Computer Software

Software provides the interface between the user and the hardware, as well as among the various hardware components. Knowing about software and how a computer uses it is vital to a computer support technician

Software is divided into two broad categories:

- ✓ systems software .
- ✓ application software.

Systems software *is the term used to described programs that enable the computer to function, improve its performance and access the functionality of the hardware.* Systems software sole function is the control of the operation of the computer. You can think of systems software as providing the foundation for applications software.

Applications software *Application software, also known as an application or an app, is computer software designed to help the user to perform specific tasks.* Examples include enterprise, accounting software, office suites, graphics software and media. Many application programs deal principally with documents. Applications may be bundled with the computer and its system software, or may be published separately.

Device Drivers

A device driver is a piece of software that enables the operating system and a peripheral device to communicate with each other.

Operating System

The operating system is the program that actually makes the computer operate.

The main functions of an Operating System

As mentioned above, it is the operating system that actually makes the computer function. The following is a list of some of the functions of the operating system:

- ❖ *Boot-up the computer.*
- ❖ *Control the hard drives*: This includes such features as formatting and defragmenting disks as well as saving files to and retrieving files from disk.
- ❖ *Control input devices* such as keyboards, mice and scanners.
- ❖ *Control output devices* such as the video display and printer.
- ❖ *Control the external ports*: Ports are the external connections that enable peripheral devices to be connected to a computer. Common types of ports are serial, parallel, usb and firewire. Of these the USB ports are the most important.
- ❖ *Provide the functionality for computers to be linked in a network.*
- ❖ *Provide the foundation for application software to be launched.*
- ❖ *Enable application software to access and use the hardware.*

The following list names some operating systems. They are grouped according to similarity.

- ✓ Unix; Linux; Free BSD
- ✓ Windows 95; Windows 98; Windows Me

Windows NT4 Workstation / Server; Windows 2000 Workstation / Server; Windows XP; Windows 2003 Server.

Programming Language

A programming language is an artificial language designed to communicate instructions to a machine, particularly a computer. Programming languages can be used to create programs that control the behavior of a machine and/or to express algorithms precisely

Compiler

A compiler is a computer program that transforms source code written in a programming language into another computer language. The most common reason for wanting to transform source code is to create an executable program.

The name "compiler" is primarily used for programs that translate source code from a high-level programming language to a lower level language (e.g.,assembly language or machine code).

Systems Development

The development of computer programs is a highly developed and structure process involving a number of distinct stages as shown in the table below. The stages of development are known as the program development life cycle.

Program development life cycle:

1. Analysis

The problem or task is analysed and clarified. This involves analysis of the way the task is currently being done and consultation with end users. The project is set out in broad outline. The work of this stage is performed by systems analysts.

2. Design

The project is broken down into smaller sections. These too may be further broken down until there are units. The method of programming each unit is then specified in great detail. The most suitable programming language for each unit is then chosen. The complete specification is the final design. The work of this stage is also performed by systems analysts.

3. Programming

The design is handed over to programmers who code the design into programming languages such as C or Java. The work of this stage is carried out by computer programmers.

4. Testing

Since programs are long and complex, they may contain errors called bugs. These may be syntactical errors, in which the programmer made a mistake in the structure of the command, or logical errors. In these the program appears to work, but works incorrectly. The process of testing is designed to find and eliminate bugs. This stage involves end users to try out the program, programmers to fix syntactical mistakes and systems analysts to fix errors in the logic of the program.

5. Implementation

Once the systems analysts are satisfied that the system is operating correctly, it is installed and implemented. Usually this is done using a pilot group. In this implementation, the system is implemented on a limited scale to start with. If any further bugs are found, these can be eliminated before full scale implementation.

6. Further development

Once the system has been in use for a while, further problems, limitations or performance problems may become apparent. The system will then be modified and new versions released with the changes.