Computer & IT Basic

ITDCI-Book **[SERIES-1]**

राष्ट्रीय आई.टी. साक्षरता मिशन
National IT Literacy Mission
Education for common men.....!

Project Sponsered under ITDCI

सूचना प्रोद्यौगिकी विकास परिषद, भारत
IT DEVELOPMENT COUNCIL OF INDIA

[INFORMATION TECHNOLOGY DEVELOPMENT COUNCIL OF INDIA, TRUST OF INDIA]

Work Related to Ministry of Social Justice & Empowerment (Govt. of India)
Work Related to Ministry of Communications & IT (Govt. of India)
Work Related to Ministry of HRD (Govt. of India)

Computer Basics

INDEX

1. : Introduction

1.1 : Getting to Know Computers

Computer Basics

Are you new to using computers? Do you wonder what people mean when they say the Cloud, Windows, Blackberry, Lion, etc.? Perhaps you would just like to know more about how computers work? When it comes to learning today's technology, Computer Basics has all the basic concepts covered.

What is a Computer?

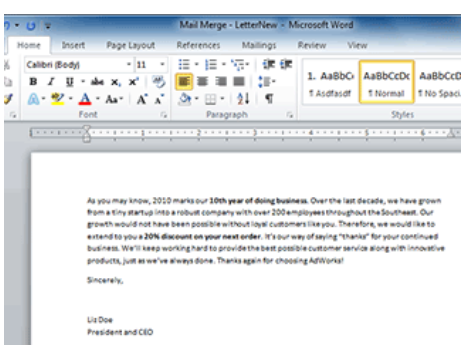
A computer is an electronic device that manipulates information, or "data." It has the ability to store, retrieve, and process data. You can use a computer to type documents, send email, and browse the internet. You can also use it to handle spreadsheets, accounting, database management, presentations, games, and more.

Computers Simplified

For beginning computer users, the computer aisles at an electronics store can be quite a mystery, not to mention overwhelming. However, computers really aren't that mysterious. All types of computers consist of two basic parts:

1. **Hardware** is any part of your computer that has a physical structure, such as the computer monitor or keyboard.
2. **Software** is any set of instructions that tells the hardware what to do. It is what guides the hardware and tells it how to accomplish each task. Some examples of software are web browsers, games, and word processors such as Microsoft Word.

A Motherboard (Hardware)



Microsoft Word (Software)re)

What is a Computer?

A computer is an electronic device that manipulates information, or "data." It has the ability to store, retrieve, and process data. You can use a computer to type documents, send email, and browse the internet. You can also use it to handle spreadsheets, accounting, database management, presentations, games, and more.

Computers Simplified

For beginning computer users, the computer aisles at an electronics store can be quite a mystery, not to mention overwhelming. However, computers really aren't that mysterious. All types of computers consist of two basic parts:

Desktop Computers :

Many people use desktop computers at work, home, school, or the library. They can be small, medium, or large in style, and usually sit on a desk. Once you add a monitor, mouse, and a keyboard, you have what is typically known as a desktop computer.

Most desktop computers are easy to upgrade and expand, or add new parts. Another benefit of desktop computers is the cost. If you compare a desktop and a laptop with the same features, you will most likely find that the desktop computer is priced lower.

Desktop Computer

Note : Some desktop computers have a built-in monitor to save space. These are often called all-in-one desktop computers.

Laptop Computers

The second type of computer that you may be familiar with is a laptop computer, or laptops as they are often referred to. Laptops are battery or AC-powered personal computers that are more portable than desktop computers, allowing you to use them almost anywhere. Since a laptop is smaller than a desktop, it's more difficult to access the internal components. That means you may not be able to upgrade them as much as a desktop. However, it's usually possible to add more RAM or a bigger hard drive

Laptop Computer

Note : A laptop computer is sometimes called a notebook computer because of its size

Servers

Server Room

A server is a computer that "serves up" information to other computers on a network. Many businesses have file servers that employees can use to store and share files. A server can look like a regular desktop computer, or it can be much larger.

Servers also play an important role in making the internet work: they are where web pages are stored. When you use your browser to click a link, a web server delivers the page you requested.

Other Types of Computers

Today, there lots of everyday devices that are basically specialized computers, even though we don't always think of them as computers. Here are a few common examples:

1. **Tablet Computers:** These use a touch-sensitive screen for typing and navigation. Since they don't require a keyboard or mouse, tablet computers are even more portable than laptops. The iPad is an example of a tablet computer.
2. **Mobile Phones:** Many mobile phones can do a lot of things a computer can do, such as browsing the internet or playing games. These phones are often called smart phones.
3. **Game Consoles:** A game console is a specialized kind of computer that is used for playing video games. Although they are not as fully-featured as a desktop computer, many newer consoles, such as the Nintendo Wii, allow you to do non-gaming tasks like browsing the internet.
4. **TVs:** Many TVs now include applications (or apps) that let you access various types of online content. For example, you can view your Facebook news feed or watch streaming movies on Netflix.

The iPad, a type of tablet computer

PCs and Macs

Personal computers come in two main "styles": PC and Mac. Both styles are fully functional, but they do have a different look and feel, and many people prefer one or the other.

PC

Mac

PC: This type of computer began with the original IBM PC that was introduced in 1981. Other companies began to create similar computers, which were called IBM PC Compatible (often shortened to PC). Today, this is the most common type of personal computer, and it typically includes the Microsoft Windows operating system.

Mac: The Macintosh computer was introduced in 1984, and it was the first widely sold personal computer with a Graphical User Interface, or GUI (pronounced gooey). All Macs are made by one company, Apple Inc., and they almost always use the Mac OS X operating system.

★★★

1.2 : Understanding Operating Systems

What is an Operating System?

An operating system is the most important software that runs on a computer. It manages the computer's memory, processes, and all of its software and hardware. It also allows you to communicate with the computer without knowing how to speak the computer's "language." Without an operating system, a computer is useless.

The Operating System's Job:

You've probably heard the phrase boot your computer, but do you know what that means? Booting is the process that occurs when you press the power button to turn your computer on. During this process (which may take a minute or two), the computer does several things:

1. It **runs tests** to make sure everything is working correctly.
2. It **checks for new hardware.**
3. It then s**tarts up the operating system.**

Once the operating system has started up, it **manages all of the software and hardware on the computer.** Most of the time, there are many different programs running at the same time, and they all need to access your computer's **Central Processing Unit (CPU), memory, and storage.** The operating system coordinates all of this to make sure that each program gets what it needs. Without the operating system, the software wouldn't even be able to talk to the hardware, and the computer would be useless.

Types of Operating Systems

Operating systems usually come **preloaded** on any computer that you buy. Most people use the operating system that comes with their computer, but it is possible to upgrade or even change operating systems.

The three most common operating systems for personal computers are **Microsoft Windows, Apple Mac OS X, and Linux.**

Windows 7, after starting up

The Windows, OS X, and Linux logos

Modern operating systems use a Graphical User Interface, or GUI (pronounced "gooey"). A GUI lets you use your mouse to click on icons, buttons, and menus, and everything is clearly displayed on the screen using a combination of graphics and text.

Each operating system's GUI has a different look and feel, so if you switch to a different operating system it may seem unfamiliar at first. However, modern operating systems are designed to be easy to use, and most of the basic principles are the same.

Modern operating systems use a **Graphical User Interface, or GUI (pronounced "gooey")**. A GUI lets you use your mouse to click on **icons, buttons, and menus,** and everything is clearly displayed on the screen using a combination of **graphics** and **text.**

Each operating system's GUI has a different look and feel, so if you switch to a different operating system it may seem unfamiliar at first. However, modern operating systems are designed to be **easy to use**, and most of the basic principles are the same.

The Windows GUI

The OS X GUI

Note : Before GUIs, computers had a c**ommand-line interface**, which meant the user had to type every single command to the computer, and the computer would only display text.

Microsoft Windows

Microsoft created the **Windows** operating system in the mid-1980s. Over the years, there have been many different versions of Windows, but the most popular ones are **Windows 7** (released in 2009), **Windows Vista** (2007), and **Windows XP (2001).** Windows comes **preloaded** on most new PCs, which helps to make it the **most popular operating system in the world.**

If you're buying a new computer or upgrading to a new version of Windows, you can choose from several different editions of Windows, including **Home Premium,** Professional, **and Ultimate.** For most users, Home Premium offers enough features, but many people choose one of the more expensive editions.

Windows 7

Apple Mac OS X

Mac OS is a line of operating systems created by Apple Inc. It comes preloaded on all new Macintosh computers, or Macs. All of the recent versions are known as Mac OS X (pronounced Mac O-S Ten), and their specific version names are Lion (released in 2011), Snow Leopard (2009) and Leopard (2007). Apple also offers a version called Mac OS X Server, which is designed to be run on servers.

Mac OS X Lion

Linux

Linux (pronounce LINN-ux) is a family of **open source** operating systems, which means that they can be modified and distributed by anyone around the world. This is very different from **proprietary software** like Windows, which can only be modified by the company that owns it (Microsoft). The advantages of Linux are that it is **free**, and there are many different **distributions** (or versions) that you can choose from. Each distribution has a different look and feel, and the most popular ones include U**buntu, Mint, and Fedora.**

Note : NLinux is named after Linus Torvalds, who created the Linux kernel in 1991. The kernel is the computer code that is the central part of an operating system.

Mac OS X Lion

Operating Systems for Mobile Devices

The operating systems that we've been talking about were designed to run on **desktop** or **laptop** computers. **Mobile devices** such as phones, tablet computers, and mp3 players are very different from desktop and laptop computers, so they run operating systems that are designed specifically for mobile devices. Examples of mobile operating systems include A**pple iOS, Windows Phone 7, and Google Android.**

Operating Systems for mobile devices generally aren't as fully-featured as those made for desktop or laptop computers, and they aren't able to run all of the same software. However, you can still do a lot of things with them, such as watching movies, browsing the internet, managing your calendar, playing games, and more.

1.3 : Understanding Applications

What is an application?

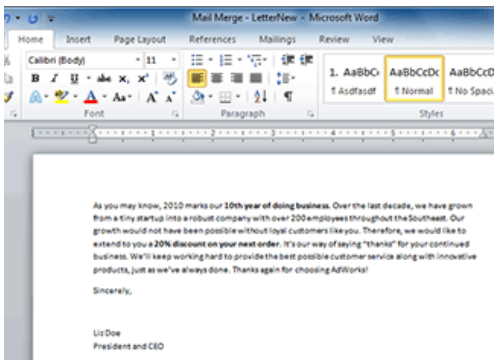
You may have heard people talking about using an **application** or an app. But what exactly does that mean? An **application** (or **app**) is a type of software that allows you to **perform specific tasks.** Applications for desktop or laptop computers are sometimes called **desktop applications**, and those for mobile devices are called **mobile apps.** When you open an application, it runs inside the operating system until you close it. Much of the time, you will have more than one application open at the same time, and this is known as **multitasking.**

Note : App is a very common term for an application, especially for simple applications that can be downloaded cheaply or even for free. Many apps are also available for mobile devices and even some Tvs.

Types of Desktop Applications:

There are countless desktop applications out there, and they fall into many different categories. Some are more full-featured (like Microsoft Word), while others may only do one or two things (like gadgets). Below are just a few types of applications that you might use:

1. **Word Processors:** A word processor allows you to write a letter, design a flyer, and create many other kinds of documents. **The most well-known word processor is Microsoft Word.**
2. **Personal Finance:** Personal finance software, such as **Quicken**, allows you to keep track of your income and expenses, create a budget, and more. Most personal finance programs can automatically download information from your bank, so you don't have to manually type in all of your transactions.
3. **Web Browsers:** A **web browser** is the tool that you use to access the World Wide Web. Most computers come with a web browser **pre-installed**, but you can also download a different one if you prefer. Examples of browsers include **Internet Explorer, Firefox, Google Chrome, and Safari.**
4. **Games:** There are many different games that you can play on your computer. They range from card games such as **Solitaire,** to action games like **Halo 2.** Many action games require a lot of computing power, so they may not work unless you have a newer computer.
5. **Media Players:** If you want to listen to **mp3s** or watch **movies** that you've downloaded, you'll need to use a media player. Windows **Media Player** and iTunes are popular media players.
6. **Gadgets:** Sometimes called **widgets,** these are simple applications that you can place on your desktop (or on the **Dashboard** if you're using a Mac). There are many different types of gadgets, and they include **calendars, calculators, maps, news** headlines, and more.



Installing Desktop Applications

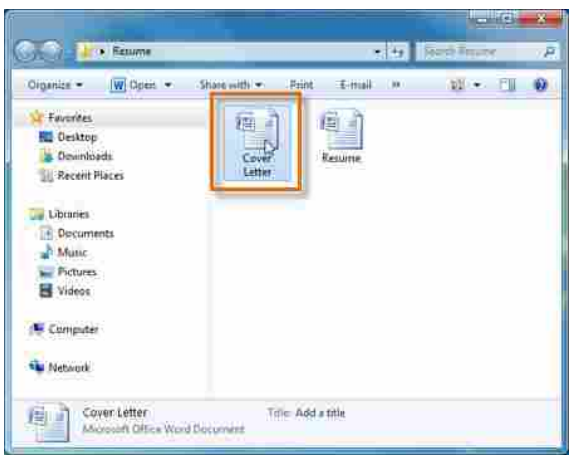
In order to work, an application usually has to be **installed** on your computer. Typically, installation is as simple as inserting the **installation disc** and following the instructions on the screen. For software that is **downloaded from the internet,** you can usually **double-click** it after it is finished downloading, and then follow the instructions on the screen. Many applications include a **readme file** (for example, **readme.txt)**, which includes installation instructions and other information.

Opening Files with Applications

Many applications are designed to open one or more types of **files** (or **file formats**). For example, **Microsoft Word** can create and edit **Word documents.** If you don't have the right kind of application, you won't be able to open a file. For example, if you are taking our Access 2010 tutorial, you will need to have Microsoft Access in order to open the **sample database.**

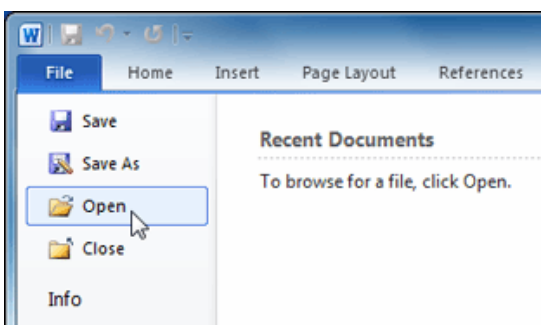
There are two main ways to open a file:

Find the file on your computer, and double click it. This will open the file using the default program.



Double-clicking a file to open it

Open the application, then use the application to open the file. Once the application is open, you can go to the **File** menu at the top of the screen and select **Open.** This is useful because some files can be opened by several different applications, and this method allows you to c**hoose which application to use.**



Opening a file within Microsoft Word

f you're not sure what a file's format is, you can look at the extension at the end of the file name (for example .docx, .txt, or .jpg). On some computers, the extension may be hidden, and you may need to look at the icon to determine the file format.

Mobile Apps

Desktop and laptop computers aren't the only devices that can run apps. You can also download apps for mobile devices like **smartphones** and **tablet computers**, which opens up a lot of new possibilities. Here are a few examples of mobile apps:

RedLaser: You can use RedLaser to **compare prices** while shopping. You simply scan an item's barcode using your phone's built-in camera, and the app searches the web for the best price.

Word Lens: Word Lens is a **language translator** app. Like RedLaser, it uses your phone's camera to take a picture of a **sign, menu,** or **other text** that you want to translate, and then it displays the translation for you.

Foursquare: If you're going out to a restaurant, bar, or mall, you can "check in" with Foursquare to **find nearby friends** and also let your friends know where you are. Foursquare can also show you a list of nearby businesses (using your phone's built-in GPS), which can help you discover places that you've never been to before.

An iPhone running a mobile app

Compared to traditional applications, mobile apps are **relatively cheap.** Many of them cost as little as **99 cents,** and others are **free.** If your mobile device has an internet connection, you can download apps directly onto the mobile device. Otherwise, you can download them to your computer and then transfer them over.

1.4 : Web Apps and the Cloud

What is the Cloud?

You may have heard people using terms like the cloud, cloud computing, or cloud storage. But what exactly is the cloud? Basically, the cloud is the internet - more specifically, it's all of the things that you can access remotely over the internet. When something is in the cloud, that means it is stored on servers on the internet, instead of on your computer. It lets you access your calendar, email, files and more, from any computer that has an internet connection.

The Cloud

If you've ever used web-based email, then you've used the cloud - all of the emails in your Inbox are stored on servers. However, there are many other services that use the cloud in different ways. Here are just a few examples:

1. **Dropbox** is a cloud storage service that lets you easily store and share files with other people, and it lets you access your files from a mobile device as well.
2. **Evernote** lets you type notes, clip web pages, take photos, and organize all of them from your computer or mobile device.
3. **Mozy and Carbonite** can automatically back up your data in case your computer is lost, stolen, or damaged.

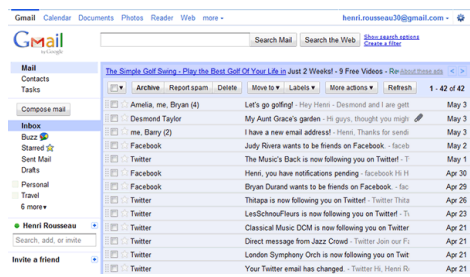
Why Use the Cloud?

There are many reasons to use the cloud, but the main reasons are convenience and reliability. In the past, if you wanted to bring a file with you, you would have to save it to a USB flash drive, external hard drive, or CD-R disc. Saving a file to the cloud ensures that you'll be able access it with any computer that has an internet connection, so you don't have any physical media to keep track of. The cloud also makes it much easier to share a file with coworkers or friends, making it possible to collaborate over the internet.

With the cloud, you're much less likely to lose your data, since it is stored on servers. However, just like anything online, there is always a risk that someone may try to gain access to your personal data, so it's important to choose a strong password and pay attention to any privacy settings for the service you're using.

What is a Web App?

Previously, we talked about how desktop applications allow you to perform tasks on your computer. However, there are also web applications (or web apps), which run in the cloud and do not need to be installed on your computer. These are sometimes called cloud apps.



Examples of Web Apps

Here are a few examples of web apps:

Online Email Services:

Services like **Gmail** and **Yahoo!** Mail run within your browser and can do many of the same things that email programs like **Microsoft Outlook** can do. After you sign up for an online email service, you can begin using it immediately - no installation is required. Instead of being stored on your computer, your emails are stored in **the cloud.**

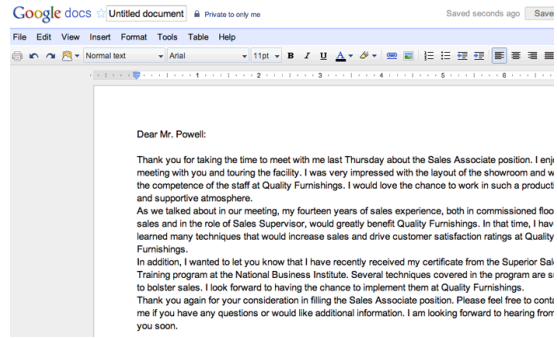
Google Docs:

Google Docs is an **office suite** that runs within your browser. Much like **Microsoft Office**, you can use it to create documents, spreadsheets, presentations, and more. Your documents are stored in the cloud, which makes it easy to share your documents with other people.

Facebook: Facebook lets you create an online **profile** and interact with your friends. Profiles and conversations are **constantly evolving,** so Facebook uses web app technologies throughout the site to keep the information up-to-date. There are also games and other web apps that you can add to your Facebook profile. Web apps are becoming **more and more integrated** with websites, and it may be hard to distinguish between a web application and a "regular" website. In many cases, you may be using a web application without even knowing it!

How Do Web Apps Work?

When you use a web app, you are working from your computer or mobile device, but much of the actual processing is done by a network of **servers**. These servers can **pool all of their processing power** in order to handle requests from all over the world. They also use specialized servers to **store the data** that you're working with, as well as the data from all of the other users. All of this happens very **seamlessly,** so it looks almost like the application is running on your computer.



Google Docs

★★★

2. : All About the Desktop Computer

2.1 : Basic Parts of a Desktop Computer

Introduction

The basic parts of a desktop computer are the **computer case, monitor, keyboard, mouse, and power cord.** Each part plays an important role whenever you use a computer.

Computer Case

The **computer case** is the metal and plastic box that **contains the main components** of the computer. It houses the motherboard, central processing unit (CPU), the power supply, and more.

Computer cases come in different shapes and sizes. **A desktop case** lies flat on a desk, and the monitor usually sits on top of it. A **tower case** is tall and sits next to the monitor or on the floor. The front of the case usually has an **on/off switch and one or more optical drives.**

Note : Most of the personal computers you can purchase today include **tower cases**, rather than desktop cases; however, some computers are being made with all of the internal components built into the monitor, which completely eliminates the tower.

computer case

All-in-one iMac

Monitor

The monitor works with a **video card,** located inside the computer case, to display images and text on the screen. Newer monitors usually have **LCD** (liquid crystal display) or **LED** (light-emitting diode) displays. These can be made very thin, and they are often called flat panel displays. Older monitors use **CRT** (cathode ray tube) displays. CRT monitors are much bigger and heavier, and they take up more desk space. Most monitors have control buttons that allow you to change your monitor's display settings, and some monitors also have built-in speakers. Most monitors have **control buttons** that allow you to change your monitor's display settings, and some monitors also have built-in speakers.

Note : LED displays are actually **LCD** displays that are **backlit** with light-emitting diodes. This allows for **greater contrast** than a traditional LCD display

Power Cord

The power cord is the **link** between the p**ower outlet** and the **power supply unit** in the computer casing. If the power cord is not plugged in, the computer will not power on. To protect your computer from voltage spikes, you can plug the power cord into a **surge protector.** You can also use an **Uninterruptable Power Supply (UPS)**, which acts as a surge protector and also provides temporary power if there is a blackout.

A power cord connected to a surge protector

Keyboard

The keyboard is one of the primary ways we communicate with the computer and enter data. There are many different types of computer keyboards such as wired, wireless, ergonomic, multimedia, and more. Although there may be differences in the location of some keys or features, keyboards are **very similar** and allow you to accomplish basically the same tasks.

Mouse

he mouse is a peripheral that is known as a pointing device. It lets you point to objects on the screen, click on them, and move them.

There are two main types of mice: optical and mechanical. The optical mouse uses an electronic eye to detect movement and is easier to clean. The mechanical mouse uses a rolling ball to detect movement. Generally, a mechanical mouse is cheaper, although it may require regular cleaning to keep it working properly.

Traditionally, a mouse connects to the computer using a USB or PS/2 connection. However, you can also buy a wireless mouse, which can reduce clutter on your desktop.

Mouse Alternatives

There are other devices that can do the same thing a mouse can do, but with a different look and feel. Many people find them to be easier to use, and they also require less desk space than a mouse. The most common mouse alternatives include:

Trackball:

A trackball has a ball on top that can rotate freely. Instead of moving the device like a mouse, you can simply roll the ball with your fingers to move the pointer. Some mobile devices have miniature trackballs that can be controlled with your thumb.

Touchpad:

A touchpad (also called a **trackpad)** is a touch-sensitive pad that lets you control the pointer by making a "drawing" motion with your finger. Touchpads are very common on laptop computers.

2.2 : Buttons, Sockets and Slots on a Desktop Computer

Introduction

Take a look at the front and back of your computer case and count the number of buttons, sockets, and slots you see. Now, look at your monitor and count any that appear there. You probably counted at least 20.

Each computer is different, so the buttons, slots, and sockets will vary from computer to computer. However, there are certain features you can expect to find on most desktop computers. Being familiar with the names of each and how they are commonly used will help you later on when you connect that new printer, mouse, digital camera, or other device.

Front of Computer Case

1. **Optical Disc Drive:** Often called a **CD-ROM** or **DVD**-ROM drive, these let your computer read CDs and DVDs. Most optical disc drives can also write (or "burn") data to CD-R and DVD-R discs. More recent drives can read Blu-ray Discs and write to BD-R (Blu-ray Disc recordable) discs, and these drives are often called BD-ROM, BD-RE, or **Blu-ray drives.**
2. **Power Button:** The power button is used to power the computer on and off. Additionally, you can use the power button on some computers to place the computer in different energy-saving modes such as hibernate, sleep, and standby. It is a good idea to read your manual to learn how these features work on your computer.
3. **Audio In/Audio Out:** Many computers include audio ports on the front of the computer case that allow you to easily connect speakers, microphones and headsets, without fumbling with the back of the computer.
4. **USB (Universal Serial Bus) Port:** Most desktop computers have several USB ports. These can be used to connect almost any type of device, including mice, keyboards, printers, digital cameras and more. They will often appear on the front and back of the computer.

Note : A typical **Blu-ray** disc can hold **25 gigabytes** of data, and some can hold **50 gigabytes** or more. This is much more than **CDs** or **DVDs,** making BD-R discs ideal for storage.

Back of Computer Case

On the back of the computer case are **connection ports** that are made to fit **specific devices**. The arrangement of these vary from computer to computer, and many companies have their own special connectors for the specific devices. Some of the ports may be color coded to match a color on the device, which will help you determine which port is used with a particular device.

1. **Power Socket: This is where you'll connect the power cord to the computer.**
2. **Audio In/Audio Out:** Almost every computer has two or more audio ports where you can connect various devices, including speakers, microphones, headsets, and more.
3. **Ethernet Port:** This port looks a lot like the modem or telephone port but it is a little bit wider. You can use this port for networking and also connecting to the internet.
4. **USB Ports:** On most desktop computers, most of the USB ports are on the back of the computer case. Generally, you'll want to connect your mouse and keyboard to these ports, and keep the front USB ports free so that they can be used for digital cameras or other devices.
5. **Monitor Port:** This is where you'll connect your monitor cable. In this example, the computer has both a DisplayPort and a VGA port. Other computers may have other types of monitor ports, such as DVI (Digital Visual Interface) or HDMI (High-Definition Multimedia Interface).

6. **Expansion Slots:** These empty slots are where expansion cards are added to computers. For example, if your computer did not come with a video card, you could purchase one and install it here.
7. **Serial Port:** This is an older port that was frequently used to connect peripherals such as digital cameras, but today it has been replaced by USB and other types of ports.
8. **PS/2:** These ports are sometimes used for connecting the mouse and keyboard. Typically, the mouse port is green, and the keyboard port is purple.
9. **Parallel Port (or Printer Port):** This is an older port that is less common on new computers. Like the serial port, it has now been replaced by USB.

Other Types of Ports

There are many other types of ports that computers can have. For example, some Macs have a FireWire port, which is similar to USB. There are also newer ports such as Thunderbolt, which can transmit data at very high speeds, making them ideal for use with high-resolution monitors and external hard drives. If your computer has ports that you don't recognize, consult your manual for more information.

Peripherals You Can Use with Your Computer

The most basic computer setup usually includes the computer case, monitor, keyboard, and mouse, but you can plug many different types of devices into the extra ports on your computer. These devices are called peripherals. Below are a few examples of peripherals.

printer

1. **Printers:** A printer is used to print documents, photos, or anything else that appears on your screen. There are many types of printers available, including inkjet, laser, and photo printers. You can also buy an all-in-one printer, scanner, and copier.

2. **Scanners:** A scanner allows you to copy an image or document and save it to your computer as a digital (computer-readable) image. Many scanners are included as part of an all-in-one printer/scanner/copier, although you can also buy a separate flatbed or hand-held scanner.

3. **Speakers/Headphones:** Speakers and headphones are output devices, which means that they are devices that communicate information from the computer to the user. They allow you to hear sound and music. Depending on the model, they may connect to the audio port or the USB port. Some monitors also have built-in speakers.

4. Microphones: A microphone is a type of input device, or a device that receives information from a user. You can connect the microphone to the computer and use the computer to record sound or to communicate with another computer user over the internet. Many computers come with built-in microphones.

5. Web Cameras: A web camera, or webcam, is a type of input device that can record videos or take pictures. It can also transmit video over the internet in real time, allowing you to do video chat or video conferencing with somebody in a different part of the world. Webcams are used often in business, and they also help many friends and families stay connected.

6. **Joystick or Game Controller:** A joystick is a lever that is used to control computer games. There are various other types of controllers that you can use, and you can also use your mouse and keyboard to control most games.

7. **Digital Cameras:** A digital camera lets you capture a picture or video in digital form. By connecting the camera to your computer's USB port, you can transfer the images from the camera to the computer. You can then print the images, email them to a friend, or post them on the web.

8. **Mobile Phones, MP3 Players, Tablet Computers and Other Devices:** When you buy an electronic device such as a mobile phone or mp3 player, check to see if it comes with a USB cable. If it does, that means you can connect it to your computer. With many devices, you can synchronize (or sync) them with your computer, which automatically keeps your contacts, music, and other data up-to-date whenever you connect the device to your computer.

2.3 : Inside a Desktop Computer

Inside a Desktop Computer

Have you ever looked inside a computer case before, or seen pictures of the inside of one? The small parts may look complicated, but the inside of a computer case really isn't all that mysterious. This lesson will help you master some of the basic terminology and understand a little about what goes on inside the four walls of the computer casing.

A Look Inside a Desktop Computer

Let's explore the inside of a computer tower.

The Central Processing Unit (CPU), also called a **processor,** is located inside the **computer case** on the motherboard. It is sometimes called the brain of the computer, and its job is to carry out commands. Whenever you press a key, click the mouse, or start an application, you're sending instructions to the CPU.

CPU

The CPU is generally a **2-inch ceramic** square with a silicon chip located inside. The chip is usually about the size of a thumbnail. The CPU fits into the motherboard's CPU socket, which is covered by the heat sink, an object that absorbs heat from the CPU.

A processor's speed is measured in megahertz (MHz), or millions of instructions per second, and gigahertz (GHz), or billions of instructions per second. A faster processor can execute instructions more quickly. However, the actual speed of the computer depends on the speed of many different components - not just the processor.

Note : There are many processor manufacturers for personal computers, but the most well-known ones are Intel and AMD.

Motherboard

The motherboard is the computer's main circuit board. It's a thin plate that holds the CPU, memory, connectors for the hard drive and optical drives, expansion cards to control the video and audio, as well as connections to your computer's ports (such as the USB ports). The motherboard connects directly or indirectly to every part of the computer.

Power Supply Unit


A power supply unit

The power supply unit in a computer converts the power from the wall outlet to the type of power needed by the computer. It sends power through the cables to the motherboard and other components

If you decide to open the computer case and take a look, make sure to unplug the computer first. Before touching the inside of the computer, you should touch a grounded metal object (or a metal part of the computer casing) to discharge any static buildup. Static electricity can be transmitted through the computer circuits and ruin them.

RAM (Random Access Memory)


RAM

RAM is your system's short-term memory. Whenever your computer performs calculations, it temporarily stores the data in the RAM until it is needed.

This short-term memory disappears when the computer is turned off. If you're working on a document, spreadsheet, or other type of file, you'll need to save it to avoid losing it. When you save a file, the data is written to the hard drive, which acts as long-term storage.

RAM is measured in megabytes (MB) or gigabytes (GB). The more RAM you have, the more things your computer can do at the same time. If you don't have enough RAM, you may notice that your computer is sluggish when you have several programs open. Because of this, many people add extra RAM to their computers to improve **performance.**
Note : A **bit** is the smallest unit of data in computer processing. A **byte is** a group of eight bits. A contains about one million bytes, and a **gigabyte** is about one billion bytes.

Hard Drive


hard drive

The hard drive is the data center of the computer. This is where the software is installed, and it's also where your documents and other files are stored. The hard drive is long-term storage, which means the data is still saved even if you turn the computer off or unplug it.

When you run a program or open a file, the computer copies some of the data from the hard drive onto the RAM so that it can access the data more easily. When you save a file, the data is copied back to the hard drive. The faster the hard drive is, the faster your computer can start up and load programs.

Most hard drives are hard disk drives, which store data on a magnetic platter. Some computers now use solid-state drives (also called flash hard drives). These are faster and more durable than hard disk drives, but they are also more expensive.

Note :

1. A USB flash drive is basically a small, removable flash hard drive that plugs into a USB port. These are a convenient way to bring your files with you and open them on a different computer.
2. If you're using Windows, you can view information about your computer's RAM and processor speed without opening up your computer. Just go to the Control Panel (in the Start menu) and click System and Security. In Mac OS X, you can view this information by clicking the Apple icon and selecting About This Mac.

Expansion Cards

Most computers have expansion slots on the motherboard that allow you to add various types of expansion cards. These are sometimes called PCI (Peripheral Component Interconnect) cards. You may never have to add any PCI cards, as most motherboards have built-in video, sound, network, and other capabilities. However, if you want to boost the performance of your computer or update the capabilities of an older computer, you can always add one or more cards. Below are some of the most common types of expansion cards:

Video card

The video card is responsible for what you see on the monitor. Most computers have a GPU (Graphics Processing Unit) built into the motherboard, instead of having a separate video card. If you like playing graphics-intense games on the computer, you can add a faster video card to one of the expansion slots to get better performance.

Sound Card

The sound card, also called an audio card, is responsible for what you hear in the speakers or headphones. Most motherboards have integrated sound, but you can upgrade to a dedicated sound card for higher quality sound.

★★★

3. : Laptop Computers and Mobile Devices

3.1 : Laptop Computers and Netbooks

What is a Laptop Computer?

A laptop is a battery or AC-powered personal computer that can be easily carried and used in a variety of locations. Many laptops are designed to have all of the functionality of a desktop computer, which means they can generally run the same software and open the same types of files. However, some laptops, such as netbooks,

How is a Laptop Different From a Desktop?

Since laptops are designed for portability, there are some important differences from desktop computers. A laptop has an all-in-one design, with a built-in monitor, keyboard, touchpad (which replaces the mouse), and speakers. That means it is fully functional even when there are no peripherals attached to it. A laptop is quicker to set up, and there are fewer cables to get in the way.

You also have the option of connecting a regular mouse, a larger monitor, and other peripherals. This basically turns your laptop into a desktop computer, with one main difference: You can easily disconnect the peripherals and take the laptop with you wherever you go.

Here are the main differences that you can expect with a laptop:

Touchpad: A touchpad (also called a trackpad) is a touch-sensitive pad that lets you control the pointer by making a "drawing" motion with your finger. Many touchpads now include multi-touch gestures, which allow you to perform specific tasks by making gestures with more than one finger. For example, a pinch gesture is often used to zoom in or out.

A touchpad on a laptop

Battery: Every laptop has a battery which allows you to use the laptop when it's not plugged in. Whenever you plug the laptop in, the battery recharges. Another benefit of having a battery is that it can provide backup power to the laptop if the power goes out.

AC Adapter: A laptop usually has a specialized power cable called an AC adapter, which is designed to be used with that particular kind of laptop. Some of these cables use magnetic MagSafe connectors that will safely pull out if someone trips over the power cable. This helps to prevent damage to the cable and the laptop.

An AC adapter plugged into a laptop

Ports: Most laptops have the same types of ports that desktop computers have (such as USB), although they usually have fewer ports to save space. However, some ports may be different, and you may need an adapter in order to use them. For example, the monitor port is often a Mini DisplayPort, which is a smaller version of the normal DisplayPort.

What is a Netbook?

A **netbook** is a type of laptop that is designed to be **even more portable.** Netbooks are often **cheaper** than laptops or desktops. They are generally **less powerful** than other types of computers, but they provide enough power for **email** and **internet access**, which is where the name "netbook" comes from.

In order to save space, netbooks generally have smaller **screens** and **keyboards**. Many netbooks also lack certain **hardware** such as **optical drives**. However, there are many different models available, and in some cases there isn't much difference between a large **netbook a**nd a "regular" **laptop.**

Using a netbook

Note : Since netbooks are less powerful, they sometimes use a more simplified operating system. Most new netbooks use Windows 7 Starter, but some use simplified versions of Linux.

3.2 : Getting to Know Mobile Devices

What is a Mobile Device?

A mobile device is basically any handheld computer. It is designed to be extremely portable, often fitting in the palm of your hand or in your pocket. Some mobile devices are more powerful, and they allow you to do many of the same things you can do with a desktop or laptop computer. These include tablet computers, e-readers, and smartphones.

Tablet Computers

Like laptops, tablet computers are designed to be portable. However, they provide a very different computing experience. The most obvious difference is that tablet computers don't have keyboards or touchpads. Instead, the entire screen is touch-sensitive, allowing you to type on a virtual keyboard and use your finger as a mouse pointer.

Using a virtual keyboard on an iPad

Tablet computers are mostly designed for consuming media, and they are optimized for tasks like web browsing, watching videos, reading e-books, and playing games. For many people, a "regular" computer like a desktop or laptop is still needed in order to use programs like Microsoft Word or Photoshop. However, the convenience of a tablet computer means that it may be ideal as a second computer. Below are some of the main features that you can expect with a tablet computer:

Mobile OS:

Different types of tablets use different operating systems. Examples include Android and iOS. You'll usually be able to download free updates to your OS as they become available.

Solid-State Drives:

Tablet computers usually use solid-state drives, which allow the computer to boot up and open programs more quickly. They are also more durable than hard disk drives.

Wi-Fi and 3G/4G:

Since they are optimized for internet use, tablet computers have built-in Wi-Fi. For a monthly fee, you can also purchase a 3G or 4G data plan, allowing you to access the internet from almost anywhere.

Bluetooth:

In order to save space, tablet computers haave very few ports. If you want to use an external keyboard or other peripherals, they will often use a wireless Bluetooth connection.

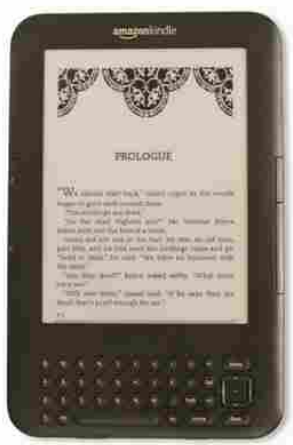
E-Book Readers

E-book readers (also called e-readers) are similar to tablet computers, except they are mainly designed for reading e-books (digital, downloadable books). Examples include the Amazon Kindle and the Barnes & Noble Nook.

E-book readers have either an e-paper display or an LCD display:

E-Paper:

Short for **electronic paper**, this type of display can usually only display **black and white**. It is designed to look a lot like an actual page in a book. Unlike an LCD display, it is not backlit, so the text stays readable even outdoors in full sun. Many people consider e-paper to be more pleasant to read, as it causes less eye strain. However, it generally can't be used for videos or other applications because the refresh rate is too low.



A Kindle e-reader with an e-paper display

LCD:

This is the same type of screen found on **tablet computers** and laptops. It's more versatile than e-paper, but it's often more difficult to view in bright sunlight, as the image becomes washed out. Since an LCD screen can display colors, this type of e-reader is better for viewing magazines or books with photos. Many LCD e-readers (such as the Nook Color) are basically tablet computers, as they can do many different tasks in addition to displaying e-books.

A Nook Color with an LCD display

Note : You don't need an e-reader in order to read an e-book. E-books can usually be read on tablet computers, smartphones, laptops, and desktops.

Smartphones

A smartphone is a powerful mobile phone that is designed to run a variety of applications in addition to phone service. They are basically small tablet computers, and they can be used for web browsing, watching videos, reading e-books, playing games and more.

Smartphones use touchscreens and operating systems similar to those used by tablet computers. Many of them use a virtual keyboard, but others (such as the BlackBerry Curve) have a physical keyboard, which allows the entire screen to be used for display purposes.

Internet access is an important feature of smartphones. Generally, you will need to purchase a 3G data plan in addition to normal cell service. Smartphones can also connect to Wi-Fi when it is available, which is usually faster than 3G.

Note : A personal digital assistant (PDA) is a mobile device that is used for managing phone numbers, addresses, calendars, and other information. Before smartphones existed, a PDA was usually a separate device. Today, smartphones combine the functionality of a PDA and a mobile phone.

A phone with a physical keyboard

★★★

4. : Getting Started

4.1 : Setting Up a Computer

Setting Up a Computer

You have a new computer and are ready to set it up. While this may seem like an overwhelming and difficult task, it is really very simple. It does not matter what name brand of computer you have, as most computers are set up in a very similar way.

If you are setting up a newly purchased computer that is still in the box, you will probably find a how-to guide in the packaging that includes step-by-step details. However, even if it didn't include instructions, you can still set up the computer in just a few easy steps. In this lesson, we'll go through the different steps that are needed to set up a typical computer.

Charging a laptop

Setting Up a Laptop Computer

If you have a laptop, then setup should be very easy: just open it up and press the power button. If the battery isn't charged, you'll need to plug in the AC adapter. You can continue using the laptop while it charges.

If your laptop has any peripherals, such as external speakers, you may want to read the instructions below, since laptops and desktops generally use the same types of connections.

Setting Up a Desktop Computer

Step 1

Unpack the monitor and computer case from the box. Remove any plastic covering or protective tape. Place the monitor and the computer case where you wish on the desk or work area.

Think about where you want your desk or work area to be located, and where you want your monitor, computer case, and other hardware. Be sure to place your computer case in an area that is well ventilated and that has good air flow. This will help to prevent overheating.

After unpacking the computer and peripherals

Step 2

Locate the monitor cable. It will usually be either a VGA or a DVI cable. VGA cables will often have blue connectors to make them easier to identify. (If you have an all-in-one computer that's built into the monitor, you can skip to Step 4).

A VGA cable

Step 3

Connect one end of the cable to the monitor port on the back of the computer case, and the other end to the monitor. Hand-tighten the plastic-covered screws on the monitor cable to secure it.

Note :

Many computer cables will only fit a specific way. If the cable doesn't fit, don't force it, or you might damage the connectors. Make sure the plug aligns with the port, and then connect it.

Connecting the monitor cable to the VGA port

Step 4

Unpack the keyboard and determine whether it uses a USB (rectangular) connector or a PS/2 (round) connector. If it uses a USB connector, plug it into any of the USB ports on the back of the computer. If it uses a PS/2 connector, plug it into the purple keyboard port on the back of the computer.

Plugging the keyboard into a USB port

Step 5

Unpack the mouse and determine whether it uses a USB (rectangular) connector or a PS/2 (round) connector. If it uses a USB connector, plug it into any of the USB ports on the back of the computer. If it uses a PS/2 connector, plug it into the green mouse port on the back of the computer.

1. If your keyboard has a USB port, you can connect your mouse to the keyboard instead of connecting it directly to your computer.
2. If you have a wireless mouse or keyboard, you may need to connect a Bluetooth dongle (USB adapter) to your computer. However, many computers have built-in Bluetooth, so a dongle may not be necessary.

Plugging the mouse into a USB portUSB port

Step 6

If you have external speakers or headphones, you can connect them to your computer's audio port (either on the front or the back of the computer case). Many computers have color-coded ports. Speakers or headphones connect to the green port, and a microphone can connect to the pink port. The blue port is the line in, which can be used with other types of devices.

Some speakers, headphones, and microphones have USB connectors instead of the usual audio plug. These can be connected to any USB port. In addition, many computers have speakers or microphones built into the monitor.

Plugging the speakers into the audio port

Step 7

Locate the two power supply cables that came with your computer. Plug the first power supply cable into the back of the computer case, and then into a surge protector. Then, using the other cable, connect the monitor to the surge protector.

Plugging the power cable into a surge protector

Step 8

Finally, plug the surge protector into a wall outlet. You may also need to turn the surge protector on if it has a power switch.

Note : If you don't have a surge protector, you can plug the computer directly into the wall. However, this is not recommended, as electrical surges can damage your computer.

Plugging the surge protector into a wall outlet

Set Up Complete

Your basic computer hardware is now set up. Before you start it up, spend a little time arranging your workspace. A workspace that is arranged well can improve your productivity and also promote health.

4.2 : Beginning to Use Your Computer

Starting Up a New Computer

When you start up a brand-new computer for the first time, it will walk you through several steps to set up and personalize your computer. These steps usually only take a few minutes, and some of them are optional. The exact steps will vary depending on what type of operating system you are using, but here are a few things that you will usually be able to do:

Choose a Language and Location:

Your operating system may have many different languages installed, so you'll need to choose the one that you want to use. You may also have the option of choosing your location.

Watch a Welcome Video:

Your computer may play a brief welcome video during the setup process, so it's a good idea to turn your speakers on to get the full experience.

Create a Profile or Account Name:

Your computer will need to have at least one account name that you will use to sign in. You can also choose to create a password for extra security. If other people will be using the computer, you can set up a separate account for each person later on.

Choose a Wireless Network:

If you have an existing wireless network, you can select it during the setup process. If you don't have one, you can skip this step.

Note : If you're not sure what to do at a particular step, read the instructions on the screen carefully. There may be a recommended option that you can choose, which will keep setup as simple as possible. In addition, some steps are optional, so if you're still not sure, you can skip it.

Migrating Your Files and Settings

If you have another computer that has all of your files and settings, you'll probably want to copy them to the new computer. This is known as migrating. It's possible to manually move your files using an external hard drive, DVD-ROM discs, or an existing home network. This can be time-consuming, and you may not be able to move all of your settings to the new computer.

However, your computer probably has a built-in tool to help you migrate your files and settings, and it may appear automatically during the setup process. This tool will let you choose what you want to move, and then it will automatically move the selected items to the new computer. PCs and Macs have different tools for this purpose:

Windows Easy Transfer

Note :

1. Pcs use Windows Easy Transfer, which will either be on your installation disc or can be downloaded. To download it, go to the Windows Easy Transfer page.
2. Macs use Migration Assistant, which is built-in on every Mac. For more information, go to the Apple Support page.

Installing Peripherals

If you have a printer, scanner, webcam, or other peripherals, you can connect them at this point. Many peripherals are plug and play, which means they will be recognized by your computer as soon as they are plugged in. Other peripherals may include software that needs to be installed before you can begin using them. Use the instructions included with the device to install it if necessary.

Note:

Generally, peripherals are optional, and you can add new ones at any time-you don't have to add all peripherals during the initial setup of your computer.

A printer

Setup Complete!

You have now finished setting up your computer, and you can start using it. In the next lesson, we'll go over the basics of using your operating system so that you can begin to become comfortable with the way your computer works.

4.3 : Getting to Know the OS

Getting to Know Your Computer's OS

The screen that you see when your computer has finished starting up is called the desktop. Depending on what kind of operating system you have, the desktop will look different, but it generally consists of menus at the bottom, top, and/or sides of the screen, with the rest of the screen containing a desktop background (or wallpaper). The desktop background area can also contain any files, applications, or shortcuts that you want to have quick access to.

Shutting Down Your Computer

When you're done using your computer, it's important to shut it down properly. Depending on your operating system, the exact procedure for shutting down will vary.

To Shut Down Windows 7 or Vista:

1. Click the Start button and then select the Shut down button (or the power button icon in Vista). You can also click

the arrow to the right of the Shut down button for more options.

By default, if you click the power button icon in Vista, your computer will go to Sleep instead of shutting down. Sleep turns off most of your computer's processes, but it remembers which applications and files are open. This allows your computer to start up more quickly, since you don't have to wait for the operating system and applications to load.

Shutting down Windows 7

To Shut Down Windows XP:

Click the Start button and then select Turn Off Computer.

Shutting down Windows XP

To Shut Down Mac OS X:

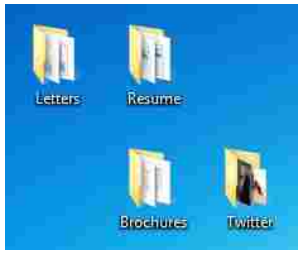
Click the Apple icon and then select Shut Down.

Shutting down Mac OS X

4.3 : Getting to Know the OS

Your Computer's File System

A computer uses folders to organize all of the different files and applications that it contains. A folder looks like a file, except the icon is shaped like a folder. To find a specific file, you will navigate to the correct folder using a specialized application such as Windows Explorer (for PCs - not to be confused with Internet Explorer) or Finder (for Macs).



Folders on the desktop

To Open Windows Explorer (PC):

Click the Windows Explorer icon on the taskbar, or double-click any folder on your desktop. A Windows Explorer window will open up.

Opening Windows Explorer

To Open Finder (Mac):

Click the Finder icon on the Dock, or double-click any folder on your desktop. A Finder window will open up.

Opening Finder

Basic Navigation

Whether you're using Windows Explorer or Finder, basic navigation is the same. If you see the file that you want, you can double-click it. Otherwise, you can use the Navigation pane on the left side of the window to select a different location.

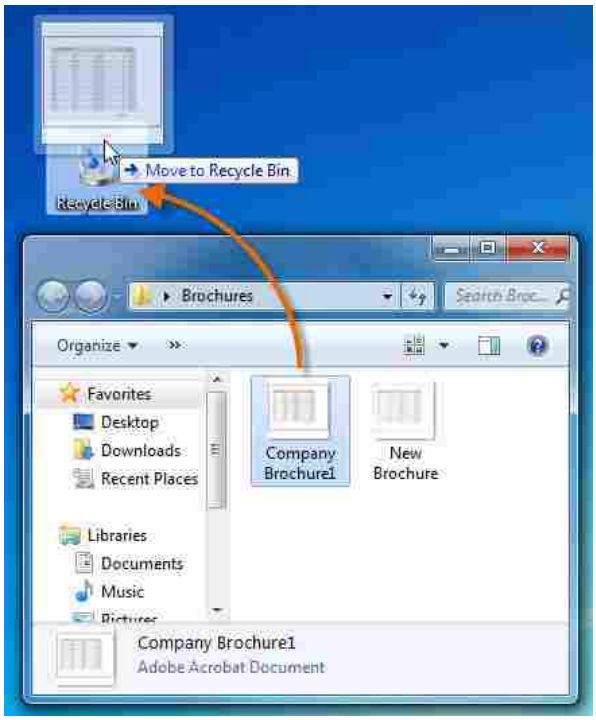
Navigating Windows Explorer

Deleting Files

Windows and OS X use a Trash can (or Recycle Bin) to prevent you from accidentally deleting files. When you delete a file, it is simply moved to the Trash can. If you change your mind, you can move the file back to its original location. If you're sure you want to permanently delete the file, you will need to empty the trash.

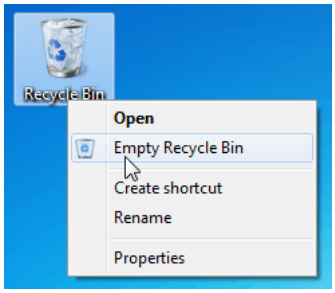
To Delete a File on a PC:

1. Click and drag the file onto the Recycle Bin icon on the Desktop. Alternatively, you can select the file and then press the Delete key.



Dragging a file to the Recycle Bin

2. To empty the trash, right-click the Recycle Bin icon and select Empty Recycle Bin. All files in the Recycle Bin will be permanently deleted.



Emptying the Recycle Bin

To Delete a File on a Mac:

1. Click and drag the file onto the Trash icon on the Dock. Alternatively, you can select the file and then press **Command-Delete.**

Dragging a file to the Trash

2. To empty the trash, right-click the Trash icon and select Empty Trash. All files in the Trash will be permanently deleted.

Note : On some Macs, right-clicking may be disabled by default. If you're unable to right-click, you can just click and hold the Trash icon until you see the Empty Trash option.

Emptying the Trash

Opening Applications

When you double-click a file, it will automatically open the default application for that file type. However, much of the time you'll often open an application directly.

To Open an Application on a PC:

Click the Start button and select the desired application. If you don't see it, you can click All Programs to see a complete list.

For convenience, commonly-used applications may also have a shortcut on the taskbar or on the desktop.

To Open an Application on a Mac:

Click on the application's icon on the Dock. If you don't see it, click the Spotlight icon in the top-right corner of the screen and type the name of the application.

If you are using OS X Lion, you can also click the Launchpad icon on the Dock to select an application.

Opening iTunes from the Dock

The Start menu

Adjusting Your Computer's Settings

From time to time, you'll need to adjust your computer's settings. This can range from simple tasks such as changing your desktop background, to more advanced tasks like adjusting your security or network settings. On PCs, the Control Panel is used to adjust settings. On Macs, you'll use System Preferences.

To Open the Control Panel (PC):

1. Click the Start button and select Control Panel.

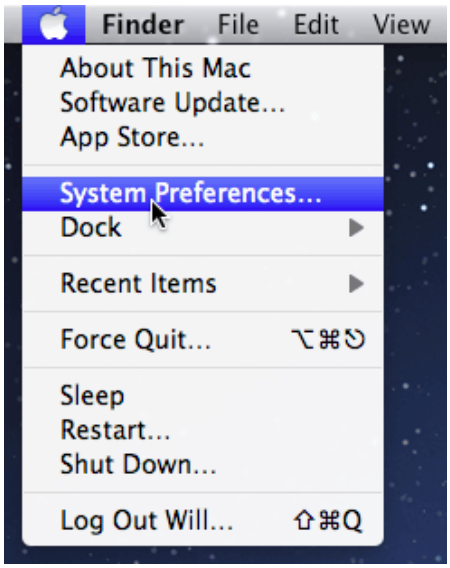
Opening the Control Panel

2. The Control Panel will appear. You can then select the desired category to adjust the settings.

The Control Panel

To Open System Preferences (Mac):

1. Click the Apple icon and select System Preferences.



Opening System Preferences

2. The System Preferences window will appear. You can then select the desired category to adjust the settings.

Choosing a category in System Preferences

4.4 : Connecting to the Internet

How Do I Connect to the Internet?

Once you've set up your computer, you'll probably want to get internet access so that you can send and receive email, browse the web, watch movies, and more. Before you can access the internet, there are three things that you need: internet service, a modem, and a web browser.

Choosing an Internet Service

Which Service is Best for Me?

It all depends on where you live and how much speed you need. Internet Service Providers usually offer different levels of speed based on your needs. If you're mainly using the internet for e-mail and social networking, a slower connection might be all you need, but if you want to download a lot of music or watch streaming movies, you'll want a faster connection. You'll need to do some research to find out what the options are in your area.

Choosing an Internet Service Provider

Once you have decided which type of internet access you are interested in, you can determine which ISPs are available in your area that offer the type of internet access you want. Then, you will need to purchase internet service from one of the available ISPs. Talk to friends, family members, and neighbors to see what ISP they use. Below are some things to consider as you research ISPs:

1. Speed
2. Price
3. Ease of Installation
4. Service Record
5. Extras such as email accounts and web space
6. Technical Support
7. Contract Terms

Note : Although dial-up has traditionally been the cheapest option, many ISPs have raised dial-up prices to be the same as broadband. This is intended to encourage people to switch over to broadband. Generally, you should only use dial-up if it's the only option available.

Hardware Needed

Modem

Once you have your computer, you really don't need much additional hardware to connect to the internet. The primary piece of hardware you need is a modem.

The type of internet access you choose will determine what type of modem you need. Dial-up access uses a telephone modem, DSL service uses a DSL modem, cable access uses a cable modem, and satellite service uses a satellite adapter. Your ISP may give you a modem (often for a fee) when you sign a contract with them, which helps to ensure that you have the right kind of modem. However, if you would prefer to shop for a better or cheaper modem, then you can choose to buy one separately.

A DSL modem

Router

A router is a hardware device that allows you to connect several computers and other devices to a single internet connection, which is known as a home network. Many routers are wireless, allowing you to easily create a wireless network.

You don't necessarily need to buy a router to connect to the internet. It's possible to connect your computer directly to your modem using an Ethernet cable. Also, many modems now include a built-in router, so you have the option of creating a network without having to buy more hardware.

A wireless router

Network Card

A network card is a piece of hardware that allows computers to communicate over a computer network. Most newer computers have a network card built into the motherboard, so it probably is not something you will need to purchase. The network card will either have an Ethernet port, a wireless connection, or both.

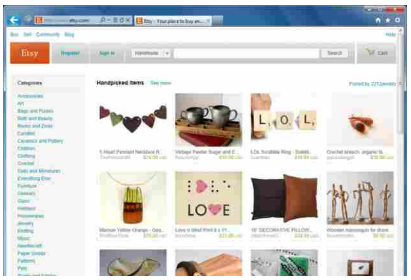
If you have a laptop with a wireless connection, you can access the internet at any place that offers a Wi-Fi connection. Many restaurants, coffee shops, bookstores, hotels and other businesses offer free Wi-Fi. In addition, many cities provide free Wi-Fi in public areas such as parks and downtown areas.

A network card

Web Browser

A web browser is the tool that you use to access the World Wide Web. The browser's main job is to display web pages. It also lets you create Bookmarks (sometimes called Favorites) for sites you like, so that you can easily find them again later.

Note : The **World Wide Web** is a **virtual network** of **web sites** connected by **hyperlinks** (or **"links"**). Web sites are stored on **servers** on the internet, so the World Wide Web is a part of the internet.

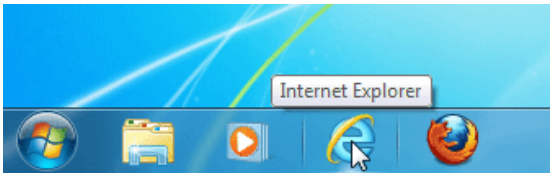


Internet Explorer

Setting Up Your Internet Connection

Once you have chosen an ISP and purchased the appropriate modem, you can use the instructions provided by your ISP (or included with the modem) to set up your internet connection. Depending on what type of service you have, your ISP may need to send a technician to your house in order to turn the connection on.

After you have everything set up, you can open your web browser and begin using the internet. If you have any problems with your internet connection, you can call your ISP's tech support number.



Opening Internet Explorer

Home Networking

If you have multiple computers at home and want to use all of them to access the internet, you'll probably want to create a home network. In a home network, all of your devices connect to your router, which is connected to the modem. That means everyone in your family can use the internet at the same time, and you don't have to purchase a separate internet service for each computer.

How is a Home Network Used?

Each computer on a network doesn't just connect to the internet - it also connects to the other computers and devices on the network. That means you can easily share files with other computers. Some programs even let you stream music and movies from one computer to another. One example of this is the Home Sharing feature in iTunes. These types of features are easy to set up, but it's up to you whether you want to use them.

Note : Home networks aren't just for families! Even if you live alone, you may have multiple devices that can connect to a network. Many phones, printers, mp3 players, video game consoles, and Digital Video Recorders (DVRs) are equipped with wireless cards and often require very little setup to connect them to your home network.

Using multiple computers on a home network

Wireless Security

A home network can be wired (using Ethernet cables) or wireless (using Wi-Fi). It may also be a mixture of the two, with some devices connecting with Ethernet and others connecting wirelessly. Wireless is generally more convenient; however, you'll need to think about wireless security. Below are some important security terms that you'll need to know:

A router with Ethernet cables attached

SSID: A service set identifier, commonly called the SSID, is the name of a wireless network. You should change the default SSID to something unique that you'll remember. You may not want to use your actual name, but you can use a hobby or other interest (for example, rockclimbing1).

Encryption password: An encryption password is a series of characters that is used to control access to the network. For even greater security, some people use a passphrase, which is longer (and therefore more secure) than a password. You should choose a password or passphrase that's easy for you to remember, but hard for other people to guess.

Encryption: Encryption prevents unauthorized people from reading the data that is transmitted over your wireless network. The data is coded into an unreadable form, and it can only be decoded by a computer that has the correct password (or passphrase). The most common types of encryption for wireless networks are WPA (Wi-Fi Protected Access) and WPA2.

Setting Up a Home Network

Before you set up your home network, you'll need to have a working internet connection. The exact process of creating a network will vary depending on what type of computer you have, as well as what type of internet service you have. You should use the instructions provided by your ISP (or the ones included with your router) when setting up your network. The following steps will give you an idea of what to expect:

Setting up a network

1. If you have a separate router, connect it to the modem, and make sure it has power through the power adapter. If you have a combined router/modem, you won't have to do this.
2. Connect all non-wireless devices to your router using Ethernet cables. You may also need to connect your computer to the router until setup is complete, even if your computer has a wireless card.
3. From your computer, you will need to create the SSID and password (or passphrase) for your router. You now have a wireless network that you can begin connecting wireless devices to.
4. On each wireless device, you will need to go to your network settings and select the name (SSID) of the network that you just created. You will then be prompted to type in your password.

At this point, your home network setup is complete. If your network isn't working, the instructions from your ISP should include some troubleshooting tips. You can also call your ISP's tech support number if you're still having trouble.

★★★

5. : Doing More with Computers

5.1 : Computer Safety and Maintenance

How Do I Keep My Computer Healthy?

Computers are expensive, and with all big purchases, you probably want to protect your investment. Luckily, it is not difficult to keep your computer healthy and in good working order. Maintaining a computer involves three things: keeping it physically clean, protecting it from malware, and backing up your important files.

Keep Your Computer Physically Clean

When dealing with computers, dust isn't just unattractive, it can potentially destroy parts of your computer. By cleaning your computer regularly, you can help to keep it working properly and avoid expensive repairs.

Cleaning the Keyboard

A dirty keyboard doesn't look nice, and can cause your keyboard to not work properly. Dust, food, liquid, or other particles can get stuck underneath the keys, which can cause them not to work. Check your owner's manual to see if the manufacturer has provided you with instructions for your specific keyboard. If so, you should follow them. If not, the following steps are basic cleaning tips that will help you keep your keyboard clean:

Cleaning the keyboard

1. Unplug the keyboard from the USB or PS/2 port. If the keyboard is plugged into the PS/2 port, you will need to shut down the computer before unplugging it.
2. Turn the keyboard upside down and gently shake it to remove dirt and dust.
3. Use a can of compressed air to clean between the keys.
4. Moisten a cotton cloth or paper towel with rubbing alcohol, and use it to clean the tops of the keys. Do not pour alcohol (or any other liquid) directly onto the keys.
5. Reconnect the keyboard to the computer once it is dry. If you are connecting it to a PS/2 port, you will need to connect it before turning the computer on.

Dealing with Liquids

If you spill liquid on the keyboard, quickly shut down the computer, and disconnect and turn the keyboard upside down to allow the liquid to drain.

If the liquid is sticky, you will need to hold the keyboard on its side under running water to rinse the sticky liquid away. Then, turn the keyboard upside down to drain for two days before reconnecting it. The keyboard may not be repairable at this point, but rinsing the sticky liquid off the keyboard is the only chance for it to be usable again. The best way to avoid this situation is to keep drinks away from the computer area.

Cleaning the Mouse

There are two main types of mice: optical and mechanical. Each is cleaned in basically the same way, although the mechanical mouse requires a bit more work.

1. Optical mice require no internal cleaning since there aren't any rotating parts; however, they can get sticky over time as dust collects near the light emitter. This can cause erratic cursor movement or prevent the mouse from working.

An optical mouse

2. **Mechanical mice** are especially susceptible to dust and particles that can accumulate inside the mouse, which can make it difficult to track, or move, properly. If the mouse pointer does not move smoothly, the mouse may need to be cleaned.

A mechanical mouse

Before you clean your mouse, check your owner's manual to see if the manufacturer has provided you with instructions for your specific mouse. If so, you should follow those instructions. If not, the following steps are basic cleaning tips that will help you keep your mouse clean.

1. Unplug the mouse from the USB or PS/2 port. If the mouse is plugged into the PS/2 port, you will need to shut down the computer before unplugging it.
2. Moisten a cotton cloth with rubbing alcohol, and use it to clean the top and bottom of the mouse.
3. If you have a mechanical mouse, remove the tracking ball by turning the ball-cover ring counterclockwise. Then, clean the tracking ball and the inside of the mouse with a cotton cloth moistened with rubbing alcohol.

4. Let all of the parts dry before reassembling and reconnecting the mouse. If you are connecting it to a PS/2 port, you will need to connect it before turning the computer on.

Note : If you just want to give the mouse a quick cleaning, place it on a clean, white sheet of paper and move the mouse back and forth. Some of the dust and particles should rub off onto the paper.

Cleaning the Monitor

Dirt, finger prints, and dust can make your computer screen difficult to read; however, it's easy to clean your screen when needed. Although there are monitor cleaning kits that you can buy, they may damage your monitor if they are designed for a different type of monitor. For example, a monitor cleaner that is designed for glass screens may not work with some non-glass LCD screens. The safest method is simply to use a soft, clean cloth moistened with water.

1. **Turn off** the computer.
2. **Unplug** the monitor from the power. If you are using a laptop, unplug the laptop.
3. Use a **soft, clean cloth** moistened with water to wipe the screen clean.

Note :
Do not spray any liquids directly onto the screen. The liquid could leak into the monitor and damage the internal components

Wiping the screen

Tips for Cleaning Other Computer Surfaces

From time to time, you should clean your computer case and the sides and back of the monitor, to avoid buildup of dust and dirt. Here are a few tips you can use when cleaning these surfaces:

1. Dust is your computer's main enemy. Use an anti-static wipe to lightly dust your computer casing. Don't use furniture cleaners or strong solvents.
2. Use a can of compressed air with a narrow nozzle to blow out debris from the air intake slots.
3. Spray cleaning solution (diluted ammonia cleaner or glass cleaner) on a paper towel or anti-static wipe. Clean the monitor housing and case (not the monitor screen) by wiping in a downward motion.
4. A safe cleaning solution for computer surfaces (not computer screens) is ammonia diluted with water, or glass cleaner comprised mostly of ammonia and water (check the label). Remember, the milder the solution, the better.

Cleaning the computer case

Keep it Cool

Don't restrict the airflow around your computer. A computer can generate a lot of heat, so the casing has fans that keep it from overheating. Avoid stacking papers, books, or other items around your computer.

Many computer desks have an enclosed compartment for the computer case. If you have this type of desk, you may want to position the case so it is not against the back side of the desk. If the compartment has a door, you may want to leave it open to improve the airflow.

Safeguarding Against Malware

Malware is any type of software that is designed to damage your computer or gain unauthorized access to your personal information. It includes viruses, worms, Trojan horses, spyware, and other types. Most malware is distributed over the internet, often bundled with other software.

The best way to guard against malware is to install antivirus software such as BitDefender, Norton, or Kaspersky. Antivirus software helps to prevent malware from being installed, and it can also remove malware from your computer. New malware is being created all the time, so it's important to update your antivirus software frequently. Most antivirus programs can do this automatically, but you'll need to make sure that this feature is enabled.

It's also important to stay smart when you're browsing the web or using email. If a website or email attachment looks suspicious, trust your instincts. Keep in mind that your antivirus program may not catch everything, so it's best to avoid downloading anything that might contain malware.

Kaspersky antivirus

Backing Up Your Computer

Imagine what would happen if yor computer suddenly stopped working. Would you lose any important documents, photos, or other files? It may be possible to repair your computer, but your files may be lost forever. Luckily, you can prevent this by creating backup copies of all of your files (or just the important ones) on an external hard drive or an online backup service.

External Hard Drives

You can purchase an external hard drive and copy the contents of your computer to it. The initial backup could take several hours, so you will need to select a period of time where you do not need access to your computer. Running the backup overnight usually works best. Follow-up backups should be conducted on a regular basis, but will not take as long because the drive will only need to copy your most recent files.

Western Digital, Iomega and Seagate produce popular external hard drives. Conduct some research on which product best suits your storage needs, or ask a computer sales representative for recommendations.

An external hard drive

One drawback, compared to online backup services, is that your external hard drive can be lost, damaged or stolen just as your computer might be. Therefore, it is important to keep your drive in a secure location when not in use.

Online Backup Services

You can also back up your files to one of the online backup services like Mozy, Carbonite or Box, and your files will always be accessible to you. The amount of storage space provided by these sites varies and you may have to pay a monthly or yearly fee for adequate storage. Again, do your research as these services are constantly changing and offer varying features.

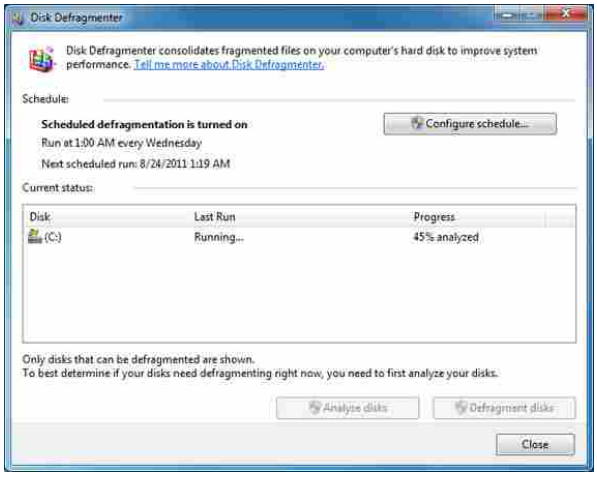
One drawback to online backup services is that the initial backup can be slow and may even take days to upload if you have a large amount of files. However, subsequent backups should not take as long.

Other Maintenance Techniques

To keep your computer running smoothly, it's important to keep the files and folders uncluttered. Cluttered or unorganized folders make it more difficult to find the files you need. Additionally, unwanted files can eventually fill up your hard drive, which will make your computer slower and harder to use. Here are a few things you can do to delete unwanted files and improve your computer's performance:

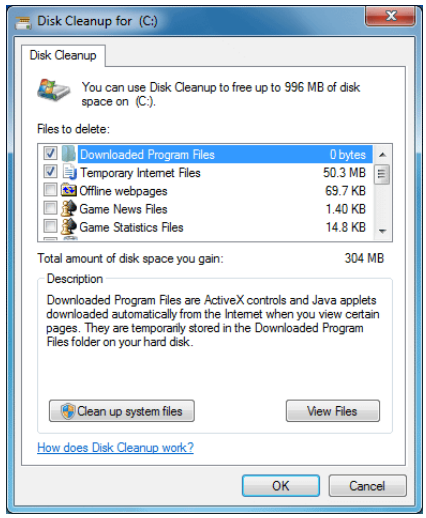
1. Delete Files: If you have any unwanted files, you can delete them manually. To do this, simply drag them into the Recycle Bin (or Trash), and then empty the Recycle Bin.

2. Disk Defragmenter: Windows includes a Disk Defragmenter program in the Control Panel. It scans the files on your hard drive and then rearranges them so that it can read them faster. If your computer is running slowly, running Disk Defragmenter can help to speed it up.



Disk Cleanup

3. Disk Cleanup: Windows also includes a Disk Cleanup program in the Control Panel. It scans your computer for temporary files and other files that can be deleted. You can then delete the files to free up space on your hard drive.



Disk Defragmenter

Avoiding Strain and Injury

In addition to keeping your computer healthy, it's important to think about your own health. Using a computer involves a lot of repetitive motions such as typing and using the mouse. Over time, these motions can begin to take their toll on your body, especially your wrists, neck, and back. Staring at a monitor for long periods of time can also cause eye strain. To minimize this, you should take a few moments to make sure your workspace is arranged in a comfortable and healthy way.

Here are a few tips to help you avoid injury in your workspace:

1. **Adjust your chair:** Make sure your chair is adjusted to allow you to sit in a natural, comfortable position. Many office chairs are specially designed to support the lower back and promote good posture.
2. **Keep the keyboard at a comfortable height:** Try to place the keyboard in a position that allows you to keep your wrists straight and relaxed, to avoid wrist strain. Many desks have a keyboard tray that may keep the keyboard at a better height. You can also buy an ergonomic keyboard that is designed to minimize wrist strain.
3. **Keep the mouse close to the keyboard:** If possible, place the mouse right next to the keyboard. If the mouse is too far away, it may be uncomfortable or awkward to reach for the mouse.
4. **Place the monitor at a comfortable distance: T**he ideal position for a monitor is 20 to 40 inches away from your eyes. It should also be at eye level or slightly lower.

An ergonomic keyboard

5. **Avoid clutter:** The computer area can quickly become cluttered with papers, computer accessories, and other items. By keeping this area as uncluttered as possible, you can improve your productivity and also prevent strain or injury.
6. **Take frequent breaks:** It's important to take breaks while you're working at your computer. To avoid eye strain, you should look away from the monitor every once in a while. You can also stand up and walk around to avoid sitting in the same position for long periods of time. Programs such as Eyes Relax and Workrave can automatically remind you to take breaks.

5.2 : Basic Troubleshooting Techniques

Basic Troubleshooting Techniques

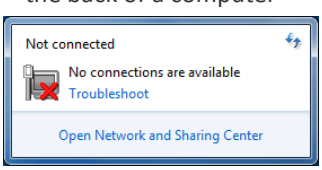
Most people have at one time or another experienced a computer problem like the situations just described, and if you haven't, chances are you will at some point. When a problem occurs, don't panic! Instead, work your way through some basic troubleshooting techniques and try to solve the problem.

General Tips to Keep in Mind

There are many devices, parts, cords, and connections on a computer, which means that there are many possible problems that could arise. In addition, your computer uses a variety of software, which can also cause problems. However, no matter what the problem is, you can use the following tips to help you find a solution:

1. **Always check the cables:** Many computer problems are related to an issue in the cables and connections. The easiest first step you can take to troubleshoot most problems is to check all related cables and connections.
2. **Isolate the problem:** If possible, try to isolate the problem. For example, if you can't get the cursor to move on the screen, try to determine if the issue is with the mouse. If you have an extra mouse, you can alternate devices to see if the one plugged in is the issue, or use the arrow keys on the keyboard to help determine if the mouse is the source of the problem. When trying to isolate the problem, only make one change at a time.
3. **Take notes about error messages:** If your computer gives you error messages, be sure to write down as much information as possible. If the basic troubleshooting steps don't work, you may need the information.
4. **Remember the steps you've taken, or write them down:** Once you start troubleshooting, you will want to remember what you have done, so you don't repeat yourself. If you can't remember it, then write it down. If you end up asking someone for help, it will be much easier if they know exactly which steps

Cables plugged into the back of a computer



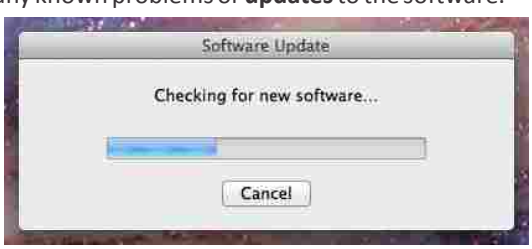
An error message

Simple Solutions to Common Problems

Most of the time, problems can be fixed by using simple troubleshooting techniques, such as closing and re-opening the program. It's important to try these simple solutions before resorting to more extreme measures. If the problem still isn't fixed, you can then try other troubleshooting techniques, such as reinstalling the software.

Program Runs Slowly or Isn't Working Right

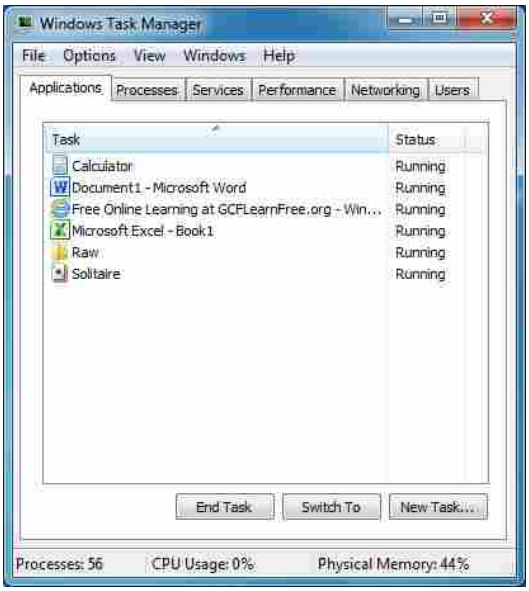
1. If a program is running slowly or otherwise isn't working right, the first thing you should try is **closing** the program and **re-opening** it.
2. You can also **shut down** your computer, wait a few seconds, and **boot it** up again. Some minor problems will work themselves out when you do this.
3. Check with the company for any known problems or **updates** to the software.



Checking for updates

Program is Completely Unresponsive

If a program has become **completely unresponsive,** you can press (and hold) the **Control, Alt, and Delete** keys to open the **Task Manager.** You can then select the program that isn't working and click **End Task.** If you are using a **Mac**, you can press **Option, Command, Esc** to open a similar dialog box.



The Task Manager

Problems Starting or Shutting Down the Computer

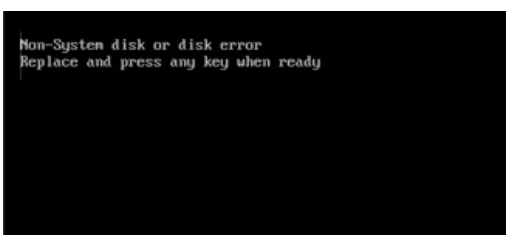
Power Button Will Not Start Computer

1. If your computer **does not start,** begin by checking the power cord to confirm that it is plugged securely into the back of the computer case and the power outlet.
2. If it is plugged into an outlet, make sure it is a **working outlet**. Often, this will require you to plug a lamp or other electrical device into the outlet to make sure it is receiving power.
3. If the computer is plugged into a **surge protector,** verify that it is turned on. You may have to **reset** the surge protector by turning it off and then back on. You can also plug a lamp or other device into the surge protector to verify that it is on.
4. If you are using a **laptop**, the **battery** may not be charged. Plug the **AC adapter** into the wall and then try to turn on the laptop. If it still doesn't start up, you may need to wait a few minutes and then try again.

Resetting a surge protector

"Non-System Disk or Disk Error" Message

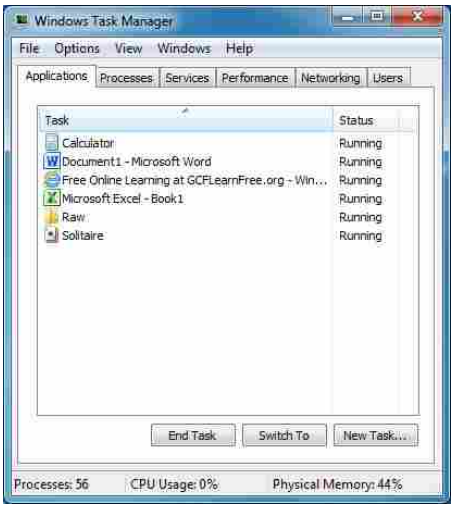
If you get this message when you boot up your computer, it usually means there is a CD, DVD, USB flash drive, or floppy disk in your computer, which is interfering with your computer's booting process. Remove the disk from the drive and restart the computer.



The Non-System Disk or Disk Error Message

Program is Completely Unresponsive

If a program has become **completely unresponsive,** you can press (and hold) the **Control, Alt, and Delete** keys to open the **Task Manager.** You can then select the program that isn't working and click **End Task.** If you are using a **Mac**, you can press **Option, Command, Esc** to open a similar dialog box.



The Task Manager

Problems Starting or Shutting Down the Computer

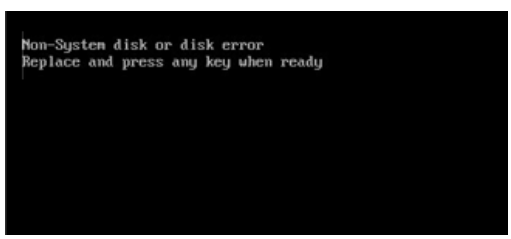
Power Button Will Not Start Computer

1. If your computer **does not start,** begin by checking the power cord to confirm that it is plugged securely into the back of the computer case and the power outlet.
2. If it is plugged into an outlet, make sure it is a **working outlet**. Often, this will require you to plug a lamp or other electrical device into the outlet to make sure it is receiving power.
3. If the computer is plugged into a **surge protector,** verify that it is turned on. You may have to **reset** the surge protector by turning it off and then back on. You can also plug a lamp or other device into the surge protector to verify that it is on.
4. If you are using a **laptop**, the **battery** may not be charged. Plug the **AC adapter** into the wall and then try to turn on the laptop. If it still doesn't start up, you may need to wait a few minutes and then try again.

Resetting a surge protector

"Non-System Disk or Disk Error" Message

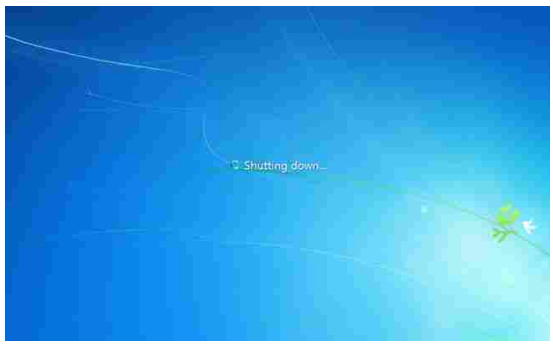
If you get this message when you boot up your computer, it usually means there is a CD, DVD, USB flash drive, or floppy disk in your computer, which is interfering with your computer's booting process. Remove the disk from the drive and restart the computer.



The Non-System Disk or Disk Error Message

Windows Shutting Down Message Will Not Disappear

Sometimes Windows will freeze during the shutdown process. If this happens, the Windows is Shutting Down message screen will stay active on your screen. To finish shutting down the computer, press and hold the power button for about 10 seconds, or until the computer turns off.



The Windows shutdown screen

Computer Begins Randomly Rebooting or Crashing

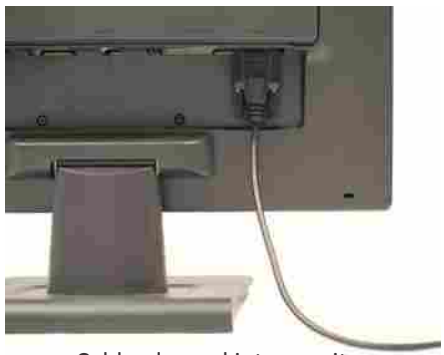
1, Check for overheating. Make sure the vents in the case are not blocked. Confirm that there is good air flow around the computer.
2. Update your antivirus software and scan for viruses.

Kaspersky antivirus

Problems with the Monitor and Speakers

No Picture on the Monitor

1. Confirm the computer is turned on.
2. Check the brightness control, located on your monitor or your keyboard, and make sure it is not set too low.
3. Check the connections for the monitor and surge protector, and make sure the surge protector is turned on.



Cable plugged into monitor

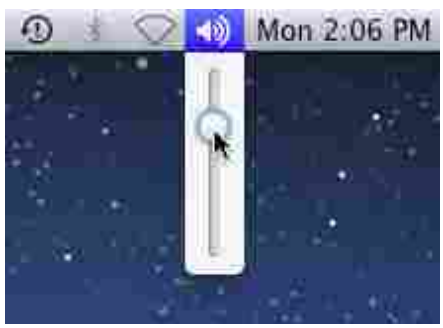
Monitor Goes Blank Periodically

You may have the screensaver enabled. If the screen saver is enabled, just move your mouse back and forth and your original screen will appear. You can change the screensaver settings by going to your Control Panel (or your System Preferences if you're using a Mac).

Opening the Control Panel

No Sound

1. Check the volume control on your computer. In Windows, the sound icon will usually be on the taskbar, and you can also access the sound options in the Control Panel. On Macs, the sound options are found at the top of the screen or in System Preferences.
2. Most media programs (such as iTunes or Windows Media Player) have a volume control, which will need to be turned up.
3. Make sure the speakers are turned on, if using external speakers. Make sure external speakers are connected to the correct audio port or a USB port. If your computer has color-coded ports, the audio output will usually be green.
4. Connect headphones to the correct audio port and determine if sound is audible from the headphones.

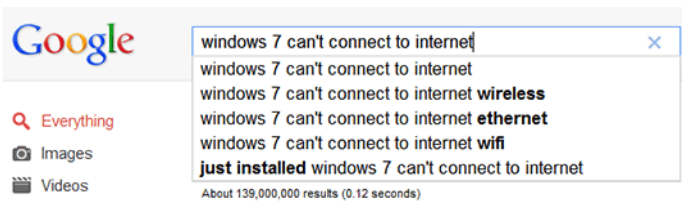


Adjusting the sound volume on a Mac

Solving More Difficult Problems

If you still haven't found a solution to your problem, you may need to ask someone else for help. Try searching the web for the problem that you're having, as other people may have had similar problems. Also, if you have a friend or family member who knows a lot about computers, they may be able to help you.

Keep in mind that most computer problems have simple solutions, although it may take some time to find them. For very difficult problems, a more drastic solution may be required, such as reformatting your hard drive, reinstalling programs, or reinstalling your operating system. If you're not a computer expert, it's possible that you could make the situation worse, so it's best to consult a professional if you think a drastic solution is needed.



Searching the web for a solution

★★★

end...

itdci.org/books

KEY TO YOUR PROFESSIONAL SUCCESS

₹50

Email : books@itdci.org