

PROGRAMMING TECHNOLOGY

Components of Computer System

The two major components of computer system are (i) Hardware Component and (ii) Software Component

- (i) **Hardware Component:** This refers to the machinery part of the computer system. The part you can break or touch. Examples are mouse, monitor, CPU
- (ii) **Software Component:** Suit of programs written to control the activities of the computer system e. g operating system, program translators.

COMPUTER SOFTWARE

Software is a suite of programs written to achieve a target goal. Software is designed to exploit and provide the potential capabilities of the hardware to the user. Software can be classified into two major groups, Viz: Systems software and Application software System software

SYSTEM SOFTWARE

This refers to the suite of programs that facilitate the optional use of the other programs and of the computer. The manufacturers provide the system software. It is essential for the day today activities of the computer. Examples of systems software are: Operating system, translators ,utilities, house keeping routines e.t.c

TRANSLATORS: These are special software designed to translate a program written in high level or low level language to machine language which is the only language computer understands. Machine language uses binary codes to represents data, instruction and information.

TYPES OF TRANSLATORS

The three types of translators are: Assembler, interpreter and compiler.

Compiler: It translates high level language (source code) to the machine language (object code). It translates the whole of the high level language such as FORTRAN, COBOL called source code into the equivalent program in machine language called the object program or object code at once.

Interpreter: Interpreter like compiler translates a program written in high level language to a machine language. While compiler translates the whole program once, interpreter translates one instruction at a time and executing each instruction one after the other until the whole area is completely translated and executed. It is slower than compiler.

Assemblers: Assemblers translate the low level language (Assembly language) to the machine language.

APPLICATION SOFTWARE

They may be provided by the manufactures or the users but on most cases by the users. There are two types of application software:

i. User Application software : User application's programs are programs written by the computer end-user to achieve his personal goal or to satisfy the desire of an organization. E.g . ABUAD students' Record System. Such software cannot be bought in software market.

ii. Application packages: They are similar to service programs (Utilities) except that application packages are generalized program for solving business problems as opposed to programs for carrying out computer system tasks. They can be bought by any one from the software market. Examples are word processing package (word star, word perfect, spread sheet, lotus 1-2-3) , Programming languages packages such as Dbase, C++, Oracle, QBASIC, FORTRAN, VISUAL BASIC, games like winEleven

FLOWCHARTS

A program is a set of instructions used to control the activities of a computer system. Programs are written by programmers. Flowchart is one of the things that guide a programmer while writing a program.

A flowchart depicts the flow of data through an organization or illustrates the series of operations in a program in pictorial form.

ALGORITHM: When the steps involved in solving a problem i.e writing a computer program are written down in English Language, it is called Algorithm

PSEUDO-CODE :It is a halfway between English and a programming language. It is based upon a few simple grammatical constructions which avoid the ambiguities of English but which can be easily converted into a computer programming language. It is a less formal language than high level language, more intuitive notation system for representing algorithms. This is also called/referred to as pseudo language or structured English e.g

- i. Set sum to 2
- ii. Set num to 4
- iii. AU num to sum
- iv. Increase num by 2
- v. If num 1000 go back to step 3, otherwise stop the computation.