

CHAPTER 4: Input and Output Devices (IO devices)

1. what is IO device:

IO device is **input and output** device of computer,

Input device: is used to convert "meaningless" data of user input into internal code, the code which the computer understand, use, and stored as ASCII code.

Output device: is used to decode the result after processing by computer in to output media.

2. two example kinds of input approaches:

We know that, some data are stored in punch card or in a floppy disk, this two things are read by some **reading device or reading machine**, that kind of machine are called input device, also data can input by **typing character on keyboard** of user.

3. teminals and teletypewriters:

This two devices both contains a **output unit (VDU or printer)** and a **input device keyboard**, but they are not included CPU, this device only for connect to main frame or **type writing**.

4. direct data entry device:

- A. **Joystick:** which can make a stick control movement by user, it always use for playing active games.
- B. **Mouse:** a controller of computer by movement of its ball move by user and input command OK or NOT OK by click that button for computer.
- C: **light pen:** like a mouse and control the instruction for computer by user.
- D: **graphics tablet:** like table with a sensor of draw and scan graph to computer.

5. more examples and their properties of input device (which need input media)

- A. **Punched cards reader** (media: punched card)
- B. **Bar codes reader** (media: Universal Product Code (line bar))
Which used bar code scanner to get the price and information of the product.
- C. **Optical character reader** (media: a special character)
Know information by character readers and input machine: **optical character Recognition**. These characters always used in bills list.
- D. **Magnetic inks character reader** (media: a special character)
Know the marks by mark sensor and optical readers, the input technique is **Optical Mark Recognition**. These characters always used in mark on cheque.

E. Some extra device:

Sound recognition: input voice by a microphone and output information in voice by computer speaker, on today computer, there are sound recognition called: Sound BlasterTM,

Temperature detector: check temperature by a electric thermometer and the thermometer changes will input to computer.

Touch detector: touch on the touch screen for input.

Scanner: devices that scan graphic which user selected to computer.

6.output device (printer):

A. Printer

VDU is an electronic output machine, so, if it off, the information outputting will lose, but, printer can write the information on papers, the information on the paper will not easy to lose, so sometimes, printer is useful.

(Some extra: the VDU output is soft copy, the printer output is hard copy.)

B. Types of printer:

a. Impact and non-impact:

Impact printer: are printers which **striking the character** on paper form printer

Non-impact: are printers, which put ink/carbon particles onto the paper, but no parts of the printer will touch the paper.

b. Character printer, line printer and page printer.

Character printers are printers that print **one character per time**,

Line printers are printers that print **one line per time**,

Page printers are printers that print **one page per time**.

Page printers are faster than line printers and it is faster than character printers.

C. Example on non-impact printer:

a. Laser printer (page printer)

Use laser to put the character of ink on paper.

b. Injection of ink printer (Line printer)

Use an ink gun to put the character of ink on paper.

c. Electrothermal printer (Page printer)

Use a pin for line the ink to paper but not compact.

D. Example on impact printer:

a. **Dot matrix printer** (character printer)

Use a number of pins for pointing character.

b. **Daisy wheel printer** (character printer)

It consists of a wheel of characters, to punch the characters on paper.

c. **Golf ball printer** (character printer)

It consists of a ball of characters, to punch the characters on paper.

d. **Chain printer** (line printer)

It consists of a chain of characters to punch the characters on paper.

e. **Drum printer** (line printer);

It consists of a role of continuous characters, to punch the characters by a hammer to paper.

Choosing printer: -Cost for both printer, ink or ribbon, -Multiple copy capability,
-Character sets and line width, -Print quality, -interface requirement
-Reliability

6.more output device:

A. **Plotter**

Used for printing graph, the graph or drawing is fresh which output by a plotter.

B. **Computer output on microfilm**

We can store a lot of picture on a microfilm

Advantage:

- (1) Output faster than printer,
- (2) Cheap,
- (3) Storage cost low because it is small

7.CAD system:

Computer Aid Design (CAD) applications are used for drawing graphic display, these systems need a graphic tablet or mouse. Some programs also can help to edit a graph and publishing it, it is called **desktop Publishing**.

End of chapter 4.