a little black arrow appears, move your cursor over the target area while holding it there.
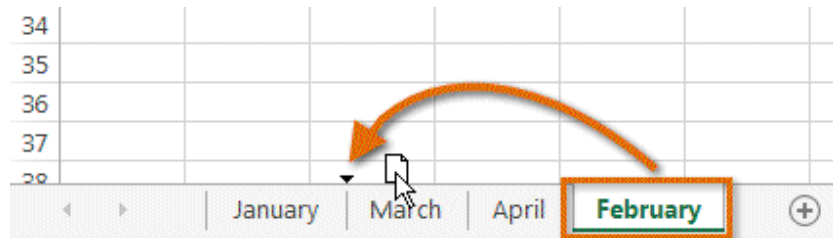
Let go of the mouse. The worksheet will soon be moved.
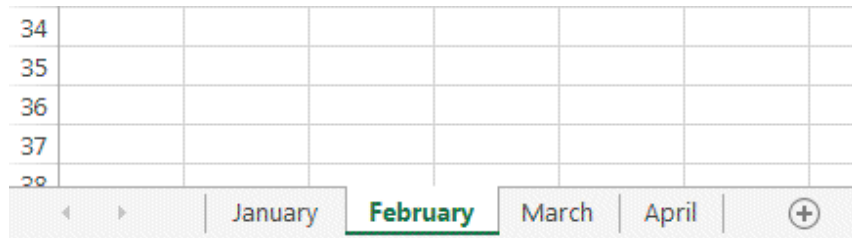
2.6 Changing The Worksheet Tab Color

You should change the color of a worksheet page to better organize your worksheets and make the workbook user-friendly.

After selecting the proper worksheet tab with the right mouse button, move the cursor over Tab Color. The menu would appear in color.

Select the hue you like. The most recent worksheet tab color will be previewed while your mouse is over different options. Red will serve as an illustration.
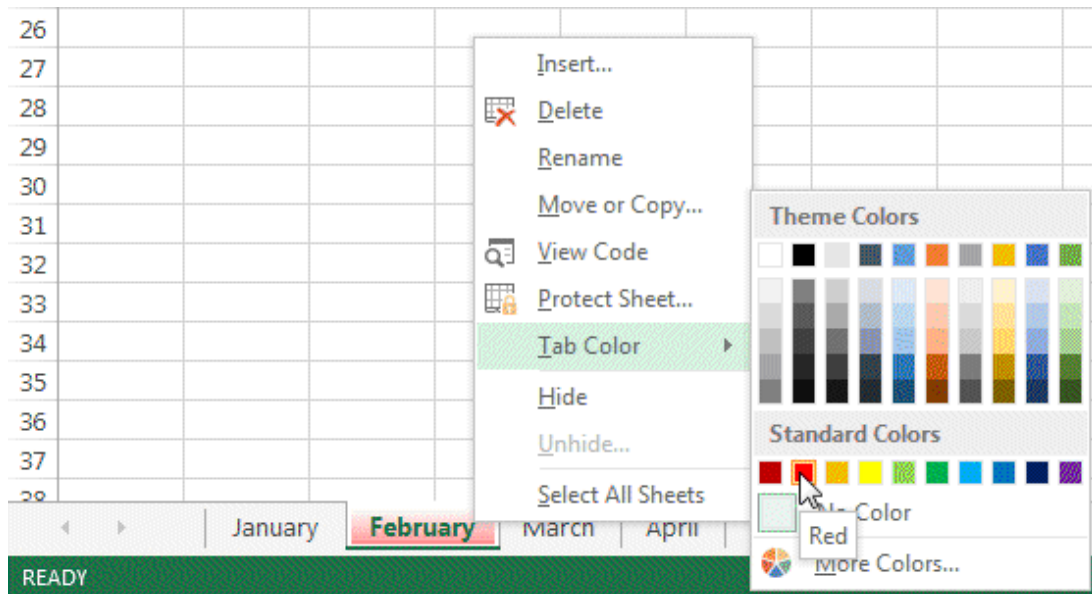
The worksheet tabs' color will be changed.
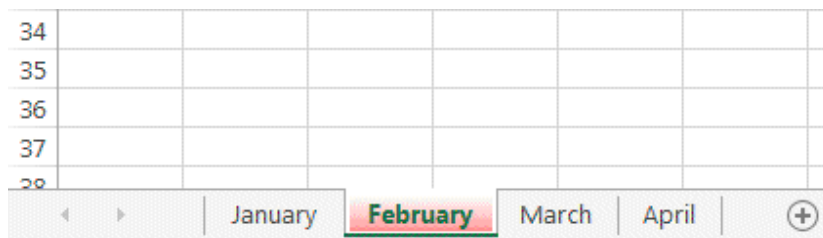
The color of the worksheet tab diminishes when a worksheet is selected. Pick a different worksheet to see how the color will appear when it isn't selected for one.
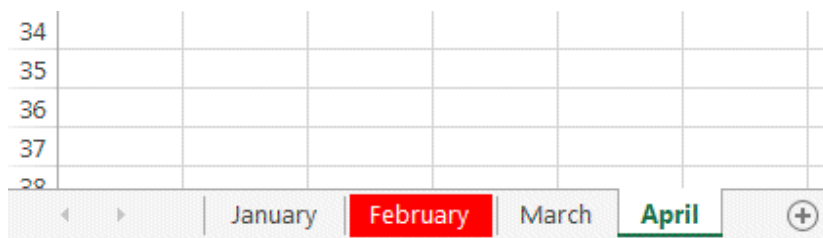
2.7 Switching Between Worksheets

By clicking the tab, you may switch to another worksheet. However, with broader workbooks, this might become tedious, and you might have to click through all the tabs to get the one you want. Instead, just right-click the scroll arrows in the lower-left corner, as seen below.
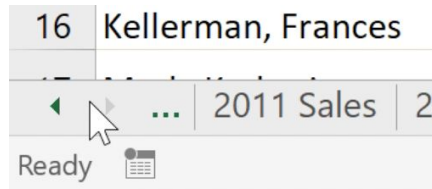
There will be a dialogue box with a list of all the sheets in the workbook. Double-click the sheet you want to leap off next.
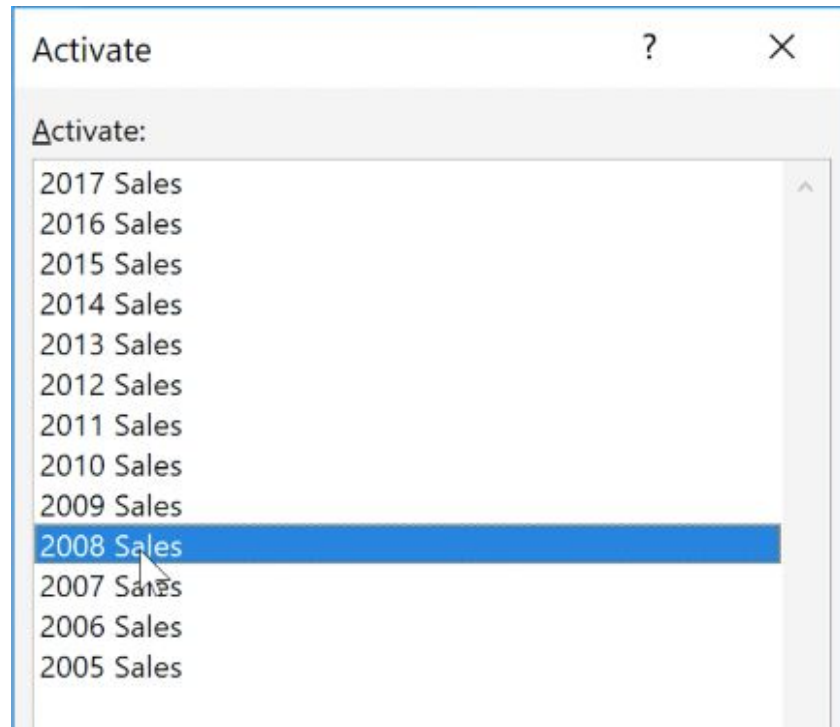
2.8 Grouping & Ungrouping Worksheets

You may work on one worksheet at a time or numerous worksheets concurrently. They may be combined to make a set of worksheets. Any changes you make to one worksheet in a group will impact all the worksheets in that group.

To group the worksheets

In this example, employees must get training every three months; thus, you will create a worksheet category only for them. The names of the workers

will show up on all worksheets within a group when you apply their names to one.

Select the 1ˢᵗ worksheet you like to include in the category.
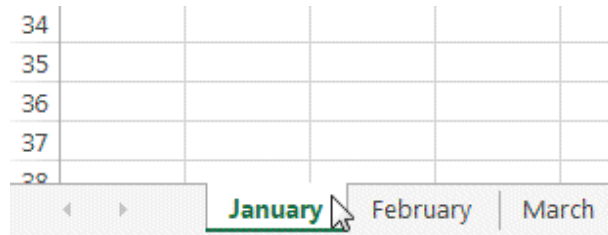
Keep the Ctrl key down on the keyboard.

From the drop-down menu, choose the following worksheet for the group. Once you've chosen every worksheet you want to group, stop picking worksheets.

Let go of the Ctrl key. Groups have been created for your worksheets.

When worksheets have been organized, you may browse to a worksheet within a category. Every change made to one worksheet would be mirrored in all the worksheets for the group. However, all the worksheets would need to be ungrouped if you wanted the worksheet that isn't a part of the community.

2.9 Ungrouping All Worksheets

Un-group, the group is made up of worksheets selected from the worksheet menu by right-clicking.
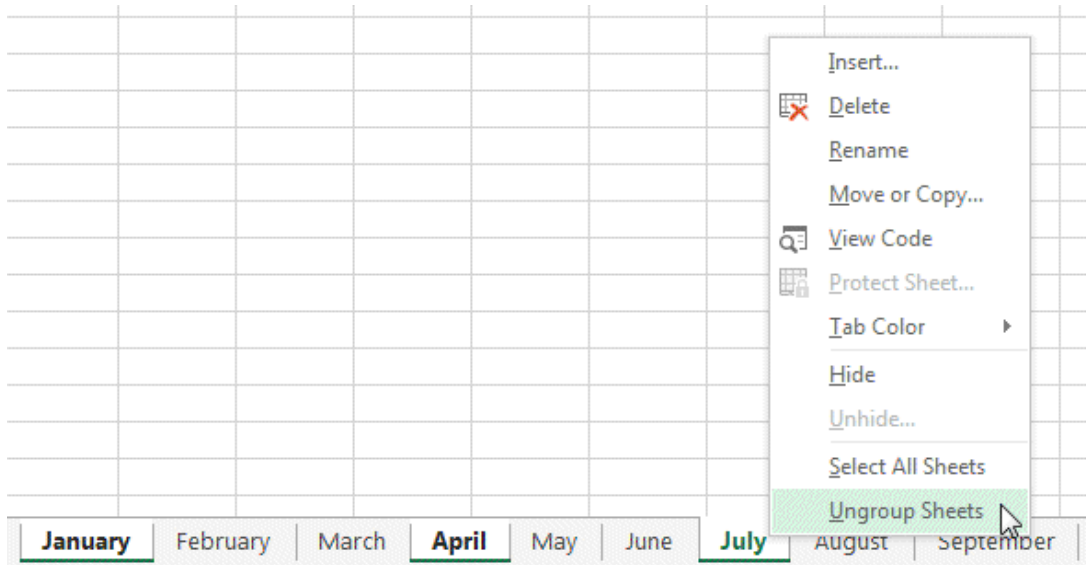
Groups of worksheets would be created. Instead, you may click any worksheet that isn't part of the group to remove it from the group.

It is possible to group and ungroup worksheets. Group your January and March worksheets if you're going along with the scenario. Try updating a January worksheet with fresh content, then contrast it with a March worksheet.

Chapter 3: Excel Charts Graphs

The most effective technique to convey information to an audience is via the use of charts. Figure out how to make a chart and include a trendline. Use the suggested chart as a jumping-off point for your document or select from the variety of ready-made chart templates.

3.1 Creating A Chart

A web-friendly chart of your data may be made in Excel. Column, area, scatter, line, pie, bar, and radar charts may all be made from various data.

- Just click the desired location to generate a chart from the selected data.
- You may also choose whatever pieces of information you want to put on a chart.
- Choose the type of chart you need under Insert   Charts   .
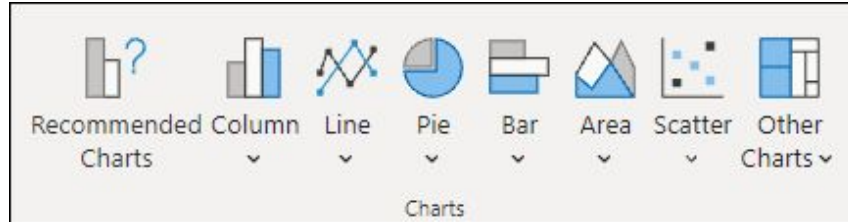
Choose what you need from the menu that appears. Hover over a graph for context.
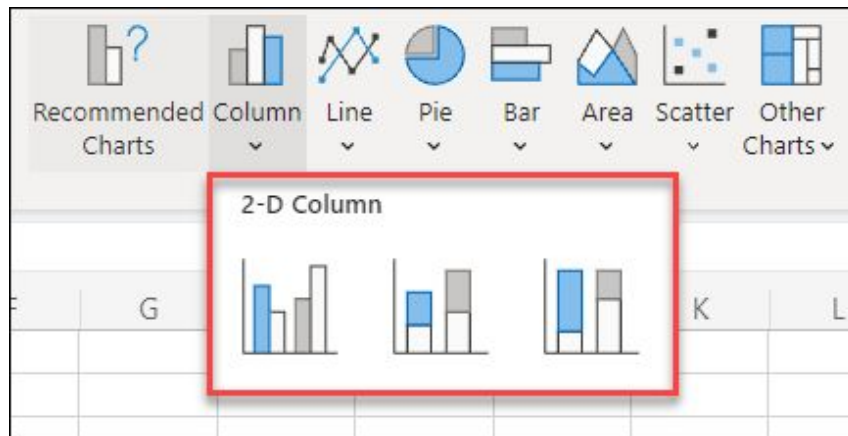
- Click the Chart tab, & then click Format to amend the chart's appearance (titles, data labels, legends, etc.).
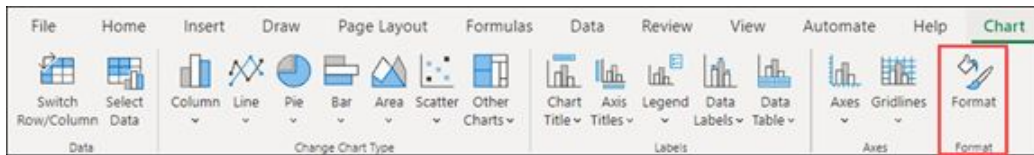
- If you need to make a change, you may do so on the Chart tab. The chart's series titles, title, axis titles, legend, and more may all be altered according to user preference.
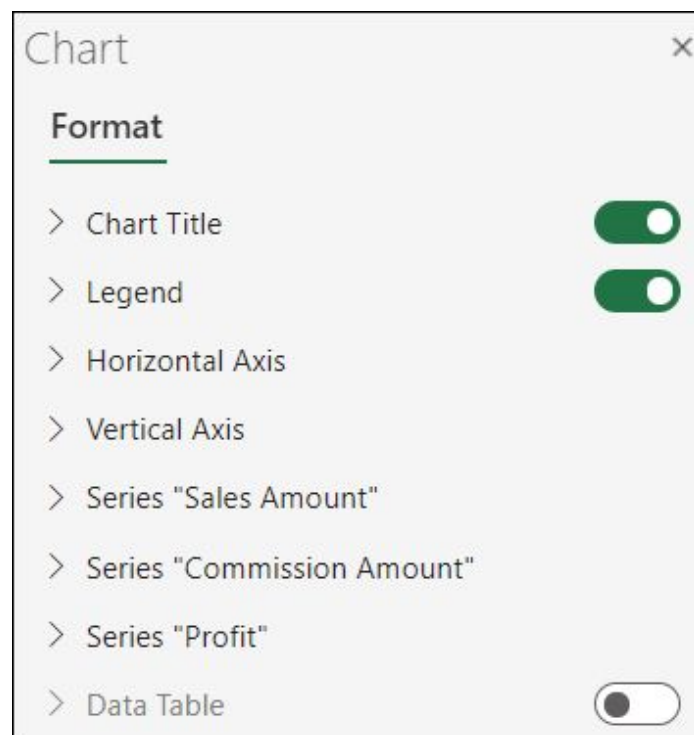
3.2 Available Chart Types

You should review your data and determine what kind of graphic would be most useful. Here is a rundown of the many options that may be obtained.

Column charts

Column charts plot data from spreadsheet rows or columns. Column charts display categories along the horizontal axis & values along your vertical axis.

EAST ASIA SALES

Types of your column charts

- Columns grouped in 2-dimensional columns represent data in a clustered column chart. You may use this graph when you have groups of data that represent:
  - Values within a range (i.e., item counts).
  - Sets of scales with very certain proportions (i.e., a Likert scale having entries, such as strongly agree, disagree, agree, strongly disagree, neutral).
  - Non-chronological list of names (i.e., geographic names, item names, or people names).
- Columnar arrangement Two-dimensional columns are stacked to display data in a stacked column chart. If you want to highlight the sum of numerous data series, this is the chart for you.
- Completely arranged in a column, A 100 percentage stacked column chart displays data as stacked 2-dimensional columns to depict a percentage value of 100%. When you wish to highlight the contribution to the entire from two or more data series, and the total would be similar for every category, use this graphic.

Line charts

Line charts depict spreadsheet data in rows or columns. Category data is uniformly distributed along a horizontal axis and value data along

your vertical axis in a line chart. Line charts may depict continuous data across time on an equally scaled axis, making them perfect for demonstrating monthly, quarterly, or annual patterns.
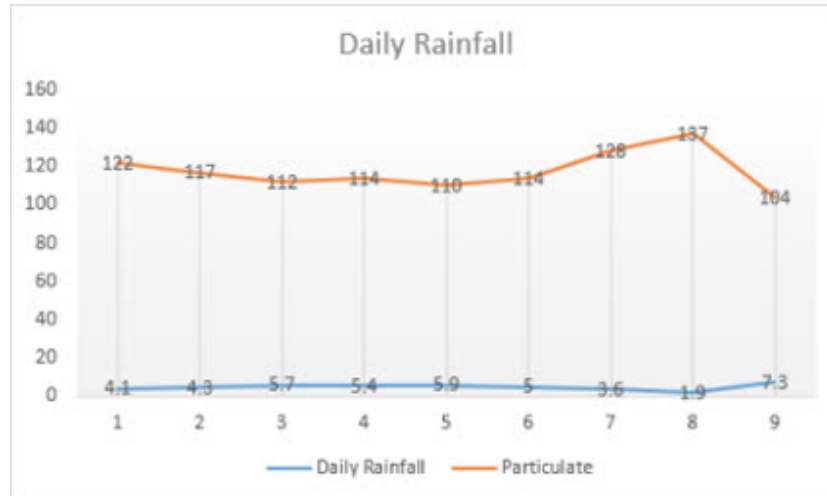
Types of Excel line charts

- Marker-line Line charts may demonstrate temporal patterns or equally spaced categories, particularly when the sequence of numerous data points is critical. Use your line chart without a marker if there are several categories or approximations.
- Stacking lines with markers Stacked line charts may depict the trend of each value's contribution through time or equally spaced categories.
- 100 percent stacked line including markers 100 percent stacked line charts may display the percentage every value contributes throughout time or equally spaced categories with or without markers. Stack your line chart without marker if there are several categories or approximate values.

Pie charts

A pie chart plots spreadsheet data in one row or column. Pie charts depict proportionate sizes of data series components. Pie charts represent data as a proportion of the entire.
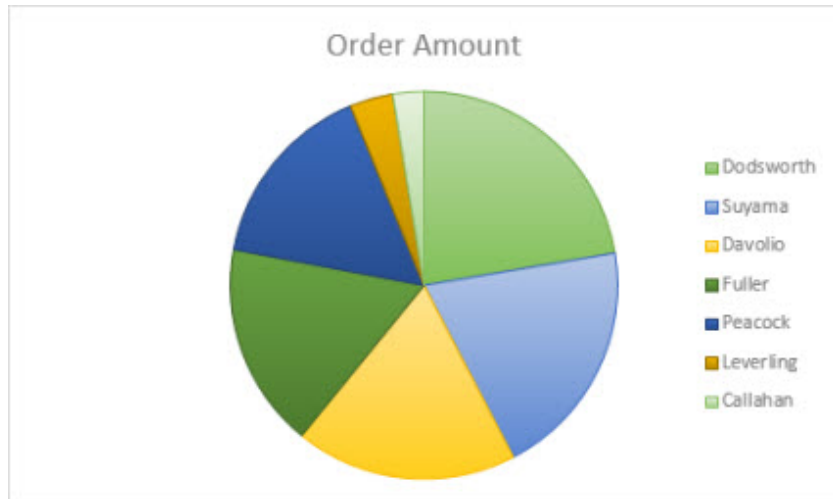
When to Use a Pie Chart:

- Your data set consists of a single series.
- Your data has no negative values.
- You rarely have null values in your data.
- You can't have more than seven groups, each representing a different slice of the pie.

Doughnut charts

A doughnut chart may be made with data that is merely in rows or columns on a spreadsheet. In the same way that a pie chart displays the proportion of one component to the total, a doughnut chart may display the connection between many data series.
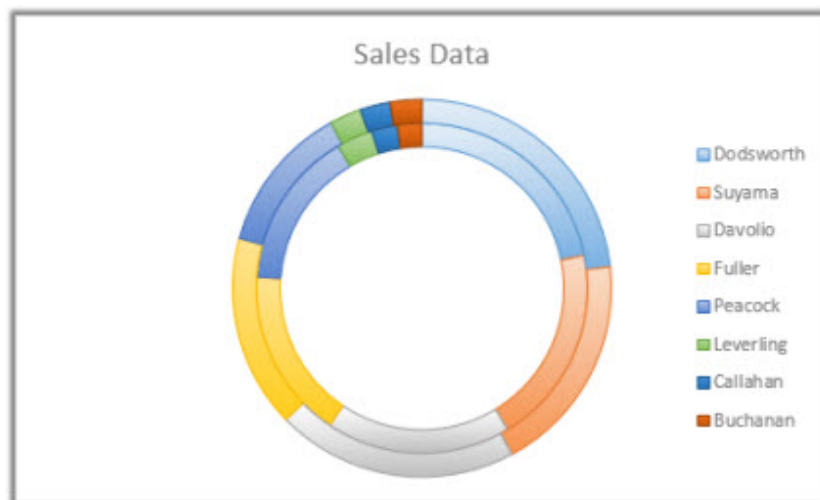
Bar charts

Bar charts may be created using data formatted in a worksheet's columns and rows. Bar graphs are useful for comparing several elements at once. The standard bar chart layout has the categories running vertically and the numbers running horizontally.
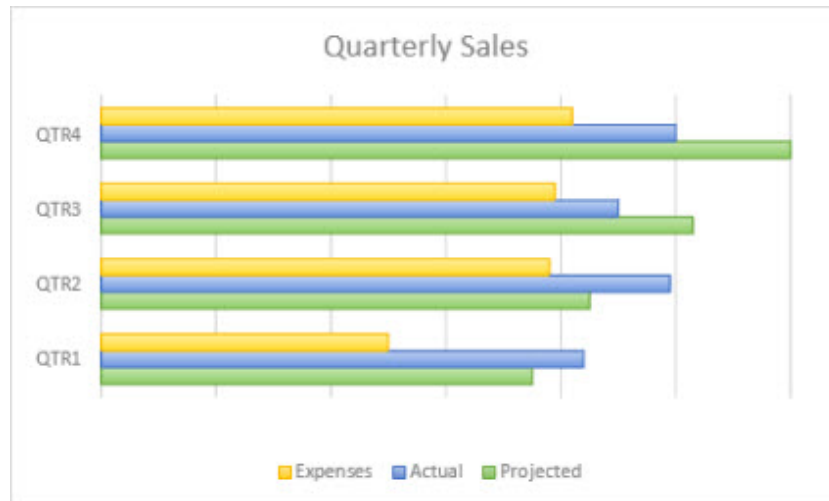
When to Use a Bar Chart

- Extensive text is used for the axis labels.
- The shown values denote times.

Types of Excel bar charts

- Clustered bar charts are a two-dimensional bar graph.
- Stacking the bar Two-dimensional "stacked" bars depict the connection of parts to the whole.
- Undeniably stacked 100 percent stacked bars are a bar chart that uses two-dimensional bars to indicate how much different values contribute to the overall total.

Area charts

Area charts depict spreadsheet data in rows or columns. Area charts show change with time & the trend's overall value. An area chart depicts the

connection of components to the whole by summing displayed values.
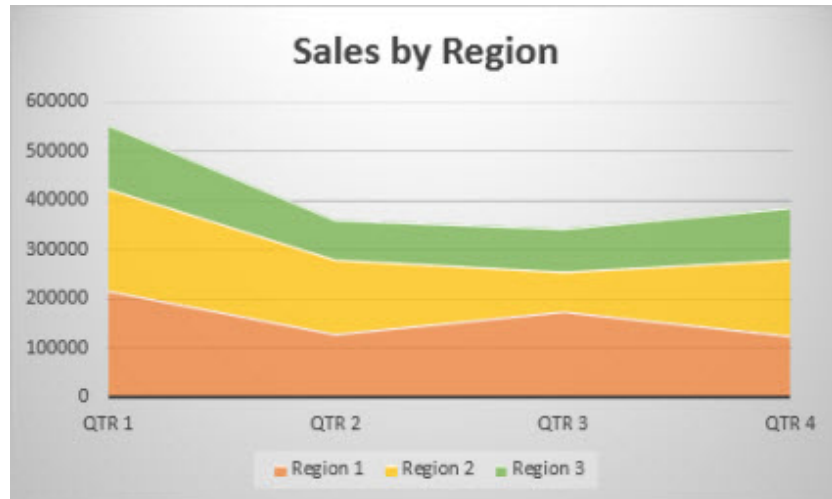
Types of Excel area charts

Area: Area charts depict data trends in 2-D. Data from one series may be concealed beneath data from another in a non-stacked area chart.

Stacked area: 2-D stacked area charts demonstrate the contributions of every value across time or category data.

100% stacked: 100 percent stacked area chart displays every value's percentage contribution across time and category data.

Scatter charts

Scatter charts plot column-and-row worksheet data. Enter x values inside one column or row & y values in neighboring columns or rows.

The scatter chart includes x & y value axes. It combines x & y values in single data clusters or points. Scatter charts compare statistical, scientific, & engineering data.
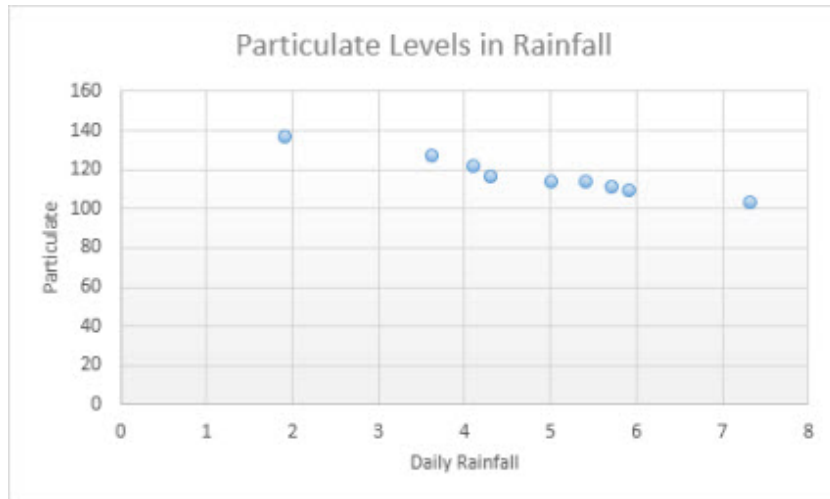
Use a scatter chart if:

- Change your horizontal axis scale.
- You should logarithmize that axis.
- Unevenly spaced horizontal values.
- Horizontal axis data is plentiful.
- Adjusting a scatter chart's independent axis scales reveals extra information about paired or grouped data.
- You should compare broad data sets, not individual points.
- The more data you include in the scatter chart, the better the comparisons.

Types of excel scatter charts

Scatter: This graph just displays data points rather than lines linking them to make it easier to see differences between values.

Markers & smooth line scattering: The data points are connected by a smooth curve in this graph. Markers are not required to display smooth lines. If there are a lot of data points, use a continuous line without any labels.

Markers & straight lines are scattered, and the same is done with the markers: Connecting lines in this graph are perfectly straight. Markers are

optional for illustrating straight lines.

Radar charts

Radar charts depict spreadsheet data in rows or columns. Radar plots compare aggregate data.
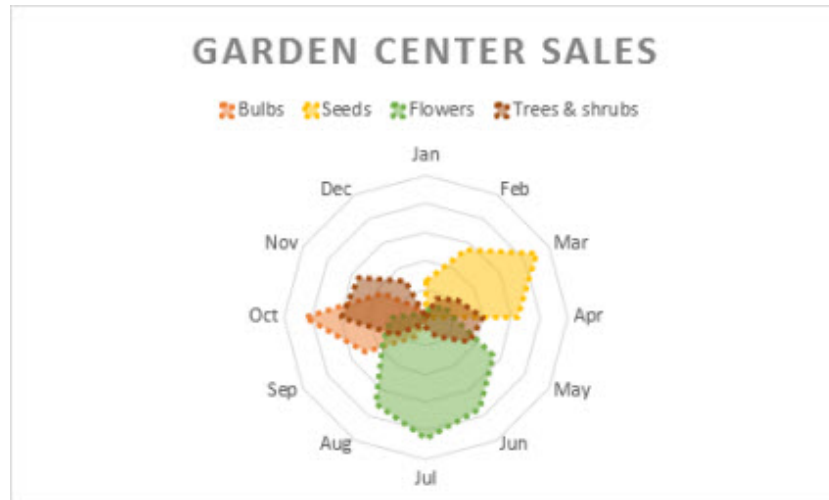
Type of excel radar charts

Radar, or Radar having Marker: Radar charts, both with and without data point markers, display variations in values concerning a fixed reference point.

Filled radars: Data series coverage in a radar chart is represented by a filled region, represented by a color.

3.3 Add And Edit Your Chart Title

A chart's title may be added, changed, and styled.

- Selecting an area on the chart will reveal the Chart tab within the ribbon.
- If you need to change the format of your chart, click your Format button.
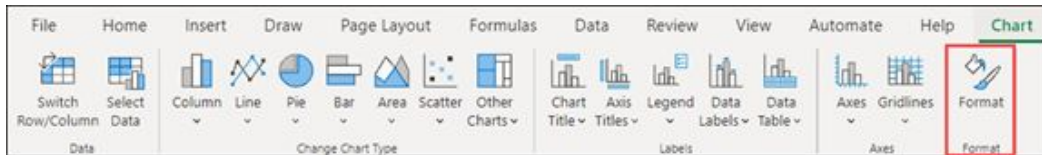
- Your Chart pane's Title section may be widened to provide more data.
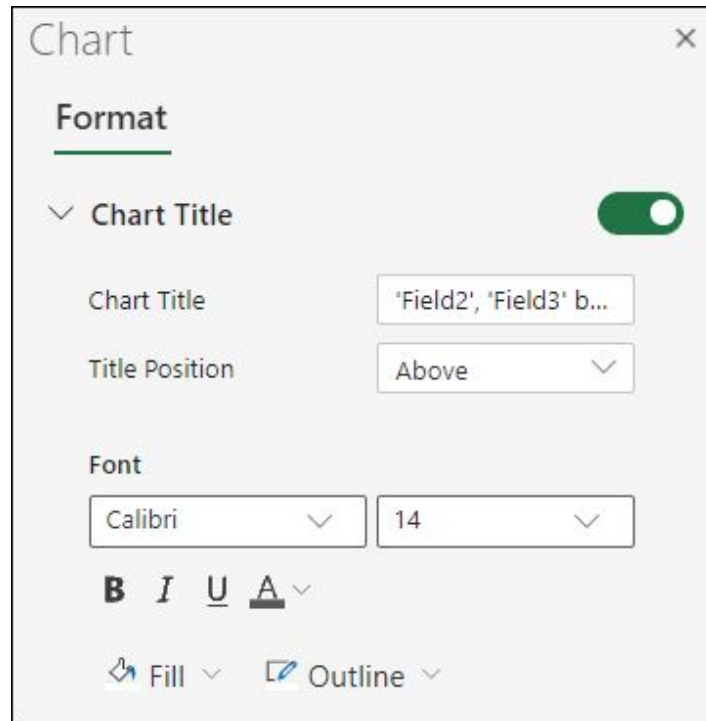
- You may customize the Chart Title by adding or changing the text.
- Just flip the switch if you'd like the chart to go without a title.

Add axis titles to improve chart readability

Adding titles to chart axes makes them simpler to read. Pie & doughnut charts can't have axis names added.

Axis names help chart viewers grasp the data.

- Selecting an area on the chart will reveal the Chart tab within the ribbon.
- If you want to change your chart's format, click on the Format button.
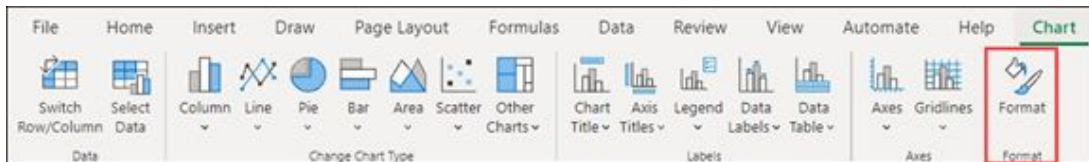
- Simply enlarge the Vertical Horizontal or Axis sub-section in the Chart window.

- If the default settings for Vertical Axis or Horizontal Axis don't work for you, feel free to add or change them.
- Add more information to the Axis heading.
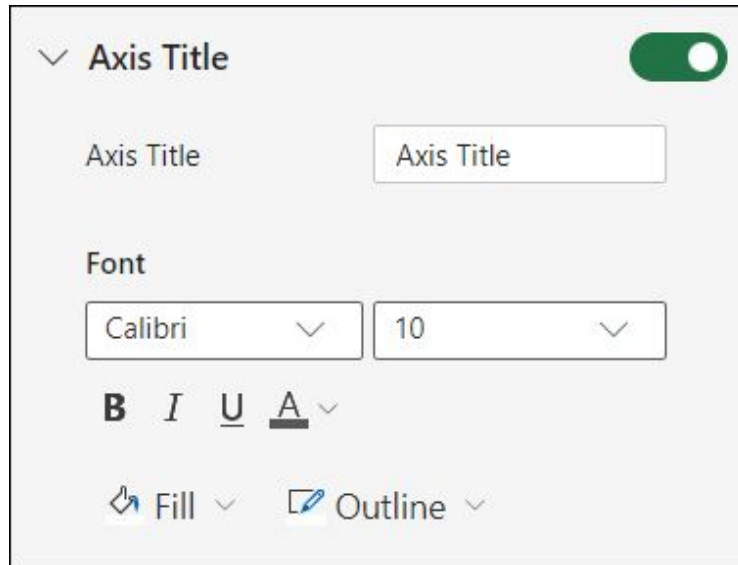
- Format it differently and replace the Axis Title.
- To toggle the title's visibility, click here.

Change your axis labels

Indices are labeled just below the horizontal and adjacent to the vertical axes. The axis labels in the chart are derived from the data.
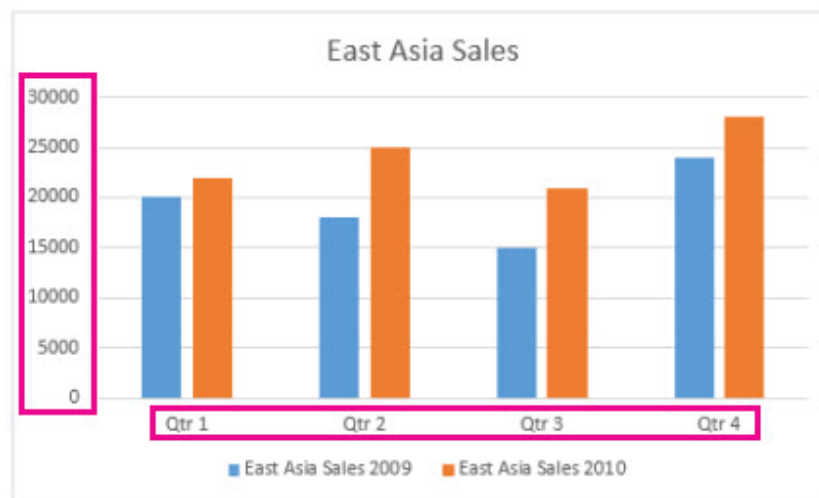
Altering the labels for the different categories along the horizontal and vertical axes may be done by:

- Pick the cell containing the label you wish to edit, and then click the cell's label text.

- Input your desired text and hit the Enter key.

The chart's axis labels will be refreshed to reflect the new content.

Remove your axis labels

If you want to get rid of labels on the x- or y-axis:

- Selecting an area on the chart will reveal the Chart tab within the ribbon.
- If you would like to change the format of your chart, click your Format button.
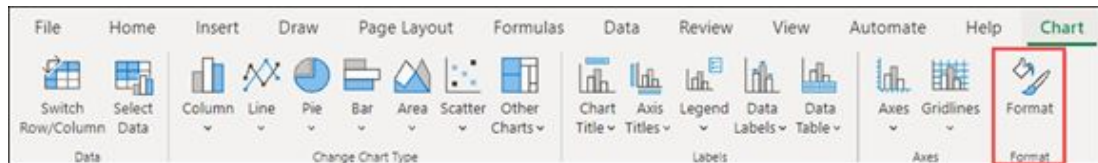
- Scale over on the vertical or horizontal axis within the Chart window.

Pick "None" from the Label Position selection menu to hide the labels.
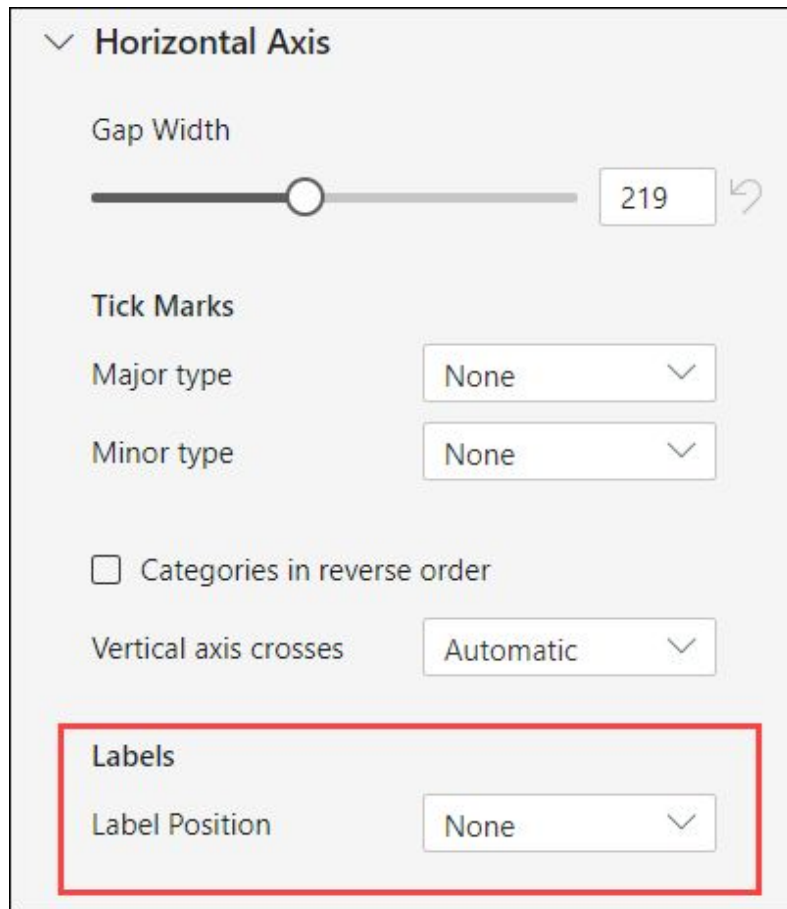
3.4 Creating Charts In Mac

Charts help you & your audience visualize data connections. You may construct numerous sorts of charts. You may alter a chart using rapid layouts or styles.

Learn the elements of a chart

Title, legend, axis labels, and gridlines are chart components. You may hide, show, & format these items.
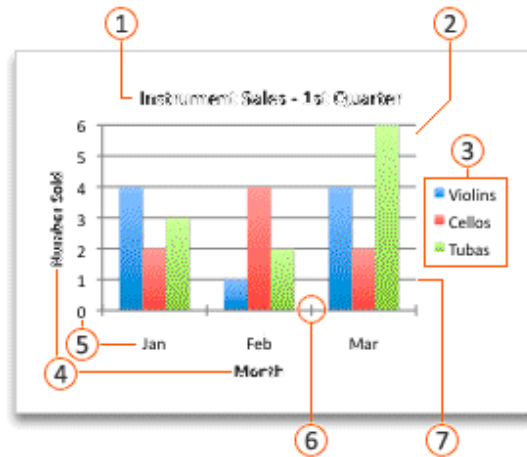
1. Chart title
2. Plot area
3. Legend
4. Axis titles
5. Axis labels
6. Tick marks
7. Gridlines

Create your chart

Excel, Word, & PowerPoint can make charts. Usually, chart data is retained in Excel. Word and PowerPoint charts launch a new Excel page. When you can save a PowerPoint presentation or Word document containing a chart, its Excel data is also saved.

- Pick Print Layout from the View menu.
- To add a chart, go to the Insert menu and click the down arrow next to the Chart option.
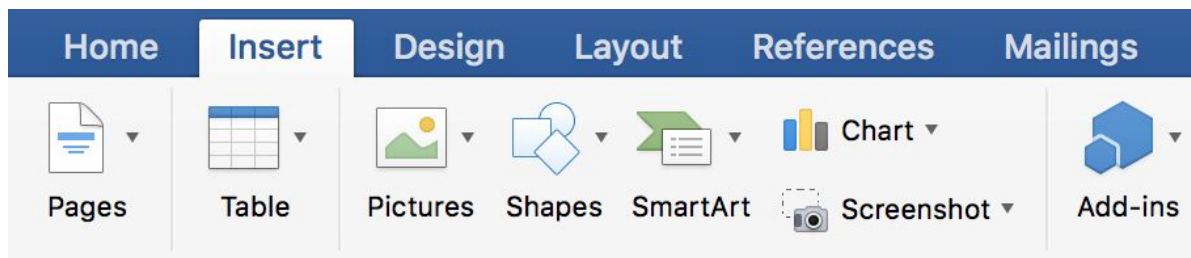
- Double-click the desired chart type.
- Inserting a chart in Word or PowerPoint opens a worksheet with example data.
- Replace sample data in Excel with chart data. Copy your data from another table and paste this over the example data. See the table below for chart data arrangement rules.

For this chart type	Arrange the data			
Area, bar, column, doughnut, line, radar, or surface chart	In columns or rows, as in the following examples:			
		Series 1	Series 2	
	Category A	10	12	
	Category B	11	14	
	Category C	9	15	
	or			
		Category A	Category B	
	Series 1	10	11	
	Series 2	12	14	
Bubble chart	In columns, putting x values in the first column and corresponding y values and bubble size values in adjacent columns, as in the following examples:			
	X-Values	Y-Value 1	Size 1	
	0.7	2.7	4	
	1.8	3.2	5	
	2.6	0.08	6	
Pie chart	In one column or row of data and one column or row of data labels, as in the following examples:			
		Sales		
	1st Qtr	25		
	2nd Qtr	30		
	3rd Qtr	45		
	or			
		1st Qtr	2nd Qtr	3rd Qtr
	Sales	25	30	45
Stock chart	In columns or rows in the following order, using names or dates as labels, as in the following examples:			
		Open	High	Low	Close
	1/5/2002	44	55	11	25
	1/6/2002	25	57	12	38
	or			
		1/5/2002	1/6/2002	
	Open	44	25	
	High	55	57	
	Low	11	12	
	Close	25	38	
X Y (scatter) chart	In columns, putting x values in the first column and corresponding y values in adjacent columns, as in the following examples:			
	X-Values	Y-Value 1		
	0.7	2.7		
	1.8	3.2		
	2.6	0.08		
	or			
	X-Values	0.7	1.8	2.6
	Y-Value 1	2.7	3.2	0.08

To adjust the chart's columns and rows, click and drag your lower-right corner of a chosen data. The following table includes additional categories

& data series.

	Violins	Cellos	Tubas	Oboes
Jan	4	2	3	1
Feb	1	4	2	3
Mar	4	2	6	5
Apr	5	3	5	2

Change back to PowerPoint or Word to see your updated documents.

Change which chart's axis has been emphasized

After creating a chart, you may wish to adjust how chart columns and rows are plotted. Your first chart may display table rows on the vertical (value) axis and columns on the horizontal (category) axis. This chart shows instrument sales.
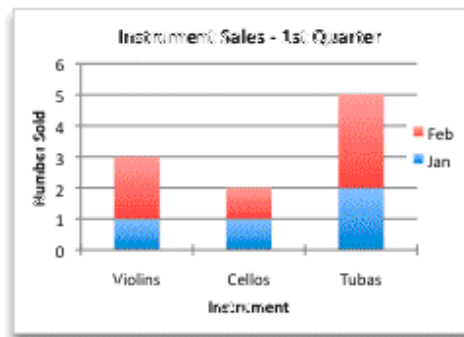
You may flip the chart's plotting to highlight monthly sales.

- Pick Print Layout from the View menu.
- You can get the graph by clicking here.

- Select Switch Row/Column from the Chart Design menu.

In case of Switch Row/Column is unavailable

Once the graph's Excel data tables are visible and only for specific chart kinds, the Switch Row/Column option accessible. Clicking the graphic will take you to an Excel spreadsheet where you may amend the data.

Apply your predefined chart layouts

- Pick Print Layout from the View menu.
- You can get the graph by clicking here.
- Navigate to the Chart Design submenu, and from there, choose Quick Layout.
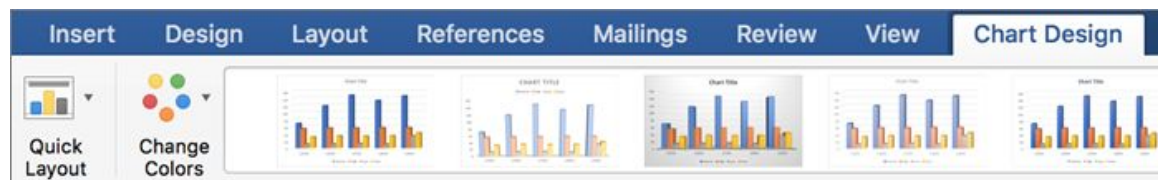
- Choose the presentation style you like by clicking on it.
- You may quickly reverse a layout change by using the Window key + "Z" key.

Apply the predefined chart styles

Chart designs are a collection of complimentary colors & effects. Changing a chart style affects the whole chart.

- Pick Print Layout from the View menu.
- You can attain the chart by selecting here.

- Select the desired layout for your chart by clicking the Chart Design option.

To see several variations of a certain style, just point & click. [▼].

Select a style you just applied and push to remove it instantly.   + Z.

Add your chart titles

- Pick Print Layout from the View menu.
- To edit the look of a chart, select it and go to Edit   Chart Design.
- Select a chart element to add it.

- When you're ready to give your chart a name, click the Chart Title to access the title format menu, and then click Back to Chart to begin typing.

Chapter 4: Excel Tables

This chapter demonstrates how to construct a table using Excel and discusses its many uses. Several helpful options are included, like total rows, calculated columns, and structural references. In addition, you'll learn how to convert a table to the ranges or change table formatting in Excel, and how you can utilize its functions and formulae.

Although it has many useful applications, Excel's table function is often underutilized. At least up until you stumble to tables, you could be alright without them. Then you realize there's a great resource you've been overlooking that might streamline your work and simplify your life.

Data conversion to a table may save you time and effort when formatting, filtering, sorting, and working with dynamic named ranges, formula references, copying formulae across columns, and other tasks. Microsoft Excel can mechanically manage all of this.

4.1 What Is A Table In Excel?

A table in Excel is a named item whose data may be edited separately from the rest of your worksheet's information. Tables, an enhanced variant of Excel 2003's List function, were first introduced in Microsoft 2007 and are included in Excel 2016, 2019, and 2022.

Calculated columns, an auto-filter, total row & sort options, automatic extension of a table, and other characteristics make Excel tables useful for data analysis and management.

Although tables often consist of several rows and columns, it is possible for them to just have a single row or column if the data they contain fits into that format. Compare the following snapshot to a typical range or a table:

Range of cells

Item	Jan	Feb	Mar
Lemons	$300	$220	$240
Bananas	$190	$190	$170
Apples	$220	$170	$220
Peaches	$180	$200	$220
Oranges	$220	$190	$120
Total	$1,110	$970	$970

Excel table

Item	Jan	Feb	Mar
Lemons	$300	$220	$240
Bananas	$190	$190	$170
Apples	$220	$170	$220
Peaches	$180	$200	$220
Oranges	$220	$190	$120
Total	$1,110	$970	$970

4.2 How Can You Make A Table Using Excel?

While strictly wrong, the term "table" is sometimes used to describe a spreadsheet collection of connected data entered. Various cells may be turned into a table by applying the proper formatting. More than one approach may accomplish the same goal in Excel.

3 ways for creating a table using Excel

After arranging your data into columns and rows, select a single cell in your spreadsheet and execute one of the following to create a table:

- Select Table within Tables sub-group of the Insert tab. The table will be inserted using the current theme's specifications.
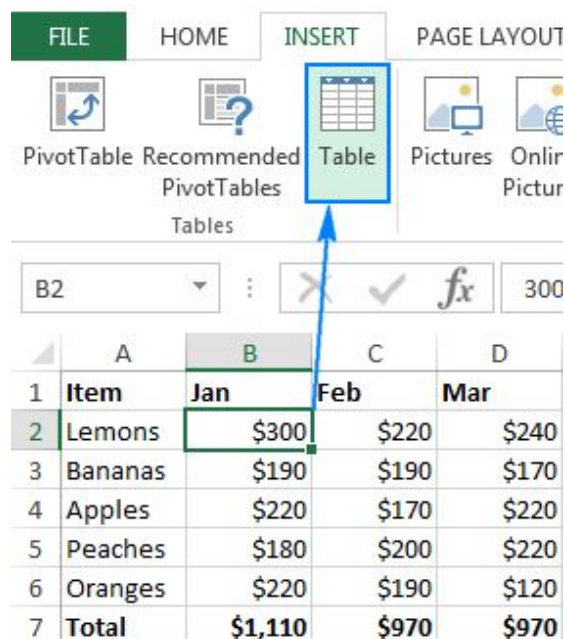
- Click Format, a Table within the Styles section of the home page, then choose a predesigned table style.
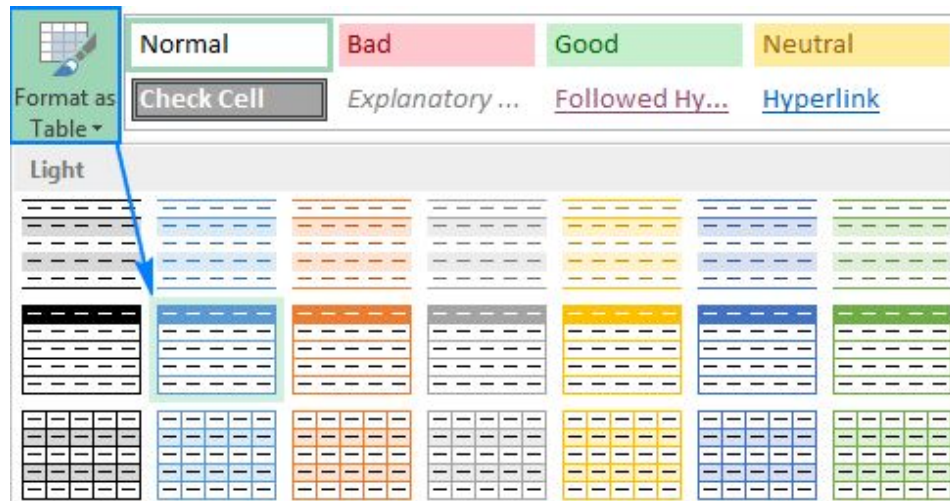
- Using Excel Table shortcuts is the quickest method to create a table if you'd rather use the keyboard than the mouse. Ctrl+T

Microsoft Excel will select the full block of cells regardless of your chosen approach. Double-check the range you've chosen, select or deselect My table includes headers, and then hit the OK button.
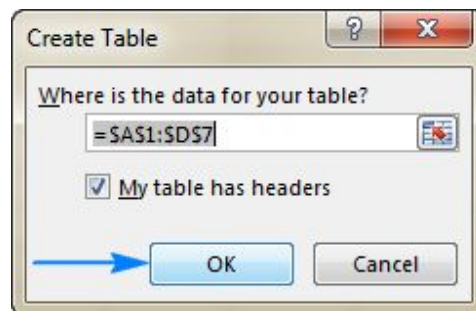
The result is a table in your spreadsheet with clean formatting. The filter buttons within the header row make it appear like a regular range, but it has a lot of extra functionality.

4.3 10 Most Useful Features Of Excel Tables

Excel tables, as was previously noted, provide many benefits over regular data ranges. Therefore, why not use the robust capabilities that are only one click away?

1. Integrated sorting & filtering options

Filtering and sorting data in a spreadsheet often require many clicks. The tables' header rows now have filter arrows that let you apply a wide variety of text and numeric filters, sort by descending or ascending order, by color, or with a custom sort order, you specify.
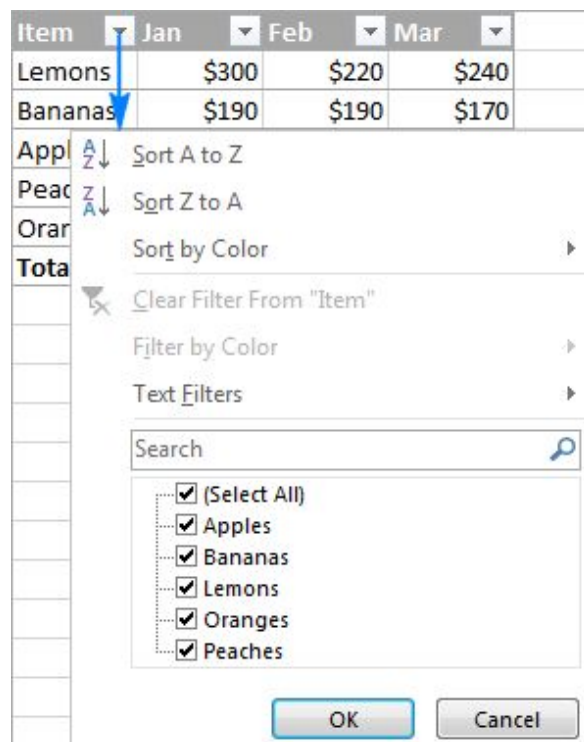
It's simple to conceal the filter arrows if you don't intend to use them by heading to a Design tab   Table Style Options group & unchecking your Filter Button box.
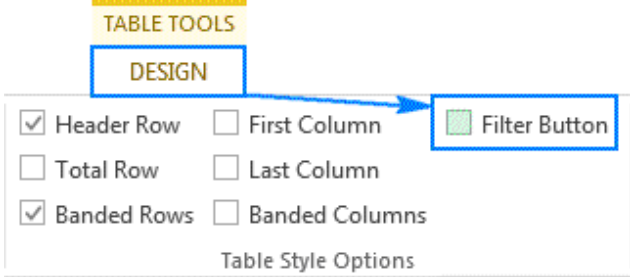
Also, you may use the Shift+Ctrl+L keyboard shortcut to reveal or hide the filter arrows.

In addition, a slicer may be made to filter your table data with a flash within Excel 2013 & later.

2. Column headings are visible while scrolling

If you're working with a table that's too big to fit on your screen, don't worry—the header row will always be at the top of the page. If you're still having trouble, try selecting a cell within your table before you scroll.

3. Easy formatting (Excel table Designs)

A freshly generated table will have rows grouped, borders drawn, and shading applied by default. More than fifty preset table styles are accessible in the Table Styles gallery under the Design tab if you dislike the basic table format.
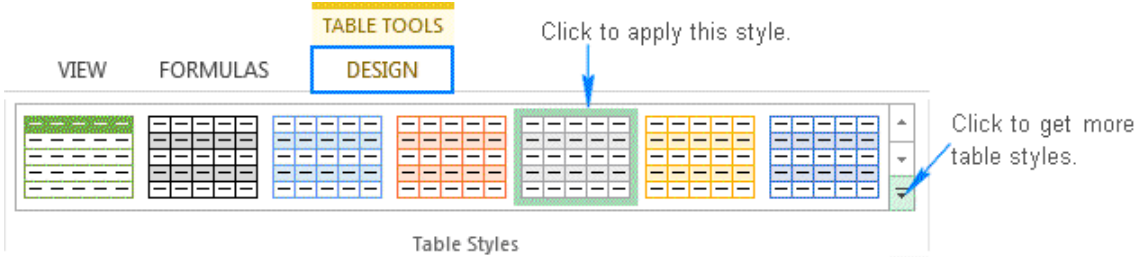
The Design tab also allows you to toggle the following table components on and off in addition to altering table styles:

- **Header row** - shows the column titles in a fixed position, even while the data within the table is scrolled.
- **Total row** - the addition of a summation row just at the end of your table, with a selection of preconfigured functions from which to choose.
- **Banded rows & banded columns** - exhibits alternating column or row shading.
- **First column & last column** - format the table's first and final columns differently.
- **Filter button** - displays/hides filter arrows within header row.

Here's a snapshot of the standard Table Style Option:
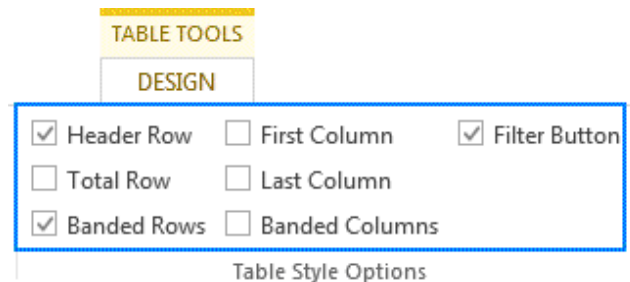
Table Style Tips:

Any cell you click in your table will bring up the Design tab if it has mysteriously vanished from your worksheet.

By right clicking a table style in Excel's Table Style gallery and choosing Set as Default, you can make that style the default for the whole workbook.

Delete table formatting by selecting the Table Styles group on the Design tab, clicking the More button in the bottom-right corner, and then clicking Clear underneath your table style thumbnail.

4. Automatic table expansions to include newer data

Spreadsheets need additional formatting & reformatting effort when new columns or rows are added. Certainly not if you have your information neatly laid out on a table. If you start typing beside a table in Excel, it will automatically expand to make room for your new input.

Item	Jan	Feb	Mar	Apr
Lemons	$300	$220	$240	$100
Bananas	$190	$190	$170	
Apples	$220	$170	$220	
Peaches	$180	$200	$220	
Oranges	$220	$190	$120	
Grapes				

A table expands automatically to include new data.

Your table formatting is changed for the newly inserted row or column, and alternative row coloring (banded rows) is preserved. Table functions and formulae are applied to the new data, not simply the style.

When you construct a table with Excel, it's a "dynamic table" by nature and extends dynamically to accommodate new data.

Click Undo / just on Quick Access Toolbars to undo table expansion or press Ctrl+Z.

5. Quick total (total row)

You can rapidly add up the numbers in your table by showing the total row at the bottom and then choosing the appropriate function from the drop-down menu.

Right-click a table cell, choose Table from the menu and then select Totals Row to add a totals row to your table.

Alternative: check the Total Row box in the Table Style Options group under the Design tab:
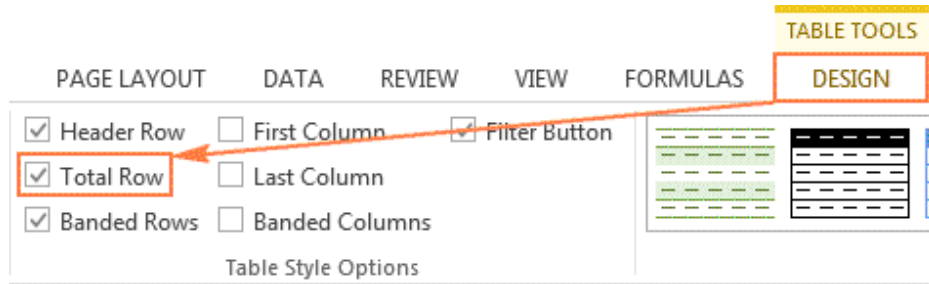
The total row is at the edge of the table. Choose the function for every total row of cells, & the formula is immediately written.

Total Row Tip:

Excel table functionalities go beyond the drop-down list. Click on More Functions or put a formula in either total row column to add a function.

Total row adds the SUBTOTAL function, which only calculates visible (unfiltered) cells. Enter an AVERAGE, SUM, COUNT, etc., formula to total visible and unseen rows.

6. Calculating table's data (calculated columns)

Excel tables enable you to compute a whole column by inserting formulas in one cell.

In cell E2 of our sample table, insert the Average formula for creating a calculated column.

The formula is copied to additional cells within column & modified for every table row when you press Enter.

Calculated Column Tip:

If your table doesn't have a calculated column, switch on Excel's Fill formulae in tables to generate the calculated columns option. Click File Options, Proofing, AutoCorrect Options, AutoFormat as You Type.

Formulas in data-filled cells don't construct calculated columns. In this situation, the AutoCorrect Options option (shown below) enables you to rewrite the whole column's data to create a calculated column.

Click Undo the Calculated Column into AutoCorrect Options or Undo on the Quick Access toolbar to undo a calculated column.

7. Easy-to-understand the table formula (structured references)

Tables may generate dynamic, easy-to-read calculations using table & column names rather than cell addresses.

This algorithm averages the Sales table columns Jan through Mar:

=AVERAGE (Sales_table [@ [Jan]: [Mar]])

Excel automatically forms structured references, so you don't need to learn their syntax. They also modify automatically once data is added or withdrawn from the table, so you do not have to update them manually.

8. One-click data selections

Just use the mouse to choose table cells & ranges. Rows & columns may be clicked.

9. Dynamic chart

When you generate a chart from a table, it changes as you change the table. The graph extends dynamically as a new column or row is inserted into a table. Excel immediately removes deleted table data from the graphic. Automatic chart range adjustment is beneficial for expanding or contracting data sets.

10. Printing just the table

Select any sell in your table, hit Ctrl+P, and click File (Print to print only the table). Automatically pick Print Selected Table without adjusting print settings.
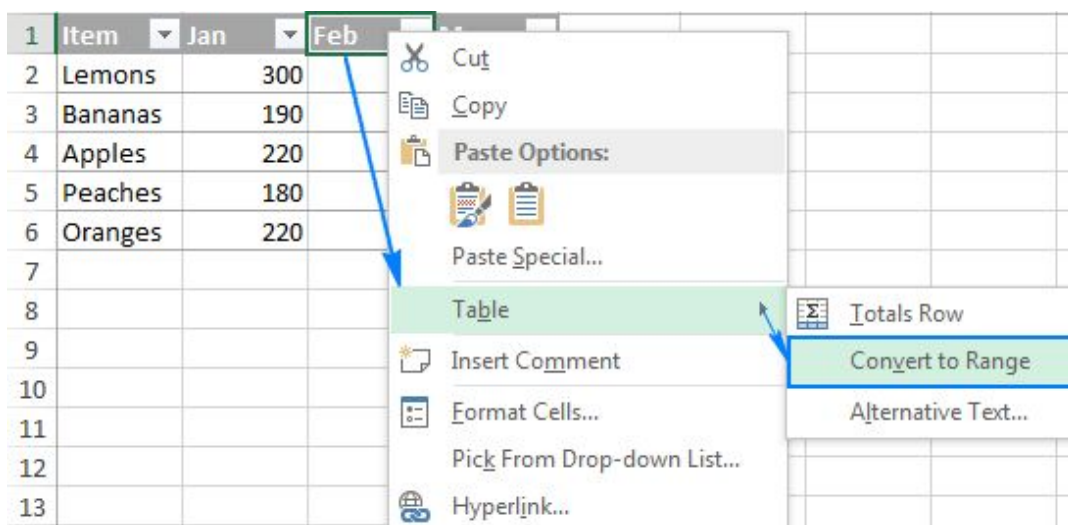
4.4 Managing Data In Your Excel Table

So now you understand how to construct a table using Excel and utilize its primary features, learn a few additional secrets.

How can you convert your table to the range?

Click Convert to Range on the Design tab　　Tools group to delete a table without losing data or formatting.

Right-click on the table & choose Table　　Convert to a Range.

This deletes a table while preserving data & formats. Excel changes table formulae & structured references to conventional cell references.

Adding Or Removing Table Rows & Columns

To add a new column or row to a table, enter a value into the cell immediately below the table or to the side of the table, respectively.

To insert a new row into the table while the Total rows are hidden, choose the bottom-right cell and hit on Tab key.

Just use Insert options within the home tab   Cells group to add a new row or column to an existing table. You may also right-click the cell above which you wish to put a row, choose Insert   Table Rows Above, then add a column to the left by selecting Table Columns to a Left.
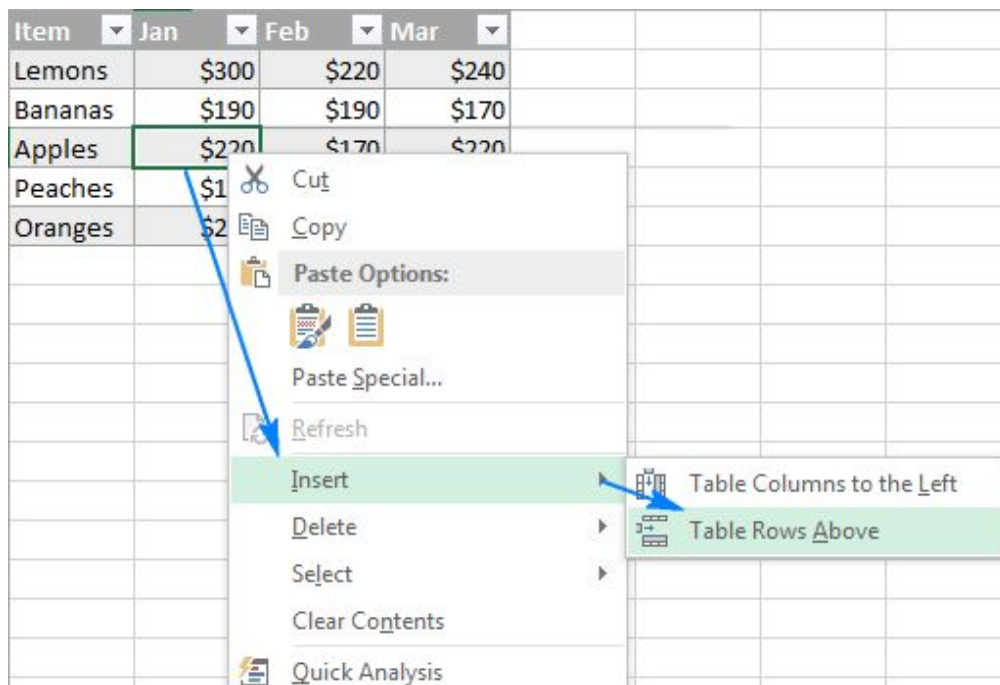
Right clicking a cell in the column or row you wish to delete, selecting Delete, and then selecting either Table Row or Table Column will do this. Alternatively, you may choose the appropriate action by clicking the down arrow next to the Delete button in the home tab's Cells group.
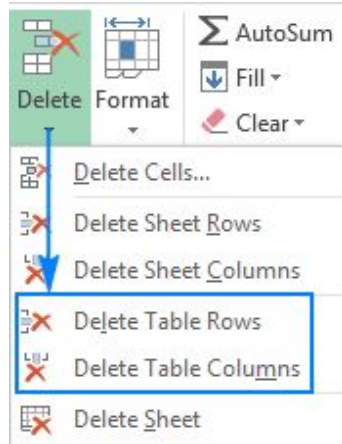
Resize your Excel table

Drag your triangular resize slider in the bottom right edge of your table up, right, down, or left to make room for more columns or rows or to remove any of the ones already there.

Drag to rezise the table.

Selecting Columns and Rows in Table

You may use the mouse to pick cells in the Excel table as you would expect. Additional one-click option guidance is provided below.

Selecting the table row or column

To make the pointer become a black arrow, move it to the upper portion of column headers or left borders of a table row. You may pick only the data region in the column by clicking the arrow once or the whole row by clicking it twice, as seen in the accompanying picture.

If a worksheet row or column is chosen instead of a table row or column, drag the mouse cursor to the table row borders or table column headers to deselect the row number or column letter.

Alternative shortcuts:

To pick a table column, select a cell & click Ctrl+Space first to choose only the data or twice to pick the header & total row.

Ctrl+Shift+right arrow selects a table row.

Selecting the whole table

To select your table data region, click its upper-left corner; the mouse cursor will shift to a southeast arrow. Double-click the arrow to pick the full table, headers & everything.

Click each table cell and use CTRL+A to select table data. CTRL+A twice selects the whole table, including headings and totals.

Inserting the slicer for filtering table data in a visual way

Only pivot tables can have slicers created for them in Excel 2010, but you can make your own. Newer versions of slicers allow you to filter table data as well.

The steps below will elaborate you how you can add one slicer to any Excel table:

- To insert a slicer, choose the Design menu   Tools section.
- Select the columns for which you need slicers within the Insert Slicers dialogue box.
- Just hit the "OK" button.

This may cause one or even more slicers to appear in the worksheet; use them to choose the columns you'd want to see.

Hold down your Ctrl key when selecting several things to see them all at once.
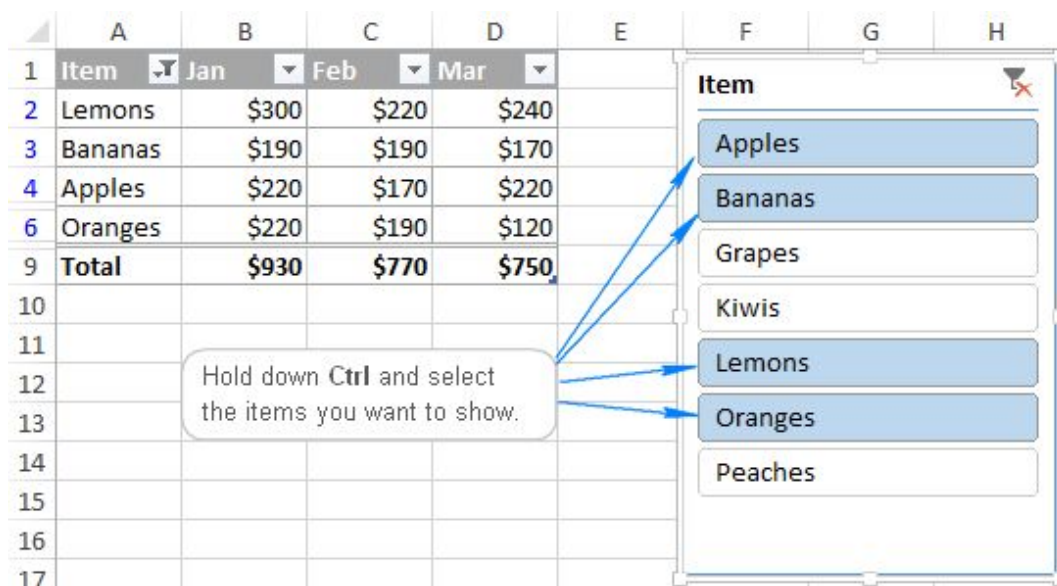
Naming The Table Using Excel

A table's default name in Excel is something like "Table 1," "Table 2," and so on. You can get by with the default names, but there are instances when

you may wish to rename your table to something more descriptive. Adjusting the tablecloth is as simple as can be.

For renaming your Excel table:

- Select a table cell anywhere you like.
- Change name of your table within Design   Properties   Table Name box.
- To proceed, please press the enter key.

And that's the whole of it!

Removing Duplicate from The Table

It's another great feature of Xls tables that few people use. Just follow below steps for getting rid of duplicates in your table:

- Choose Remove Duplicates from the Design menu's Tools section.
- Choose the columns that might have duplicates within the Remove Duplicates dialogue box.
- Just hit the "OK" button.

Done!
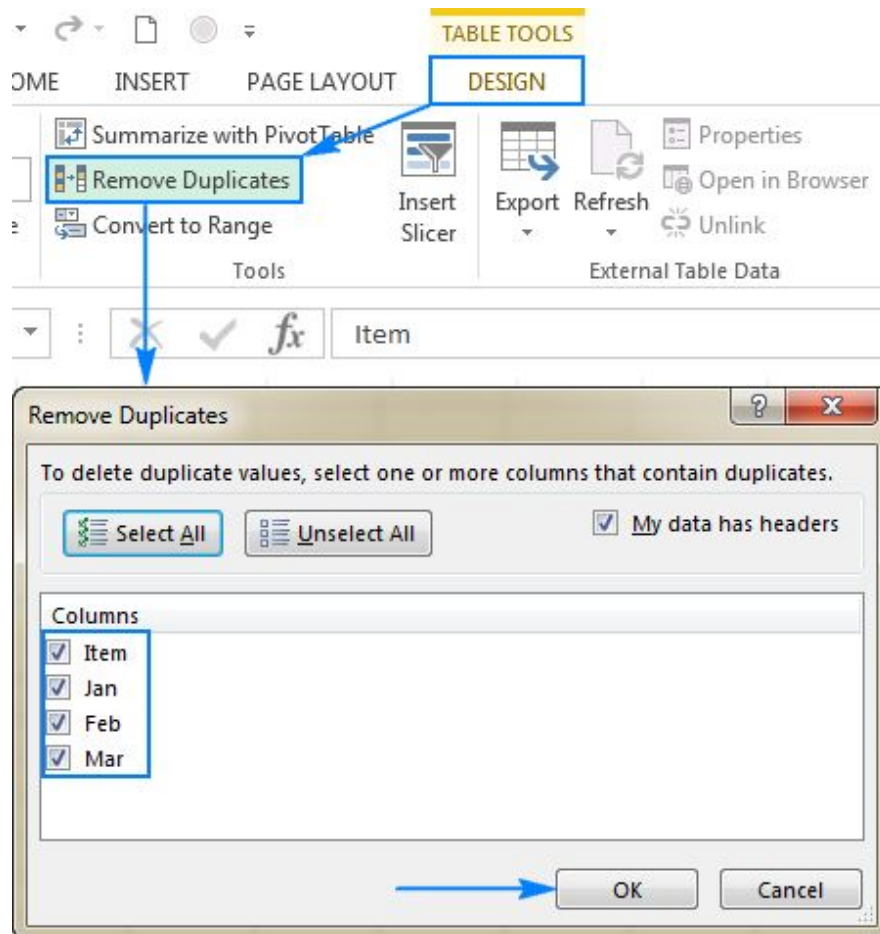
4.5 Pivot Tables

Microsoft Excel's pivot table is powerful and daunting. It helps summarize and understand big data sets. If you're not an Excel expert, pivot tables are intimidating.

Excel's pivot table feature is simpler to use than you may think.

Before we guide you through making one, let's define what a pivot table is & why you would need one.

What's the pivot table?

The pivot table is a data summary graphic that allows you to analyze on and study patterns. Pivot tables are handy if you have extensive rows or columns you need to total and compare.

Pivot tables pull meaning from the statistics on your screen. It helps you organize data so you can form better conclusions.

A pivot table lets you spin (pivot) your data to see it from multiple angles. Pivots don't add, subtract, or otherwise change data. You're restructuring the data to find helpful information.

Uses of Pivot Table

If you're still perplexed, don't worry. Once you see it in action, it's easy to grasp.

Pivot tables summarize enormous volumes of data quickly and easily. They can assist grasp, showing, and analyzing numerical data in depth and answering unforeseen queries.

Here are 7 potential uses for pivot tables.

1. Comparing sales total of your different products.

Say you've got a spreadsheet with monthly sale data for 3 items, products 1, 2, and 3, then you would like to determine one that has brought in the most money. You might manually add product 1's sales to the worksheet's running total. Repeat for products 2 and 3 till you have totals. Right?

Imagine your sales spreadsheet contains hundreds of rows. Sorting manually might take a lifetime. Using the pivot table, you may aggregate sales information for products 1, 2, & 3 in under a minute.

2. Showing product sales like percentages of your total sales.

Whenever a pivot table is constructed, the sums for each row and column are shown automatically. That sum isn't the only one you can generate mechanically, however.

To illustrate, imagine you created a pivot table in Excel based on quarterly sales figures for three different goods placed into an Excel sheet. When you

sum up the quarterly sales of each product, the table will automatically provide you with 3 totals just at the bottom of every column. However, suppose you were interested in determining not only the overall sales of these items but the % contribution of these products to total business sales.

It is possible to use a pivot table to display the % contribution of each column to the overall total, rather than simply the column total, by configuring the table in this way. Given that three products' sales add up to $200,000, the first product's $45,000 in revenue would represent 22.5 percent of the company's total sales if a pivot table were modified accordingly.

By right clicking the column containing a sales total & selecting Show Values As > percent of Grand Overall, you may display product sales like percentages of overall sales inside a pivot table.

3. Combining your duplicate data

Your blog has just undergone a facelift, and you updated several URLs as part of the process. The "view" statistics for individual articles were accidentally divided across two URLs due to a bug in your blog reporting program. For this reason, your spreadsheet has duplicate entries for each blog post. View counts for these duplicates must be added together for an accurate count.

The pivot table is useful for this purpose. The viewed metrics from such duplicate posts would be combined automatically once you have summarized your data (through pivot table) into the blog post title.

4. Determining the Total Number of Employees in Each Division

The automated calculations in pivot tables are a great time saver for when you need information that isn't readily available in a standard Excel table.

One example is keeping track of the number of rows that share a characteristic.

For example, if you've got a list of workers on an Excel sheet, next to their names, you have the departments to which they belong; you may make a pivot table that lists the names of the departments and the total number of employees in each. Thanks to the pivot table, you no longer must manually count rows in Excel or arrange data by department.

5. Filling up blank cells with predetermined values

Not every cell will be filled out when you import a data collection into Excel. When presenting this information to your boss, you may find many blank cells since you are waiting for fresh data to come in just before putting it into Excel. In this case, you may use pivot tables.

A pivot table's blank cells may be automatically filled with a specified value, such as $0 or To Be Determined (for "to be determined"). The ability to easily identify cells is very helpful for huge data tables when several persons are studying on the same page.

Right-click on table you would like to modify and choose PivotTable Options to have any blank cells filled in for you. In the resulting window, choose the option labeled "Empty Cells As," and then type in the text you want to show in the empty cells.

4.6 Creating The Pivot Table

- Fill in the appropriate rows and columns with your data.
- Put your information in order by some criterion.
- Select the cells you want to use in your pivot table.
- To add a column to the Row Labels section, drag the column you want there.
- Pick a field and put it into the "Values" box.

- Hone your math skills.

You'll get down to the practical details of creating a pivot table now that you've better grasped the many potential applications.

First, choose a range of columns and rows to store your information.

To create a pivot table in Excel, you must first have your data organized in a standard Excel table. To make this table, fill in the appropriate rows and columns with the appropriate information. Use the top row or column to sort your data from most significant to least.

You might, for instance, create an Excel table with columns for "Top Pages," "Clicks," "Impressions," & so on to track the success of your blog posts. (That is what you will do as an example in the next several phases.)

	A	B	C	D	E
1	Top pages	Clicks	Impressions	CTR	Position
2	https://blog.hubspot.com/sales/famous-quotes	1026357	29679820	3.46%	5.45
3	https://blog.hubspot.com/sales/small-business-ideas	685091	12847519	5.33%	8.91
4	https://blog.hubspot.com/marketing/instagram-best-time-post	330548	6119298	5.40%	4.06
5	https://blog.hubspot.com/sales/business-name-ideas	291512	4693144	6.21%	9.53
6	https://blog.hubspot.com/marketing/post-to-instagram-from-comp	290584	3181539	9.13%	5.35
7	https://blog.hubspot.com/marketing/instagram-captions	287172	15258895	1.88%	7.91
8	https://blog.hubspot.com/sales/please-find-attached	272861	3563986	7.66%	12.36
9	https://blog.hubspot.com/marketing/professional-bio-examples	242311	2758974	8.78%	5.78
10	https://blog.hubspot.com/marketing/inspiring-company-mission-st	199199	3202086	6.22%	7.08
11	https://blog.hubspot.com/marketing/free-email-accounts	187233	4459481	4.20%	11.74
12	https://blog.hubspot.com/marketing/what-is-your-greatest-weakne	180857	2754893	6.56%	7.41
13	https://blog.hubspot.com/marketing/teamwork-quotes	177810	2087848	8.52%	6.92
14	https://blog.hubspot.com/marketing/how-to-repost-on-instagram	159573	2278343	7.00%	7.52
15	https://blog.hubspot.com/marketing/company-profile	156022	1516735	10.29%	5.72
16	https://blog.hubspot.com/marketing/ice-breaker-games	154548	1833468	8.43%	9.73

The second step is to sort your data according to a certain criterion.

If you want to use Excel's pivot table feature, you would like to sort the data you've put into your spreadsheet in some manner.

Select the Sort button beneath the Data tab within the top menu bar to arrange your files. In the resulting box, you'll see an option to sort the data through any column in any order you choose.

Select the column title under Column, such as "Views to Date," and then choose whether you want to organize your posts from last big or vice versa.

After reordering the rows of the Excel sheet based on the number of views every blog post has gotten, you can confirm your changes by clicking OK in the bottom-right corner of the Sort box.
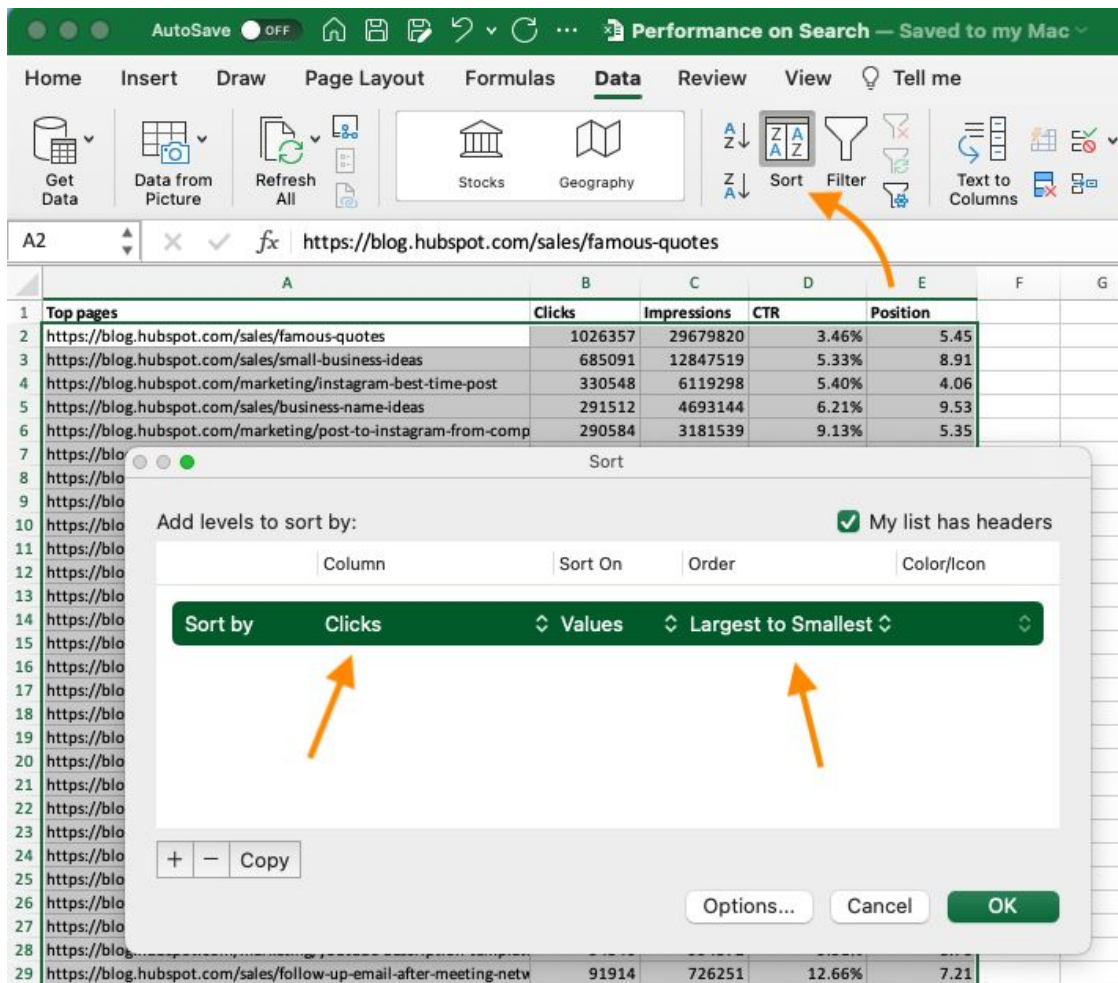
Third, choose the cells you want to include in your pivot table.

Once your data input is sorted in an Excel worksheet, you may choose the cells you want to summarize in the pivot table. For creating the pivot table, go to Insert in the menu bar and click PivotTable. You may right-click anywhere on the worksheet, choose "PivotTable," then input any range of the cells you want to include in the PivotTable by hand.

This will bring up a dialogue box where you can specify the cell range you want to work with and whether you want to open the pivot table inside a separate worksheet or continue collaborating with it in the current one. You may use the tabs at the bottom of the Excel worksheet to go to and from a new sheet. After making your selection, confirm it by selecting OK.

Choose Recommended PivotTables towards the right of a PivotTable icon to open your pivot table containing pre-set ideas for how to arrange each row and column once you have selected the cells you want to organize.
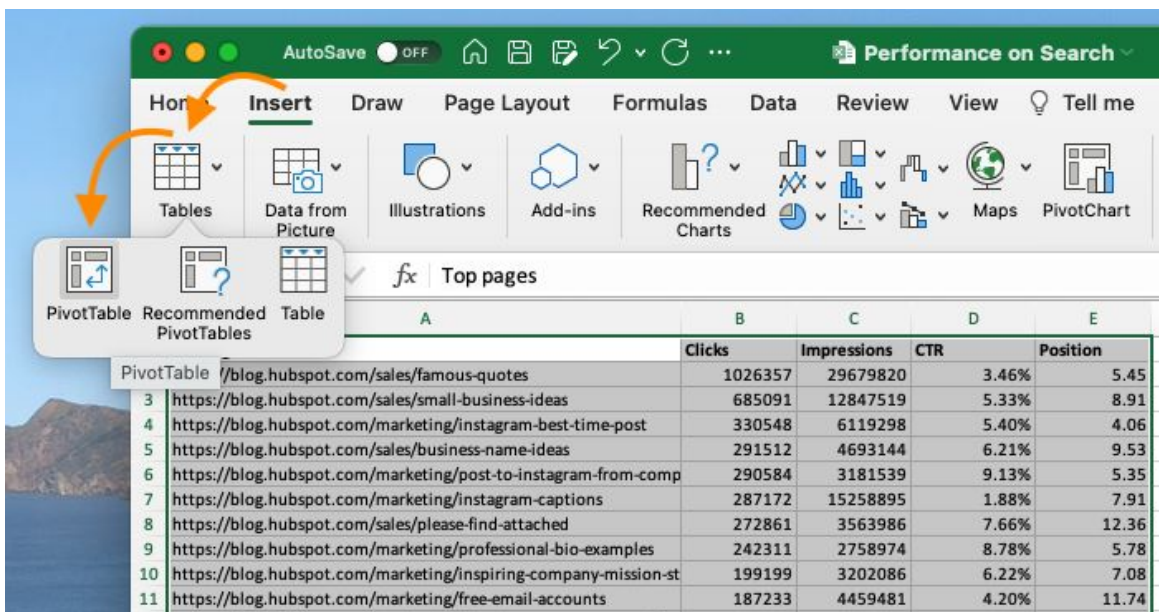
Remember that "PivotTables" may be located under Data or Tables all along the top menu rather than "Insert" if you're using an older version of Excel. Pivot tables may be made in Google Sheets by selecting the Data option from the menu bar at the top of the page.

Put a field within the "Row Labels" section by dragging it there.

Excel will automatically generate an empty pivot table when you finish Step 3. When ready, go to the Row Labels box and put a field, naming it after the column headings in your spreadsheet. Your pivot table would sort

your data by the selected unique identifier, such as blog post subject, product name, etc.

For argument's sake, let's imagine that you wish to sort a large amount of data from a blog by post title. The "Top pages" field may be moved to a "Row Labels" section by clicking and dragging.
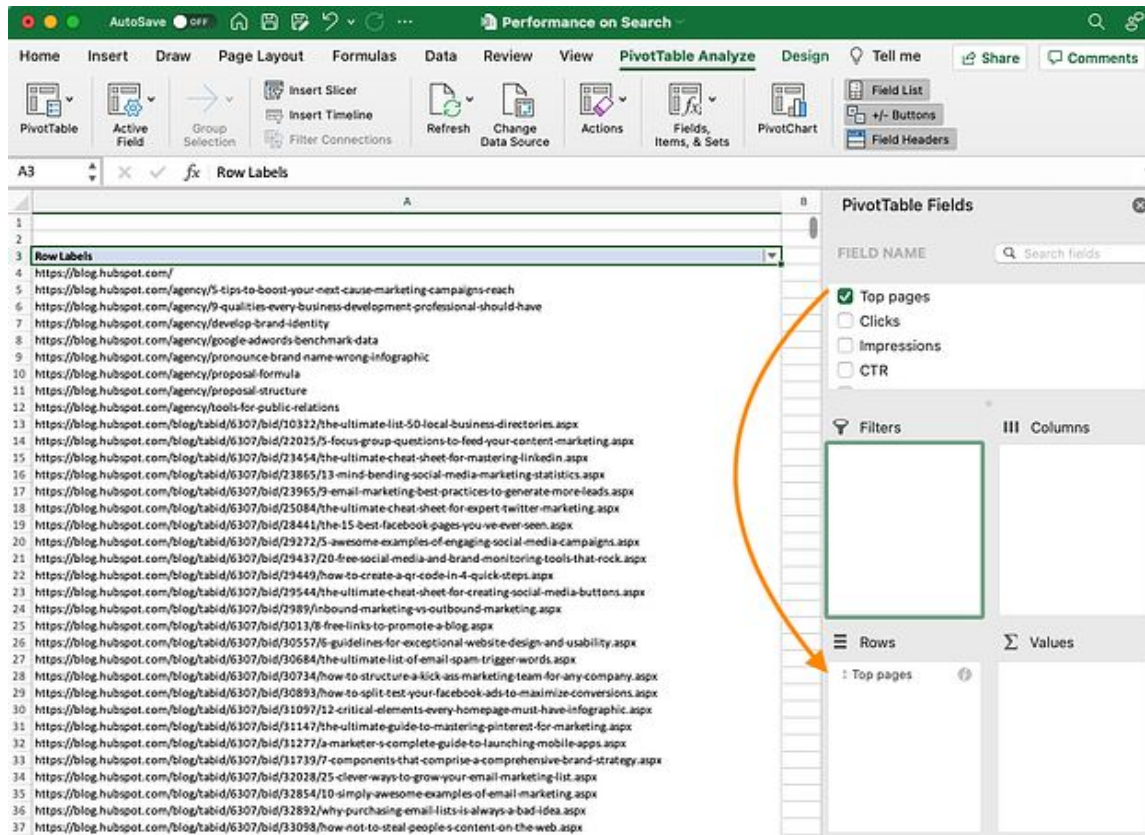
A pivot table's appearance might vary based on the version of Microsoft Excel you're using. All the same, fundamental rules apply.

A field is added to the "Values" section once it is dragged and dropped in Step 5.

After deciding how you'll categorize your information, the next step is to add values by sliding a field into the Values section.

Let's continue with the posting data example and imagine you're interested in a summary of blog post reads by title. The "Views" field may be moved

to the Values section and dropped there.
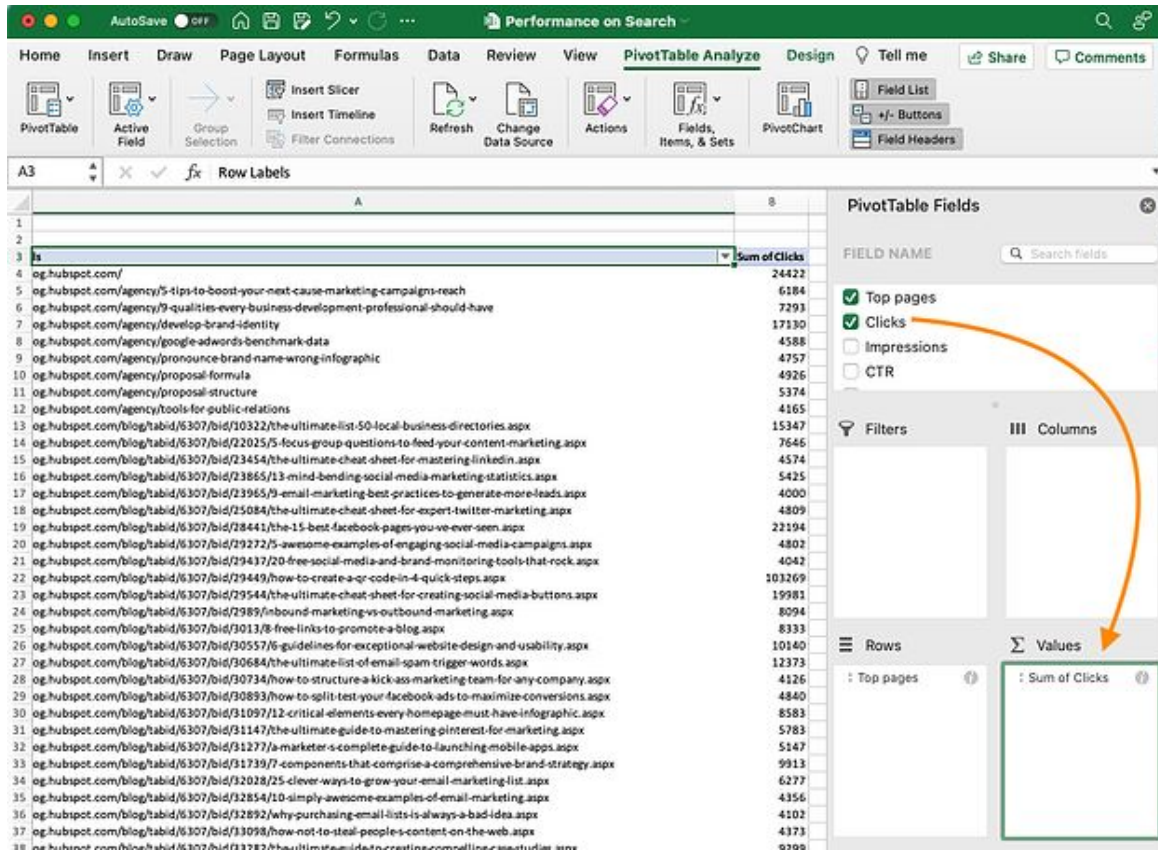
Step 6. Fine-tune the calculations

While the default calculation is for the total of a set of values, you may simply switch to other options such as averaging, finding the maximum, or finding the minimum.

You may accomplish this on a Mac by clicking the little information icon next to one value inside the "Values" box, then choosing the desired choice and hitting "OK." After making a choice, the pivot table will be revised to reflect your preferences.

To access the menu, PC users must click the little upside-down triangles next to their value and then choose Value Field Settings.

Once you have your data organized the way you want, you may save the work and utilize it as you choose.

4.7 Digging Deeper Using Pivot Tables

All the fundamentals of making a pivot table in Excel are now at your fingertips. This knowledge will allow you to extract the information you want from the pivot table & locate the answers you seek.

It's possible, for instance, that your pivot table's information isn't arranged the way you'd want it to be. In this scenario, you may use Excel's Sort feature to your advantage. Also, using the VLOOKUP function might be useful if you need to include information from a different source in your reports.

Chapter 5: Analyzing Data In Excel

When analyzing large amounts of data, many people turn to Microsoft Excel. They have preinstalled pivot tables, making them the most popular analytical tool. A data management application lets you import, browse, clean, analyze, and display your data with little effort. In this chapter, you'll learn about Excel's data analysis features and how to use them.

5.1 Sorting

Data sorting is a crucial aspect of every Data Analysis project. Excel allows you to arrange information by one or more columns. Descending or Ascending orders may be used to do the sorting.

Single Column

Think about these numbers:

Year	Month	Type	Salesperson	Region	Sales	Units	Order #
2013	January	Ice Cream	Bishop	West	$2,395.50	1597	001
2013	January	Ice Cream	Bishop	West	$11,761.50	7841	002
2013	January	Frozen Yogurt	Bishop	West	$8,943.00	5962	003
2013	January	Ice Cream	Bishop	West	$2,395.50	1597	004
2013	January	Ice Cream	Bishop	West	$11,761.50	7841	005
2013	January	Frozen Yogurt	Bishop	West	$8,943.00	5962	006
2013	January	Frozen Yogurt	Lee	Central	$14,596.50	9731	007
2013	January	Tasty Treats	Lee	Central	$8,793.00	5862	008
2013	January	Frozen Yogurt	Lee	Central	$14,596.50	9731	009
2013	January	Tasty Treats	Lee	Central	$8,793.00	5862	010
2013	January	Ice Cream	Parker	North	$4,666.00	5623	011
2013	January	Ice Cream	Parker	North	$7,318.50	4879	012
2013	January	Ice Cream	Parker	North	$4,666.00	5623	013
2013	January	Ice Cream	Parker	North	$7,318.50	4879	014
2013	January	Popsicles	Pullen	South	$3,553.50	2369	015
2013	January	Popsicles	Pullen	South	$3,553.50	2369	016
2013	January	Frozen Yogurt	Watson	Central	$14,596.50	9731	017
2013	January	Tasty Treats	Watson	Central	$8,793.00	5862	018
2013	January	Frozen Yogurt	Watson	Central	$14,596.50	9731	019
2013	January	Tasty Treats	Watson	Central	$8,793.00	5862	020
2013	February	Ice Cream	Bishop	West	$4,887.00	3258	021

You may organize the information by unit type. Here are the measures to take:

To begin, choose a cell within the column you want to sort by clicking anywhere inside it.

After that, choose AZ within the Data tab's Sort and Filter group to arrange the data from smallest to largest.

Row Labels ↓	Sum of Sales
Parker	809169
Lee	758328
Watson	691020
Bishop	616434
Pullen	541107
Grand Total	3416058

Result:

Year	Month	Type	Salesperson	Region	Sales	Units	Order #
2013	March	Tasty Treats	Pullen	South	$235.50	157	052
2013	March	Tasty Treats	Pullen	South	$235.50	157	054
2014	March	Tasty Treats	Pullen	South	$235.50	157	200
2014	March	Tasty Treats	Pullen	South	$235.50	157	202
2015	March	Tasty Treats	Pullen	South	$235.50	157	348
2015	March	Tasty Treats	Pullen	South	$235.50	157	350
2013	May	Frozen Yogurt	Bishop	West	$747.00	498	089
2013	May	Frozen Yogurt	Bishop	West	$747.00	498	091
2013	November	Frozen Yogurt	Parker	North	$747.00	498	119
2013	November	Frozen Yogurt	Parker	North	$747.00	498	121
2014	May	Frozen Yogurt	Bishop	West	$747.00	498	237
2014	May	Frozen Yogurt	Bishop	West	$747.00	498	239
2014	November	Frozen Yogurt	Parker	North	$747.00	498	267
2014	November	Frozen Yogurt	Parker	North	$747.00	498	269
2015	May	Frozen Yogurt	Bishop	West	$747.00	498	385
2015	May	Frozen Yogurt	Bishop	West	$747.00	498	387
2015	November	Frozen Yogurt	Parker	North	$747.00	498	415
2015	November	Frozen Yogurt	Parker	North	$747.00	498	417
2013	March	Ice Cream	Bishop	West	$867.00	578	040
2013	March	Ice Cream	Bishop	West	$867.00	578	042
2014	March	Ice Cream	Bishop	West	$867.00	578	188

Selecting ZA will cause the list to be sorted in descending order.

Multiple Columns

Moreover, your worksheet allows you to sort based on several columns. Take the necessary actions.

Select Sort in the Data tab's Sort and Filter sub-group.
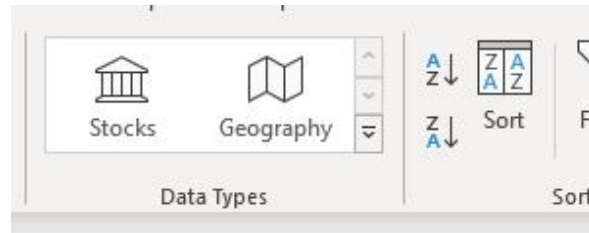
When you click the Sort button, a dialogue window will pop up.

- Enter the tiers through which you would like to sort.
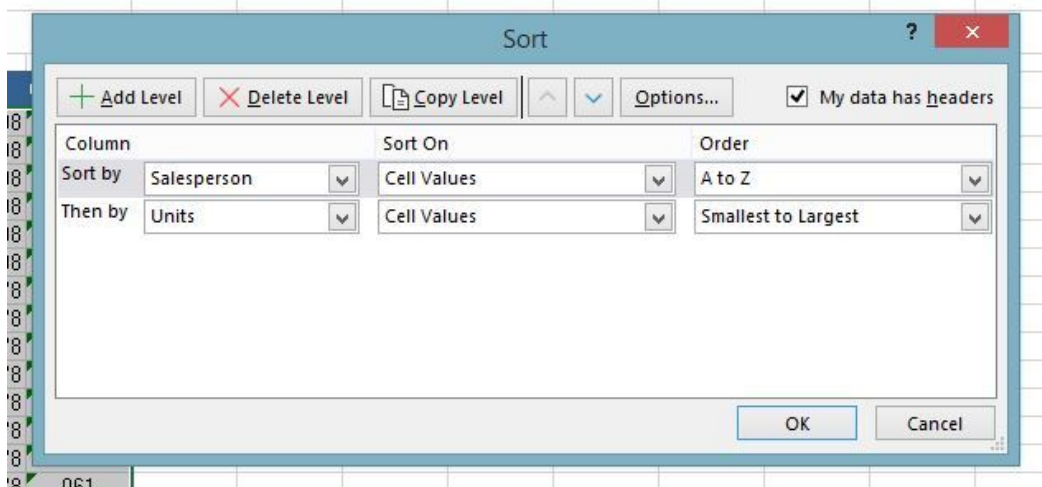
- Click the OK.

Year	Month	Type	Salesperson	Region	Sales	Units	Order #
2013	May	Frozen Yogurt	Bishop	West	$747.00	498	089
2013	May	Frozen Yogurt	Bishop	West	$747.00	498	091
2014	May	Frozen Yogurt	Bishop	West	$747.00	498	237
2014	May	Frozen Yogurt	Bishop	West	$747.00	498	239
2015	May	Frozen Yogurt	Bishop	West	$747.00	498	385
2015	May	Frozen Yogurt	Bishop	West	$747.00	498	387
2013	March	Ice Cream	Bishop	West	$867.00	578	040
2013	March	Ice Cream	Bishop	West	$867.00	578	042
2014	March	Ice Cream	Bishop	West	$867.00	578	188
2014	March	Ice Cream	Bishop	West	$867.00	578	190
2015	March	Ice Cream	Bishop	West	$867.00	578	336
2015	March	Ice Cream	Bishop	West	$867.00	578	338
2013	April	Popsicles	Bishop	West	$2,367.00	1578	059
2013	April	Popsicles	Bishop	West	$2,367.00	1578	061
2014	April	Popsicles	Bishop	West	$2,367.00	1578	207
2014	April	Popsicles	Bishop	West	$2,367.00	1578	209
2015	April	Popsicles	Bishop	West	$2,367.00	1578	355
2015	April	Popsicles	Bishop	West	$2,367.00	1578	357
2013	January	Ice Cream	Bishop	West	$2,395.50	1597	001
2013	January	Ice Cream	Bishop	West	$2,395.50	1597	004
2014	January	Ice Cream	Bishop	West	$2,395.50	1597	149

5.2 Filtering

Filtering is used to get the information that satisfies the specified criteria.

- To choose out a specific cell in your spreadsheet, just click on it.
- Click the Data menu, then Sort & Filter, then Filter.
- The columns now have arrows at their heads.

Year	Month	Type	Salesperson	Region	Sales	Units	Order
2013	January	Ice Cream	Bishop	West	$2,395.50	1597	001
2013	January	Ice Cream	Bishop	West	$11,761.50	7841	002
2013	January	Frozen Yogurt	Bishop	West	$8,943.00	5962	003
2013	January	Ice Cream	Bishop	West	$2,395.50	1597	004
2013	January	Ice Cream	Bishop	West	$11,761.50	7841	005
2013	January	Frozen Yogurt	Bishop	West	$8,943.00	5962	006
2013	January	Frozen Yogurt	Lee	Central	$14,596.50	9731	007

If you need to narrow this down to specific results, you may do so immediately.
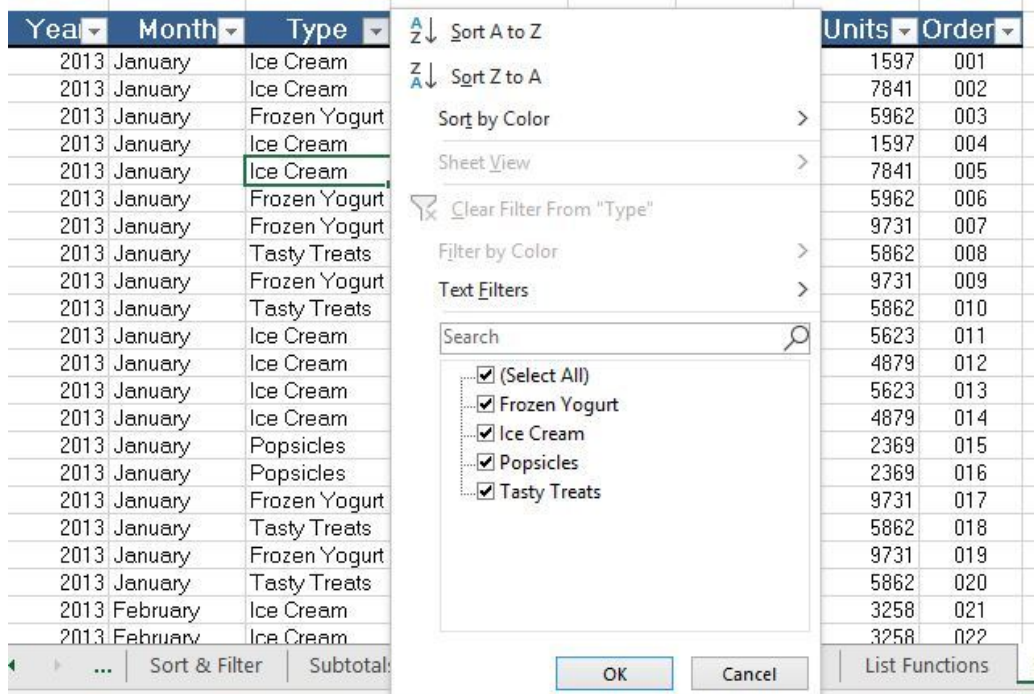
5.3 Analysis With COUNTIF

Counting the number of cells inside a range that meet a single condition, COUNTIF is one of Excel's most often used functions.

Syntax:

=COUNTIF(range, criteria)

Example:

Let's tally up how many things cost above $100.
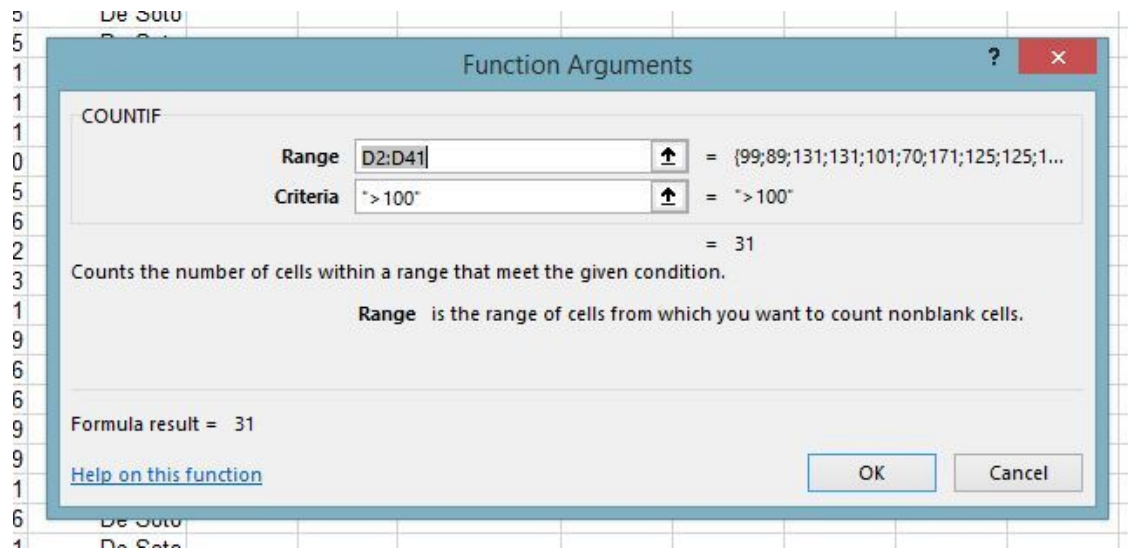
| Count of items over 100 | 31 |

5.4 Analysis Using SUMIF

Excel's SUMIF function calculates the total of a range of cells that all satisfy a single condition.

Syntax:

=SUMIF(range, criteria,[sum_range])

Example:

A SUMIF function may determine whether cells have numbers that fulfill the requirements.
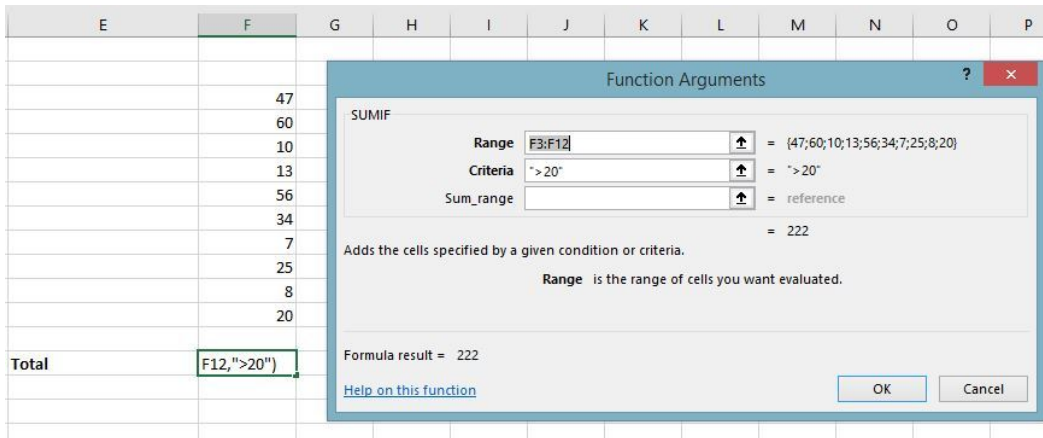
5.5 Pivot Tables Data Analyzing

Pivot tables are often regarded as Excel's most useful and effective tool. The information in a table may be summarized with their help. They reorganize data (called a "pivot") to highlight the most relevant information. It simplifies the process of sifting through massive amounts of data to get what you need.

Sample Data

The sample data you'll be using consists of 41 entries, with Five areas of information about purchasers. The pivot table will make complete sense with this information.

Inserting your Pivot Tables

you need to take following steps to add a pivot table to your spreadsheet:

- Select a random cell and read its contents.
- Select PivotTable within the Tables group just on the Insert tab.

There'll be a little box popping up to talk to you. A data set may be automatically selected in Excel. Your pivot table will be created in a new worksheet.

- Just go ahead and hit the OK button. After that, a pivot table sheet will be generated.
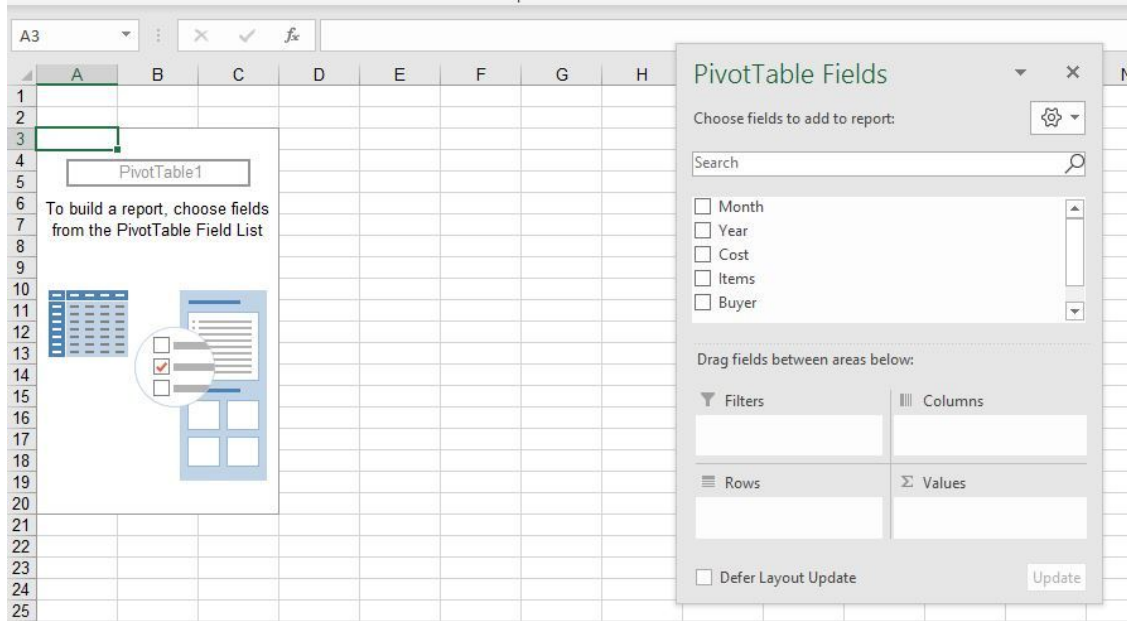
Drag Fields

The sum of what each purchaser has purchased may be obtained by moving the appropriate fields into the appropriate spaces.

- Rows area Buyer field.
- Substitute the Values section for the Items field.
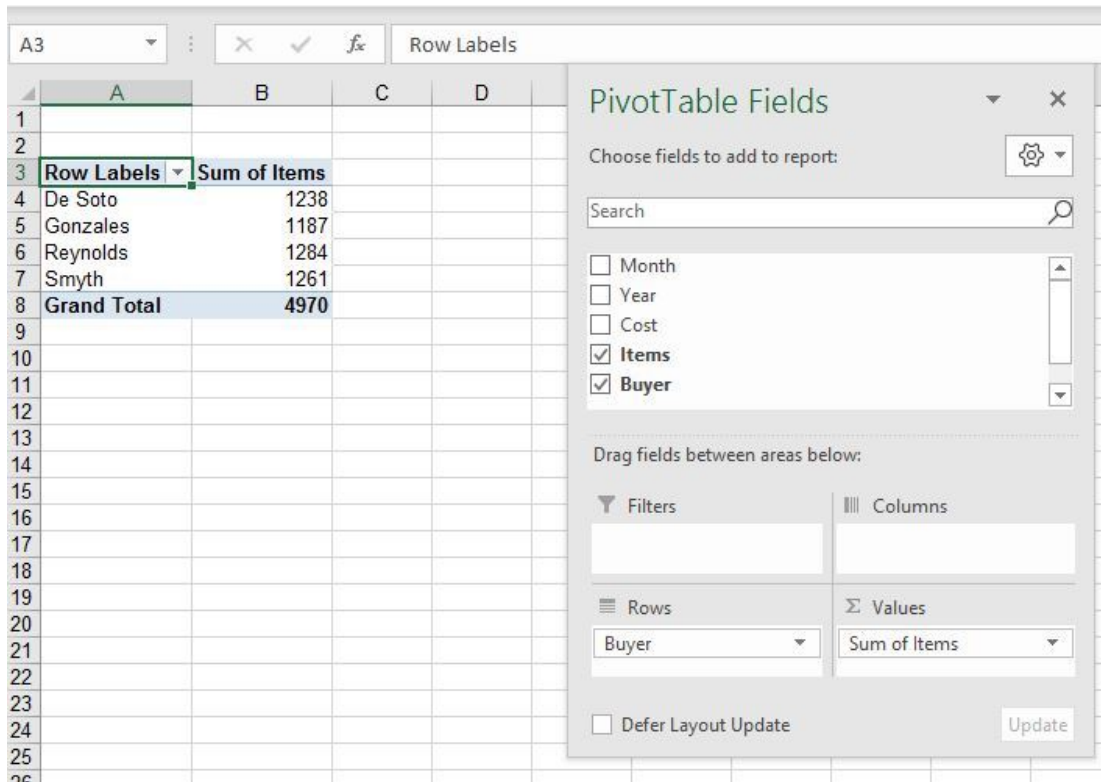
5.6 What-If Analysis With Solver

What-If experimenting with various inputs (scenarios), which is what analysis is all about, we may draw conclusions about the formula's behavior. Different outcomes may be investigated using various sets of values in a single or several formulae.

A solver is a plug-in for Microsoft Excel that is very useful for what-if analysis. By using this function, find the best (minimum or maximum) value for the formula in a single cell. Limits imposed by the contents of many other formula fields in the same worksheet apply.

Decision variables, also known as variable cells, are utilized by Solver to calculate the formulae in the goal and constraint cells. To accommodate the restrictions imposed by the constraint cells, the solver additionally modifies the values of the decision variable cells. The end outcome for the working cell is consequently improved.

Activating the Solver Add-in

- Choose Options from the File menu.
- Select Solver Add-in from the Add-ins menu then hit the Go button.
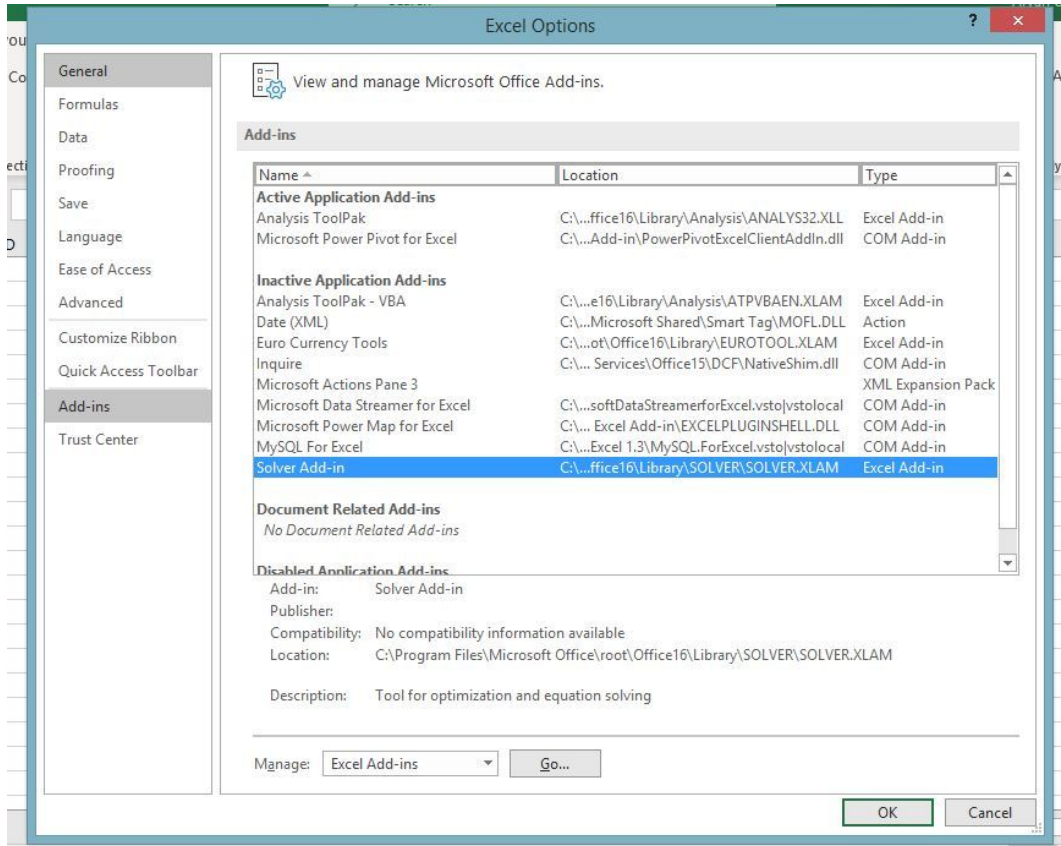
- Select Solver Add-in, then press the OK button.
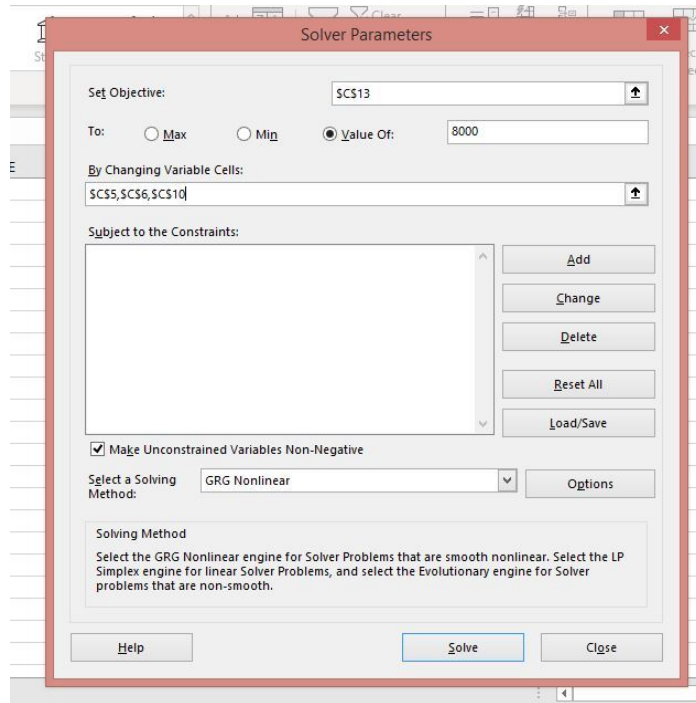
A Solver option has been added to the Analyze section of the Data tab.
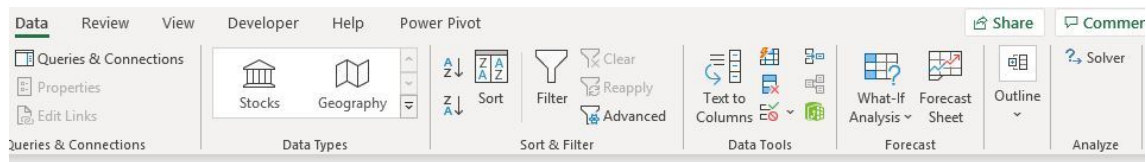
Using Solver with Excel

Here, you'll look at a small optimization issue and see if we can figure out how to solve it.

Imagine you own a company and want to bring in an extra $3000 each month.

Goal: Figure out how many units need to be sold to meet the objective.

For illustration, say you've developed the following model:

A	B	C	D
	Units Sold	700	INPUT
	Price Per unit	5.5	INPUT
	Revenue	3850	C3*C4
	Cost per unit	3	INPUT
	Costs	2100	C3*C8
	Income	1750	C5-C9

- To use the solver, go to the Data tab, the Analysis group.
- Choose the income field in the goal-setting spreadsheet and enter a value of $3000.
- Use C3, C4, & C8 cells to change your variable cell.
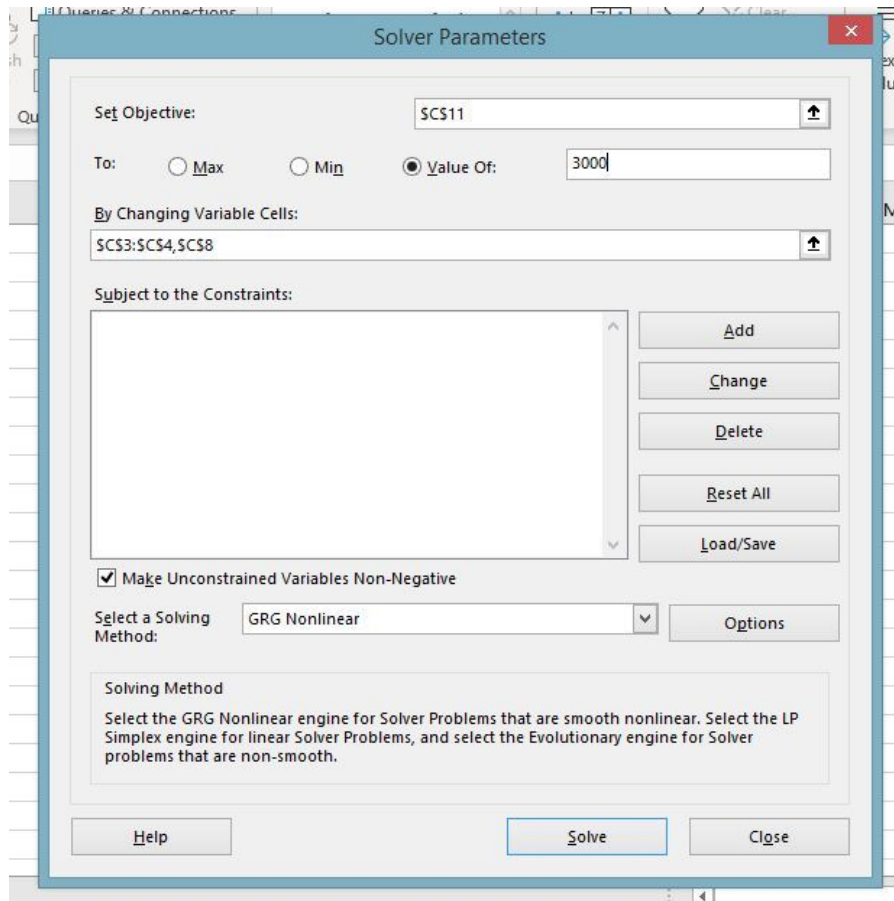
- Click on Solve.

Depending on the circumstances, the data model would change.

Units Sold	700.003189	INPUT
Price Per unit	6.39284738	INPUT
Revenue	4475.01355	C3*C4
Cost per unit	2.10715262	INPUT
Costs	1475.01355	C3*C8
Income	3000	C5-C9

5.7 Data Analysis Toolpak

The Add-Ins sub-category may be accessed via the File   Options menu.

Click the Go button after selecting Analysis ToolPak.

View the Analysis ToolPak & accept the defaults by selecting OK.
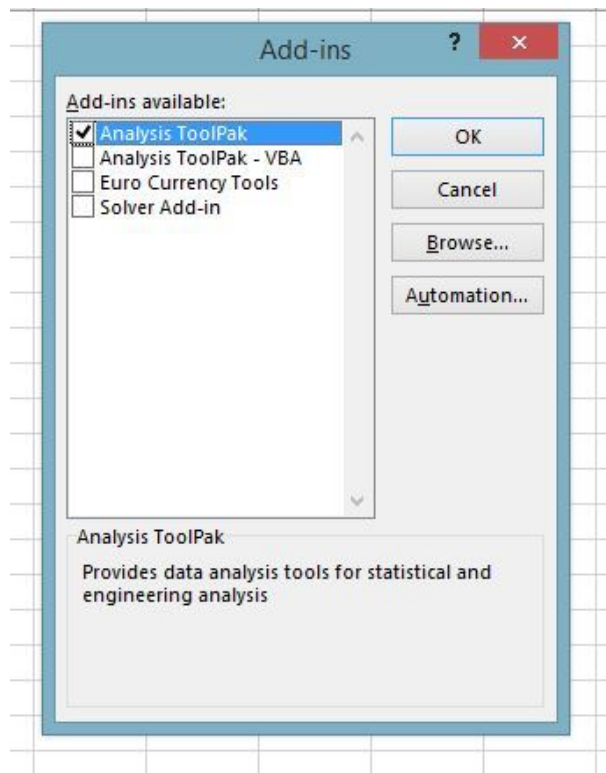
- Access it through the Analysis group inside the Data tab's Analysis group.
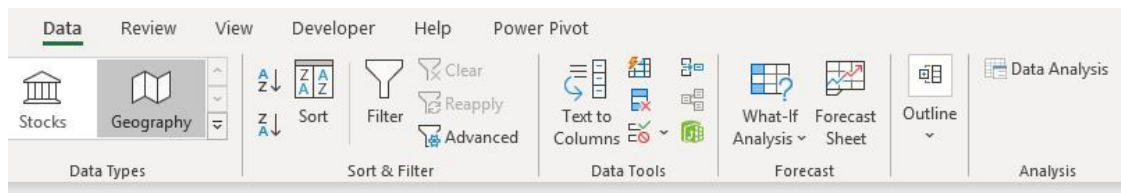
5.8 Descriptive Statistics

Descriptive statistics are among the most essential pieces of background knowledge when working with any kind of data. It provides some guidance on:

- The mean, mode, median, & range
- standard deviation & Variance.

Consider a batsman's latest ten scores in each league. Using the following instructions, you can easily produce the descriptive analysis.

- Go to your Data tab ☐ Analysis group ☐ Data analysis.
- Pick Descriptive Statistics & click OK.
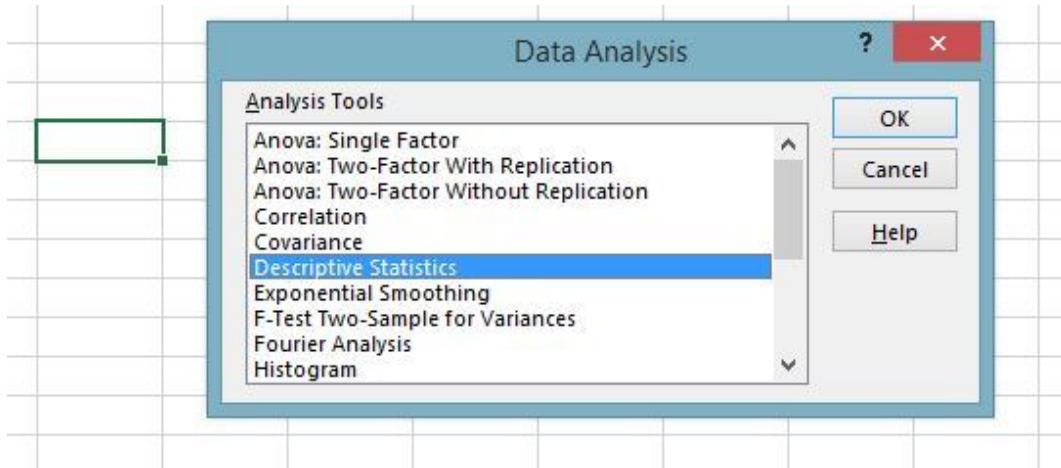
- Determine the input range you're comfortable with.
- Pick the time interval you're interested in seeing the results.
- Examine the overall numbers.

The descriptive statistics you wanted are now available.

Scores		Column1	
98			
155		Mean	79.6
35		Standard E	13.45131
71		Median	79
68		Mode	#N/A
104		Standard E	42.53678
119		Sample Va	1809.378
50		Kurtosis	-0.01968
9		Skewness	0.076228
87		Range	146
		Minimum	9
		Maximum	155
		Sum	796
		Count	10

5.9 Anova

Excel's "ANOVA" function, which stands for "analysis of variance," is a statistical procedure determining whether there is a significant difference among two or even more means.

Users can discover the statistics of three batters for their most recent eight matches listed below.

Batsmen 1	Batsmen 2	Batsmen 3
45	103	4
66	67	176
109	40	118
134	38	45
34	67	98
57	119	34
78	88	23
99	94	140

Please follow these instructions to successfully perform the single factor ANOVA.

- Go to your Data tab   Analysis group   Data analysis.
- Select the Anova: Single Factor & click OK.
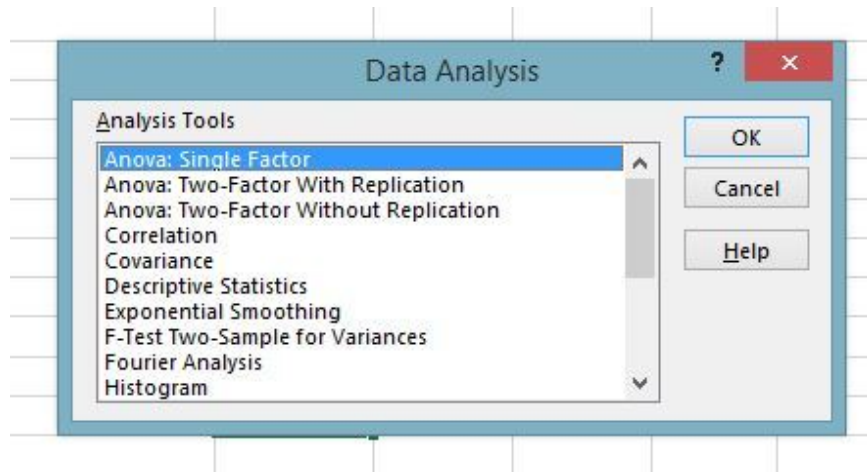
- Select your input & output range, then click OK.
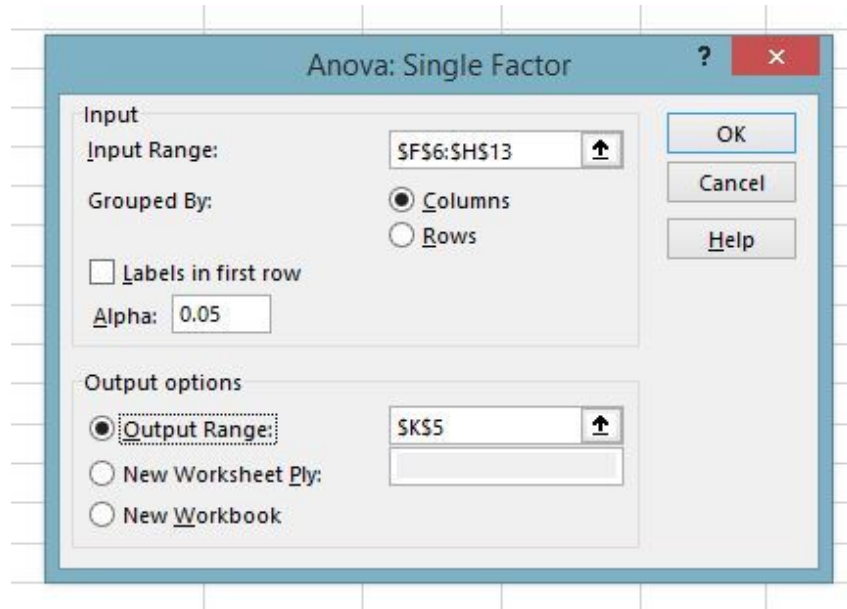
Your one-way analysis of variance is now complete.

Batsmen 1	Batsmen 2	Batsmen 3		Anova: Single Factor						
45	103	4								
66	67	176		SUMMARY						
109	40	118		Groups	Count	Sum	Average	Variance		
134	38	45		Column 1	8	622	77.75	1163.929		
34	67	98		Column 2	8	616	77	848.5714		
57	119	34		Column 3	8	638	79.75	3849.929		
78	88	23								
99	94	140								
				ANOVA						
				Source of Variation	SS	df	MS	F	P-value	F crit
				Between Groups	32.33333	2	16.16667	0.008273	0.991764	3.4668
				Within Groups	41037	21	1954.143			
				Total	41069.33	23				

5.10 Regression

Estimating the associations between 2 or even more variables may be accomplished in Excel via regression analysis.

Look at the following statistics, which demonstrate that we sold several COVID cases & masks during a certain month.

Month	COVID Cases	Mask Sold
Jan	40	14
Feb	190	26
Mar	340	35
Apr	680	130
May	720	450
Jun	900	700
Jul	1120	800
Aug	1383	1000
Sep	1690	1400
Oct	1722	1500
Nov	1841	1700
Dec	1945	1800

- Select the Data menu, then the Analysis submenu, and finally the Data analysis submenu.
- Choose Regression, then press OK.

You may enter your arguments in the new window that just opened.

Choose the volume of masks supplied as the Input Y Range & the number of COVID cases as the Input X Range. Finalize your review by looking through the residuals and pressing the OK button.

The Summary Output will be provided.

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.984799
R Square	0.969829
Adjusted R Square	0.966477
Standard Error	121.6675
Observations	11

The strength of one linear connection among two variables may be quantified using the Correlation Coefficient, represented by the Multiple R.

The R-Squared value represents the Determination Coefficient, which measures how well two variables fit together. R Square is useful for keeping tabs on how often data points coincide with a straight line.

The accuracy of regression analysis may also be quantified by calculating the standard error.

5.11 Simulation Analysis Of Data

Commonly, one would use the term "simulation" to refer to an act of mimicking a scenario or activity. The process usually involves developing a mathematical model to reflect the system's attributes and other relevant details. As a result, the model may be used to run simulations of the system's behavior under various conditions. Predicting or assessing potential consequences is another kind of this.

Excel is among the most important tools for creating data models and running simulations because it is both a powerful mathematical tool and a

diverse data storage option. To that end, this guide will elaborate the inner workings of a simulation using Excel & the many tools that may be used for this goal. Below is a link to an example of your Excel file.

The Model

Excel simulations need a model, which in turn is based on a set of formulae & mathematical processes. You can understand just as much from a model as from a worksheet full of sophisticated formulae and macros and vice versa. The model's success or failure depends only on how well it represents the real-time process it is meant to simulate.

Take a revenue calculator as an example. Identifying the number of goods sold is important because it allows businesses to estimate the revenue generated in the next year. Profit is calculated by multiplying the quantity sold by the unit price and subtracting the expenses. Let's see if we can put this into words.

= Sales Volume * (Unit Selling Price - Cost Per Unit)

Although you know the unit price, the number of units sold & the resulting profit are still unknown. The next stage is to estimate how many products will sell.

The Inputs

Building a calculating model is just half the battle; determining your inputs is the other half. There will be no accurate outputs from a model if the inputs are incorrect. While there are several methods for doing so, neither is without their flaws in identifying the inputs. If there were a foolproof method, examining future events would be far less difficult.

Avoid the common deterministic approaches that presume too much. Conversely, the outcomes of a stochastic technique are more likely to be accurate. The gathering of random variables is at the heart of the stochastic

method. You may use these random variables as-is or use them as seeds for further computations to produce new inputs.

Each simulation run produces and utilizes random variables to provide a unique outcome. With enough repetitions, the insignificance of random variation in the outcomes fades and becomes apparent. To create random numbers in an Excel simulation, you may use one of the following two formulas:

- A random integer higher than 0 and much less than 1 is what RAND () provides.
- The value returned by RANDBETWEEN (bottom, top) is an arbitrary integer between the two given values.

Each computation using these functions yields a unique result. To re-execute the computations across the full worksheet and see their results, hit the F9 key.

To be sure, you won't encounter a set of fully arbitrary numbers in the real world. You may utilize the output of the RAND functions to produce numbers following a specified probability distribution rather than delivering the functions' output. Multiple computations may be run through a probability distribution, which returns a mathematical formula that gives the odds of occurrence for each conceivable conclusion.

The statistical functions in Excel may be used to create probability distributions. Using the RAND function in conjunction with these allows for generating random input values. A few examples of these roles are given below.

Normal: DIST, NORM.INV
Standard normal: S.DIST, NORM.S.INV
t-distribution: DIST, T.INV
F-distribution: DIST, F.INV
Chi-square: DIST, CHI.INV
Lognormal: DIST, LOG.INV
Binomial: DIST, BINOM.INV
Hypergeometric: DIST
Beta: DIST, BETA.INV
Gamma: DIST, GAMMA.INV
Exponential: DIST
Weibull: DIST
Poisson: DIST
Negative binomial: DIST

The normal distribution, one of the most frequent, is determined by a statistical sample. A normal distribution is assumed for numbers returned by the NORM.INV function, where the mean & standard deviation are given as inputs. As an example of the function's syntax, consider the following.

NORM.INV (probability,mean,standard dev)

The outcomes are shuffled randomly by passing the RAND function like the probability argument. The percentile of a random vector with a particular mean & standard deviation is specified by the return result of the RAND function. A sample is shown below.

NORM.INV (RAND (),150,25)

For the given set of input data, the mean & standard deviation should both make sense. Foreseeing next year's earnings, for instance, by analyzing this year's sales figures. Mean & standard deviation may be computed without leaving Excel.

Mean:

=AVERAGE (numbers)

Standard Deviations:

S (numbers)

P (numbers)

STDDEVA (numbers)

STDDEVPA (numbers)

5.12 Running The Simulation Using Excel

What you've learned so far about data models and how to generate random input variables from a probability distribution are the fundamentals. However, stochastic simulations may also provide useful results when repeated several times. "Many" might indicate "thousands" or "more" here, depending on the model you choose. Therefore, it is currently impractical to obtain simulation results by simply recalibrating the Excel worksheet by hitting F9. Explore the many automated options that are available to you.

- A VBA macro may do calculations and print them out in the worksheet to be used again. This approach, of course, requires some familiarity with VBA.
- Plug-ins are developed and distributed by parties outside the original software's development team.
- You should use the Data Table function in Excel if you just have one or two input variables.

Data Table Features

Data Table allows you to analyze what-if by repeatedly calculating a formula dependent upon two inputs. You may recalculate your simulated outcomes using the Data Table utilities by feeding them null values. An illustration will help clarify this.

Given that a business wants to predict how many of its items will sell & how much money it will generate, it would do a sales prediction. For this, we'll be reusing our previous method.

=Units Sold*(Sell Price-Unit Cost)

First, you'll look at the following scenario:

- The corporation makes a profit of $4 on every product sold, for a total price of $12.
- Historical sale data is utilized for predicting the expected mean (average) & standard deviations of unit sales.
- The units sold are generated using a normal distribution. Due to its intended usage as a random value within 1000 repetitions, the number of significant digits is immaterial.

	A	B	C	D
1				
2		Unit Cost	8	
3		Sell Price	12	
4				
5		Avg. of Units	150.115 =AVERAGE(PreviousSoldUnits)	
6		Std. Dev. Of Units	29.64285 =STDEV.S(PreviousSoldUnits)	
7				
8		Units Sold	147.4126 =NORM.INV(RAND(),Units_Avg,Units_StdDev)	
9				
10		Profit	589.6503 =Units_Sold*(Sell_Price-Unit_Cost)	
11				

This formula for the one-time profit outcome is in cell C10, making that number the focal point of a Data Table. You need at least a thousand blank cells below the cell you want to move or use as a reference. Cell G2 was utilized as an example.

=C10

Numbers ranging from one to one thousand will now be generated in column F, beginning in the third row. To this end:

- To choose F3, please click here.
- Select HOME   Fill   Series.
- Tick on Boxes beside the Columns You would like to View
- Set your Stop value to 1000.
- Click
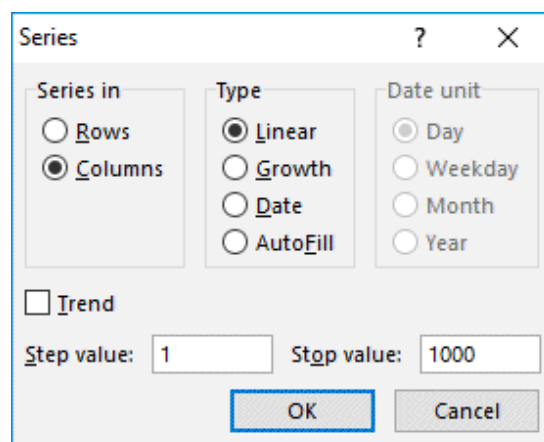
You may begin working with the Data Table immediately.

- Pick a number range that works for both profit & the integers from 1 to 1000. Let's use F2:G1002 as an example.
- If you want to see what happens if you change certain variables, click DATA, then What-If Analysis, then Data Table.

- Choose a blank cell by clicking the Column input box. The nuclide H2 is our top pick.
- To proceed, please choose the OK button.
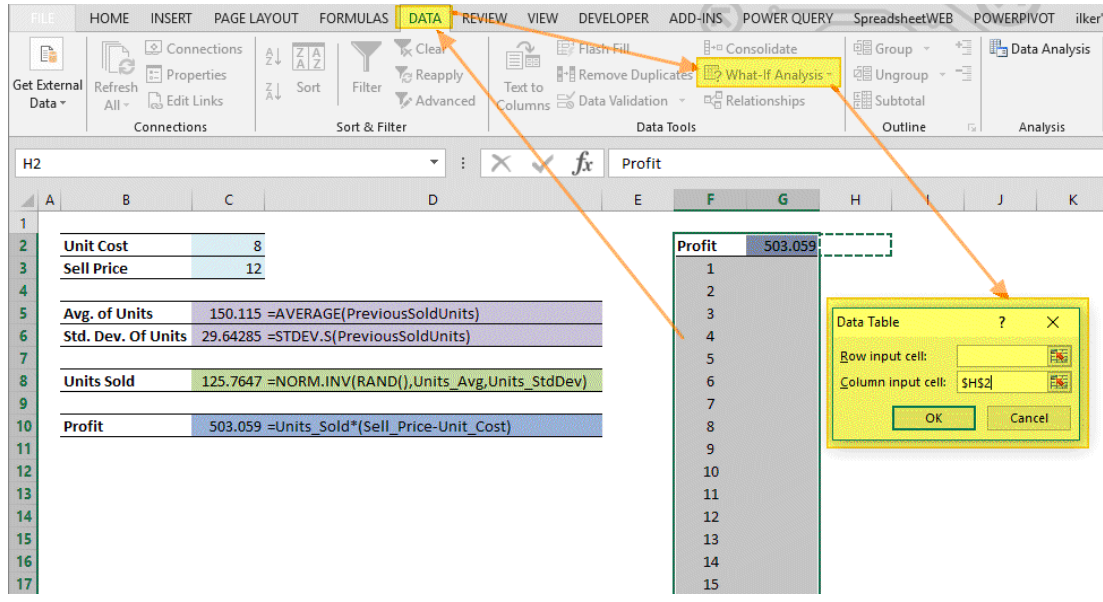
After a few blank cells in Excel, the program will insert a custom function labeled TABLE. These cells are active and change constantly. This is simply a shortcut to do additional 1000 computations every time you rebuild the spreadsheet.

The Results

Histograms provide an excellent visual representation of the outcomes of a stochastic simulation. A histogram shows how numbers are spread out. As an alternative to manually inspecting each simulation outcome, you may get a better perspective by categorizing them into different percentiles.

In Excel, there are two methods to make a histogram:

- An extension for Analysis ToolPak
- Formulas

Analysis ToolPak

When it comes to analyzing data, your Analysis ToolPak add-in shines. Since it is inactive by default, this add-in is considered "hidden" in Excel. It may be enabled in the Add-ins dialogue, accessed through FILE Options Add-Ins. Once there, choose Excel Add-ins from the Manage menu, then press the Go button. Click "Ok " after selecting the Analysis ToolPak.
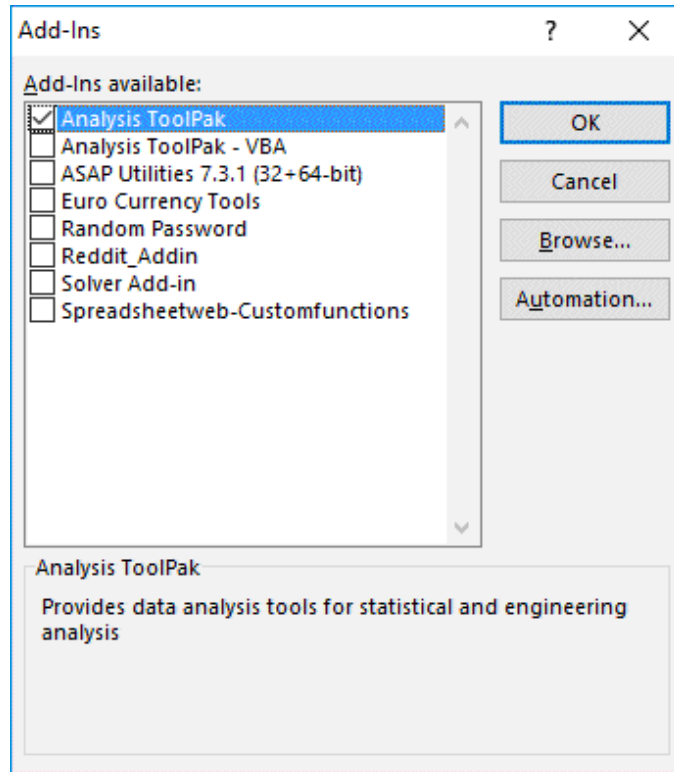
After it has been activated, the tool may be accessed via the DATA menu, referred to as Data Analysis. In this window, you'll find the Histogram selection. A histogram window appears when you choose it and press the OK button.
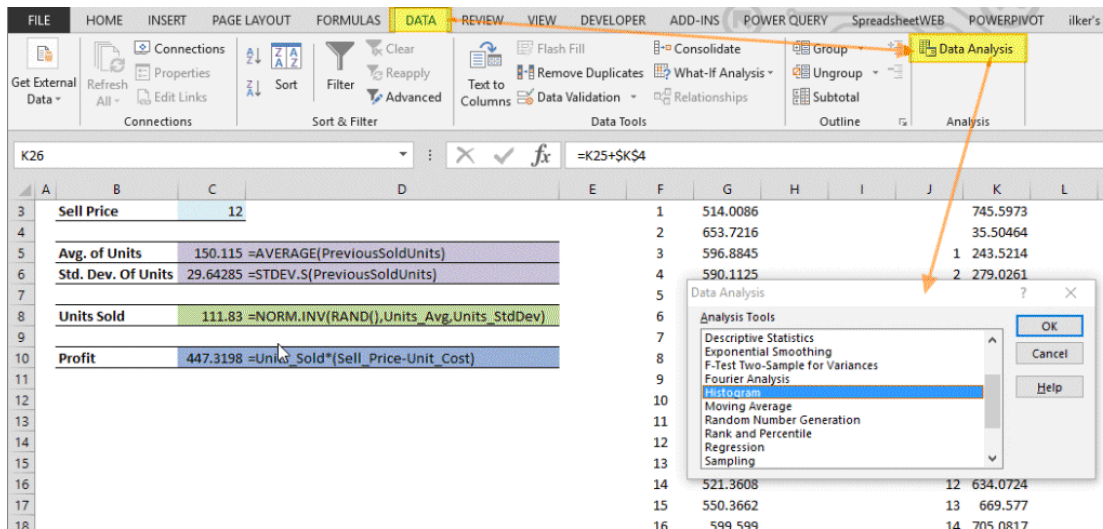
Bin range and Input range must be chosen in the Histogram dialogue. The output of the simulation is the Input range. Limits for each interval are

defined by the numbers in what is called the Bin range. You may utilize hard-and-fast values, or you can employ formulae to generate dynamic values, much as in simulation outcomes. You may set your desired location and generate a chart all from inside the Histogram dialogue.
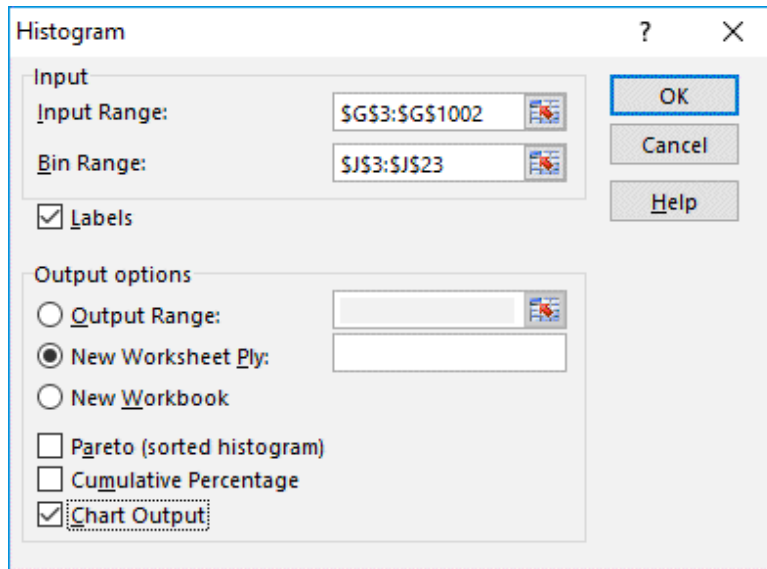
It's a bummer that the Data Analysis's Histogram isn't dynamic; each time you want to analyze a new set of information, you must launch a new Histogram window.

Formula

It is possible to determine the data for a histogram using the FREQUENCY formula. It determines the frequency with which values fall within a certain interval. Bin values are also required for this formula, so we'll have to accomplish that first.

Several intervals must be calculated. More steps aren't required, although they do improve accuracy. The findings may be less clear in certain cases if too many stages are required. You'll use the number 21 as an illustration.

- Determine the least possible value. =MIN ($G$3: $G$1002)
- Figure out the highest possible value. =MAX ($G$3: $G$1002)

- Find the gap between the lowest and highest values. =max-min
- Find out how big of a bin they want. =diff/ (interval count-1)

J	K	L
Interval count	21	
Min	258.3348236	=MIN($G$3:$G$1002)
Max	930.8619898	=MAX($G$3:$G$1002)
Diff	672.5271663	=max-min
Bin size	33.62635831	=diff/(interval_count-1)

The minimum value & bin size are known, so you can begin constructing the bins.

- In this case, the first tier represents the lowest possible value. =min
- By clicking on the cell below, you may increase the bin size by the amount shown within the cell above it. =K8+binsize
- Repeat this process 20 times.

	J	K	L
1	Interval count	21	
2	Min	196.2665144	=MIN($G$3:$G$1002)
3	Max	1005.48288	=MAX($G$3:$G$1002)
4	Diff	809.2163652	=max-min
5	Bin size	40.46081826	=diff/(interval_count-1)
6			
7	#	Bins	Frequency
8	1	196.2665144	
9	2	236.7273327	
10	3	277.1881509	
11	4	317.6489692	
12	5	358.1097874	
13	6	398.5706057	
14	7	439.031424	
15	8	479.4922422	
16	9	519.9530605	
17	10	560.4138787	
18	11	600.874697	
19	12	641.3355153	
20	13	681.7963335	
21	14	722.2571518	
22	15	762.71797	
23	16	803.1787883	
24	17	843.6396065	
25	18	884.1004248	
26	19	924.5612431	
27	20	965.0220613	
28	21	1005.48288	

These values for the bins may also be used in the Histogram feature of Data Analysis. Continue with the FREQUENCY equation.

First, choose the blank space between the bins. (L8:L28)

To use simulation results & bins values as inputs, type the FREQUENCY formula. =FREQUENCY (results, bins)

To input, the formula, use the Ctrl+Shift+Enter key combinations instead of the Enter key.

	F	G	H	I	J	K	L	M
L8							fx	{=FREQUENCY(results,bins)}
1					Interval count	21		
2	Profit	668.4321			Min	263.4147785 =MIN($G$3:$G$1002)		
3	1	636.7105			Max	995.0429126 =MAX($G$3:$G$1002)		
4	2	584.6033			Diff	731.6281341 =max-min		
5	3	670.4701			Bin size	36.58140671 =diff/(interval_count-1)		
6	4	430.4108						
7	5	881.484			#	Bins	Frequency	
8	6	764.3828			1	263.4147785	1	
9	7	791.3801			2	299.9961852	6	
10	8	534.6783			3	336.5775919	10	
11	9	688.4384			4	373.1589986	13	
12	10	763.0076			5	409.7404053	26	
13	11	522.1107			6	446.321812	55	
14	12	760.2128			7	482.9032187	60	
15	13	648.7642			8	519.4846254	86	
16	14	551.8699			9	556.0660322	133	
17	15	407.7272			10	592.6474389	109	
18	16	766.2399			11	629.2288456	113	
19	17	754.5407			12	665.8102523	100	
20	18	759.2893			13	702.391659	97	
21	19	431.1707			14	738.9730657	56	
22	20	623.3453			15	775.5544724	59	
23	21	483.6922			16	812.1358791	33	
24	22	722.1712			17	848.7172858	23	
25	23	493.2249			18	885.2986925	8	
26	24	654.2551			19	921.8800992	5	
27	25	329.7062			20	958.4615059	4	
28	26	785.6699			21	995.0429126	3	
29	27	773.633						

The histogram may then be generated. The bulk of the possible outcomes clusters at the midpoints. It's most likely to pan out here. A graph may be used to display this information more legibly.
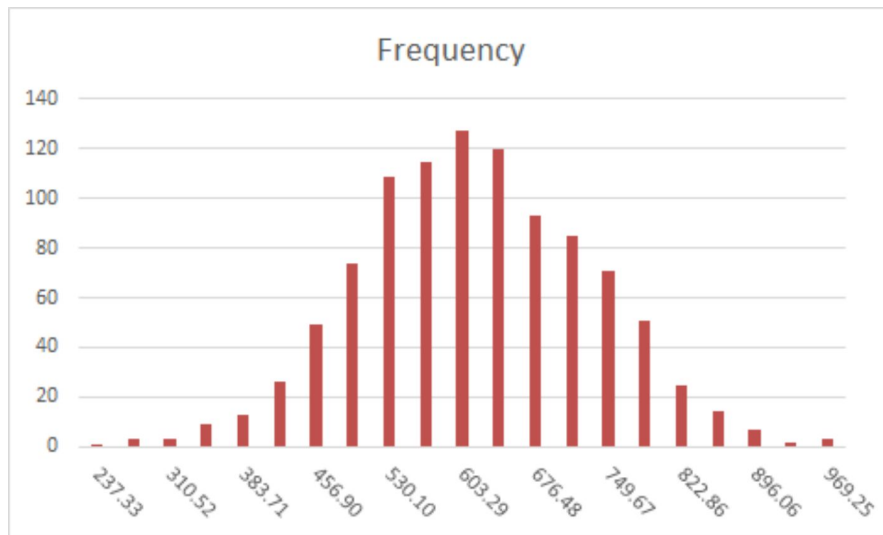
5.13 Forecasting On Data

Using a linear trend, the FORECAST (FORECAST.LINEAR) in Excel may project a value into the future. To make a forecast that accounts for seasonality, the Excel FORECAST.ETS function uses Exponential Triple Smoothing.

Please take note that FORECAST is an outdated feature. The brand-new FORECAST.LINEAR function within Microsoft Excel is suggested as an alternative.

FORECAST.LINEAR

FIRST, there is the PREDICTION. The LINEAR function below predicts this future value using a linear trend.

The explanation is that an absolute reference ($B$2: $B$11 & $A$2: $A$11) remains the same, but the relative reference ($A$12) shifts to $A$13 and $A$14 when the FORECAST. A LINEAR function is dragged downward. Using the range A1:C14, enter the number 89 in cell C11, and then construct a scatter plot using straight lines & markers.

Linear Trend
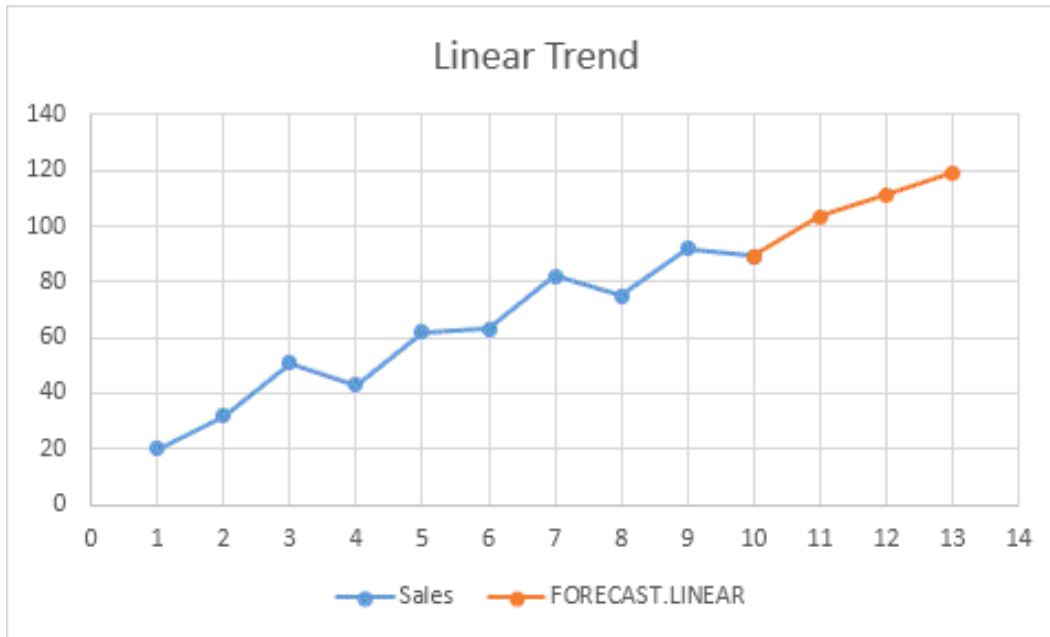
Remember that Excel can show you the equation inside a chart if you add the trendline to your chart. This equation predicts the same results for the future.

FORECAST.ETS

Excel 2016 and later have the excellent FORECAST.ETS function, which can identify a seasonal trend.

1. Future values may be forecast using Exponential Triple Smoothing, as shown by the FORECAST.ETS function below.

	COUNTIF	▼	⋮	✕	✓	*fx*	=FORECAST.ETS(A14,$B$2:$B$13,$A$2:$A$13,1)				

	A	B	C	D	E	F	G	H
1	Period	Visitors	FORECAST.ETS					
2	1	74						
3	2	59						
4	3	51						
5	4	42						
6	5	83						
7	6	67						
8	7	54						
9	8	44						
10	9	87						
11	10	68						
12	11	55						
13	12	49						
14	13		=FORECAST.ETS(A14,$B$2:$B$13,$A$2:$A$13,1)					
15	14		72.54					
16	15		61.93					
17	16		52.70					
18		FORECAST.ETS(target_date, values, timeline, [seasonality], [data_completion], [aggregation])						
19								

Please be aware that the third, fourth, and fifth arguments are all completely discretionary. The fourth parameter represents the duration of a seasonal pattern. For automated detection of seasonality, the default value is 1.

After selecting the range from cells A1 to C17 and entering 49 in cell C13, a scatter plot featuring straight lines & markers will appear.
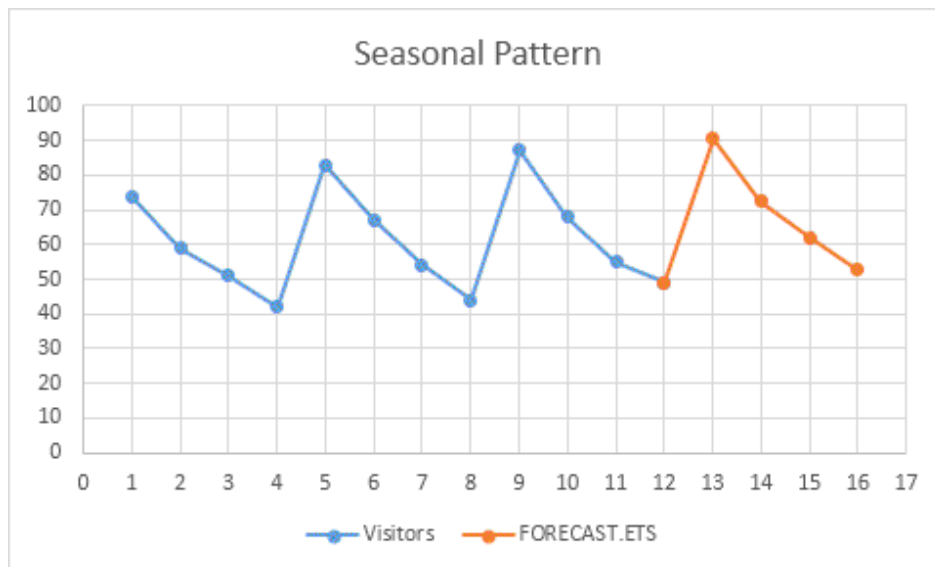
To determine how long the seasonal pattern lasts, utilize the FORECAST.ETS.SEASONALITY function. Likely, you already know the solution after perusing the graph.

Conclusion: in this case, the fourth parameter of the FORECAST.ETS function may likewise be set to the number 4.

Forecast Sheet

Make a visual forecast sheet instantly with the help of Excel 2016's or later's Forecast Sheet feature.

1. Select cells A1 through B13 in the example.

2. Find the Forecast Sheet option under the Data menu's Forecast section.
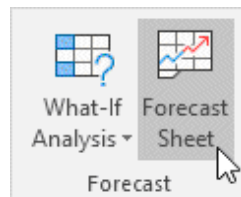
Excel brings up the window seen below.

Select an end date for the prediction, choose a confidence interval (default is 95 percent), automatically identify seasonality, or choose an end date for the seasonal pattern, etc.
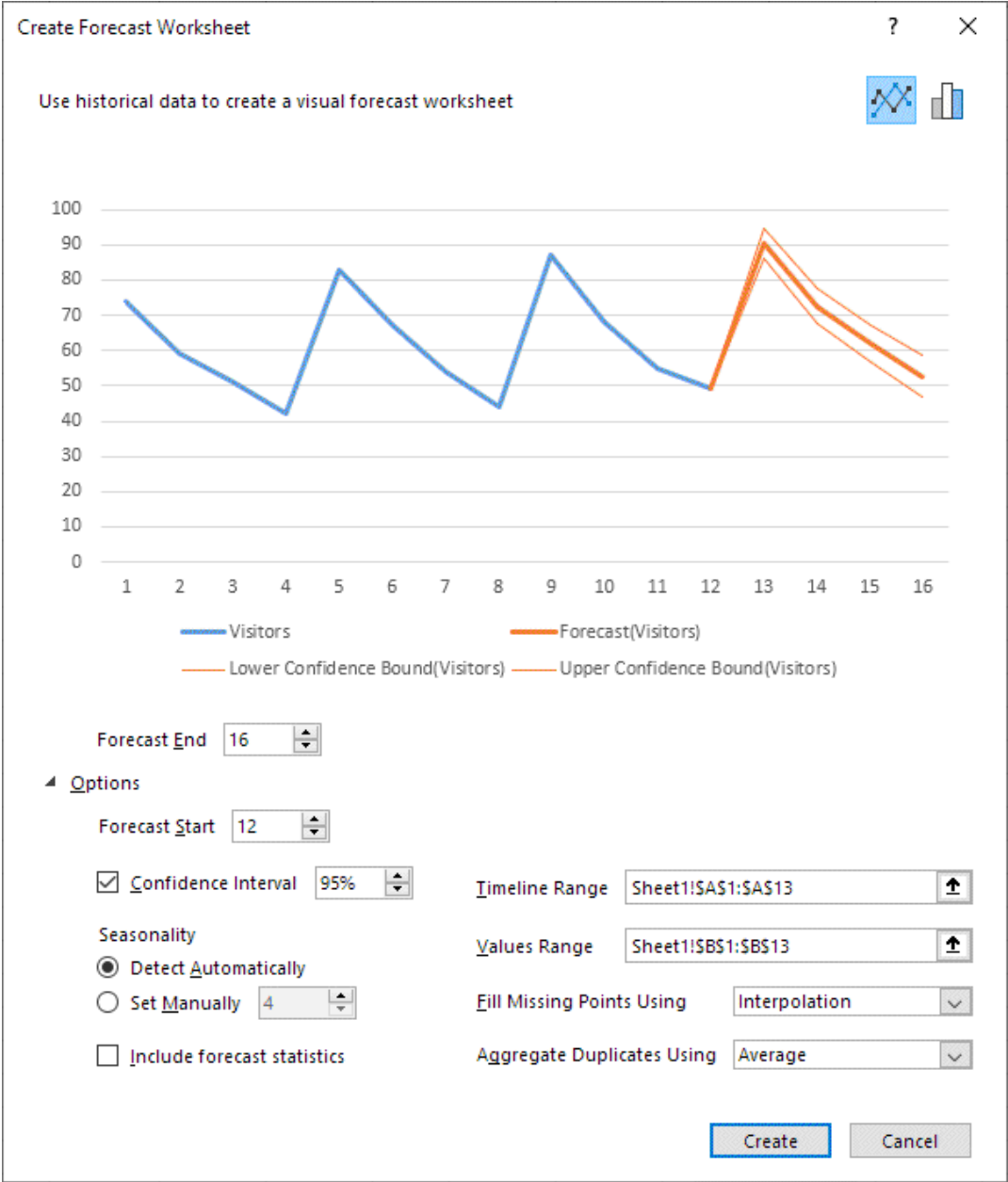
After there, you'll want to choose the Create button.

The identical future values are computed by this instrument using the FORECAST.ETS function. A good added feature is the provision of lower and higher confidence boundaries.

| | C14 | ▼ | : | × | ✓ | fx | =FORECAST.ETS(A14,$B$2:$B$13,$A$2:$A$13,1,1) |

▲	A	B	C	D	E
1	Period ▼	Visitors ▼	Forecast ▼	Lower Confidence Bound ▼	Upper Confidence Bound ▼
2	1	74			
3	2	59			
4	3	51			
5	4	42			
6	5	83			
7	6	67			
8	7	54			
9	8	44			
10	9	87			
11	10	68			
12	11	55			
13	12	49	49	49.00	49.00
14	13		90.4232497	86.07	94.78
15	14		72.5391539	67.67	77.41
16	15		61.9348352	56.60	67.27
17	16		52.6988324	46.93	58.47
18					
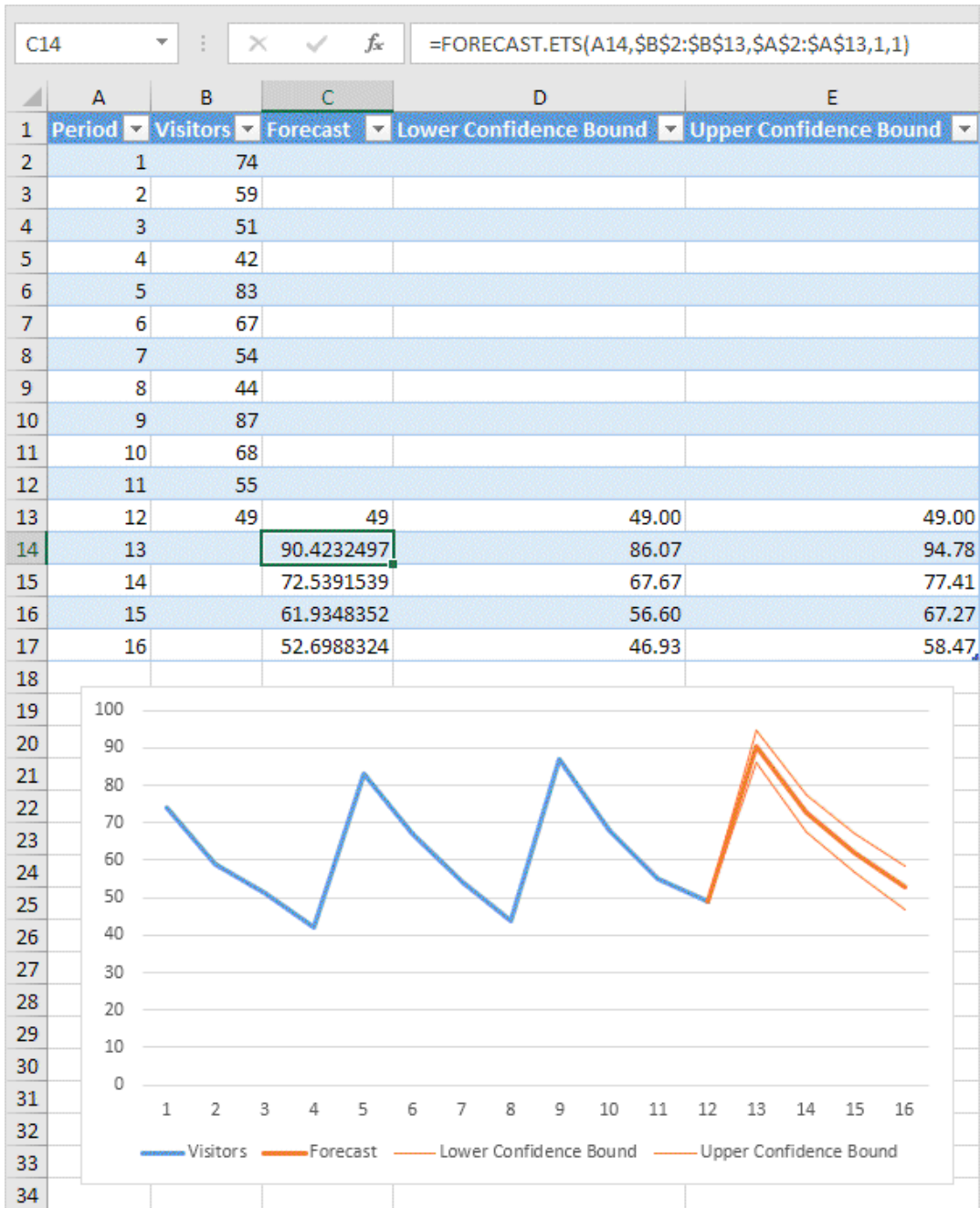
With a 95% confidence level, you can say the number of visits in period 13 will range from 86 to 94.

Chapter 6: Excel Formula And Functions

When dealing with data, Excel is the preferred tool. Given Excel's widespread usage, there are just a small number of individuals who have never used it. Excel is a popular business tool because it can easily produce reports and analyze data for strategic decision-making. To facilitate its usage, Excel is equipped with several helpful apps.

Excel formulae are one example of a unique feature that makes Excel stand apart. Functions and formulae in Excel from Microsoft are the topic at hand in this section. It is now much easier to do computations and data analysis with the help of these formulae and functions. In this chapter, you'll go through the 25 most important formulae for use in Excel. In this chapter, you will discuss the following elements:

- Excel Formula
- Excel's Built-In Functions & Formulas
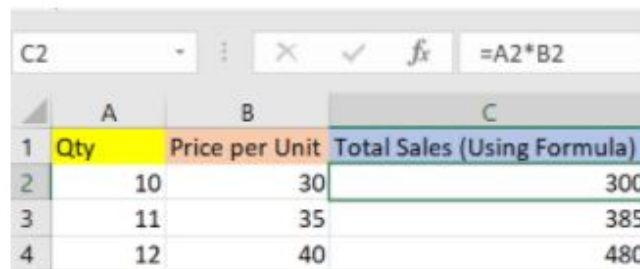
What is Excel Formula?

Excel formulas are expressions that perform calculations on many cells at once. Even if a mistake occurs, these formulae nonetheless provide a result. You can use Excel formulae to execute arithmetic operations like adding, subtracting, multiplying, and dividing. Moreover, Excel allows you to easily edit date and time variables, determine averages and compute percentages across several columns, and perform various other tasks.

The word "function" is another one that Excel formula users would be acquainted with. In some contexts, words like "formulas" and "functions" may be used interchangeably. Despite their similarity, they are distinct entities. The equal sign is traditionally considered the first symbol in a formula. However, functions are employed to conduct complicated

computations that would be too time-consuming to complete by hand. Excel's built-in functions are appropriately named for their specific tasks.

Here you explain how the manual '*' operator multiplication may be done.
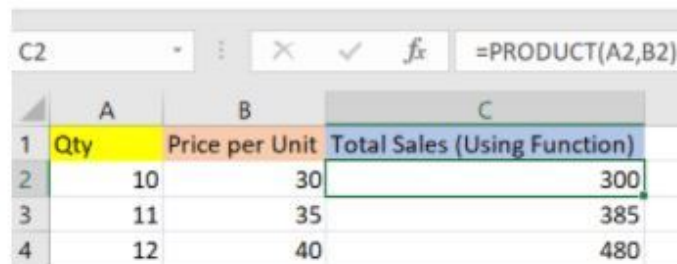
	A	B	C
			=A2*B2
1	Qty	Price per Unit	Total Sales (Using Formula)
2	10	30	300
3	11	35	385
4	12	40	480

The function PRODUCT has been used in the following example to do multiplication. You can see that the mathematical operator wasn't used in this situation.

	A	B	C
			=PRODUCT(A2,B2)
1	Qty	Price per Unit	Total Sales (Using Function)
2	10	30	300
3	11	35	385
4	12	40	480

Working with Excel's built-in formulae and functions may speed up and simplify your work. Let's explore the Excel function types and formulae used in various situations.

Excel Formulas & Functions

Excel's extensive library of formulas and functions allows you to do almost any analysis of your data. Mathematical operations, data & time, character-text functions, Sumif plus Countif, then a few lookup functions will all be investigated.

Let's have a look at the 25 most important formulae in Excel. For your convenience, you've broken down 25 Excel formulae into their respective

categories, depending on the functions they perform. Let's get going with the first formula you need to enter in Excel.

6.1 SUM

As its name implies, the SUM() method adds values in the specified range of cells. The addition procedure is conducted. An illustration follows:
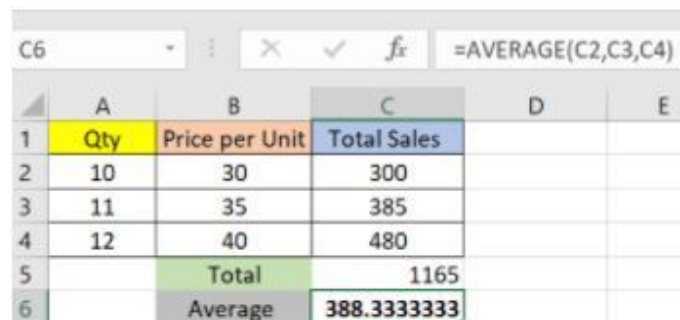
As you can see, entering the function "=SUM (C2:C4)" yielded the total sales for each product. The sums of 300, 385, & 480 are calculated instantly. The answer is at the C5 memory location.

6.2 AVERAGE

The AVERAGE() function's main purpose is to compute the average values in the specified range of cells. To calculate the average of the sales figures, just enter "AVERAGE (C 2, C 3, C 4)" as shown in the following example.

The average is calculated mechanically, & the result may be saved anywhere you choose.

6.3 COUNT

The COUNT() method determines how many cells in each range contain a certain value. All non-numeric cells are excluded, as well as the blank ones and those that contain text.

Here, as you can see up top, you use the numbers C1 through C4, representing four cells. The answer is 3, however, since the COUNT function ignores the column that has "Total Sales" and only counts the cells with numeric values.

Use the 'COUNTA()' method if you need to tally up cells containing everything from numbers and text to other non-numeric data types. In contrast, COUNTA() ignores empty cells.

COUNTBLANK() determines how many blank cells are in a range of cells.

6.4 SUBTOTAL

Let's go on and learn how well the subtotal functions work. The SUBTOTAL() method is used in a database to get the subtotal. Choose from options like arithmetic mean, count sum, minimum maximum and more. Look at these two cases to see what I mean.

Using cells A2–A4, you've calculated the subtotal in the preceding example. Since "1" in the subtotal list indicates an average, the function is using "=SUBTOTAL (1, A2: A4). Consequently, the value 11 is saved in C5 as the result of the function applied to the values A2 and A4.
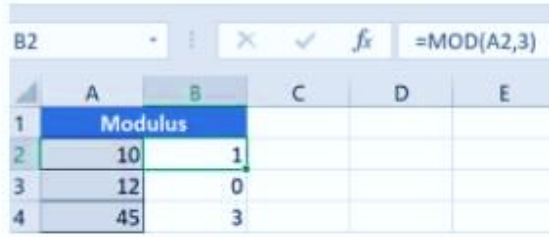
Similarly, "=SUBTOTAL (4, A2: A4)" will choose cell B4 since it has the highest value in that range, 12. Maximal output is achieved by including the number "4" in the formula.

6.5 MODULUS

When a given integer is divided by a given divisor, the MOD () function is used to get the residual. For clarity, let's examine the illustrations below.

For the first case, you will divide 10 by 3. Equal MOD(A2,3) is used to determine the remainder. The outcome is recorded in the variable B2. This may be achieved by just inputting "=MOD (10,3)," which will get the same result.
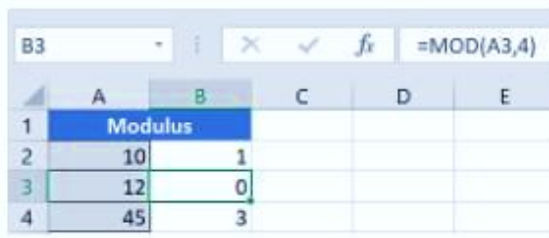
B2			×	✓	f_x	=MOD(A2,3)	

	A	B	C	D	E
1	Modulus				
2	10	1			
3	12	0			
4	45	3			

Here, you've done the same thing by dividing 12 by 4. If you add up the remainder, you get zero, which is kept in B3.
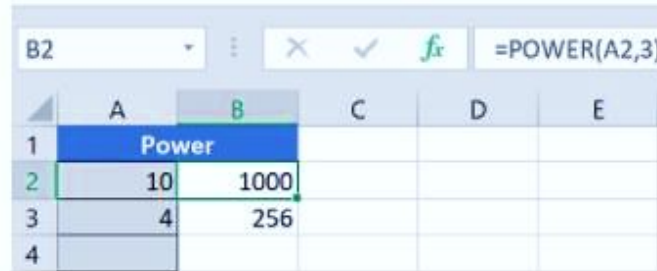
B3			×	✓	f_x	=MOD(A3,4)	

	A	B	C	D	E
1	Modulus				
2	10	1			
3	12	0			
4	45	3			

6.6 POWER

When called, the "Power ()" function returns the value obtained by raising a given number to the specified power. Take a glance at the illustrations below to see what They mean:
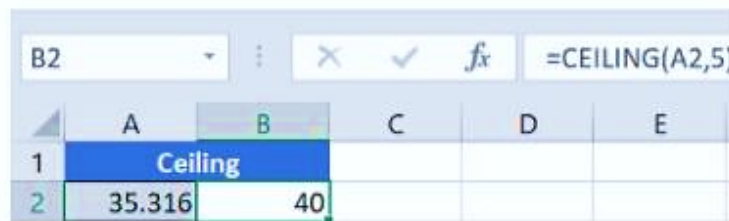
For example, "= POWER (A2,3)" will return the value of A2 multiplied by 3, which is a power of 10. This is how the Excel power function works.

6.7 CEILING

Up next is the capstone process. The CEILING () method will default round up a value to the closest multiple of 10.
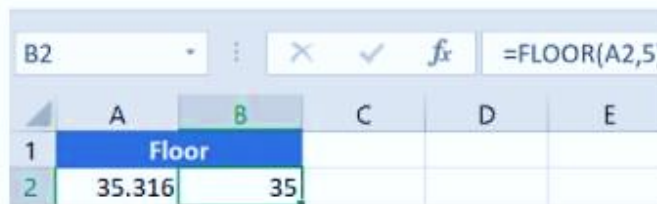
35.316's closest high multiple of 5 is 40.

6.8 FLOOR

In contrast to a ceiling function, the floor function reduces a number to the lowest significant multiple.

If you want to convert 35.316 to the closest lowest multiple of 5, use 35 instead.

6.9 CONCATENATE

This operation stitches together two or more text strings into one. You may do this task in several methods, some of which are listed below.

Here, you've used the =CONCATENATE syntax to do an operation (A25, " ", B25)

Here, the =CONCATENATE syntax has been used (A27&" "&B27)

Excel's concatenation function might be implemented in two different ways.

6.10 LEN

LEN () is a function that counts how many characters are in a string and returns that value. The total number of characters, including whitespace and accents, will be totaled. One example of a Len function is shown below.

Proceed to the following section of the chapter, where you discuss other advanced Excel features.
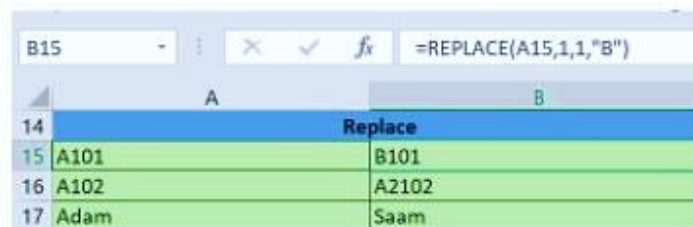
6.11 REPLACE

As its name implies, the REPLACE () function is used to replace a specified portion of a string of text with another text string.

You can use the formula "=REPLACE (old text, start num, num chars, new text)" to accomplish this. The start num indicates the index at which you wish to begin replacing the characters in this case. Next, provide the number of characters to swap out using the num char's parameter.

Look at the many applications of this feature.

By using =REPLACE(A15,1,1, "B"), you may change A101 to B101.
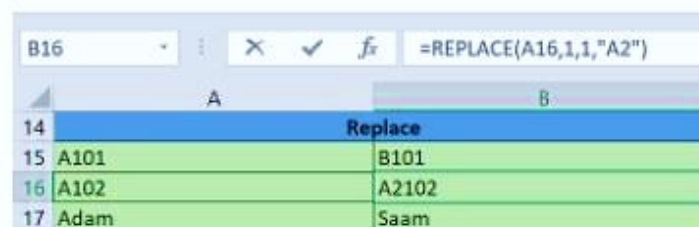
Next, type =REPLACE (A16,1,1, "A2") to change A102 to A2102 in the formula.

As the last step, you'll enter =REPLACE (A17,1,2, "Sa") to switch out Adam with Saam.

To the next purpose, please.

6.12 SUBSTITUTE

If a text string already exists, the SUBSTITUTE () method may be used to swap it out with a new one.

The formula looks like this: =SUBSTITUTE (text, old text, new text, [instance num]).

To current index texts, [instance num] is used more than once.

Some examples of the feature are elaborated below:

When putting "=SUBSTITUTE (A20, "I like", "He likes")", you are changing "I like" to "He likes".

Then, in column A21, you'll type =SUBSTITUTE (A21,2010, 2016,2) to replace both instances of 2010 with 2016.

By entering "=SUBSTITUTE (A22,2010,2016)," you are changing every instance of 2010 in the source text to 2016.

After this brief discussion of the replace function, you will go to the following.

6.13 RIGHT, LEFT, MID

When given a text string, the LEFT () method returns the character count from the string's initial position. In the meanwhile, the MID () method, when given a beginning point and a length, returns the characters located exactly in the center of the specified text string. The right () method provides the remaining character count in a text string for good measure.

Let's see how these features work by looking at some instances.

The function left is used to get the leftmost word of the phrase in cell A5 of the example below.

An example of the mid-functions used is shown below.

The right function is shown here.

6.14 LOWER, UPPER, PROPER

To change a string of text to all uppercase, use the UPPER () method. As opposed to that, the LOWER () method will lowercase any given text string. For each given string, the PROPER () function will change the initial letter of each word to uppercase and the rest to lowercase.

To better comprehend this concept, let's look at some examples:

You've changed the A6 text to all capital letters in A7.

As you can see in A7, you have now changed the lettering in A6 to all lowercase.
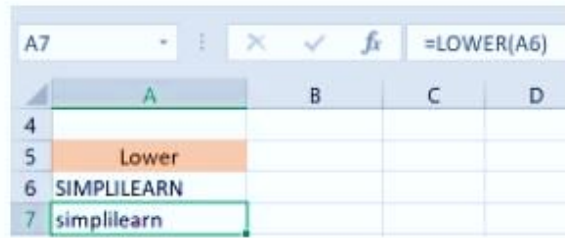
At long last, the sloppy A6 text has been cleaned up and placed in its right arrangement in A7.
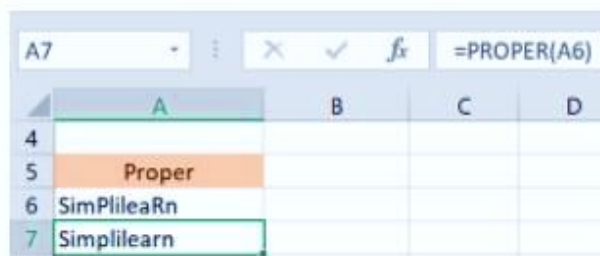
Here, you'll dive into Excel's date & time features.

6.15 NOW()

For the current date and time on your machine, use Excel's NOW() function.

The output of a Now() function may vary in different environments.

6.16 TODAY()

Microsoft Excel's built-in TODAY() function returns the present system date.

The purpose the function DAY() may be used to get the current month's day. The result will be a whole number from 1 to 31 inclusive. The month begins on the 1st and ends on the 31st.

The MONTH() method gives back a number between 1 & 12, with 1 being January and 12 representing December.

As its name implies, the YEAR() method extracts any year from a given date.

6.17 TIME()

Excel's TIME () function will format a time-based serial number you provide into minutes, hours, and seconds.

6.18 MINUTE, HOUR, SECOND

The HOUR () method returns a number between 0 and 23 that represents the hour given a time value. The time format used in this context is as follows: 0 = 12 AM, & 23 = 11 PM.

The MINUTE () method takes a time value and produces a number between 0 and 59, representing the minute.

The SECOND () method takes a time value and produces a number between 0 and 59, representing the second.
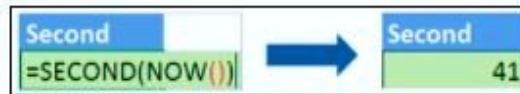
6.19 DATEDIF

The DATEDIF () method returns the number of months, years, or days between two dates.

Here you see an example of the DATEDIF function used to determine a person's age given their birthdate and the current date.

Let's instantly go through some of the most important Excel add-ins for data analysis and report making.

6.20 VLOOKUP

The VLOOKUP () operation is the next topic for discussion in this section. The value is sought in the table's far left column, where the vertical lookup comes into play. Once you choose a column, it will return a value from that column in the same row.

The VLOOKUP function's inputs are as follows:

Lookup value —A value you need to find in the 1st column of the table.

Table - This specifies the table with the information used to calculate the result.

Col index - The table column whose value you want to get.

[Non-mandatory] range lookup FALSE = close enough (default). TRUE indicates a non-match.

Use the following table to familiarize yourself with the VLOOKUP function.

Using the VLOOKUP tool, you may determine which division Stuart is assigned.

	A	B	C	D	E
1	First Name	Last Name	Department	City	Date Hired
2	Ben	Zampa	HR	Chicago	10-11-2001
3	Stuart	Carry	Marketing	Kansas	20-06-2002
4	Jenson	Button	Operations	New York	01-12-2004
5	Lucy	Davis	Sales	Los Angeles	25-02-2011
6	Trent	Patinson	IT	Boston	17-08-2015
7	Jhonny	Evans	Sales	Houston	10-01-2018

The lookup value can be found in cell A11, the table array is in cells A2:E7, a column indexing number for the organizational structure is 3, and the range lookup is set to 0.

9			Vlookup		
10	First Name	Last Name	Department	City	Date Hired
11	Stuart		=VLOOKUP(A11,A2:E7,3,0)		

If you type "Marketing" and press enter, you'll get back the answer that Stuart works in marketing.

9			Vlookup		
10	First Name	Last Name	Department	City	Date Hired
11	Stuart		Marketing		

6.21 HLOOKUP

HLOOKUP (), short for "horizontal lookup," is a companion function to "VLOOKUP" (vertical lookup). HLOOKUP first scans the top row of your array or table to locate a value. You may use it to get the value of a column from a given row.

The HLOOKUP function's parameters are as follows:

- The lookup value indicates the value to seek up.
- datatable – The datatable you need to obtain information from.
- Row index - The row index to access the information.
- [Non-mandatory] range lookup an exact or close match is indicated by this example. It defaults to TRUE, which indicates a close match.

The town of Jenson may be located using HLOOKUP, as shown in the following table.

	G	H	I	J	K	L	M
First Name	Ben	Stuart	Jenson	Lucy	Trent	Jhonny
Last Name	Zampa	Carry	Button	Davis	Patinson	Evans
Department	HR	Marketing	Operations	Sales	IT	Sales
City	Chicago	Kansas	New York	Los Angeles	Boston	Houston
Date Hired	10-11-2001	20-06-2002	01-12-2004	25-02-2011	17-08-2015	10-01-2018

Hlookup	
First Name	Jenson
City	=HLOOKUP(H23,G1:M5,4,0)

The relevant lookup value, in this case, is H23, which is Jenson, G1: To find a rough match, enter 0 and use M5 as the table array and 4 as the row index number.

New York will be shown after you press the return key.

Hlookup	
First Name	Jenson
City	New York

6.22 IF

The IF () method will return a certain result when a condition is met. If the requirement is not true, a different value will be returned.

See whether the number in cell A 2 is more than 5 using the formula below. The function will respond with "Yes 4" if the value is higher than 5 or "No" otherwise.

Since 4 is smaller than 5, the answer will be "No" in this scenario.

The 'IFERROR' function is also often used. If an expression's evaluation results in error, this function will return that value; otherwise, this will return a value of your expression.

Take the example of dividing 10 by 0. You can't divide by zero; hence this equation is not legal. There will be a blunder consequently.

A "Cannot divide" result is what you'll get from the preceding function.

6.23 INDEX-MATCH

Returning a value from the leftmost column is the job of the INDEX-MATCH function. VLOOKUP only allows you to return a value from the rightmost column in the table. Index-match is preferable to VLOOKUP since VLOOKUP takes more time to complete. This is because your chosen table array must be evaluated in its whole. Excel must consider the lookup column & return column when using INDEX-MATCH.

Let's see if we can use the data below to figure out where Jenson now lives.

	Z	AA	AB	AC	AD
	First Name	Last Name	Department	City	Date Hired
	Ben	Button	HR	Chicago	10-11-2001
	Jenson	Carry	IT	Kansas	20-06-2002
	Jhonny	Davis	Marketing	New York	01-12-2004
	Lucy	Evans	Operations	Los Angeles	25-02-2011
	Stuart	Patinson	Sales	Boston	17-08-2015
	Trent	Zampa	Sales	Houston	10-01-2018

Index Match			→	Index Match	
First Name	City			First Name	City
Jenson	=INDEX(AC1:AC7,MATCH(AB12,Z1:Z7,0))			Jenson	Kansas
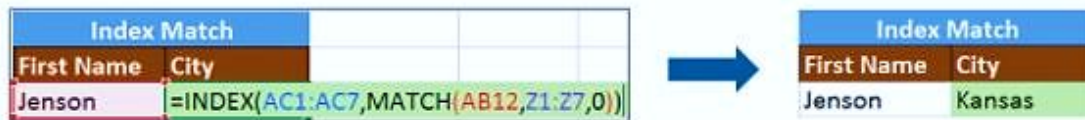
Let's locate the Zampa division right now.

Last Name	City	Department		Last Name	City	Department
Zampa	Houston	=INDEX(AA1:AC7,MATCH(AB18,AA1:AA7,0),MATCH(AB1,AA1:AD1,0))	→	Zampa	Houston	Sales
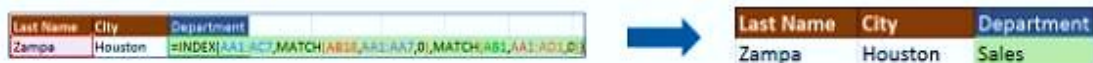
6.24. COUNTIF

The COUNTIF () method determines how many cells in a specified region satisfy a certain condition.

Here is a small sample dataset on coronaviruses, including details about the number of reported cases and fatalities in every country and area.

Let's count how many times Afghanistan appears in this data set.

| Countif | =COUNTIF(G1:G21129, "Afghanistan") | ➡ | Countif | 145 |

As its name suggests, the COUNTIFS function determines how many cells meet a given set of criteria.

If you wish to track how many days there have been more than 100 instances in India, you may do so by clicking here. Here is a sample of the COUNTIFS function in action.

| Countifs | =COUNTIFS(G:G, "India", E:E,">100") | ➡ | Countifs | 68 |

6.25. SUMIF

Using a condition or criterion, the SUMIF() method will only add the cells that meet that requirement.

Find below the coronavirus dataset that will be used to calculate the cumulative number of instances in India from June 3, 2020, to June 3, 2021. (Our data set covers the period from December 31, 2020, to June 3, 2020.)

	A	B	C	D	E	F	G	H	I	J	K
9078	31-12-2019	31	12	2019	0	0	India	IS	ISL	353574	Europe
9079	03-06-2020	3	6	2020	8909	217	India	IN	IND	1352617328	Asia
9080	02-06-2020	2	6	2020	8171	204	India	IN	IND	1352617328	Asia
9081	01-06-2020	1	6	2020	8392	230	India	IN	IND	1352617328	Asia
9082	31-05-2020	31	5	2020	8380	193	India	IN	IND	1352617328	Asia
9083	30-05-2020	30	5	2020	7964	265	India	IN	IND	1352617328	Asia
9084	29-05-2020	29	5	2020	7466	175	India	IN	IND	1352617328	Asia
9085	28-05-2020	28	5	2020	6566	194	India	IN	IND	1352617328	Asia
9086	27-05-2020	27	5	2020	6387	170	India	IN	IND	1352617328	Asia
9087	26-05-2020	26	5	2020	6535	146	India	IN	IND	1352617328	Asia
9088	25-05-2020	25	5	2020	6977	154	India	IN	IND	1352617328	Asia
9089	24-05-2020	24	5	2020	6767	147	India	IN	IND	1352617328	Asia
9090	23-05-2020	23	5	2020	6654	137	India	IN	IND	1352617328	Asia
9091	22-05-2020	22	5	2020	6088	148	India	IN	IND	1352617328	Asia
9092	21-05-2020	21	5	2020	5609	132	India	IN	IND	1352617328	Asia
9093	20-05-2020	20	5	2020	5611	140	India	IN	IND	1352617328	Asia
9094	19-05-2020	19	5	2020	4970	134	India	IN	IND	1352617328	Asia
9095	18-05-2020	18	5	2020	5242	157	India	IN	IND	1352617328	Asia
9096	17-05-2020	17	5	2020	4987	120	India	IN	IND	1352617328	Asia
9097	16-05-2020	16	5	2020	3970	103	India	IN	IND	1352617328	Asia
9098	15-05-2020	15	5	2020	3967	100	India	IN	IND	1352617328	Asia
9099	14-05-2020	14	5	2020	3722	134	India	IN	IND	1352617328	Asia
9100	13-05-2020	13	5	2020	3525	122	India	IN	IND	1352617328	Asia

Sumif	=SUMIF(G:G, "India",E:E)	➡	Sumif	207615

The SUMIFS () method will sum the cells that meet those requirements for a particular set of constraints.

Let's tally up the number of instances in France on the days when there were 100 or fewer fatalities.

Sumifs	=SUMIFS(E:E,G:G,"France",F:F,"<100")	➡	Sumifs	20638

When it comes to reporting & analyzing on data, Excel is unparalleled. After going through this chapter, you will understand the fundamental Excel formulae and operations, allowing you to do your work more efficiently. You examined complex Excel formulae and operations, including numbers, texts, data, and timestamps. Knowing Excel is a must for many jobs, so that should come as no surprise.

Chapter 7: Excel Macro And VBA

Excel's Visual Basic Application may be used for user-created routines called VBA Macros, which can automate repetitive activities and save significant amounts of time. In addition, the Window Application Programming Interfaces may be used from inside VBA (API). Among its many applications is the generation of user-specific toolbars, menus, dialogue boxes, & forms for modifying and improving the user interface.

To obtain a quick introduction to the most important codes & macros, vocabulary, and best practices in Excel VBA, fill out the form below.

7.1 Creating Excel VBA Macro

CFI provides a dedicated chapter explaining Visual Basic for Applications (VBA) and how to launch the VBA Editor. In Excel, the VBA window may be accessed by hitting the shortcut key combination Alt + F11. From there, the user can begin writing macros.

The user must first create the Module file before they can begin writing code. There is a collection of macros in the module file. The Insert > Module menu item may be used to create one new module. The properties panel, located in the editor's lower left corner, allows the user to give this module a unique name. Insert a new module by typing its name and hitting enter.

7.2 Naming Excel VBA Macros

The first step is to give the macro a distinct name. Besides being incompatible with the names of other Excel macros, this name is also incompatible with most of Excel's built-in properties, functions, and tools. When the user wants to activate the macro, they'll use the name.
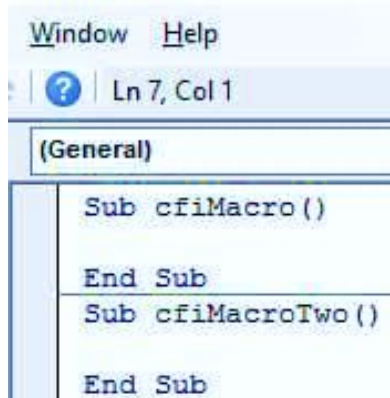
Sub name() followed by an entry into the editor's code window is how macro names are created and used. When you press enter, the window will be filled with the basic structure of the Excel macro. Entering "Sub cfiMacro()" and giving the macro a name like "CFI Macro" is one way to do this. Inserting a "Sub" statement into the VBA Editor will automatically append an "End Sub" line below it.

Important: When entering the name of a macro, variable, or function in VBA, it is standard practice to use lower case for single-word names and capital for additional words. In most cases, you can't have spaces in a VBA name. Given that CFI Macro is two words long, the correct abbreviation here is cfiMacro. On the other hand, they are only recommendations for optimal performance.

Sub Name into VBA

To indicate to the editor that the macro code has begun, use the Sub Name() line. Indicating completion, End Sub is shown. The user might create a further new macro by beginning Sub Name() line underneath the initial End Sub. Attempt this, and you'll see that Excel will instantly draw a line connecting the two distinct macros.

An Excel macro typically follows this format. To go on with the correct coding method, the user must first identify the variables they will use.

Through out this chapter, you will go through the process of creating your first macro.

To begin, open Excel 20XX and go to File   Options   Developer.

Second, choose "Developer" from the drop-down menu that appears when you click the "Customize the Ribbon" option. To proceed, choose the "OK" button.
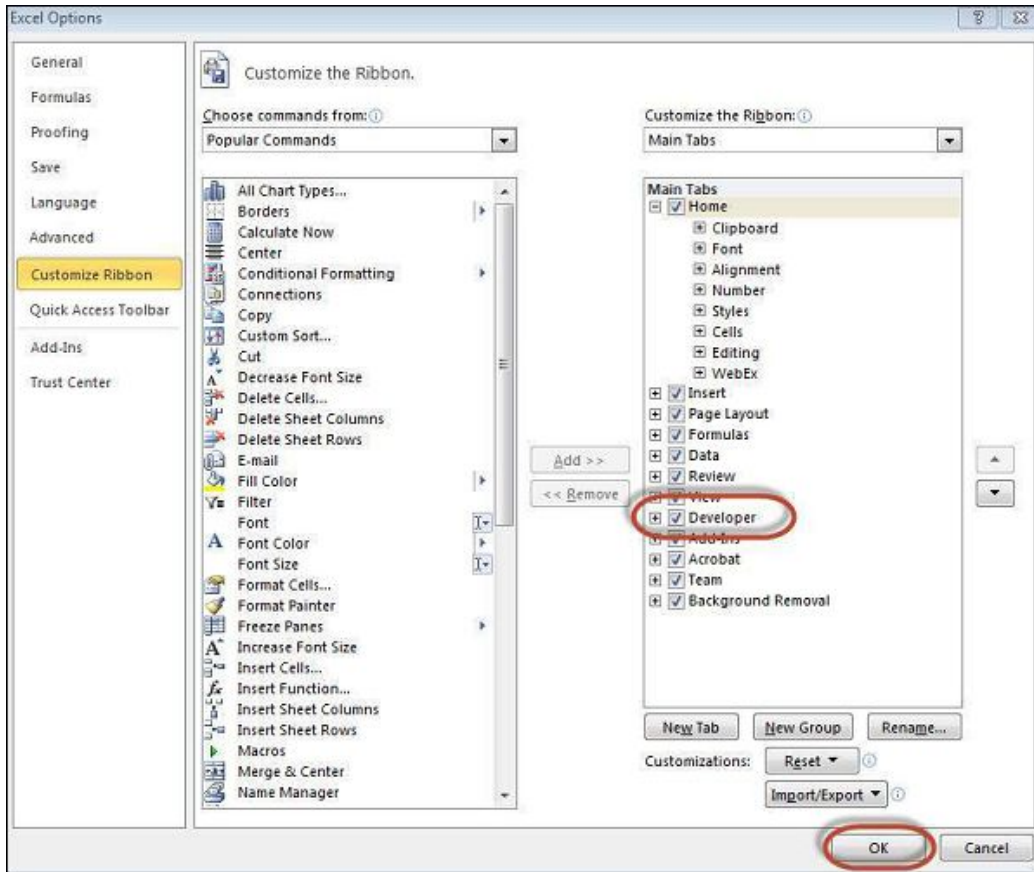
Thirdly, a 'Developer' tab should appear in the main menu.
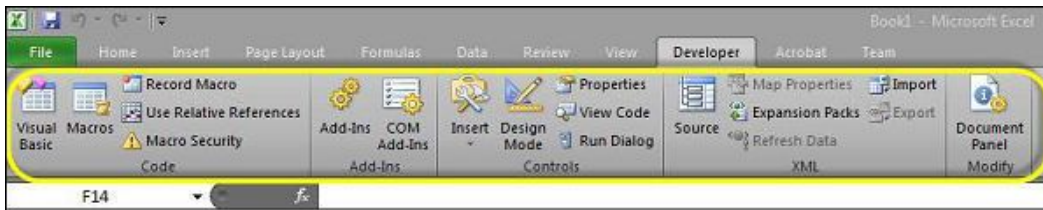
Lastly, launch the VBA Editor by selecting the 'Visual Basic' tab.
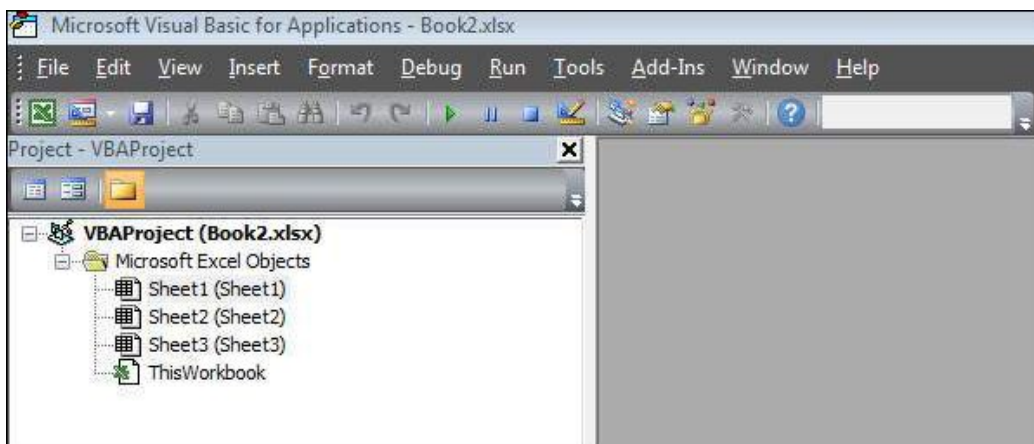
Add a button to the script in Step 5 to begin. Select the Insert button and click it.
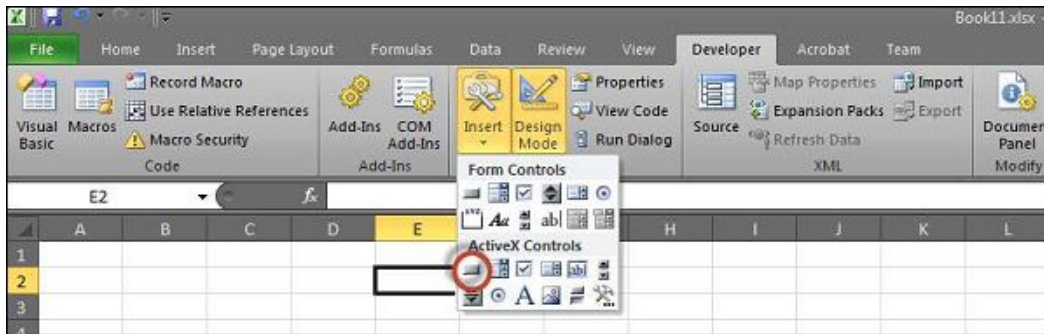
To get started, right-click & choose "properties" from the menu.
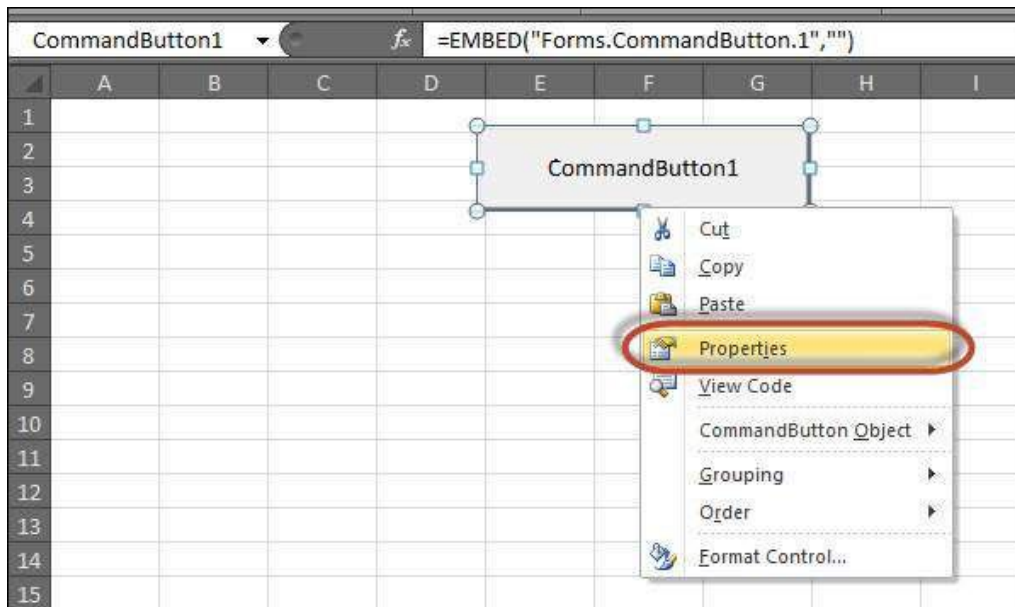
Seventh, change the title and name as indicated in the illustration below.
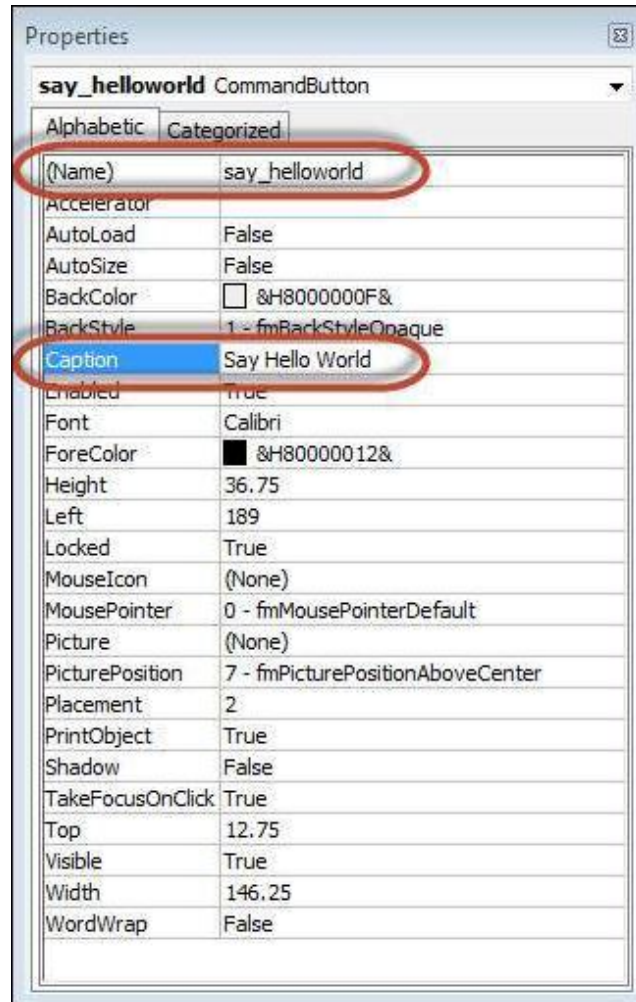
The sub-procedure design will appear after Step 8 when you double-click the button, as seen in the next screen grab.
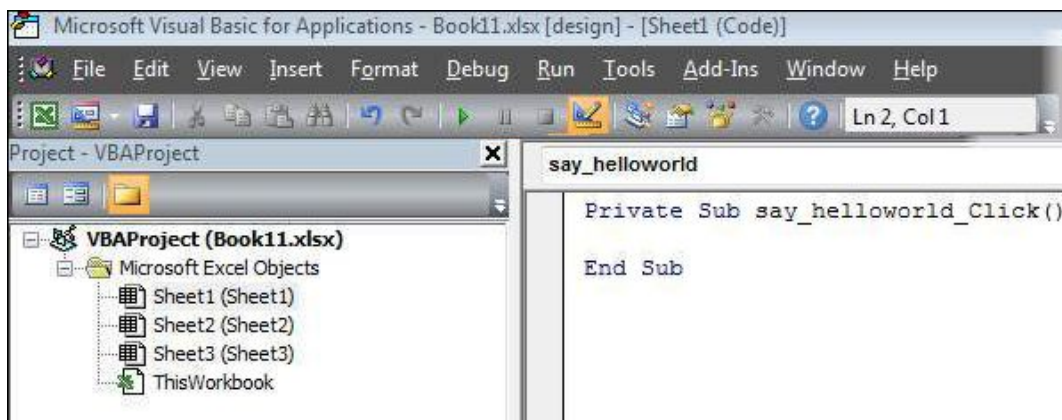
In the ninth step, you'll enter your first line of code: a greeting.

```
Private Sub say_helloworld_Click()
  MsgBox "Hi"
End Sub
```

Step 10 - Select the button to initiate the supplementary action. The following is a screen capture displaying the results of the sub-procedure. Verify that the design mode is active. If it isn't already on, a single click will activate it.

7.3 Create the Macro in Excel

With Excel VBA, you may automate processes in Excel by developing so-called macros. Throughout this chapter, understand how to improve a basic macro that will be performed after tapping on the command button. First, switch on your developer tab.

Developer Tab

Follow these instructions to activate the Developer menu.

To make the ribbon your own, just right-click anywhere on it and choose the option to do so.
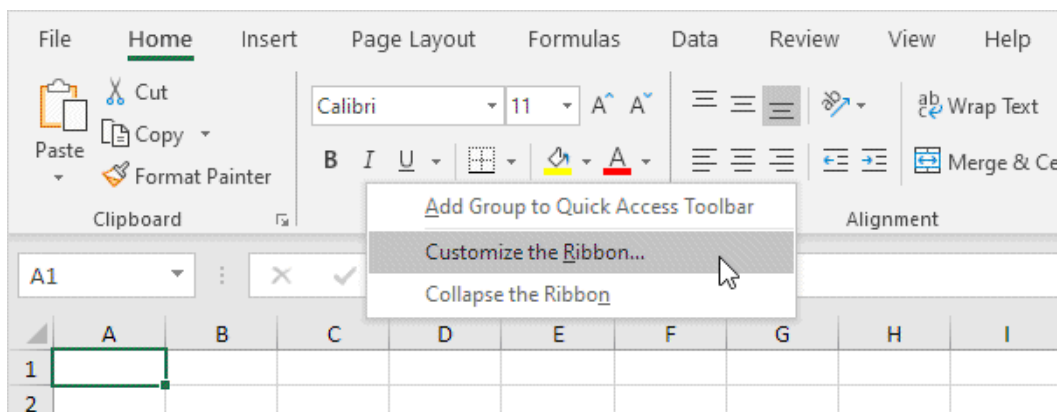
Select Main tabs on the top right of the dialogue box under Customize your Ribbon (if necessary).

Select the option labeled "Developer" in Step 3.
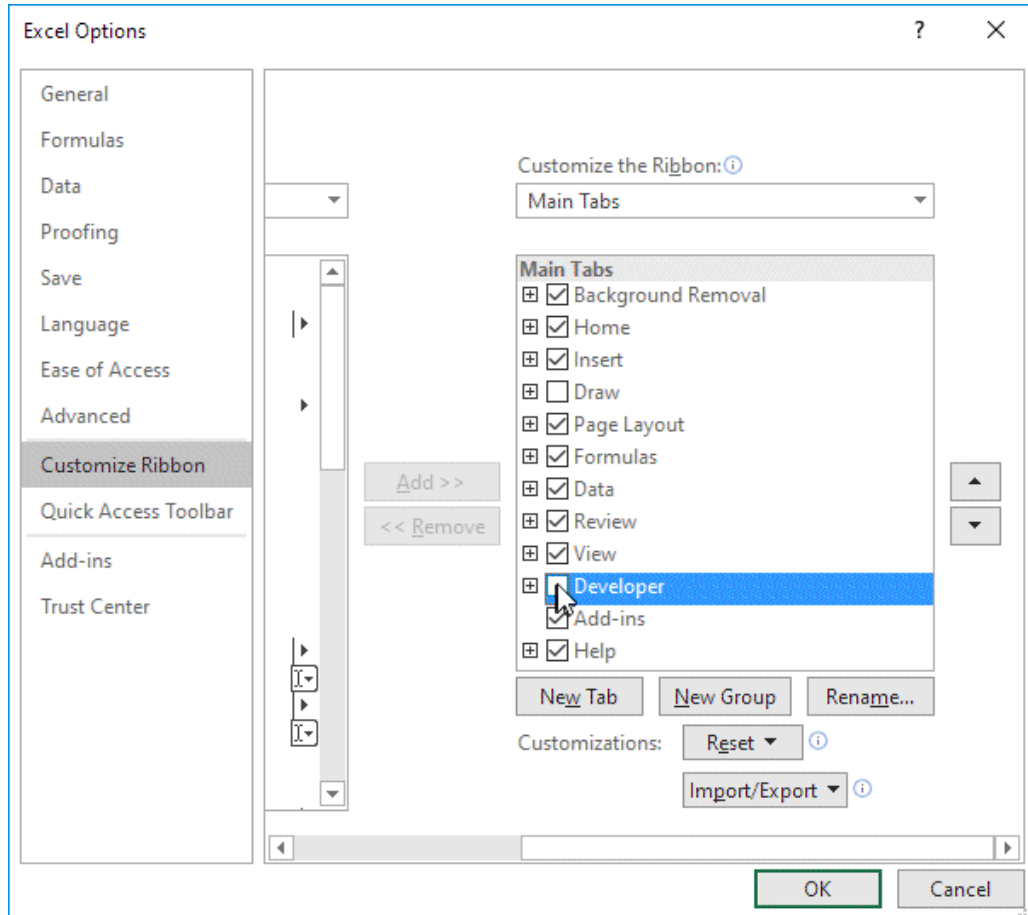
Four, choose OK.

The Developer tab is right beside the View tab, making it 5th.
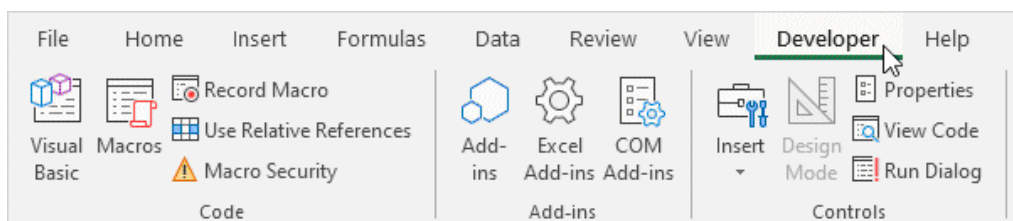
Command Button

Follow these instructions to insert a command button into your spreadsheet.

First, go to the Insert button on the Developer menu.

2) Select Command Button under ActiveX Controls and Step 3.
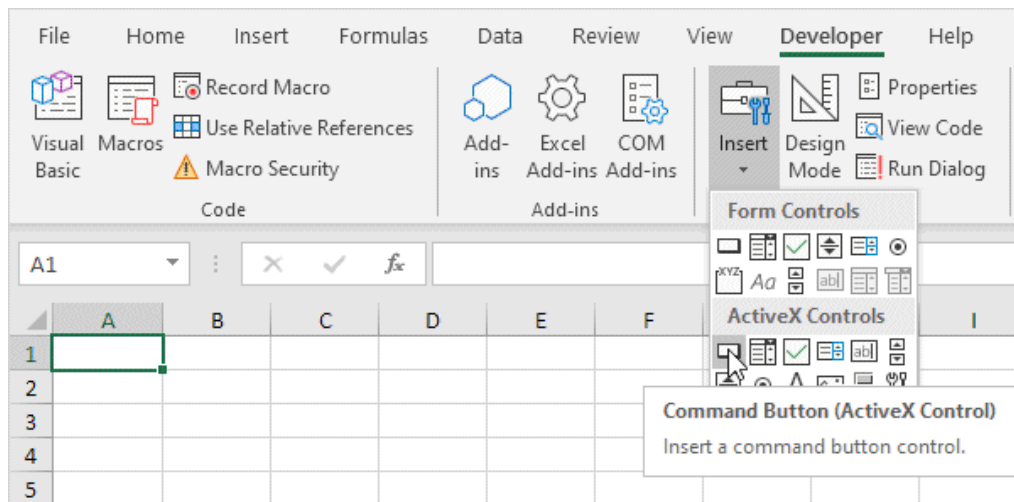
Insert a command button by dragging it onto your workbook.

Assign the Macro

Follow these steps to associate a macro (code string) with the command button.

Use the context menu of the right mouse button on CommandButton1 (ensure Design Mode is picked).

It's as simple as clicking the View Code button.
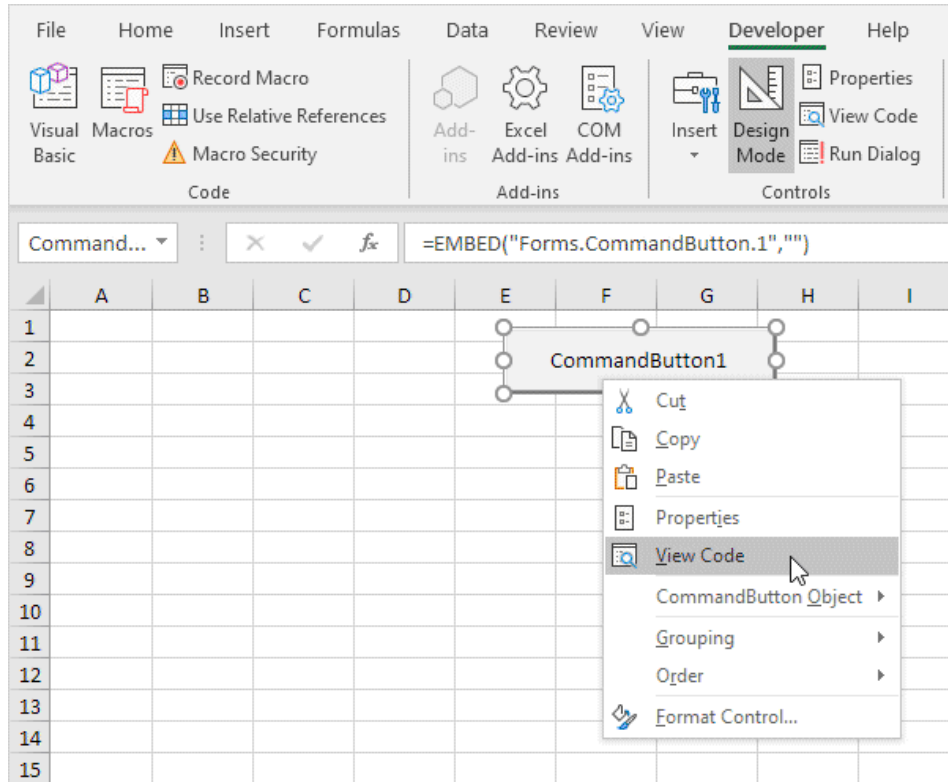
This brings up the Visual Basic Editor.

Put your cursor in the space among Private Sub CommandButton1 Click() & End Sub.

Four, include the following line of code into your project's source code.
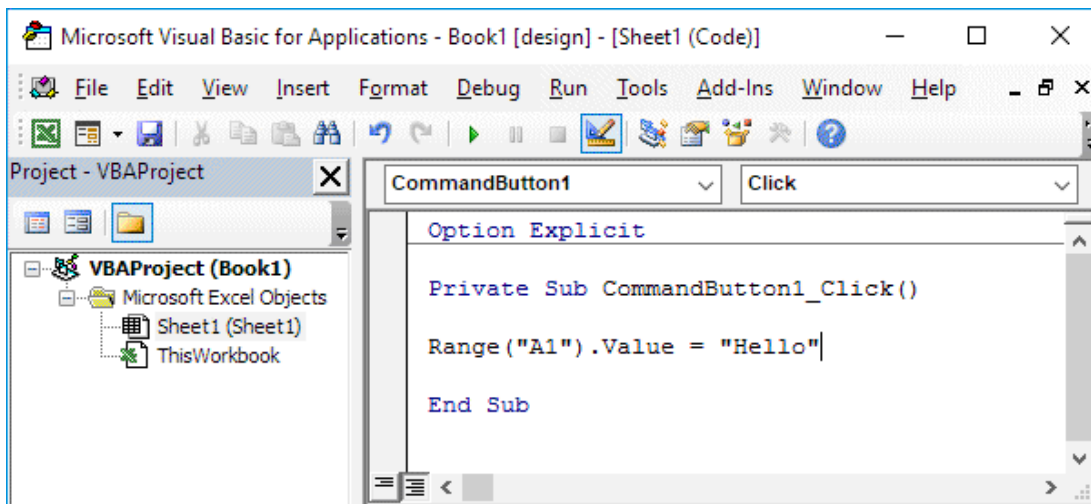
The left-hand pane titled Sheet1 (Sheet1) & ThisWorkbook is the Project Explorer. Just go to View, Project Explorer if you can't see it. Sheet1's Code window won't show up? Click Sheet1 (Sheet1). Put the Explicit Option clause out of your mind for the time being.

After number five, you should exit your Visual Basic Editor.

Step 6: Use the sheet's command button to send the necessary (ensure Design Mode is unselected).

Result:

	A	B	C	D	E	F	G	H	I
1	Hello								
2						CommandButton1			
3									
4									
5									
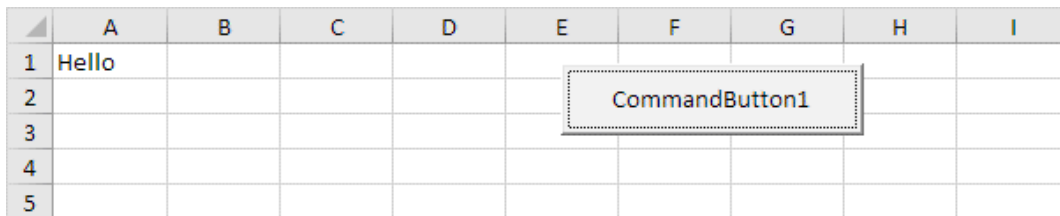
Congratulations! You have just programmed your first Excel macro.

Visual Basic Editor

On the Developer menu, choose Visual Basic to launch the Visual Basic Editor.
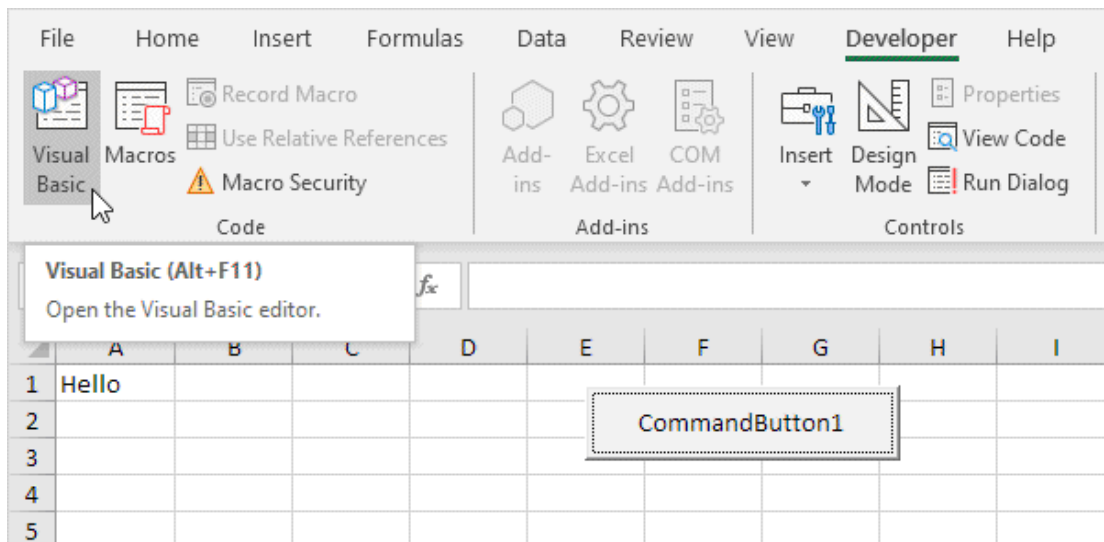
This brings up the Visual Basic Editor.
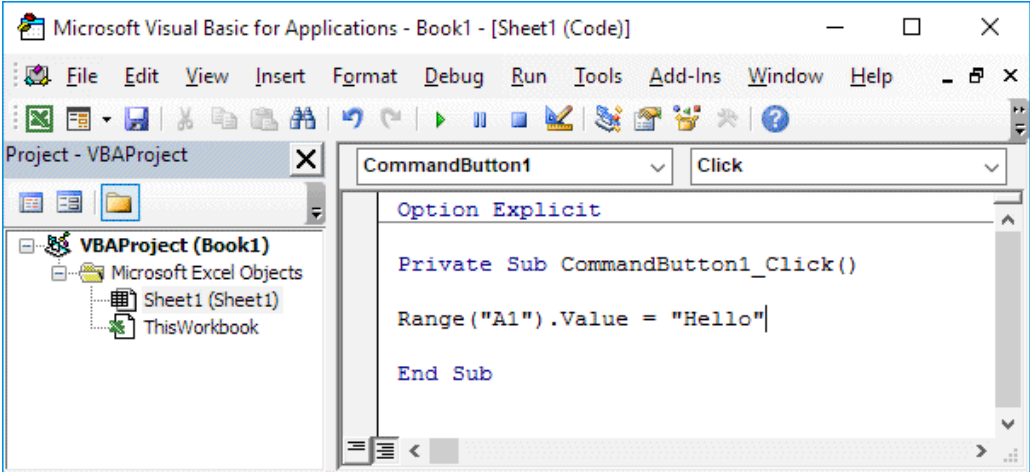
Chapter 8: Excel Tips And Tricks

Learning a few of the MS Excel TRICKS and TIPS is among the fastest methods to learn Excel, period; if you learn one Excel tip a day, you'll pick up 30 new skills in a month.

But rather of wasting time looking in vain, you should compile a log that you may consult regularly. Well, you should be extremely pleased to announce that the following is the Internet's finest and most exhaustive compilation of both elementary and advanced recommendations.

You may improve your proficiency with Excel by reading the advice and guidance provided in this chapter. Begin our education now.

8.1 10 Excel Functions Every Marketer Should Know

Creativity, ingenuity, and an eye for the aesthetic are prized in the business of marketing. This is just a little piece of the puzzle related to your day-to-day marketing campaign administration, but as any marketer will tell you, every little bit helps.

As a marketer, you spend a lot of time on Excel spreadsheets, using them for tasks like data analysis, verifying budgets, and running statistics.

Marketing work management spreadsheets are a necessary evil, but they can't keep up with modern businesses. Moreover, they are prone to become unorganized, complex, and long, making it difficult and time-consuming to get the necessary information.

Upgrade to a real work management system that eliminates the need for manual data input and analysis as this occurs.

But if you need to use a spreadsheet, there has been produced a list of 10 Excel features every marketer must know to simplify your life.

1. Table Formatting

	A	B	C	D	E	F
1	Keyword	Competition	Global Monthly Searches	September	August	July
2	[broadband]	1	427000	216000	221000	220000
3	[unlimited broadband]	1	6800	8000	11400	10100
4	[internet]	1	3280000	99100	62700	68200
5	[free broadband]	1	5900	7700	11500	10600
6	[cheap internet provider]	1	640	140	120	110
7	[internet provider]	1	91200	9400	8400	8400
8	[which broadband]	1	4100	4000	4100	4000
9	[adsl wireless]	1	3200	510	690	510
10	[fast internet]	1	8300	840	730	710
11	[broadband filter]	1	1200	1300	1200	1300
12	[broadband access]	1	7000	3100	2800	2400

Although table formatting is a simple tool, few marketers use it. Table formatting transforms your data set into a searchable database, allowing you to draw conclusions and act from them more easily.

Right-click on every cell within your data collection, choose Home Styles Format as Table, and you'll have a professionally formatted table ready to use. After that, you may adjust the parameters to your liking, resulting in a spotless and dynamic workbook.

2. Pivot Table

	A	B	C
1			
2		Row Labels	Sum of Sales
3		Chocolate Hazelnut	$ 77,594
4		Milk Chocolate	$ 68,244
5		Extra Dark Chocolate	$ 35,637
6		Chocolate Almond	$ 33,146
7		Chilli Chocolate Fire	$ 18,654
8		Orange Chocolate	$ 16,133
9		White Chocolate	$ 14,199
10		Chocolate Pistachio	$ 6,871
11		Bacon Chocolate	$ 3,754
12		Peanut Butter Chocolate	$ 3,510
13		Banana Chocolate	$ 729
14		Grand Total	$ 278,470

product_data.xlsx - Microsoft Excel

PivotTable Tools

File   Home   Insert   Page Layou   Formulas   Data   Review   View   Options   Design

B3   fx   Chocolate Hazelnut

PivotTable Field List

Choose fields to add to report:

Date
Region
☑ Product
Category
Qty
☑ Sales

Drag fields between areas below:

Report Filter   Column Labels

Row Labels   Σ Values
Product   Sum of Sales

You may easily assess enormous datasets and spot relevant patterns with the help of a pivot table's categorization capabilities.

Data selection and table creation are the first steps in creating a pivot table. Pick the Pivot Table option. Launch a new workbook and organize your information with the help of the pivot table creator.

3. Charting
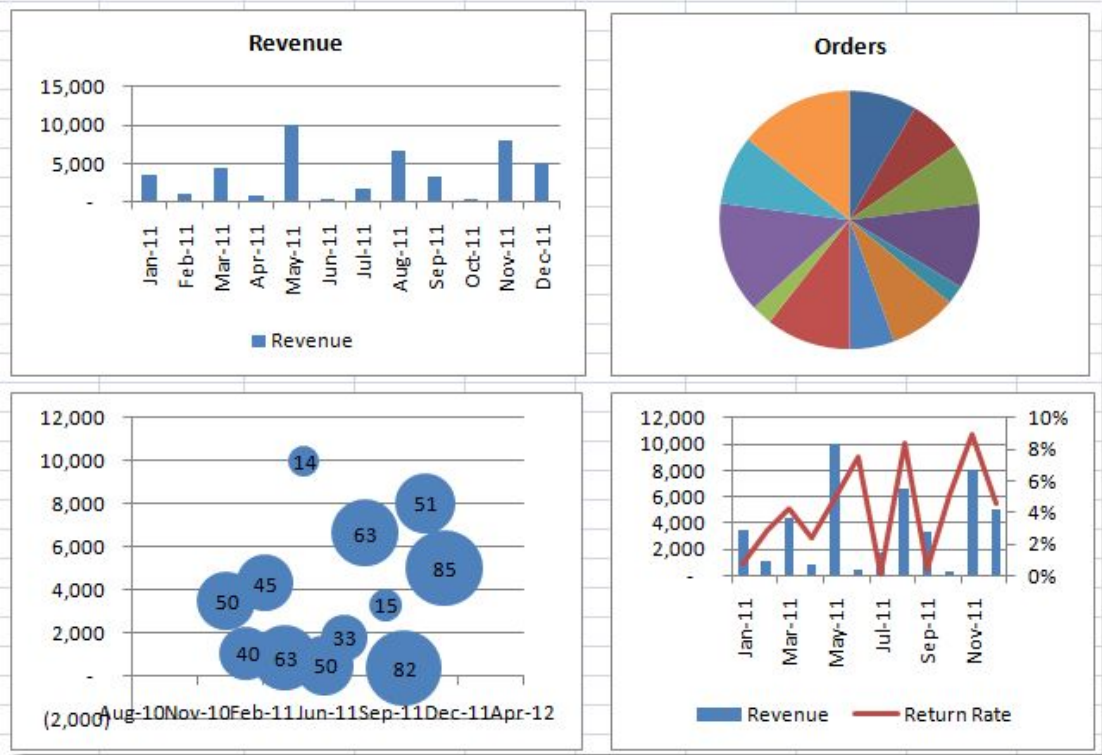
You may use charting software to show the information you have gathered in a visual format. If you need to show data to customers or other influential parties, this is a lot more attractive format in which to do it.

Pick the data you want to use for your chart, go to Insert in the main menu, and then select the chart type you want to use and the options you want to use from the drop-down menu.

4. COUNTIFS
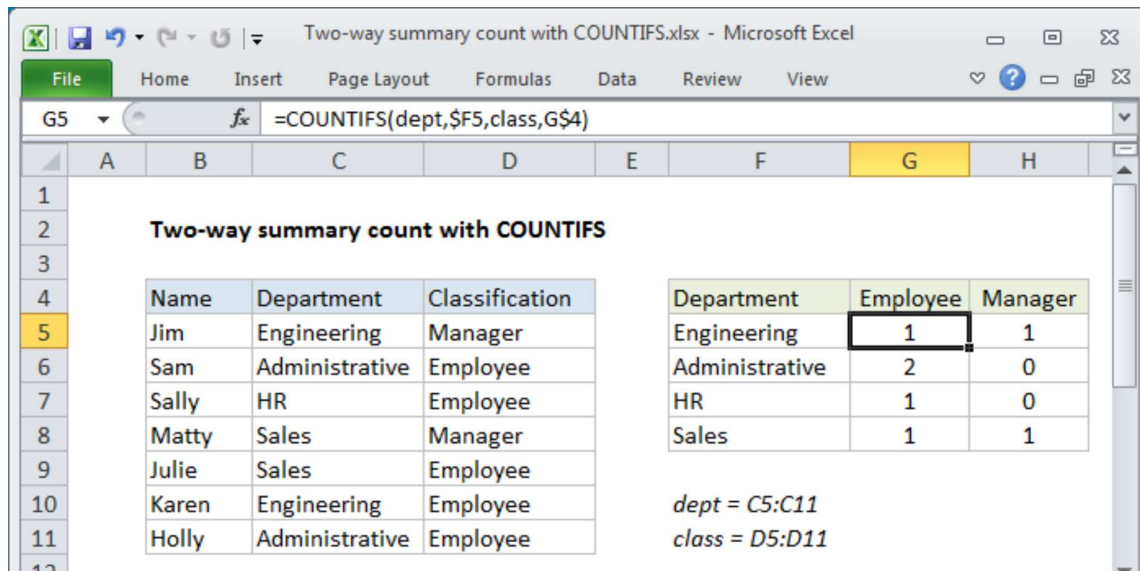
With COUNTIFS, you can rapidly filter your data and find out how many cells in a certain range match the criteria you provide. The COUNTIF function has a straightforward syntax: =COUNTIF (range, criteria).

As with any other Excel function, your range & the criteria describe the range of cells to be included and the kind of information being sought, respectively.

5. SUMIFS
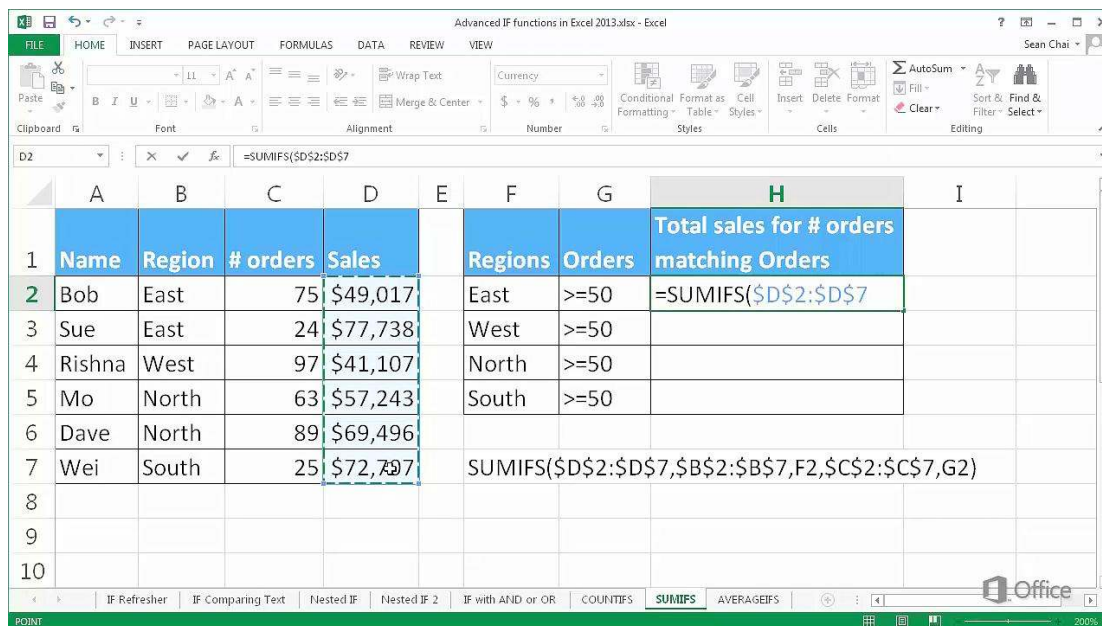
The SUMIFS function provides another option for data extraction. Comparable to the COUNTIF function, SUMIFS sums the provided data rather than counting it. More than a single condition may be set using SUMIFS.

For instance, the SUMIFS function may sum up all a certain salesperson's product sales. The SUMIFS function may be invoked using the following syntax: =SUMIFS(sum range, criteria range1, criteria range2, criteria2...).

We're moving into more complex features now, but if you've already mastered the fundamentals, you'll have no trouble picking up the nuances of the more sophisticated ones.

6. IF Statements
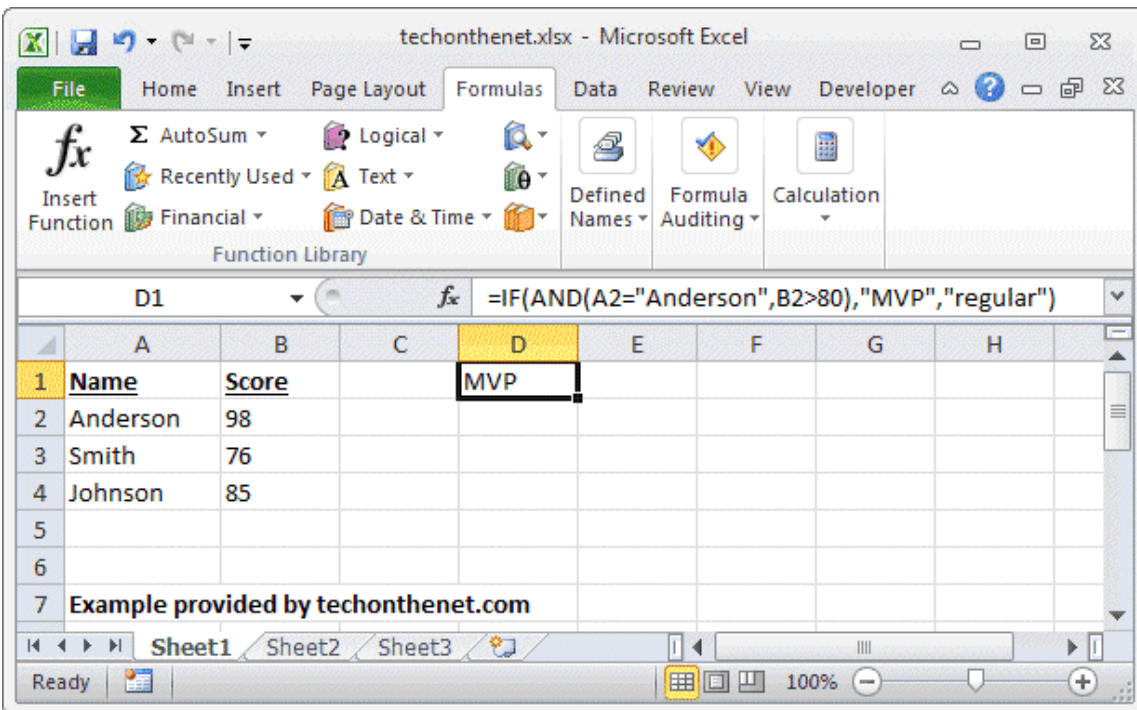
The If function allows you to easily assess whether a set of data matches certain criteria. The =IF (logical test, value if true, value if false) format is straightforward as a standalone function. The "if true" and "if false" checks hint that this function has two potential results.

The usage of a nested IF is another option. To further dissect data, you may use a nested IF, which enables you to substitute another IF statement for the value if false part of the grammar.

7. CONCATENATE

Another elementary function that might out to be useful is CONCATENATE.

Let's say you wish to combine 2 columns of text (a person's first & last name, for instance). You may utilize the CONCATENATE function to avoid manually combining the data from both columns.

To begin collecting this information, a new column must be added. This function's syntax is =CONCATENATE (cell to be combined). When you type =CONCATENATE (A2, B2), the cells in ranges A2 & B2 will be combined (in, say, cell C3).

8. VLOOKUP

	A	B	C	D	E	F
	B17		f_x =VLOOKUP(A17,B2:C14,2,FALSE)			
1	Subsidiary Symbol	Subsidiary Name	Q1 Sales	Q2 Sales	Q3 Sales	Q4 Sales
2	DECO	Company 1	$ 6,011,734	$6,205,396	$7,159,960	$7,843,063
3	NECO	Company 2	$ 9,940,179	$ 901,990	$ 916,393	$ 146,677
4	SACO	Company 3	$ 3,953,810	$2,439,481	$8,688,333	$1,017,928
5	LOCO	Company 4	$ 4,751,875	$9,525,473	$4,881,906	$8,872,941
6	PACO	Company 5	$ 4,255,863	$6,203,726	$7,032,171	$6,929,504
7	ROCO	Company 6	$ 3,788,912	$5,858,348	$9,818,079	$7,585,386
8	ISCO	Company 7	$ 3,331,047	$7,203,024	$3,676,281	$6,971,301
9	MUCO	Company 8	$ 5,625,887	$5,020,156	$4,374,265	$2,509,067
10	SHCO	Company 9	$ 9,591,023	$6,321,909	$1,264,262	$ 680,885
11	HOCO	Company 10	$ 3,554,290	$8,018,757	$7,506,504	$9,569,803
12	SECO	Company 11	$ 4,333,767	$7,228,867	$3,103,380	$3,266,722
13	MECO	Company 12	$ 3,186,745	$6,383,926	$1,059,513	$6,680,690
14	OSCO	Company 13	$ 653,495	$8,424,585	$6,394,858	$ 455,391
15						
16	Subsidiary Name	Q1 Sales	Subsidiary Symbol			
17	Company 1	$ 6,011,734	????			

VLOOKUP (short for "vertical lookup") is a function that enables you to output a value from a table based on a search for a specific value in the table. When searching through a massive database for a certain number, this feature significantly reduces the time required and the likelihood of a human mistake.

The VLOOKUP function requires an extra column in your spreadsheet to show the results. To use VLOOKUP, go to Insert   Function after selecting the first empty cell in this column. Following its selection, a dialogue box will display where you may enter four parameters for your search.

9. Conditional Formatting

	A	B	C	D	E
1	**Salesperson**	**May**	**June**	**July**	**Aug.**
2	Albertson, Kathy	$3,947.00	$557.00	$3,863.00	$1,117.00
3	Allenson, Carol	$4,411.00	$1,042.00	$9,355.00	$1,100.00
4	Altman, Zoey	$2,521.00	$3,072.00	$6,702.00	$2,116.00
5	Bittiman, William	$4,752.00	$3,755.00	$4,415.00	$1,089.00
6	Brennan, Michael	$4,964.00	$3,152.00	$11,601.00	$1,122.00
7	Carlson, David	$2,327.00	$4,056.00	$3,726.00	$1,135.00
8	Collman, Harry	$3,967.00	$4,906.00	$9,007.00	$2,113.00
9	Counts, Elizabeth	$4,670.00	$521.00	$4,505.00	$1,024.00
10	David, Chloe	$3,379.00	$3,428.00	$3,973.00	$1,716.00

Adjusts the format of various cells based on their values without manual intervention.

Conditional formatting is useful for seeing patterns in large datasets. When you have your data selected, go to Format > Conditional Format. The Manage Rules dialogue box will appear, where you may choose the formatting rules that best suit your needs.

10. Keyboard Shortcuts

It facilitates quick access to commonly used features and windows with only a few keystrokes.

Keyboard shortcuts are an essential part of any comprehensive Excel function list. Common Excel tasks may be made easier using these shortcuts.

To obtain the total of a complete column of data, use Command Shift Plus T, Command One to open the Format Cells box, Command K to insert a hyperlink, & F11 to convert chosen data into the chart on your new sheet.

Although mastering Excel's vast capabilities may be impossible, the following characteristics should provide a solid foundation for any marketer's toolkit.

When a company outgrows spreadsheets, it's time to look at a more robust work management system that consolidates tasks, project data, draughts, proofreading, collaboration, & more into a single interface.

Workbook Shortcut Keys

Description	Excel Shortcuts
1. To create a new workbook	Ctrl + N
2. To open an existing workbook	Ctrl + O
3. To save a workbook/spreadsheet	Ctrl + S
4. To close the current workbook	Ctrl + W
5. To close Excel	Ctrl + F4
6. To move to the next sheet	Ctrl + PageDown
7. To move to the previous sheet	Ctrl + PageUp
8. To go to the Data tab	Alt + A
9. To go to the View tab	Alt + W
10. To go the Formula tab	Alt + M

Cell Formatting Shortcut Keys

Description	Excel Shortcuts
11. To edit a cell	F2
12. To copy and paste cells	Ctrl + C, Ctrl + V
13. To italicize and make the font bold	Ctrl + I, Ctrl + B
14. To center align cell contents	Alt + H + A + C
15. To fill color	Alt + H + H
16. To add a border	Alt + H + B
17. To remove outline border	Ctrl + Shift + _
18. To add an outline to the select cells	Ctrl + Shift + &
19. To move to the next cell	Tab
20. To move to the previous cell	Shift + Tab
21. To select all the cells on the right	Ctrl + Shift + Right arrow
22. To select all the cells on the left	Ctrl + Shift + Left Arrow
23. To select the column from the selected cell to the end of the table	Ctrl + Shift + Down Arrow
24. To select all the cells above the selected cell	Ctrl + Shift + Up Arrow
25. To select all the cells below the selected cell	Ctrl + Shift + Down Arrow

Description	Excel Shortcuts
26. To add a comment to a cell	Shift + F2
27. To delete a cell comment	Shift + F10 + D
28. To display find and replace	Ctrl + H
29. To activate the filter	Ctrl + Shift + L Alt + Down Arrow
30. To insert the current date	Ctrl + ;
31. To insert current time	Ctrl + Shift + :
32. To insert a hyperlink	Ctrl + k
33. To apply the currency format	Ctrl + Shift + $
34. To apply the percent format	Ctrl + Shift + %
35. To go to the "Tell me what you want to do" box	Alt + Q

Row and Column Formatting Shortcut Keys

Description	Excel Shortcuts
36. To select the entire row	Shift + Space
37. To select the entire column	Ctrl + Space
38. To delete a column	Alt+H+D+C
39. To delete a row	Shift + Space, Ctrl + -
40. To hide selected row	Ctrl + 9
41. To unhide selected row	Ctrl + Shift + 9
42. To hide a selected column	Ctrl + 0
43. To unhide a selected column	Ctrl + Shift + 0
44. To group rows or columns	Alt + Shift + Right arrow
45. To ungroup rows or columns	Alt + Shift + Left arrow

Pivot Table Shortcut Keys

Description	Excel Shortcuts
46. To group pivot table items	Alt + Shift + Right arrow
47. To ungroup pivot table items	Alt + Shift + Left arrow
48. To hide pivot table items	Ctrl + -
49. To create a pivot chart on the same sheet	Alt + F1
50. To create a pivot chart on a new worksheet	F11

8.2 How To Password-Protect The Worksheet Or Certain Cells

Excel sheets and workbooks may be protected using passwords and other methods. By design, Excel documents are not encrypted. If you build a new workbook on a template and then make that file public, anybody may change it. Formats, categories, and data may all be altered in the template to better fit your requirements. The templates you develop and share with other users may be protected in several ways, such as with passwords & other security features. Excel files may be protected in several ways, including with passwords, just at workbook, sheet, and cell levels.

Excel workbooks may be protected to avoid other users' accidental deletion of critical formulae and worksheets. Protecting your workbook is extremely helpful to avoid inadvertent deletions or abuse when dealing with templates.

Excel files may be secured in two ways: at the file and worksheet levels. Excel's password security may be toggled between three modes: opening the file, modifying the data, and making structural changes to the file (such as adding, removing, or concealing worksheets).

Excel has three additional layers of security: workbook, worksheet, and cell. When a protected workbook is opened, Excel's menu options unavailable in that state are grey. Users would need to input a password that you set to remove worksheet protection.

Excel Workbook protection levels	
Protection	Description
Workbook	Prevents users from altering the structure of the workbook, including adding or deleting sheets and displaying hidden worksheets. You can also prevent users from changing the size or position of worksheet windows.
Sheet	Prevents users from making changes to a worksheet. You can specify the elements that users are allowed to change.
Cells	Cells are locked by default in a protected worksheet. Users cannot edit, insert, delete or formats cells. You can unlock cells that users are able to edit.

Protecting an Excel file by using a password

Here are the methods to take while enforcing security on an Excel document:

- Launch Excel and load the file you want to protect.
- On the Review menu, choose Protect Worksheet.
- Choose the option to protect the structure within the Protect Structure & Windows dialogue box.
- To protect the spreadsheet, type in the password.
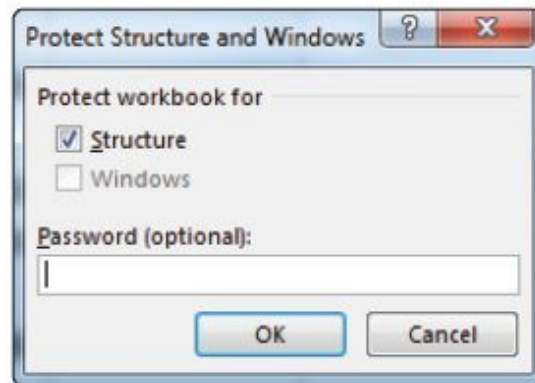
Enabling workbook protection will stop users from modifying the document's layout.

- Just hit the "OK" button. Protect Workbook stays highlighted on the Ribbon when a protected workbook is opened.
- Put the file and close it. One option is to forego saving the file altogether.

How to Protect Your Excel Worksheets from Unauthorized Access

If your password-protect a workbook just at the Workbook level, no one will be able to make any changes to the file's structure. When you do this, the protected workbook cannot be unprotected by the user unless they know the password.

When protecting an Excel file with a password, it's important to write it down somewhere safe since there's no way to recover a lost passphrase.

Users can't disable worksheet protection if you include a password. You may protect an Excel document by following these instructions:

- Cast your Excel file open.
- Choose the Review menu and the Protect Workbook option to secure your workbook.
- Choose the option to protect the structure within the Protect Structure & Windows dialogue box.
- Enter "sesame" into the Password field and hit the OK button.
- Enter sesame again during the Confirm Password dialogue box and click OK to set the password.

Disabling Excel Password

Follow these procedures to deactivate workbook protection and disable Excel passwords:

- Select Protect Workbooks from Review menu on your Excel file.
- Type sesame into the Password text field, and then click OK on the Unprotect Workbook dialogue box.
- Type in the password if you want to remove protection from your spreadsheet.

Protecting your Excel file

Here's how to keep your Excel documents safe:

- Click File   Save As in Excel's menu bar.
- Select Computer from the Save As drop-down menu, then click the Browse button.
- Choose General Options from the Tools menu of the Save As dialogue box.

Protecting your Excel worksheets

Protecting a worksheet in a workbook prevents other people from modifying the sheet. To prevent unauthorized changes, every cell in a protected sheet must be locked unless individual cells are unlocked. Users may be granted access to the sheet's data and given varying editing authority. Users may be granted the ability to enter columns but not remove them, for instance.

- If you're working with an Excel document, select Protect Sheet from the Review menu.
- Ensure that the option to "Protect worksheet & content of locked cells" is checked.
- Choose Format Cells & Sort in the space labeled " Allow all workers of this spreadsheet to, " then press OK.
- Worksheet protection allows you to specify which actions users are authorized to do and which they are not.

Unlock your Entire Sheet

Excel sheets often lock their cells, and you may not even know. This provides you a nice beginning if you choose to password-protect your spreadsheet. Therefore, the "locked" option is relevant only if the document is kept secure.

- The only way to lock just a few cells is to first unlock them.
- Excel sheet selection Open your workbook and choose the sheet you wish to work on.
- To choose the full sheet, use the selection triangle in the top left corner of the page.

- When the sheet is highlighted, pick Format Cells by either right-clicking and selecting the option or by going to Format   Format Cells on the Home tab of the ribbon.
- Remove any tick from this Locked box in the Protection section.
- Just hit the "OK" button.
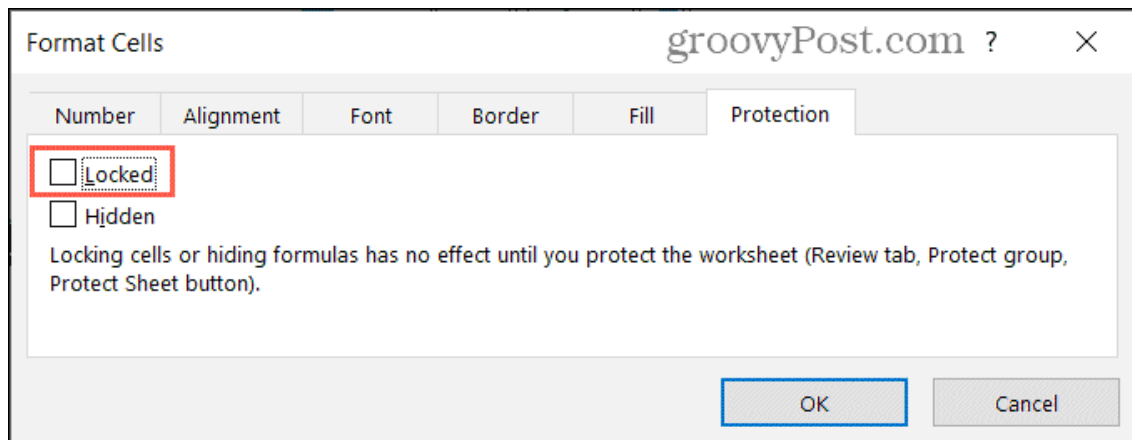

Lock Certain Cells

Then, choose the cell range, cells, columns, or rows you would like to secure. The sheet must be guarded once the cells are secured to prevent unauthorized access to the contents.

- Either pick the cells and then choose Format Cells from the context menu or use the shortcut Format   Format Cells on the Home tab of the ribbon.
- To lock your device, go to the Security menu and choose the appropriate option.
- Just hit the "OK" button.

- To safeguard your work, choose the Protect Sheet option under Review.
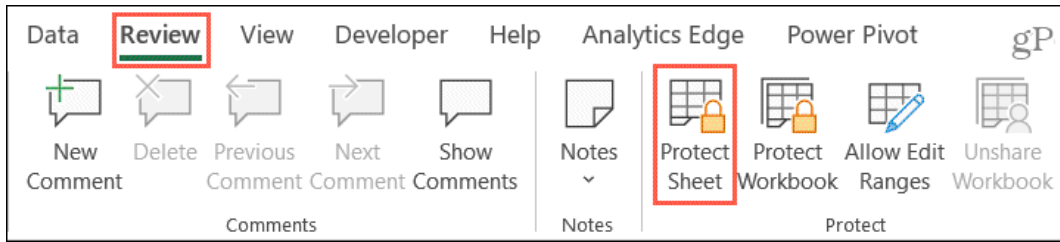
- Then, choose the box labeled "Protect worksheet & content of locked cells" and enter the desired password. You should write down or enter the password into a password manager. Passwords can neither be reset nor retrieved if forgotten.
- In the options drop-down menu, ensure Select unlocked cells is selected. It thus becomes possible for the user(s) to fill in the required fields in the unprotected cells. You may choose the appropriate checkboxes to provide users access to additional features.
- Just hit the "OK" button.
- Repeat the password for double-checking, then press the OK button.
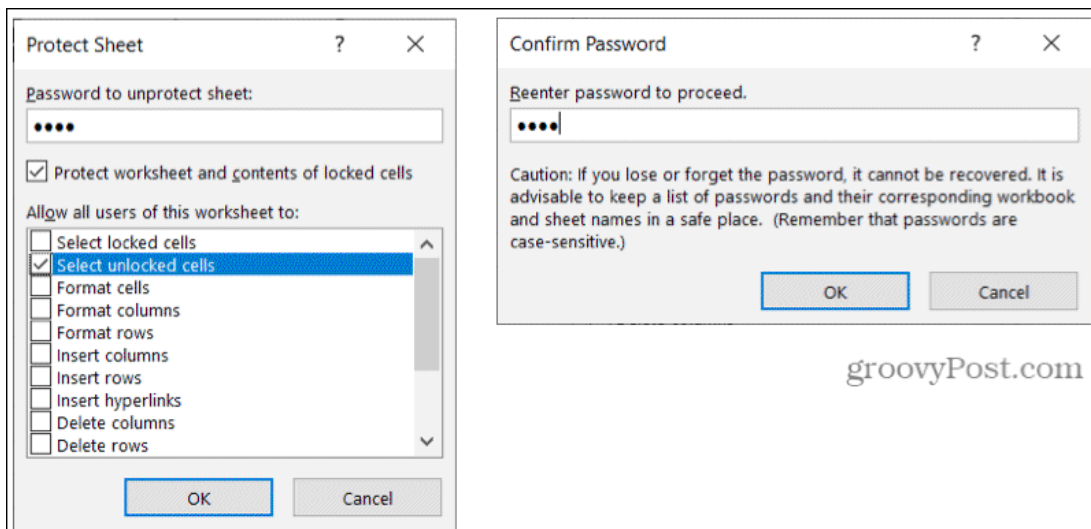
Check your sheet before passing it along. A locked cell is difficult to modify. A notification that the cell is on a secure sheet should be sent to

you.
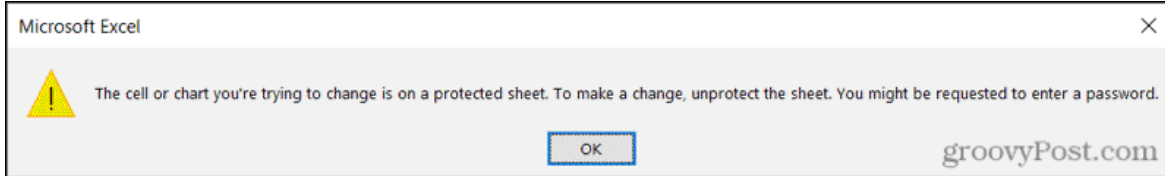
Unprotecting the Excel sheet will allow you to modify the protected cells. Click Review, then Unprotect Sheet within the ribbon, then input the password.

Protect Data & Lock Specific Cells into Excel

When sharing a form or spreadsheet with others for completion or addition, it's a good idea to lock any cells that shouldn't be modified. Unwanted modifications may be avoided without such a lot of extra effort.

8.3 Recovering Unsaved Files

Now picture yourself working on that critical report or dashboard you've been working so hard on. Your effort has paid off, and you feel quite accomplished.

You missed a crucial step, however.

You forgot to save the Excel sheet.

Okay, I'll save you the flourishes and get to the point.

The worst time for an Excel crash is when you need it to work. Everything always seems to go wrong at the very worst moment.

You'll need to resort to Excel file recovery if this happens.

Sometimes the Excel Gods will be on your side, and you'll get the file; other times, you may not.

This chapter will describe all you need to know about rescuing unsaved Excel documents. Furthermore, demonstrate the preventative measures and

safety nets you should implement.

Further, it would provide a bit of VBA code that, once you save the current Excel file, will save a duplicate of the file with such a timestamp in case something goes wrong.

All Methods to Recover all Unsaved Excel Data / Files

Unpredictability abounds in Excel (& Windows, for that matter). It may unexpectedly shut down, taking all your Excel data with it.

There's no good way to manage this.

Nonetheless, there are approaches to take.

Unsaved Excel sheets or data may sometimes be recovered using Excel's built-in features.

The three situations below all call for the use of Excel's built-in checks to aid with file/data recovery:

- When your computer or Excel suddenly freezes, you are in the middle of creating a new file (that you've not saved yet).
- After making changes to a previously saved file, Excel unexpectedly closes without allowing you to save it.
- You wish to undo the modifications you made and save and restore to a prior version because you made a mistake.

How to deal with each of them, exactly?

Recovering a New Unsaved File

If Excel or your computer suddenly freezes or shuts down while working on a document, don't worry; you can still go back to where you left off without losing any of your work.
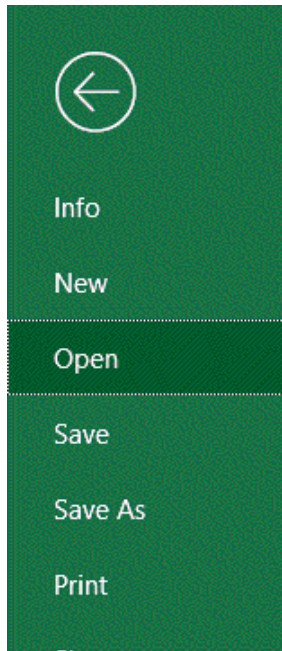
- The unsaved Excel file may be retrieved by following the procedures below:
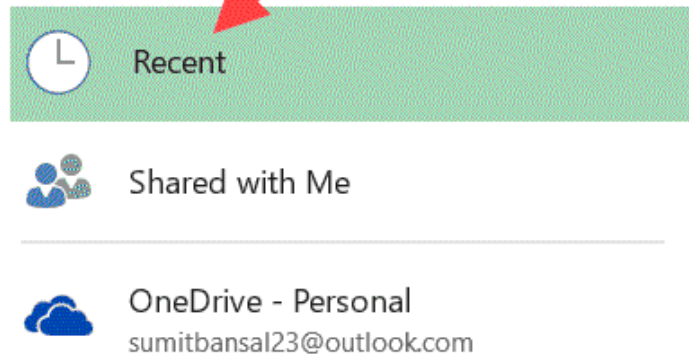- Launch a blank Excel file.
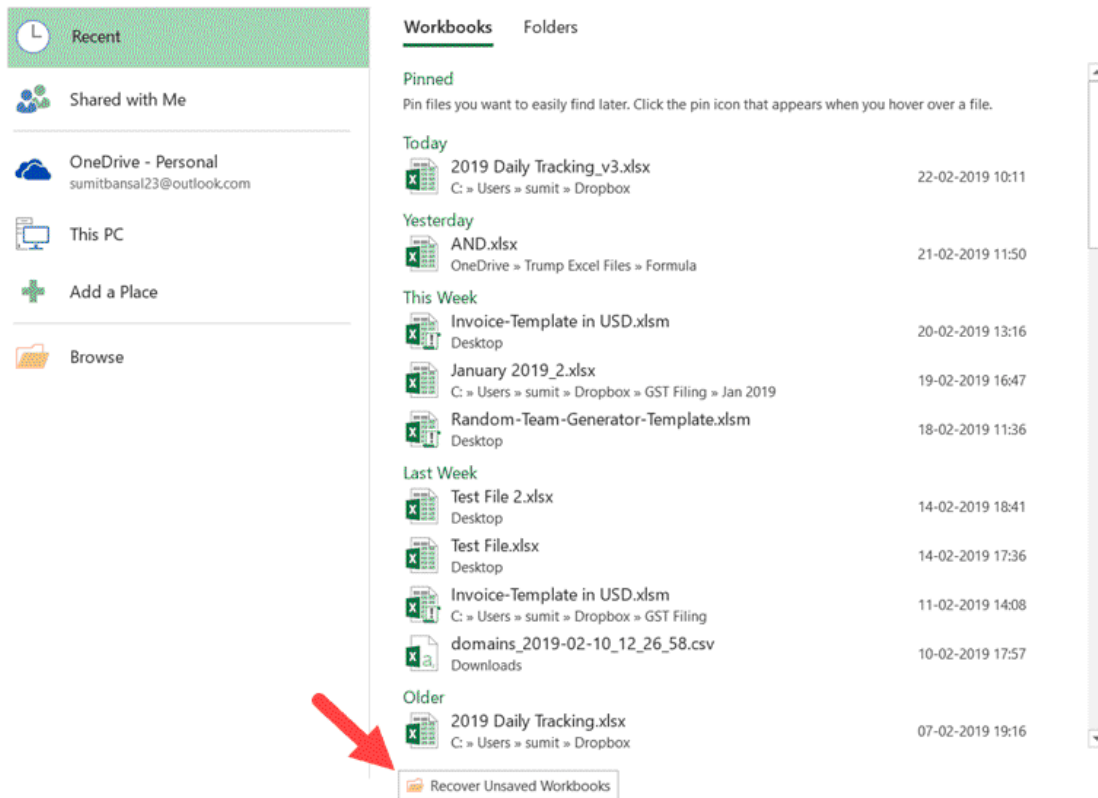- Click on your 'File' tab
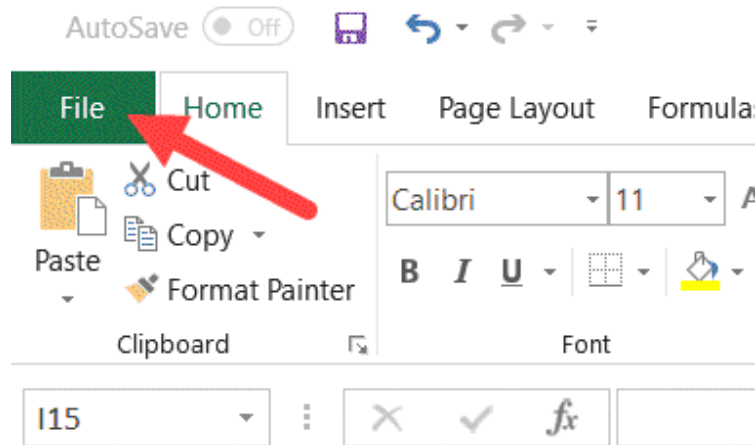
Click on the 'Open'
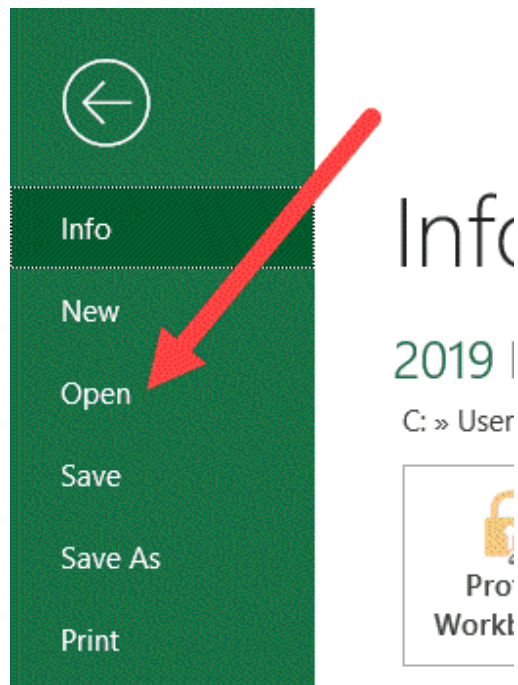
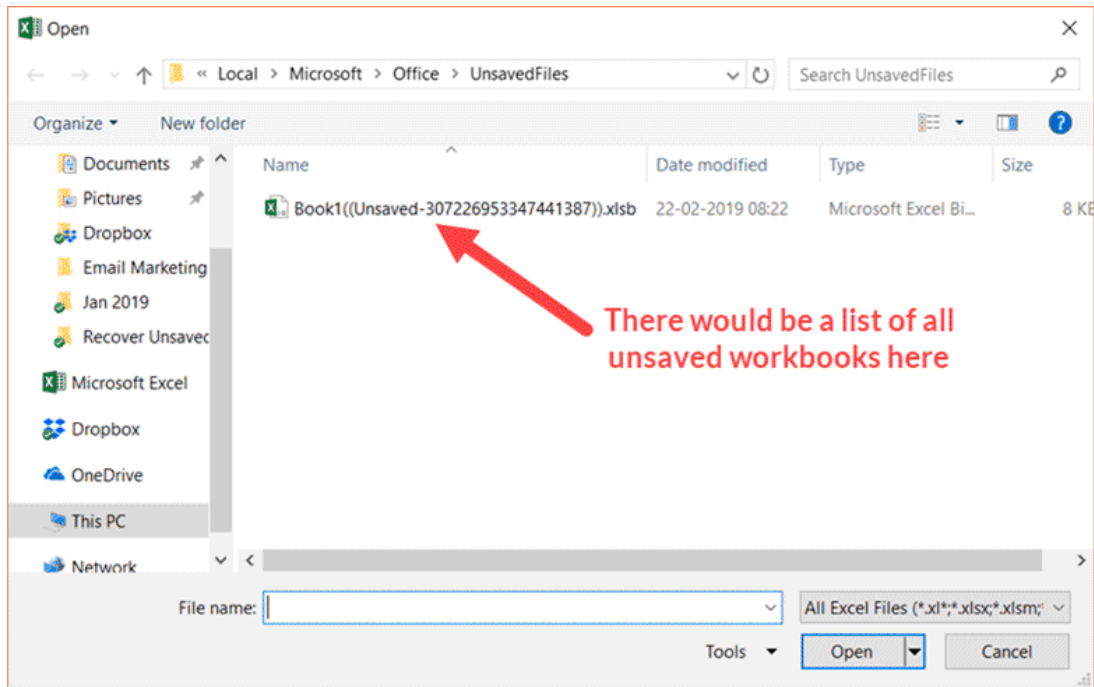Choose Recently Used Worksheet (located in the upper left corner).

If you haven't saved your work recently, choose the "Recover Unsaved Workbooks" button.

Choose a file you want to open from the list with unsaved Workbooks within the resulting dialogue box.

Use the "Save As" menu to give the file a new name before saving it to a new place.

Excel stores a backup copy of all unsaved files in this folder.

C:\Users\ [YourSystemName]
\AppData\Local\Microsoft\Office\UnsavedFiles

In the following URL, where you've substituted "Sumit" for "[YourSystemName]," you should substitute the name of any system.

You may also navigate straight to this folder by opening the browser & copy-pasting the location in it (within a place of the URL).

When you access any file from such a folder, you will get a notification box that will urge you to save it.
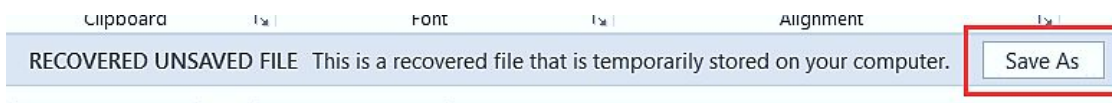
To save it, click the link, give it a new name, and store it elsewhere.

You may use this technique to retrieve documents you worked on but forgot to save.

Recovering Updated Files (previous version saved)

If you were operating on a file and Excel (or the machine, or the power, or anything) unexpectedly shut off, you might use this approach to recover it.

- Therefore, you can access the original file but not the modifications you made.
- Here are the measures to recoup the modified Excel document:
- Launch an existing Excel file.
- Unsaved files are shown in a window labeled "Document Recovery" as soon as the program starts. To get the information, just click on the file names.
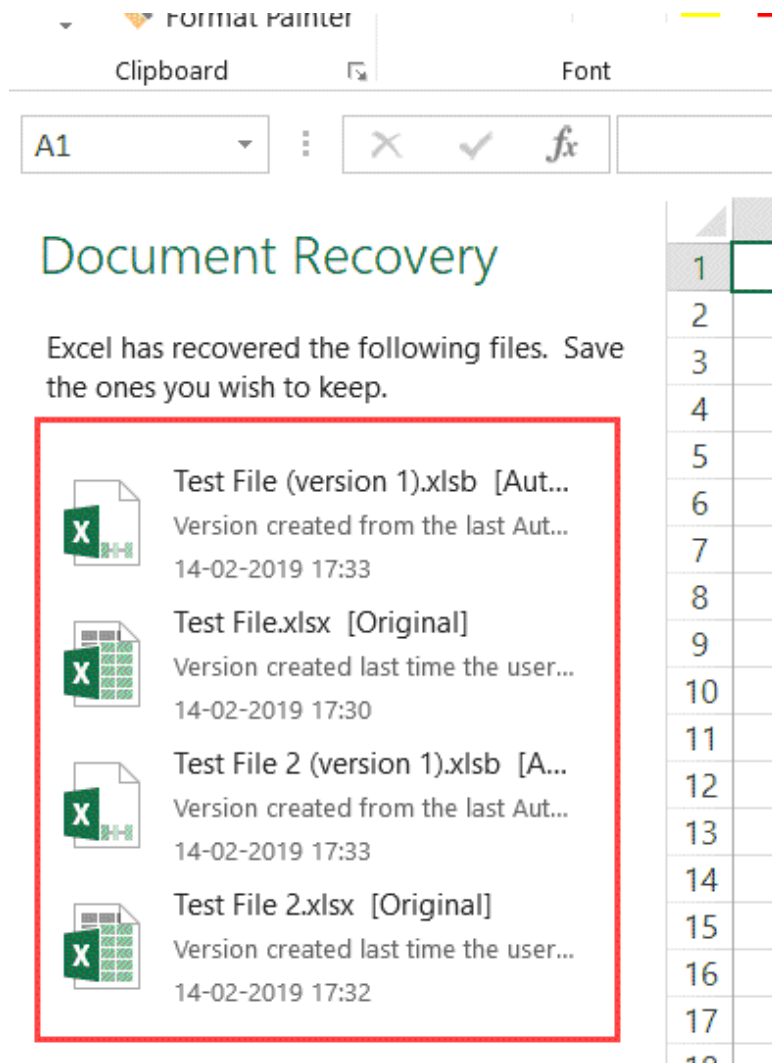
- After you have collected the necessary information, you should save the file under a new name.

You may also access the 'Show Recovered Files' option inside Excel if you launch the program.
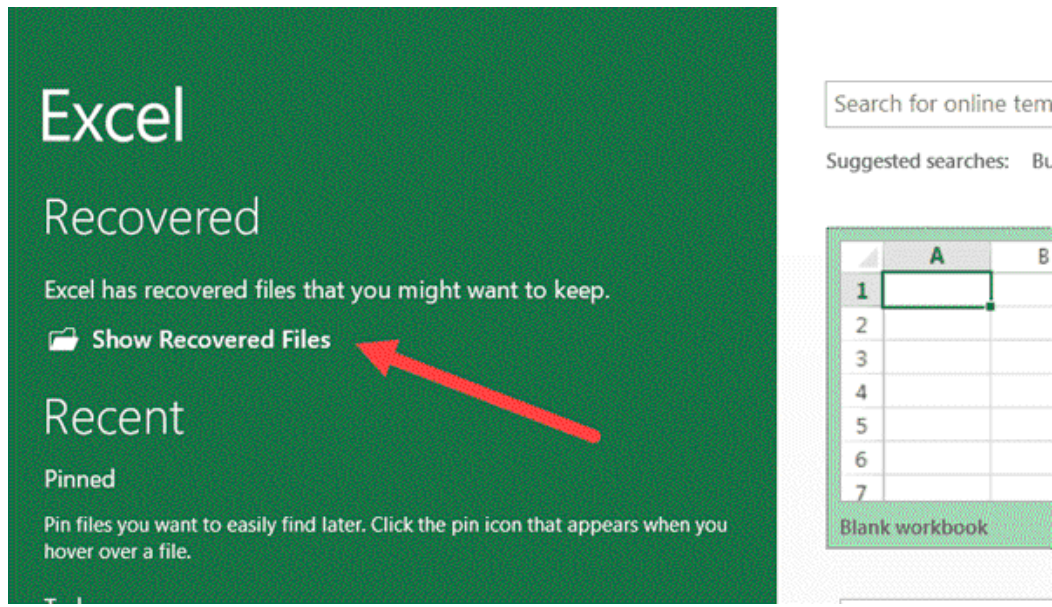
The identical Document Recovery window will pop up if you click on it.

Recovering Previously Saved Versions / Overwritten Excel File

Unlike the other two approaches, where you have an out in Excel or Windows or a power outage, this one is all on you.

It's like this when you open a previously saved Excel file, make some changes, and then save it again.

On the other hand, you've recently made some adjustments that you regret.

Your true desire is to revert to an earlier build.

The real world doesn't allow for undoing buttons, but Excel spreadsheets do.

Excel 2010 and later versions provide a built-in functionality that may be used to retrieve earlier releases of Excel.

Even after making changes and saving your work, you may revert to an earlier version of Excel using the procedures shown below.
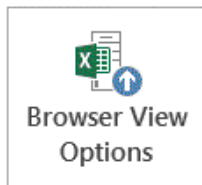
Select the "File" menu.

On the Info tab, under Manage Workbook, you'll see all the file's prior iterations.

To restore to any previous version, click the one you wish to use.

Put away the data.

To access a previously saved version, Excel displays the following dialogue. You may choose an earlier version and retrieve it by clicking the Restore button, or you can save the current version under a new name.
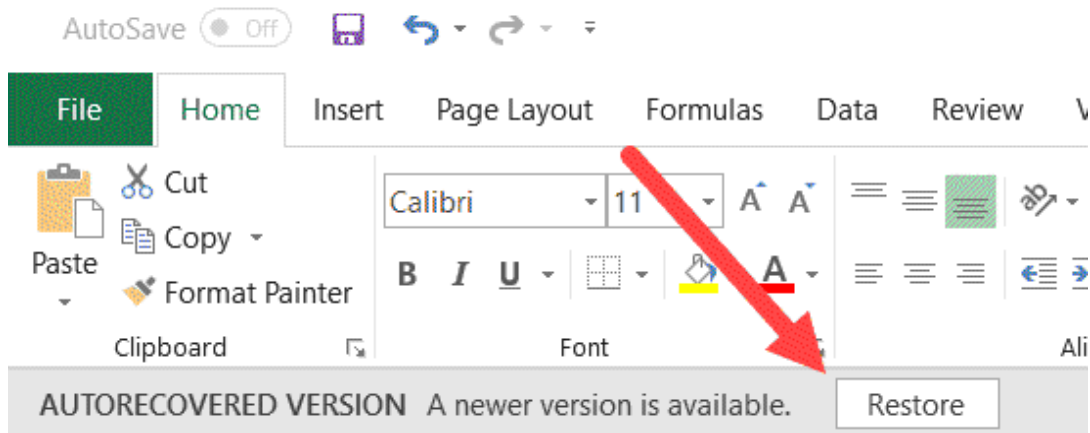
These three Excel features may be used to restore unsaved files or data.

A second option is to store data on a cloud (DropBox or OneDrive). Since cloud services save all your file revisions, you no longer must worry about losing any data.

Recovering Overwritten Excel File / Previously Saved Versions (from the cloud – OneDrive/DropBox)

When you save Excel documents to the cloud using programs like DropBox or OneDrive, you don't have to depend only on Excel to assist you in recovering your unsaved files and lost data.

All your Excel versions are safely stored in the cloud.

Let me demonstrate how to get older versions from cloud storage services like OneDrive & DropBox. There should be a lot more services like this out there.

Obtaining the Old Excel File via OneDrive

Right clicking a file in OneDrive and selecting "Version History" will take you to the most recent version of the Excel file from which you may download an earlier version.
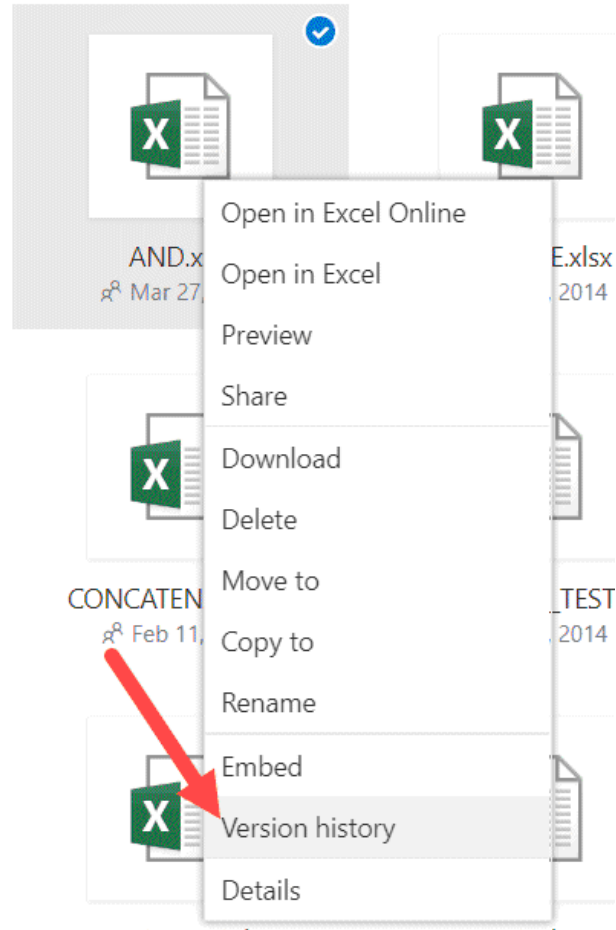
It will open a file and show you its history of revisions in the left pane.

To choose the desired variant, please click the corresponding button. It will display the file's contents and offer you the option to download or recover the file.

Downloading the Old Excel File via Dropbox

Dropbox, such as OneDrive, stores Excel file revision history, so you may easily revert to an earlier version if necessary.

Access the file's earlier versions by selecting the three dots in the top right corner of the file on the Dropbox web portal.

The Version History menu item must be selected.
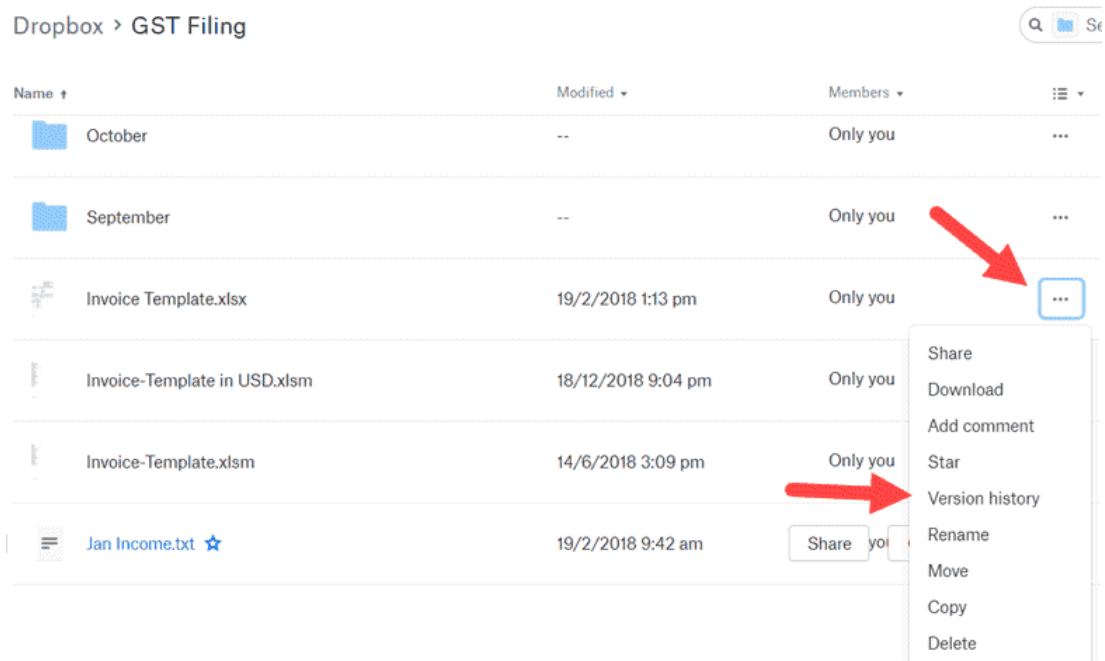
All the different iterations of the file will be shown here. This version may be accessed and downloaded using DropBox.

If you have DropBox set up on your computer and save the files, you may see past versions of any file by right-clicking on it and selecting the option from the menu.

Clicking this link will take you to DropBox's online portal, where you may see and download any of the file's previous iterations.

8.4 Safety Measures For Restoring Deleted Data

Excel has a few default options that improve the odds of successful file recovery, but it's still best practice to check that everything is turned on.

Enable AutoSave & AutoRecover

You must turn on autosave and offer recovery options for Excel to save your work automatically.

It should be activated automatically, but if not, you may activate it manually.

The methods to activate Excel's AutoSave and AutoRecover features are as follows:

- Select the "File" menu item.
- Input your preferences by selecting "Options."
- Select Save from the left pane of the Excel Options dialogue box.
- Verify the following configurations are active:
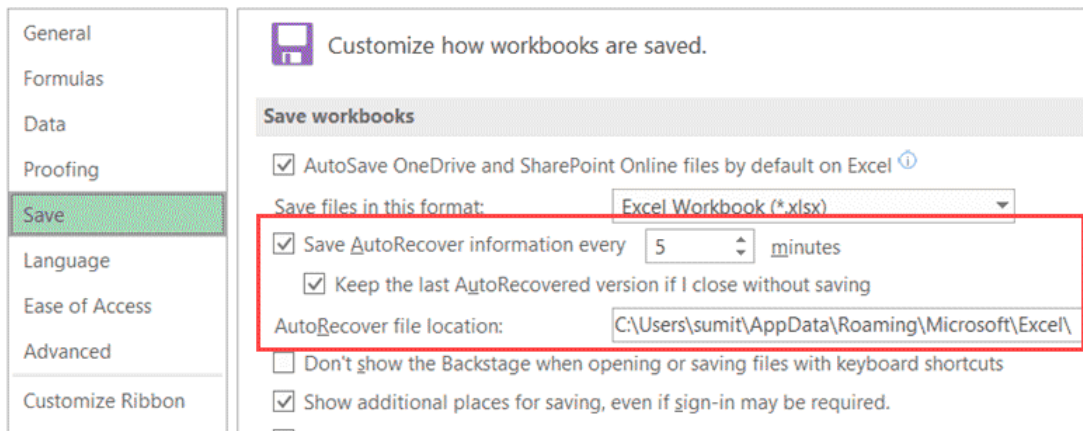
In a few words, please define the following terms:

Information from AutoRecover will be stored at regular intervals (in this case, every 5 minutes). This is set to 10 minutes; I've reduced it to 5 minutes. If you like, you can make this even smaller.

Retain the last AutoRecovered versions if You close without saving: This will guarantee that a file version is kept that can be auto recovered if Excel or your system fails.

That's the default storage location for recovered files via the AutoRecover feature. If you'd like, you may alter this.

Automatically Creating Backup Copies of your Saved File

The auto-backup feature duplicates the file every time you save it, while the auto-save & auto-recover features are helpful if you forget to save the data or if your computer crashes.

So, if you are editing a file called Test.xlsx and save this in the folder, a duplicate will be created and given the name "Backup of Test.xlk."

As of this moment, each time you modify the Test file, it is automatically reflected in the backup.

This feature assists you once you make a mistake when editing a file and then decide you want to go back. When that occurs, it's OK to rely on the spare copy.

If your original file ever becomes corrupted or damaged, you can always rely on the duplicate you made as a backup, which will include your most recent changes.

To activate a workbook's automatic backup settings, follow these steps:

- Select the "File" menu.
- Choose the "Save As" option.
- Choose A Browse button for bringing up the 'Save As' dialogue box.
- To access the tools section of the Save As dialogue box, choose the button labeled "Tools" (located in the box's bottom right corner).
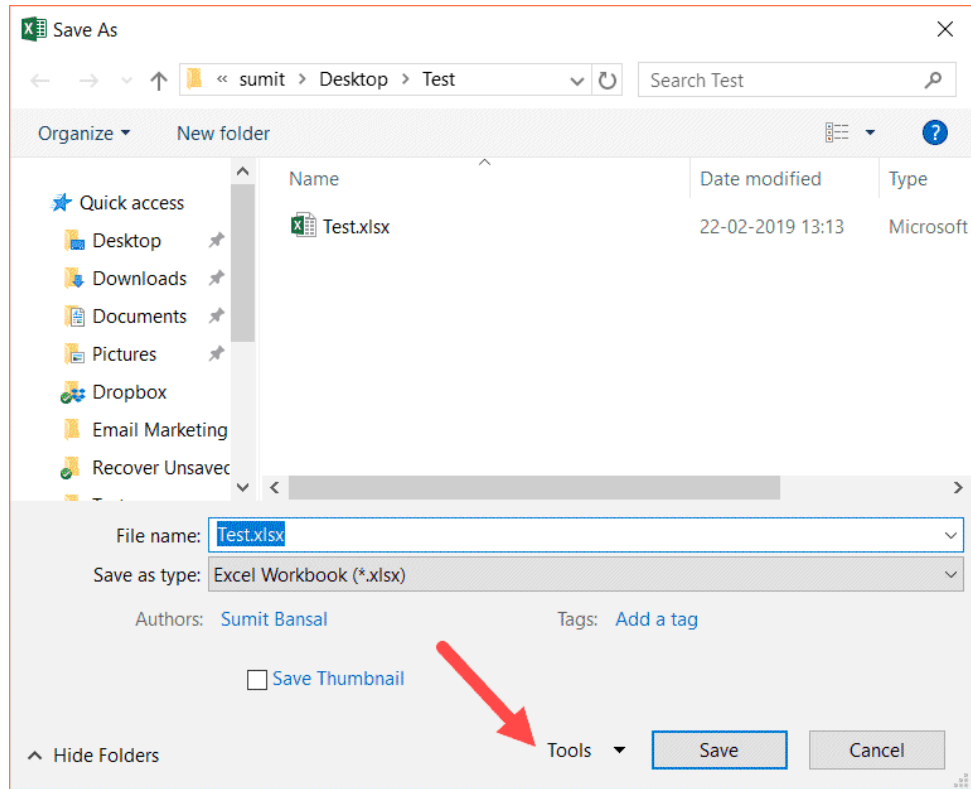
Click on the 'General Options.
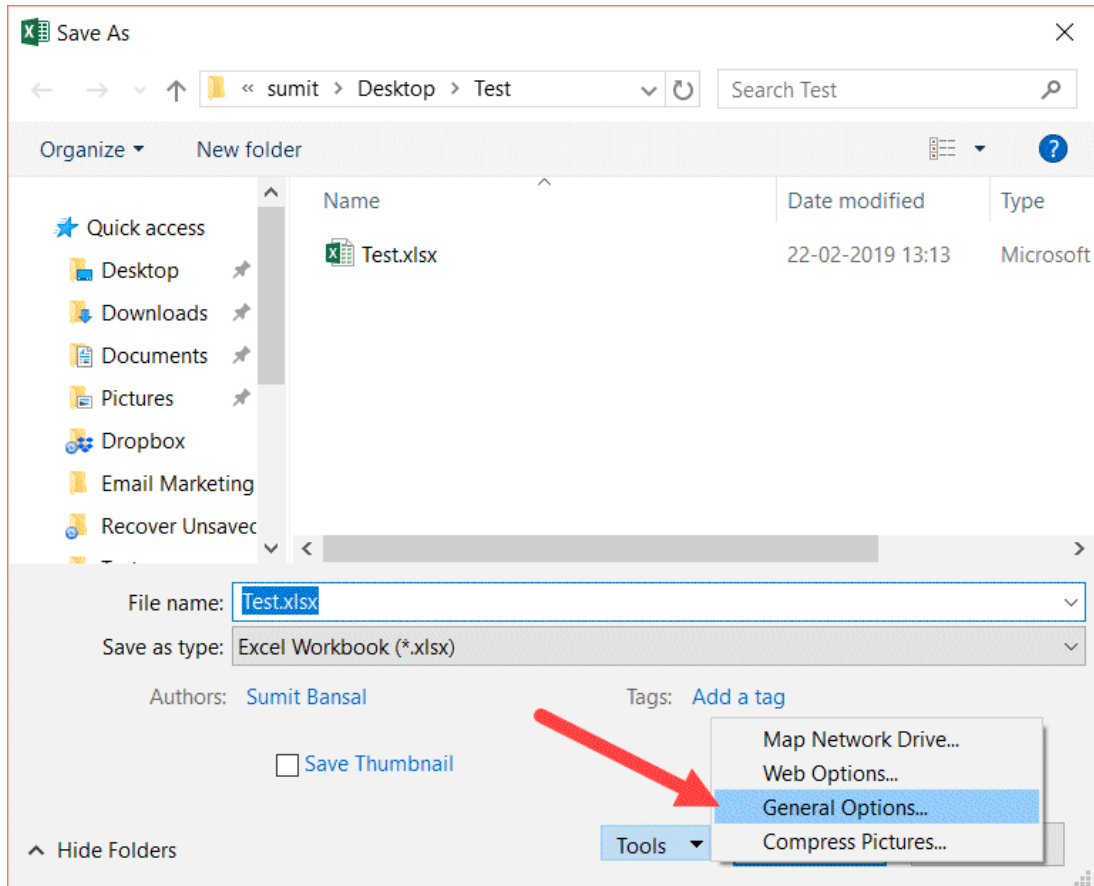
If you want a copy of your files every time, choose that option in the 'General Options menu.
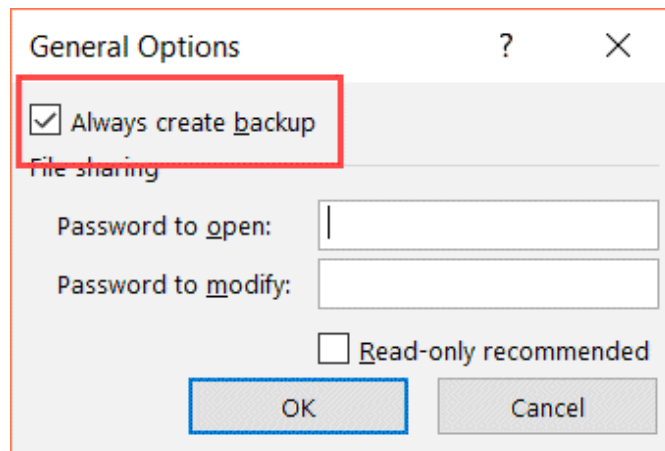
Click on OK.

Save the file within the appropriate folder/location.

Every time you save a file, an identical duplicate will be stored with pre-fix 'Backup of.'

Below are some tips and tricks for utilizing Excel's built-in auto-backup feature.

You are in a workbook environment. This implies that if you activate it for one worksheet, it will only function for that workbook. If you need it to operate for others, you must explicitly activate it.

The Autorecover & Autosave functions are distinct from this. These are distinct options and altering one doesn't influence the other. So, you may have the workbook where AutoSave, AutoRecover, & AutoBackup all operate.

A copy of the file is made and given the.XLK extension. When you open a file with this extension, you may be prompted to confirm that it is a backup. A simple "Yes" click will launch the archive.

Your backup copy will always lag your primary copy by one version. For instance, if you make a new file & activate back up in this, perform some modifications, and save it. This would save a new file and the backup copy of this. As of now, the primary and backup files are indistinguishable from one another. The backup file will no longer reflect any modifications made to the primary file. A new save will update both the original and the backup copy.

Automatically Saving Time-Stamped Copy of your Excel Workbooks

So far, all the techniques we've looked at use Excel's built-in capabilities, but a little VBA code is all it takes to guarantee you'll never lose your hard work again.

Whenever you save an Excel file, a duplicate of it with the current timestamp is automatically saved using VBA code (or close it).

If you get to a mistake, you can always go back and restore an older version of a file. Time stamps make it easy to locate the precise version you need.

Here's the code to use if you want a timestamped backup of your workbook every time you save it:

```
Private Sub Workbook_BeforeSave(ByVal SaveAsUI As Boolean, Cancel As Boolean)

Application.ScreenUpdating = False
Dim BackUpPath As String
BackUpPath = "C:\Users\sumit\Desktop\Test\"
ThisWorkbook.SaveCopyAs BackUpPath & Format(Now, "dd-mm-yyyy hh:mm:ss") & " " & ActiveWorkbook.Name
Application.ScreenUpdating = True
End Sub
```

Please notice that you will be triggered to choose a destination folder to store your backups.

There will be a lot of extra copies, but they might save your life on important assignments.

Before you close the worksheet, you may save a copy using the same code.

```
Private Sub Workbook_BeforeClose(Cancel As Boolean)
Dim BackUpPath As String
BackUpPath = "C:\Users\sumit\Desktop\Test\"
ThisWorkbook.SaveCopyAs BackUpPath & Format(Now, "dd-mm-yyyy hh-mm-ss") & " " &
End Sub
```

All this code must go within the ThisWorkbook code box.

To achieve this, double-click the This Workbook item within project explorer after opening the VB Editor (the shortcut for which is ALT + F11).
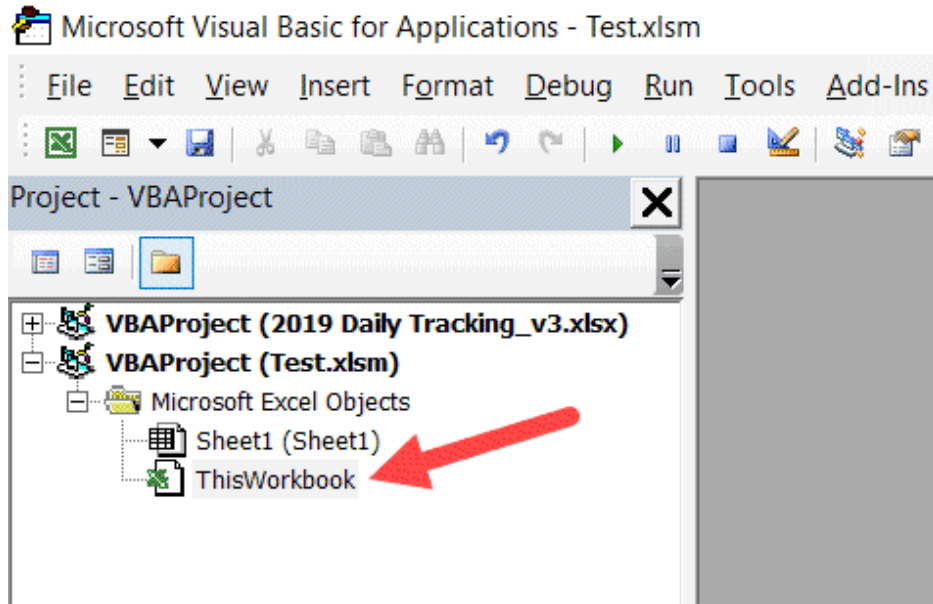
8.5 Repairing Corrupt Files

Several options exist for fixing a damaged Excel document.

To begin, you may use Excel's in-built repair feature.

Methods for fixing a damaged file and restoring it are outlined below.

- Activate the Excel program.
- Choose 'Open' from your 'File' menu (or press Control + O on your keyboard) to launch the file's default opening window.
- Select the Files tab.
- It will prompt you to choose the corrupted file in a dialogue window.
- A little triangle pointing downwards will appear in the 'Open' button; click this.
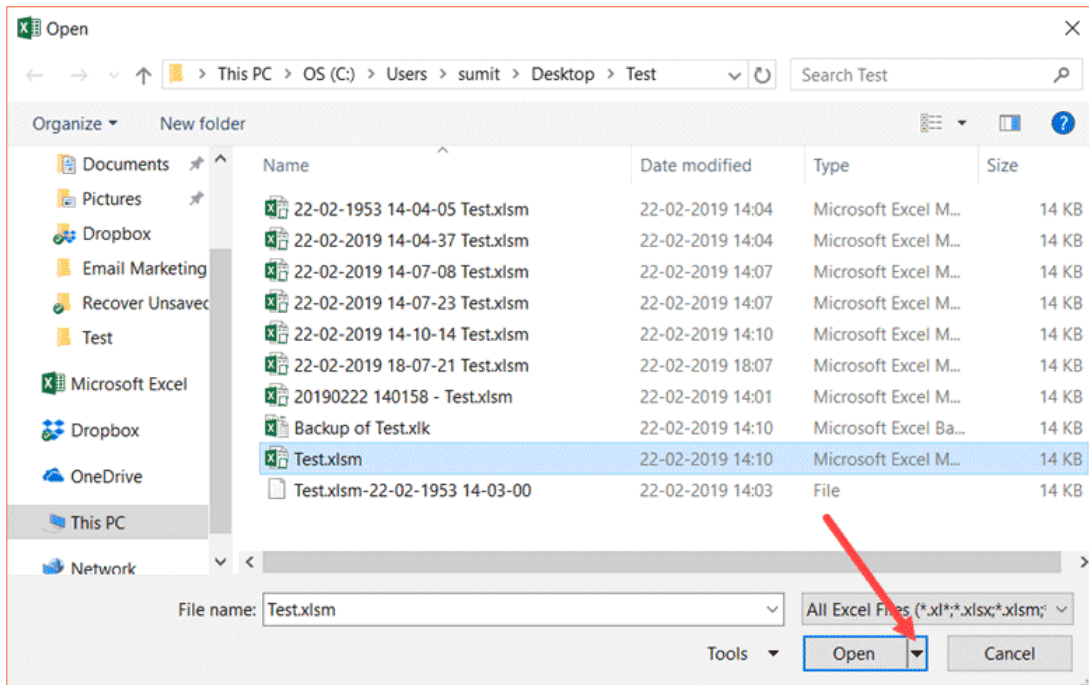
Click on the Open & Repair.
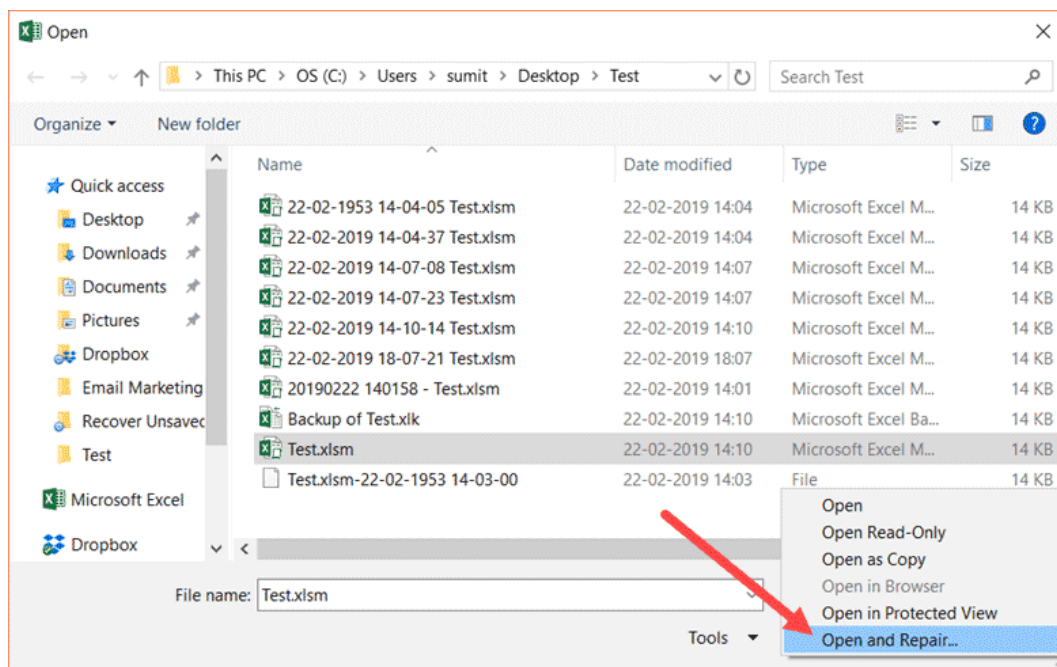
You'll see a message box in Excel that looks like this. Just choose the Fix option.

There's a chance that you'll be able to get your data back from the damaged file if you play your cards well.

If the repair option doesn't work, go through the instructions up to Step 5, but then choose "Extract Data" instead. When you open an Excel file, you will be prompted to choose "Convert to values" and "Recover Formulas."
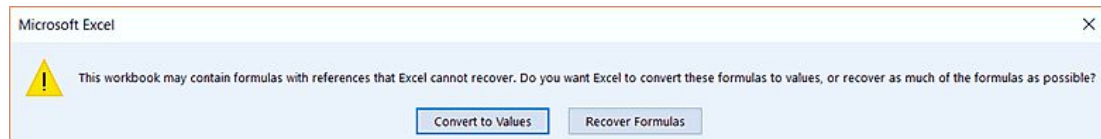
Use the method you think would be most effective. Excel will attempt to extract as much information as possible and place it in a new worksheet.

Conclusion

More knowledge means more money in excel. Even in Excel, the same principles hold. You can earn high-paying positions in analytics if you master Excel to the highest degree. As you can see, excel serves several purposes. However, this guide highlighted a few in this manual. The word "excellence" may be used for various other purposes. Professional work is simplified with Excel. You may now execute a whole computation even if you don't have a solid grasp of mathematics or statistics. Only with Microsoft Excel is this even feasible. No one wants to be the only one in the room who doesn't know what Microsoft Excel is. You may begin your Excel training right now with the help of our professionals.

Learning the fundamentals of MS Excel, which is an easy tool, may be helpful to students and professionals throughout their careers in many different fields. The most fundamental characteristics, such as rows, columns, and tables, are likely to be of the greatest importance to beginners, who may not be acquainted with the software's more advanced functions. To use the app in the day-to-day chores at your business, you must first have a solid understanding of the platform and its benefits.

The most significant benefit of using Excel is that it makes data input simple. Many of the data input and analysis techniques may be replaced with MS Excel's Ribbon design, which comprises of a sequences of commands that can be used to accomplish fundamental operations. The command groups and associated keys are organized inside the tabs spread over the ribbon. These tabs are organized in a tabbed format. You can choose instructions and conduct activities more swiftly by choosing the proper tab.

In general, Microsoft Excel aids in manipulating, monitoring, and evaluating outcomes, enabling you to make more informed decisions & saving you money and time. Microsoft Excel offers the tools essential to complete any task, whether you are working on a project for your company or managing your records and finances. This program is an effective tool for creating individualized spreadsheets by adapting pre-existing templates for corporate purposes, data interpretation, and multimedia statistical analysis.

Excel is an extremely versatile tool that may be used to conduct analysis and what-if scenarios. Calculating the different scenarios requires the usage of formulae inside cells that take one or even more input cells. Utilizing the controls available in either the Control toolbox or Forms toolbar may simplify the process of dealing with various values and options. When used correctly, these controls will make your models simpler to use.