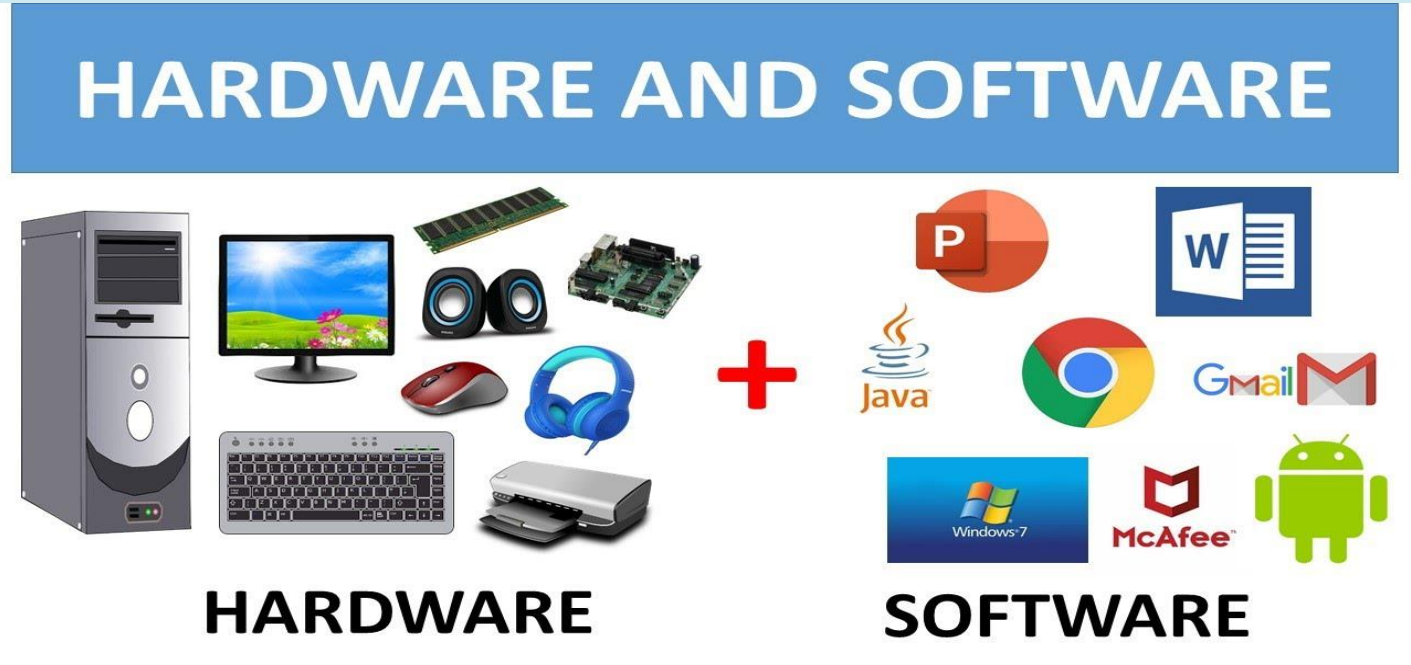
NOC22221 – User Support Technician

Shivam Teelucksingh
Information Technology Instructor-- OE Division
NSRIC Inc.
London, ON, Canada
E-mail: Teelucksinghscs@gmail.com

Introduction to Computer Hardware and Software

Computer hardware and software are two essential components of a computer system. Without one or the other, a computer system would not be able to function properly.



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

Introduction to Computer Hardware and Software

What is a Computer?

A computer is a machine that can be programmed to carry out sequences of arithmetic or logical operations automatically. Modern digital electronic computers can perform generic sets of operations known as programs. These programs enable computers to perform a wide range of tasks

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

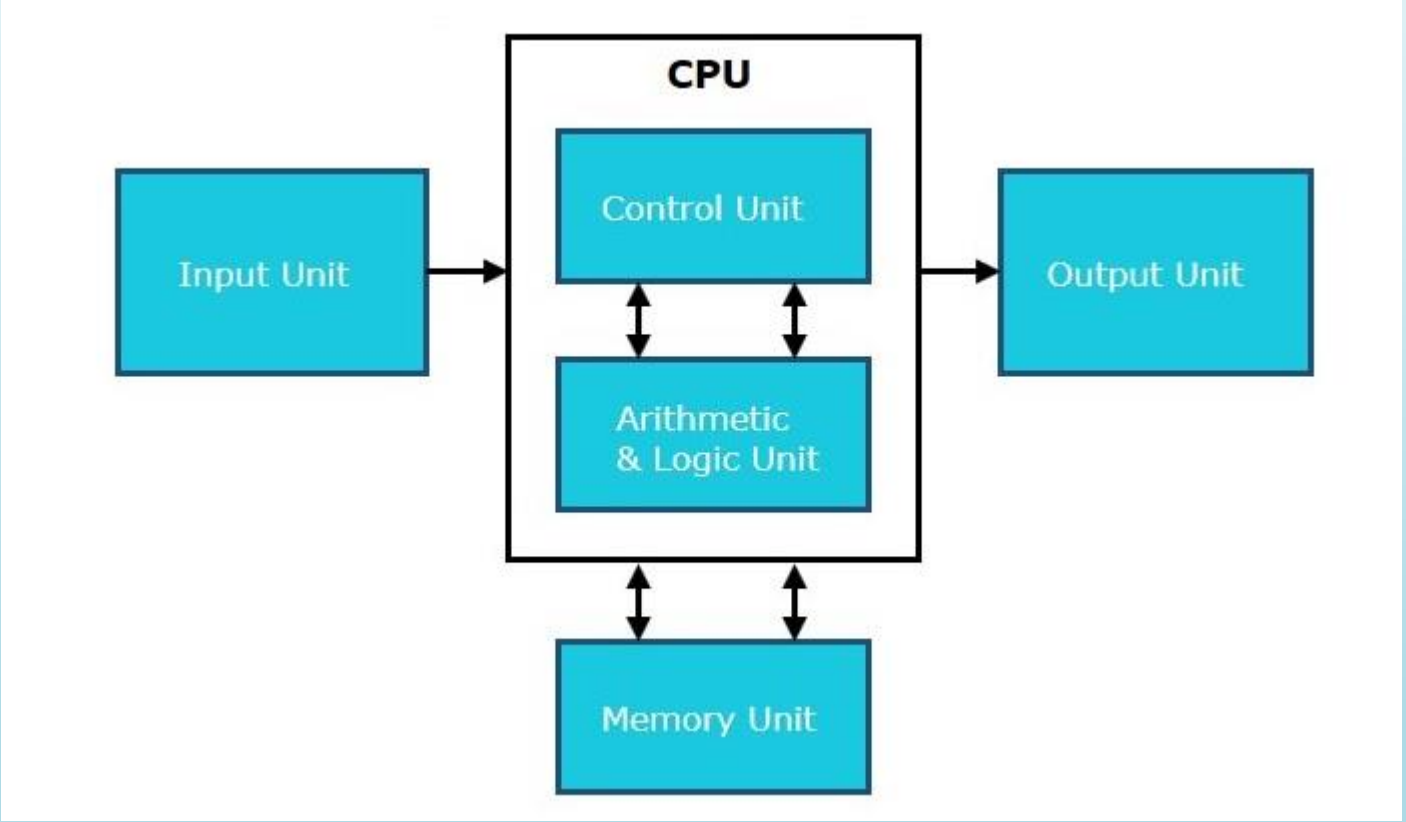
COMPUTER HARDWARE

Computer hardware refers to the physical components of a computer system. These include:

Central Processing Unit (CPU)
The CPU is the "brain" of the computer. It performs all the processing and computation in a computer system.

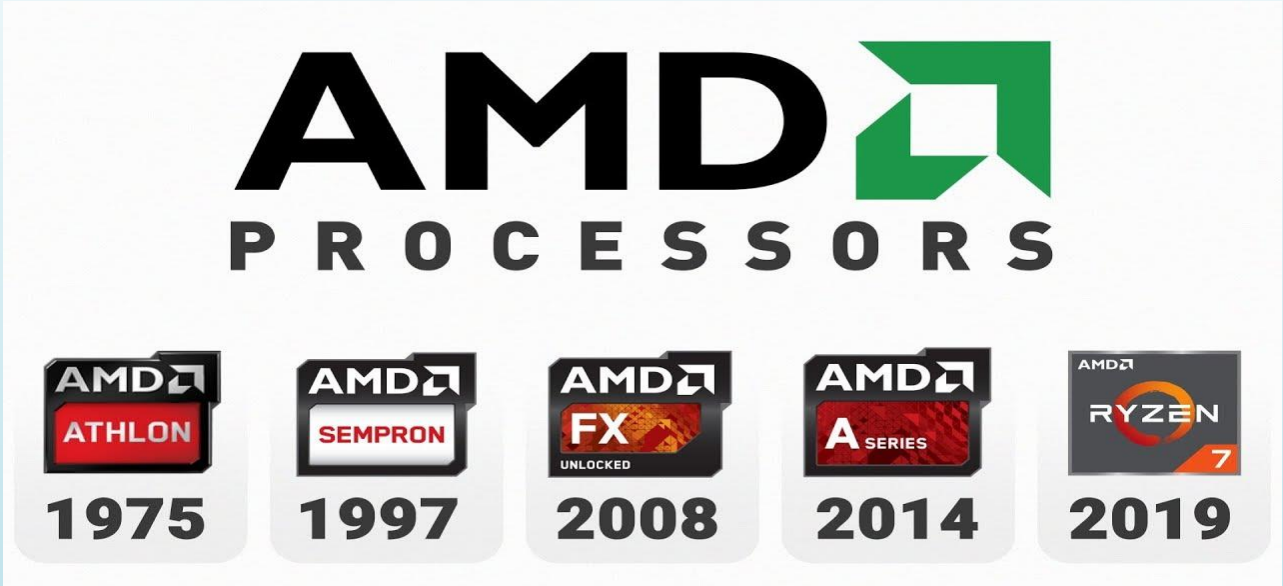
Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

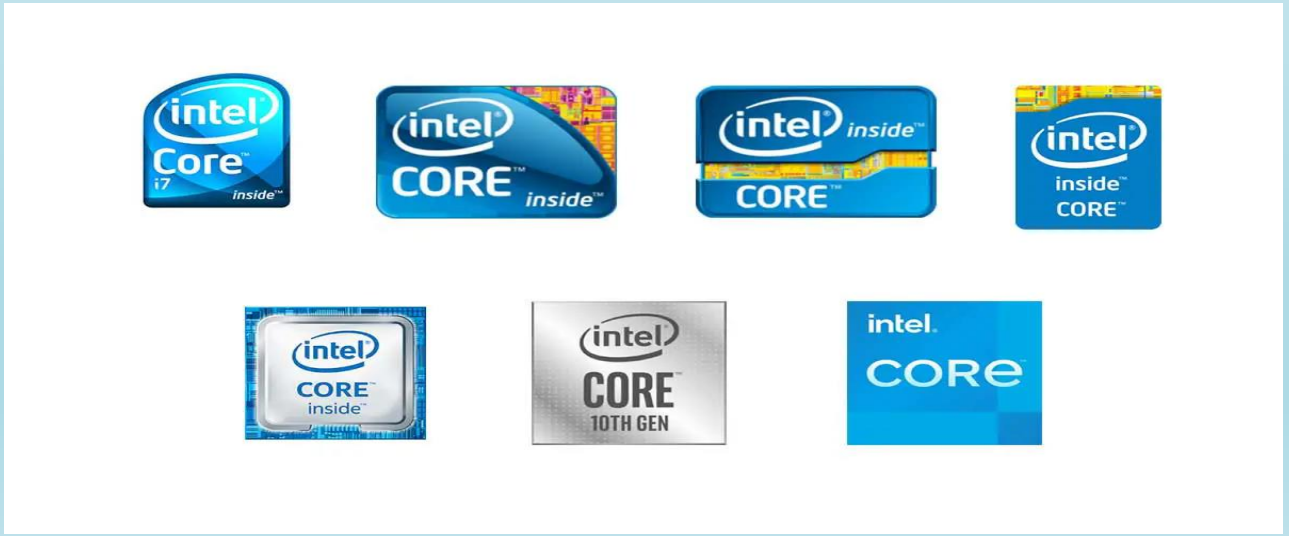
HOW A CPU PROCESSES INFO



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

TYPE OF PROCESSORS





Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

RANDOM ACCESS MEMORY (RAM)

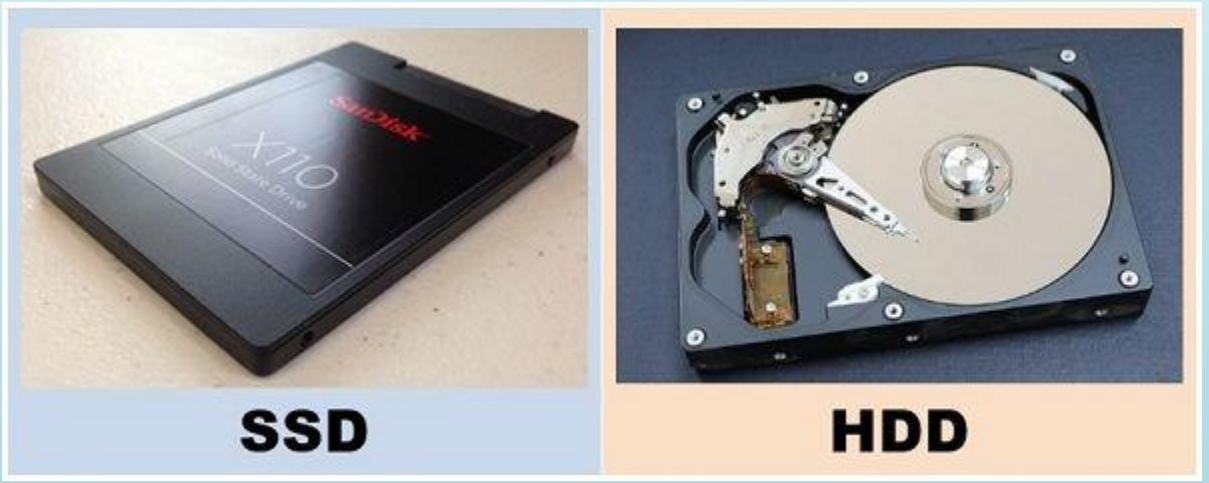
Memory, also known as RAM (Random Access Memory), is used to temporarily store data that the CPU is currently using. The more memory a computer has, the faster it can perform tasks.

Laptop and Desktop ram side by side

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

STORAGE

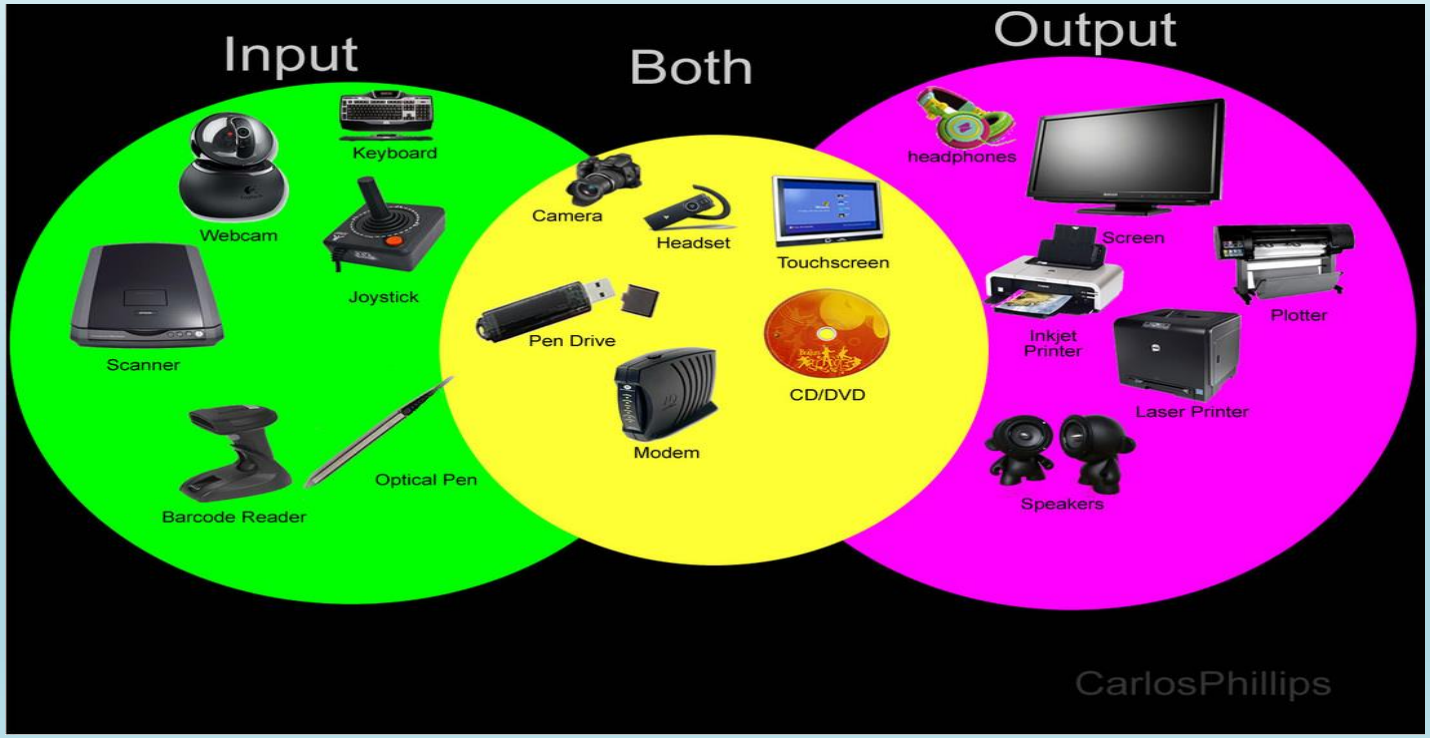
Storage is used to permanently store data on a computer system. There are two types of storage: hard disk drives (HDDs) and solid-state drives (SSDs). The industry standard in 2023 are Nvme SSDs (NVM Express or Non-Volatile Memory Host Controller Interface Specification)



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

Input/Output (I/O) Devices

I/O devices include peripherals such as keyboards, mice, monitors, and printers. They are used to input data into a computer system or display output from a computer system.



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

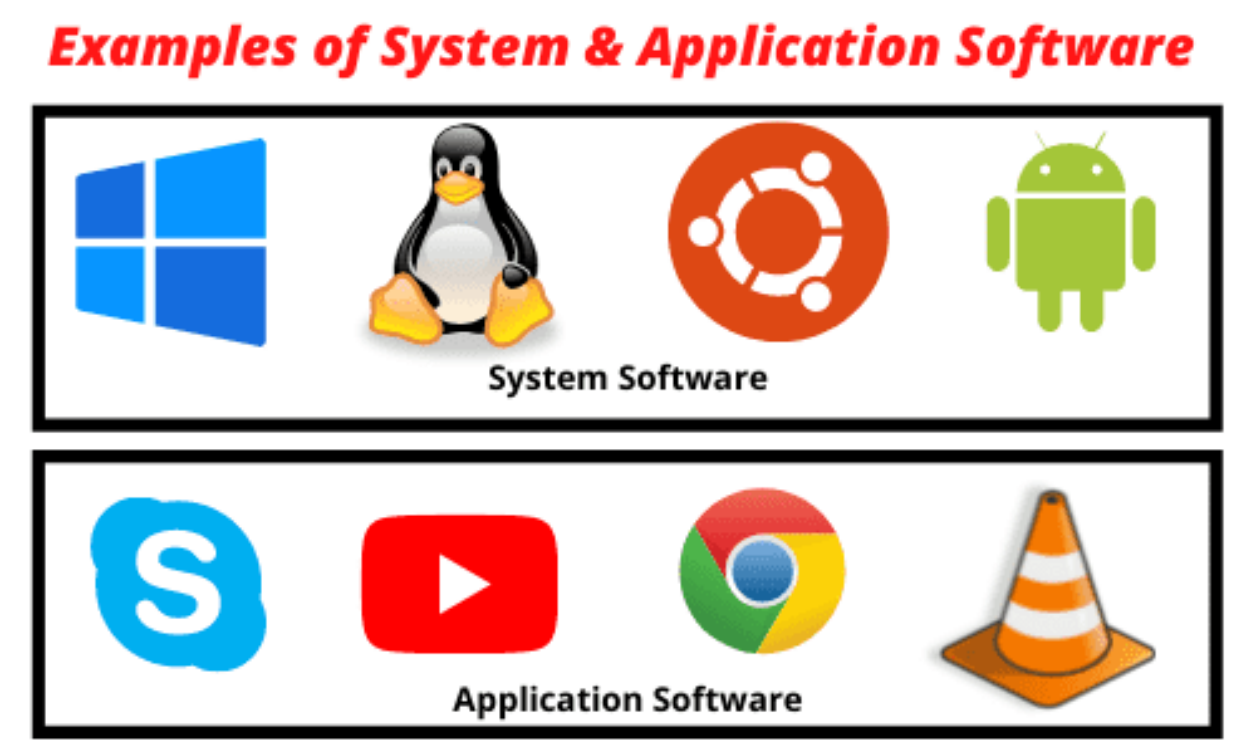
Computer software refers to the programs and instructions that run on a computer system. There are two types of computer software:

System Software
System software is the software that runs a computer system. This includes the operating system (e.g., Windows, macOS, Linux) and device drivers.

Application Software
Application software is the software that is used to perform specific tasks on a computer system. Examples of application software include word processors, spreadsheets, and web browsers.

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

SYSTEM AND APPLICATION SOFTWARE



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

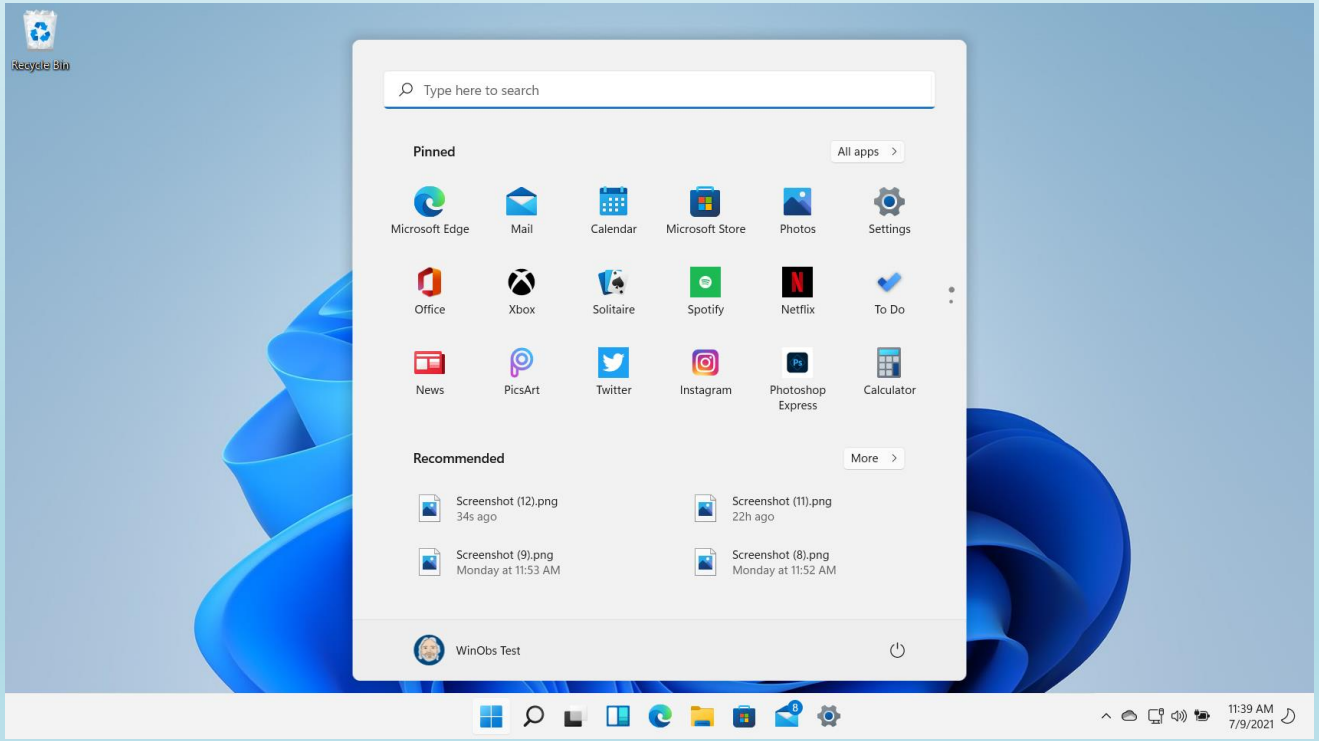
SYSTEM SOFTWARE

The three most common operating systems for personal computers are **Microsoft Windows**, **macOS**, and **Linux**. Modern operating systems use a graphical user interface, or GUI (pronounced gooey)

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

SYSTEM SOFTWARE

Windows is an operating system designed by Microsoft. The operating system is what allows you to use a computer. Windows comes preloaded on most new personal computers (PCs), which helps to make it the most popular operating system in the world.



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

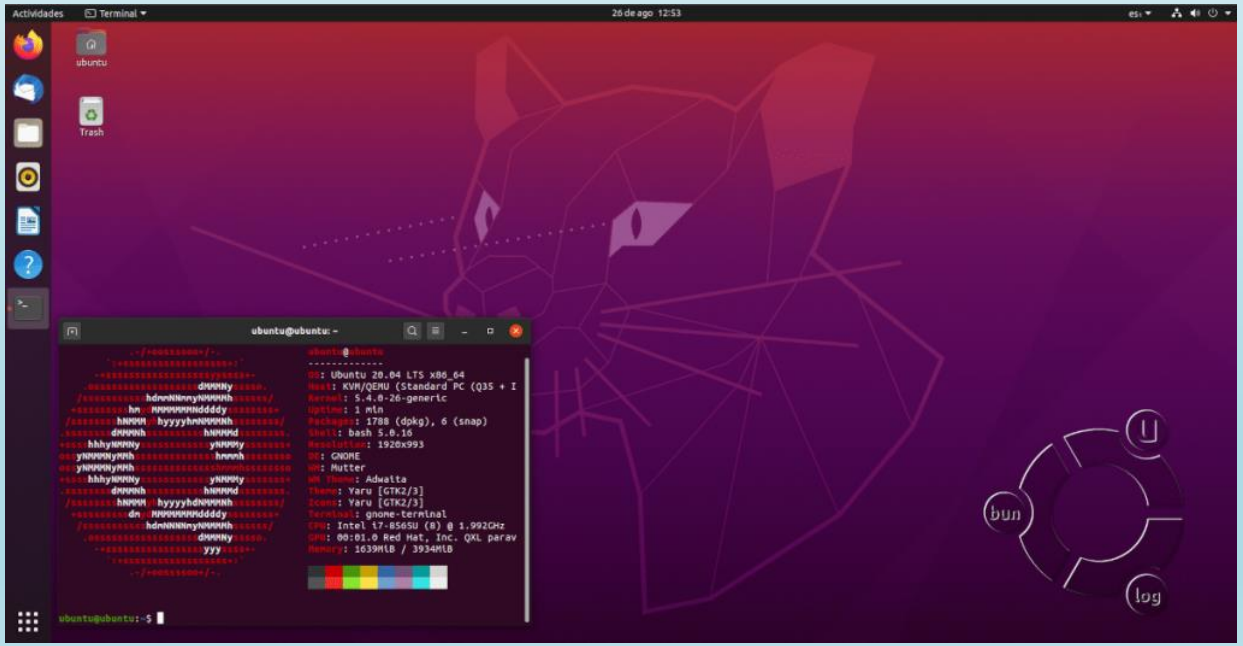
SYSTEM SOFTWARE

macOS is the operating system that powers every Mac. It lets you do things you simply can't do with other computers. That's because it's designed specifically for the hardware it runs on — and vice versa. macOS comes with an entire suite of beautifully designed apps.

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

SYSTEM SOFTWARE

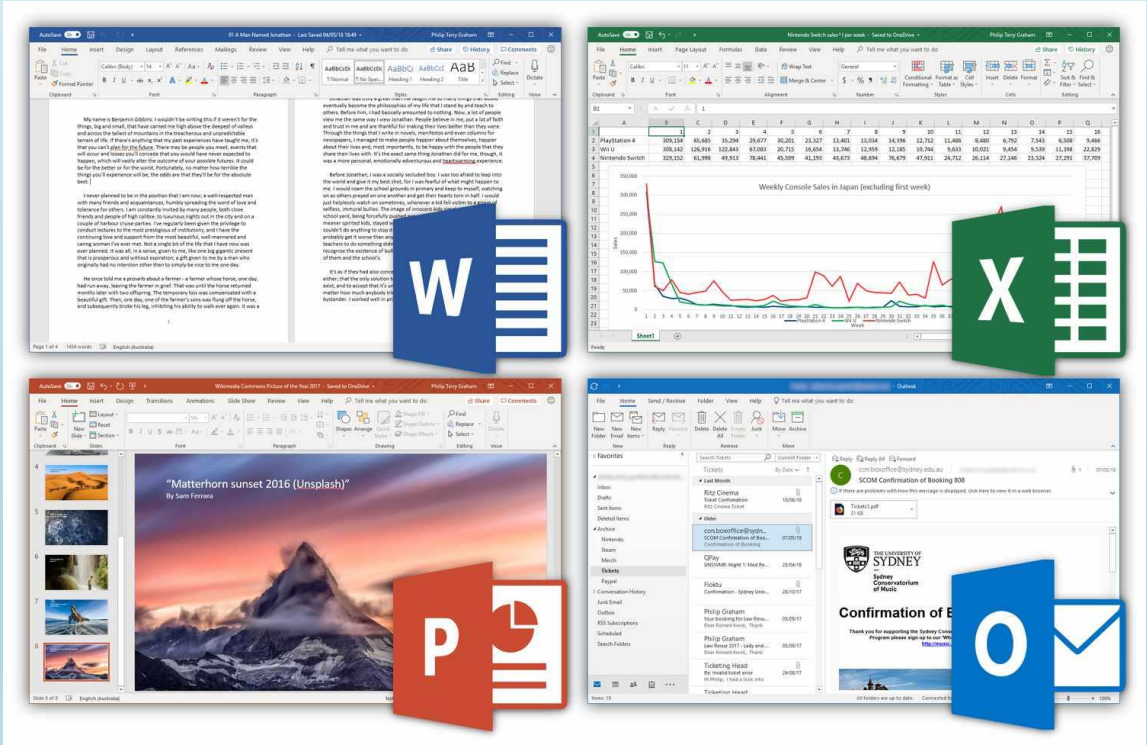
Linux® is an open source operating system (OS). An operating system is the software that directly manages a system's hardware and resources, like CPU, memory, and storage. The OS sits between applications and hardware and makes the connections between all of your software and the physical resources that do the work



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

APPLICATION SOFTWARE

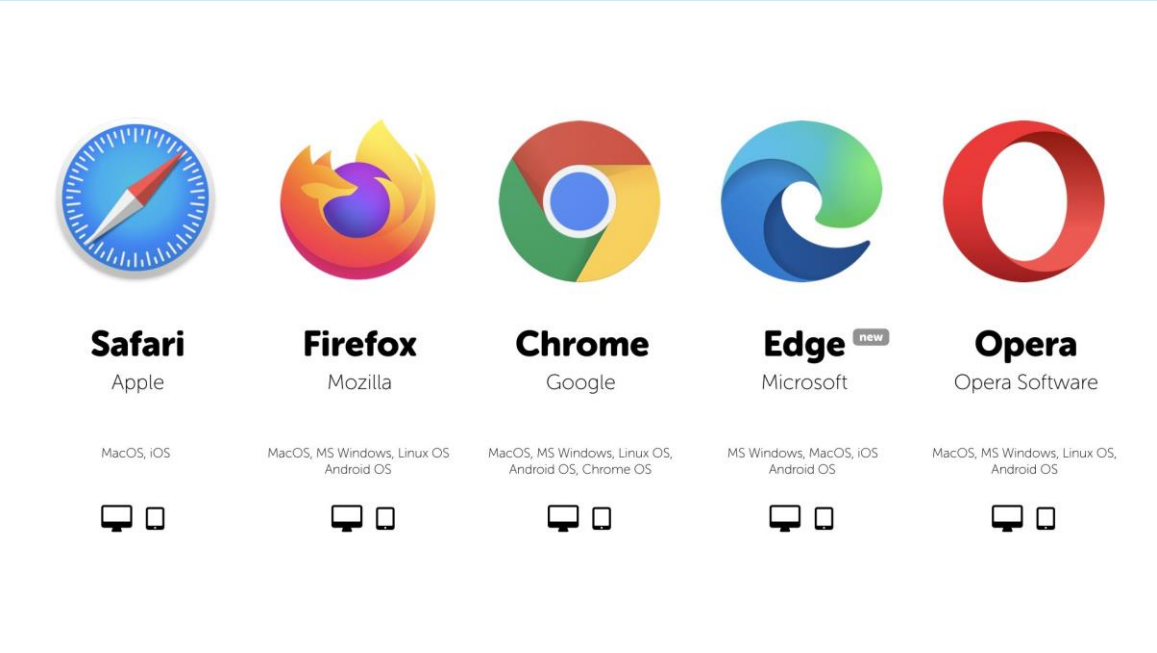
Microsoft Office is a suite of applications designed to help with productivity and completing common tasks on a computer. You can create and edit documents containing text and images, work with data in spreadsheets and databases, and create presentations and posters



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

APPLICATION SOFTWARE

A **web browser** takes you anywhere on the internet. It retrieves information from other parts of the web and displays it on your desktop or mobile device. The information is transferred using the Hypertext Transfer Protocol, which defines how text, images and video are transmitted on the web**.**



Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

APPLICATION SOFTWARE

An **antivirus** product is a program designed to detect and remove viruses and other kinds of malicious software from your computer or laptop. Malicious software - known as malware - is code that can harm your computers and laptops, and the data on them.

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

BUILDING A COMPUTER

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

LAPTOPS

A laptop computer or notebook computer, also known as a laptop or notebook for short, is a small, portable personal computer.

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

RECOMMENDATIONS

Recommendations for entry level laptops and desktops in 2023:

Minimum:

CPU: Intel i-3 or Ryzen 3 Processor

RAM: 8gb DDR4 RAM

Storage: 256gb or higher Nvme SSD

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

Laptops

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca

CONCLUSION

Conclusion

In summary, computer hardware and software are two essential components of a computer system. Hardware refers to the physical components of a computer system, while software refers to the programs and instructions that run on a computer system. Understanding these components is the first step in becoming proficient with computer technology.

Copyright @ 2020 NSRIC Inc.–All rights reserved **OE Division** https://www.nsric.ca