Computer Awareness
Module - 3

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Input Devices

Keyboard

A computer keyboard, often known as a laptop keyboard, is a piece of hardware that allows you to input data into a computer. It is often a plug-and-play gadget. These days, USB and wireless keyboards are widely used. Previously, the PS/2 keyboard was the most popular.

Keyboard Key Name List

- **Alphabet Keys:** A-Z.
- **Number Keys:** 0-9.
- **Function Keys:** F1-F12.
- **Modifier Keys:** Shift, Ctrl, Alt.
- **Navigation Keys**: Arrow keys, Home, End, Page Up, Page Down.
- **Special Keys:** Enter, Spacebar, Backspace, Delete, Insert, Tab, Caps Lock.
- **System Keys**: Esc, Print Screen, Scroll Lock, Pause Break.

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Types of Keyboards

QWERTY Keyboards

Bluetooth Keyboards

Ergonomic Keyboards

Magic Keyboards

Flexible Keyboards

Mechanical Keyboards

Mouse

Douglas Engelbert 1960

The most widely used **pointing device** is the mouse. It is a well-known cursor-control gadget made out of a tiny palm-sized box with a spherical ball at its base that detects mouse movement and sends suitable signals to the CPU when mouse buttons are pressed.

Some common types of Mouse

- Mechanical Mouse
- Cordless or Wireless Mouse → Bluetooth RCW
- Optical Mouse
- Trackball Mouse

Joystick :

A joystick is a **pointing device** for computers that allows you to move the pointer around the screen. Both the bottom and top ends of the stick are connected to a spherical ball, and the bottom spherical ball slips in a socket. You may move the joystick in all four directions. C. B. Mirick of the US Naval Research Laboratory created the first joystick.

Scanners :

A scanner, like a photocopier, is an input device that is used when paper data has to be transferred to a computer's hard disc and subsequently modified. The scanner gathers images from the source and transforms them into a digital version stored on a disc.

Light Pen :

The light pen's tip has a light-sensitive detector that allows users to pick items on the display screen by pointing to them. The item's position is detected by its light-sensitive tip, which transmits the appropriate signals to the CPU. It can also assist you in drawing on the screen if necessary. Because LCD screens are incompatible with light pen, it is no longer in use.

Digitizer:

A digitizer is a device that transforms analog data into digital data. A digitizer can transform a television or camera feed into a series of numbers stored in a computer. They can be used to create an image of the object at which the camera is pointed by the computer.Because it transforms images and graphical data into binary inputs, the digitizer is also called a Tablet or GraphicsTablet. For fine sketching and image manipulation applications, a graphic tablet is used as a digitizer.

Microphone:

A microphone is a type of sound input device used by computers. It absorbs sound vibrations and transforms them into audio signals or records them on media. The audio impulses are transformed into digital data, which is then saved in the computer. The user can also utilize the Microphone to converse with others. It is also used with cameras for video conferencing and to provide sound to the presentations.

MICR

Banks handle a significant number of cheques every day, MICR input devices are commonly used at banks. The check number and the bank's code number are written using aspecial ink containing machine-readable magnetic particles.

Digital Camera

It is a digital device since it captures photographs and records videos digitally before saving them on a memory card. Instead of the film that traditional cameras use to capture images, it uses an image sensor chip. This camera is connected to your computer.

Track Ball

A trackball is an input device that is widely used instead of a mouse in notebook or laptop computers. The pointer on this half-inserted ball may be adjusted by moving fingers on the ball. A trackball takes up less room than a mouse because the entire device is not moved. A trackball might be shaped like a ball, button, or square.

Touchpad

It's generally seen in laptops as a mouse replacement. It lets you manage the cursor on the screen with your finger. It has two buttons, much like a mouse, for right and left-clicking.

OCR → Optical Character Reader (Shape)

OMR → Optical Mark Reader

Webcam

A webcam is a built-in camera on a computer. This input device can capture photographs and, if necessary, record videos. The photographs and movies are saved in the computer's memory and can be viewed on the screen.

Light Gun

It is a pointing input device used to aim and firing the targets on a video game, arcade, or another screen. The light cannon were used on the MIT Whirlwind computer for the first time.

Biometric Devices

Biometrics is the technique of identifying a person based on biological characteristics such as fingerprints,eye cornea, facial anatomy, etc. It is done with biometric devices, which come in various shapes and sizes depending on their scanning capabilities.

Output Devices → Information

Computer output devices are physical components that display information from a computer to the user. They can display information in the form of audio, images, or video.

Characteristics of output devices

- They are part of a computer's hardware.
- They translate information into a language that the user can understand.
- They can be connected to a computer wirelessly or with a cable.
- They are updated as technology improves.

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OUTPUT DIVICES

Monitor

Printer

Projector

Speaker

Headphones

There are several types of computer monitors:

Cathode ray tube (CRT):

- An early technology used in monitors and also used in television screens.

Liquid crystal display (LCD)

- A popular type of monitor that uses pixels to create an image
- LCDs are flat and thin, and can be used in laptops and tablets
- LCDs can have different panel types, such as TN, VA, and IPS
- LCDs are also used in televisions, mobile phones, and tablets

Light-emitting diode (LED)

- A type of LCD monitor that uses LEDs to illuminate the pixels on the screen
- LED monitors are energy efficient, durable, and have better picture quality than traditional LCD monitors

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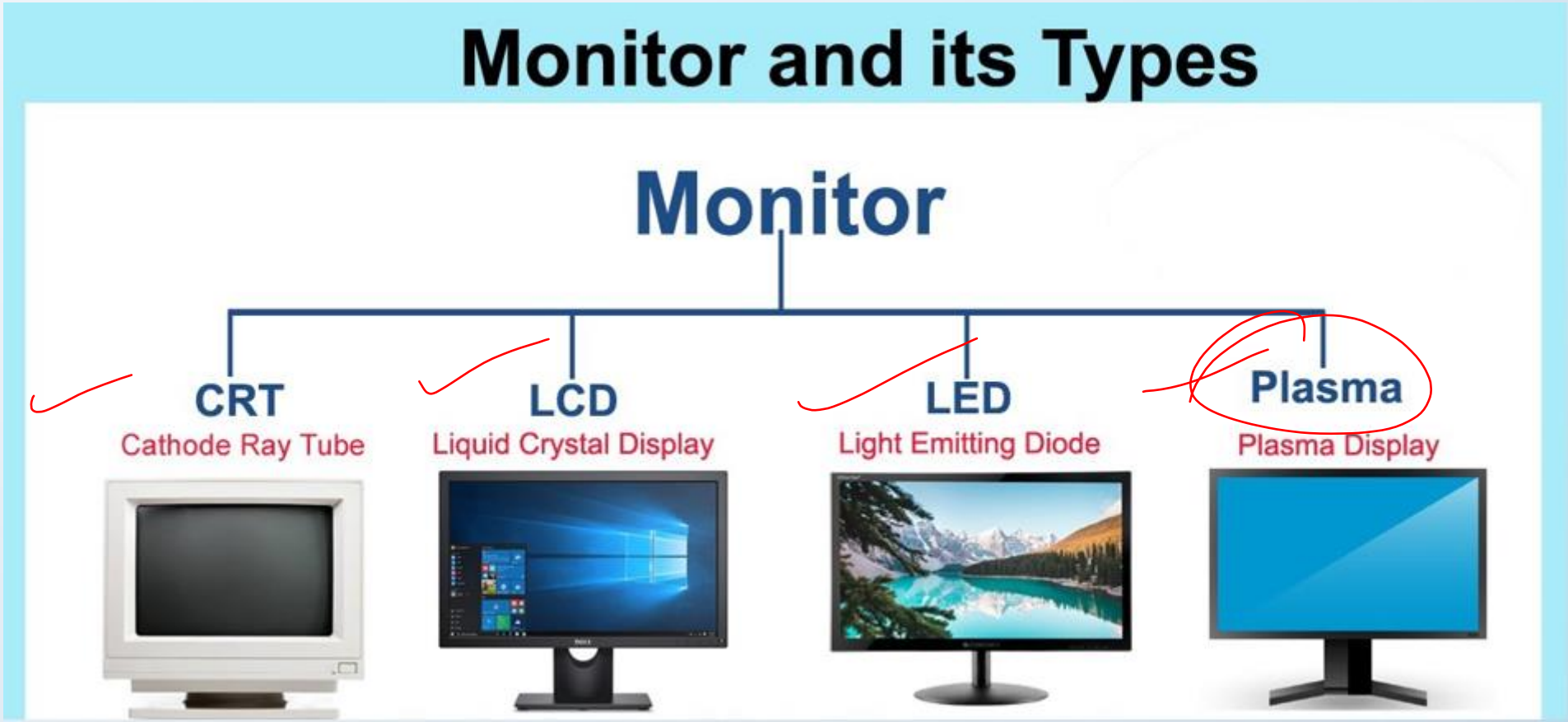
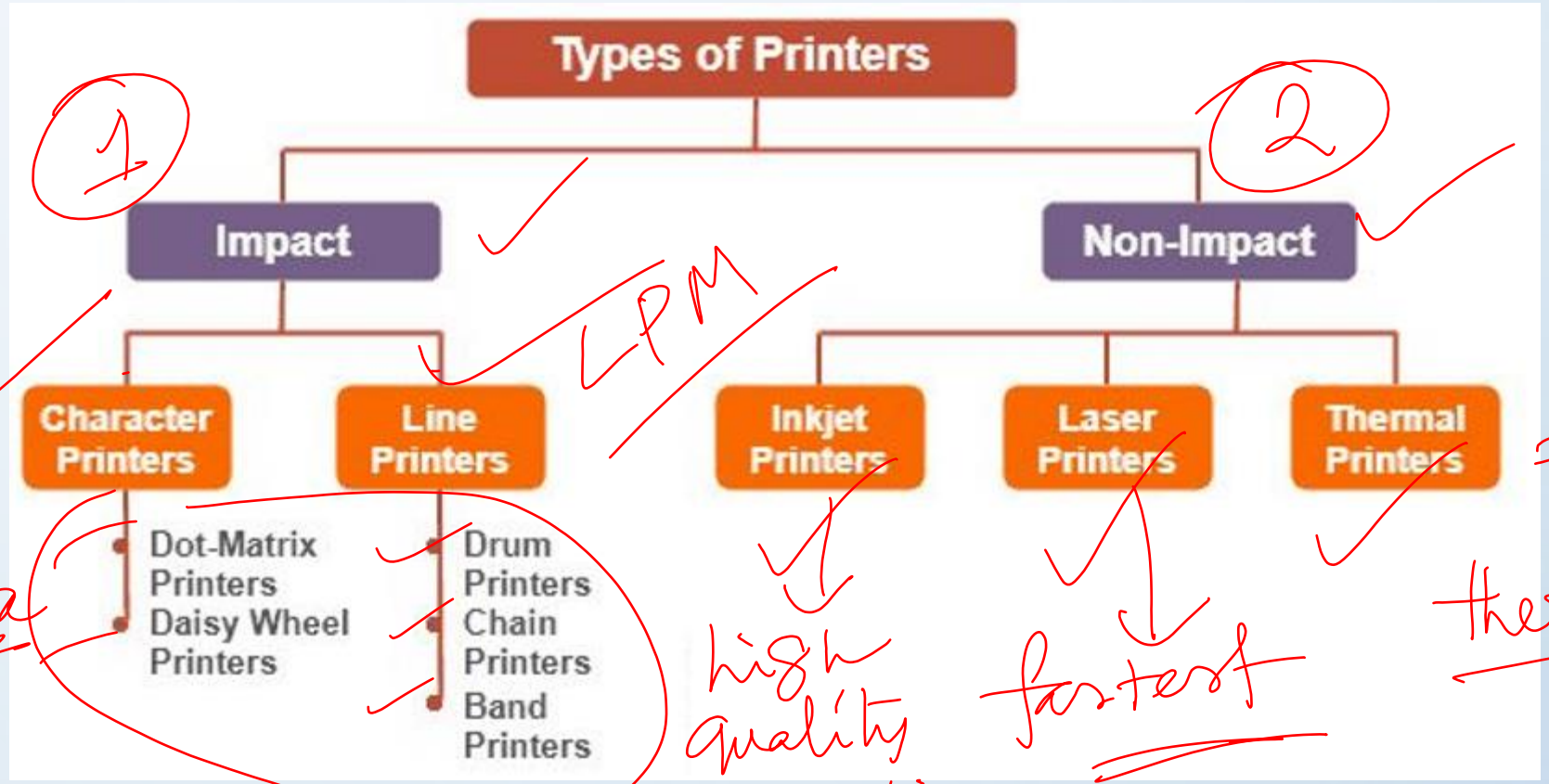
Monitor and its Types



Chester Carlson



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CPS

LPM

pins

Ex

high quality graphics

fastest

thermochromic

Inkjet printers

- Use ink cartridges to print images and text
- Good for high-quality photos, color documents, and graphics
- Affordable and easy to use
- Commonly used in homes and small offices

Laser printers

- Use laser technology to print sharp text and graphics
- Fast and precise
- Good for high-volume print jobs and high-quality text documents
- Commonly used in offices and businesses

Thermal printers

- Low cost and easy to use
- Commonly used by businesses to print food labels, barcodes, receipts, and tickets

3D printers

- Create three-dimensional objects by layering material based on a digital design
- Used for prototyping and creating medical equipment

Projectors

- A projector is an output device that displays images from a computer or other device onto a surface.
- Projectors can be LED, LCD, laser, or other types.
- Some projectors have built-in speakers, but many don't.

Speakers

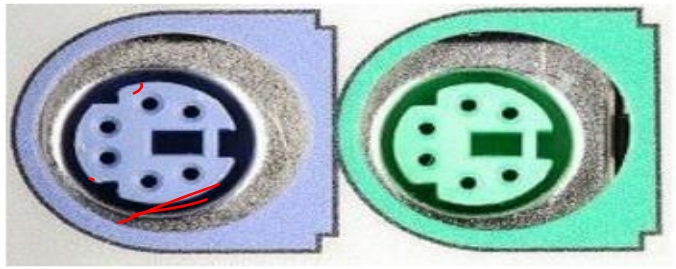
- A computer speaker is an output device that produces sound from a computer.
- Speakers can be connected to a projector using an audio cable.

There are two types of computer ports discussed below:

- **Internal port -** Internal ports are used to connect internal devices like disk drives, CD drives, and other internal devices with the motherboard.

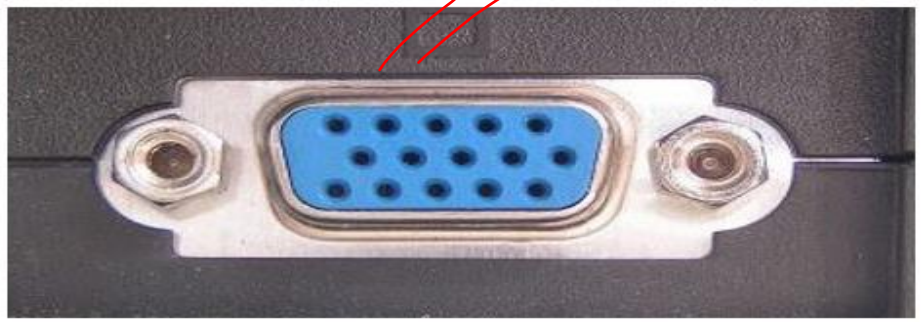
- **External port-** External ports are used to connect external devices modem, mouse, printer, flash drives, etc with the motherboard.

1) PS/2:



As the name suggests, it was introduced with IBM's Personal Systems/2 series of computers. These connectors are colour coded, e.g., green was for mouse, and purple was for the keyboard. Besides this, it is a DIN connector with six pins. At present, it is superseded by USB ports.

2) VGA Port:



This port is commonly found in computers, projectors, and high definition TVs. It is a D-sub connector called DR-15 as it has 15 pins, which are arranged in 3 rows with five pins in each row. It was most often used to connect CPU with CRT monitors. Still, most of the LCD and LED monitors come with VGA ports. However, these ports don't assure high picture quality as VGA can carry only analogue video signals up to a resolution of 648X480.

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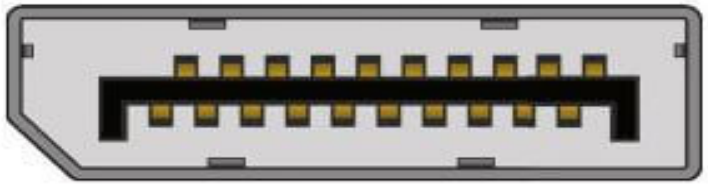
3) Digital Video Interface (DVI):

It is another interface between a CPU and a monitor. It is a high-speed interface that is developed to transmit the lossless digital video signals and to replace analogue digital video signal transmission through VGA technology.

The DVI interface can be of three types based on the signals transmitted by it: DVI-I, DVI-D, and DVI-A. The DVI-I supports combined digital and analogue signals, whereas DVI-A supports only analogue signals, and DVI-D supports only digital signals.

4) Display Port:



This interface allows transmitting a video and audio from a device to a display screen. It is an advanced display technology that is developed as a substitute for older interfaces such as DVI and VGA. A display port can be seen on laptops, desktops computers, tablets, monitors, etc. It has a 20-pin connector and offers a better resolution than DVI port.

5) **RCA Connector:**

It is designed to accept composite video and stereo signals transmitted by three cables called RCA cable. A RAC cable has three color-coded plugs that are connected to the three corresponding-coloured jacks of an RCA connector. Each of the coloured jack is ringed with metal. The red jack supports the right stereo channel, and the white one supports the left stereo channel, while the yellow is used for composite video.

6) Component Video:

This interface allows splitting video signals into three channels. The component video generally has three color-coded slots; Red, Blue, and Green. Each slot receives and then transmits a particular component of the video signal. It offers high-quality videos than composite video and can carry both analogue and digital video signals.

7) HDMI port:

HDMI (High-Definition Media Interface) is a digital interface developed to connect high-definition devices such as digital cameras, gaming consoles, etc., to computers and TVs with HDMI ports. Besides this, it can carry uncompressed video and uncompressed or compressed audio signals. The advanced version of HDMI, such as 2.0, can transfer video signals of up to a resolution of 4096x2160.

8) USB:

USB (Universal Serial Bus) port is very versatile in use; It can be used for various purposes, such as to transfer data, to connect peripheral devices, and even as an interface for charging devices such as smartphones, digital cameras, etc. Today, it has replaced PS/2 connectors, game ports, serial and parallel ports, etc.

Types of USB ports:

USB Type A:

2.0/1.1 3.0

4.0

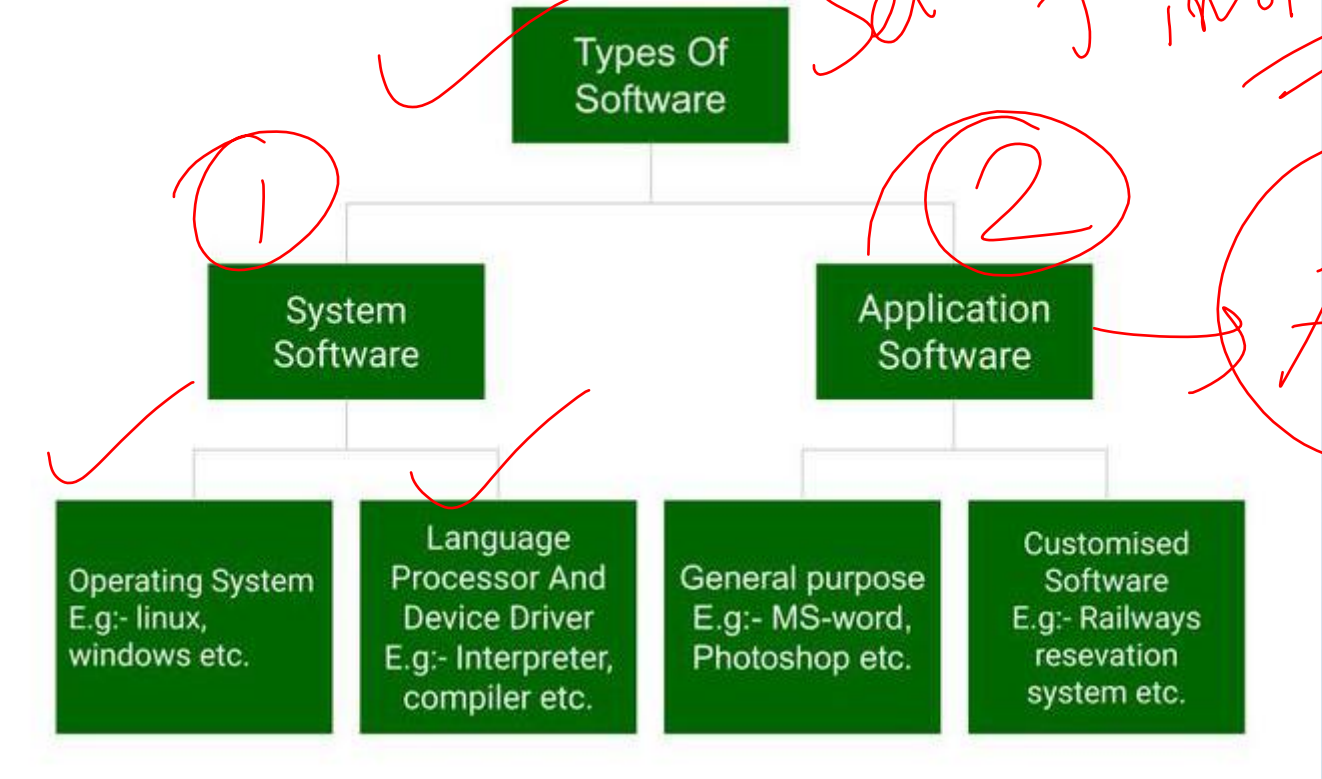
Type-C

Thunderbolt 3

Apple's Thunderbolt 3 is the fastest connection you'll find on the market for the general public. It can transfer data at lightning fast speeds of 40 Gbps and the port also doubles as a USB Type-C connection, making it even more versatile than it already is.

Notably, Thunderbolt 3 can also provide double the video bandwidth of any other cable on the market and supply up to 100W of power. This means that this single connection can power displays, transfer data extremely fast, daisy chain external devices, and provide a power connection.

Set of instructions



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App

Systems Software

The software that provides the basic functionality to operate a computer by interacting directly with its constituent hardware is termed system software. A system software knows how to operate and use different hardware components of a computer. It provides services directly to the end-user, or to some other software.

Types of system software:

1. Operating System
2. System Utilities
3. Device Drivers
4. Programming Tools

Application Software

Applications software (also called end-user programs) enable you to complete specific tasks, like word processing, making spreadsheets, working with pictures, planning landscaping, playing games, etc. Figuratively speaking, applications software sits on top of systems software because it is unable to run itself without the operating system and system utilities.

Application is just another word for program or software program, like the packaged programs, Microsoft Word (word processing) or Adobe Photoshop (graphics).

There are again two broad categories of application software general purpose and customized application software.

1. General Purpose Software
2. Customised Software

Which of the following is an impact printer ?(SSC CGL)

(a) Daisy wheel printer
(b) Ink jet printer
(c) Bubble jet printer
(d) Laser printer

Which of the following is a page printer ?(SSC CGL)

(a) Daisy wheel printer
(b) Ink jet printer
(c) Bubble jet printer
(d) Laser printer

_____ key used as modifier keys ?(SSC CGL)

(a) CTRL
(b) ALT
(c) SHIFT
(d) All of the above

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Thank You

See you next day