Computer Software

Revision Notes Created by the higher computing class.

Description of the function of a bootstrap loader

A Bootstrap loader is an important piece of software which is held in ROM. As soon as you power up your computer system it starts to run. It looks for the operating system (usually held on disk) and begins to load it into main memory. :)

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the main functions of a single user operating system: interpreting users commands

The Command Language Interpreter (CLI) allows the user to give instructions to the computer. The CLI may be command driven or menu-driven. The CLI's job is to interpret or make sense of commands entered by the user and do its best to carry them out. If a mistake is made, then the CLI should display an error message. <3

Description and exemplification of the main functions of a single user operating system: file management

File Management: This is the part of the OS which searches and stocks files. The main functions are:

- managing directories, keeping an eye over which files are stored where
- protecting the integrity of files by giving methods on controlling how files are accessed
- asking for data transfers from either input or output devices <3

Description and exemplification of the main functions of a single user operating system: memory management,

Controls where programs are placed in main memory.

Many OS's allow more than one program to be placed in main memory at the same time.

Memory management ensures that software doesn't replace any other running operations such as the computer OS.

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the main functions of a single user operating system: input/output management

There are four main functions of a single user operating system. these are Managing programs, Managing Memory,Handling input and output and User Interface.

Managing programs is one of the functions that are most dramatic effect to the operating systems overall quality. There are many different systems that are used for managing programs. You have single tasking, in which you can run only one program application at a time. Multi-tasking in which in the normal operating system allows a single user to work with more than one program at a time.

The second function of an operating system is managing memory. The operating system gives each individual program a certain amount of memory this is called a partition. If the memory becomes full then the operating system starts storing copies of the pages into files in the hard disk. This is called a swap file

Input and output devices generate interrupts, and sends signals that inform the operating system that something has occurred. Some examples of input and output devices are monitors, modems, and sound cards.

The quality of the user interface is what makes or breaks the system. This is the part of the operating system that interacts with the user. Sometimes it is also referred to as the shell. This is implying that the user interface is surrounding the operating system, which is referred to as the kernel. There are three different types of user interface. These are command-line, menu-driven, and graphical interface.

Comic sans...

the main functions of a single user operating system: resource allocation

- The OS allocates resources to other programs such as applications. For example:
- Scheduler to share processor – batch, foreground/background, timesharing
- Memory management – e.g. Virtual memory paging, swapping memory contents to hard disc
- Ensures drivers are given access to hardware devices
- Mechanisms for accounting; limit enforcement – e.g. no. of pages printed, file space per user etc

the main functions of a single user operating system: managing processes

Providing a connection between the user's logical view of the files and the actual physical location of the file. for example files in the same folder may not actually be next to each other on the disc. To control where programs and data are placed in main memory. To communicate directly with the peripherals using the relevant interface.

Definition of a utility program

Utility programs, commonly referred to as just "utilities," are software programs that add functionality to your computer or help your computer perform better. These include antivirus, backup, disk repair, file management, security, and networking programs. Utilities can also be applications such as screensavers, font and icon tools, and desktop enhancements. Some utility programs help keep your computer free from unwanted software such as viruses or spyware, while others add functionality that allows you to customize your desktop and user interface.

By Nathan

Description of utility programs - **virus checker**

A virus checker or Anti-Virus Software will scan files and check for traces of a virus and is then able to remove the virus.

Anti-virus software works in two modes: stand-alone and memory resident. In stand-alone mode the software works like any other program. You start it and point it at a file, directory or disk to check the files for viruses.

In memory-resident mode the anti-virus software stays running on your system at all times. Whenever a file is used the software will check it for viruses. As well as checking files, most anti-virus software will also check e-mails and web pages.

Description of utility programs - disk editor

A disk editor is a computer program that allows its user to read, edit, and write raw data (at character or hexadecimal,   byte-levels) on disk drives (e.g., hard disks, USB flash disks or removable media such as a floppy disks); as such, they are sometimes called *sector editors,*since the read/write routines built into the electronics of most disk drives require to read/write data in chunks of sectors (usually 512 bytes). Many disk editors can also be used to edit the contents of a running computer's memory or a disk image.

Description of utility programs - defragmenter)

Description of the standard file formats for graphics files: jpeg

Description of the standard file formats for graphics files: gif

Description of the standard file formats for graphics files: TIFF

Tagged image File format:

A file format for bit-mapped graphics is TIFF. This can represent every type of graphic from monochrome or greyscale graphics upto 24-bit colour.TIFF is used mainly in desktop publishing packages. However there are limitations of the number of packages into which the various versions of TIFF files can be imported.

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software to support typical tasks - production of a multimedia catalogue

A multimedia catalogue is a database of products which contain a variety of media, such as sound, graphics and video. You would need:
•Multimedia Authoring Software (or database which allows inclusion of different multimedia elements)
•Video editing software
•Sound editing software
•Graphics editing software
•Word processor or text editor
•CD or DVD writing software

Description of a suitable selection of software to support typical tasks - setting up a LAN in a school

Description of a suitable selection of software to support typical tasks - development of a school website

- Web Server
- Database Server
- Media Server
- Web Browser
- Web Authoring Software

Description and exemplification of software compatibility issues - memory requirements

https://blogs.glowscotland.org.uk/nl/ColtnessHS-Computing/tag/software/

Description and exemplification of software compatibility issues - storage requirements

Description and exemplification of software compatibility issues - OS compatibility)

interpreting users commands - The CPU needs to understand a command keyed in by a user. The CPU can interpret only binary code, i.e. the code containing 0's and 1's. A command keyed in by user has to be translated to binary code for the CPU to understand it. An operating system performs this task.

file management -A file manager or file browser is a computer program that provides a user interface to work with file systems.

memory management - Memory management is the act of managing computer memory.

input/output management -I/O manager manages the communication between applications and the interfaces provided by device drivers.

resource allocation -Resource allocation is used to assign the available resources in an economic way.

managing processes -Process management is the ensemble of activities of planning and monitoring the performance of a process.

Classification of viruses by type of file infected: file virus

File viruses infect executable files by inserting their code into part of the original code so that when the file is accessed it starts to infect.

Classification of viruses by type of file infected: **boot sector virus**

Floppy disks and hard disks store a small program known as the boot record which is run when the computer starts up. Boot sector viruses attach themselves to this program and execute when the computer tries to start up from the infected disk. Once a computer has been infected, any unprotected floppy disk put into the computer will also be infected. Infected machines will often refuse to start.

Classification of viruses by type of file infected: macro virus

A macro virus is a computer virus that "infects" a Microsoft Word or similar application and causes a sequence of actions to be performed automatically when the application is started or something else triggers it. Macro viruses tend to be surprising but relatively harmless. A typical effect is the undesired insertion of some comic text at certain points when writing a line. A macro virus is often spread as an e-mail virus. A well-known example in March, 1999 was the Melissa virus virus.

Description of the virus code action: replication

Description of the virus code action: camouflage

Description of the virus code action: watching

Description of the virus code action: delivery

The process of carrying out its destructive task such as erasing files, changing the file index, randomly changing numbers in a spreadsheet, introducing loops to slow down a program. :')<3 I <3 m3n

What is a Virus

A virus is a program that can destroy or cause
damage to data stored on a computer system.
A virus program must be run in order to infect a
computer system. Viruses
can attach themselves to
other programs in order to ensure that this happens.
Viruses are spread through file downloads or infected
storage media such as floppy disks.
Common symptoms of virus infection:
•Displaying unwanted messages
•Unusual visual or sound effects
•Loss of data from a storage medium
•Computers restarting unexpectedly
•Unwanted generation of e-mails

What is a worm?

A worm is a virus which spreads from computer to computer, normally through security holes inside a network, which is able to reproduce itself.

Worms usually spread themselves by attaching copies of themselves, sometimes using email documents. The virus then uses these to move around to other servers emails and from there to users system.

What is a Trojan horse

A **Trojan horse**, or **Trojan**, is a non-self-replicating type of malware which appears to perform a desirable function but instead facilitates unauthorized access to the user's computer system. Trojans do not attempt to inject themselves into other files like a computer virus. Trojan horses may steal information, or harm their host computer systems.

This is a great copy and paste!

Nice copy & paste

Description of anti-virus software detection techniques: use of checksum

The simplest example is that a virus needs

to modify a file by overwriting or adding its code to the file, so that when the file is running,

so is the code for the virus. The integrityof the checksum method consists of taking a checksum of clean files or disks. Any change to the checksum indicates that the files or disks have been modified by what could be a virus.

Description of anti-virus software detection techniques: searching for virus signature

- This is a unique pattern of bits within a virus code.
- The anti-virus software searches for the presence of the virus signature and may remove it.
- Useful only for known viruses.

Description of anti-virus software detection techniques: heuristic detection

Some more sophisticated antivirus software uses heuristic analysis to identify new malware or variants of known malware.

Many viruses start as a single infection and through either mutation or refinements by other attackers, can grow into dozens of slightly different strains, called variants. Generic detection refers to the detection and removal of multiple threats using a single virus definition

Description of anti-virus software detection techniques: memory resident monitoring

Some anti-virus software is memory resident and loaded on start up. It then actively monitors systems and programs that are ran, for infections. Such examples include boot files, discs and files which are accessed during start-up