

Computing Essentials Report Summary

Written by: Ayman M. Mezeyan

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Introduction

Most of us know the computer. But what are the benefits of use the computer and who it's work. In chapter1 we will know about the computer future and parts. Computer application software and programs will be in chapter 2 and three. From Chapter 4 to 6 we will describe more about computer hardware parts, input, output device and storage device. After knowing computer software and hardware we will shift to computer Communication and Connectivity in Chapter 7 then will go to talking about the Internet and the web and all things related to web and internet in chapter 8 and 9.

Most companies and people using computer to do there work, so how they make shore there data and information in safe and how they can manage big amount of data.

That what will know in Chapter 10 about the privacy, secure the data and how to manage the data in Chapter 11.

Do you know what the Information Systems is? How it's work, how they made it?

All that we will know it in Chapters 12, 13 and 14.

In last Chapter (Chapter 15) will talk what Information Technology will bring to us and how can make our life easy.

Chapter 1: The Future And Computer Competency

Information Systems

The way to think about a microcomputer is to realize that it is one part of an information system. Five parts of an information system:

1. People are an often-overlooked part. The purpose of information systems is to make people more productive.
2. Procedures are rules or guidelines to follow when using software, hardware, and data.
3. Software (programs) provides step-by-step instructions to control the computer.
4. Hardware consists of the physical equipment.
5. Data consists of unprocessed facts including text, numbers, images, and sound. Information is processed data.

- People

People are the most important part of an information system. People are touched hundreds of times daily by computers.

Some examples: like medicine ,education business and entertainment.

- Software

Software or programs consist of system and application software

System software: background software manages internal resources, like windows 2000 or windows XP.

Application software:

software that performs useful work on general-purpose problems. Basic applications include: word processors, spreadsheet, database management system and presentation graphics.

- Hardware

Hardware is the physical equipment in an information system.

Types of Computers

There are four types of computers:

- Supercomputers—the most powerful.
- Mainframe—used by large companies.
- Minicomputers—also known as midrange computers.
- Microcomputers—the fastest growing.

Categories include desktop, notebook, and personal digital assistant.

Microcomputer Hardware

There are four categories of devices:

- The system unit contains the electronic circuitry, including the CPU and memory.
- Input/output devices are translation units that convert human instruction into machine-readable processes.
- Secondary storage devices store data and programs. Typical media include floppy, hard, and optical disks.
- Communication devices send and receive data and programs from one computer

to another. A modem is widely used to connect to the Internet.

Data

Data describes something and is typically stored electronically in a file.

Common types of files are: Documents, worksheet, database and presentation.

Connectivity

Connectivity is a concept describing the ability of end users to tap into resources well beyond their desktops. Computer networks are connected computers that share data and resources.

Internet

The Internet is the world's largest computer network The World Wide Web (WWW) is an Internet service that provides a multimedia interface to resources available on the Internet.

Chapter 2: Application Software

General-Purpose Applications

General-purpose applications: are for common kinds of tasks. They include word processors, spreadsheets, database management systems, and presentation programs. Common features include the following.

Windows

Windows are rectangular areas that can contain a document, program, or message.

Menus

Menus are lists of optional commands, typically displayed in a menu bar at the top of the screen.

Toolbars

Toolbars contain buttons and menus to provide quick access to commands. Two common types are the standard toolbar and the formatting toolbar.

Help

Help typically includes a table of contents, an index, and a find or search feature.

Word processors

Word processors allow you to create, edit, save and print text-based documents including brochure letters, and reports. They are also used to create Web pages.

Features

Principal word processing features include the following:

- Word wrap—automatically moves the insertion pointer to the next line.
- Enter key—inserts a new line.
- Spelling checkers—identify incorrectly spelled words and present alternative spellings.
- Grammar checkers—identify poor wording, faulty grammar, and long sentences.
- Search—quickly locates characters, words, or phrases.
- Replace—replaces the located text with new text.
- Hypertext links—provide a connection to cross-referenced information within a document to other documents.

Spreadsheets

Spreadsheets are used to organize, manipulate, and graph numeric data. Also known as a worksheet, a spreadsheet consists of rows and columns forming cells. Individual cells are identified by their cell address. A block of adjacent cells is called a range.

Features

Principal spreadsheet features include the following:

- Rows and columns form cells in worksheet.
- Labels typically identify information in the spreadsheet.
- Values include numbers.
- Formulas are instructions for calculations
- Functions are prewritten formulas.
 - What-if analysis is the result of changing one or more values and observing the effect on related cells in the spreadsheet.
 - Analytical graphs or charts are used to help visualize data in a spreadsheet.

Database management systems

Database management systems are used to create and use databases. A relational database organizes data into related tables that are linked by key fields. In the tables, rows are called records and columns are called fields.

Features

Principal database management system features include the following:

- Locate and display—finding and displaying records.
- Sort and analyze—rearranging records ,in a database. Built-in math formulas may be used to manipulate and analyze data.
- Program control languages—like SQL (Structured Query Language) are programming languages for advanced users to create sophisticated database applications.

Presentation graphics

Presentation graphics are used to create professional and exciting presentations.

Features

Principal presentation graphics features include the following:

- Content development assistance—Most provide organizational assistance using an outline feature. Layout files are provided to offer content assistance. These files include sample text for a variety of different types of presentations.
- Professional design—Sample templates or model presentations are provided. They include selected combinations of text layouts, bullet styles, background colors, patterns, borders, and other enhancements.
- Animations include special visual and sound effects including blinking text and transitions between topics. Additionally, audio and video clips can be inserted. These features add interest and keep audience attention.

Software Suite

A software suite is a collection of individual application packages sold together. While functionally identical, application packages purchased in a suite are significantly less expensive than those purchased separately.

OLE

OLE, or object linking and embedding, allows sharing of information (objects) between applications.

- Object linking—linked objects are automatically updated whenever a change in the source file is changed.
- Embedded linking—the object from the source is embedded or added and can be run from the destination file.

Integrated package

An integrated package is a single program providing the functionality of a word processor, spreadsheet, database manager, and more. Although not as powerful, integrated packages are much less expensive than individual packages.

Browsers

Browsers are programs that connect to remote computers, open and transfer files, display text and images, and provide an uncomplicated interface to the Internet and the Web.

Common activities on the Internet and Web are: navigating or surfing the Web, finding or searching for information, and communicating with others.

Navigating the Web

Navigating the Web (also known as surfing or browsing) means to move from one Web site to another. Two common ways to navigate:

- Enter Web address in the Location box.
- Use hyperlinks or connections between related Web pages.

Finding Information

With so much information available on the Web, the challenge is finding or locating what you want. Most browsers contain search facilities that connect you to Web sites that specialize in finding information.

Communicating

Communicating is the most popular Internet activity. You can communicate with friends and family using e-mail.

Personal Information Mangers

Personal information mangers (also known as PIMs and desktop managers) are electronic organizers designed to help you get organized and stay organized. PIMs contain a variety of features, including maintaining calendars, contacts, and tasks.

Calendar

The calendar is one of the most important features. Like an electronic appointment book, it tracks events. Holidays, assignments, and project schedules.

Contacts

Electronic contacts or address books are an essential part of all PIMs. Like a traditional address book, they record names, addresses, and telephone numbers. Linked to other PIM activities, the contacts' lists save time and energy.

Tasks

A basic feature of all PIMs is a task organizer, or to-do list. It provides two basic functions: (1) recording, displaying, and reminding you of tasks you need to complete and (2) recording, displaying, coordinating, and communicating tasks assigned to a group.

Operating Systems

Operating systems perform three basic functions: manage resources, provide a user interface, and run programs. Windows, Mac OS, and Unix are popular operating systems for microcomputers.

Windows

Windows is the most widely used operating system today. The name Windows comes from the rectangular boxes (windows) used to display information and run applications.

Multiple windows can be open to multitask, or work with different programs simultaneously. The desktop is the user interface provided by Windows. Icons are often used to interact with the Windows operating system. Another common way is to use the Start menu.

Mac OS

The Mac OS runs on Macintosh computers. Although not as widely used as Windows, it is very powerful and easy to use. Mac OS 8.5 includes Sherlock, an innovative search feature for locating information on the Web or on your hard drive.

Unix

The Unix operating system was originally designed to run on minicomputers in network environments. Linux is one version of Unix that is receiving a great deal of attention.

Utilities

Utilities are specialized programs designed to make computing easier. While there are hundreds of different utility programs, the most essential are: troubleshooting, antivirus, uninstall, backup, and file compression programs.

Windows Utilities

The Windows operating systems come with several utility programs. These utilities can be accessed from the Systems Tools menu. Three such utilities are Backup, Disk Cleanup, and Disk Defragmenter.

- Backup—to back up your hard disk.
- Disk Cleanup—a troubleshooting utility for monitoring storage capacity.
- Disk Defragmenter—to locate and eliminate unnecessary fragments, rearranges files and unused disk space.

Utility Suites

Utility suites combine several programs into one package. McAfee Office and Norton SystemWorks are the best-known.

Chapter 4: The System Unit

Electronic Representation

Data and instructions are represented electronically with a two-state binary system of numbers (0 and 1). Each 0 or 1 is called a bit. A byte consists of eight bits and represents one character.

Binary Coding Schemes

Binary coding schemes convert binary data into characters. Three such schemes are:

- ASCII—the most widely used for microcomputers
- EBCDIC—developed by IBM and used primarily by large computers
- Unicode-16-bit code to support international languages like Chinese and Japanese.

System Board

The system board, also known as the main board or the motherboard, connects all system components. It is a flat circuit board covered with sockets and other electronic parts, including a variety of chips.

A chip, also known as a silicon chip, semiconductor, or integrated circuit, is a postage-stamp sized circuit board.

Microprocessor

The microprocessor plugs into the system board, contains the CPU, and is the “brains” of the system unit. Two basic components of the microprocessor are the control unit and the arithmetic-logic unit.

Control Unit

The control unit executes programs by directing the other system components. It directs electronic signals between memory, the arithmetic-logic unit, and input/output devices.

Arithmetic-Logic Unit

The arithmetic-logic unit, commonly referred to as the ALU, performs arithmetic (math) and logical (comparisons) operations.

Microprocessor Chips

A word is the number of bits (such as 16, 32, or 64) that can be accessed by the microprocessor at one time. The more bits in a word, the more powerful the microprocessor.

Two types of microprocessor chips are:

- Complex instruction set computer (CISC) chips are the basis for Intel’s Pentium II and Pentium III microprocessors.
- Reduced instruction set computer (RISC) chips use fewer instructions. They are the basis for IBM and Motorola’s PowerPC microprocessor.

Smart cards contain built-in microprocessor chips.

Memory

There are three types of memory chips: RAM, ROM, and CMOS.

RAM

RAM chips are called temporary or volatile because their contents are lost if power is disrupted.

- Flash RAM or flash memory is a special type of RAM that does not lose its contents when power is disrupted.
- Virtual memory uses the hard disk to run large programs on systems with limited memory.

- Memory cache or RAM cache is a high-speed holding area for frequently used data and information.

ROM chips are permanent and control essential system operations.

CMOS chips provide flexibility and expandability to computer systems.

System Clock

The system clock controls the speed of computer operations. It is measured in megahertz (MHz).

Expansion Slots and Cards

Expansion slots and cards allow additional devices to be added to a computer system.

Expansion Slots

Expansion slots connect the system board to expansion cards.

Expansion Cards

Expansion cards provide network connections, SCSI connections, PC/TV or combined compute! and TV operations, PC cards for expanding portable computer capabilities, and more.

Plug and Play is an evolving set of hardware and software designed to assist with the installation of expansion cards.

Bus Lines

Bus lines provide data pathways that connect various system components. Three principal types are:

- ISA—older and slower but still widely used.
- PCI—high-speed; used to connect CPU, memory, and expansion boards.
- AGP—fastest; used for video data.

Ports And Cables

Ports are connecting sockets on the outside of the system unit. They are used to connect keyboards, mouse, monitors, modems, and printers. The five most common types are serial, parallel, AGP, USB, and HPSB.

Cables

Cables are used to connect external devices to the system unit via ports.

Chapter 5: Input and Output

Keyboard Entry

Input devices translate data and programs that people understand into a form that a computer can process. Two kinds of input are keyboard and direct entry.

Keyboard entry can be categorized as keyboards and terminals

Keyboards ,

Both traditional and natural keyboards have various types of keys including toggle keys, and combination keys.

Terminals connect to the host computer or server. Four kinds of terminals:

- Dumb- send and receives only; no processing
- Intelligent—sends, receives, and processes type is Net PC.
- Network provides low-cost alternative to intelligent terminal, also known as thin client and the computer.
- I Internet accesses internet and typically
Display on a television set; does not require microcomputer, also known as Web terminal and Web appliance.

Direct Entry

Direct entry devices can be categorized as pointing scanning or voice-input.

Pointing

The most common pointing device is the mouse. Three similar devices are trackballs, touch, and pointing sticks.

Other pointing devices include:

- Joysticks—control game action by varying pressure, speed, and direction.
- Touch screens—touching finger to screen to control operations.
- Light pens—directed at screen to control operations.
- Digitizers—convert images to digital data using stylus and digitizing tablet.
- Digital cameras—record still-image photos on disk and in memory. Webcams are used for Internet broadcasting.
- Digital video cameras—record motion digitally on tape, on disk, or in memory.
- Digital notebooks—electronic pads record handwriting as digital data.
- Scanning

Scanners convert images to digital data. There are two basic types of scanners:

- Flatbed scanners are like copy machines.
- Portable scanners are handheld devices. Pen scanners are highly portable.

Widely used scanning devices include image scanners, fax machines, bar-code readers, MIRC, OCR, and OMR devices.

Voice-Input Devices

These devices convert a person's spoken words into digital data. Voice recognition systems are a combination of hardware and software that allows users to control operations and create documents using voice commands.

Two types of voice recognition systems:

- Discrete-speech recognition systems recognize only individual words.
- Continuous-speech recognition systems recognize individual words and phrases in context; key technology for the 21st century.

Monitors

Output devices translate machine output to output that people can understand. Output devices include monitors, printers, plotters, and voice-output.

Monitor size is indicated by diagonal length of viewing area. Monitor clarity is indicated by resolution, measured in pixels.

Standards

Monitor standards indicate resolution capabilities

standard	Pixels
SVGA	800 x 600
XGA	1024 x 768
SXGA	1280 x 1024
UXGA	1600 x 1200

Cathode-Ray Tubes

CRTs are similar to televisions in size and technology. They are typically placed on a system unit or directly on a desk. Their primary advantages are low cost and high resolution.

Flat-Panel Monitors

Flat-panel monitors are used for portable computers and becoming more popular for desktop systems. Two basic types are:

- Passive-matrix (dual-scan)—requires little power but image is not as sharp.
- Active matrix or thin film transistor (TFT)— requires more power, is more expensive, but produces sharper images.

Printers

Output from monitors is called soft copy. Output from a printer is called a hard copy.

Three widely used types are: ink jet, laser, and thermal.

- Ink-Jet

Ink-jet printers spray ink onto the surface of the paper. They are reliable, quiet, and inexpensive.

- Laser

Laser printers use technology similar to that used in copy machines. They are more expensive than ink-jet printers. Produce excellent quality letter and graphics quality.

Personal lasers are for single users. Shared lasers are faster, more expensive and powerful. They are designed for multiple users.

- Thermal

Thermal printers use heat elements to produce images on heat-sensitive paper. Thermal printers are the most expensive and produce the highest quality color images.

- Other Types

Other types of printers include dot-matrix printers

and chain printers.

Plotters

Plotters produce multicolor bar charts, maps, architectural drawings, and three-dimensional illustrations. Four types are as follows.

Pen

Pen plotters create a drawing by moving a pen or pencil over drafting paper. They are the most popular

and least expensive.

Ink-Jet

Ink-jet plotters are fast, quiet, and very good at producing solid-color output. The jets, however, can become clogged and require maintenance.

Electrostatic

These plotters use electrostatic charges to create high-quality and high-volume output on specially treated paper. Costly chemicals considered dangerous to the environment, however, are required for the development process.

Direct-imaging

Direct-imaging plotters use electrically heated pins to create two-color output on special heat-sensitive paper. Due to expensive requirements and limited color output, these plotters are specialty devices.

Voice-Output

Voice-output devices make sounds resembling human speech. The most widely used devices are stereo speakers and headphones.

Chapter 6: Secondary Storage

Floppy Disks

Floppy disks are also known as diskettes or simply as disks. They are inexpensive, removable storage media. Floppy disks are primarily used to save and transport documents.

Today's Standard

Today's standard floppy disk is the 1.44 MB 3 1/2-inch disk, or 2HD. It is by far the most widely used floppy disk today. Due to its relatively low storage capacity, however, it is expected to be replaced by higher capacity floppy disks.

Tomorrow's Standard

Three types of floppy-disk cartridges are competing to become the next standard:

- Zip disks—considered by many to be the leading contender to replace today's standard; storage capacity 100 MB and 250 MB.
- SuperDisks-120 MB capacity; SuperDisk drives are able to read today's standard disks.
- HiFD-200 MB capacity; like SuperDisk drives, HiFD drives are able to read today's standard disks.

Parts of a Floppy Disk

Data is recorded in rings called tracks. Each track is divided into wedge-shaped sections known as sectors. The process of preparing a disk with tracks and sectors is called formatting or initializing.

Hard Disks

Compared to floppy disks, hard disks are much faster and provide much greater storage. They are used to store programs and large amounts of data. Three types are internal, hard disk cartridge, and hard-disk pack.

Internal Hard Disk

An internal hard disk or fixed disk is located inside the system unit.

Hard Disk Cartridge

Unlike internal hard disks, hard-disk cartridges are removable and only the number of cartridges limits the amount of storage capacity.

Hard-Disk Pack

Hard-disk packs consist of several platters and have a capacity that greatly exceeds both internal and hard-disk cartridges. Hard-disk packs are used primarily by minicomputer and mainframe computer systems.

Performance Enhancements

Three ways to improve hard disk performance are:

- Disk caching—reduces time to access data by anticipating data needs.
- RAIDs—expand storage capacity by grouping inexpensive hard disk drives.
- File compression and decompression—increases storage capacity by reducing the space required to store data and programs.

Optical Disks

While floppy and hard disks use magnetic charges to represent data and programs, optical storage uses reflected light. Two types are compact discs and digital versatile discs.

Compact Disc

Compact discs or CDs are the most widely used optical disks today. With a typical capacity of 650 MB, there are three basic types:

- CD-ROM—used to distribute large databases, references, and application packages.
- CD-R—also known as WORM, used to create custom music CDs and to archive data.
- CD-RW—reusable; used to create and edit large multimedia presentations.

Digital Versatile Disc

Digital versatile discs or digital video discs or DVDs are similar to CDs with far greater capacity. Three basic types are:

- DVD-ROM—used to distribute full length feature films with theater-quality video and sound.
- DVD-R—expected to replace CD-R as prices decline.
- DVD-RAM and DVD-RW—two recently introduced standards for reusable DVDs; used to develop very large scale multimedia projects.

Magnetic Tape

Magnetic tape's a sequential-access storage media. It is used primarily to back up or duplicate data and programs. Two types are tape streamers and tape reels.

Magnetic Tape Streamers

Magnetic tape streamers are also known as backup tape cartridge units. Used almost exclusively with microcomputers, these units use tape cartridges to back up hard disks. Digital audiotape (DAT) is a high capacity, advanced technology for magnetic tape.

Magnetic Tape Reels

Magnetic tape reels are used to back up minicomputer and mainframe storage devices. The tape is run on magnetic drives or magnetic tape units.

Chapter 7: Communications and Connectivity

Communications and Connectivity

Connectively means you call connect your microcomputer by tele phone or other telecommunications links to other computers our information sources almost anywhere.

Fax Machines

Fax machines-facsimile transmission, they convert the image to signals that can be sent over a telephone line to a receiving machine.

E-Mail

E-mail, also known as electronic mail, is a way of sending an electronic letter or message between individuals or computers.

Voice-Messaging Systems

Voice-messaging systems are computer system linked to telephone that convert the human voice into digital bits.

Videoconferencing Systems

Videoconferencing systems are computer systems that allow people located at various geographic locations to have in-person meeting.

Shared Resources

An important aspect of connectivity is that let microcomputer user share expensive hardware.

Online Service

Online services provide a variety of service including telephoning, home banking, travel reservations and internet access.

Modems

Modem is short for “modulator-demodulator”. Modulation is the name of the process of converting from digital to analog. Demodulation is the process of converting from analog to digital.

Types of Modems:

- The external modem
- The internal modem
- The wireless modem

Types of Connections

- Digital subscriber line (DSL) uses existing telephone lines to provide high-speed connections as fast as a TI connection at less cost.
- Cable modems use existing television cables to provide high-speed connections as fast as a TI or DSL connection, at a lower cost.
- Satellite/air connection
Services use satellites and the air to download or Send data to users at a rate seven times faster than dial-up connections

Communications Channels

The most popular communications channels are telephone liens, coaxial cable, fiber optic cable, microwaves and satellite.

Data Transmission

Bandwidth

The different communications channels have different data transmission eels. This hits-per-second transmission capability of a channel is called bandwidth.

Bandwidth may be of three types:

- Voiceband: Voiceband is the bandwidth of a standard telephone line and used often for microcomputer transmission; typical speeds are 9,600 to 56 kbps.
- Medium band: the medium band is bandwidth of special leased lines used mainly with minicomputers and mainframe computers the speed is 65 kbps to 264 mbps

- **Broadband:** The broadband is the bandwidth that includes microwave, satellite, coaxial cable, and fiber-optic channels. It is used for very high speed computers whose processors communicate directly with each other. It is in the range of 264 mhp, to 30 ghps.

Serial and Parallel Transmission

Data travels in two ways: serially and in parallel.

- Serial data transmission, bits flow in a series or continuous stream. Serial transmission is the way most data is sent over telephone lines, more technical names for the serial port are RS-232C connector and asynchronous communications port.
- Parallel data transmission, bits flow through separate lines simultaneously.

Direction of. Data Transmission

There are three directions or modes of data flow in a data communications system.

- Simplex communication: Data travels in one direction only.
- Half-duplex communication, data flows in both directions, but not simultaneously.
- Full-duplex communication, data is transmitted back and forth at the same time

Modes of Data Transmission

- Asynchronous transmission data is sent and received one byte at a time. Asynchronous transmission is often used for terminals with slow speeds.
- Synchronous transmission is used to transfer great quantities of [formation by sending several bytes or a block at a time.

Protocol

For data transmission to be successful, sender and receiver must follow a Communication rules for the exchange of information. These rules hanging data between computers are known as the line protocol.

Network Architecture

Network architecture describes how a computer network is configured and what strategies are used

Terms

There are a number of specialized terms that describe computer networks. Some terms often used with networks are:

- Node: A node is any device that is connected to a network.
- Client: A client is a node that requests and uses resources available from other nodes.
- Server: A server is a node that shares resources with other nodes
- Network Operating System (NOS): Microcomputer operating systems interact with an application and a computer.
- Distributed processing: In a distributed processing system, computing power is located and shared at different locations
- Host computer: A host computer is a large centralized computer, usually a minicomputer or a mainframe.

Configurations

Network can be arranged or configured in several different ways. This arrangement is called the network's topology. The four principal network topologies are star, bus, ring, and hierarchical.

Strategies

Every network has strategy or way of coordinating the sharing information and resources.

- Terminal Network System processing the power is centralized in one large computer usually mainframe.
- Peer to peer network system nodes can act both servers and clients
- Client/Server network systems use one powerful computer to coordinate and supply services to all other nodes on the network.

Network Type

There are many types of networks from citywide to international using both cable and air connections

- Local Area Networks: Networks with computers and peripheral device in close proximity within same building.
- Metropolitan Area Networks: are used as links between offices building in a city.
- Wide Area Networks: are country wide and world wide networks. Among other kinds of channels, they use microwave relays and satellites to reach users over long distance.

Chapter 8: The Internet and The Web

Internet Applications

The most common Internet applications are communicating shopping researching, and entertainment.

Communicating

Communicating via e-mail is the most popular Internet activity.

Shopping

One of the fastest-growing Internet applications is electronic commerce You can visit a cybermall to window-shop at the best stores.

Researching

How would you like to have one of the world's largest libraries available from home.

Entertainment

Do you like music, movies, books, magazines, or computer games? You will find them all on the Internet waiting for you to locate and enjoy.

Access

Once you are on the Internet, your computer becomes an extension of what seems like a giant computer—a computer that branches all Over the world.

Providers

The most common way to access the Internet is through a provider or host computer.

Colleges and Universities: access to the Internet through their local area network.

Internet service Provider: an Internet service Provider (ISP) offers access to the Internet for a fee.

Online Services Provider: the most widely use source of for access the internet is through online services provider.

Connections

To gain access the internet, you must have a connection. There are three type of connection:

- Direct or dedicated: direct link are complete access to internet functions.
- SLIP and PPP: using high-speed modem and standard telephone line. This type of connection requires special software such as serial line internet protocol (SLIS) or point- to –point protocol (PPP)
- Terminal Connection: access the internet using high-speed modem and standard telephone line called a terminal connection.

TCP/IP

Is the standard protocol for the internet.

E-Mail

An e-mail message three basic elements:

- Subjects: A online description used to present the topic of the message
- Address: address of the person sending, receiving and optionally anyone else who is receive copies.
- Attachment: many email programs allow you to attach files such as document or worksheet.

Mailing lists

Mailing lists are one type of discussion group available on the internet members of mailing list communicate by sending messages to a list address.

Newsgroups

Newsgroups are a widely used type of discussion group. Unlike mailing lists, Newsgroups use a special network of computers called UseNet.

Chat Groups

Chat groups are becoming a very popular type of discussion group. While mailing lists and newsgroups rely on e-mail, chat group allow direct “live” communication.

Instant Messaging

Instant messaging allows one or more people to communicate via direct “live” communication.

Terms

Before you submit a contribution to discussion group, it is recommended that you observe or read the communication from other. This called lurking.

Electronic Commerce

Electronic Commerce also know as e-commerce, is the buying and selling of good over the internet

Web Storefronts

Web storefronts are virtual store where shoppers can go to inspect merchandise and make purchases. Web storefront creating packages or commerce server has recently evolved to help businesses create virtual store.

Web Auctions

Web auctions are similar to traditional auctions except that buyers and sellers are seldom. There are two basic type of web auction site:

- Auction house site: sell a wide range of merchandise directly to bidders.
- Person-person auction sites operate more like flea maker.

Electronic Payment

There are three basic payment options are:

- Checks are the most traditional and perhaps the safest.
- Credit card purchases are faster and more convenient than check purchases.
- Electronic cash, or e-cash, is the Internet’s equivalent traditional cash.

Internet Services

There are numerous services available on the Internet. Four commonly used services are Telnet, FTP, Gopher, and the Web.

- Telnet: Telnet is the Internet service connects to another computer.
- FTP: file transfer protocol (FTP) is an internet service for transferring files.
- Gopher: Gopher is a software application that provides menu-based search and

Retrieval functions for a particular computer site.

- The Web: The Internet service receiving the most attention today is the Web. It is easy to get the Internet and the Web confused, but they are not the same thing.

Browsers

Browsers Connect to Web sites using URL addresses. Web portals offer services.

Uniform Resource Locators

For browsers to Connect to other resources or address of the sources must be reliable addresses are called uniform Resource Locators (URLs). All URLs have at least two basic parts.

The 1st part presents the protocol connects to the resource. The protocol <http://>.

The 2nd part presents the domain name or name of the server where resource is located.

Web Portals

Web portals are sites that offer a variety typically including e-mail, sports updates of service data, news, and links to selected Web sites. There are two types of portals. Horizontal portals are designed to appeal to mass audiences. They offer generalist services and links. Vertical portals present focused content to appeal to special-interest groups.

Applets and Java

Web pages can also contain links to special programs, called applets, written in a programming language called Java.

Search Tools

There are basically two types: indexes and search engines.

Indexes

Also known as Web directories, are organized by categories such entertainment news, science, sports, and so on.

Search Engines

Search engines are also known as web crawlers and web spider. Information is not organized by major categories.

Web Utilities

Web utilities are programs that work with a browser to increase your speed, productivity, and capabilities. There are two categories of utilities: plug-ins and helper applications.

Organizational Internets:

Intranets and Extranets

Internet

Intranets are private networks within an organization. Extranets are private networks connecting organizations. Firewalls use proxy servers to provide security.

Intranets

An intranet is a private network within an organization that resembles the Internet. Organizations use intranets to provide information to their employees.

Extra nets

Extranet is a private network that connects more than one organization.

Firewalls

Firewall is a security system designed to protect an organization's network against external threats. Typically a firewall includes a special computer called a proxy server. This computer is a gatekeeper. All communications between the company's internal networks and the outside world must pass through it.

Chapter 9: Multimedia, Web Authoring, and More

Multimedia

Multimedia, also called hypermedia, is the integration of all sorts of media into one presentation. These media may include video, music, voice, Graphics and text. An essential and unique feature of multimedia is User participation or interactivity.

Links and Buttons

A multimedia presentation is typically organized as a series of related pages. Each page presents information and provides links or connections to related information.

clicking special areas called buttons on a page

Story Boards

Story boards they are a design tool used to record the intended overall logic, flow, and structure of a multimedia presentation.

Multimedia Authoring Programs

Multimedia authoring programs are special programs used to create multimedia presentations. Widely used authoring programs include Macromedia Director, Authorware and Toolbook

Web Authoring

Creating Web sites is called Web authoring. Graphical maps present overall site design. Web authoring programs support design and HTML coding.

Web Site Design

Designing a Web site begins with determining the site's overall content design is commonly represented in a graphical map. Blocks in the map represent the pieces of information.

Web Authoring Programs

Pages are displayed using HTML documents. Specialized and powerful programs, called Web authoring programs Also known as Web page editors and HTML editors.

Widely used Web authoring programs include Adobe PageMill, Corel WebSite Builder, and Microsoft FrontPage.

Graphics Programs

graphics programs are desktop publishing, image editors, and illustration programs.

Desktop Publishing

Desktop publishing programs allow you to mix text and graphics to create publications of professional quality.

Desktop publishing programs are widely used by graphic artists to create brochures, newsletters, newspapers, and textbooks. Popular desktop publishing programs include Adobe FrameMaker Adobe PageMaker, Corel Ventura, and QuarkXPress.

Image Editors

Image editors, also known as paint programs, are used to create and to modify bitmap image files. Graphic artists use image editing programs to correct or change colors and to create special effects. One type of special effect called morphing allows you to smoothly

blend two images so that one image seems to melt into the next, often producing amusing results. Popular professional image editor programs include Adobe Photoshop, Corel Photo, and Macromedia xRes.

Illustration Programs

Illustration programs, also known as draw programs, are used to modify vector images. Popular professional illustration programs include Adobe Illustrator, CorelDraw, Macromedia FreeHand, and Micrografx Designer.

Graphics Suites

Some companies are combining or bundling their separate graphics programs as a group called graphics suites. The advantage of the graphics suites is that you can buy a larger variety of graphics programs at a lower cost than if purchased separately.

Virtual Reality

Virtual reality creates simulated environments. VRML is a programming language to produce virtual reality applications.

Virtual reality is also known as VR, artificial reality or virtual environments.

VRML

Virtual reality modeling language (VRML), is used to create real-time animated 3-D scenes.

Virtual Reality Authoring Programs

Virtual reality programs once required very high end software costing several thousands of dollars. Three of the best known are Cosmo Worlds from Cosmo Software, Platinum VRCreator from Platinum Technology, and V-Realm Builder from Ligos Corporation.

Artificial Intelligence

Artificial intelligence (AI) is moving into the mainstream. AI attempts to develop computer systems that can mimic or simulate human thought processes and actions. These include reasoning, learning from past actions, and using senses such as vision and touch.

Knowledge-Based (Expert) Systems

Expert systems are computer programs that provide advice to decision makers who would otherwise rely on human experts. These expert systems use knowledge bases that contain specific facts, rules to relate these facts, and user input to formulate recommendations and decisions.

Robotics

Robotics is the field of study concerned with developing and using robots. Robots are computer-controlled machines that mimic the motor activities of humans. There are three types of robots:

- Perception systems: Perception system robots imitate some of the human senses.
- Industrial robots: Industrial robots are used in factories to perform a variety of tasks.
- Mobile robots: Mobile robots act as transporters.

Project Management

Project management software allows you to plan projects, schedule people, and control resources.

Project Managers

Project managers are programs designed to assist in planning, scheduling, and controlling the people, resources, and costs needed to complete a project on time.

Gantt Charts

A Gantt chart uses bars and lines to represent a project. It has two parts. The first part is a table that lists information about each task. The second part is a bar chart that displays task durations, start dates, and finish dates on a timeline.

PERT Charts

A Program Evaluation Review Technique (PERT) chart uses boxes and lines to represent a project. The critical path, the sequence of tasks that takes the longest to complete, is also identified.

Every computer user should be aware of ethical matters, including how databases and networks are used and the major privacy laws.

There are four primary computer ethics issues:

- Privacy concerns the collection and use of data about individuals.
- Accuracy relates to the responsibility of those who collect data to ensure that the data is correct.
- Property relates to who owns data and rights to software.
- Access relates to the responsibility of those who have data to control who is able to use that data.

Large Databases

Large organizations are constantly compiling information about us. A vast industry of data gatherers or “information resellers” now exists that collects such personal data. They then sell it to direct marketers, fund-raisers, and others

Personal information including preferences, habits, and financial data has become a marketable commodity. This raises many issues, including:

Spreading information without personal consent

Spreading inaccurate information

Private Networks

Suppose you use your company’s electronic mail system to send a co-worker an unflattering message about your supervisor. Later you find the boss has been spying on your exchange. Or suppose you are a subscriber to an online discussion group. You discover that the company that supports the discussion group screens all your messages and rejects those it deems inappropriate. Both these situations have actually happened.

The Internet and the Web

When you browse the Web, your activity is monitored. Whenever you visit a Web site, your browser stores critical information onto your hard disk, typically without your permission or knowledge. For example, your browser creates a history file that includes the locations of sites visited by your computer system. Additionally, many Web sites have specialized programs called cookies that record how often you visit a site, what you do there, and all other information that you provide, such as credit card numbers.

Major Laws on Privacy

Some federal laws governing privacy matters are as follows:

Fair Credit Reporting Act.

Freedom of Information Act.

Privacy Act.

Right of Financial Privacy Act.

Computer Fraud and Abuse Act.

Video Privacy Protections Act.

Threats to Computer Security

Keeping information private depends on keeping computer systems safe from criminals, natural hazards, and other threats.

Computer Criminals

A computer crime is an illegal action in which the perpetrator uses special knowledge of computer technology. Computer criminals are of four types:

- Employees: Sometimes the employee is simply trying to steal something from the employer—equipment, software, electronic funds, proprietary information, or computer time.
- Outside users: Not only employees but also some suppliers or clients may have access to a company's computer system.
- Hackers and crackers: Hackers are people who gain unauthorized access to a computer system for the fun and challenge of it. Crackers do the same thing but for malicious purposes.
- Organized crime: Members of organized crime groups have discovered that they can use computers just as people in legitimate businesses do, but for illegal purposes.

Computer Crime

Computer crime can take various forms, as follows:

Damage: Disgruntled employees sometimes attempt to destroy computers, programs, or files.

Viruses are programs that migrate through networks and operating systems and attach themselves to different programs and databases. There are four basic types of viruses: boot sector, file, Trojan horse, and macro.

Measures to Protect Computer Security

Security is concerned with protection information, hardware and software. Some of the principal measures to protect computer security are the following:

- Encrypting Messaging
- Restricting Access
- Anticipating Disaster
- Backing Up Data

Security for Microcomputers

If you own a microcomputer system, there are several precautions to follow to keep it safe:

- Avoid extreme conditions.
- Guard the computer.
- Guard programs and data.

The Green PC

The basic elements of the Green PC are:

System Unit:

Using existing technology from portable computers, the system unit

1. Uses an energy-saving microprocessor that requires a minimal amount of power.
2. Employs microprocessor and hard-disk drives that shift to an energy-saving or sleep mode when not in operation.
3. Replaces the conventional supply unit with an adapter that requires less electricity.
4. Eliminates the cooling fan.

Display:

Displays have been made more energy efficient by using:

1. Flat panels that require much less energy than the traditional monitors.
2. Special power-down monitors that automatically reduce power consumption when not in use.
3. Screen-saver software that clears the display whenever it is not in use.

Manufacturing:

Particular attention is given to chlorofluorocarbons (CFCs) in solvents and cleaning agents. Toxic nickel and other heavy metals are being eliminated or reduced in the manufacturing processes.

Personal Responsibility

As a computer user, can do to help protect the environment are the following:

Conserve, Recycle and Educate.

Chapter 11: Databases

Data Files

Understanding how data files work means understanding data organization, key fields, batch versus real-time processing, master versus transaction files, and file organization.

Data Organization

Data is typically organized into groups or categories. Each group is more complex than the one before:

- Character: A character is a single letter, number, or special character such as a punctuation mark or \$.
- Field: A field contains a set of related characters.
- Record: A record is a collection of related fields.
- File: A data file is a collection of related records.
- Database: A database is a collection of related files.

Key Field

A key field is the particular field of a record that is chosen to uniquely identify each record. Some common key fields are social security numbers, employee identification numbers, and part numbers.

Batch versus Real-Time Processing

Traditionally data is processed in two ways. These are batch processing, what we might call “later” and real-time processing what we might call “now.”

- Batch processing: In batch processing, data is collected over several hours, days, or even weeks. It is then processed all at once.
- Real-time processing: Real-time processing occurs when data is processed at the same time the transaction occurs.

Master versus Transaction Files

Two types of files are commonly used to update data—a master file and a transaction file.

- The master file is a complete file containing all records current up to the last update.
- The transaction file contains recent changes to records that will be used to update the master file.

File Organization

File organization may be of three types:

- Sequential file organization: The simplest organization is sequential file organization, in which records are stored physically one after another in predetermined order.
- Direct file organization: Records are not stored physically one after another. Rather, they are stored on a disk in a particular address or location that can be determined by their key field.
- Index sequential file organization: Index sequential file organization is a compromise between sequential and direct file organizations.

Database

Is a collection of integrated data logically related files and records.

Need for Databases there are many advantages to having databases:

- Sharing: In organizations, information from one department can be readily shared with others.
- Security: Users are given passwords or access only to the kind of information they need.
- Data redundancy.
- Data integrity.

Database Management

In order to create, modify, and gain access to the database, special software is required. This software is called a database management system, which is commonly abbreviated DBMS.

- Data dictionary: A data dictionary contains a description of the structure of the data used in the database.
- Query language: Access to most databases is accomplished with a query language. The most widely used query language is structured query language (SQL).

DBMS Organization

There are four principal ways to organize DBMS:

Hierarchical Database

In a hierarchical database, fields or records are structured in nodes, points connected like the branches of an upside-down tree. Has one parent node although a parent may have several child nodes.

Network Database

A network database also has a hierarchical arrangement of nodes. each child node may have more than one parent node. There are additional connections called pointers- between parent nodes and child nodes.

Relational Database

The most flexible type of organization is the relational database. the data elements are stored in different tables, each of which consists of rows and columns. A table is called a relation. All related tables must have a common data item (a key field). The most valuable feature of relational databases is their simplicity. Entries can be easily added, deleted, and modified.

Object-Oriented Database

Object-oriented databases keep track of objects, which are entities that contain both data and the action that can be taken on the data.

Types of Databases

There are four kinds of databases:

Individual

The individual database is a collection of integrated files primarily used by just one person. Typically, the data and the DBMS are under the direct control of the user.

Company or Shared

Company databases are of two types:

The common operational database contains details about the operations of the company.

The common user database contains selected information both from the common operational database and from outside private (proprietary) databases.

Distributed

Database spread geographically and accessed using database server.

Proprietary

A Proprietary database is generally an enormous database that an organization develops to cover particular subjects. It offers access to this database to the public or selected outside individual for a fee.

Database Uses and Issues

Database offer a great opportunity for increased productivity , however security is always a concern.

Strategic Uses

There are hundreds of databases available to help users with both general and specific business purpose including:

- Business directories.
- Demographic data.
- Business statistical information.
- Text database providing articles from business publications.
- Internet database covering wide range of topics including all of the above.

Security

Two important security concerns are illegal use of data and unauthorized access.

Database Administrator

Database administrator (DBA) is a specialist who sets up and manages the database and determines processing rights, which people have access to that kind of data.

Chapter 12: Information Systems

Organizational Information Flow

Information flows up and down among managers and sideways among departments.

Functions

Depending on the services or products they provide, most organizations have departments that specialize in one of five basic functions. These are accounting, marketing, human resources, production, and research.

- Accounting tracks all financial activity. At Health Wise
- Marketing handles planning, pricing, promoting, selling, and distributing goods and services to customers.
- Human resources finds and hires people and handles matters such as sick leave and retirement benefits
- Research conducts basic research and relates new discoveries to the firm's current or new products department.

Management Levels

Management in many organizations is divided into three levels:

- Supervisors: Supervisors managers Responsible for operational matters need day-to-day information.
- Middle management: Middle-level managers Responsible for tactical planning need summarized information.
- Top management: Top-level managers Responsible for strategic planning-need highly summarized information.

Information Flow

Each level of management has different information needs. Top-level managers need information that is summarized in capsule form to reveal the overall condition of the business. They also need information from outside the organization, because top-level

managers need to forecast and plan for long-range events. Middle-level managers need summarized information weekly or monthly reports. They need to develop budget projections as well as to evaluate the performance of supervisors. Supervisors need detailed, very current day-to-day information on their units so that they can keep operations running smoothly.

Computer-Based Information Systems

There are four kinds of computer-based information systems:

- Transaction processing system: The transaction processing system (TPS) records day-to-day transactions such as customer orders, bills, inventory levels, and production output.
- Management information system: The management information system (MIS) summarizes the detailed data of the transaction processing system in standard reports for middle-level managers.
- Decision support system: The decision support system (DSS) provides a flexible tool for analysis. The DSS helps middle-level managers and others in the organization analyze a wide range of problems.
- Executive support system: The executive support system (ESS), also known as the executive information system (EIS), is an easy-to-use system that presents information in a very highly summarized form. It helps top-level managers oversee the company's operations and develop strategic plans. The ESS combines the internal data from TPS and MIS with external data.

Other systems

- Office automation systems (OASs): support data workers who are involved with distribution and communication of information
- Knowledge work systems (KWSs): support knowledge workers, who create information.

Chapter 13: Systems Analysis and Design

Phase One Preliminary Investigation

The preliminary investigation determines the need for a new information system. It is typically requested by an end user or a manager.

Three tasks of this phase are the following.

Defining the Problem

The current information system is examined to determine who needs what information, when the information is needed, and why.

If the existing information system is large, then a systems analyst conducts the survey. Otherwise, the end user conducts the survey.

Suggesting Alternative Systems

Some possible alternative systems are suggested. Based on interviews and observations made in defining the problem, alternative information systems are identified.

Preparing a Short Report

To document and to communicate the findings of Phase 1, preliminary investigation, a short report is prepared and presented to management.

Phase Two Analysis

In systems analysis data is collected about the present system. The focus is on determining the requirements for a new system.

Three tasks of this phase are the following.

Gathering Data

Data is gathered by observation, interviews, questionnaires, and looking at documents.

One helpful document is the organization chart, which shows a company's functions and levels of management.

Analyzing the Data

There are several tools for the analysis of data, including checklists, top-down analysis, grid charts, and decision tables.

Documenting Systems Analysis

To document and to communicate the findings of Phase 2, analysis, a report is prepared for higher management.

Phase Three Design

Systems design consists of the following three tasks. Designing Alternative Systems

Alternative information systems are designed. Each

alternative is evaluated for economic, technical, and operational feasibility.

Selecting the Best System

Four questions considered when selecting the best system:

- Will the system fit into an overall information system?
- Will the system be flexible enough to be modified as needed in the future?
- Will it be secure against unauthorized use?
- Will the system's benefits exceed its costs?

Writing the System Design Report

To document and to communicate the findings of

Phase 3, design, a report is prepared for higher management.

Phase Four Development

The systems development phase has three steps: developing software, acquiring hardware, and testing.

Developing Software

Two ways to acquire software are:

- Purchase—buying off-the-shelf packaged software to be modified if necessary.
- Custom designed—create programs following programming steps.

Acquiring Hardware

Acquiring hardware is very critical and involves consideration for future company growth, existing net works, communication capabilities, and training.

Testing the System

Using sample data, the new system is tested. Can take several months for a complex system.

Phase Five Implementation

Systems implementation (conversion) is the process of changing to the new system and training people.

Types of Conversion

Four ways to convert are:

- Direct approach—abandoning the old and starting up the new; can be very risky and not recommended.
- Parallel approach—operating the old and new side by side until the new one proves its worth; low risk but expensive.
- Pilot approach—trying out the new system in only one part of an organization. Compared to parallel, pilot is riskier and less expensive.
- Phased approach—implementing the new system gradually; low risk but expensive.

Training

A software trainer may be used to train end users in the new system.

Phase Six Maintenance

System maintenance is the final phase.

System Audit

Once the system is operational, the systems analyst compares it to the original design specifications. If the system does not meet these specifications, some further redesign of the system may be required.

Periodic Evaluation

The new system is periodically evaluated to ensure that it is operating efficiently. If it is not, some redesign may be required.

Prototyping and RAD

Due to time pressures, the system life cycle may not always be feasible. Two alternatives that require less time are prototyping and RAD.

Prototyping

Prototyping uses a model or prototype that is modified.

RAD

Rapid application development (RAD) uses powerful development software, specialized teams, and highly trained personnel.

Chapter 14: Programming and Languages

Program specification

also called program definition or program analysis, consists of specifying five tasks related to objectives, outputs, inputs, requirements, and documentation.

Program Objectives

The first task is to clearly define the problem to solve in the form of program objectives.

Desired Output

Next, focus on the desired output before considering the required inputs.

Input Data

Once outputs are defined, determine the necessary input data and the source of the data.

Processing Requirements

Next, determine the steps necessary (processing requirements) to use input to produce output.

Program Specifications Document

Finally, document this step's program objectives, outputs, inputs, and processing requirements.

Program Design

In program design, a solution is designed using, preferably, structured programming techniques, including the following.

Top-Down Design

In top-down design, major processing steps, called program modules, are identified.

Pseudocode

Pseudocode is an outline of the logic of the program you will write.

Flowcharts

Program flowcharts are graphic representations of the steps necessary to solve a programming problem.

Logic Structures

Logic structures are arrangements of programming statements. Three types are:

- Sequence—one program statement followed by another.
- Selection (or IF-THEN-ELSE)—when a decision must be made.
- Loop—when process is repeated as long as a condition is true.

Program Code

Coding is writing a program. There are several important aspects of writing a program. Two are writing good programs and selecting which language to use.

The Good Program

Good programs are designed using the three basic logic structures. Programs coded in this manner are called structured programs.

Which Language

With hundreds of programming languages available, the most widely used for microcomputers include C++ and Visual Basic.

Program Test

Debugging is a process of testing and eliminating errors in a program. Syntax and logic are two types of programming errors.

Syntax Errors

Syntax errors are violations in the rules of a programming language.
Logic Errors

Logic errors are incorrect calculations or procedures.

Testing Process

Five methods for testing for syntax and logic errors:

- Desk checking—careful reading of a printout of the program.
- Manual testing—using sample data to test for correct results.
- Attempt at translation—running program using a translator program.
- Testing sample data—testing the program for logic errors using sample data.
- Testing by users—beta testing by selected users is the final step.

Program Documentation

Documentation consists of a written description of the program and the procedures for running it. People who use documentation include:

- Users, who need to know how to use the program.
- Operators, who need to know how to execute the program and how to recognize and correct errors.
- Programmers, who may need to update and maintain the program in the future.

Program Maintenance

Maintenance is designed to ensure that the program operates correctly, efficiently, and effectively. Two categories of activities are the following.

Operations

Operations activities include locating and correcting errors, improving usability, and standardizing software.

Changing Needs

Organizations change over time and their programs must change with them.

Case And OOP

Computer –aided software engineers(CASE) provide automation and assistance in program design , coding, and testing. Object-oriented software development focuses on defining relationships between previously define procedures or objects.

Programming Generation

Programming languages have levels or generations ranging from low to high. The higher language the closer it is to the language of humans.

Chapter 15: Your Future and Information Technology

Technology And Organizations

Technology can introduce new ways for businesses to compete with each other. They can compete by creating new products, establishing new enterprises, and developing new customer and supplier relationships.

New Products

Technology creates products that operate faster, are priced more cheaply, are often better quality, or are wholly new. New products can be individually tailored to a particular customer's needs.

New Enterprises

Technology can build entire new businesses. Two examples:

- Internet service providers—just a few years ago, only a few Internet service providers like America Online were available. Now, thousands of national and local providers are available.

Web site development companies—thousands of small companies specializing in developing Web sites have sprung up in just the past three years.

New Customer and Supplier Relationships

Businesses that make their information systems easily table may make their customers less likely to take their business elsewhere (e.g., overnight delivery services closely track packages and bills).

Technology And People

People have different coping styles when it comes to technology. Three common reactions to new technology are cynicism, naiveté, and frustration.

Cynicism

The cynics feel that new technology is overrated and too troublesome to learn. Some cynics openly express their doubts. Others pretend to be interested.

Naïveté

Naïve people may be unfamiliar or quite familiar with computers. Unfamiliar ones tend to think of computers as magic boxes. Even those familiar with technology often underestimate the time and difficulty of using technology to generate information.

Frustration

Frustrated users are impatient and irritated about taking time to learn new technology. Often these people have too much to do, find manuals difficult to understand, and/or feel stupid.

How You Can be A Winner

Six ongoing activities that can help you be successful are the following.

Stay Current

Read trade journals and the general business press, join professional associations, and participate in interest groups on the Internet.

Maintain Your Computer Competency

Stay current by being alert for computer-related articles in the general business press and in trade journals in your particular profession.

Develop Professional Contacts

Stay active in your profession and meet people in your field. This provides information about other people, firms, job opportunities, and social contacts.

Develop Specialties

Develop specific as well as general skills. Expect to take classes periodically to stay current with your field and technology.

Be Alert for Organizational Change

Use formal and informal lines of communication. Be alert for new trends within the organization.

Look for Innovative Opportunities

Look for ways to increase efficiency. Present ideas in terms of saving money rather than “improving information.”

Careers In Information Systems

Being a winner does not necessarily mean having a career in information systems. There are, however, some excellent employment opportunities in information systems, including the following.

System Analyst

Systems analysts work with others to determine their information needs, design hardware and software systems, and implement them.

Webmaster

Webmasters focus on designing, creating, monitoring, and evaluating corporate Websites.

Database Administrator

Database administrators are responsible for structuring, coordinating, linking, and maintaining internal and external databases.

Programmer

Programmers work with systems analysts to create new software and revise existing programs.

Network Managers

Network managers monitor existing networks and implement new ones.

Technical Writer

Technical writers create documents to explain how systems work.

Computer Trainer

Computer trainers present classes to users on new systems.

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