Excel 365, 2021, or 2024

EXCEL®

QUICK AND EASY

From Beginner to Excel Master

Data, Formulas, Functions, Tables, and Charts

Unlock Efficiency and Productivity

MICHAEL ALEXANDER
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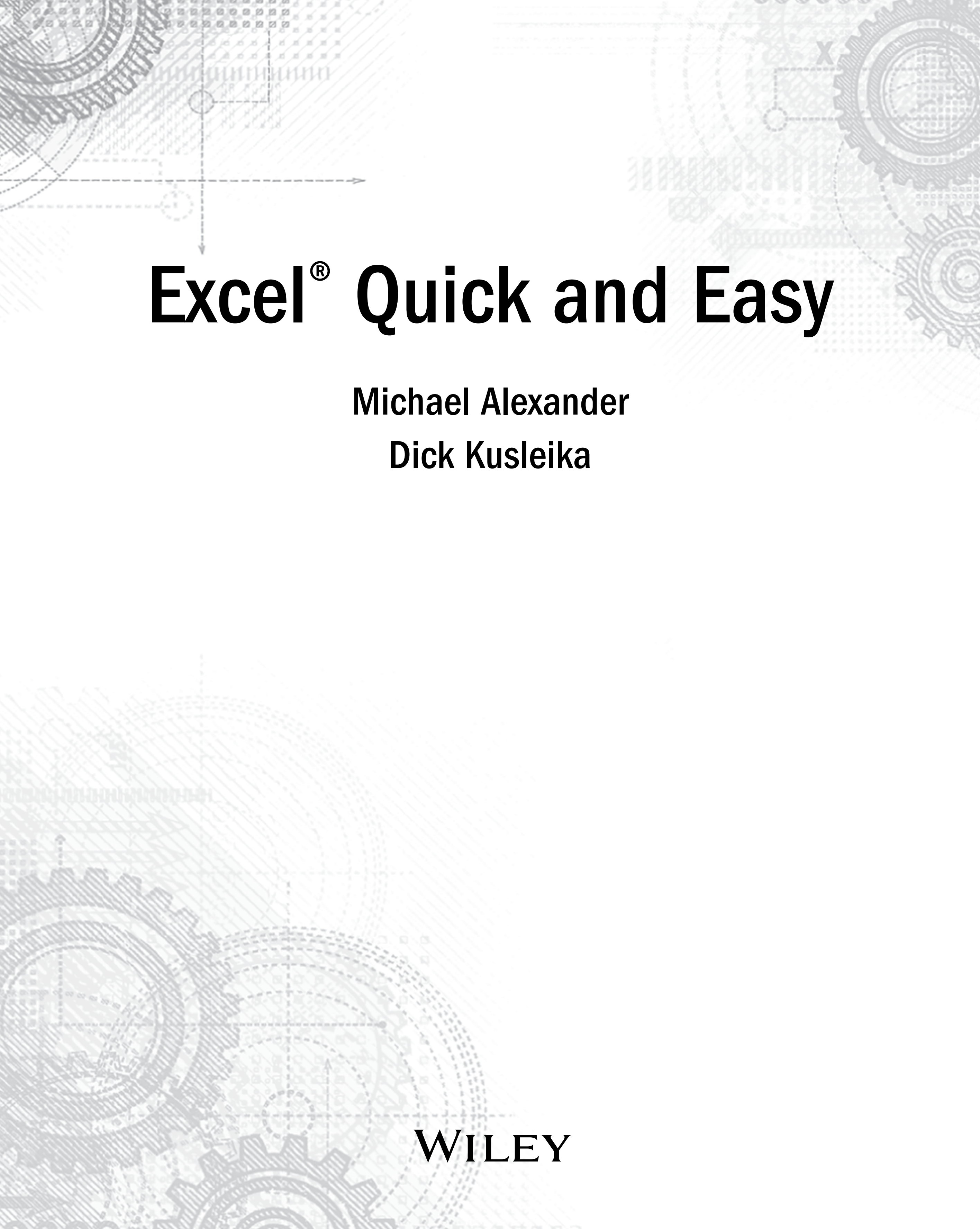

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Michael Alexander

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Adapted from Microsoft Excel 365 Bible, 2nd Edition, copyright 2025, John Wiley & Sons. Inc.

Published by John Wiley & Sons, Inc., Hoboken, New Jersey.

Published simultaneously in Canada and the United Kingdom.

ISBNs: 9781394345267 (paperback), 9781394345281 (ePDF), 9781394345274 (ePub)

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Library of Congress Control Number: 2025934521

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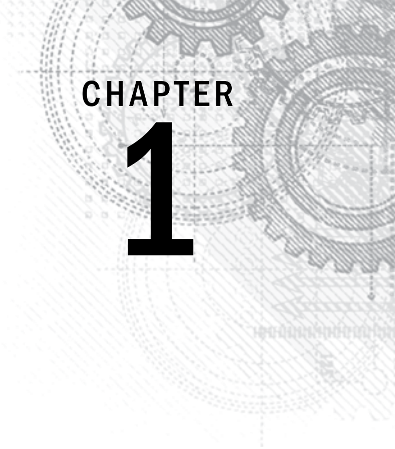


CHAPTER

1

Introducing Excel

IN THIS CHAPTER

- Understanding what Excel is used for
- Learning the parts of an Excel window
- Moving around a worksheet

This chapter is an introductory overview of Excel 365. Excel 365 runs on Windows, macOS, the web, iOS, iPadOS, and Android, though not all functions are available outside of Windows and macOS. If you're already familiar with a previous version of Excel, reading (or at least skimming) this chapter is still a good idea.

Understanding What Excel Is Used For

Excel is the world's most widely used spreadsheet software and is part of the Microsoft Office suite. Other spreadsheet software is available, but Excel is by far the most popular and has been the world standard for many years.

Much of the appeal of Excel is its versatility. Excel's forte, of course, is performing numerical calculations, but Excel is also useful for nonnumeric applications. Here are just a few uses for Excel:

Crunching numbers: Create budgets, tabulate expenses, analyze survey results, and perform just about any type of financial analysis you can think of.

Creating charts: Create a variety of highly customizable charts.

Organizing lists: Use the row-and-column layout to store lists efficiently.

Manipulating text: Clean up and standardize text-based data.

Accessing other data: Import data from a variety of sources such as databases, text files, web pages, and many others.

Creating graphical dashboards: Summarize a large amount of business information in a concise format.

Creating graphics and diagrams: Use shapes and illustrations to create professional-looking diagrams.

Automating complex tasks: Perform a tedious task with a single mouse click with Excel's macro capabilities.

Understanding Workbooks and Worksheets

An Excel file is called a *workbook*. You can have as many workbooks open as you need, and each one appears in its own window. By default, Excel workbooks use an `.xlsx` file extension.

NOTE

In old versions of Excel, every workbook opened in a single Excel window. Beginning with Excel 2013, each workbook opens in its own window. This change makes Excel work more like other Office applications and gives you the opportunity to put different workbooks on different monitors more easily.

The tabs in a workbook are called *worksheets*. Each workbook contains one or more worksheets, and each worksheet consists of individual cells. Each cell can contain a number, a formula, or text. A worksheet also has an invisible drawing layer, which holds charts, images, and diagrams. Objects on the drawing layer sit over the top of the cells, but they are not *in* the cells like a number or formula. You switch to a different worksheet by clicking its tab at the bottom of the workbook window. In addition, a workbook can store chart sheets; a chart sheet displays a single chart and is accessible by clicking a tab.

Don't be intimidated by all the different elements that appear within Excel's window. You don't need to know what all of them mean to use Excel effectively. And after you become familiar with the various parts, it all starts to make sense and you'll feel right at home.

Figure 1.1 shows you the more important bits and pieces of Excel. As you look at the figure, refer to Table 1.1 for a brief explanation of the items shown.

TABLE 1.1 Parts of the Excel screen that you need to know

Name	Description
Column letters	Letters range from A to XFD—one for each of the 16,384 columns in the worksheet. You can click a column heading to select an entire column or click between the column letters and drag to change the column width.
File button	Click this button to open Backstage view, which contains many options for working with your document (including printing) and setting Excel options.
Formula bar	When you enter information or formulas into a cell, it appears in this bar.
Horizontal scrollbar	Use this tool to scroll the sheet horizontally.
Macro recorder indicator	Click to start recording a Visual Basic for Applications (VBA) macro. The icon changes while your actions are being recorded. Click again to stop recording.
Name box	This box displays the active cell address or the name of the selected cell, range, or object.
New Sheet button	Add a new worksheet by clicking the New Sheet button (which is displayed after the last sheet tab).

Name	**Description**
Page view buttons	Click these buttons to change the way the worksheet is displayed.
Quick Access Toolbar	This customizable toolbar holds commonly used commands. The Quick Access Toolbar is always visible, regardless of which tab is selected.
Ribbon	This is the main location for Excel commands. Clicking an item in the tab list changes the Ribbon that is displayed.
Ribbon Display Options	A drop-down control that offers three options related to displaying the Ribbon.
Row numbers	Numbers range from 1 to 1,048,576—one for each row in the worksheet. You can click a row number to select an entire row or click between the row numbers and drag to change the row height.
Search box	Use this control to find commands or have Excel issue a command automatically. Alt+Q is the shortcut to access the Search box.
Selected cell indicator	This dark outline indicates the currently selected cell or range of cells. (There are 17,179,869,184 cells on each worksheet.)
Sheet tabs	Each of these notebook-like tabs represents a different sheet in the workbook. A workbook can have any number of sheets, and each sheet has its name displayed in a sheet tab.
Sheet tab controls	Use these buttons to scroll the sheet tabs to display tabs that aren't visible. You can also right-click to get a list of sheets.
Status bar	This bar displays various messages as well as summary information about the range of cells selected. Right-click the status bar to change which messages are displayed.
Tab list	Use these commands to display a different Ribbon.
Title bar	This displays the name of the program and the name of the current workbook. It also holds the Quick Access Toolbar (on the left), the Search box, and some control buttons that you can use to modify the window (on the right).
Vertical scrollbar	Use this tool to scroll the sheet vertically.
Window controls	There are three controls for minimizing the current window, maximizing or restoring the current window, and closing the current window, which are common to virtually all Windows applications.
Zoom control	Use this to zoom your worksheet in and out.

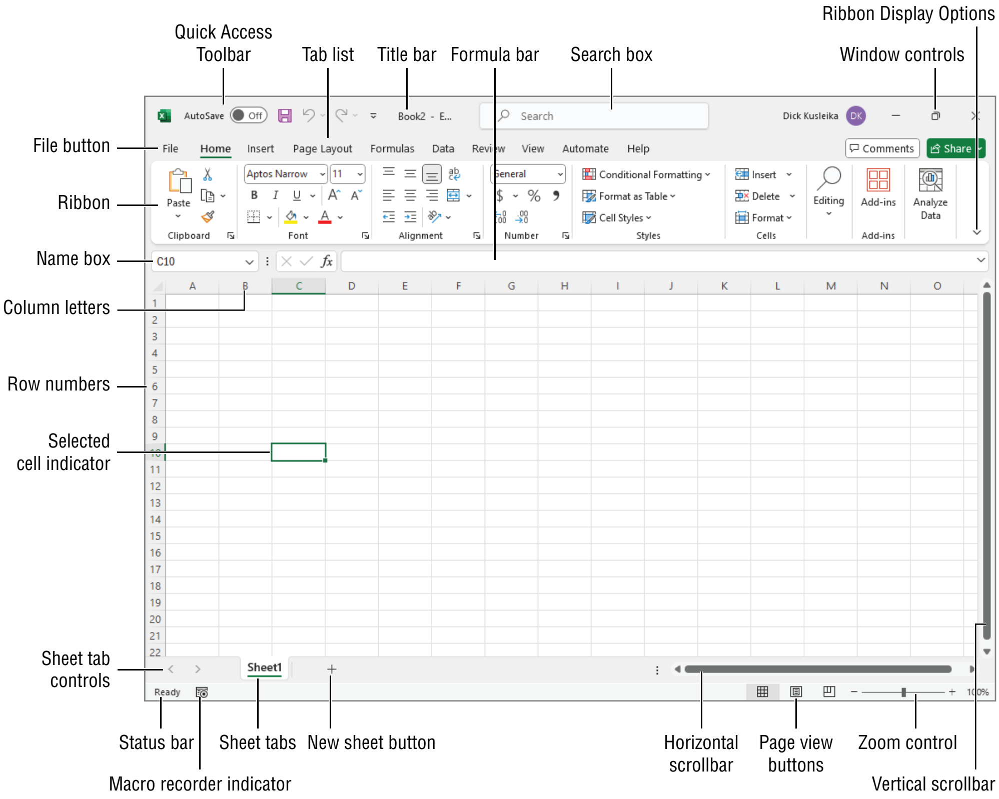
Moving Around a Worksheet

This section describes various ways to navigate the cells in a worksheet.

Every worksheet consists of rows (numbered 1 through 1,048,576) and columns (labeled A through XFD). Column labeling works like this: After column Z comes column AA, which is followed by AB, AC, and so on. After column AZ comes BA, BB, and so on. After column ZZ is AAA, AAB, and so on.

FIGURE 1.1

The Excel screen has many useful elements that you will use often.


Quick Access Toolbar
Tab list
Title bar
Formula bar
Search box
Ribbon Display Options
Window controls
File button
Ribbon
Name box
Column letters
Row numbers
Selected cell indicator
Sheet tab controls
Status bar
Sheet tabs
New sheet button
Macro recorder indicator
Horizontal scrollbar
Page view buttons
Zoom control
Vertical scrollbar
AutoSave
Off
Book2 - E...
Search
Dick Kusleika
File
Home
Insert
Page Layout
Formulas
Data
Review
View
Automate
Help
Comments
Share
Paste
Clipboard
Aptos Narrow
11
Font
Alignment
General
Number
Conditional Formatting
Format as Table
Cell Styles
Styles
Insert
Delete
Format
Cells
Editing
Add-ins
Analyze Data
C10
Sheet1
Ready
100%

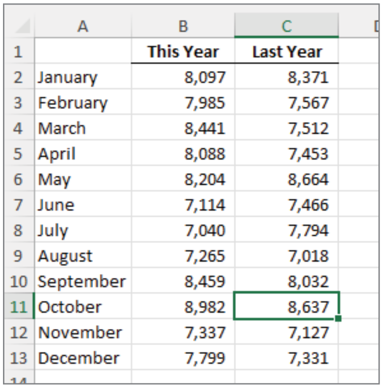
The intersection of a row and a column is a single cell, and each cell has a unique address made up of its column letter and row number. For example, the address of the upper-left cell is A1. The address of the cell at the lower right of a worksheet is XFD1048576.

At any given time, one cell is the active cell. The active cell is the cell that accepts keyboard input, and its contents can be edited. You can identify the active cell by its darker border, as shown in Figure 1.2. If more than one cell is selected, the dark border surrounds the entire selection, and the active cell is the light-colored cell within the border. Its address appears in the Name box. Depending on the technique you use to navigate through a workbook, you may or may not change the active cell when you navigate.

The row and column headings of the active cell appear in a different color to make it easier to identify the row and column of the active cell.

FIGURE 1.2

The active cell is the one with the dark border—in this case, cell C11.



	A	B	C
1		**This Year**	**Last Year**
2	January	8,097	8,371
3	February	7,985	7,567
4	March	8,441	7,512
5	April	8,088	7,453
6	May	8,204	8,664
7	June	7,114	7,466
8	July	7,040	7,794
9	August	7,265	7,018
10	September	8,459	8,032
11	October	8,982	8,637
12	November	7,337	7,127
13	December	7,799	7,331

NOTE

Excel is also available for devices that use a touch interface. This book assumes you have a traditional keyboard and mouse, so it doesn't cover the touch-related commands. Note that the drop-down control in the Quick Access Toolbar has a Touch/Mouse Mode command. In Touch mode, the Ribbon and Quick Access Toolbar icons are placed farther apart.

Navigating With Your Keyboard

Not surprisingly, you can use the standard navigational keys on your keyboard to move around a worksheet. These keys work just as you'd expect: The down arrow moves the active cell down one row, the right arrow moves it one column to the right, and so on. PgUp and PgDn move the active cell up or down one full window. (The actual number of rows moved depends on the number of rows displayed in the window.)

TIP

You can use the keyboard to scroll through the worksheet without changing the active cell by turning on Scroll Lock, which is useful if you need to view another area of your worksheet and then quickly return to your original location. Just press Scroll Lock and use the navigation keys to scroll through the worksheet. When you want to return to the original position (the active cell), press Ctrl+Backspace and then press Scroll Lock again to turn it off. When Scroll Lock is turned on, Excel displays `Scroll Lock` in the status bar at the bottom of the window.

The Num Lock key on your keyboard controls the way the keys on the numeric keypad behave. When Num Lock is on, the keys on your numeric keypad generate numbers. Many keyboards have a separate set of navigation (arrow) keys located to the left of the numeric keypad. The state of the Num Lock key doesn't affect these keys.

Table 1.2 summarizes all the worksheet movement keys available in Excel.

TABLE 1.2 Excel worksheet movement keys

Key	Action
Up arrow (↑) or Shift+Enter	Moves the active cell up one row
Down arrow (↓) or Enter	Moves the active cell down one row
Left arrow (←) or Shift+Tab	Moves the active cell one column to the left
Right arrow (→) or Tab	Moves the active cell one column to the right
PgUp	Moves the active cell up one screen
PgDn	Moves the active cell down one screen
Alt+PgDn	Moves the active cell right one screen
Alt+PgUp	Moves the active cell left one screen
Ctrl+Backspace	Scrolls the screen so that the active cell is visible
Ctrl+Home	Moves the active cell to A1
Ctrl+End	Moves the active cell to the bottom-rightmost cell on the worksheet's used range
↑*	Scrolls the screen up one row (active cell does not change)
↓*	Scrolls the screen down one row (active cell does not change)
←*	Scrolls the screen left one column (active cell does not change)
→*	Scrolls the screen right one column (active cell does not change)

* With Scroll Lock on

Navigating With Your Mouse

To change the active cell by using the mouse, just click another cell and it becomes the active cell. If the cell that you want to activate isn't visible in the workbook window, you can use the scrollbars to scroll the window in any direction. To scroll one cell, click either of the arrows on the scrollbar. To scroll by a complete screen, click either side of the scrollbar's scroll box. To scroll faster, drag the scroll box or right-click anywhere on the scrollbar for a menu of shortcuts.

TIP

If your mouse has a wheel, you can use it to scroll vertically. Also, if you click the wheel and move the mouse in any direction, the worksheet scrolls automatically in that direction. The more you move the mouse, the faster you scroll.

Press Ctrl while you use the mouse wheel to zoom the worksheet. If you prefer to use the mouse wheel to zoom the worksheet without pressing Ctrl, choose File ➪ Options and select the Advanced section. Place a check mark next to the Zoom On Roll With IntelliMouse option.

Using the scrollbars or scrolling with your mouse doesn't change the active cell—it simply scrolls the worksheet. To change the active cell, you must click a new cell after scrolling.

CHAPTER

2

Creating Your First Excel Workbook

IN THIS CHAPTER

- Introducing Excel with a step-by-step hands-on session

This chapter presents an introductory, hands-on session with Excel. If you haven't used Excel, you may want to follow along on your computer to get a feel for how this software works.

In this example, you create a simple monthly sales projection table plus a chart that depicts the data.

Getting Started on Your Worksheet

Start Excel and make sure you have an empty workbook displayed. To create a new, blank workbook, press Ctrl+N (the shortcut key for File ➪ New ➪ Blank Workbook). Enter some sales projections in the new workbook.

The sales projections will consist of two columns of information. Column A will contain the month names, and column B will store the projected sales numbers. You start by entering some descriptive titles into the worksheet. Here's how to begin:

1. **Select cell A1 (the upper-left cell in the worksheet) by using the navigation (arrow) keys, if necessary.** The Name box displays the cell's address.
2. **Type Month into cell A1 and press Enter.** Depending on your setup, either Excel moves the selection to a different cell or the pointer remains in cell A1.
3. **Select cell B1, type Projected Sales, and press Enter.** The text extends beyond the cell width, but don't worry about that for now.

Filling In the Month Names

In this step, you enter the month names in column A.

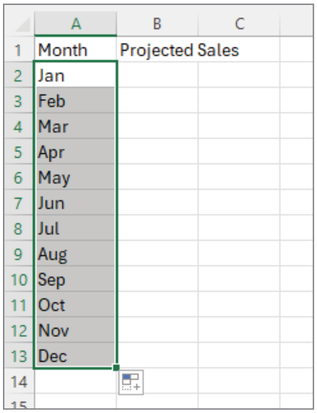
1. **Select cell A2 and type Jan (an abbreviation for January).** At this point, you can enter the other month name abbreviations manually, or you can let Excel do some of the work by taking advantage of the AutoFill feature.

2. **Make sure that cell A2 is selected.** Notice that the active cell is displayed with a heavy outline. At the bottom-right corner of the outline, you'll see a small square known as the *fill handle*. Move your mouse pointer over the fill handle, click, and drag down until you've highlighted from cell A2 down to cell A13.
3. **Release the mouse button, and Excel automatically fills in the month names.**

Your worksheet should resemble the one shown in Figure 2.1.

FIGURE 2.1

Your worksheet after you've entered the column headings and month names



	A	B	C
1	Month	Projected Sales	
2	Jan		
3	Feb		
4	Mar		
5	Apr		
6	May		
7	Jun		
8	Jul		
9	Aug		
10	Sep		
11	Oct		
12	Nov		
13	Dec		
14			

Entering the Sales Data

Next, you provide the sales projection numbers in column B. Assume that January's sales are projected to be $50,000 and that sales will increase by 3.5 percent in each subsequent month.

1. **Select cell B2 and type 50000, the projected sales for January.** You could type a dollar sign and comma to make the number more legible, but you'll do the number formatting a bit later.
2. **To enter a formula to calculate the projected sales for February, move to cell B3 and type the following:**

   = B2 * 103.5%

   When you press Enter, the cell displays `51750`. The formula returns the contents of cell B2, multiplied by 103.5 percent. In other words, February sales are projected to be 103.5 percent of the January sales—a 3.5 percent increase.
3. **The projected sales for subsequent months use a similar formula, but rather than retype the formula for each cell in column B, take advantage of the AutoFill**

feature. Make sure that cell B3 is selected. Click the cell's fill handle, drag down to cell B13, and release the mouse button.

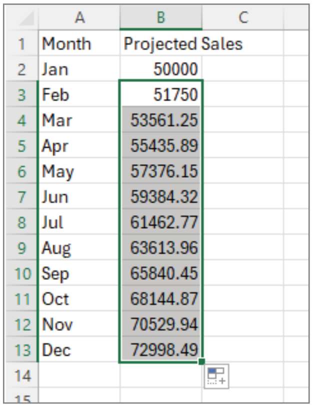
TIP

If you double-click the fill handle instead of dragging it, Excel will try to guess how far down to fill. If the column to the left of the active cell has data in it, Excel will fill down as far as that column's data.

At this point, your worksheet should resemble the one shown in Figure 2.2. Keep in mind that, except for cell B2, the values in column B are calculated with formulas. To demonstrate, try changing the projected sales value for the initial month, January (in cell B2). You'll find that the formulas recalculate and return different values. All these formulas depend on the initial value in cell B2.

FIGURE 2.2

Your worksheet after you've created the formulas



	A	B	C
1	Month	Projected Sales	
2	Jan	50000	
3	Feb	51750	
4	Mar	53561.25	
5	Apr	55435.89	
6	May	57376.15	
7	Jun	59384.32	
8	Jul	61462.77	
9	Aug	63613.96	
10	Sep	65840.45	
11	Oct	68144.87	
12	Nov	70529.94	
13	Dec	72998.49	
14			

Formatting the Numbers

The values in the worksheet are difficult to read because they aren't formatted. In this step, you apply a number format to make the numbers easier to read and more consistent in appearance.

1. **Select the numbers by clicking cell B2 and dragging down to cell B13.** Don't drag the fill handle this time, though, because you're selecting cells, not filling a range.
2. **Access the Ribbon and click Home.** In the Number group, click the drop-down Number Format control (it initially displays General), and select Currency from the

list. The numbers now display with a currency symbol and two decimal places. That's much better, but the decimal places aren't necessary for this type of projection.

3. **Make sure that the range B2:B13 is selected, choose Home ➪ Number, and click the Decrease Decimal button.** One of the decimal places disappears. Click that button a second time and the values are displayed with no decimal places.

Making Your Worksheet Look a Bit Fancier

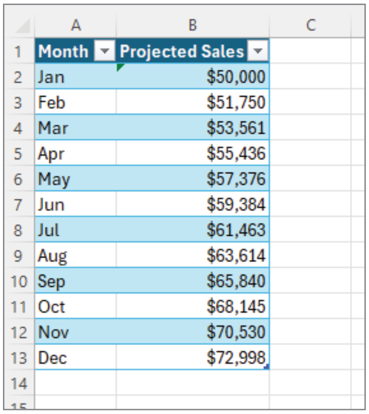
At this point, you have a functional worksheet, but it could use some help in the appearance department. Converting this range to an "official" (and attractive) Excel table is a snap.

1. **Activate any cell within the range A1:B13.**
2. **Choose Insert ➪ Tables ➪ Table.** Excel displays the Create Table dialog box to make sure that it guessed the range properly.
3. **Click OK to close the Create Table dialog box.** Excel applies its default table formatting and displays its Table Design contextual tab.

Your worksheet should look like Figure 2.3.

FIGURE 2.3

Your worksheet after you've converted the range to a table



Month	Projected Sales
Jan	$50,000
Feb	$51,750
Mar	$53,561
Apr	$55,436
May	$57,376
Jun	$59,384
Jul	$61,463
Aug	$63,614
Sep	$65,840
Oct	$68,145
Nov	$70,530
Dec	$72,998

If you don't like the default table style, just select another one from the Table Design ➪ Table Styles group. Notice that you can get a preview of different table styles by moving your mouse over the Ribbon. When you find one you like, click it, and the style will be applied to your table.

See Chapter 8, "Working with Tables," for more information on Excel tables.

Summing the Values

The worksheet displays the monthly projected sales, but what about the total projected sales for the year? Because this range is a table, it's simple.

1. **Activate any cell in the table.**
2. **Choose Table Design ➪ Table Style Options ➪ Total Row.** Excel automatically adds a new row to the bottom of your table, including a formula that calculates the total of the Projected Sales column.
3. **If you'd prefer to see a different summary formula (e.g., average), click cell B14 and choose a different summary formula from the drop-down list.**

Creating a Chart

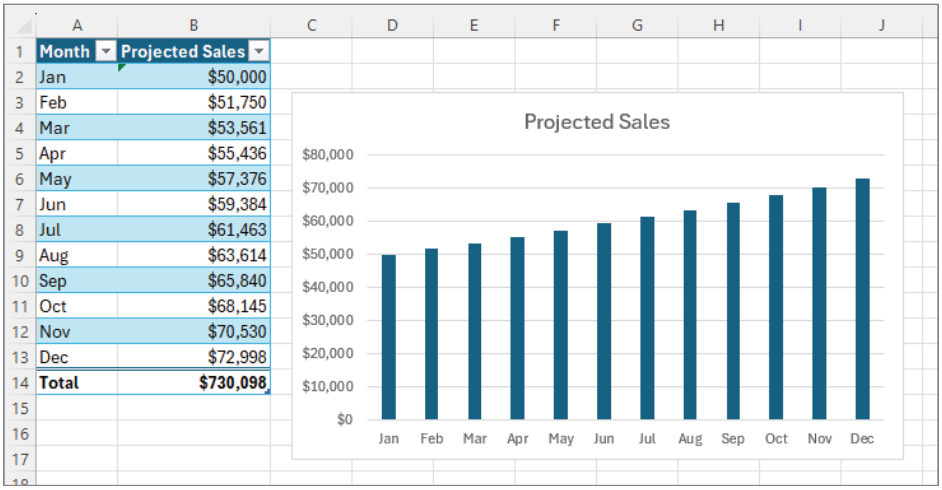
How about a chart that shows the projected sales for each month?

1. **Activate any cell in the table.**
2. **Choose Insert ➪ Charts ➪ Recommended Charts.** Excel displays some suggested chart type options.
3. **In the Insert Chart dialog box, click the second recommended chart (a column chart), and click OK.** Excel inserts the chart in the center of the window. To move the chart to another location, click its border and drag it.
4. **Click the chart and choose a style using the Chart Design ➪ Chart Styles options.**

Figure 2.4 shows the worksheet with a column chart. Your chart may look different, depending on the chart style you selected.

FIGURE 2.4

The table and chart



Month	Projected Sales
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Apr	$55,436
May	$57,376
Jun	$59,384
Jul	$61,463
Aug	$63,614
Sep	$65,840
Oct	$68,145
Nov	$70,530
Dec	$72,998
Total	**$730,098**

This workbook is available on this book's website at `www.wiley.com/go/excelquickandeasy`. The filename is `table and chart.xlsx`.

Printing Your Worksheet

Printing your worksheet is easy (assuming that you have a printer attached and that it works properly).

1. **Make sure that the chart isn't selected.** If a chart is selected, the chart will print on a page by itself. To deselect the chart, just press Esc or click any cell.
2. **To make use of Excel's handy Page Layout view, click the Page Layout button on the right side of the status bar.** Excel displays the worksheet page by page so that you can easily see how your printed output will look. In Page Layout view, you can tell immediately whether the chart is too wide to fit on one page. If the chart is too wide, click and drag a corner of the chart to resize it or just move the chart below the table of numbers. Click the Normal button to return to the default view.
3. **When you're ready to print, choose File ⇨ Print.** At this point, you can change some print settings. For example, you can choose to print in landscape rather than portrait orientation. Make the change, and you see the result in the preview window.
4. **When you're satisfied, click the large Print button in the upper-left corner.** The page is printed, and you're returned to your workbook.

Saving Your Workbook

Until now, everything that you've done has occurred in your computer's memory. If the power should fail, all may be lost—unless Excel's AutoRecover feature happened to kick in. It's time to save your work to a file on your hard drive.

1. **Click the Save button on the Quick Access Toolbar.** (This button looks like an old-fashioned floppy disk, popular in the previous century.) Because the workbook hasn't been saved yet and still has its default name, Excel responds with a Save This File dialog box that lets you choose the location for the workbook file. The Choose A Location drop-down lists some recently used locations, or you can click More Options to see the Save As Backstage screen. From there, you can click Browse to navigate to any location on your computer.
2. **Click Browse.** Excel displays the Save As dialog box.
3. **In the File Name field, enter a name (such as Monthly Sales Projection).** If you like, you can specify a different location.
4. **Click Save or press Enter.** Excel saves the workbook as a file. The workbook remains open so that you can work with it some more.

NOTE

By default, Excel saves a backup copy of your work automatically every 10 minutes. To adjust the AutoRecover setting (or turn it off), choose File ➪ Options and click the Save tab of the Excel Options dialog box. However, you should never rely on Excel's AutoRecover feature. Saving your work frequently is a good idea.

If you've followed along, you probably have realized that creating this workbook was not difficult. But, of course, you've barely scratched the surface of Excel. The remainder of this book covers these tasks (and many, many more) in much greater detail.

TIP

Excel's Backstage view has a section for pinned folders at the top of the list of recent folders. If you use a particular folder often, you can pin it to the top of the list to make it more accessible. To pin a folder, find it in the list of recent folders, hover your mouse pointer over the folder, and click the push pin icon.

CHAPTER

3

Entering and Editing Worksheet Data

IN THIS CHAPTER

- **Understanding the types of data you can use**
- **Entering text and values into your worksheets**
- **Entering dates and times into your worksheets**
- **Modifying and editing information**

This chapter describes what you need to know about entering and modifying data in your worksheets. As you'll see, Excel doesn't treat all data equally. Therefore, you need to learn about the various types of data you can use in an Excel worksheet.

Exploring Data Types

An Excel workbook file can hold any number of worksheets, and each worksheet is made up of more than 17 billion cells. A cell can hold any of four basic types of data:

- A numeric value
- Text
- A formula
- An error

A worksheet can also hold charts, diagrams, buttons, and other objects. These objects aren't contained in cells. Instead, they reside on the worksheet's drawing layer, which is an invisible layer on top of each worksheet. Pictures can reside either on the drawing layer or, in more recent versions of Excel, directly in a cell.

Chapter 5, "Moving Beyond Formula Basics," discusses how to correct common formula errors.

Numeric Values

Numeric values represent a quantity of some type: sales amounts, number of employees, atomic weights, test scores, and so on. Values also can be dates (such as Feb 26, 2022) or times (such as 3:24 AM).

Excel's Numeric Limitations

You may be curious about the types of values Excel can handle. In other words, how large can a number be? How accurate are large numbers?

Excel's numbers are precise up to 15 digits. For example, if you enter a large value, such as 123,456,789,123,456,789 (18 digits), Excel actually stores it with only 15 digits of precision. This 18-digit number displays as 123,456,789,123,456,000. This precision may seem quite limiting, but in practice, it rarely causes any problems.

One situation in which the 15-digit precision can cause a problem is when entering credit card numbers. Most credit card numbers are 16 digits, but Excel can handle only 15 digits, so it substitutes a zero for the last credit card digit. Even worse, you may not even realize that Excel made the card number invalid. The solution? Enter the credit card numbers as text. The easiest way is to preformat the cell as Text. (Choose Home ➪ Number, and choose Text from the Number Format drop-down list.) Or you can precede the credit card number with an apostrophe. Either method prevents Excel from interpreting the entry as a number.

Here are some of Excel's other numeric limits:

- Largest positive number: 9.9E+307
- Smallest negative number: –9.9E+307
- Smallest positive number: 2.2251E–308
- Largest negative number: –2.2251E–308

These numbers are expressed in scientific notation. For example, the largest positive number is "9.9 times 10 to the 307th power"—in other words, 99 followed by 306 zeros. Keep in mind, though, that this number has only 15 digits of precision.

Text Entries

Most worksheets also include text in some of the cells. Text can serve as data (e.g., a list of employee names), labels for values, headings for columns, or instructions about the worksheet. Text is often used to clarify what the values in a worksheet mean or where the numbers came from.

Text that begins with a number is still considered text. For example, if you type **12 Employees** into a cell, Excel considers the entry to be text rather than a numeric value. Consequently, you can't use this cell for numeric calculations. If you need to indicate that the number 12 refers to employees, enter **12** into a cell and then type **Employees** into an adjacent cell.

Formulas

Formulas are what make a spreadsheet a spreadsheet. Excel enables you to enter flexible formulas that use the values (or even text) in cells to calculate a result. When you enter a formula into a cell, the formula's result appears in the cell. If you change any of the cells used by a formula, the formula recalculates and shows the new result.