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Chapter 1
Computer 101

You must accept two important facts about a computer: It can't blow up and it's not evil.

Computers explode in the movies. They excel at it. You see fire, smoke, and little pieces flying everywhere. Real life is sadly less dramatic.

Though it's stimulating to believe that computers are evil, and such a belief explains many confusing things nicely, it just isn't true. Computers are innately indifferent, almost disappointingly so.

Sad to say, computers are handy tools — just frustrating to use at times. This chapter helps ease you into understanding these useful and often misunderstood gizmos.

The enrollment application for dogs to join the Marines in WW2 was designed to be filled out from the dog's perspective:

The Fast Idiot

Computers aren't smart; they're just fast. If you slow down time and observe deep inside the computer's bosom, you find a calculator. That's it. But surrounded by lots of helpful electronics, and cranking out billions of computations per second, the computer seems amazing. It's like your drooling nephew building a Lego Eiffel Tower in two seconds. You'd think he's a genius, but he's just moving quickly. That's essentially how the computer fools you into thinking it's smart.

What a computer does

A computer's core mission statement is to consume input, process it, and generate output. In this manner, the computer operates like a cow but one that's less expensive to feed and with less odorous output. Figure 1-1 illustrates the basic computer operation, which coincidentally also applies to a cow.

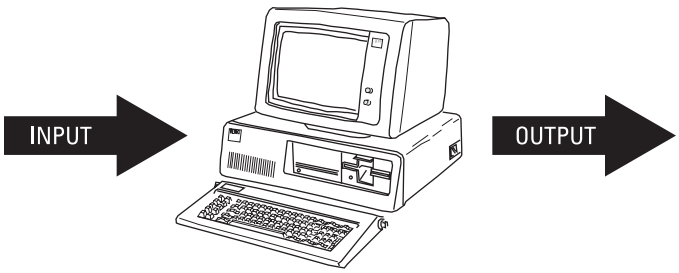

FIGURE 1-1: What a computer does at its simplest level.

To perform its basic task, the computer occupies itself with three activities:

- I/O
- Processing
- Storage

I/O: I/O stands for input and output. It's pronounced "I owe," like *Io,* the third-largest moon of Jupiter. The computer receives input from devices such as the keyboard, a pointing device (mouse), and the Internet. It generates output displayed on the screen, printed, or returned to the Internet. I/O is also a popular subject for songs sung at computer camp.

Processing: Between input and output you find *processing.* The input is somehow manipulated, mangled, or munged. Then it's spewed out in a modified form. Minus any processing, the computer is like a tube, and computer science would be

identical to plumbing. Processing is covered in Chapter 6. Plumbing is covered in *Plumbing For Dummies*.

Storage: The final computer activity is storage. Storage can be temporary or long-term. Temporary storage is the computer *memory*, or *RAM*, covered in Chapter 7. Long-term storage is provided by the computer's storage media, covered in Chapter 8. Overhead storage is designed for luggage that doesn't fit below the seat in front of you.

Hardware and software

All parts of a computer system can be classified as either hardware or software.

Hardware is the physical part. Anything you can touch or see — or that smells like burning plastic — is hardware.

Software is the computer's instructions. It tells the hardware what to do.

For example, consider a symphony orchestra. The hardware consists of the musicians and their instruments. Their software is music. As with a computer, the music (software) tells the musicians and their instruments (hardware) what to do.

Without software, hardware just sits around bored. Like a symphony orchestra without music, that can be an expensive waste of time, especially at union scale. No, it's software that makes the computer system work. It's in charge. Software determines the computer's personality and potential.

- If you can toss it out a window, it's hardware.
- If you can toss it out a window and it comes back, it's a cat.
- Computer software includes all the programs you use on the computer.
- The most important piece of software is the computer's operating system. It's the main program in charge of everything.

Doubtless, You Have Some Questions

Rather than bore you with further exploration of the dry and dull world of computer technology, I thought I'd save some time and get some burning questions you may have out of the way.

"What is a PC?"

A *PC* is a personal computer. The name applies to pretty much all computers these days, though historically a PC is related to the original IBM PC (personal computer), introduced in the early 1980s. Today, a PC is any computer system that isn't a Macintosh, though a Mac is technically also a personal computer.

"Do I need a laptop?"

Probably.

"Can you be more specific?"

Okay. The two main styles of personal computers are desktop systems and laptops.

A desktop PC dwells in one location. It's not portable. These systems are often more powerful and expandable than laptops. They can also be upgraded, which isn't possible with most laptops.

Laptops go anywhere, thanks to their light weight and battery power. They are powerful but sacrifice features and expandability for their portability. They can also be more expensive than comparable desktop systems.

TIP

- You can use a laptop as a desktop system, expanding it with a full-size keyboard and monitor. This setup has the advantage of your still being able to take the computer with you to work remotely or when the building is on fire.
- Many people opt to use both systems: a powerful desktop for the office or home and a laptop to take on the road.
- Laptops are also a near necessity for students. Colleges and universities offer guidelines for student computers — specifically, laptops. Heed this advice.

"Why not just use a tablet or smartphone instead of a computer?"

The quick answer is that mobile devices such as smartphones and tablets are designed for data *consumption*, not data production. If you're merely passing through this digital life, you can get by with a phone or tablet and never own a computer. If you need to create something, however, a computer is a better tool than a tablet or smartphone.

- As someone who detests typing on a touchscreen, I can assure you that typing on a real keyboard is the best reason to own a computer.
- If you enjoy using a tablet with a removable keyboard, you would probably be happier with the full power of a laptop instead.
- Mobile devices lack a computer's potential for expandability.
- A typical computer lasts for years. Mobile devices are usually replaced on an average 2-year cycle.

"Seriously, can a computer explode?"

A computer cannot spontaneously explode. Even if you accidentally spill a fish tank of water on it, the device most likely will short out and die, flipping the circuit breaker, but it won't explode.

My first PC had a 65-watt power supply that failed. I heard a pop and the computer died. Then I saw a puff of smoke rise from behind the monitor. I replaced the dead power supply with a beefier model and the computer worked fine after that. No drama, though I delighted in the experience, knowing that I would write about it later in this book.

Buy That Computer!

If you don't yet have a computer, you must rush out and buy one! Or, if your current computer is so old that it can access the DuMont Network, get a new one right now! This order carries no urgency, despite what you just read.

Buying a complex piece of electronics like a computer isn't the same as purchasing a vase or cement mixer. To make your purchase a successful one, consider my friendly, 5-step method for buying a computer.

1. **Know what it is that you want the computer to do.**
2. **Choose between a desktop and laptop.**
3. **Determine how much hardware is required.**
4. **Locate service and support.**
5. **Buy the computer!**

If you heed these steps, you'll be a lot more satisfied with your computer purchase than if you just saunter into an upscale store to buy something with the Apple logo on it.

Step 1: Determine what you want the computer to do

Computers are best used to create something: to write a novel, edit video, generate graphical designs, compose music, devise a spreadsheet to monitor gambling debts, and so on. On the antiproductivity side, computers are great for playing high-end video games. Many gamers prefer computers over the various gaming consoles, primarily because computer hardware is easily upgraded.

The point of this step is to understand how you plan on using the computer. What do you see yourself doing? How are you going to use the computer: as a tool to get work done or to professionally waste time?


TIP

- Gaming consoles are considered specifically engineered computers.
- Even if you decide to use your computer for one task, you can expand to other creative activities later. For example, you can perform office tasks as well as play horrifically graphic video games.
- If you just need to check email, browse the web, or waste time with a serious expression on your face, consider buying a smartphone or tablet instead of a computer.

Step 2: Choosing between a desktop and a laptop

Desktop computers stay in one place. They're powerful, expandable, and less expensive than laptops. They're more difficult to lose in a stack of magazines on the coffee table and then accidentally tossed out in a rush because guests are coming over.

Laptop computers go anywhere. They're wireless, though the battery must be charged and can last only so long (usually, several hours). They lack expandability. Due to their small size and other specifics, laptops are generally more expensive than desktop computers.

- Laptops offer you freedom to compute anywhere. Desktops offer you power.
- Laptops occupy less space than desktops. This condition makes sense because it's awkward to balance a desktop computer on your lap.
- Desktop computers offer full-size keyboards and larger monitors.

- Some laptops are expandable, but most all desktop systems can be upgraded with new hardware.
- You can use both a laptop and a desktop. My desktop is my main computer, but I take my laptop on the road — or even out to work in a café when the smell from the neighbor's meth lab becomes too intense.

Step 3: Calculate how much hardware you need

Software makes the computer go, so before you discuss PC brand names or big box stores, you must consider the programs you plan on using. That's because some software — games, video production, graphics — requires specific computer hardware. To determine how much hardware you need, read the software requirements.

For example, a game may recommend a specific video adapter and quantity of memory to run. Graphics software may demand a specific processor. Video editing uses a lot of computer storage. Gather this information to understand how much computer hardware you need.

REMEMBER

- Computer software controls computer hardware.
- For general computer use, any system that can run the Windows operating system works great. When you have specific software you plan on running, however, ensure that the computer you get has the hardware to handle the software's needs.

TIP

- Specific hardware nonsense is covered in Part 2 of this book. Don't worry about trying to understand software requirements when you're just starting out. Use this book's index to help you learn about the various PC hardware thingies.

Step 4: Locate service and support

You must know where to take your computer should it break. You may also need to know whom to turn to should you have questions about the computer. These items are known as "service and support," and they're often overlooked when buying a computer.

Service means one thing: Who fixes the computer? For the best service, I recommend buying your computer from a local dealer, a mom-and-pop type of store. If you buy at one of those big box stores, you must ask to discover who actually fixes your computer and where it gets fixed.

Support is about getting help for your computer. Some people need lots of help. If that's you, buy from a place that offers free classes or has a toll-free support number. That support may add to the purchase price, but it's worth every penny if it saves you aggravation in the future.


TIP

- Computers generally come with a 90-day warranty. This length of time is sufficient. If anything electronic is going to break, it does so right away. You're well-covered with a 90-day warranty.
- Avoid buying an extended warranty on a desktop computer. For a laptop computer, a 3-year warranty is ideal. Keep in mind that due to wear and tear most laptops tucker out after about three years. Furthermore, because laptop parts are teensy and specialized, they're more expensive to replace.
- Avoid service contracts. They are a waste of money.

Step 5: Buy it!

The final step to getting a new computer — or your first computer — is to buy it. Do it! Don't hesitate because you think a newer, faster model is coming out soon. A newer faster model is *always* coming out soon. Don't let this ongoing condition deter your purchase.

What to Do with Old Computers

A computer can last for years. But like that Venus flytrap you brought home from the county fair, eventually it dies. What to do with a dead or dying computer or one that's old enough to collect Medicare depends on whether the system is a desktop or a laptop.


REMEMBER

Toss out old electronics per the disposal rules of your jurisdiction. Be especially careful with laptop batteries: They cannot just be thrown in the trash.

Disposing of a geezer desktop PC

A computer is a system. When part of it goes, you need not toss out the rest. Beyond the computer box, you can reuse the keyboard, mouse, monitor, printer,

and other hardware with your new computer system. And, if the new computer comes with these parts, keep the old ones around as spares.

- Desktop PCs can last six years or longer. After about eight years or so, the technology becomes too old to be compatible and too slow to be useful.
- Turn in an old computer box to a computer recycling center. Many of the circuit boards can be stripped for precious metals or turned into festive windchimes.
- Old desktops can be donated to charities, but call first to see whether they want yours.
- One item you might not want to recycle is the old computer's mass storage device — the hard drive or SSD. If possible, remove it and have it destroyed. Outfits that shred documents offer such destruction services, should security be a concern to you or your presidential campaign.

Discarding that old laptop

Laptops last for a good three years — or longer if you're kind to them. As they age, the laptop's battery life dwindles, which is a sure sign you need a replacement. When you get a new laptop, I recommend keeping the old one around for a bit longer as a spare. Once you're certain that the new laptop is worthy, you can dispose of the old one.

- Before you slip the laptop into the mail slot of eternity, I recommend removing its mass storage device — the hard drive or SSD. This gizmo may still contain sensitive data. Dispose of it at a data recycling center. If the mass storage device cannot be removed, dispose of the entire laptop at a data recycling center.
- Remove a laptop's battery before getting rid of it. If you cannot remove the battery, ensure that the entire laptop is properly disposed of.

A Final Thing to Remember

REMEMBER

Computers aren't evil. They harbor no sinister intelligence. In fact, when you get to know them, you discover that they're rather dumb.

This rule doesn't apply to robots.