COMPUTER HARDWARE (ASSEMBY/DISASSAMBLY) AND SOFTWARE

(Time required: 60-minutes session)

Any kind of computers consists of HARDWARE AND SOFTWARE. In this activity, the mentor will disassembly the computer and its components, please pay good attention to his/her instructions since it will be your job to assembly back together.

1. **Hardware:** Computer hardware is the collection of physical elements that constitutes a computer system. Computer hardware refers to the physical parts or components of a computer such as the monitor, mouse, keyboard, computer data storage, hard drive disk (HDD), system unit (graphic cards, sound cards, memory, motherboard and chips), etc. all of which are physical objects that can be touched.
   a. **CPU (central processing unit)** is the most important part of a computer. It is like the brain. It does all the tasks that we want the computer to do. It also controls all the other parts, like the Monitor, Keyboard and Mouse. These parts have to be connected to the CPU, for them to work.
   b. **Memory**
      Devices that are used to store data or programs (sequences of instructions) on a temporary or permanent basis for use in an electronic digital computer
   c. **Hard Disk Drive (HDD)**
      A computer storage read/write device, usually of substantial capacity, which has fixed/permanent surfaces. Data on these surfaces may be randomly accessed.
   d. **Motherboard**
      A large circuit board into which can be plugged a number of smaller boards, or circuit elements. This board is the backbone of a computer system.
   e. **Chipset**
      A group of integrated circuits, or chips, that are designed to work together; usually marketed as a single product.
   f. **Graphics Processing Unit** (**GPU** or "**video card**") handles everything that goes to your monitor. If you're watching a high definition video or playing a video game, your CPU will send that information to your GPU, which is made specifically for processing graphics. A more powerful video card won't speed up your computer for word processing, but will fix video playback stuttering or freezing.
   g. **Firmware**
      Software that is embedded in a piece of hardware.
   h. **RAM (random access memory)**
      A memory chip used for the main memory of a microcomputer. Application software will both store and retrieve information from this type of chip.
   i. **Graphics Card**
      A circuit board for processing and displaying graphics. Usually plugged into PCIe (peripheral component interconnect express) slots
   j. **Microprocessor**
      A computer part that contains millions of electronic components and that does most of a computer's processing; also called a chip.
   k. **BIOS**
      Basic Input/Output System, the firmware located on the motherboard that instructs the processor how to power up the computer and locate the operating system.

l. **Optical Drive**
A storage device that stores files using removable disks that reads and writes using a laser beams or electromagnetic waves

m. **PCI**
Peripheral Component Interconnect, a computer bus for attaching hardware devices in a computer.

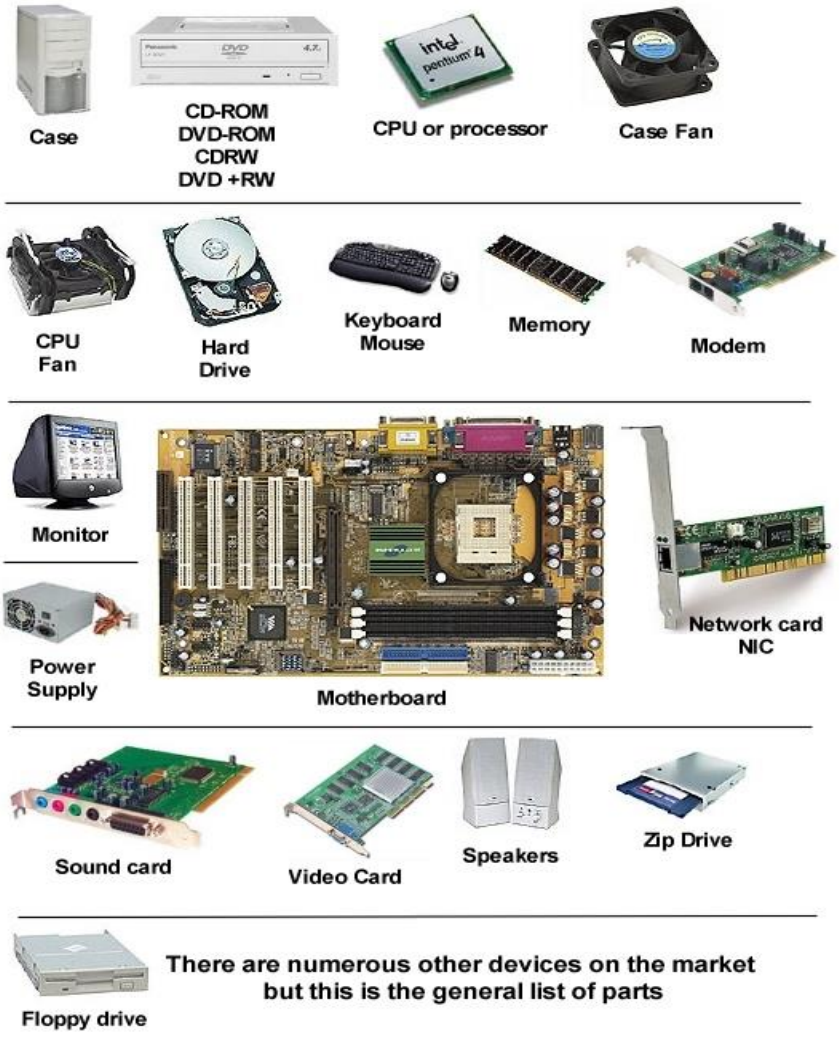
n. **Network Card (NIC)**
Controls the wired and wireless connections of a computer to exchange information with other computers and the Internet

o. **Mouse**
A device that controls the movement of the cursor or pointer on a display screen

p. **Keyboard**
The set of typewriter-like keys that enables you to enter data into a computer

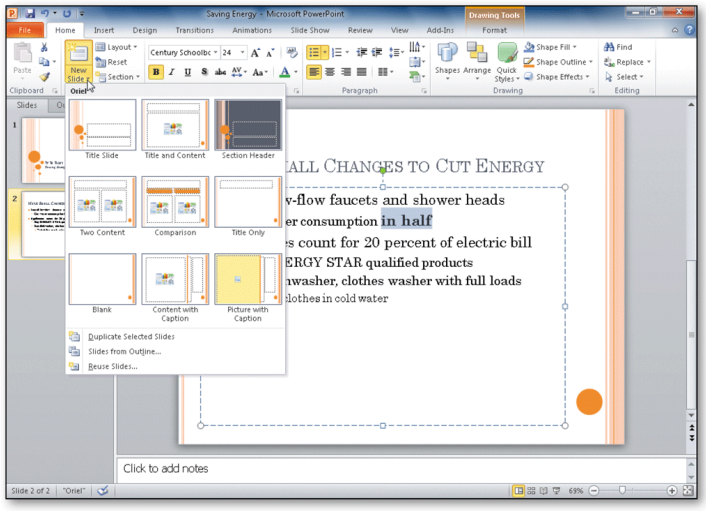
q. **Cooling Fan**
Draws cooler air into the case from the outside and expel warm air from inside.

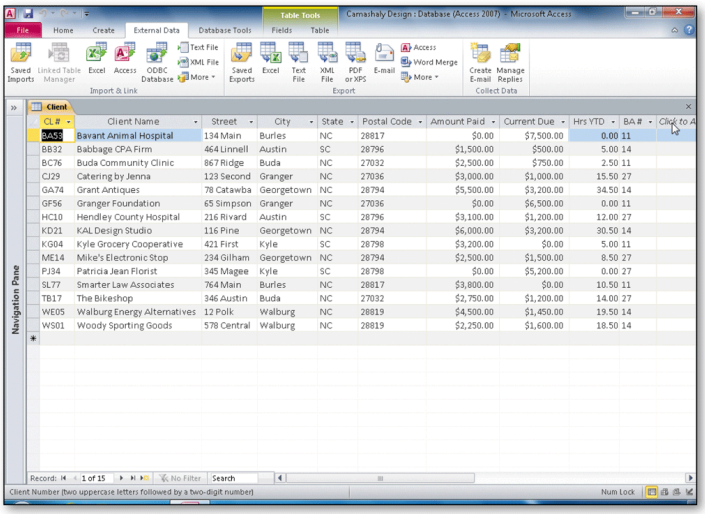
2. **Software:** Is a generic term for organized collections of computer data and instructions, often broken into two major categories: system software that provides the basic non-task-specific functions of the computer, and application software which is used by users to accomplish specific tasks.



a. **System Software:** software that provides platform to other software, it can be divide into two categories:
    i. **Operating System:** Software that manages computer's hardware and software resources. It provides common services for computer programs, it acts a link between the software and hardware and most importantly it is the interface between the user and the computer resources (hardware and software).
    ii. **System Utilities:** it allows the user to perform maintenance-type tasks usually related in managing the computer itself, its devices, or its programs: Ex: Burning a CD, disk storage utilities, disk cleaner and backup utility programs.
b. **Application Software:** Software design to make users more productive and/or assist them with personal tasks: Ex: Word processing, presentation applications, spreadsheets, databases, email, etc.


Figures: Operating System (Linux/Unix based)





Figures: PowerPoint and Access (Presentation and Database applications)