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He is known for his casual, easy-to-read writing style and his practical, real-world advice—as well as his ability to explain a variety of complex topics to an everyday audience.

Learn more about Mr. Miller at his website, www.millerwriter.com. Follow him on Twitter @molehillgroup.

Dedication

To Sherry—life together is easier.

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INTRODUCTION

Because this book is titled Computer Basics: Absolute Beginner’s Guide, let’s start at the absolute beginning, which is this:

Computers aren’t supposed to be scary. Intimidating? Sometimes. Difficult to use? Perhaps. Inherently unreliable? Not really, although they used to be.

But scary? Definitely not.

Computers aren’t scary because there’s nothing they can do to hurt you (unless you drop one on your foot, that is). And there’s not much you can do to hurt them either. It’s kind of a wary coexistence between person and machine, but the relationship has the potential to be beneficial—to you, anyway.

Many people think that they’re scared of computers because they’re unfamiliar with them. But that isn’t really true.

You see, even if you’ve never actually used a computer before, you’ve been exposed to computers and all they can do since at least the mid 1980s. Whenever you make a deposit at your bank, you work with computers. Whenever you make a purchase at a retail store, you work with computers. Whenever you watch a television show, read a newspaper article, or look at a picture in a magazine, you work with computers.

That’s because computers are used in all those applications. Somebody, somewhere, works behind the scenes with a computer to manage your bank account and monitor your credit card purchases.

In fact, it’s difficult to imagine, here in the twenty-first century, how we ever got by without all those keyboards, mice, and monitors (or, for that matter, the Internet and social networking).

However, just because computers have been around for a while doesn’t mean that everyone knows how to use them. It’s not unusual to feel a little trepidation the first time you sit down in front of that intimidating display and keyboard. Which keys should you press? What do people mean by double-clicking the mouse? And what are all those little pictures onscreen?

As foreign as all this might seem at first, computers really aren’t that hard to understand—or use. You have to learn a few basic concepts, of course (all the pressing and clicking and whatnot), and it helps to understand exactly what part of the system does what. But when you get the hang of things, computers are easy to use.

Which, of course, is where this book comes in.
Computer Basics: Absolute Beginner’s Guide, Windows 11 Edition can help you figure out how to use your new computer system. You learn how computers work, how to connect all the pieces and parts (if your computer has pieces and parts, that is; not all do), and how to start using them. You learn about computer hardware and software, about the Microsoft Windows 11 operating system, and about the Internet. And when you’re comfortable with the basic concepts (which won’t take too long, trust me), you learn how to actually do stuff.

You learn how to do useful stuff, such as writing letters and editing photos; fun stuff, such as listening to music and watching movies and TV shows; online stuff, such as searching for information, sending and receiving email, keeping up with friends and family via Facebook and other social networks, and video chatting with Zoom and Microsoft Teams; and essential stuff, such as copying files, troubleshooting problems, and protecting against malware and computer attacks.

All you have to do is sit yourself down in front of your computer, try not to be scared (there’s nothing to be scared of, really), and work your way through the chapters and activities in this book. And remember that computers aren’t difficult to use, they don’t break easily, and they let you do all sorts of fun and useful things after you get the hang of them. Really!

How This Book Is Organized

This book is organized into eight main parts, as follows:

- **Part I, “Understanding Computers,”** discusses the different types of computers available today; describes all the pieces and parts of desktop, all-in-one, laptop, and 2-in-1 PCs; and talks about how to connect everything to get your new system up and running.

- **Part II, “Using Windows,”** introduces the backbone of your entire system, the Microsoft Windows operating system, now in its eleventh version. You learn how Windows 11 works, how to navigate your way around the desktop and the Start menu, and how to personalize it. You’ll also learn how to use Windows to perform basic tasks, such as copying and deleting files and folders.

- **Part III, “Setting Up the Rest of Your System,”** talks about all those things you connect to your computer—printers, external storage drives, USB drives, and the like. You also learn how to connect your new PC to other computers and devices in a home network and how to use your PC to do text messaging and voice calls with your Android phone.
• Part IV, “Using the Internet,” is all about going online. You discover how to connect to the Internet and surf the Web. You also learn how to search for information, shop, and even sell things online. This is one of the most fun parts of the book.

• Part V, “Communicating Online,” is all about keeping in touch. You find out how to send and receive email, of course, but also how to do video meetings and get started with social networking, on Facebook, Twitter, and other social networks. The Internet is how everyone keeps in touch these days.

• Part VI, “Getting Productive,” tells you everything you need to know about using software programs (what some people call “apps”). You learn how software programs work and where to find new ones. You’ll also learn how to do office work with Microsoft Office software, and how to edit and share digital photos.

• Part VII, “Exploring Online Entertainment,” is all about streaming audio and video over the Internet. You’ll learn how to listen to streaming music online and how to stream your favorite TV shows, movies, and other videos.

• Part VIII, “Keeping Your System Up and Running,” contains all the boring (but necessary) information you need to know to keep your new PC in tip-top shape. You learn how to protect against Internet threats (including viruses, spyware, and spam), as well as how to perform routine computer maintenance. You even learn how to troubleshoot problems and, if necessary, restore, refresh, or reset your entire system.

Taken together, the 22 chapters in this book can help you progress from absolute beginner to experienced computer user. Just read what you need, and before long, you’ll be using your computer like a pro!

Which Version of Windows?

This edition of the Absolute Beginner’s Guide to Computer Basics is written for computers of all types running the latest version of Microsoft’s operating system, dubbed Windows 11.

What if you’re running an older version of Windows? In that case, you’ll be better off with one of the previous editions of this book. There are editions out there for Windows 10, Windows 8.1, (Microsoft skipped Windows 9), Windows 8, Windows 7, Windows Vista, and even Windows XP. If you can’t find a particular edition at your local bookstore, look for it online.
Conventions Used in This Book

I hope that this book is easy enough to figure out without requiring its own instruction manual. As you read through the pages, however, it helps to know precisely how I’ve presented specific types of information.

Menu Commands

Most computer programs operate via a series of pull-down menus. You use your mouse to pull down a menu and then select an option from that menu. This sort of operation is indicated throughout the book like this:

Select File, Save.

or

Right-click the file and select Properties from the pop-up menu.

All you have to do is follow the instructions in order, using your mouse to click each item in turn. When submenus are tacked onto the main menu, just keep clicking the selections until you come to the last one—which should open the program or activate the command you want!

Shortcut Key Combinations

When you use your computer keyboard, sometimes you have to press two keys at the same time. These two-key combinations are called shortcut keys and are shown as the key names joined with a plus sign (+).

For example, Ctrl+W indicates that you should press the W key while holding down the Ctrl key. It’s no more complex than that.

Web Page Addresses

This book contains a lot of web page addresses. (That’s because you’ll probably be spending a lot of time on the Internet.)

Technically, a web page address is supposed to start with http:// (as in http://www.millerwriter.com). Because web browsers automatically insert this piece of the address, however, you don’t have to type it—and I haven’t included it in any of the addresses in this book.
Special Elements

This book also includes a few special elements that provide additional information not included in the basic text. These elements are designed to supplement the text to make your learning faster, easier, and more efficient.

**TIP**  A tip is a piece of advice—a little trick, actually—that helps you use your computer more effectively or maneuver around problems or limitations.

**NOTE**  A note is designed to provide information that is generally useful but not specifically necessary for what you’re doing at the moment. Some are like extended tips—interesting, but not essential.

**CAUTION**  A caution tells you to beware of a potentially dangerous act or situation. In some cases, ignoring a caution could cause you significant problems—so pay attention to them!

There’s More Online

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PART I

UNDERSTANDING COMPUTERS

1 How Personal Computers Work ................................................................. 3
2 Setting Up and Using Different Types of Computers ............................. 27
HOW PERSONAL COMPUTERS WORK

Chances are you’re reading this book because you just bought a new computer, are thinking about buying a new computer, or maybe even had someone give you their old computer. (Nothing wrong with high-tech hand-me-downs!) At this point, you might not be totally sure what it is you’ve gotten yourself into. Just what is this thing you’re holding in your hands, and what can you—or should you—do with it?

This chapter serves as an introduction to the entire concept of personal computers—what they do, how they work, that sort of thing—and computer hardware in particular. It’s a good place to start if you’re not that familiar with computers or want a brief refresher course in what all those pieces and parts are and what they do.
Of course, if you want to skip the background and get right to using your computer, that’s okay, too. For step-by-step instructions on how to connect and configure a new PC, go directly to Chapter 2, “Setting Up and Using Different Types of Computers.” Everything you need to know should be in that chapter.

What Your Computer Can Do

What good is a personal computer, anyway?

Everybody has one, you know (including you, now). In fact, it’s possible you bought your new computer just so that you wouldn’t feel left out. But now that you have a personal computer, what do you do with it?

Good for Getting Online

Most of what we do on our computers these days is accomplished via the Internet. We find friends and communicate with them online; we find useful information online; we watch TV and movies and listen to music online; we play games online; we even shop, order meals, and do our banking online. Most of these activities are accomplished by browsing something called the World Wide Web (or just the “Web”), which you do from something called a web browser.

**NOTE** Learn more about getting online in Chapter 10, “Connecting to the Internet—at Home or Away.”

Good for Social Networking

One of the most popular online activities these days involves something called social networking. A social network is a website where you can keep informed about what your friends and family are doing, and they can see what you’re up to, too. There are several social networks you can use, but the most popular are Facebook, Twitter, Pinterest, and LinkedIn. You can join one or more of these and start sharing your life online.

**NOTE** Learn more about Facebook and other social networks in Chapter 15, “Social Networking with Facebook, Twitter, and Other Social Media.”

Good for Communicating

Your new computer is also great for keeping in touch with friends, family, and coworkers. Want to send a note to a friend? Or keep your family informed of what’s
new and exciting? It’s easy enough to do, thanks to your new computer and the Internet. You can drop a note via email, keep folks up to date via Facebook or some similar social networking site, or participate in a real-time video chat (using your computer’s microphone and webcam) via Microsoft Teams or Zoom.

**NOTE** Learn more about communicating with email in Chapter 13, “Sending and Receiving Email.” Learn more about video chats in Chapter 14, “Video Chatting with Friends and Family.”

**Good for Sharing Photos and Home Movies**

You can also use your computer to store, edit, and share your favorite photos and home movies. When you upload a picture, your friends can view it online. You can even touch up the photo before you share it. Pretty nifty.

**NOTE** Learn more about digital photos in Chapter 18, “Working with Digital Photos.”

**Good for Entertainment**

For many people, a personal computer is a hub for all sorts of online entertainment. You can use your computer to listen to music over the Internet via streaming music services such as Pandora and Spotify. You also can watch movies and TV shows online with streaming video services such as Amazon Prime Video, Disney+, Hulu, and Netflix.

**NOTE** Learn more about watching TV and movies on your PC in Chapter 19, “Watching Movies and TV Shows Online.” Learn more about listening to music with your PC in Chapter 20, “Listening to Music Online.”

**Good for Keeping Informed**

Entertainment is fun, but it’s also important to stay informed. Your computer is a great gateway to tons of information, both old and new. You can use Google and other search engines to search for just about anything you want online—or use your computer to browse the latest news headlines, sports scores, and weather reports. All the information you can think of is online somewhere, and you use your computer to find and read it.
Good for Work

A lot of people use their home PCs for work-related purposes. You can bring your work (reports, spreadsheets, you name it) home from the office and finish it on your home PC. Or, if you work at home, you can use your computer to pretty much run your small business—you can use it to do everything from typing memos and reports to generating invoices and setting budgets.

In short, anything you can do with a normal office PC, you can probably do on your home PC, using Microsoft Office, Google Docs, and similar productivity software.

NOTE Learn more about using your computer for office work in Chapter 17, “Doing Office Work.”

Good for Play

All work and no play make Jack a dull boy, so there’s no reason not to have a little fun with your new PC. There are a lot of cool games online, plus you can purchase all manner of computer games to play, if that’s what you’re into. There’s a lot of fun to be had with your new PC!

NOTE This book is written for users of relatively new personal computers—in particular, PCs running the Microsoft Windows 11 operating system. If you have an older PC running an older version of Windows, most of the advice here is still good, although not all the step-by-step instructions will apply. Instead, you may want to pick up a previous edition of this book to match your older operating system.

Inside a Personal Computer

As I discuss momentarily, there are a lot of different types of personal computers—desktops, all-in-ones, laptops, and the like. What they have in common is a core set of components—the computer hardware. Unlike computer software, which describes the programs and applications you run on your computer, the hardware is composed of those physical parts of your system you can see and touch.
Well, you could see the parts if you opened the case, which you can’t always do. Let’s take a virtual tour inside a typical PC, so you can get a sense of how the darned thing works.

The Motherboard: Home to Almost Everything

Inside every PC are all manner of computer chips and circuit boards. Most of these parts connect to a big circuit board called a motherboard, so named because it’s the “mother” for the computer’s microprocessor and memory chips, as well as for all other internal components that enable your system to function.

On a laptop or 2-in-1 PC (a laptop that also functions as a tablet), the motherboard is just under the keyboard. On a traditional desktop PC, the motherboard is located somewhere inside the computer’s system unit. (In Figure 1.1, it’s on the left side of the cabinet.) On an all-in-one desktop, it’s typically built into the monitor unit.

![Figure 1.1](image)

**FIGURE 1.1**
What a typical desktop PC looks like on the inside—a big motherboard with lots of add-on boards attached.

On a traditional desktop PC, the motherboard contains several slots, into which you can plug additional boards (also called cards) that perform specific functions.
For example, some gaming PCs feature a separate video card that enables your motherboard to transmit high-quality video signals to your monitor. All-in-one, laptop, and 2-in-1 PCs have these functions built into the motherboard and thus aren’t expandable like PCs that have separate system units.

**Microprocessors: The Main Engine**

I’m not done talking about the motherboard just yet. That’s because the specific chip that controls your entire computer system is buried somewhere on that big motherboard. This chip is called a microprocessor or a *central processing unit (CPU)*.

The microprocessor is the brain inside your system. It processes all the instructions necessary for your computer to perform its duties. The more powerful the microprocessor chip, the faster and more efficiently your system runs.

Microprocessors carry out the various instructions that enable your computer to compute. Every input and output device connected to a computer—the keyboard, printer, monitor, and so on—either issues or receives instructions that the microprocessor then processes. Your software programs also issue instructions that must be implemented by the microprocessor. This chip truly is the workhorse of your system; it affects just about everything your computer does.

Different computers have different types of microprocessor chips. Desktop and laptop computers running the Windows operating system use chips manufactured by either Intel or AMD. (Apple Macintosh computers also use Intel chips, although they’re different from the chips used in Windows PCs.)

In addition to having different chip manufacturers (and different chip families from the same manufacturer), you’ll run into microprocessor chips that run at different speeds. CPU speed today is measured in *gigahertz (GHz)*. A CPU with a speed of 1GHz can run at one billion clock ticks per second! The bigger the gigahertz number, the faster the chip runs.

It gets better. Most computers today incorporate chips with more than one core. Each core is the equivalent of a separate CPU on a single chip. You can find chips with two, four, or six cores—the equivalent of two, four, or six CPUs working together to increase your processing power. The more cores, the better—especially for processor-intensive tasks, such as editing digital video files.

If you’re shopping for a new PC, look for one with the combination of a powerful microprocessor and a high clock speed for best performance. And don’t forget to count all the cores; a quad-core chip with four 2GHz CPUs is more powerful than a single-core chip with a single 4GHz CPU.
Computer Memory: Temporary Storage

Before a CPU can process instructions you give it, your instructions must be stored somewhere in preparation for access by the microprocessor. These instructions—along with other data processed by your system—are temporarily held in the computer’s random access memory (RAM). All computers have some amount of memory, which is created by a number of memory chips. The more memory that’s available in a machine, the more instructions and data that can be stored at one time.

Memory is measured in terms of bytes. One byte is equal to approximately one character in a word processing document. A unit equaling approximately one thousand bytes (1,024, to be exact) is called a kilobyte (KB), and a unit of approximately one thousand (1,024) kilobytes is called a megabyte (MB). A thousand megabytes is a gigabyte (GB).

Most computers today come with at least 4GB of memory, some with much more. To enable your computer to run as many programs as quickly as possible, you need as much memory installed in your system as it can accept—or that you can afford. You can add extra memory to a computer by installing new memory modules, which is as easy as plugging a “stick” directly into a slot on your system’s motherboard.

If your computer doesn’t possess enough memory, its CPU must constantly retrieve data from permanent storage on its hard disk. This method of data retrieval is slower than retrieving instructions and data from electronic memory. In fact, if your machine doesn’t have enough memory, some programs will run very slowly (or you might experience random system crashes), and other programs won’t run at all!

Hard Disk Drives: Long-Term Storage

Another important physical component inside many computers is the hard disk drive. The hard disk permanently stores all your important data. Some hard disks today can store multiple terabytes (TB) of data, each terabyte equaling 1,000 gigabytes. (Contrast this to your system’s RAM, which temporarily stores only a few gigabytes of data.)

A hard disk consists of numerous metallic platters. These platters store data magnetically. Special read/write heads realign magnetic particles on the platters, much like a recording head records data onto magnetic recording tape.

However, before data can be stored on a disk, including your system’s hard disk, that disk must be formatted. A disk that has not been formatted cannot accept data. When you format a hard disk, your computer prepares each track and sector
of the disk to accept and store data magnetically. Fortunately, hard disks in new PCs are preformatted, so you don’t have to worry about this. (And, in most cases, your operating system and key programs are preinstalled.)

**CAUTION** If you try to reformat your hard disk, you’ll erase all the programs and data that have been installed—so don’t do it!

### Solid-State Drives: Faster Long-Term Storage

Not all long-term storage is hard disk-based. Many of today’s laptop and 2-in-1 PCs and an increasing number of desktop and all-in-one models don’t have traditional hard disk storage. Instead, they use solid-state flash memory for long-term storage.

A solid-state drive (SSD) has no moving parts. Instead, data is stored electronically on an integrated circuit. This type of storage is much faster than traditional hard disk storage; data stored on a solid-state drive can be accessed pretty much instantly. Plus, laptops with solid-state drives are considerably lighter than laptops with traditional hard drives.

The downside of solid-state storage is that it’s a little more expensive than hard drive storage, although it doesn’t cost as much today as it did just a few years ago. What this means is that you typically get a little less storage on an SSD than you would on a similar computer with a traditional hard drive—or you pay a little more for a computer with similarly sized SSD.

So, if it’s important for your computer to be fast and lightweight, consider a model with solid-state storage. If you prefer a lower-priced model or need more storage space, stick with a traditional hard disk PC.

**NOTE** Some computers come with a mix of hard drive and solid state storage. In this type of system, the SSD contains the Windows operating system and other key files for fast startup and operation, whereas the larger hard drive is used for storing large applications and files.

**NOTE** Some PCs still come with a combination CD/DVD drive, although they’re becoming increasingly rare. A CD/DVD drive enables you to play audio CDs and movie DVDs, install CD- or DVD-based software programs, and burn music, movies, or data to blank CD or DVD discs. However, the industry has moved away from physical media in recent years as most apps and services are now streamed or downloaded from the Internet.
Keyboards: Fingertip Input

Computers receive data by reading it from disk, accepting it electronically over a modem, or receiving input directly from you, the user. You provide your input by way of what’s called, in general, an input device; the most common input device you use to talk to your computer is the keyboard.

A computer keyboard, similar to the one in Figure 1.2, looks and functions just like an old-fashioned typewriter keyboard, except that computer keyboards have a few more keys. Some of these keys (such as the arrow, Pg Up, Pg Dn, Home, and End keys) enable you to move around within a program or file. Other keys provide access to special program features. When you press a key on your keyboard, it sends an electronic signal to your system unit that tells your machine what you want it to do.

Many keyboards that come with desktop and all-in-one PCs hook up via a cable to the back of your system unit. Some manufacturers make wireless keyboards that connect to your system unit via radio signals, thus eliminating one cable from the back of your system. Keyboards on laptop and 2-in-1 PCs are built into the main unit, of course, and the keys are often just a tad smaller than those on desktop PC keyboards.

On a typical Windows PC keyboard, there are a few extra keys in addition to the normal letters and numbers and symbols and such. Chief among these is the Windows key (sometimes called the Winkey), like the one shown in Figure 1.3, which has a little Windows logo on it. In Windows 10, many operating functions are initiated by pressing the Windows key either by itself or along with another key on the keyboard.
Mice and Touchpads: Point-and-Click Input Devices

It’s a funny name but a necessary device. A computer mouse, like the one shown in Figure 1.4, is a small handheld device that you scoot across your desktop. Most mice consist of an oblong case with two or three buttons on top. When you move the mouse along a desktop, an onscreen pointer (called a cursor) moves in response. When you click (press and release) a mouse button, this motion initiates an action in your program.

Mice come in all shapes and sizes. Some have wires, and some are wireless. Some are relatively oval in shape, and others are all curvy to better fit in the palm of your hand. Some even have extra buttons that you can program for specific functions or a scroll wheel you can use to scroll through long documents or web pages.
If you have a laptop or 2-in-1 PC, you don’t have a separate mouse. Instead, most laptops feature a touchpad pointing device that functions like a mouse (see Figure 1.5). You move your fingers around the touchpad to move the onscreen cursor and then click one of the buttons underneath the touchpad the same way you’d click a mouse button.

![A touchpad on a notebook PC.](image)

**TIP** If you have a laptop PC, you don’t have to use the built-in touchpad. Most laptops let you attach an external mouse, which you can use in addition to or instead of the internal device.

If you use a computer with a touchscreen display, you don’t need a mouse at all. Instead, you control your computer by tapping and swiping the screen, using specific motions to perform specific operations. With a touchscreen computer, operation is fairly intuitive.

**Network Connections: Getting Connected**

If you have more than one computer in your home, you might want to connect them to a home network. A network enables you to share files between multiple computers, as well as connect multiple PCs to a single printer or scanner. In addition, you use your home network to share a broadband Internet connection so that all your computers (and other devices, like phones and tablets) connect to the Internet.
You can connect computers via either wired or wireless networks. Most home users prefer a wireless network because there are no cables to run from one room of your house to another. Fortunately, connecting a wireless network is as easy as buying a wireless router, which functions as the hub of the network, and then connecting wireless adapters to each computer on the network. (And if you have a laptop PC, the wireless adapter is already built in.)

**NOTE**  Learn more about wireless networks in Chapter 9, "Setting Up Whole-House Internet and a Home Network."

### Sound Cards and Speakers: Making Noise

Every PC comes with some sort of speaker system. Most traditional desktop systems let you set up separate right and left speakers, sometimes accompanied by a subwoofer for better bass. (Figure 1.6 shows a typical right-left-subwoofer speaker system.) All-in-one, laptop, and 2-in-1 PCs typically come with right and left speakers built in but offer the option of connecting external speakers if you want. You can even get so-called 5.1 surround sound speaker systems, with five satellite speakers (front and rear) and the “.1” subwoofer—great for listening to movie soundtracks or playing explosive-laden video games.

![FIGURE 1.6](image)

*A typical set of right and left external speakers, complete with subwoofer.*

All speaker systems are driven by a sound card or chip that is installed inside your system unit. If you upgrade your speaker system, you also might need to upgrade your sound card accordingly. (You can easily switch sound cards on a traditional desktop PC, but it’s really not an option on a laptop or all-in-one.)
Video Cards and Monitors: Getting the Picture

Operating a computer would be difficult if you didn’t constantly receive visual feedback showing you what your machine is doing. This vital function is provided by your computer’s monitor.

Computer monitors today are built around LCD displays, just like you have on your living room TV. On a laptop PC, this display is built into the unit; on a desktop PC, you connect a separate external monitor. And with an all-in-one unit, the display includes the computer motherboard and connections.

You measure the size of a monitor diagonally from corner to corner. Most free-standing LCD monitors today are in the 24” to 27” diagonal range, although both larger and smaller models are also available.

A flat-screen LCD display doesn’t take up a lot of desk space or use a lot of energy, both of which are good things. Most monitors today come with a widescreen display that has the same 16:9 (or 16:10) aspect ratio used to display widescreen movies—which makes them ideal for viewing or editing movies on your PC. (You also can find some ultrawide monitors, ideal for doing video editing or accounting work, with a 21:9 aspect ratio—but they’re fairly pricey.)

Know, however, that your computer monitor doesn’t generate the images it displays. Instead, screen images are electronically crafted by a video card or chip installed inside your laptop PC or desktop system unit. To work correctly, both the video card and monitor must be matched to display images of the same resolution.

Resolution refers to the size of the images that can be displayed onscreen and is measured in pixels. A pixel is a single dot on your screen; a full picture is composed of thousands of pixels. The higher the resolution, the sharper the resolution—which lets you display more (smaller) elements onscreen.

Resolution is expressed in numbers of pixels, in both the horizontal and vertical directions. Most external monitors today can display 1920×1080 or higher resolution (called full high definition, or FHD). Laptop PC displays are typically smaller (14” to 15.4” diagonal) and sometimes with slightly lower resolution.

Other Parts of Your Computer System

The computer hardware itself is only part of your overall computer system. A typical PC has additional devices—such as printers—connected to it, and it runs various programs and applications to perform specific tasks.
Providing Additional Functionality with Peripherals

There are lots of other devices, called peripherals, you can connect to your computer, including the following:

- **Printers**: A printer enables you to make hardcopy printouts of documents and pictures—and some including copying, scanning, and even faxing capability.
- **Webcams**: These are small cameras (typically with built-in microphones) that enable you to send live video of yourself to friends and family. Many laptops and some all-in-ones include built-in webcams.
- **Joysticks and gamepads**: These are alternatives to mice that enable you to play the most challenging computer games.
- **External storage**: These are just like the hard disk or solid state drives inside your computer, but they connect externally to help you back up your precious data.

*NOTE*  Learn more about installing peripherals in Chapter 6, “Connecting Printers and Other Devices to Your PC.” Learn more about using external disks in Chapter 8, “Adding Storage and Backup.”

You also can hook up all manner of portable devices to your PC, including smartphones, digital cameras, and camcorders. You can even add the appropriate devices to connect multiple PCs in a network, which is useful if you have more than one computer in your house.

Fortunately, connecting a new device is as easy as plugging in a single cable. Whether you have a desktop or laptop PC, or even a tablet, most printers and other devices connect using a special type of cable called a **USB** cable. Almost all computers have multiple USB connections (sometimes called **ports**), so you can connect multiple peripherals via USB at the same time.

**Doing What You Need to Do with Software and Apps**

By themselves, the black or white boxes that comprise a typical computer system aren’t that useful. You can connect them and set them in place, but they won’t do anything until you have some software to make things work.

As discussed earlier, computer hardware refers to those things you can touch—the keyboard, monitor, system unit, and the like. Computer **software**, however, is something you can’t touch because it’s nothing more than a bunch of electronic bits and bytes. These bits and bytes, however, combine into computer...
programs—sometimes called applications or just apps—that provide specific functionality to your system.

For example, if you want to crunch some numbers, you need a piece of software called a spreadsheet program. If you want to write a letter, you need a word processing program. If you want to make changes to some pictures you took with your digital camera, you need photo-editing software. And if you want to surf the Internet, you need a web browser.

In other words, you need separate software for each task you want to do with your computer. Fortunately, most new computer systems come with a lot of this software already installed. You might have to buy a few specific programs, but it shouldn’t set you back a lot of money.

**NOTE** Learn more about computer software and apps in Chapter 16, “Installing and Using Apps.”

**Making Everything Work—with Windows**

Whatever program or app you’re using at any time, you interface with your computer via a special piece of software called an operating system. As the name implies, this program makes your system operate; it’s your gateway to the hardware part of your system.

The operating system is also how your application software interfaces with your computer hardware. When you want to print a document from your word processor, that software works with the operating system to send the document to your printer.

Most computers today ship with an operating system called Microsoft Windows. This operating system has been around in one form or another for more than 35 years and is published by Microsoft Corporation.

Windows isn’t the only operating system around, however. Computers manufactured by Apple Computing use a different operating system, called macOS. Therefore, computers running Windows and computers by Apple aren’t totally compatible with each other. Google’s Chrome OS runs on many low-cost Chromebook computers, which are popular with schools across the country. Then there’s Linux, which is compatible with most PCs sold today, but it’s used primarily by über-techie types; it’s not an operating system I would recommend for general users.

But let’s get back to Windows and its various versions. The most current version is called Microsoft Windows 11. If you’ve just purchased a brand-new PC, this is the version you’re using. If your PC is somewhat older, you might be running Windows
10, the immediate predecessor to Windows 11, which was the default OS from July 2015 to October 2021, when Windows 11 was released. If you have an even older computer, it could be running an even older version of Windows.

To some degree, Windows is Windows is Windows; all the different versions do pretty much the same things. Windows 11, however, is much improved over the previous versions, which is why many users have upgraded their older computers to this version.

In any case, you use Windows—whichever version you have installed—to launch specific programs and to perform various system maintenance functions, such as copying files and turning off your computer.

NOTE You can learn more about Windows 11 in Part II of this book, “Using Windows.”

Different Types of Computers

Although all computers consist of pretty much the same components and work in pretty much the same way, there are several different types to choose from. You can go with a traditional desktop computer, a smaller, more portable laptop model, a touchscreen tablet—or one that combines some or all these features.

Let’s look at the different types of computers you can choose from.

Traditional Desktop PCs

A desktop PC is one with a separate monitor that’s designed to sit on your desktop, along with a separate keyboard and mouse. This was the original PC form factor, and it’s still preferred by some old-school users.

A desktop PC is stationary; you can’t take it with you. It sits on your desktop, perfect for doing the requisite office work.

A traditional desktop system, like the one shown in Figure 1.7, has a separate system unit that sits either on the floor or beside the monitor. This type of system takes up more space than any other type of system but is the most expandable. Gamers, in particular, like desktop systems that so they can swap graphics and sound boards in and out.
All-in-One Desktops

An all-in-one desktop builds the system unit into the monitor for a more compact system, like the one shown in Figure 1.8. Some of these all-in-one PCs feature touchscreen monitors, so you can control them by tapping and swiping the monitor screen.

Many users like the easier setup (no system unit or speakers to connect) and smaller space requirements of all-in-one systems. The drawbacks to these all-in-one desktops are that you can’t upgrade internal components, and if one component goes bad, the whole system is out of commission. It’s a lot easier to replace a single component in a traditional desktop than the entire system of an all-in-one!
FIGURE 1.8
*An all-in-one desktop system, with the system unit and speakers built into the monitor.*

Laptop PCs

A laptop PC, sometimes called a notebook PC, combines a monitor, keyboard, and system unit in a single, compact case. This type of portable PC, like the one shown in Figure 1.9, can operate via normal electrical power or via a built-in battery, so you can take the laptop with you and use it just about anywhere you go.

Just as there are several types of desktop PCs, there are several types of laptops, including the following:

- **Traditional laptops:** These units have screens that run in the 14” to 16” range (15.6” is common) and include decent-sized hard drives (500GB and up). These are typically the least expensive laptops because there’s a lot of competition; this category is the most popular.
• **Desktop-replacement laptops:** These are larger laptops, with screens in the 17” range. They’re not only bigger; they’re also heavier, and the batteries don’t last as long. As such, these laptops really aren’t designed for true portable use; instead, they’re replacements for traditional desktop PCs. Plus, these desktop-replacement models typically cost a bit more than traditional laptops.

• **Ultrabooks:** An ultrabook is a smaller, thinner, and lighter laptop PC. Most ultrabooks have screens in the 10” to 14” range and use solid-state flash storage instead of hard disk storage. All this makes an ultrabook very fast and very easy to carry around without necessarily sacrificing computing power and functionality. However, all this new technology means ultrabooks cost a bit more than more traditional laptops.

With all these choices available, which type of laptop should you buy? It all depends. Most users choose traditional laptops because they do everything you need them to do at a reasonable price. If you need more computing power but don’t plan on taking your PC out of the house, then a desktop-replacement model might make
sense. If you’re a die-hard road warrior who likes to travel light, consider a more expensive but lighter-weight ultrabook.

**Tablet PCs**

A tablet PC is a self-contained computer you can hold in one hand. Think of a tablet as the real-world equivalent of one of those communication pads you see on *Star Trek*; it doesn’t have a separate keyboard, so you operate it by tapping and swiping the screen with your fingers.

No question about it, the most popular tablet today is the Apple iPad; no other model comes close in terms of number of users. The iPad runs Apple’s iPadOS operating system, which is similar to the iOS engine behind the company’s iPhones. Also popular are tablets that run Google’s Android operating system.

The iPadOS/iOS and Android operating systems, however, are both incompatible with the billion or so computers that run the Windows operating system. If you want a Windows-compatible tablet, the most popular (and often only) choice is the Microsoft Surface, shown in Figure 1.10.

![Microsoft’s Surface Pro tablet computer, complete with optional external keyboard.](image-url)
Tablets are great for consuming media and information, and they’re pretty good for web-based tasks, but they’re not that great if you have to get serious work done; the lack of a true keyboard is a killer when you need to type long pieces of text and enter a lot of numbers. Still, a Windows tablet can easily supplement a more traditional PC for many types of tasks and is a strong competitor to Apple’s iPad.

2-in-1 PCs

A 2-in-1 PC is the newest type of personal computer, a blend of the ultrabook and tablet form factors—literally. Think of a 2-in-1 PC as an ultrabook with a touchscreen, or a tablet with a keyboard.

Most 2-in-1 PCs, like the one in Figure 1.11, come with a swivel or fully removable keyboard, so you can type if you need to or get rid of the keyboard and use the touchscreen display as you would a tablet. Windows 11 is optimized for this new type of PC; depending on how you’re using the device, you’ll either see the traditional Windows desktop or the newer touch interface.

FIGURE 1.11
A 2-in-1 PC that folds from one form factor to another.
With a 2-in-1 PC, you use it like a touchscreen tablet when you watch movies or browse the Web and like a laptop PC when you have office work to do. For many users, it’s the best of both worlds.

Which Type of PC Should You Choose?

Which type of PC is best for you? It depends on how you think you’ll use your new computer:

- If all you plan to do is check your Facebook feed, watch streaming videos, and maybe send the occasional email, then you don’t really need a full keyboard and can make do with a tablet or 2-in-1 PC.
- If you need to do more serious work, then a desktop, all-in-one, or laptop PC, complete with keyboard and mouse, is a must.
- If you plan to do all your computing in one spot, such as your home office, then a traditional desktop or all-in-one PC can do the job.
- If you want more flexibility—and the ability to take your computer with you—then a laptop or 2-in-1 model is a necessity.

As you can see, there are a lot of choices, and even within these general types, more specific considerations to make. The price depends a lot on the amount of hard disk storage you get, the size of the display, the amount of internal memory, the speed of the microprocessor, and other technical details. And don’t forget the design; make sure you choose a model with the style and functionality you can live with.

Don’t Worry, You Can’t Screw It Up—Much

I don’t know why, but a lot of people are afraid of their computers. They think if they press the wrong key or click the wrong button, they’ll break something or will have to call an expensive repairperson to put things right.

This isn’t true.

The important thing to know is that it’s difficult to break your computer system. Yes, it’s possible to break something if you drop it, but in terms of breaking your system through normal use, it just doesn’t happen that often.

It is possible to make mistakes, of course. You can click the wrong button and accidentally delete a file you didn’t want to delete or turn off your system and lose a document you forgot to save. You can even take inadequate security
precautions and find your system infected by a computer virus. But in terms of doing serious harm just by clicking your mouse, it’s unlikely.

So, don’t be afraid of the thing. Your computer is a tool, just like a hammer or a blender or a camera. After you learn how to use it, it can be a very useful tool. But it’s your tool, which means you tell it what to do—not vice versa. Remember that you’re in control and that you’re not going to break anything, and you’ll have a lot of fun—and maybe even get some real work done!

THE ABSOLUTE MINIMUM

Here are the key points to remember from this chapter:

• There are five main types of computer systems available today: traditional desktops, all-in-one desktops, laptops, tablets, and 2-in-1 models.

• Regardless of type, all personal computers are composed of various hardware components; in a traditional desktop or all-in-one PC, they’re separate devices, whereas laptop, 2-in-1, and tablet PCs combine them all into a single portable unit.

• You interface with your computer hardware via a piece of software called an operating system. The operating system on your new computer is probably Microsoft Windows 11.

• You use specific software programs or apps to perform specific tasks, such as writing letters and editing digital photos.

• The brains and engine of your system is the system unit, which contains the microprocessor, memory, disk drives, and all the connections for your other system components.

• To make your system run faster, get a faster microprocessor or more memory.

• Data is temporarily stored in your system’s memory; you store data permanently on some type of disk drive—either a hard disk or solid-state drive.
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