

I.Ch 1 Information Technology, The Internet, And You

A.Competencies

- 1.Explain the five parts of an information system: people, procedures, software, hardware, and data.
- 2.Distinguish between system software and application software.
- 3.Distinguish the four types of computers – microcomputer, minicomputer, mainframe, and supercomputer – and describe the hardware devices for input, processing, output, and storage.
- 4.Describe document, worksheet, database, and presentation files.
- 5.Explain computer connectivity, the wireless revolution, and the Internet.

B.Information Systems

- An information system has five parts: *people, procedures, software, hardware, and data*.
- **People:** end users like us and information technology staff
- **Procedures:** the *rules* or *guidelines* people follow when using software, hardware, and data. Procedures are written in *manuals* by computer specialists and these manual are provided by software and hardware manufacturers with their products.
- **Software:** *programs* consisting of step-by-step instructions that tell the computer how to do its work – they process *data* to convert it into *information*
- **Hardware:** the *equipment* that processes the data to create information. It includes keyboard, mouse, monitor, system unit, and other devices. Hardware is controlled by software.
- **Data:** the raw, unprocessed facts including text, numbers, images, and sounds. Examples are hours worked, pay rate. Data after processed by computer is known as *information*.
- An additional part of information systems is *connectivity*.
- **Connectivity** allows computers to connect and share information by using telephone lines, or cables or wireless.
- **Information Technology (IT)** includes software, hardware, and data.

C.People

- People are the most important part of any information system
- Examples include people in education, business, medicine, entertainment.

D. Software

- Software is another name for programs
- Programs tell the computer how to process data
- Two major types of software are **systems software** and **applications software**

1. System software

- System software enables the application software to interact with the computer hardware.
- System software is “background” software that helps the computer manage its own internal resources

a) Operating Systems

- Most important system software program that interacts with the application software and the computer.
- It handles programs execution (running), storing data and programs, and processing data.
- Programs that coordinate computer resources, provide an *interface* between the user and computer.
- Examples include Windows XP and the Mac OS X

b) Utilities (service programs)

- Perform specific tasks related to managing computer resources, such as de-fragmenting disks, checking for viruses, etc.

c) Device Drivers

- Specialized programs to allow particular input and output devices to communicate with the rest of the system, for example, a printer driver.

2. Application software

- Application software is “end user” software

a) Basic applications or General-purpose programs

- Widely used in almost all career areas and most people use them
- Examples include:
 - Browsers: to connect to websites and display web pages
 - Word Processors: to create and edit documents
 - Spreadsheets: to analyze and summarize numerical data
 - Database Management Systems (DBMS): organize and manage data and information
 - Presentation Graphics: communicate a message

b)Special-purpose applications

- Include thousands of applications that are narrowly focused on a specific profession or occupation.
- Some of the best known are graphics, audio and video, multimedia, web authoring, and artificial intelligence programs.

E.Hardware

1.Types of computers

a)Supercomputers

- The most powerful type of computers
- These machines are special high-capacity computers used by very large organizations.
- Example: NASA uses supercomputers to track and control space explorations.

b)Mainframe computers

- Not quite as powerful as supercomputers, they still have great processing speeds and storage capacity.
- Often fill up a specially wired and air-conditioned room.
- Typically used for business applications such as insurance companies that process thousands of policy holder billing statements.

c)Minicomputers

- Also known as midrange computers
- Typically the size of a desk
- Used by medium-sized companies or departments of large companies for specific purposes.
- A production department may use a minicomputer to monitor manufacturing processes and assembly line operations.

d)Microcomputers

- The least powerful, but most widely used computers.
- There are four main types of microcomputers:
- **Desktops**: small enough to fit on top or along side your desk, yet too big to carry around
- **Notebooks (or laptops)**: portable, lightweight, fit in most briefcases
- **Personal Digital Assistants – PDAs (Handheld computers or palm computers)**: the smallest microcomputers, typically combine pen input, handwriting recognition, personal organizational tools, and communications capabilities in a very small package.

2. Microcomputer hardware

a) System unit

- Also known as the *system cabinet* or *chassis*
- Holds most of the electronic components that make up the computer, including:
- *Microprocessor* (or processor, Central Processing Unit – CPU): controls and manipulates data to produce information
- *Memory* (or primary storage, Random Access Memory – RAM): holds data and program instructions for processing the data and also stores processed information before it is output. Memory is sometimes referred to as temporary storage as its contents will be lost if power to computer is switched off.

b) Input/Output devices

- Input devices translate data and programs that humans can understand into a form that computer can process and include such things as the keyboard and mouse
- Output devices translate processed information from the computer into a form that humans can understand and include such things as the monitor (video display screen) and printers

c) Secondary Storage

- Unlike primary memory, secondary storage holds the contents even when the power is switched off.
- Typical storage media includes:
- Floppy disks: thin flexible plastic disks used to store and transport smaller files of data.
- Hard disks: hard metallic platters with much greater storage capacities used to store programs and very large data files and can also access information much faster than floppy disks.
- Optical disks: use laser technology and have greater capacity and two basic types are: Compact Discs (CDs) and Digital Versatile Discs (DVDs) typically used to store and transport multimedia files

F. Data

- Data is stored in document, worksheet, database, and presentation files.
- Data are the raw, unprocessed facts including text, numbers, images, and sounds.
- Four common types of files include:

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1.Document files: created by word processors to save documents like memos, letters.

2.Worksheet files: created by electronic spreadsheets to save analysis of things like budget.

3.Database files: created by database management programs to contain highly structured and organized data like an employee database file that contains all the worker's names, id numbers, job titles, salary, date of birth.

4.Presentation files: created by presentation graphics programs to save presentation materials like speaker notes, electronic slides.

G.Connectivity, The Wireless Revolution, And The Internet

- Connectivity is the capability of your computer to share information with other computers.
- The Internet is the largest computer network in the world
- Single biggest change in the last five years is the use of mobile (or wireless) communication devices.
- The Wireless Revolution is expected to dramatically affect the way we communicate and use computer technology
- Networks (or Computer Networks) are central to the idea of connectivity that connects two or more computers that can be very close to few meters and as far as halfway around the globe.
- The Web (aka World Wide Web) provides a multimedia interface to resources on the Internet.

Key Terms

1	application software		end user software, either general or special purpose
2	basic application		browsers, word processors, spreadsheets, DBMS, presentation graphics
3	chassis		aka system unit or system cabinet; houses a computer's components
4	communication device		allow computer to share data & information with another computer
5	compact disc	CD	optical disk capable of storing 650 MB of data
6	computer competency		able to understand computing technology and how to apply it to solve problems
7	computer network		a system for connecting two or more computers to share data and computing resources such as printers and storage devices.
8	connectivity		term that covers the ability to network computers together to share data, information, and network resources
9	data		the raw, unprocessed facts such as text, numbers, images, and sounds that a computer can process
10	database file		created by DBMS, they allow a user to store and maintain important data as tables and records
11	desktop computer		microcomputer small enough to fit on a desk, but too large to easily carry around
12	device driver		specialized program to allow input/output devices to communicate with the rest of the computer system
13	digital versatile disc	DVD	aka Digital Video Disk, an optical disk capable of storing 17 GB of data
14	digital video disc	DVD	aka Digital Versatile Disk, an optical disk capable of storing 17 GB of data
15	document file		created by word processors, they hold information such as reports, memos, letters, etc.
16	end user		a person that uses an information system
17	floppy disk		widely used storage medium, typically holding only 1.44 MB of data

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18	general-purpose application		aka basic application, it includes such software as browsers, word processors, spreadsheets, DBMS, and presentation graphics
19	handheld computer		aka palm computer, the smallest microcomputers designed to fit in the palm of your hand
20	hard disk		widely used storage medium, holds 20-250 GB of data for quick data retrieval
21	hardware		the equipment of a computer system, e.g. input, processing, output, storage, and communication devices
22	information		the processed facts produced by an information system
23	information system		a system made up of five key components: people, procedures, software, hardware, and data to produce information
24	information technology	IT	computer and communication technologies used to process data
25	input device		device such as a keyboard or mouse to allow a user to get data into a computer for processing
26	Internet		the largest computer network in the world
27	keyboard		input device allowing you to press character keys which translate the characters into a series of electronic signals
28	laptop computer		aka notebook computer, it's a microcomputer that weighs 4-10 lbs and is portable
29	mainframe computer		second most powerful computer, it occupies a specially air conditioned room and processes thousands of transactions
30	memory		aka primary storage or random access memory, they are high speed chips that hold data and instructions for processing
31	microcomputer		the least powerful, but most widely used computer, often used for work and home applications
32	microprocessor		a "computer on a chip", it controls and processes data to produce information in a computer
33	midrange computer		aka minicomputer, basically a small mainframe - typically connects many users for business applications
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35	modem		widely used communication device to transmit computer data over ordinary telephone lines
36	monitor		an output device that converts digital data from the computer into a visible form the user can understand
37	mouse		an input device which allows a user to "point" to locations on a screen and click to perform computing activities
38	network		see computer network
39	notebook computer		aka laptop computer, it's a microcomputer that weighs 4-10 lbs and is portable
40	operating system		programs that coordinate computer resources, provide a user interface, and run applications
41	optical disk		widely used storage medium, typically used for storing multimedia data e.g. CD or DVD
42	output device		generic term for equipment used to translate computer information into something understandable by the user e.g. monitor
43	palm computer		aka handheld computer, the smallest microcomputers designed to fit in the palm of your hand
44	people		humans that produce and utilize an information system
45	personal digital assistant	PDA	aka handheld computer or palm computer, the smallest microcomputers designed to fit in the palm of your hand
46	presentation file		created by presentation graphics programs, they hold "slides" for communicating a message
47	primary storage		aka memory or random access memory, they are high speed chips that hold data and instructions for processing
48	printer		an output device that converts digital data into a permanent, printed output
49	procedures		rules or guidelines to follow when using hardware, software, and data in an information system
50	program		step by step commands that a computer follows when processing data
51	random access memory	RAM	aka memory or primary storage, they are high speed chips that hold data and instructions for processing
52	secondary storage device		generic term for various storage equipment such as floppy disks, hard drives, and optical disks
53	service program		aka utility, performs specific tasks to improve a computers performance e.g. virus checking
54	software		a computer program or programs to instruct the computer how to process data
55	specialized application		aka special-purpose application, thousands of applications which help specific occupations accomplish their work more efficiently

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56	special-purpose application		aka specialized application, thousands of applications which help specific occupations accomplish their work more efficiently
57	supercomputer		the largest, most powerful computers used for specialized research projects
58	system cabinet		aka system unit or chassis; houses a computer's components
59	system software		enables application software to interact with computer hardware - "background" software to manage the computer
60	system unit		aka system cabinet or chassis; houses a computer's components
61	tablet PC		a type of notebook microcomputer with a writable surface for input
62	temporary storage		aka primary storage or random access memory, they are high speed chips that hold data and instructions for processing
63	utility		aka service program, performs specific tasks to improve a computers performance e.g. virus checking
64	video display screen		aka monitor; an output device that converts digital data from the computer into a visible form the user can understand
65	Web		aka World Wide Web, it provides a multimedia interface to resources found on the Internet
66	wireless revolution		term used to describe the use of computer connectivity to change the way people interact via computer & communication technologies
67	worksheet file		created by spreadsheet programs, they store numbers for sorting and analysis
68	World Wide Web	WWW	aka Web, it provides a multimedia interface to resources found on the Internet

Chapter Review

4	PDA	The most widely used handheld computer
6	INTERNET	The world's largest computer network
7	HARDWARE	The physical equipment of a microcomputer
10	PROCEDURES	Rules or guidelines to follow when using software, hardware, data
11	SOFTWARE	Provides step-by-step instructions to the computer
12	ENDUSER	Uses computers to become more productive
14	OPERATINGSYSTEM	Coordinates computer resources
15	DATABASEFILES	Created by database management programs
16	PEOPLE	The most essential part of an information system
17	CHASSIS	Contains the system's electronic circuitry
1	MODEM	Modifies signals for processing
2	DATA	Unprocessed facts
3	DEVICEDRIVERS	Specialized programs that allow input and output devices to communicate
5	WWW	Provides multimedia interface to the Internet
8	DOCUMENTFILES	Created by word processors
9	INFORMATION	Data that has been processed by the computer
13	TABLETPC	Type of microcomputer

Matching

TERM	MATCH	NUMBER	HINT
procedures	N	1	Guidelines people follow when using software
program	O	2	Consists of the step-by-step instructions that tell the computer how to do its work Although not the most powerful, this type of computer is capable of great processing speeds and data storage
mainframe computer	I	3	Allows sharing of information worldwide
connectivity	C	4	Software that enables the application software to interact with the computer hardware
system software	R	5	End user software
application software	A	6	The most powerful type of computer
supercomputers	Q	7	Data that has been processed through the computer
information	G	8	Translates processed information from the computer into a form that humans can understand
output device	L	9	Container that houses most of the electronic components that make up a computer system
system unit	S	10	The least powerful and most widely used type of computer
microcomputers	J	11	

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input device	H	12	Translates data and programs that humans can understand into a form that the computer can process
database files	D	13	Created by database management programs
secondary storage device	P	14	Holds data and programs even after electrical power to the system has been turned off
hard disks	F	15	Typically used to store programs and very large data files
optical disks	K	16	Uses laser technology
document file	E	17	Created by word processors to save documents
primary storage	M	18	Holds data and program instructions for processing data
computer network	B	19	Communications system connecting two or more computers
the Internet	T	20	The largest network in the world

Open-ended

a) Explain the five parts of an information system. What part do people play in this system?

- People - Individuals who use microcomputers as a tool to fulfill their information needs.
- Procedures - Written guidelines (documentation) to help end-users use software and hardware.
- Software - Step-by-step instructions (programs) that tell the computer what to do.
- Hardware - The physical components of a computer system such as monitor, keyboard, mouse, etc.
- Data - Raw, unprocessed facts such as text, numbers, images, and sounds brought into the computer as input.
- People are the most important part of an information system.

b) What is system software? What kinds of programs are included in system software?

- System software enables the application software to interact with the computer hardware.
- System software includes operating systems, utilities, and device drivers.
- The operating system is the most important system software program.
- System software handles the details of executing programs, storing data and programs, and processing data.
- The most important system software program is the operating system like Windows XP.

c) Define and compare basic and special-purpose application software. Describe some different types of basic applications. Describe some types of specialized applications.

- Basic applications (or general-purpose applications) are widely used in nearly all career areas. Examples are word processing, spreadsheet, database, and presentation software.
- Special-purpose applications (or specialized applications) include thousands of other programs that are more narrowly focused on specific disciplines and occupations.

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- Examples include graphics, audio, video, multimedia, web authoring, and artificial intelligence programs.

d) Describe the different types of computers. What is the most common type? What are the types of microcomputers?

- Supercomputers are the most powerful type of computer. They are special, high-capacity computers used by very large organizations.
- Mainframe Computers are large computers, but not nearly as powerful as supercomputers. They need to be in specially wired, air-conditioned rooms. They are capable of great processing speeds and data storage.
- Minicomputers are refrigerator-sized machines. They are also known as midrange computers. They are typically used by medium-sized or large companies for specific purposes.
- Microcomputers are the least powerful, but most widely used and fastest growing type of computer. Categories of microcomputers include desktop, notebook, and personal digital assistant (PDA).
- The most common type is the microcomputer. These are the desktop, notebook/laptop, tablet PCs and PDAs – Personal Digital Assistants.

e) What is connectivity? How are the wireless revolution and connectivity related? What is a computer network? What is the Internet? What is the Web?

- Connectivity is the microcomputer's ability to communicate with other computers and information sources. With connectivity, your microcomputer is capable of sharing information with other computers. It is a significant development because it expands the uses of the microcomputer.
- Connectivity and the wireless revolution expand the uses of the microcomputer by reaching past the desk and linking with other computers worldwide to share data, programs, and information.
- Through this wireless revolution, you as an end-user can connect to millions of other people and organizations located throughout the world.
- The largest network in the world is the Internet.
- The Web (also known as the World Wide Web or WWW) provides a multimedia interface to numerous resources on the Internet.