

Chapter 2

Exercise 2-6

- An ATM (Automatic teller machine) is cashpoint hole in the wall. It's an electronic telecommunications devices that enables the customer of a financial institution to perform financial transaction without the need for a human
- Airport self-check in machine are machine mostly in airport to check and scan over your incase you're holding anything illegal on your body.
- A mobile phone is what make us communicate with different people on phone around the world.
- An in car GPS navigation system allow to be track of the roads while having a long trips.
- An aircraft cockpit is *an aircraft* that provide the *pilot* with information about the *flight* situation of that *aircraft*
- A cleaning robot is a vacuum cleaner that has to suck up the dirt.

Exercise 2-7

Scenario 1:

Scenario 1	P.C	
Computer system (Operating system)	windows	
C.P.U	2.5GH	
Firewall	yes	
Ram	8 GB	
USB port	3 USB port	
Disk driver	500 GB	
HHD		
Bluetooth		
HDMI		
Cost of computer	800 \$ - 900	
Printer	Hp Deskjet ink Advantage (44 \$)	
Scanner	HP scanjet 200 Flatbed A4 (L27434A) 95 \$	
Webcam	no need	
Internet		
HoTspot		
3G		
Wifi dongle (modem)		

Scenario 2

Scenario 2	P.C
Computer system (Operating system)	windows
C.P.U	2.5GH
Firewall	yes
Ram	8 GB
USB port	3 USB port
Disk driver	
HHD	
Bluetooth	
HDMI	
Cost of computer	500 \$
Printer	Hp Deskjet ink Advantage (44 \$)
Scanner	HP scanjet 200 Flatbed A4 (L27434A) 95 \$
Webcam	yes
Internet	yes
HoTspot	
3G	
Wifi dongle (modem)	

Scenario 3

F	G
Scenario 3	P.C
Computer system (Operating system)	windows
C.P.U	2.5GH
Firewall	yes
Ram	8 GB
USB port	3 USB port
Disk driver	
HHD	
Bluetooth	yes
HDMI	yes
Cost of computer	1000\$
Printer	Hp Deskjet ink Advantage (44 \$)
Scanner	HP scanjet 200 Flatbed A4 (L27434A) 95 \$
Webcam	yes
Internet	yes
HoTspot	yes
3G	yes
Wifi dongle (modem)	yes

Exercise 2-9

- a) (1) Processor speed: Think of the processor speed as the brain speed of your PC. If you think slowly the answers and responses you give will be slow. But if you are up to date and fast, everything will be processed and output much faster.
- (2) Hard disk capacity: Hard disk drive is data storage used to storing and retrieving digital information using rapidly rotating disks.
- b) The two ways of connecting external hard disk to a computer, there are two types of external USB Hard drives, powered and not powered. Powered means the external hard drive requires a power source. Not powered means the external hard drive is powered through the USB port on your PC / Laptop.
- C) There are different levels of data storage, which may be referred to as primary and secondary storage. A computer's internal hard drive is often considered a primary storage device, while external hard drives and other external media are considered secondary storage devices.

Exercise 2-10

- a) An embedded system is a special-purpose system in which the computer is completely encapsulated by the device it controls. Unlike a general-purpose computer, such as a personal computer, an embedded system performs pre-defined tasks, usually with very specific requirements
- b) A **supercomputer** is a computer at the frontline of contemporary processing capacity – particularly speed of calculation which can happen at speeds of nanoseconds and **Mainframe** computers (colloquially referred to as "big iron") are computers used primarily by corporate and governmental organizations for critical applications, bulk data processing such as census, industry and consumer statistics, enterprise resource planning and transaction processing.
- c) A **touchscreen** is an electronic visual display that the user can control through simple or multi-touch gestures by touching the screen with a special stylus/pen and-or one or more fingers.
- d) Optical mark recognition (also called optical mark reading and **OMR**) is the process of capturing human-marked data from document forms such as surveys and tests.
- e) A *barcode reader (or barcode scanner)* is an electronic device for reading printed barcodes
- f) A **trackball** is a pointing device consisting of a ball held by a socket containing sensors to detect a rotation of the ball about two axes like an upside-down mouse with an exposed protruding ball

Chapter 3

3-1

FOSS stands for free and open source software is computer software that can be classified as both free software and open source software. Example Linux, open office, Firefox and etc.

Advantages:

- It's free to download
- Multiple choices
- Many free software program
- Can share improvement

Disadvantages:

- No guaranteed support
- has inconsistent update
- Varying interface
- Less freedom to change things

Commercial software is computer software that is produced for sale or that serves commercial purpose.

Advantages:

- Commercial software has the benefits or begin extensively tested and used by other businesses.
- A team highly skilled developers have created the software.
- You can expect a relatively fast deployment.

Disadvantages:

- Commercial software can accrue high support and maintenance costs.
- The price can increase anytime.
- The service might be a waiting for a while for support.

Scenario 1: The business office have to use commercial software because Microsoft office is a standard level and they have agreement on big discount which is the latest Microsoft versions. In order for them to keep the business going they have to use the commercial software which is standard level and everyone else in the business uses it.

If they use FOSS they will not have guaranteed to have good support, they will have less freedom to change things and the outcome might be very unreliable. It doesn't have an industry backup. Businesses need to learn how to use the free source and take more time.

3-3

1. CLI: A system that lets users control the computer by typing commands
2. Public domain: software over which the author has given up all rights.
3. Application software: Software which helps users perform work, such as creating documents
4. Freeware: software which can be freely distributed but not usually changed
5. Device drivers: Software which is sometimes needed to make a new piece of hardware work
6. Source code: The instructions which make up a software program
7. Serial number: one method to reduce illegal copying of software
8. Full backup: a complete copy of all data on a system
9. Cloud computing: When software and data are saved on remote Internet servers
10. Operating system: Software which manages the computer hardware and provides a user interface
11. Fragmentation: a reduction in disk performance when files are repeatedly changed over time
12. Mail Merge: A single document which is automatically customized for many individuals

3-4

- a. A fault in automatic stock trading software cost Knight Capital a reported \$440m. The software was based on an incorrect algorithm which bought stocks at the market price and then sold them seconds later at the bid price which was a few cents less. The exercise lasted for 45 minutes and the rapid trades pushed the market price up creating a larger spread between the market price and the bid price making the problem worse.
- b. The utility provider Energy Australia had to apologize to thousands of customers after a software error charged late payment fees for bills that had not been sent out. German energy provider E.ON suffered a similar problem when faulty software resulted in 94,000 customers being charged exit fees incorrectly. The firm had to pay around £1.4mil to customers in settlements.
- c. The LoveLetter worm infected millions of computers and caused more damage than any other computer virus in history. The worm deleted files, changed home pages and messed with the Registry. It costs \$8.75 billion, millions of computers infected and significant data loss. LoveLetter infected users via e-mail, Internet chat and shared file systems. The email had an executable file attachment and subject line, "ILOVEYOU." When the user opened the

attachment, the virus would infect the user's computer and send itself to everyone in the address book.

3-5

The software reliability on aircraft or a medical device must be close to 100%. It has to have full backup and constant checking and testing because people lives are on the line of this software.

3-6

- a. i. Primary Storage: 1 Gigabyte of RAM
ii. Secondary Storage: 40 GB of Hard Drive
- b. Operating system is software which manages the computer hardware and provides a user interface.

Chapter 4:

4-4

1. Server: a computer which is in charge of certain tasks on a network, or which is used to share things with other computers on the network.
2. Client: a computer which connects to a network and uses the resources the network has.
3. LAN: a network in a small area, such as an office building or a shopping mall.
4. WAN: a network that may spread over several countries and continents.
5. Router: a device which is used to connect a LAN network to the Internet.
6. Hub: A device used to connect computers to each other on a LAN.
7. Switch: a more advanced version of a hub
8. ISP: a company that gives access to the Internet.
9. Shared devices: Items like printers that can be used by many different people in the network.
10. Ethernet: This is the type of cable that is used to connect most computers to a network.
11. Wi-Fi: The most common way of connecting computers to a network without using wires
12. Workstation: another name for a client computer

4-5

- a. $400/56 = 7.14$ seconds
- b. $300/1 = 300$ seconds

4-6

Wifi, Ethernet, fibre optic, wimax, cable and 3G would be able to watch the video smoothly since they have higher speed than 216 kps.

4-7

They need to purchase router, cable, pay the ISP, a switch or a hub and maybe a printer or two.

4-12

- a. false
- b. true
- c. false
- d. true
- e. true
- f. true
- g. false
- h. true
- i. false

4-11

- a. Kps and Mps
- b. Metropolitan Area Network is a series of LAN connected together that cover large areas like university campuses or even cities.
- c. Each computer has its own unique ip address. When computers connect to a network, its Ip address is revealed in the central server or to other computers. Therefore users in the same network can identify who other users are.

4-8

- a. Don't use or download lots of data over a limited amount of data.
- b. Do not use the network for other purposes rather than work
- c. Respect other peer workers
- d. Do not download files from unreliable sources

4-10

- a. Router, cable
- b. is a computer or a computer program that depends heavily on some other computer (its *server*) to fulfill its computational roles.
- c. The network administrator can control access to resources on a network because all the data and files are located on the main server or central server which they are controlling it, so they have full control over the network.

Chapter 5

5-4

- a. helloworld
- b. Helloworld
- c. (Helloworld123)

5-13

- a. Identity theft is an act of stealing somebody's personal data in order to impersonate them.
- b. Pharming is a technique use by phishers to direct users to a fake website when they enter the URL off a genuine site.
- c. To secure data on a laptop computer, the user must have password for logging in to the computer and the password must be strong. Important files must keep in secret folders, not on the desktop. Also, the users must update their security system consistently and must have anti-virus software. Moreover, they must carefully open websites and email, in case of spam, phishing or hacking.

5-14

- a. Strong passwords must be long and hard to guess.
- b. The cracker might use key loggers, which will record every keystroke typed by users. So when the victim type in their usernames and passwords, the cracker can later see what the victim typed. Otherwise, the cracker might use dictionary attack, which the software will try out every word in a list of known English words, until the password is found.
- c. The advantage of biometric system is that body parts cannot be lost, stolen or forgotten. They are unique of each user; even identical twins have different fingerprints. The disadvantage of biometric system is that it is never 100% accurate. The images of the same person's fingerprints might change due to lightning, changes in body and even the time of day which means that the biometric system must attempt to make a good match rather than an exact match.

5-15

- a. Fingerprints and eye
- b. False negative is when the biometric system fails to recognize an authorized user. False positive is when an unauthorized user is mistakenly allowed access because the system mistakes their data for that of an authorized user.
- c. Biometric authentication works similarly to password authentication. Users don't need to type in their usernames or passwords, they just need create an authentication with their fingerprints or eye. The systems then recognize the users' fingerprints or eye and allow that user to gain access.