

Chapter One

Introduction to Computer

Computer

A computer is an electronic device, operating under the control of instructions stored in its own memory that can accept data (input), process the data according to specified rules, produce information (output), and store the information for future use¹.

Functionalities of a computer²

Any digital computer carries out five functions in gross terms:

- ☐ Takes data as input.
- ☐ Stores the data/instructions in its memory and use them when required.
- ☐ Processes the data and converts it into useful information.
- ☐ Generates the output
- ☐ Controls all the above four steps.



Computer Components

Any kind of computers consists of **HARDWARE AND SOFTWARE**.

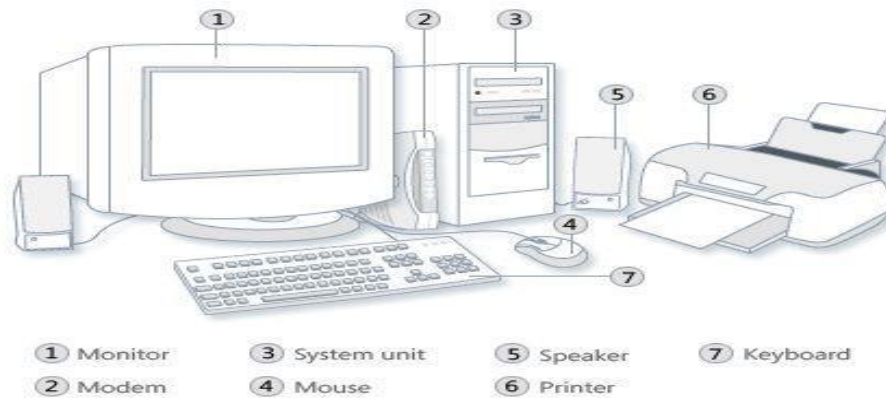
Hardware:

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.³

¹ Vermaat, Misty E. Microsoft Office 2013 Introductory. Cengage Learning, p.IT3. 2014

² http://www.tutorialspoint.com/computer_fundamentals/computer_quick_guide.htm













³ http://en.wikipedia.org/wiki/Computer_hardware



Input Devices

Input device is any peripheral (piece of computer hardware equipment to provide data and control signals to an information processing system such as a computer or other information appliance.

Input device Translate data from **form** that humans understand to one that the computer can work with. Most common are keyboard and mouse

Examples of Manual Input Devices			
Keyboard 	Numeric Keypad 	Pointing Device 	Remote Control 
Joystick 	Touch Screen 	Scanner 	Graphics Tablet 
Microphone 	Digital Camera 	Webcams 	Light Pens 

Example of Input Devices:-

1. Keyboard	2. Mouse (pointing device)	3. Microphone
4. Touch screen	5. Scanner	6. Webcam
7. Touchpads	8. MIDI keyboard	9.
10. Graphics Tablets	11. Cameras	12. Pen Input
13. Video Capture Hardware	14. Microphone	15. Trackballs
16. Barcode reader	17. Digital camera	18. Joystick
19. Gamepad	20. Electronic Whiteboard	21.

Note: The most common use keyboard is the QWERTY keyboard. Generally standard Keyboard has 104 keys.

Central Processing Unit (CPU)

A CPU is brain of a computer. It is responsible for all functions and processes. Regarding computing power, the CPU is the most important element of a computer system.

The CPU is comprised of three main parts :

* **Arithmetic Logic Unit (ALU)**: Executes all arithmetic and logical operations. Arithmetic calculations like as addition, subtraction, multiplication and division.

Logical operation like compare numbers, letters, or special characters * **Control Unit (CU)**: controls and co-ordinates computer components.

1. Read the code for the next instruction to be executed.
2. Increment the program counter so it points to the next instruction.
3. Read whatever data the instruction requires from cells in memory.
4. Provide the necessary data to an ALU or register.
5. If the instruction requires an ALU or specialized hardware to complete, instruct the hardware to perform the requested operation.

* **Registers** :Stores the data that is to be executed next, "very fast storage area".

Primary Memory:-

1. **RAM**: Random Access Memory (RAM) is a memory scheme within the computer system responsible for storing data on a temporary basis, so that it can be promptly accessed by the processor as and when needed. It is volatile in nature, which means that data will be erased once supply to the storage device is turned off. RAM stores data randomly and the processor accesses these data randomly from the RAM storage. RAM is considered "random access" because you can access any memory cell directly if you know the row and column that intersect at that cell.
2. **ROM** (Read Only Memory): ROM is a permanent form of storage. ROM stays active regardless of whether power supply to it is turned on or off. ROM devices do not allow data stored on them to be modified.

Secondary Memory:-

Stores data and programs permanently :its retained after the power is turned off

1. **Hard drive (HD)**: A hard disk is part of a unit, often called a "disk drive," "hard drive," or "hard disk drive," that store and provides relatively quick access to large amounts of data on an electromagnetically charged surface or set of surfaces.
2. **Optical Disk**: an optical disc drive (ODD) is a disk drive that uses laser light as part of the process of reading or writing data to or from optical discs. Some drives can only read from discs, but recent drives are commonly both readers and recorders, also called burners or writers. Compact discs, DVDs, and Blu-ray discs are common types of optical media which can be read and recorded by such drives. Optical drive is the generic name; drives are usually described as "CD" "DVD", or "Bluray", followed by "drive", "writer", etc. There are three main types of optical media: CD, DVD, and Blu-ray disc. CDs can store up to 700 megabytes (MB) of data and DVDs can store up to 8.4 GB of data. Blu-ray discs, which are the newest type of optical media, can store up to 50 GB of data. This storage capacity is a clear advantage over the floppy disk storage media (a magnetic media), which only has a capacity of 1.44 MB.

3. Flash Disk

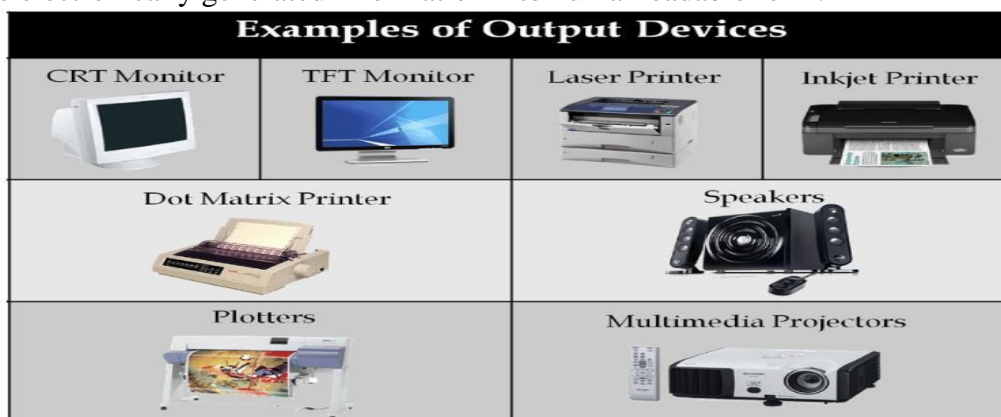
A storage module made of flash memory chips. A Flash disks have no mechanical platters or access arms, but the term "disk" is used because the data are accessed as if they were on a hard drive. The disk storage structure is emulated.

Comparison between Main memory (RAM) and Secondary Memory (Hard disk)

RAM	Hard Disk (Hard Drive)
Memory	Storage
Smaller amount (typically 500 MB-6 GB)	Much larger amount (typically 80GB to 1000 GB)
Temporary storage of files and programs	Permanent storage of files and programs
A little like your real desktop - has only your current work on it (which could be ruined by a spill of Coke or coffee!)	Like a file cabinet - has long-term storage of work (it's safe from spills!)
Contents disappear when you turn off power to the computer and when the computer crashes	Contents remain when you turn off the power to the computer (they don't disappear unless you purposely delete them), and when the computer crashes
Consists of chips (microprocessors)	Consists of hard disks (platters)
When you want to use a program, a temporary copy is put into RAM and that's the copy you use	Holds the original copy of the program permanently

Output devices

An output device is any piece of computer hardware equipment used to communicate the results of data processing carried out by an information processing system (such as a computer) which converts the electronically generated information into humanreadable form.



Example on Output Devices:

1. Monitor	2. LCD Projection Panels
3. Printers (all types)	4. Computer Output Microfilm (COM)
5. Plotters	6. Speaker(s)
7. Projector	

Note Basic types of monitors are a.Cathode Ray Tube (CRT). B. Liquid Crystal Displays (LCD). c.light-emitting diode (LED).

Printer types: 1-Laser Printer. 2-Ink Jet Printer. 3-Dot Matrix Printer

Software

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 nontask-specific functions of the computer, and application software which is used by users to accomplish specific tasks.

Software Types

- A. System software** is responsible for controlling, integrating, and managing the individual hardware components of a computer system so that other software and the users of the system see it as a functional unit without having to be concerned with the low-level details such as transferring data from memory to disk, or rendering text onto a display. Generally, system software consists of an operating system and some fundamental utilities such as disk formatters, file managers, display managers, text editors, user authentication (login) and management tools, and networking and device control software.
- B. Application software** is used to accomplish specific tasks other than just running the computer system. Application software may consist of a single program, such as an image viewer; a small collection of programs (often called a software package) that work closely together to accomplish a task, such as a spreadsheet or text processing system; a larger collection (often called a software suite) of related but independent programs and packages that have a common user interface or shared data format, such as Microsoft Office, which consists of closely integrated word processor, spreadsheet, database, etc.; or a software system, such as a database management system, which is a collection of fundamental programs that may provide some service to a variety of other independent applications.

Comparison Application Software and System Software

	System Software	Application Software
	Computer software, or just software is a general term primarily used for digitally stored data such as computer programs and other kinds of information read and written by computers. App comes under computer software though it has a wide scope now.	Application software, also known as an application or an "app", is computer software designed to help the user to perform specific tasks.
Example:	1) Microsoft Windows 2) Linux 3) Unix 4) Mac OSX 5) DOS	1) Opera (Web Browser) 2) Microsoft Word (Word Processing) 3) Microsoft Excel (Spreadsheet software) 4) MySQL (Database Software) 5) Microsoft PowerPoint (Presentation Software) 6) Adobe Photoshop (Graphics Software)
Interaction:	Generally, users do not interact with system software as it works in the background.	Users always interact with application software while doing different activities.
Dependency:	System software can run independently of the application software.	Application software cannot run without the presence of the system software.

Unit of Measurements

Storage measurements: The basic unit used in computer data storage is called a bit (binary digit). Computers use these little bits, which are composed of ones and zeros, to do things and talk to other computers. All your files, for instance, are kept in the computer as binary files and translated into words and pictures by the software (which is also ones and zeros). This two number system, is called a “binary number system” since it has only two numbers in it. The decimal number system in contrast has ten unique digits, zero through nine.

Computer Storage units

Bit	BIT	0 or 1
Kilobyte	KB	1024 bytes
Megabyte	MB	1024 kilobytes
Gigabyte	GB	1024 megabytes
Terabyte	TB	1024 gigabytes

Size example

- 1 bit - answer to an yes/no question
- 1 byte - a number from 0 to 255.
- 90 bytes: enough to store a typical line of text from a book.
- 4 KB: about one page of text.
- 120 KB: the text of a typical pocket book.
- 3 MB - a three minute song (128k bitrate)
- 650-900 MB - an CD-ROM
- 1 GB -114 minutes of uncompressed CD-quality audio at 1.4 Mbit/s • 8-16 GB - size of a normal flash drive

Speed measurement: The speed of Central Processing Unit (CPU) is measured by Hertz (Hz), Which represent a CPU cycle. The speed of CPU is known as Computer Speed.

CPU SPEED MEASURES	
1 hertz or Hz	1 cycle per second
1 MHz	1 million cycles per second or 1000 Hz
1 GHz	1 billion cycles per second or 1000 MHz

Computers classification***

Computers can be generally classified by size and power as follows, though there is Considerable overlap:

- **Personal computer:** A small, single-user computer based on a microprocessor. In addition to the microprocessor, a personal computer has a keyboard for entering data, a monitor for displaying information, and a storage device for saving data.
- **workstation :** A powerful, single-user computer. A workstation is like a personal computer, but it has a more powerful microprocessor and a higher-quality monitor.
- **minicomputer :** A multi-user computer capable of supporting from 10 to hundreds of users simultaneously.
- **mainframe :** A powerful multi-user computer capable of supporting many hundreds or thousands of users simultaneously.
- **supercomputer :** An extremely fast computer that can perform hundreds of millions of instructions per second.

Laptop and Smartphone Computers

Laptop: A laptop is a battery or AC-powered personal computer that can be easily carried and used in a variety of locations. Many laptops are designed to have all of the functionality of a desktop computer, which means they can generally run the same software and open the same types of files. However, some laptops, such as netbooks, sacrifice some functionality in order to be even more portable.

Netbook: A netbook is a type of laptop that is designed to be even more portable. Netbooks are often cheaper than laptops or desktops. They are generally less powerful than other types of computers, but they provide enough power for email and internet access, which is where the name "netbook" comes from.

Mobile Device: A mobile device is basically any handheld computer. It is designed to be extremely portable, often fitting in the palm of your hand or in your pocket. Some mobile devices are more powerful, and they allow you to do many of the same things you can do with a desktop or laptop computer. These include tablet computers, e-readers, and smartphones.

Tablet Computers: Like laptops, tablet computers are designed to be portable. However, they provide a very different computing experience. The most obvious difference is that tablet computers don't have keyboards or touchpads. Instead, the entire screen is touch-sensitive, allowing you to type on a virtual keyboard and use your finger as a mouse pointer. Tablet computers are mostly designed for consuming media, and they are optimized for tasks like web browsing, watching videos, reading e-books, and playing games. For many people, a "regular" computer like a desktop or laptop is still needed in order to use some programs. However, the convenience of a tablet computer means that it may be ideal as a second computer.

Smartphones: A smartphone is a powerful mobile phone that is designed to run a variety of applications in addition to phone service. They are basically small tablet computers, and they can be used for web browsing, watching videos, reading e-books, playing games and more.

Data, Information and Knowledge

Data: Facts and figures which relay something specific, but which are not organized in any way and which provide no further information regarding patterns, context, etc. So data means "unstructured facts and figures that have the least impact on the typical manager."

Information: For data to become information, it must be contextualized, categorized, calculated and condensed. Information thus paints a bigger picture; it is data with relevance and purpose. It may convey a trend in the environment, or perhaps indicate a pattern of sales for a given period of time. Essentially information is found "in answers to questions that begin with such words as who, what, where, when, and how many".

Knowledge: Knowledge is closely linked to doing and implies know-how and understanding. The knowledge possessed by each individual is a product of his experience, and encompasses the norms by which he evaluates new inputs from his surroundings.

The content of the human mind can be classified into four categories:

1. Data: symbols
2. Information: data that are processed to be useful; provides answers to "who", "what", "where", and "when" questions
3. Knowledge: application of data and information; answers "how" questions
4. Wisdom: evaluated understanding.

We need to understand that processing data produced Information and process Information produces Knowledge and so on

Characteristics of Computer

Speed, accuracy, diligence, storage capability and versatility are some of the key characteristics of a computer. A brief overview of these characteristics are

- **Speed:** The computer can process data very fast, at the rate of millions of instructions per second. Some calculations that would have taken hours and days to complete otherwise, can be completed in a few seconds using the computer. For example, calculation and generation of salary slips of thousands of employees of an organization, weather forecasting that requires analysis of a large amount of data related to temperature, pressure and humidity of various places, etc.
- **Accuracy:** Computer provides a high degree of accuracy. For example, the computer can accurately give the result of division of any two numbers up to 10 decimal places.
- **Diligence:** When used for a longer period of time, the computer does not get tired or fatigued. It can perform long and complex calculations with the same speed and accuracy from the start till the end.
- **Storage Capability:** Large volumes of data and information can be stored in the computer and also retrieved whenever required. A limited amount of data can be stored, temporarily, in the primary

memory. Secondary storage devices like floppy disk and compact disk can store a large amount of data permanently.

- **Versatility:** Computer is versatile in nature. It can perform different types of tasks with the same ease. At one moment you can use the computer to prepare a letter document and in the next moment you may play music or print a document. Computers have several limitations too. Computer can only perform tasks that it has been programmed to do.

Computer cannot do any work without instructions from the user. It executes instructions as specified by the user and does not take its own decisions.

Computer Viruses*

Viruses: A virus is a small piece of software that piggybacks on real programs. For example, a virus might attach itself to a program such as a spreadsheet program. Each time the spreadsheet program runs, the virus runs, too, and it has the chance to reproduce (by attaching to other programs) or wreak havoc.

- **E-mail viruses:** An e-mail virus travels as an attachment to e-mail messages, and usually replicates itself by automatically mailing itself to dozens of people in the victim's e-mail address book. Some e-mail viruses don't even require a double-click -- they launch when you view the infected message in the preview pane of your e-mail software [source: Johnson].
- **Trojan horses:** A Trojan horse is simply a computer program. The program claims to do one thing (it may claim to be a game) but instead does damage when you run it (it may erase your hard disk). Trojan horses have no way to replicate automatically.
- **Worms:** A worm is a small piece of software that uses computer networks and security holes to replicate itself. A copy of the worm scans the network for another machine that has a specific security hole. It copies itself to the new machine using the security hole, and then starts replicating from there, as well.

What are some tips to avoid viruses and lessen their impact?*

- Install anti-virus software from a reputable vendor. Update it and use it regularly.
- In addition to scanning for viruses on a regular basis, install an "on access" scanner (included in most anti-virus software packages) and configure it to start each time you start up your computer. This will protect your system by checking for viruses each time you run an executable file.
- Use a virus scan before you open any new programs or files that may contain executable code. This includes packaged software that you buy from the store as well as any program you might download from the Internet.
- If you are a member of an online community or chat room, be very careful about accepting files or clicking links that you find or that people send you within the community.
- Make sure you back up your data (documents, bookmark files, important email messages, etc.) on disc so that in the event of a virus infection, you do not lose valuable work.

*<http://computer.howstuffworks.com/virus.htm>

*<http://www.us-cert.gov/publications/virus-basics>

Chapter Two

Identify software to be installed

Learning Activities

The following are the performance criteria:

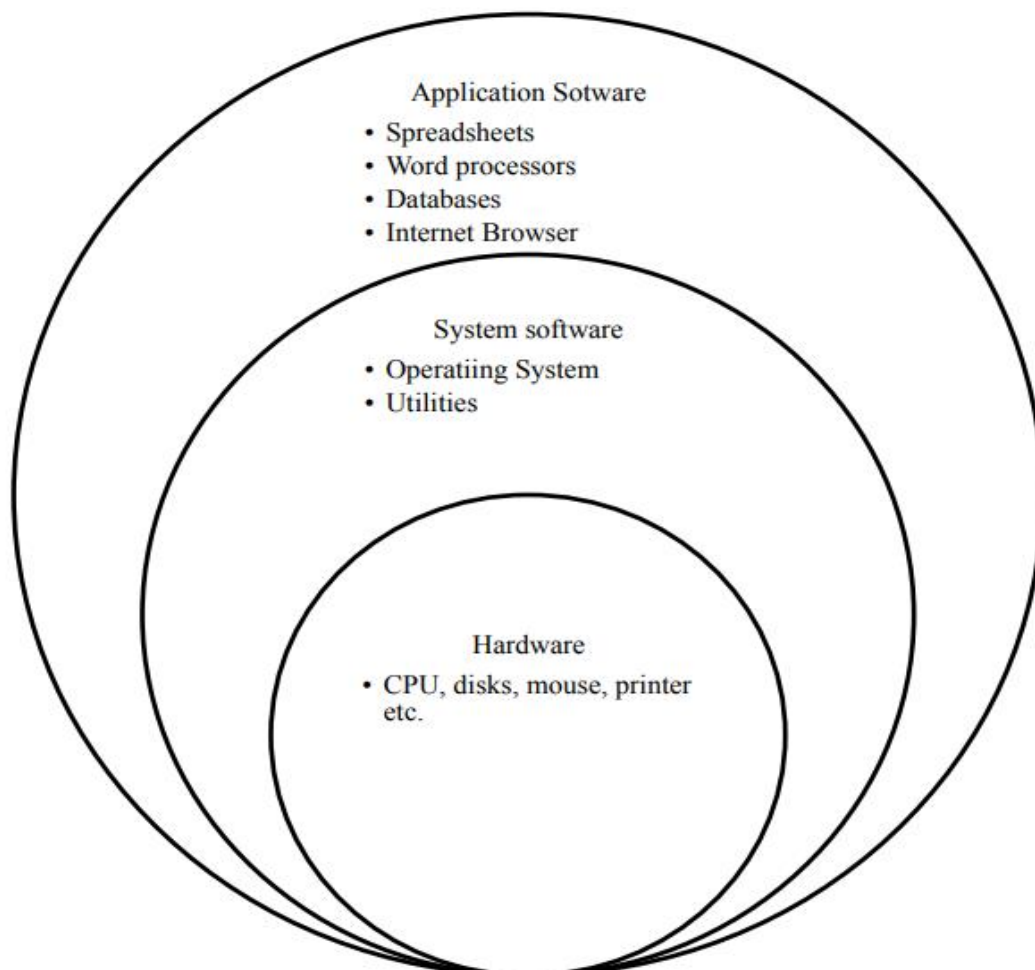
- o Software are classified according to the functionality, resource requirement and use.
- o Criteria for selection of software is identified based on user requirements and functionality
- o Appropriate software acquisition methods are established as per the functionality.

Trainees to demonstrate knowledge in relation to:

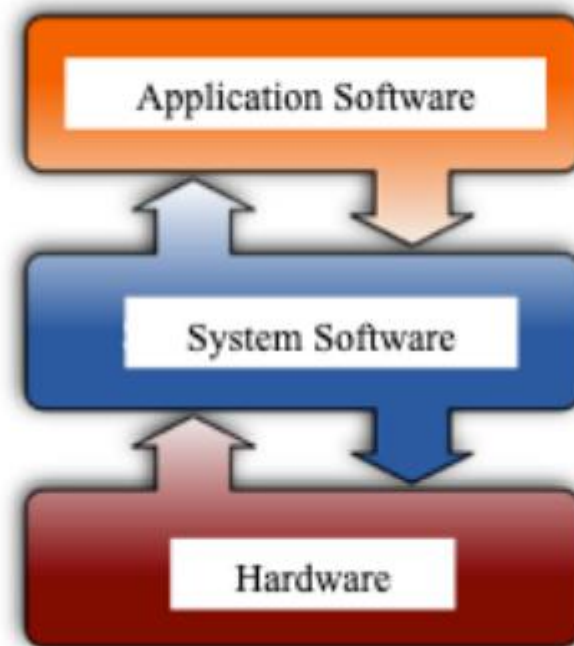
- o Definition of software
- o Classification of software: System and Application
- o Criteria for selection
- o Operating systems
- o Types of operating systems: Single and multi-user, Single and multitasking, Real time, Distributed, Batch
- o Functions of operating systems: Device management, Memory management, Storage management, Process control, Security Management
- o Types of operating system interfaces: Menu driven and Graphical user Interface

Information Sheet

Software, in its most general sense, is a set of instructions or programs instructing a computer to do specific tasks. Software is a generic term used to describe computer programs. Scripts, applications, programs and a set of instructions are all terms often used to describe software.



System software manages and controls the internal operations of a computer system. It is a group of programs, which is responsible for using computer resources efficiently and effectively. For example, an operating system is system software, which controls the hardware, manages memory and multitasking functions, and acts as an interface between application programs and the computer. System software is designed to provide platform for other software.



Application software is the general designation of computer programs for performing tasks. Application software may be general purpose (word processing, web browsers, etc.)

Watch: Introduction to operating system: <https://youtu.be/0ZjkUMKy6x0>

Difference between System software and Application software

System Software	Application Software
<ul style="list-style-type: none"> System software is used for operating computer hardware. 	<ul style="list-style-type: none"> Application software is used by user to perform specific task.
<ul style="list-style-type: none"> System softwares are installed on the computer when operating system is installed. 	<ul style="list-style-type: none"> Application softwares are installed according to user's requirements.
<ul style="list-style-type: none"> In general, the user does not interact with system software because it works in the background. 	<ul style="list-style-type: none"> In general, the user interacts with application software.
<ul style="list-style-type: none"> System software can run independently. It provides platform for running 	<ul style="list-style-type: none"> Application software can't run independently. They can't run without

application softwares.	the presence of system software.
<ul style="list-style-type: none"> Some examples of system softwares are compiler, assembler, debugger, driver, etc. 	<ul style="list-style-type: none"> Some examples of application softwares are word processor, web browser, media player, etc.

An **Operating System (OS)** is a program that acts as an interface between the software and the computer hardware.

The main difference between **single user and multiuser operating system** is that in a single user operating system, only one user can access the computer system at a time while in a multiuser operating system, multiple users can access the computer system at a time.

An operating system that allows a single user to perform two or more functions at once is a **single-user or multitasking operating system**. Early versions of both Microsoft Windows and the Macintosh operating systems were examples of this category.

Read: Categories of operating systems:

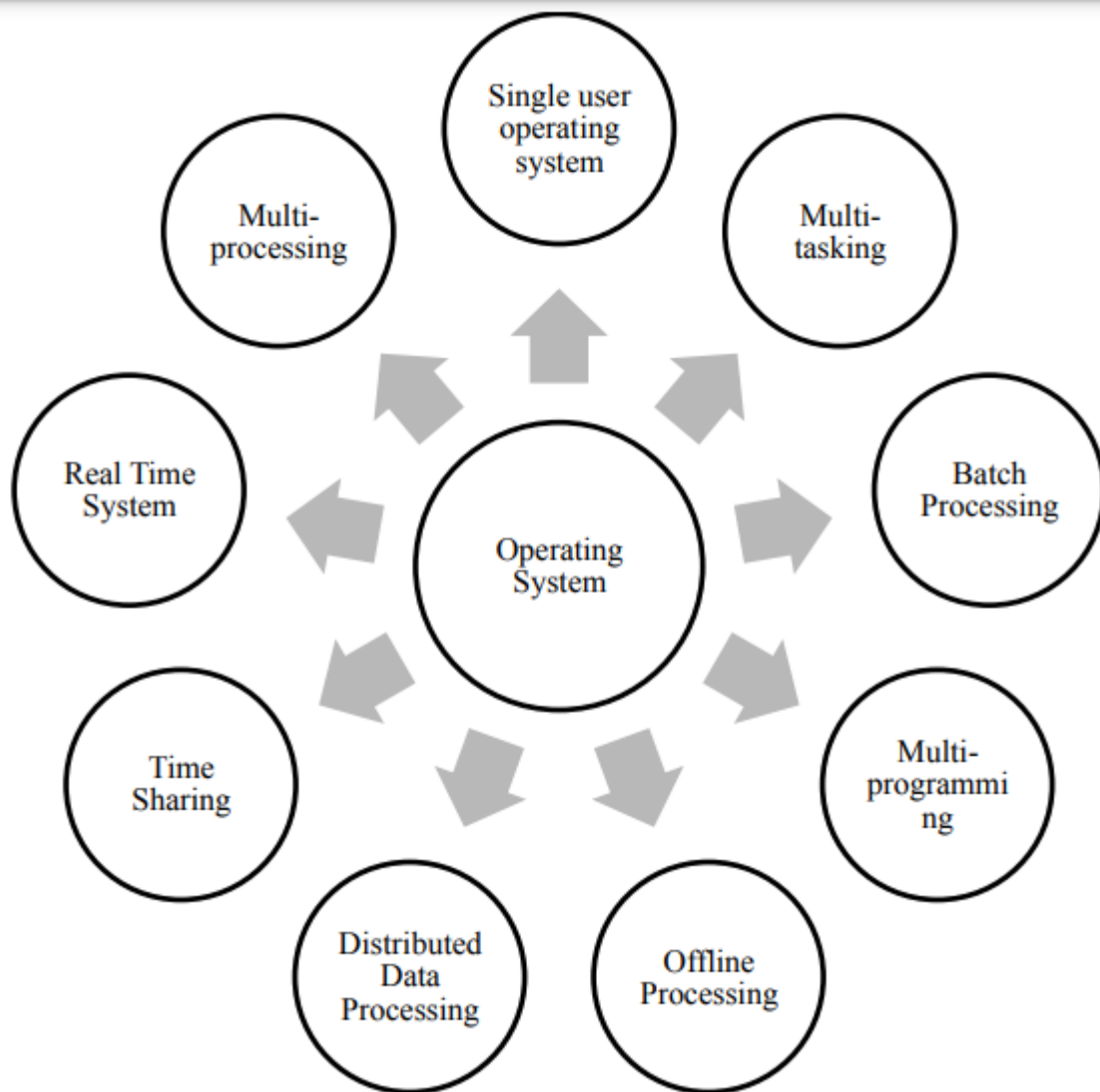
https://www.tankonyvtar.hu/en/tartalom/tamop412A/2011_0009_Herdon_MiklosAgroinformatics/c_h03s09.html

Watch: Introduction of single or multitasking: <https://youtu.be/gIGtxwfQ4>

A **real-time operating system (RTOS)** is a very fast and relatively small OS. Often embedded, meaning it is built into the circuitry of a device and not normally loaded from a disk drive, a real-time operating system runs real-time applications. It may support multiple simultaneous tasks or it may only support single tasking.

A **distributed operating system** manages a group of distinct computers and makes them appear to be a single computer. The development of networked computers that could be linked and communicate with each other gave rise to distributed computing. Distributed computations are carried out on more than one machine. When computers in a group work in cooperation, they form a distributed system.

Batch processing is a technique in which an Operating System collects the programs and data together in a batch before processing starts. An operating system does the following activities related to batch processing. The OS defines a job, which has predefined sequence of commands, programs and data as a single unit.



An Operating System manages device communication via their respective drivers. It does the following activities for **device management**:

- o Keeps tracks of all devices. Program responsible for this task is known as the I/O controller.
- o Decides which process gets the device when and for how much time.
- o Allocates the device in the efficient way.
- o De-allocates devices.

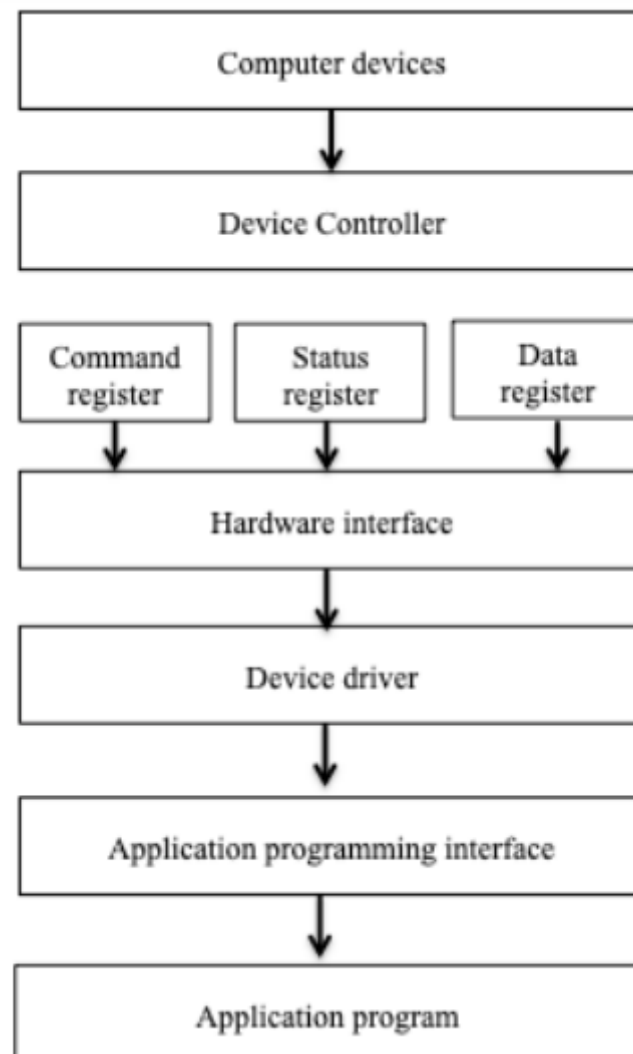
Memory management refers to management of **Primary Memory or Main Memory**. Main memory is a large array of words or bytes where each word or byte has its own address. Main memory provides a fast storage that can be accessed directly by the CPU. For a program to be executed, it must in the main memory. An Operating System does the following activities for memory management:

- o Keeps tracks of primary memory, i.e., what part of it are in use by whom, what parts are not in use?
- o In multiprogramming, the OS decides which process will get memory when and how much.
- o Allocates the memory when a process requests it to do so.
- o De-allocates the memory when a process no longer needs it or has been terminated.

Since main memory is usually too small to accommodate all the data and programs permanently, the computer system must provide secondary storage to back up main memory. **Process Control** is a data structure in the operating system kernel containing the information needed to manage the scheduling of a particular process.

Operating system security refers to specified steps or measures used to protect the OS from threats, viruses, worms, malware or remote hacker intrusions. OS security encompasses all preventive-control techniques, which safeguard any computer assets capable of being stolen, edited or deleted if OS security is compromised.

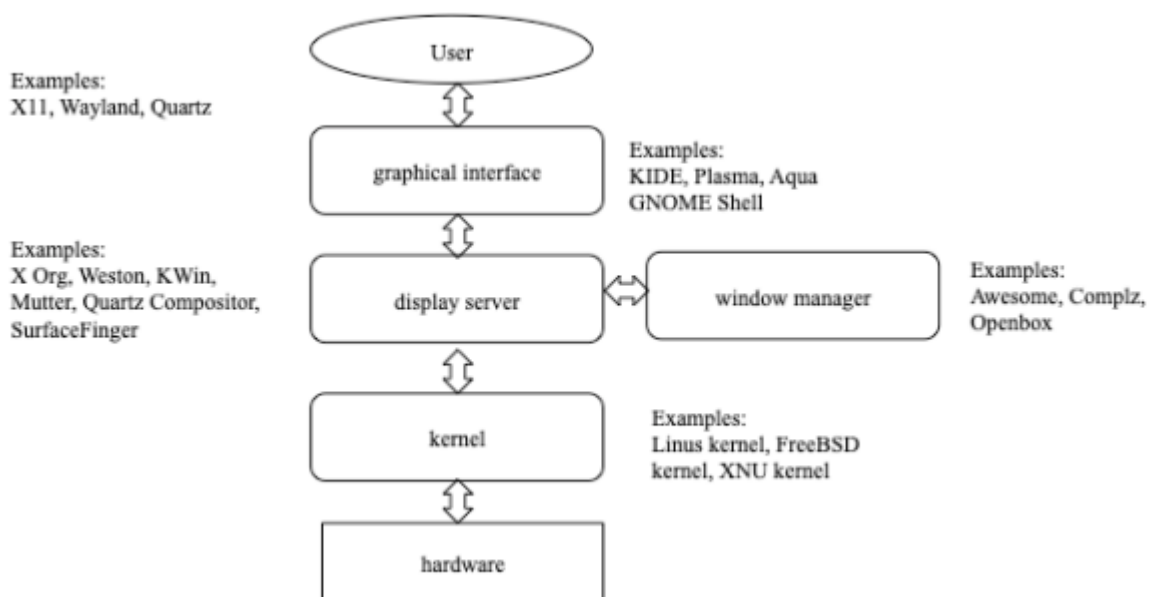
Operating System Interfaces



Menu-driven is used to describe a software program that is operated using file menus instead of using commands. Below is an example of how a user may quit a menu-driven program, as opposed to a non menu-driven program.



Graphical User Interface (GUI) is an interface that uses icons or other visual indicators to interact with electronic devices, rather than only text via a command line. For example, all versions of Microsoft Windows are a GUI, whereas MS-DOS is a command line. Approach for GUI:



Tools, Equipment, Supplies and Materials

Computer, Operating system, Utility program, external hard disk, Deploy master

References

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- <https://study.com/academy/lesson/what-is-a-graphical-user-interface-gui-definitioncomponents-examples.html>
- Software Engineering authored by Sumit Prakash Tayal, Bharat Bhushan Agarwal, published by Firewall 2009
- Principles of Operating Systems: Design and Applications authored by Brian Stuart published by Cengage Learning 2008

Chapter Three

Install the Software

Learning Activities

The following are the performance criteria:

- o Software specifications and computer resource requirements are identified
- o Source of software installation files is determined
- o Existing data is backed up
- o User vendor agreements are identified according to the installation manual
- o Software installation is done as per the installation manual provided

Trainees to demonstrate knowledge in relation to:

- o Define software installation
- o Acquisition of software
- o Installation media
- o Software installation legal requirements
- o Existing data protection
- o Types of software installation: Attended, Unattended, Headless, Schedule/Automated, Clean/Updating, Network
- o Software and installation and registration
- o Software configuration
- o Importance of registration

Information Sheet

Software installation is the process of making hardware and/or software ready for use. Obviously, different systems require different types of installations. While certain installations are simple and straightforward and can be performed by non-professionals, others are more complex and time-consuming and may require the involvement of specialists.

Acquisition software is a computer-aided system that supports the improvement of an organization's **software acquisition** process capability and performance.

Software installation legal requirements : Software can be provided as a single user and multi-user user license:

- o Single user(s): Software can be activated on single PCs and notebooks.
- o Multi-user network license: Software can be activated over a network for multiple users.

Data Protection controls how your personal information is used by organizations, businesses or the government.

Read: Data protection policy: <https://www.gov.uk/data-protection>

Attended installation goes through the following setup stages:

- o Setup Program (text mode): prepares the hard drive for the subsequent stages of installation and copies the files required for running the Setup Wizard. Requires reboot. (Clean installations only.)
- o Setup Wizard (graphical mode): prompts for additional information such as product key, names, passwords, regional settings, etc.
- o Install Windows Networking: detects adapter cards, installs networking components (Client for MS Networks, File & Printer Sharing for MS Networks), and installs TCP/IP protocol by default

(other protocols can be installed later). You can choose to join a workgroup or domain at this stage. You must be connected to network and provide appropriate credentials to join a domain. After all choices have been made, components are configured, additional files are copied, and the system is rebooted.

o Post installation: create user accounts and activate retail versions software. This stage is sometimes referred to as the "Out of Box Experience" (OOBE).

Read: Attended installation: https://www.sqa.org.uk/e-learning/ClientOS01CD/page_01.htm

Unattended installation is a procedure for installing software without user intervention.

Read: Unattended installation:

<http://www.thenetworkencyclopedia.com/entry/unattendedinstallation/>

Headless software (e.g. "headless java" or "headless Linux") is software capable of working on a device without a graphical user interface. Such software receives inputs and provides output through other interfaces like network or serial port and is common on servers and embedded devices.

A **clean install** is a software installation in which any previous version is eradicated. The alternative to a clean install is an **upgrade**, in which elements of a previous version remain.

Software license registration tools and services provide the means for presenting a software developer's software licenses (also known as an End-User License Agreement, or EULA) to an end user as well as facilitating the transfer of required registration information and consent to the license. Successfully registering a software application often activates the software for legal use by the end user or enterprise.

Read: Software licenses: https://www.webopedia.com/TERM/L/license_registration.html

In software engineering, **software configuration management** (SCM or S/W CM) is the task of tracking and controlling changes in the software, part of the larger cross-disciplinary field of configuration management. SCM practices include revision control and the establishment of baselines.

Tools, Equipment, Supplies and Materials

Computer, external hard disk, deploy master, install ware

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Chapter Four

Configure the Software

Learning Activities

The following are the performance criteria:

- o Software configuration is done as per the installation manual provided
- o Required software parameters are set as per the software manual
- o Software configuration is done as per the set parameters

Trainees to demonstrate knowledge in relation to:

- o Software configuration components: Software Configuration Identification, Software Configuration Control, Software Configuration Status Accounting and Auditing
- o Reasons for software configuration: Tracking and Controlling
- o Importance of software configuration management: identification and management
- o Auditing and accounting

Information Sheet

Identification, control, audit, and status accounting are the four basic requirements for a software configuration management system. These requirements must be satisfied regardless of the amount of automation within the SCM process. All four may be satisfied by an SCM tool, a tool set, or a combination of automated and manual procedures.

Configuration identification is the process of identifying the attributes that define every aspect of a configuration item. A configuration item is a product (hardware and/or software) that has an end-user purpose.

The recording and reporting of information needed for configuration management including the status of configuration items proposed changes and the implementation status of approved changes. Status accounting provides the means by which the current state of the development can be judged and the history of the development life cycle can be traced.

A typical Configuration Status Report might include:

- o A list of the configuration items that comprise a baseline
- o The date when each version of each configuration item was baselined
- o A list of the specifications that describe each configuration item
- o The history of baseline changes including rationales for change
- o A list of open change requests by configuration item
- o Deficiencies identified by configuration audits
- o The status of works associated with approved change requests by configuration identifier

Tracking software observes and tracks the operations and activities of users, applications and network services on a computer or enterprise systems. This type of software provides a way to supervise the overall processes that are performed on a computing system, and provides reporting services to the system or network administrator.

Software control is the set of procedures used by organizations to ensure that a software product will meet its quality goals at the best value to the customer, and to continually improve the organization's ability to produce software products in the future.

The purpose of configuration identification is to maintain control of an evolving system by:

- o Uniquely identifying the system, revisions of the system and the component parts of each revision
- o Understanding the status of configuration items as they progress through the development process.

Tools, Equipment, Supplies and Materials

Computer, external hard disk, Deploy master, utility program

References

- <https://www.techopedia.com/definition/4313/monitoring-software>
- http://www.chambers.com.au/glossary/configuration_status_accounting.php
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