

Chapter 1

What Is This Thing, This PC?

In This Chapter

- ▶ Answering some common PC questions
- ▶ Understanding basic computer concepts
- ▶ Knowing about hardware and software
- ▶ Buying a computer
- ▶ Realizing that your PC is quite dumb

I wish that computers were evil. It would be easier to understand the computer if it were upfront about being evil and expressed its malevolent desire to get you. Minus that negative assurance, you end up operating the PC under a constant suspicion. That's not healthy. So instead of fearing, try understanding. Maybe Mr. PC isn't so bad after all?

Some Quick Questions to Get Out of the Way

Doubtless, your mind is abuzz with various questions about computers. I ask myself computer questions often, so don't think that your curiosity is unusual. Trust me: Few people over the age of 26 are comfortable when first encountering anything high-tech.

"What is a PC?"

A *PC* is a computer — specifically, an acronym for *personal computer*.

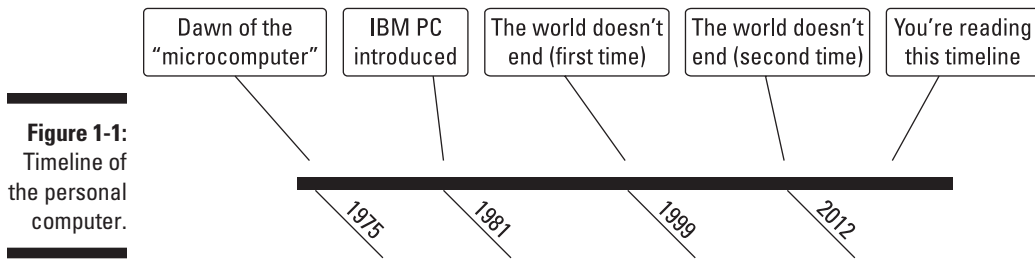
Historically, the beast was known as a *microcomputer*. That's because back in the 1970s, computers were huge, room-sized things that required legions of bespectacled scientists to operate. Individuals didn't own such

computers — well, unless you were eccentric or enjoyed printing your own phone bill. So mere mortals were sold a smaller version, which the Computer Professionals Union insisted be called a *micro*computer.

Micro means teensy. The term is preferred by computer scientists because you can't wear a white lab coat and be taken seriously when you use the word "teensy."

Actually, the term *micro* comes from *microprocessor*, the main computer chip inside the early personal computers.

When IBM unveiled its first business microcomputer back in 1982, they called it the IBM Personal Computer — or PC, for short. All of today's personal computers are descended from that original model, so they've inherited the term *PC*. Figure 1-1 displays a timeline of the PC's history, in case you're curious.



The only PC that's not called "PC" is Apple's Macintosh computer. Mac users refer to their computers as *Macs*. That's based on an old IBM–Apple rivalry that no one cares about any more. Still, many Mac users get all huffy when you call their computers PCs. So it's fine by me to tease those crybabies by referring to their expensive toys as PCs.

- ✓ The term *PC* generically refers to any computer that can run the Windows operating system.
- ✓ Although your car or sewing machine or the machine that goes "boop" at the hospital may contain computer electronics, those devices are not PCs.
- ✓ Curiously, IBM got out of the PC manufacturing business in the early 2000s.
- ✓ The success of the PC is based on its use of off-the-shelf parts that are easily replaced. The PC can also be configured and upgraded with ease, which is the main reason that it's so popular.



“Why not just use a tablet or smartphone instead of a PC?”

Sure, you can get by in today’s well-connected, digital world by getting yourself a tablet or smartphone. To hell with computers!

Smartphones and tablets can send and receive email, browse the web, play games, and do all sorts of interesting things. They have several downfalls when compared with PCs:

- ✓ Mobile devices 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 PC. If you need to create something, you need a computer.
- ✓ PCs offer several input devices — specifically, the keyboard and the mouse. You can even add a touchscreen to a PC, if you’re into that touchy-tappy-swipecy stuff.
- ✓ Mobile devices lack the expandability of a PC. You can upgrade a PC, adding more storage, memory, a better monitor, a mouse with 20,000 buttons, and so on.
- ✓ The typical computer lasts for years. A mobile device is usually replaced every other year.



Now, if you’ve changed your mind about getting a PC, remember that you cannot return this book once you’ve started reading this material.

“Should I buy a Dell?”

I get this question all the time, though “Dell” might be replaced by some other brand name. See the later section “Buy Yourself a PC!”

“Will my computer explode?”

This question is important, so please skip all the other questions I’ve placed before this question and read this question first!

If you’re a fan of science fiction television or film, you’re probably familiar with the concept of the exploding computer. Sparks, smoke, flying debris — it all appears to be a common function of computers in the future. Sure, they

could just beep and display error messages when they die, but that's not visually exciting.

The answer is no, your computer will not explode. At least, not spontaneously. If you pour fruit punch into the computer or lightning strikes or the power supply unexplainably fails, the most you may see is a puff of blue smoke, but no explosions.

Basic Computer Concepts in Easily Digestible Chunks

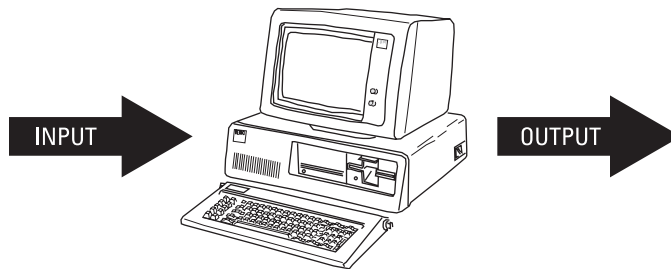
You either use or are about to purchase one of the most advanced pieces of technology ever made available to humans. Why not be a sport about it and take a few moments to not avoid some of the more technical mumbo jumbo surrounding that technology? Don't fret: I'll be gentle.

What a computer does

Computers can do anything and try to do just about everything. At their core, however, computers are simple gizmos. Their advantage is that computers have oodles of potential.

A computer takes input, processes it, and then generates output. That's kind of how a baby works, though to keep you from being utterly befuddled, you can refer to Figure 1-2, which completely illustrates that basic computer concept.

Figure 1-2:
What a
computer
does at its
simplest
level.



The “input goes into the computer, gets processed, and then produces output” equation is the foundation of these three primary computer concepts:

- ✓ 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. I/O is pretty much the *only* thing a computer does: It receives input from devices — the keyboard, mouse, Internet. It generates output, displayed on the screen, printed, or sent back to the Internet. That’s I/O.

Processing: What the computer does between input and output is *processing*. It’s what happens to the input to make the output significant. Otherwise, the computer would simply be a tube, and computer science would be the same as plumbing.

Processing is handled inside the computer by a gizmo known as (logically enough) a processor. See Chapter 5 for more information on the processor.

Storage: The final part of the basic computer equation is storage, which is where the processing takes place. Two types of storage are used: temporary and long-term. Temporary storage is the computer *memory*, or *RAM*. Long-term storage is provided by the computer’s storage media.

Computer memory is covered in Chapter 6. Long-term storage is covered in Chapter 7.

Hardware and software

The computer universe is divided into two parts. One part is hardware. The other part is software.

Hardware is the physical part of a computer: anything you can touch and anything you can see — or anything that smells like burning plastic. The computer console, the monitor, the keyboard, the mouse. All that physical stuff is hardware.

Software is the computer’s brain. Software tells the hardware what to do.

In a way, it helps to think of hardware and software as a symphony orchestra. For hardware, you have the musicians and their instruments. Their software is the music. As with a computer, the music (software) tells the musicians and their instruments (hardware) what to do.

Without software, hardware just sits around and looks pretty. It can't do anything because it has no instructions and nothing telling it what to do next. And, like a symphony orchestra without music, that can be an expensive waste of time, especially at union scale.

To make the computer system work, software must be in charge. In fact, software determines your computer's personality and potential.

- ✓ If you can throw it out a window, it's hardware.
- ✓ If you can throw it out a window and it comes back, it's a cat.
- ✓ Computer software includes all the programs you use on the PC.
- ✓ The most important piece of software is the computer's *operating system*. That's the main program in charge of everything.
- ✓ Chapter 13 covers Windows, which is the PC's least popular yet most common operating system.
- ✓ Chapter 14 covers computer programs, also considered software.

Buy Yourself a PC!

If you don't yet have a PC, you can rush out and buy one. My advice is not to rush, despite having just directed you to do so.

A computer is a complex piece of electronics. Buying one isn't like purchasing a riding lawnmower or nose-hair trimmer. To make your purchase a successful one, consider my friendly, 5-step method for buying a PC.

- 1. Know what it is that you want the computer to do.**
- 2. Find software to accomplish that task.**
- 3. Find hardware to match the software.**
- 4. Locate service and support.**
- 5. Buy the computer!**

Yes, it's really that easy. If you obey these steps and pay attention, you'll be a lot more satisfied with your computer purchase.

Step 1. What do you want the PC to do?

Believe it or not, most people don't know why they want a computer. If that's you, consider what you're getting into. Computers aren't for everyone, especially with smartphones and tablets available at far less cost.

If you really do need a computer, figure out what you want it to do for you. Do you just want to do some word processing, emailing, and social networking? Perhaps you want a machine that plays the latest games? Or maybe you need some graphics horsepower to create illustrations or animation? Limitless possibilities exist with a computer, but the more you know about what you want to do, the better you can get the perfect PC for your needs.

Step 2. Find software

Software makes the computer go, so before you discuss PC brand names or big box stores, you need to look at the programs you plan on using. That's because some software — games, video production, graphics — requires specific computer hardware. Knowing about that hardware ahead of time means you'll be happier with your purchase.

By recognizing which software you need first, you can easily move on to the next step.

Step 3. Match hardware to the software

How can you match hardware to the software you need? Simple: Read the software requirements. These are listed on the side of the software box or on the software developer's website. The requirements explain exactly what kind of hardware is required. Specifically, the requirements suggest what kind of processor is best, how much memory is preferred, and how much storage the software demands. You might also learn of other requirements, such as a high-end graphics card or a specialized interface.

- ✓ For general computer uses, any PC that can run the Windows operating system will probably work just fine for you. When you have specific software you plan on running, however, you should make sure that the computer you get has the hardware you need.
- ✓ All that hardware nonsense is covered later in 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 different PC hardware thingsies.



Step 4. Locate service and support

Most people assume that Step 4 would have to do with brand names or famously-not-bankrupt brick-and-mortar stores. Nope! What's more important is ensuring that you get proper service and support for your new computer purchase — especially when you're just starting out and you blanch at the thought of opening the computer's case.

Service means one thing: Who fixes the computer? That's the main reason I recommend buying a PC at a local, mom-and-pop type of store. You develop a personal relationship with the people who service your computer. If you choose not to buy at a local store, you must ask to discover who really 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.

Step 5. Buy it!

The final step to getting a new computer — or your first computer — is to buy it. Do it!

The hesitation many people have about buying a new computer is that a newer, better, faster model is coming down the pike. That's always true! So rather than wait forever, just get up and buy the computer! 'Nuff said.

What To Do With An Old Computer

For heaven's sake, don't throw out your old computer! That's because a computer can be recycled.

The first stage for recycling is to use the old keyboard, mouse, and monitor with your new PC. If you know this recycling tidbit before you buy the new computer, you can save money by buying just the *console*, or the main part of the PC.

The second stage for recycling is to turn in your old PC to a recycling center. Though the computer guts may be useless to you, they do have value.

Of course, you can always hang on to your old PCs for a while. In fact, I keep my old PC on the network for a few weeks to ensure that the new one has everything I need. If not, I can fire up the old one and copy over files or jot down information.

Eventually my old computers end up in my garage on some shelves. I call it the Bone Yard. After a few years, I recycle the old computer.

- ✔ If the new PC comes with its own keyboard and mouse, keep the old ones as spares.
- ✔ You can always retire the old PC to the rumpus room for the kids to use. They'll hate you for it and whine about buying a new one. Don't worry: You'll give in soon enough.
- ✔ Old PCs can be donated to charities, but call first to see if they want one. Sometimes old computers aren't worth the trouble. (Ask your kids.)
- ✔ One item you might not want to recycle is the old PC's hard drive. If possible, remove it from the old computer's console. If the hard drive contains sensitive information, have it destroyed. Outfits that shred documents offer hard drive destruction services, should security be a concern to you or your presidential campaign.

A Final Thing to Remember



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

Now robots, on the other hand! Well, that's a topic for another book.

