

CSC 201

- Hardware refers to the physical components of your computer such as the system unit, mouse, keyboard, monitor, etc...
- Software is the instruction that makes the computer work. Software is held either on your computer's hard disk, CD-ROM, DVD or on a diskette and is loaded from the disk into the computer's RAM.
- Information technology (IT) is a general term that relates to the use of computers as an aid to creating and maintaining data. It is related to all aspects of managing and processing information, especially within a large organization.
- Mainframe computers are the big, powerful, expensive computer used in the background by most large organizations. The power of the mainframe can be distributed among many people accessing the mainframe either via a PC or a so called "dumb terminal".
- Mini-computer are powerful and also very expensive, mini-computers were used by mid-sized companies.
- Super-computer is an incredibly powerful beast with a phenomenal capacity for processing data, they are used extensively by the military.
- In the early days, most PCs ran an operating system called DOS. These days most PCs will be running a version of Microsoft windows (Windows 95, 98, NT or 2000)

The Apple Mac is a computer, but not a PC, it uses a different operating system, and requires special versions of application programs (such as word-processors or spreadsheet)

In the early days the thing that really distinguished the Mac over the PC was the GVI (graphic user interface)

- A network allows you to connect two or more computers together. This allows data stored on one PC to be retrieved by other PCs connected to the resources.
- An intelligent terminal, for example a PC, performs a lot of the processing locally within the PC's CPU. Thus you could use a PC, linked to a mainframe to extract the required information from the mainframe and then perform analysis of that data on the PC.
- A dumb terminal has very limited processing capabilities itself, but allows you to connect to a large powerful computer such as a mainframe. When you process your data from the dumb terminal, it is the mainframe at the other end of the network that is performing all the calculations. The dumb terminal only allows you to enter your data and displays the information on the screen

- CPU types: Modern PCs use some sort of Pentium CPU. The Pentium name is copyrighted by Intel and only Intel CPUs can be called Pentium CPUs.
- Clock speed: the computer clock speed governs how fast the CPU will run. The higher the clock speed the faster the computer will work for you. The clock speed is given in MHz. The higher the MHz speed the faster the computer.
- RAM: if you are using a Windows based system, then you will often see great improvements to your computer's performance by adding more RAM.
- Hard disk speed and storage: Hard disks are also measured by their speed, defined in milliseconds.
The smaller this access time the faster the hard disk will store or retrieve data. The disk storage capacity is measured in G Bytes.
1 G Byte = 1024 Mbytes
- The "system unit" is the name given to the main Pc box.
- The system (Mother) Board is contained within your system unit and all the vital computer system plug directly into the system board. The CPU is normally housed on your system board along with all the electronic components:
 - The system unit
 - The system (Mother) Board.
 - CPU
 - Primary storage (RAM and ROM)
 - BUS
 - Power supply
 - Secondary storage
 - Hard disk
 - Floppy disk (Diskette)
 - CD drive
- Primary storage (RAM and ROM): found on the Mother board, it is the electronic circuitry that temporarily holds data and program instructions needed by the CPU.
- BUS: founded on the mother board. It is used to add additional electronic cards such a VGA, Internal, TV tuners.
- Power supply: hosted on the chassis oh the system unit. It is the device that supplies power to all parts of your computer system.
- Input devices allow you to input information to the computer and include things such as the keyboard and mouse.
- Output devices allow you to output information from the computer and include the printer and the monitor.

- A peripheral device is any device that you can attach to your computer. Thus, you could attach a scanner or modem to the back of your system unit.
- Serial Port → COM 1 or COM 2 enables you to connect items to the computer, such as modem
- Parallel Port: → LPT 1 or LPT 2 enables you to connect items to the computer, such as printer.
- A modem is a device that is used to attach your computer to the telephone system. The modem converts data into sound that is sent over the telephone line, the receiving modem turns the sounds back into data.
- A tape backup unit allows for regular backing up of your data. These tapes can store a vast amount of data at a low cost.
- Many portables are supplied with special adaptor sockets at the rear that enable what are called PCMCIA compatible hardware to be connected to them.
- Plug and play provides a mechanism for automatically configuring any items you add to your PC, it requires 3 elements to work successfully.
 1. the operating system must be plug and play aware
 2. the ROM –BIOS must plug and play aware
 3. the cards themselves must be specially designed to be plug and play aware
- The CPU is the brains within your computer. It performs most of the calculations within the computer and is responsible for the smooth running of your operating system (Microsoft Windows) as well as your application programs, such as word processors, spreadsheets and databases. There is a small amount of memory associated with the CPU, which it uses to perform these operations. It also accesses and uses the main memory (RAM) within your computer.
- The control unit (CU) contains circuitry that uses electrical signals to direct the entire computer system to carry out, or execute, stored program instructions. The CU does not execute program instructions; rather, it directs other parts of the system to do so. The CU must communicate with both the arithmetic/logic unit and memory.
- VGA (Video Graphic Adaptor) was a standard that allows graphics to be displayed on your monitor. Most people tend to use higher standards such as super-VGA (which allows you to use more colors and higher resolution) VGA gives you even higher resolution

- A plotter is an output device similar to a printer, but normally allows you to print larger images. There use is common in the design and research sector.
- The operating system is a special type of program that loads automatically when you start your computer.
- An application program is the type of the program that you use once the operating system has been loaded.
- An operating system has three main functions:
 - 1- To manage the computer's resources, such as the central processing unit, memory, disk drives and printers
 - 2- To establish a user interface
 - 3- To execute and provide services for applications software.
- Word-processing applications: Microsoft word; Lotus Word Pro; Word Perfect
- Spreadsheet application: Microsoft excel, Lotus 123
- Database applications: Microsoft Access, Lotus Approach
- The operating system acts as a link between you and your computer hardware
- DOS is limited largely due to its age rebased in 1981 and designed for a very old CPU. It does not support multitasking and can only use up to 640 KB of memory. *and not Graphical*
- ✗ Interrupts allow items within the PC to signal to the CPU that they want its attention command within DOS:
 - Help: get general helps
 - Help command : to get help on specific DOS commands
 - ✗ DOS key : recall previously entered commands.
- A hard disk is divided into separate storage areas called directories
- All disks have a root directory, which is created automatically when the disk is formatted. The root directory of a diskette referred to as A :\. The root directory of your first hard disk is referred to as C:\
- The current directory in it is the directory you are currently in it is referred to *.* The parent directory is the directory level immediately above the directory are in. all the directories other than the root directory, by definition have a parent directory. The parent directory is referred to as *.*
- MD → create a directory
- CD → Change to a directory
- CD1 → Switch back to the roat directory
- CD.. → Switching to a pavent directory
- RD → Removing a sub-directory
- DELTREE → Removing sub-directory
- TREE → Viewing the disk sub-directory structure

Chapter 4

- DIR → display a list of files in a particular directory.
 - DIR/p → Displays a list of files and directories, and pauses when the list scrolls to fill the screen.
 - DIR/w → Displays a wide directory listing.
 - DIR/s → Allows a to include subdirectories in the directories to be searched.
 - DIR/? → gives details of the syntax that should be used.
 - A file is a collection of information contained in a single unit, stored on disk.
 - External DOS files are held on the disk, and loaded into your computers memory (RAM) only as and when required.
 - Internal commands are pre-loaded in your computers memory (RAM) when you switch a DOS-based computer.
 - ✗ EDIT MYFILE → Create a text file called my file you would type in the command.
 - COPY CONMYFILE 2 → Create a file called myfile 2.
 - REN → Used to rename a file
 - DEL → Delete a file.
 - UNDELETE → Undelete a file
 - ✗ COPY source destination → To copy files from one place to another.
 - XCOPY source destination /E/S → Copy not just file in the current directory, but also files contained in any sub-directories of the current directory.
 - MOVE → move files.
 - DEL 123*.* → Delete all the files starting with 123.
 - ✗ ATTRIB ± R → read only/ Read/ Write
 - ✗ ATTRIB ± H → Hide /unhide.
 - Format A: → formats a disk.
 - Format/S → Formats a disk as bootable disk.
 - Format/Q → To quick format a diskette.
 - UNFORMAT → unformat a diskette or hard disk.
 - DISKCOPY A: A: → To copy a diskette
 - LABEL A: → Label a diskette
 - Bad sectors are areas of the disk that have become unreliable for storing data.
 - ✗ CHKDSK → Find and correct bad sectors.
 - ✗ CHKDSK/F → Will fix problems in the mapping system used by DOS.
 - ✗ SCANDISK → Scan the disk for bad sectors and tell DOS to avoid these areas of the disk in the future.
 - Taskbar normally positioned at the bottom of the screen.

- The title bar is displayed along the top of almost all program, folder and dialog box windows.
- Windows 2000 can support file names of up to 255 characters, including spaces and periods.
- To physically delete a file without in first being sent to the recycle Bin Press Shift + Del.
- To delete only certain file form the recycle Bin depress the CTRL key (and keep it depressed).
Click on the files you wish to delete form the recycle Bin, then release the CTRL key.
Finally, from file drop down menu, click on the Delete command.
- The purpose of the Clipboard is to provide a mechanism for exchanging data between two or more sources Data can be copied or cut form any application; once it has been copied it remains in the Clipboard and can be retrieved using the Past function.
- To create a Link select Past Special form the Edit drop down menu, and form the dialog Box choose which data type you want to use for the object you are pasting.
- To embed an object simply select Paste form the Edit drop down menu.

Chapter 6

- Read Only Memory (ROM) as the name suggests is special type of memory Chip that holds software that can be read but not written to ROM is nonvolatile its contents do not disappear when the power is turned off. Using specialized tools called ROM business, the instructions within some ROM chips can be changed. These chips are known as PROM chips, or programmable Read-Only memory chips.
- ROM-BIOS: the “Read Only Memory Basic Input Out put system” chips is a chip located on the computer’s system (mother) board, which contains software. This software performs a variety of tasks when you first switch on the computer the ROM-BIOS software performs a self-diagnostic to check that the computer is working ok. This software then loads your operating system form the disk into the RAM.
- Most modern computers are actually supplied with a flash BIOS rather than a ROM-BIOS. This chip contains exactly the same type -of in- built software, but has the advantage that the software on the chip can be upgraded. This upgrade is achieved by simply running a small program supplied by the comp name facturer.

Chapter 7

- The picture that you see on your screen is a form of data and this data has to be stored somewhere. The on-screen pictures are held in special memory chips called video memory chips, these chips are usually located on the video card.
- Random Access Memory (RAM) is the main “working” memory used by the comp. when the operating system loads form disk when you first switch on the computer, it is copied into RAM. RAM can be of two types: static RAM (SRAM) and Dynamic RAM (DRAM). DRAM must be constantly refreshed by CPU or it will lose its contents. SRAM will retain its contents without intervention from the CPU. Although SRAM is faster, DRAM is used in most personal computer memory because of its size and cost advantages. Data and programs stored in RAM are volatile.
- Cache Memory is relatively small block of very fast memory designed for the specific purpose of speeding up the internal transfer of data and software instructions.
- Computers work in what is called Binary.
- The hardware can process 32 bits at a time software is also described as 16 bit, 32 bit or 64 bit software.
- Byte = 8bit; 1KB = 1024 byte, 1MB = 1024 KB & 1GB = 1024 MB.
- Data and programs are stored on your disk as files.
- Directories or folders are used to group files with a similar then together.
- A database is a collection of interrelated files stored together with minimum redundancy.
- A record is a collection of related fields held within a file. It is the sort of storage unit used by a database.
- A field contains a set of related character.
- Character is a group of electrical signals.
- Diskettes: very slow, very cheap and capacity is normally 1044MB.
- Internal Hard Disk: very fast, it represent the cheapest way of storing data and capacity is enormous often in excess of the 10GB.
- External Hard disks. Normally slower than internal Hard disks, more expensive than internal disks and same capacity as internal disks.
- Each disk has 2 sides which are divided radially into sectors and then divided into circular concentric tracks. In addition

hard disk contain more than one disk, mounted vertically on top of each other.

- Sides: Diskettes have 2 sides used to store data, called by beginners, side 0 and side 1. Hard disks are in fact made up of number of physical disks, laid one above the other. Each disk is called a platter. This, if you have 2 platters, you have 4 sides capable of storing data.
- Sectors: Disk sectors resemble to slices of a cake.
- Tracks: tracks are concentric circles, imprinted on the disk, where the data is laid down.
- Cylinder: A cylinder is a series of particular tracks taken as a vertical section through the physical disk structure.
- Clusters: DOS uses the concept of a cluster for storing files. A cluster is made up of one or more sectors and is the minimum unit of disk storage.
- Zip Disks: you should install a zip drive into your comp. and then you can insert Zip disks into that drive. They are great for backing up data and for exchanging data between. Non-networked computers. It is slower than normal hard disks but ideal for backups. Capacity is 100 or 250 MB.
- A Jazz drive is similar in concept to a zip drive. The main difference between them is that Jazz drive can hold a lot more data. It's slower than normal hard disks but ideal for backups capacities = 2 GB = 2048MB.
- CD-ROM disks: Much slower than hard disk. Capacity around 650MB; cost below \$100 each.
- DVD drives: much faster than CD-ROM drives but not as fast as hard disks, capacity up to 17GB; cost slightly higher than CD-ROM drives.
- Tape Backup: a tape Backup unit allows for regular backing up of your data. These tapes can store a vast amount of Data at a low cost. DAT (Digital Audio Tape) devices are commonly used for Backups. The DAT tapes that they use can backup enormous amount of data (be over 4GB per tape) the devices are also fast & reliable.

Chg. word

- The thesaurus can be used to look up synonyms and antonyms: select the word that you want to find a synonym or antonym for from the tools menu select the language command and then from the sub menu displayed select thesaurus command.

Chapter 9
net.

- Wired Pairs are wires twisted together to form a cable which is then insulated wire pairs can be inexpensive. They are susceptible to electrical interference or noise. Noise is

anything that causes distortion in the signal when it is received. High voltage equipment and even the sun can be sources of noise.

- Coaxial cable is a single conductor wire within a shielded enclosure. Bundles of cables can be laid underground or undersea. These cables can transmit data much faster than wire pairs and are less prone to noise.
- Fiber optics uses light instead of electricity to send data. These cables are made of glass fibers, each thinner than a human hair, that can guide light beams for miles. Fiber optics transmits data faster than some technologies, yet the materials are substantially lighter and less expensive than wire cables. It can also send and receive a wider assortment of data frequencies at one time the range of frequencies that a device can handle is known as its bandwidth; bandwidth is a measure of the capacity of the link. Fiber optics offer very high bandwidth and very low noise susceptibility.
- Microwave transmission uses what is called line-of-sight transmission of data signals through the atmosphere. Microwave transmission offers speed, cost-effectiveness, and ease of implementation.
- The basic components of satellite transmission are earth stations, which send and receive signals, and a satellite component called a transponder. The transponder receives the transmission from an earth station, amplifies the signal, changes the frequency, and retransmits the data to a receiving earth station.
- PSDN or Public Switched Data Network is simply the technical name for the telephone system in use today.
- ISDN stands for "Integrated Services Digital Network". ISDN dates back to 1954, and allows much more modems. Using ISDN, you can transfer 64K or 128K of data per second.
- A fax machine allows you to transmit printed material over the telephone system. The sending fax machine scans the page and converts the information into sound, the receiving fax converts the sound back into an image of the page for printing.
- Telex is an old system used for sending typed messages via the telex network, which has largely been replaced by the fax and email system.
- Teleconferencing is a method of using technology to bring people and ideas together despite geographic barriers.

- Using electronic fund transfers (EFTs), people can pay for goods and services by having funds transferred from various accounts electronically, using computer technology.
- The baud rate tells you how fast a modem can send/receive data. Most modern modems have a max baud rate of 56 kilobits per second (KB/sec).
- Star Network: it has a hub computer that is responsible for managing the network. All messages are routed through the central computer, which acts as a traffic cop to prevent collisions. Any connection failure between a node and the hub will not affect the overall system. However if the hub computer fails, the network fails.
- Ring network: it links all nodes together in a circular chain. Data messages travel in only one direction around the ring. Any data that passes by is examined by the node to see if it is the addressee; if not, the data is passed on to the next node in the ring. Since data travels in only one direction, there is no danger of data collision. However, if one node fails, the entire network fails.