Computer Software

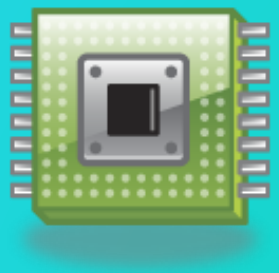
In this Lesson, You Will Learn:

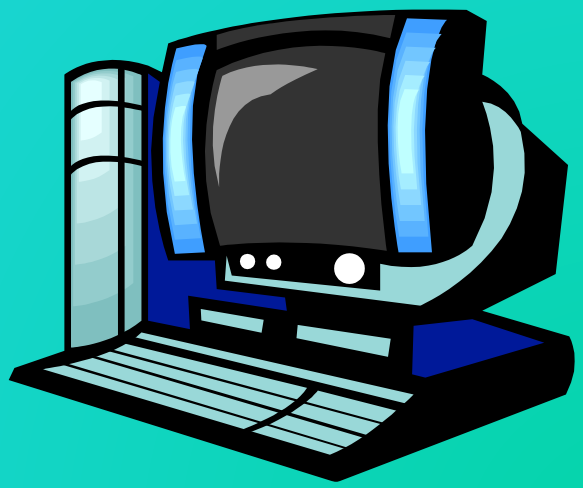
- To distinguish between hardware and software
- To understand the role of software to the computer
- To identify main software categories
- Distinguish among different software programs

What is Hardware?

- Hardware-The physical devices that make up a computer system.

- Tangible components that can be seen and touched.
  - Keyboard
  - Printer
  - Mouse
  - chips





What is Software?

- **Software** - A program that tells a computer how to perform tasks.

- **Program** – aka application - a series of step by step instructions that tell the computer precisely what actions to perform.

What does Software do?

Software translates your commands into the language that computers understand.

Who Writes the Software?

Programmers – write instructions, or programs, to the computer so it is able to execute a task or operate properly.

Categories of Software

- **Operating System (OS) Software -**
  Main program that makes your computer work.
- **Application Software -**

  lets you do different tasks on your computer, such as writing reports and sending email
- **Utility Software –**

  helps you control your computer and keep it in good running condition

Operating System (OS) Software

- **Operating System** - Software that controls all the other software programs and allows a computer to perform basic tasks.

- Every computerized device needs an operating system (OS) in order to work.

Graphic User Interface

- **GUI – Graphic User Interface** - uses graphics or pictures to help the user navigate within the computer system

Types of Operating Systems

- **Microsoft Windows** – Most popular operating system for PC's
- **Mac OS** – used by Apple computers
- **Linux** – powerful OS often used in large networks and business environments
- **Handheld Operating System** – used in tablets and cell phones

Windows OS

- Windows 95
- Windows 98
- Windows NT
- Windows 2000
- Windows XP
- Windows Vista
- Windows 7
- Windows 8

Application Software

Application Software - A software program that lets you perform specific tasks, like organizing info, creating reports or printing a picture.

Types of Application Software

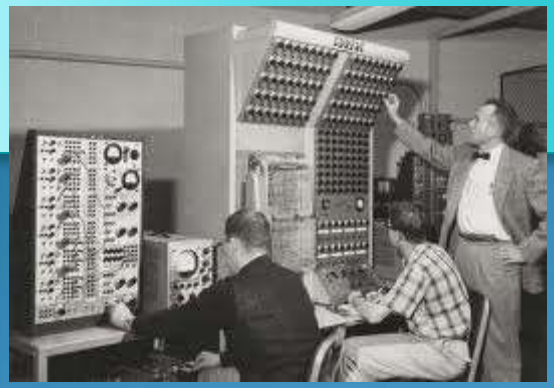
Type of Software	What It Lets You Do	Examples
Web Browsers	Visit Web sites on the Internet	Microsoft Internet Explorer®, Apple Safari®, Netscape®
E-mail	Exchange messages and files with other computer users	Microsoft Outlook®, Eudora®
Word Processing	Create letters, term papers, reports, newsletters, etc.	Microsoft Word®, Corel WordPerfect®
Spreadsheet	Work with numbers and calculations to create tables, charts, and graphs	Microsoft Excel®, Lotus 1-2-3®
Database	Organize and retrieve large amounts of information	Microsoft Access®, FileMaker Pro®
Presentation	Create a slide presentation to show a group of people	Microsoft PowerPoint®, Apple Keynote®

Utility Software

- **Utility Software** - is system software designed to help analyze, configure, optimize or maintain a computer.

- Types of Utility Software:
  - Anti Virus Programs
  - File managers
  - Disk Cleaners

The Five Generations of Computers



First generation computers (1940-1956)

- The first computers used vacuum tubes for circuitry and magnetic drums for memory.
- They were often enormous and taking up entire room.
- First generation computers relied on machine language.
- . They were very expensive to operate and in addition to using a great deal of electricity, generated a lot of heat, which was often the cause of malfunctions.
- The UNIVAC and ENIAC computers are examples of first-generation computing devices.

First generation computers

Second generation computers (1956-1963)

- Transistors replaced vacuum tubes and ushered in the second generation of computers.
- Second-generation computers moved from cryptic binary machine language to symbolic.
- High-level programming languages were also being developed at this time, such as early versions of COBOL and FORTRAN.
- These were also the first computers that stored their instructions in their memory.

Second generation computers

Third generation computers (1964-1971)

- The development of the integrated circuit was the hallmark of the third generation of computers.
- Transistors were miniaturized and placed on siliconchips, called semiconductors.
- Instead of punched cards and printouts, users interacted with third generation computers through keyboards and monitors and interfaced with an operating system.
- Allowed the device to run many different applications at one time.

Third generation computers

Fourth generation computers (1971-1980)

- The microprocessor brought the fourth generation of computers, as thousands of integrated circuits were built onto a single silicon chip.
- The Intel 4004 chip, developed in 1971, located all the components of the computer.
- From the central processing unit and memory to input/output controls—on a single chip.
- . Fourth generation computers also saw the development of GUIs, the mouse and handheld devices.

Fourth generation computers

Fifth generation computers (1980 - until now)

- Fifth generation computing devices, based on artificial intelligence.
- Are still in development, though there are some applications, such as voice recognition.
- The use of parallel processing and superconductors is helping to make artificial intelligence a reality.
- The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

Fifth generation computers

Algorithms