

COMPUTER HONOUR



WHAT WE WILL BE GOING THROUGH

- Describe the function of and point out the following components of a personal computer.
 - Describe the proper handling and storage techniques of disks, CDs, CDR's, DVDs, Flash/USB drives, and other equivalent optical media devices.
 - Explain the difference between read-only, write once, and write-rewrite media. What are examples of each?
 - Determine the following on a computer system
 - What are the advantages of increasing processor speed, hard drive storage capacity, and RAM on a computer?
 - List two different types of printers and explain the uses and advantages of each type.
 - Explain how each of the following elements helps protect a computer system. Why is computer safety so important?
 - History of the personal computer
 - How to log your time with a computer and what the bible says, about spending time.
-

QUIZ

THE ACRONYM PC STANDS FOR?

- A. **Private Computer**
- B. **Personal Compact**
- C. **Personal Computer**

THE ACRONYM PC STANDS FOR?

A. Private Computer

B. Personal Compact

C. Personal Computer



C. Personal Computer

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WHICH COMPONENT OF A COMPUTER IS THE BRAIN?

- A. CPU
- B. Hard Drive
- C. RAM

WHICH COMPONENT OF A COMPUTER IS THE BRAIN?

A. CPU

B. Hard Drive

C. RAM



WHAT IS NOT A COMPUTER COMPONENT?

A. CPU

B. Motherboard

C. Paper

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WHEN WAS THE FIRST COMPUTER CREATED?

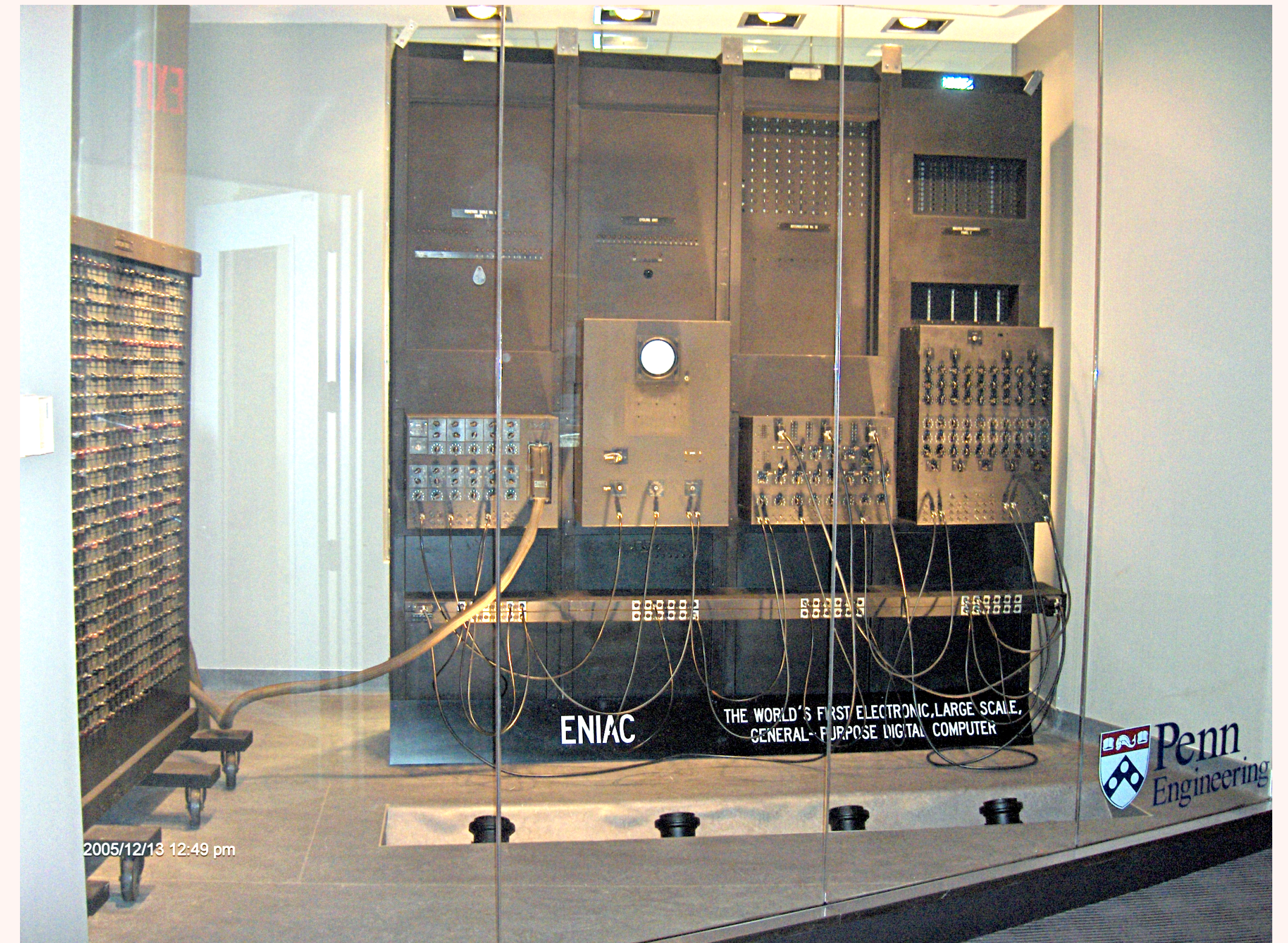
- A. 1923
- B. 1946
- C. 2000

WHEN WAS THE FIRST ELECTRONIC COMPUTER CREATED?

A. 1923

B. 1946

C. 2000



The **ENIAC** was invented by J. Presper Eckert and John Mauchly at the University of Pennsylvania and began construction in **1943** and was not completed until **1946** and weighed more than 27 Tons

WHICH OF THE FOLLOWING DO NOT CONTAIN A COMPUTER?

- A. Laptop
- B. Microwave
- C. Xbox
- D. Rocket



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Trick question

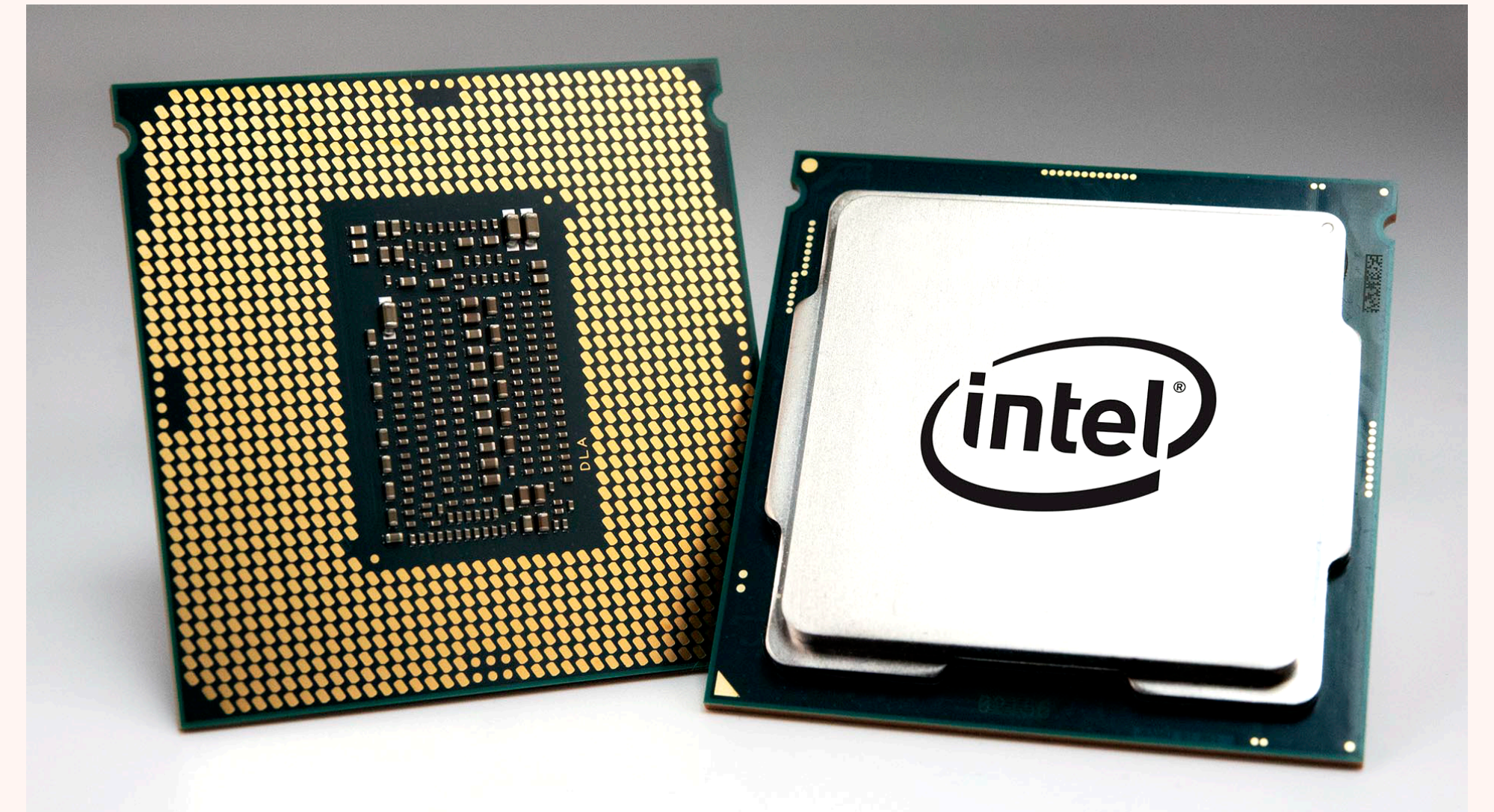
**THEY HAVE SOME
FORM OF COMPUTER**



**NAME THE BASIC
COMPONENTS THAT MAKE UP A
COMPUTER**

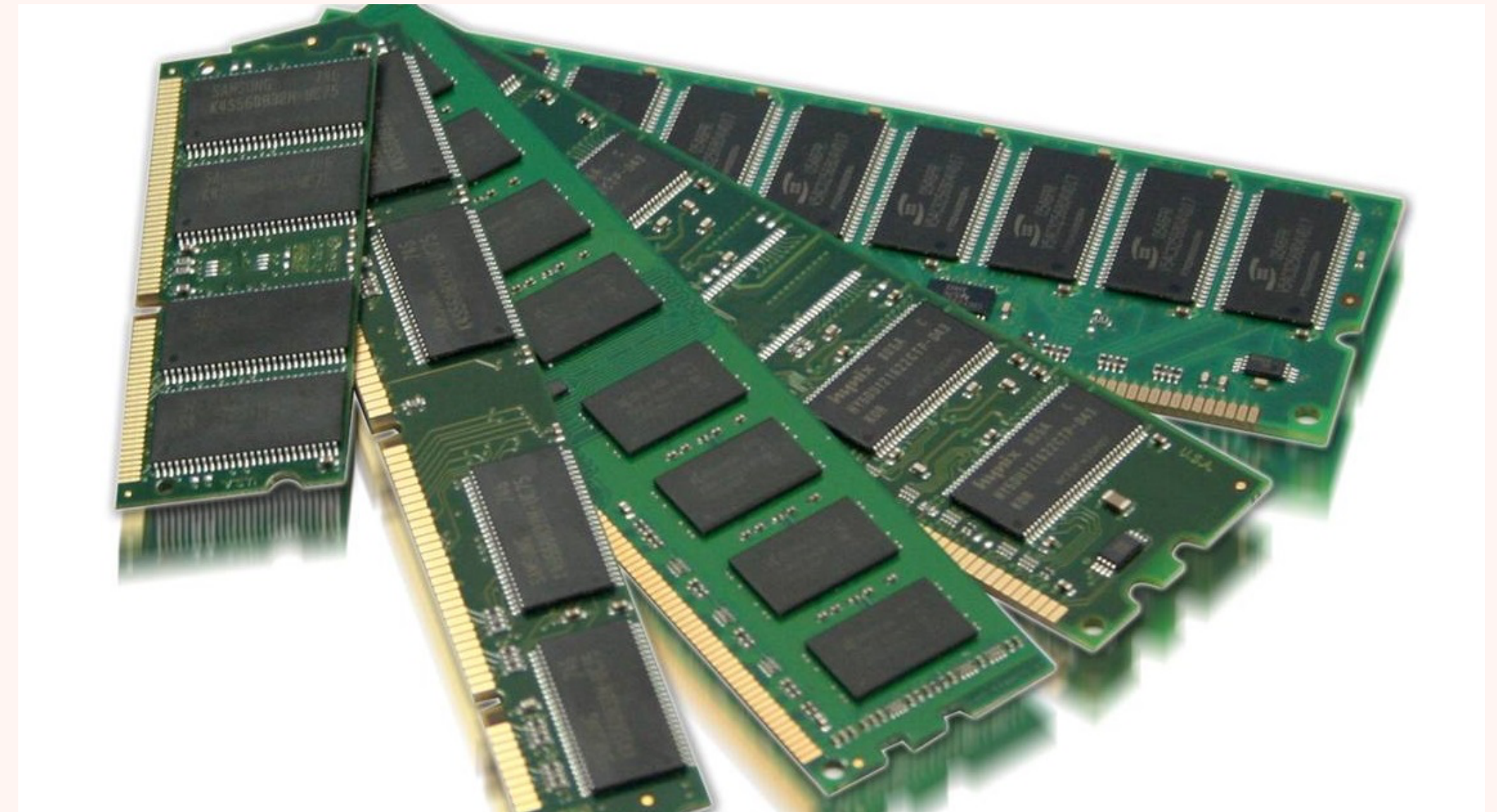
CPU

- **The Brains of a computer. Where all the logic and instructions are performed. Send signals to other components**
- **Intel, AMD, ARM**



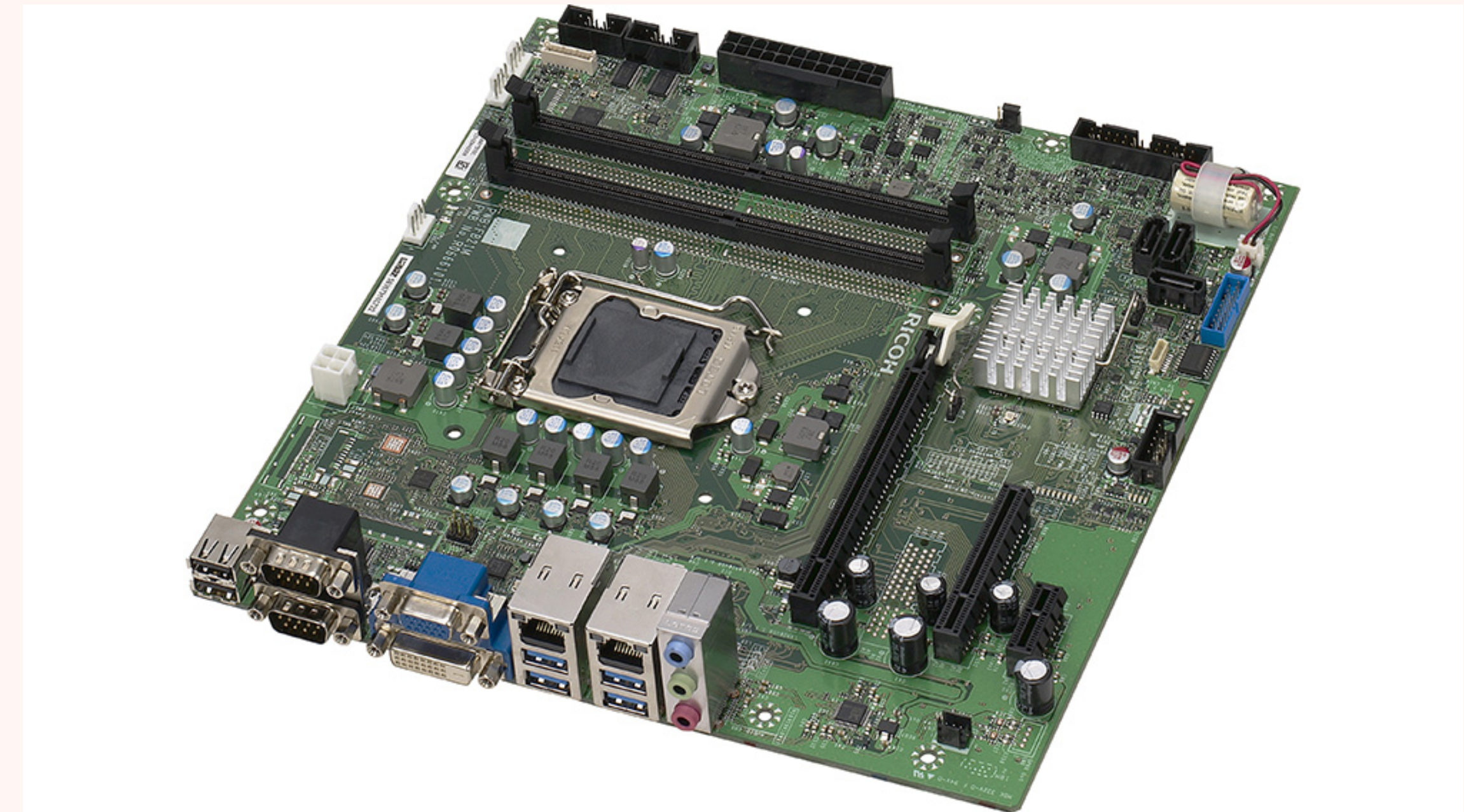
MEMORY (RAM)

- **Stands for Random Access Memory**
- **It is a fast type of memory that a computer uses to load and store programs that are currently open.**
- **Although when the computer is turned off it is all lost (volatile).**



MOTHERBOARD

- **The main unit inside the computer that has the circuitry for the computer as well as all the slots that each of the components plug into.**



HARD DRIVE

- **A Hard Drive is a data storage device. It contains metal platters which are coated in a material, which has magnetic properties that allow which are detected and changed.**
- **The computer uses them for storing files, programs and the operating system as the data is not destroyed after the computer is turned off.**



Did you know
The First Gigabyte Drive Cost \$40,000 and weighed and weighed 550 pounds

EXTERNAL DRIVE

- **A hard drive that is stored outside the computer and is plugged in using the USB Port.**
- **It stores files and as it can be moved it can be used to transfer files or for backup.**

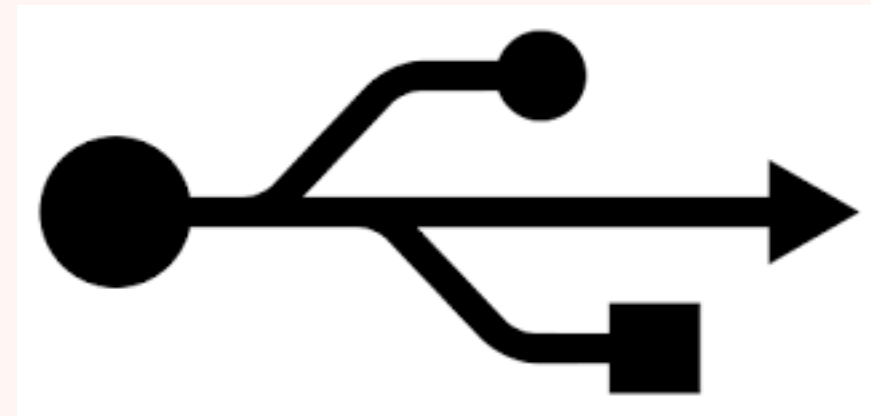


INTERNAL DRIVE

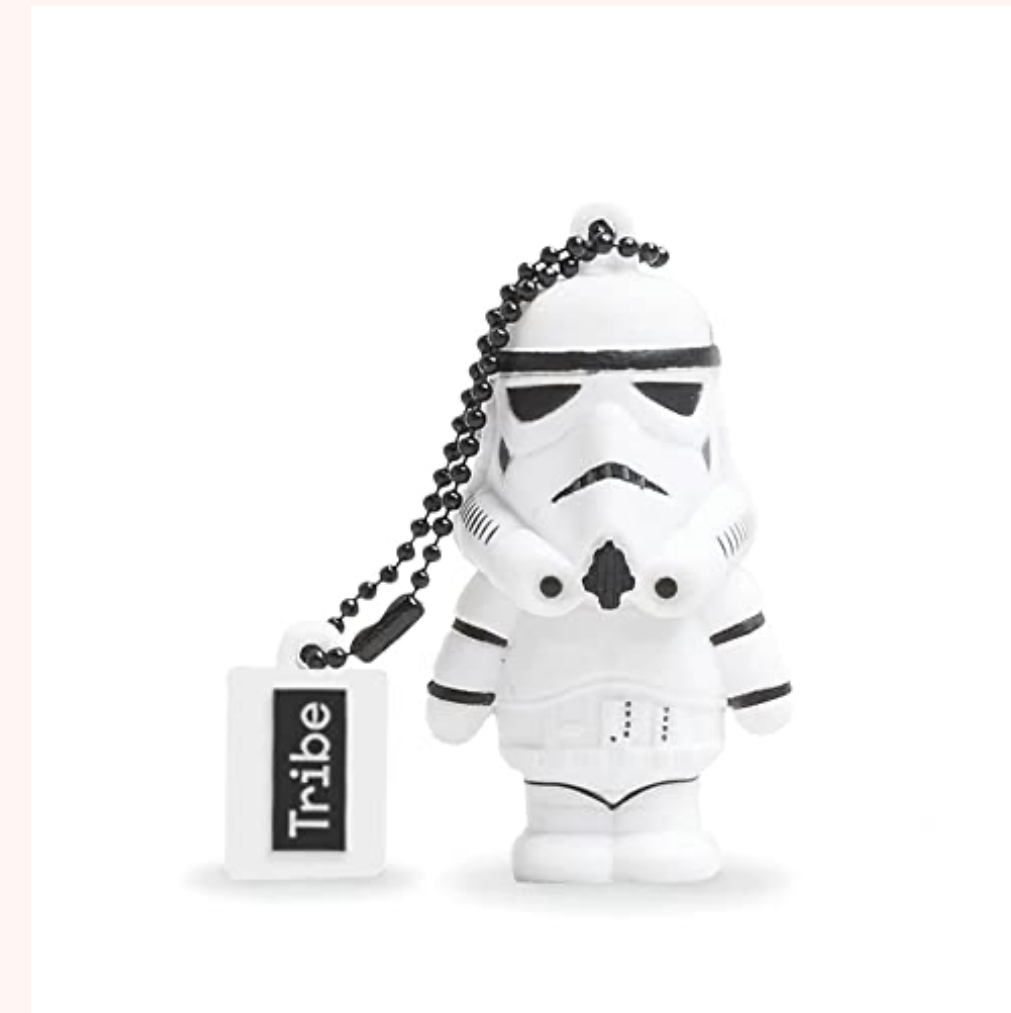
- **A drive that is installed inside the computer and usually takes up less space than a similar external drive and usually more reliable as it is not moved around as much.**
- **SSD/Flash, HDD**



USB



- **Universal Serial Bus is a way that external devices interact with the computer**
- **A port on various locations. Used to plug in flash drives, external drives, microphones, charging etc.**
- **USB-C, Mirco, Mini**



- **Did you know**
- **There are at least 8 different types of USB despite the name implying universal**

OPTICAL DRIVE

- **A device that reads and can write optical media such as DVDs and CDs**



INPUT DEVICE

- **A device that allows data to be inputted into a computer.**
- **Mouse, Keyboard, Game controller**

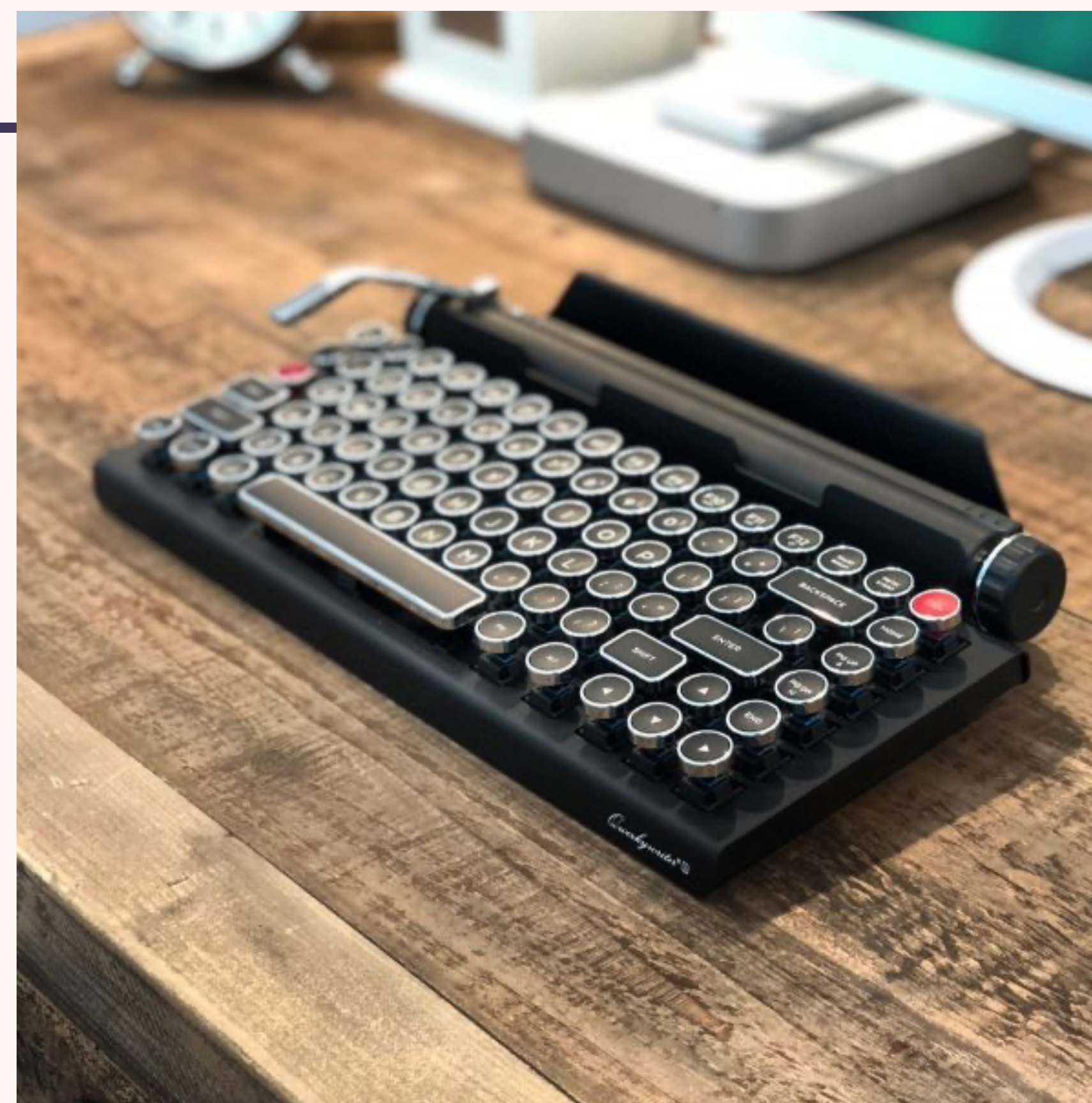


MONITOR

- **Device that allows visuals generated by a computer to be shown to the user.**



KEYBOARD & MOUSE



- **Keyboards allow a user to input text. They have the letters printed on keys when pressed input that letter.**
- **A mouse allows a user to move the cursor on the screen and/or select data and perform various actions with the cursor.**

➤ **Did you know the first computer mouse was invented in 1964 and was made from wood.**



PRINTER

- **A printer takes a computer and output and puts outputs onto a piece of paper.**



NETWORK CARD

- **A Network Card is a device that allows a computer to connect to a network and the internet.**



DIGITAL CAMERA/ WEBCAM

- **A digital camera is a device that takes an photo and stores it in a digital form to allow it to be read and stored on a computer.**



SCANNER

- **A scanner that scans documents and pages of text and converts into a digital format that can be read and edited by a computer.**



HANDLING MEDIA AND COMPONENTS

- **CD, DVDs** - They are very delicate especially the shiny side. Try not to drop them and prevent touching the shiny side as scratching them will damage the data on them
- **Hard Drives** - These are a bit more durable than optical media so they can be held. Do not open them up as any dust getting into the enclosure will destroy data on them and can be expensive to get back. Try not to drop them as doing this too much will damage them.
- **USB Flash Drives** - Probably the most durable storage device. Dropping flash storage won't cause much damage to them. But still can be prone to bending and snapping. Keep them away from water as this will most certainly damage them
- **CPU and RAM** - avoid touching the metal contacts on RAM and at the bottom of the CPU. The moisture from your hands can damage them and they can be expensive to replace.

READ ONLY vs WRITE ONCE vs WRITE-REWRITE

- **Read Only - is media where the data is written by the manufacturer and can't be changed by the end-user, but can still be accessed. - CD's, DVDs**
- **Write Once - is media that comes blank from the manufacturer, and can be written to once, after which can't be written (changed) to again. But can still be accessed. CD-R**
- **Write - Rewrite - is media that comes blank from manufacturer and can be written to multiple times. CD-RW**

READ ONLY vs WRITE ONCE vs WRITE-REWRITE

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- **Write - Rewrite** - is media that comes blank from manufacturer and can be written to multiple times. **CD-RW**

RAM CAPACITY

- **RAM is used by a computer to store programs and files that are currently being used.**
- **Advantages of increasing RAM mean that more things can be stored there at one time and therefore decreases the chance that a program will reload.**
- **It also means that you can have more files and programs open at the same time improving multitasking.**
- **Games improve as well**
- **Performance also increases but only to a certain point.**
- **Did you know**
- **The Computer which sent the rocket to the moon had less RAM than most modern mobile phones**

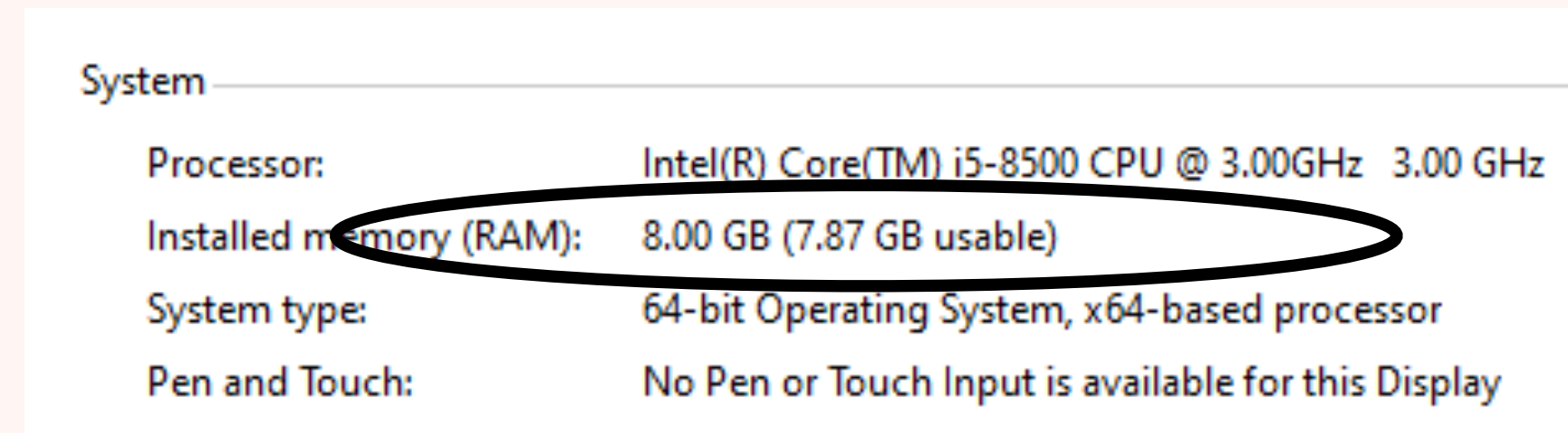
HOW MUCH RAM DO YOU HAVE?



macOS:

🍏 > About this Mac

RAM Capacity is listed as memory



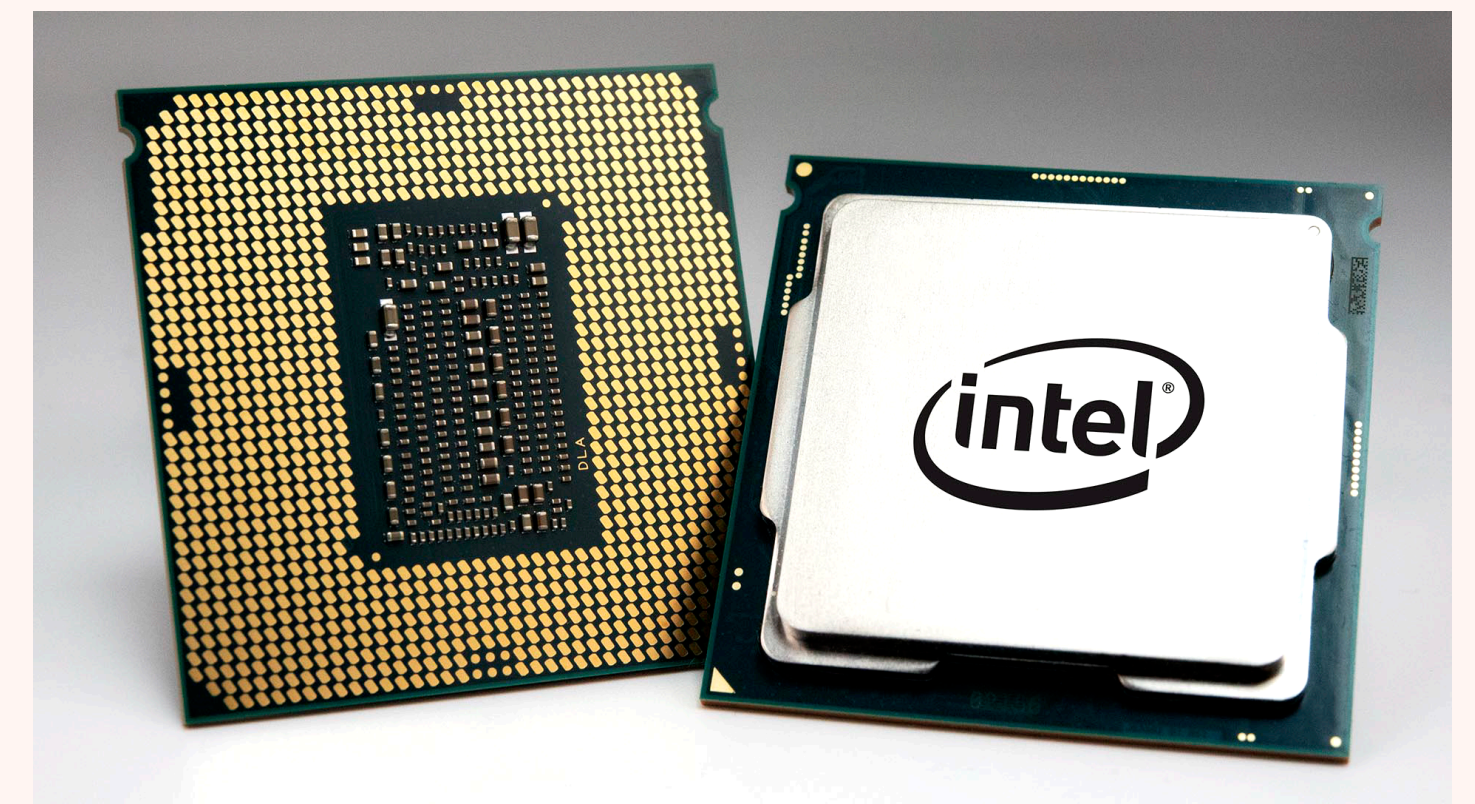
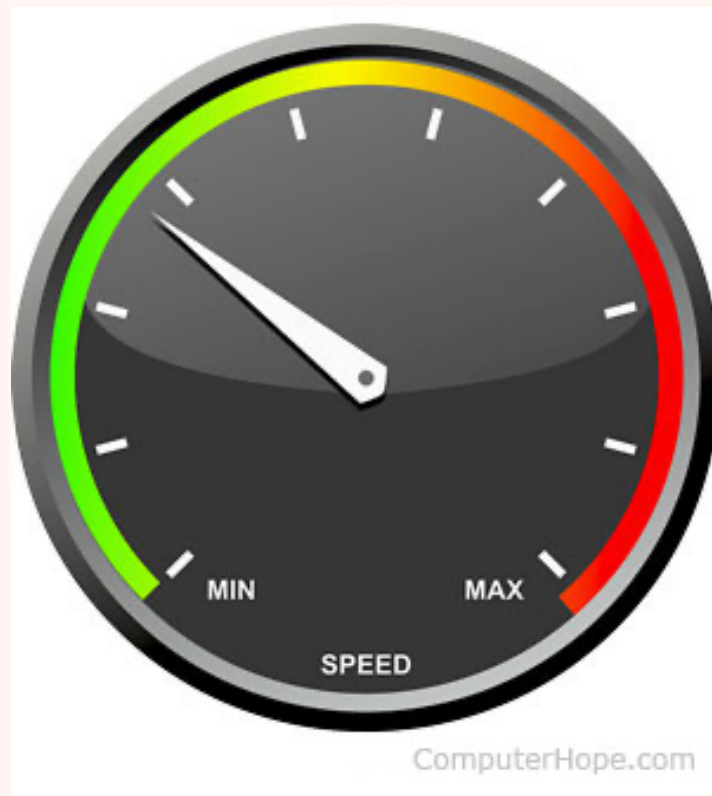
Windows:

Start > Search for Control Panel > System and Security > System

Capacity is Installed memory

CPU SPEED

- **Different CPU's / Processors have different speeds. These are measured in Hz**
- **1 Hz means that every second the CPU completes one instruction, 1GHz = 1 billion per second.**
- **Increasing the CPU speed means that a computer can complete tasks faster.**

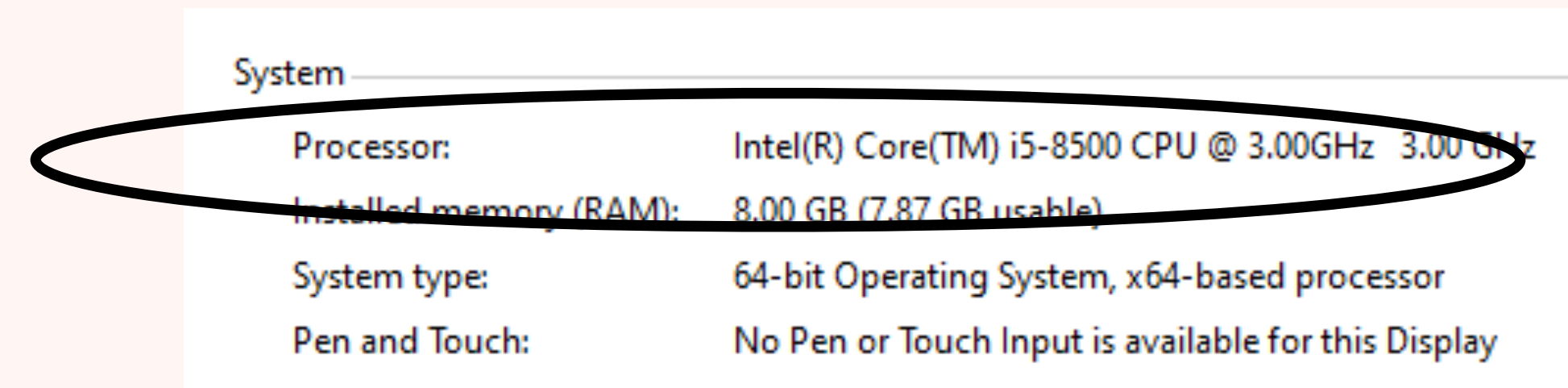


HOW FAST IS YOUR CPU?



macOS:

- 🍏 > About this Mac
- CPU Speed is listed under processor



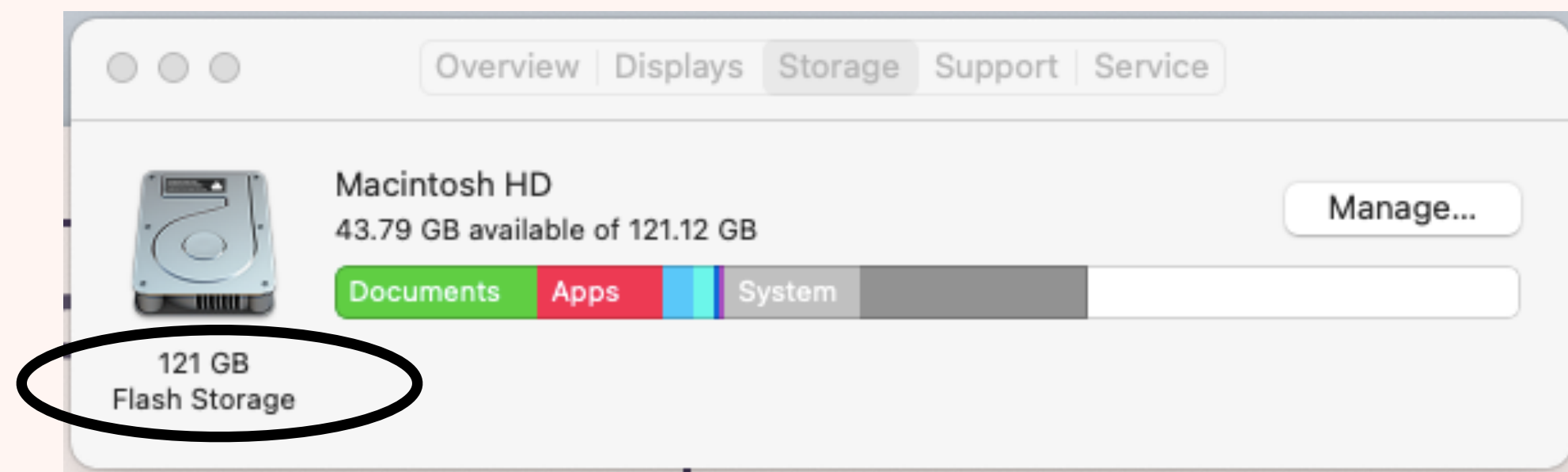
Windows:

- Start > Search for Control Panel > System and Security > System
- Shows processor and processors speed

STORAGE SPACE

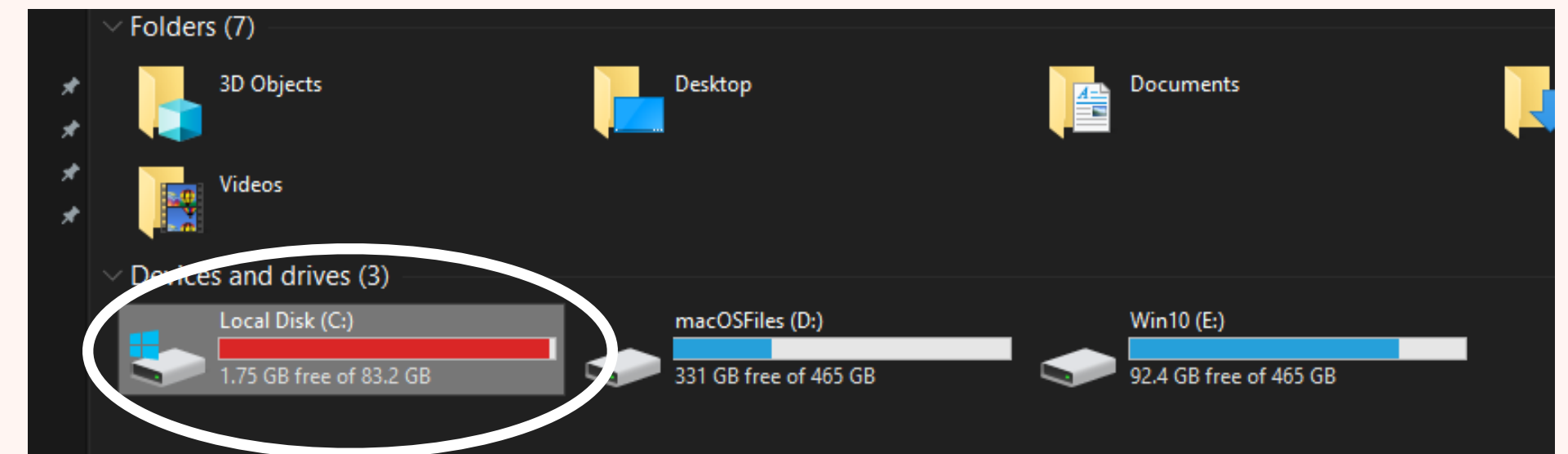
- **Storage space is measure in bytes. How many bytes the computer has determines how much it can store**
- **Increasing the storage space will not improve the performance of a computer but will allow you to store more files on your computer**

HOW MUCH STORAGE SPACE DO YOU HAVE?



macOS:

- 🍏 > About this Mac > Storage
- Shows your hard drive and how much space there is



Windows:

- Open the file explorer and select this PC.
- The Drive marked C is the drive local to your computer and shows how much storage your computer has

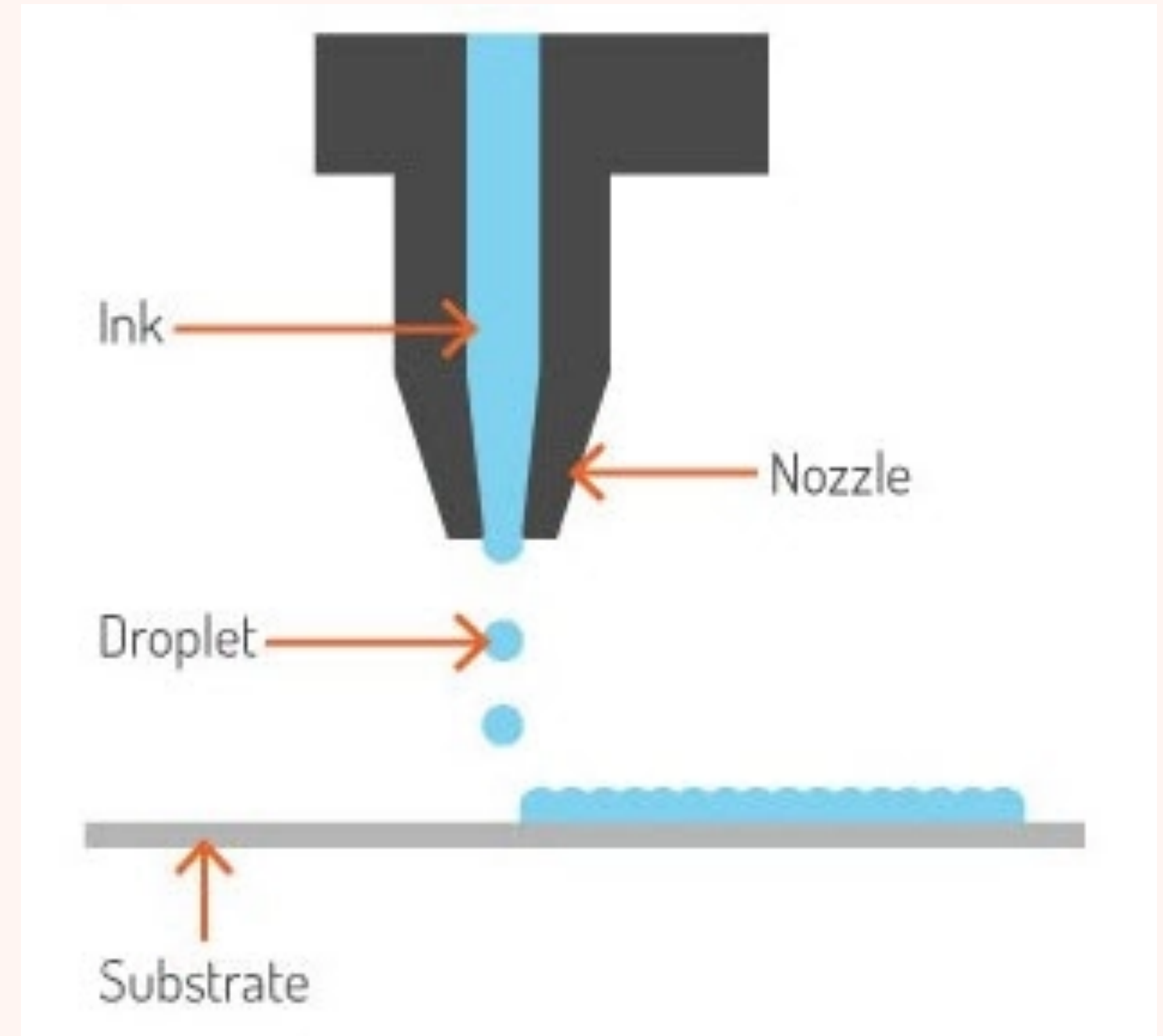
PRINTERS

- **A Printer takes a computer digital output, such as a digital photo or document and outputs it as a piece of paper.**
- **There are various kinds of printers that are used, the two main ones are:**
 - **Inkjet**
 - **Laser**



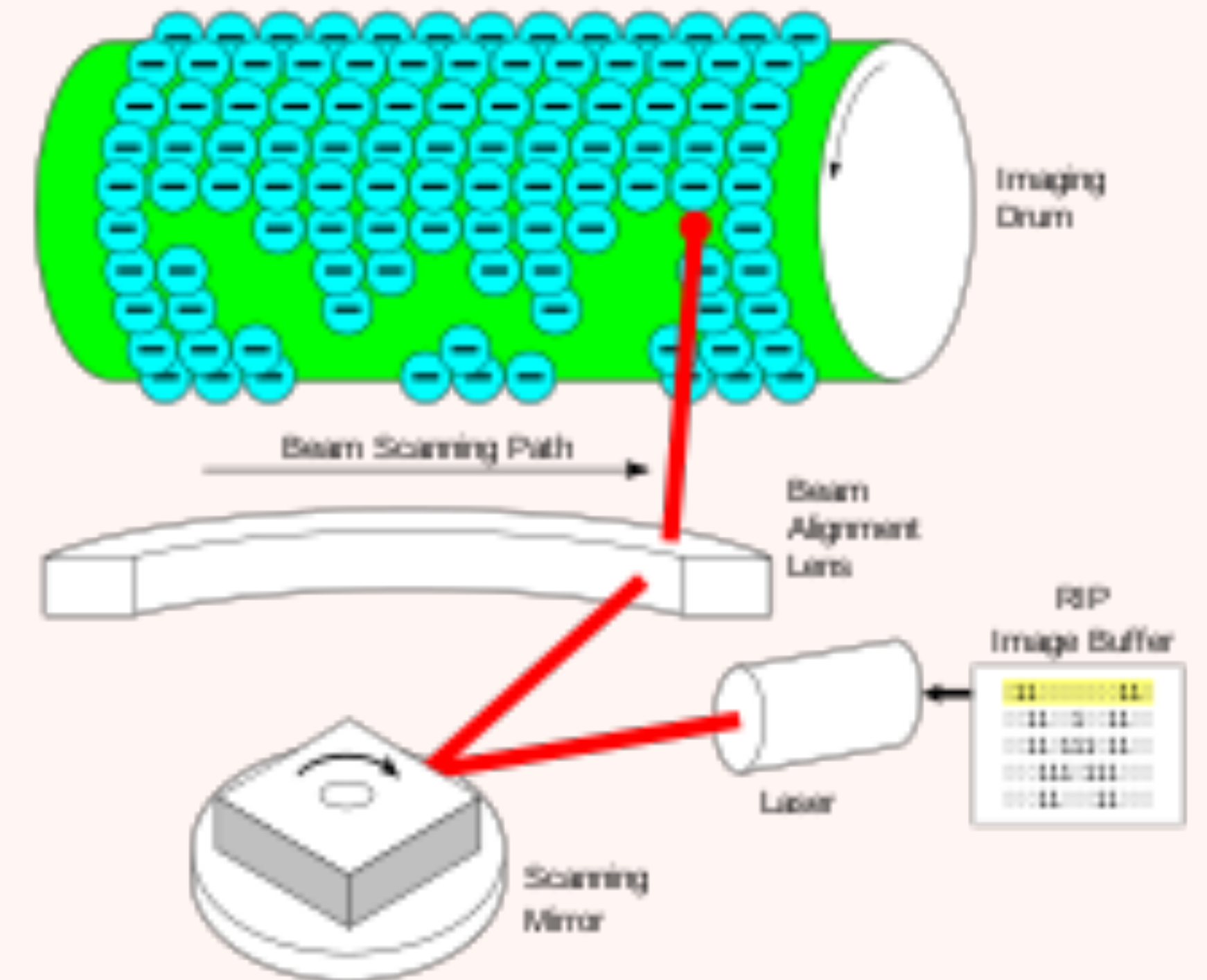
INKJET PRINTER

- **An Inkjet uses liquid ink which is deposited onto paper using a print head. It puts very small dots to create the image onto the page. Use dyes to create colour.**
- **They are generally much smaller than laser printers so are more suited to home use.**
- **They use inks and dyes to print therefore more suited printing photos, however laser printers will be better at printing text.**
- **The technology used inside inkjet printers are less complex making them cheaper than laser printers.**



LASER PRINTER

- **A Laser Printer uses toner - which is a kind of powder. The laser in the printer generates an electric charge to transfer the toner to the paper, and creates the image.**
- **The method of transferring the toner to the paper is not likely to smear so therefore, makes it better for printing text or large documents. But due to the colours, inkjet printers are better suited to printing photos.**
- **Toner also costs less and won't dry out like ink cartridges making it cheaper to print in the long run.**





A



B

Which Printer



A



B

Which Printer



A

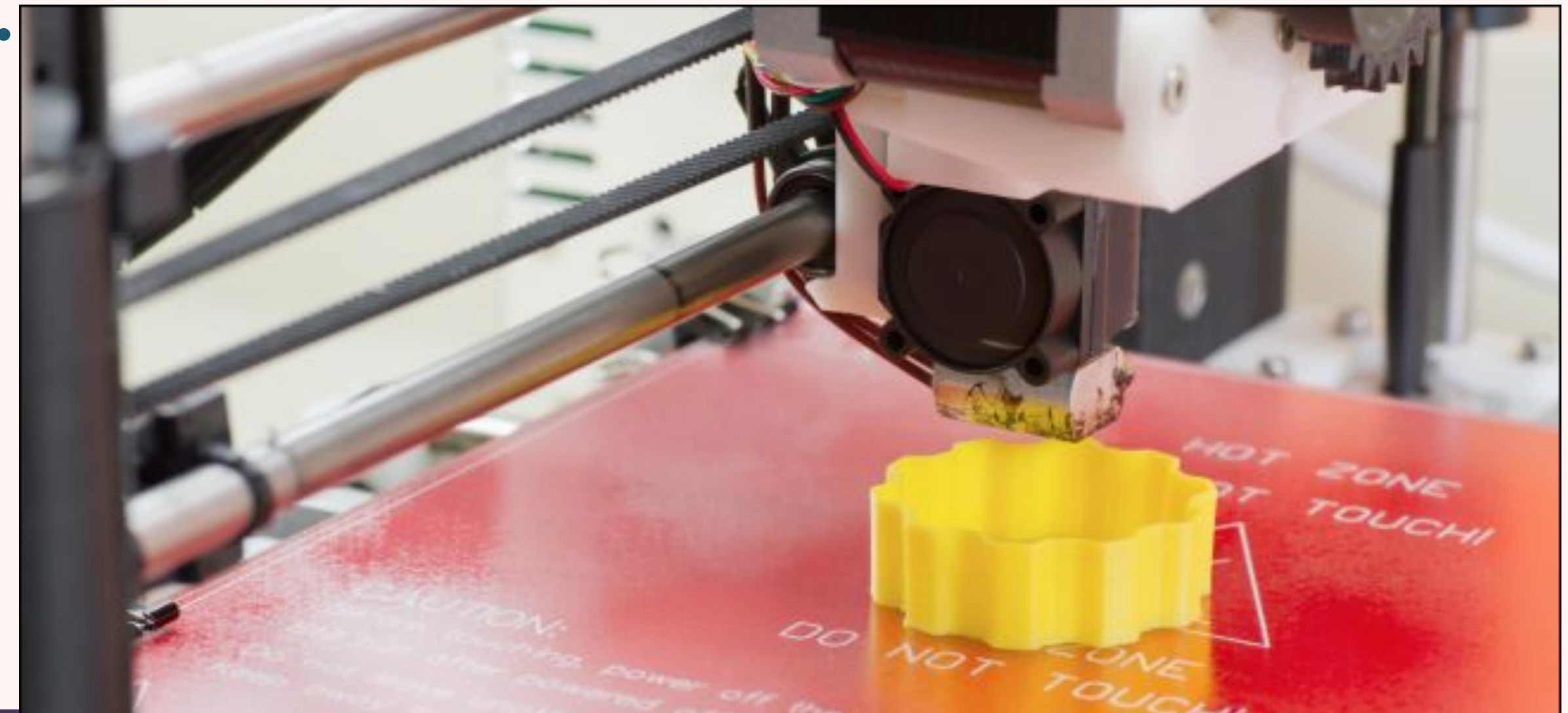


B

Which Printer

3D PRINTERS

- **A 3D printer uses plastic strands and feeds them into a printer head. The printer head moves in 3 dimensions and lines the plastic on top to create some impressive 3D creations**
- **Users use Sophisticated computer programs to create the design they want and then it is sent to the printer and in a few hours you get the finished product.**



3D PRINTERS

➤ **Here are just some of these impressive creations**









<https://youtu.be/hL4Na-jHecQ>

**WHAT WAYS OF KEEPING YOUR
COMPUTER SAFE DO YOU
KNOW OF?**

BACKUPS

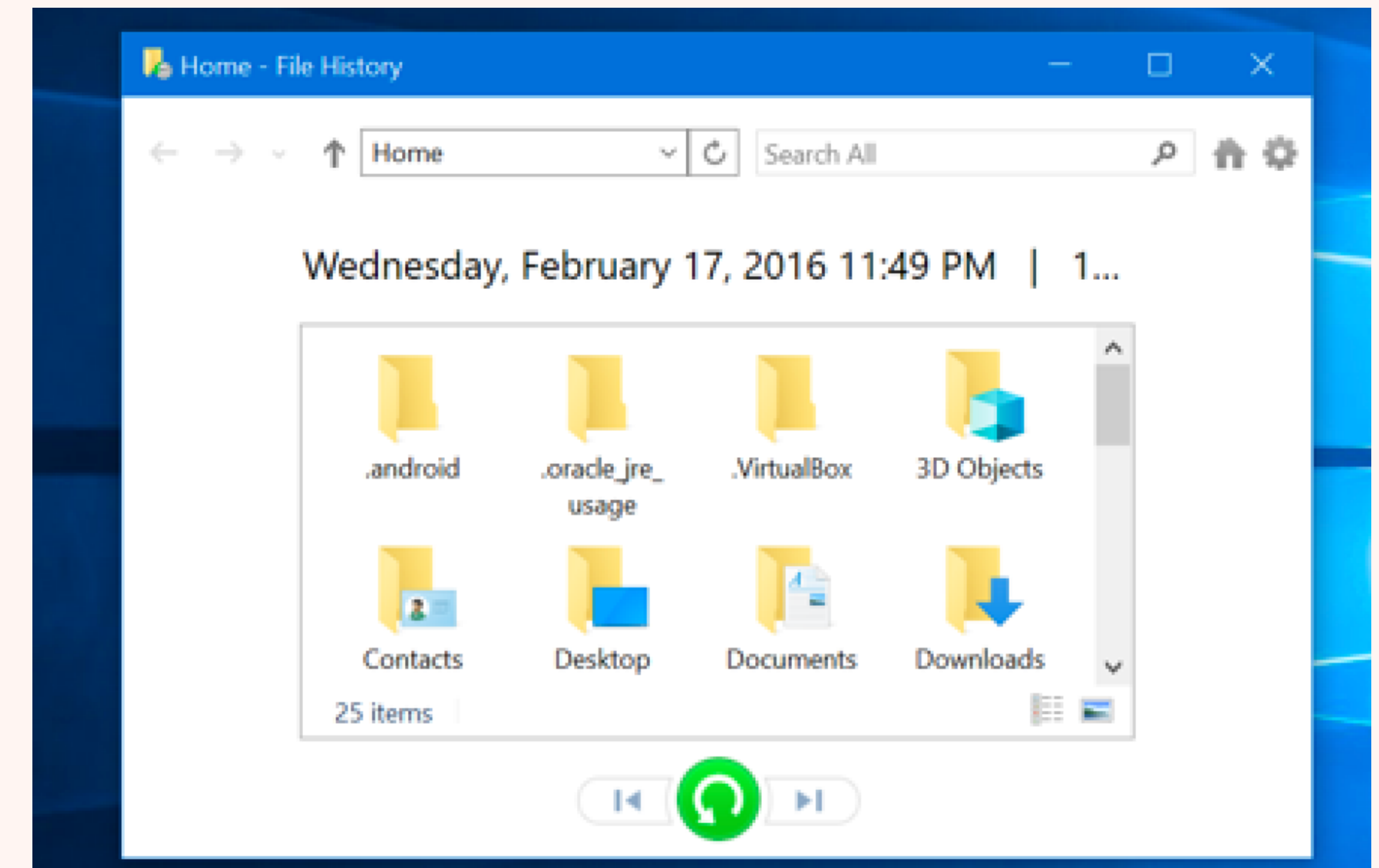
- **Backing up means storing files onto another storage media separate from your personal computer, so that they are stored somewhere else in the case of a computer or hardware failure.**
- **If you have an external hard drive or a lot of cloud storage you can backup your important files onto this.**
- **Computer hardware can fail at any time so to make sure we don't lose any files it's important to make backups of our files regularly. Good computer users will backup files regularly.**

CREATING A BACKUP

- **A Simple way of backing up is just copying all important files to an external drive or to another computer. This ensures all files are kept on somewhere else if the computer fails.**
- **You could also upload files to a cloud service. This ensures that if your computer has an issue then you can just download them.**

CREATING A BACKUP

- **These are programs create what are known as System Image Backups.**
- **These essentially take a snapshot of the state of your computer at that moment in time.**
- **They can then easily restore any computer to that state if there is an issue with your computer.**
- **Examples of this include:**
 - **macOS Time Machine**
 - **Windows File History**



SURGE PROTECTION

- **Computers have a lot of delicate components, and are only designed to have a certain amount of current going through them**
- **If you have too much power going through a computer then you can kill or “fry” many of the components making them usable.**
- **Lightning strikes or any issues with household power can cause a spike in current so protection from this is good.**

SURGE PROTECTION



- **Surge protectors offer several amounts of protection measured in joules.**
- **Generally the more joules it has, the bigger the spike in current the protector can protect against**
- **The protect by absorbing the spikes and preventing them from getting to the computer. However the more spikes they protect against the weaker they become so they do become less effective as time goes on.**

INTERNET SAFETY

- **The Internet is a great tool to use however does present some risks and problems when using it.**
- **There are many malicious attacks that can be made through the internet that need to be protected against**
 - **Some of these include**
 - **Viruses / Malware - not COVID-19 - These are programs that are only there to slow down or damage our computers. Usually downloaded as part of another package unknowingly**
 - **Phishing - an attack that uses a fake site that looks genuine but instead when data is entered it sends to the attacker giving them data**
 - **Ransomware - a piece of software that holds your files ransom until you pay the attackers a fee**
 - **Key loggers and monitoring - allows an attacker to monitor your screen or what you are typing giving them access to your data.**

facebook

Email Password
 Keep me logged in [Forgot your password?](#)

Facebook helps you connect and share with the people in your life.



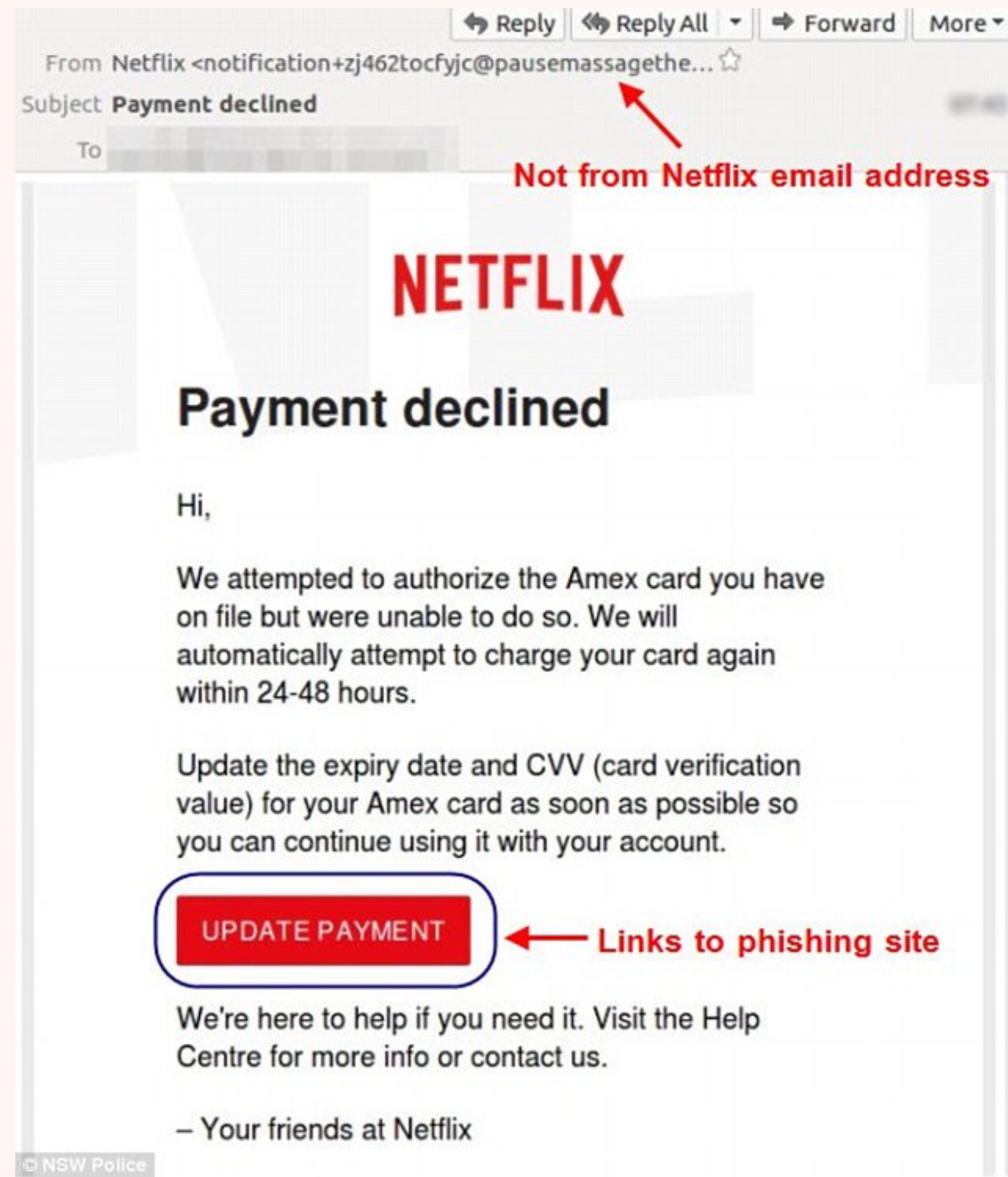
Sign Up

It's free and always will be.

First Name:
Last Name:
Your Email:
Re-enter Email:
New Password:
I am:
Birthday:
[Why do I need to provide my birthday?](#)

[Create a Page for a celebrity, band or business.](#)





INTERNET SAFETY

- **Protecting against these fully is not always possible. However there are some things we can do to reduce our chances of being affected**
- **One of the main ways is to install an anti-virus software.**
- **An Anti-virus has a database of known viruses and malware, that will be blocked from running whenever a match is found. Many of them update all the time so always have the correct information.**
- **There are many very effective ones freely available.**



Did you Know

- **There are more than 5000 new computer viruses released every month.**

INTERNET SAFETY

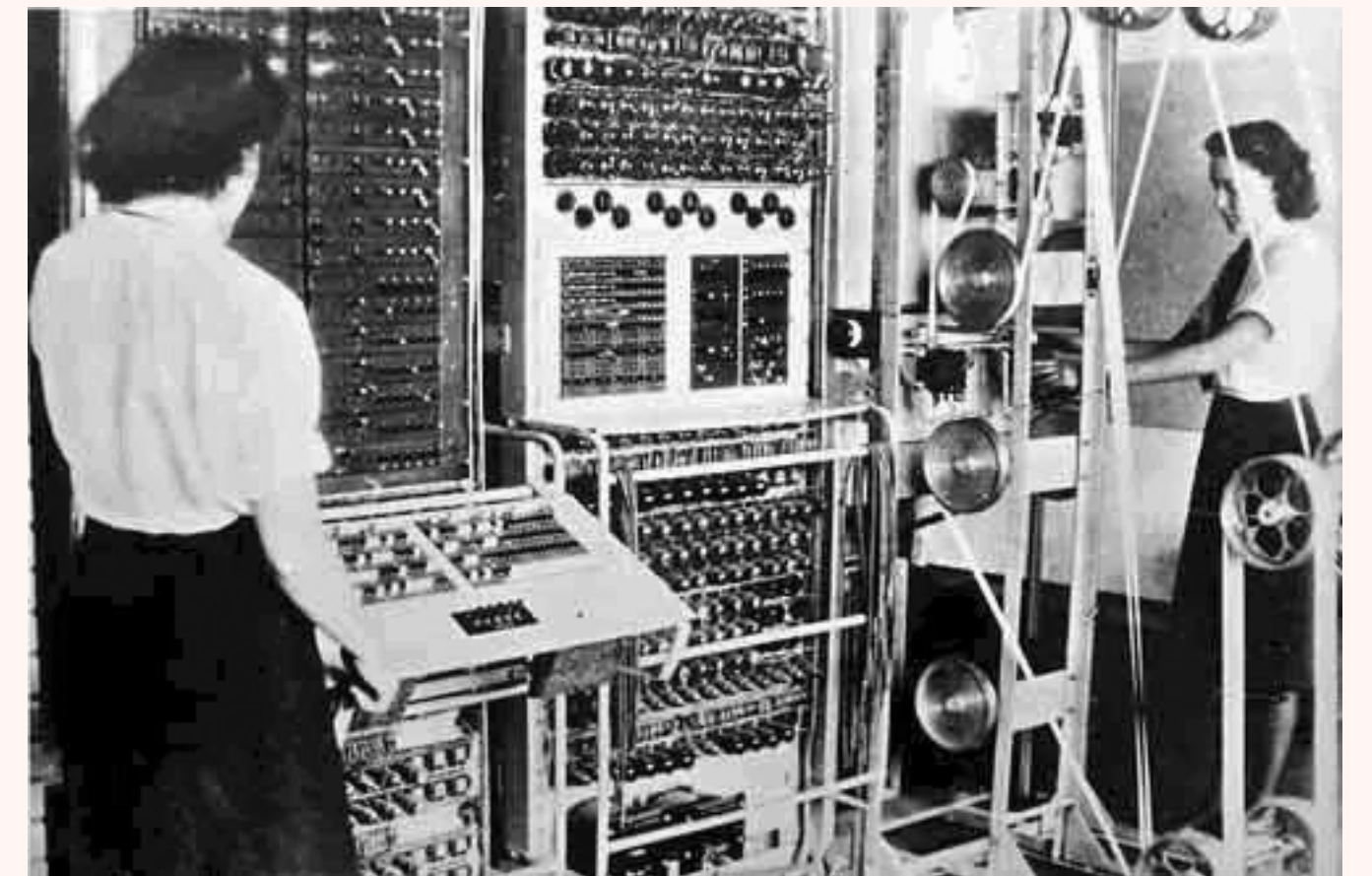
- **Another way of protection is using a firewall**
 - **A firewall monitors incoming and outgoing traffic and if one object looks malicious it will block it from entering your network**
 - **It has to be kept updated to be effective.**

INTERNET SAFETY

- **Anti-virus software and firewalls are not always fool proof and there are other ways that we lower our chances of being affected.**
 - **Keeping our computers up to date**
 - **No clicking any suspicious links or downloading unknown files**
 - **Only using official websites when entering passwords and other personal data.**
 - **If a website looks strange or not quite right then don't use it**
 - **Don't use the same password on multiple sites**

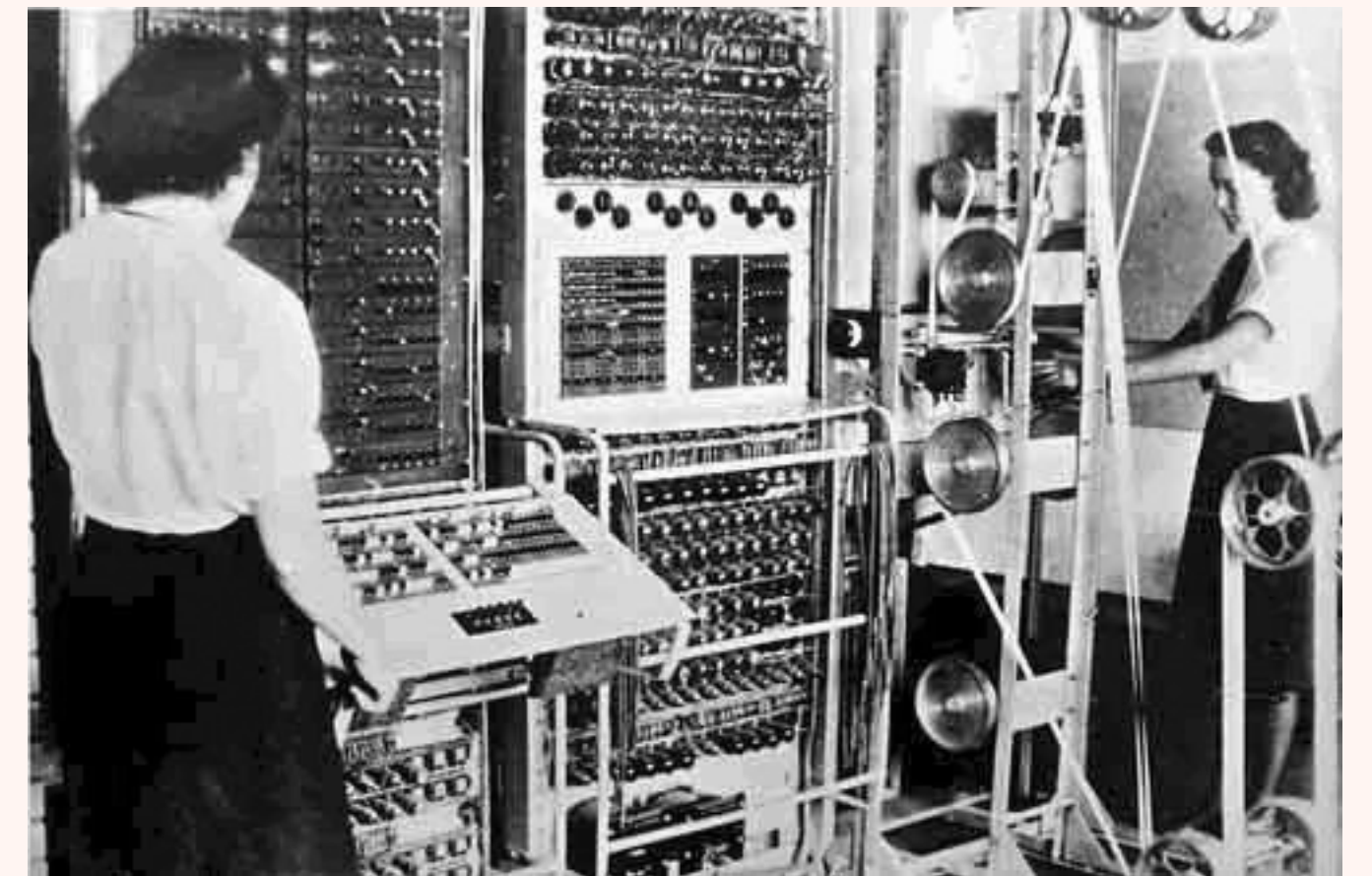
HISTORY OF THE PC

- **1955 - computers were very large and could not have fitted into a normal room in a normal sized house.**



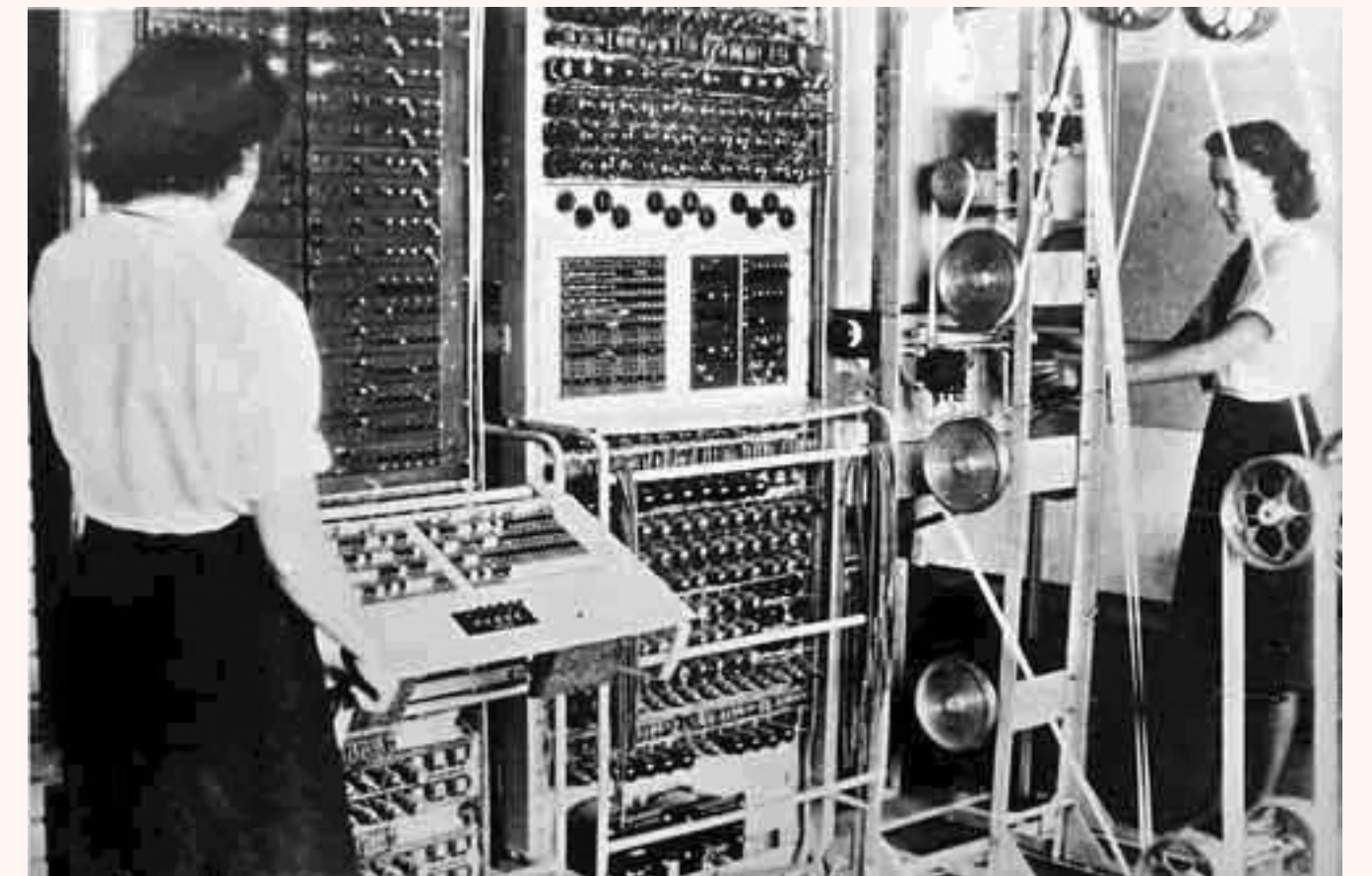
HISTORY OF THE PC

➤ **Where did the term “bug” come from?**



HISTORY OF THE PC

- **Where did the term “bug” come from?**
- **It came from the fact that a moth was causing a program in one of these huge computers not to function properly. Hence computer problems coming out as a bug.**



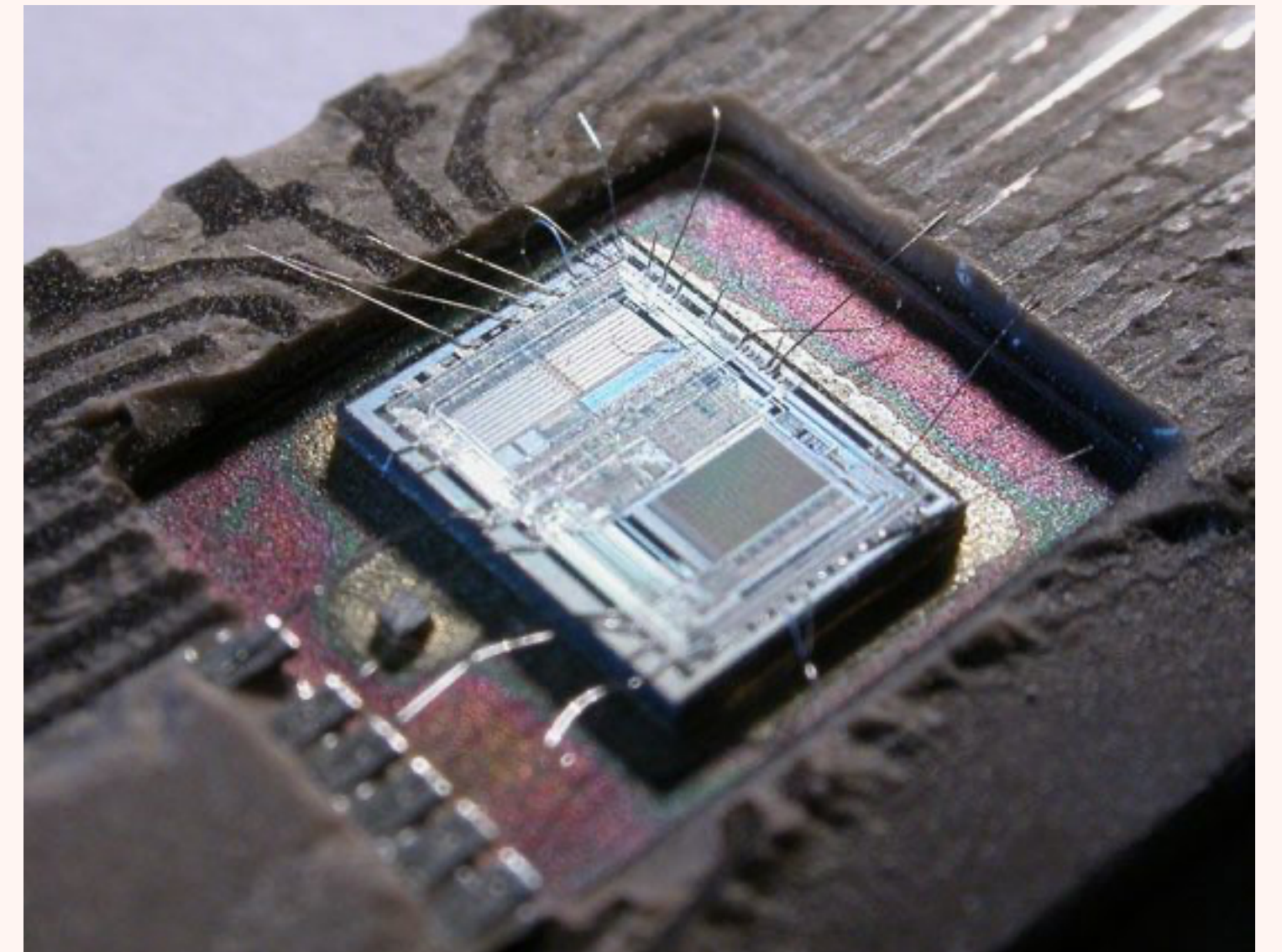
HISTORY OF THE PC

- **In the Late 1950s the development of the transistor, which replaced the valve. This meant that computers could be made smaller and the transistor consumed less power.**
- **This also allowed peripherals such as keyboards to be used**



HISTORY OF THE PC

- **In the mid to late 1960s the microprocessor was made. This could have several transistors on it. Which again lead to a decrease in size as well as power consumption. And in 1970 there were personal computers that could fit in an average sized house**
- **Although they cost \$70,000+**



HISTORY OF THE PC

- **By 1972 Intel made the 4004 and the 8008 processor which only cost a little under \$500, and the first PC with a microprocessor was made, but these were still for hobbyists.**

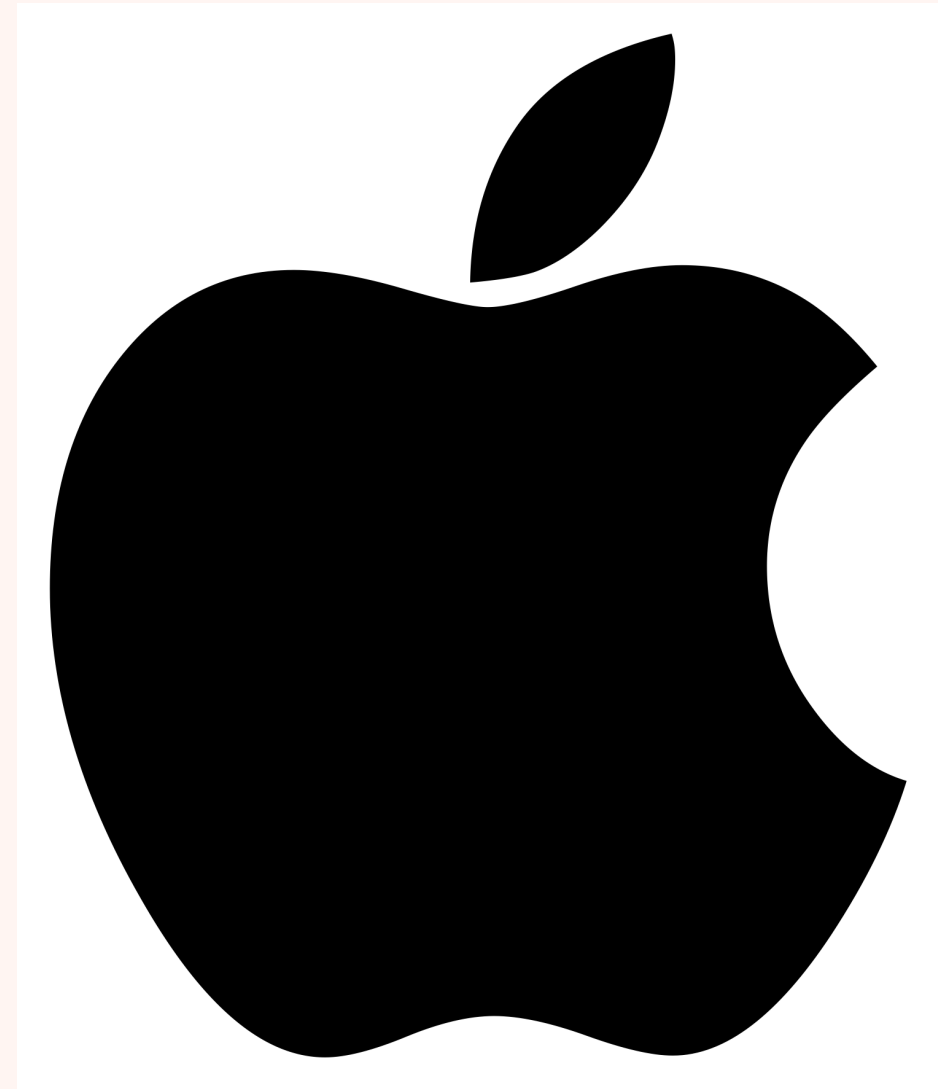
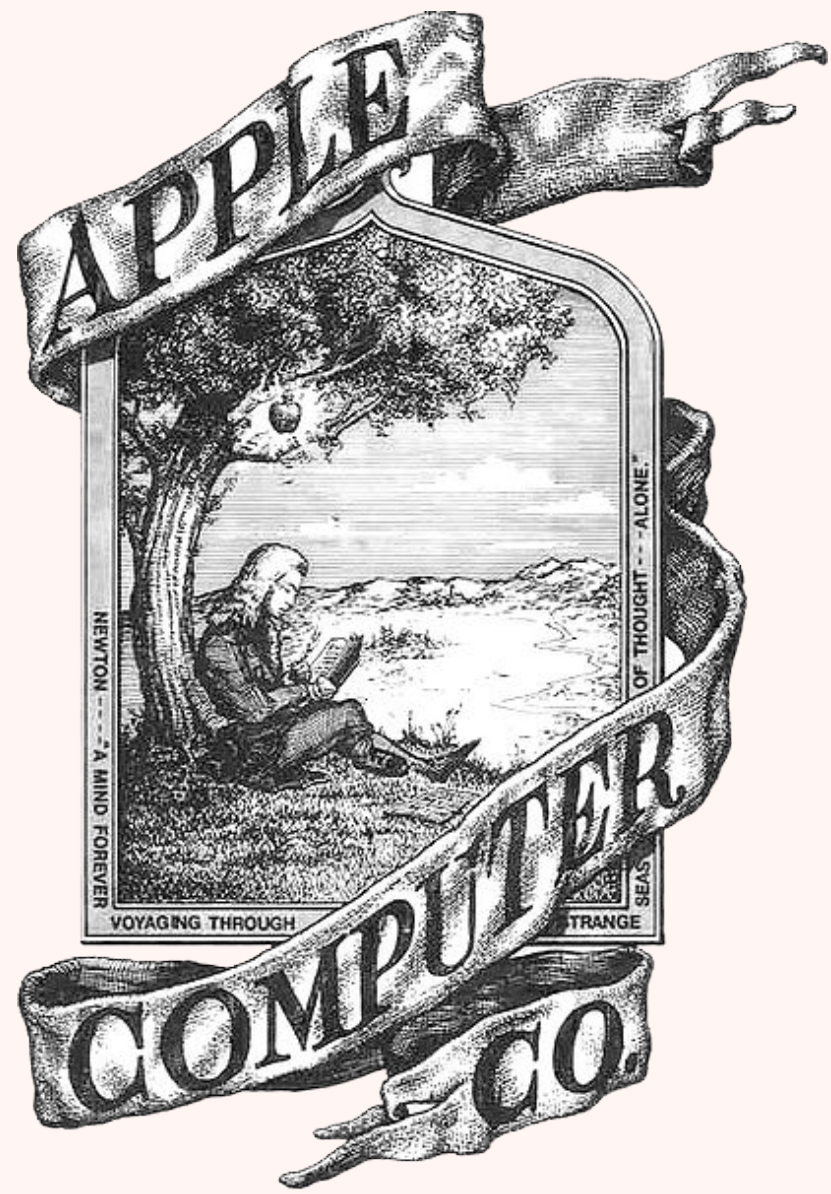


HISTORY OF THE PC

- **Programs were still being written by the manufacturers of the PC's, in 1975 Bill Gates and Paul Allen developed a program to allow people to write their own programs. In this they formed a company called Micro-Soft. Later renamed Microsoft**



What company does this logo belong to?



APPLE

**This is Apple's original logo back in 1975.
Steve Jobs got the inspiration from the apple
that fell on newton's head**

HISTORY OF THE PC

- **In 1975, Steve Jobs and Steve Wozniak founded Apple Computers and they created the home personal computer which they claimed could be used by anyone.**
- **The Apple II was launched in 1977 and was a great success.**
- **It had a display, and keyboard built in and only cost just above \$2000**



HISTORY OF THE PC

- **The Success of the Apple II moved the personal computer industry forward with other manufacturers trying to compete. Also in 1979 the first spreadsheet software was created moving forward the office application industry.**



HISTORY OF THE PC

- **In 1981 IBM created their first Personal computer. Microsoft won the contract to the Operating system for IBM computers which was called MS-DOS, which was installed on more than 30 million computers.**
- **MS-DOS later developed into Windows**

HISTORY OF THE PC

- **In early to mid 1980s the first portable computers were seen. These grew very much in popularity. They became smaller and lighter, with better Better screens. To develop into what we know them today.**



SPENDING TIME

- **So then, each of us will give an account of himself to God. - Romans 14:12, NIV**
- **My times are in your hands; deliver me from my enemies and from those who pursue me. - Psalm 14:12, NIV**
- **Be very careful, then, how you live—not as unwise but as wise, making the most of every opportunity, because the days are evil. - Ephesians 5:15-16, NIV.**
- **We are responsible for how we spend our time, and God expects us to use it in His service. Ecclesiastes 3:1-8 starts out**
- **There is a time for everything, and a season for every activity under heaven: a time to be born and a time to die, a time to plant and a time to uproot - Ecclesiastes 3:1,2, NIV.**

SPENDING TIME

- **Like wise there is a time for spending time and a computer and a time for spending away from the computer. God Expects us to use it wisely and not to become addicted to the computer.**
- **Moderation is key to doing this.**
- **There are several ways to track your time spent at the computer.**
 - **You could keep a log how long and what you have been doing. Maybe on a computer or in a notepad**
 - **Apple's Screen Time - keeps a log of how long you have been using your Computer/Phone, as well as what apps and programs you use the most.**

