Computer Software

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Book : Fundamentals of Computer Vol. I by Gagan Deep

INTRODUCTION

- Program or a set of programs is known as Software.

- Now, What is program?

  - Program is a instruction or set of instructions.

- So, we can say Computer Programs, namely, the list of instructions to be executed by a computer are known as the software of a computer.

Hardware Vs. Software

- The electronic circuits used in building the computer that executes the software is known as hardware of a computer.
  - It refers to the physical devices of a computer system, such as Input devices, storage devices, processing unit, control unit , and output devices.
  - A hardware is linked together with software to form a effective working unit that is a computer system.

- To take analogy, a home television set bought from a shop is hardware; the various entertainment programs transmitted from the television station are its software.

- It is immediately evident that hardware is necessary but software is vital.

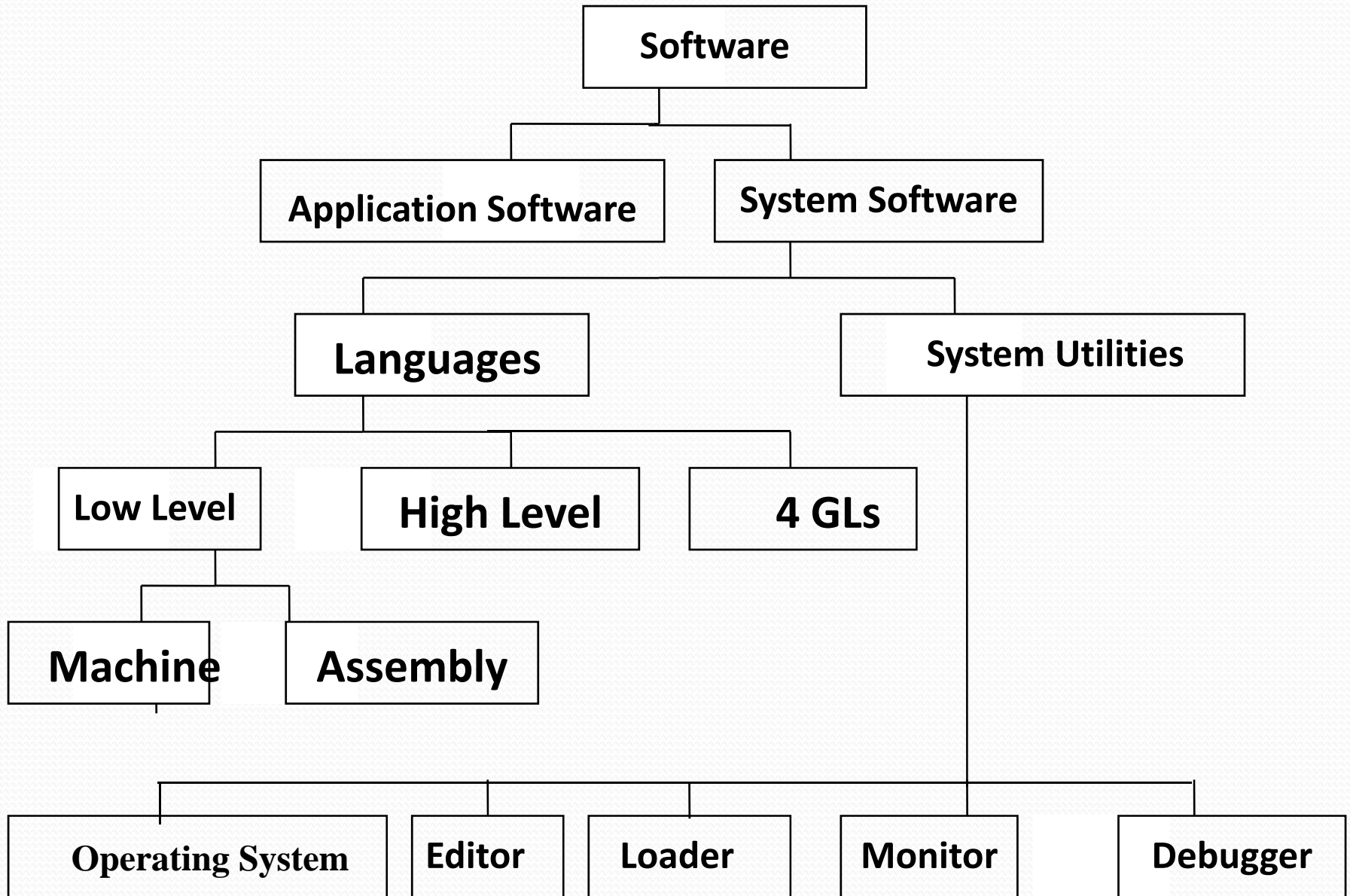- Another important point brought out by this analogy is that software production is difficult and expensive.

- However, hardware is one-time expense whereas software is a recurring expense.
- Hardware and software are complementary to each other.
- *Hardware is nothing without software and vice-versa.*
- By very simple example, these two can be described as both a notebook and a pen are hardware and the written material on notebook is software.

COMPUTER SOFTWARE

- A computer system can not do anything its own, it must be instructed to do a desired job.

- Hence, it is necessary to specify a sequence of instructions that a computer must perform to solve a problem.

- Such a sequence of instructions written in a language that can be understood by a computer is called a computer program.

- It is the program that controls the activity of processing by the computer; and the computer performs precisely what the program wants it to do.
- The term software refers to the set of computer programs, procedures and associated documents.
- Precisely, software means a collection of programs whose objective is to enhance the capabilities of the hardware machine.

TYPES OF SOFTWARE

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                        ┌──────────────┐
                        │   Software   │
                        └──────┬───────┘
              ┌────────────────┴──────────────────┐
    ┌─────────────────────┐          ┌─────────────────────┐
    │ Application Software │          │   System Software   │
    └─────────────────────┘          └──────────┬──────────┘
                          ┌─────────────────────┴─────────────┐
                 ┌─────────────────┐              ┌─────────────────────┐
                 │    Languages    │              │   System Utilities  │
                 └────────┬────────┘              └──────────┬──────────┘
          ┌───────────────┼───────────────┐                 │
   ┌─────────────┐  ┌─────────────┐  ┌──────────┐            │
   │  Low Level  │  │ High Level  │  │  4 GLs   │            │
   └──────┬──────┘  └─────────────┘  └──────────┘            │
   ┌───────┴────────┐                                        │
┌──────────┐  ┌──────────┐                                   │
│ Machine  │  │ Assembly │                                   │
└──────────┘  └──────────┘                                   │
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| Operating System | Editor | Loader | Monitor | Debugger |

Application Software

- It is also known as application programs or packages.

- Application Software is set of one or more programs designed to carry out operations for a specific problem or *we can say the application software consists of packages that serve as ready made solutions to given problems*.

- A inventory package manages the inventory of the firm and control its stock. It produces the reports like Current Stock Report, Reorder List etc..

- Similarly a program for scientific calculation is also known as application software.

- The programs that constitute an application packages are known as *application programs* and the person responsible for writing programs is called *application programmer*.

- Application softwares, normally used for general purpose functions, such as payroll system, production scheduling system, inventory control and general accounting system.

- Specific purpose application packages have also been developed for specialized areas, such as banking, hospital administration, insurance, publishing, manufacturing, science and engineering, etc.

Some of the commonly used packages for business applications are listed below:

1. The database packages commonly known as Ms Access

2. Word Processor packages commonly known as Ms Word

3. Spreadsheet packages commonly known as Lotus / Ms Excel

4. Graphic packages

5. Other special purpose software like Payroll software; Inventory Control System & Result Processing System

System Software

- It is also known as a system program.
- It is a set of one or more programs, designed to control the operation of a computer system.
- Also, the set of programs which provides the environment to write an application programs is known as the system software.

- These programs do not solve specific problems.
- They are general programs written to assist humans in the use of the computer system by performing tasks, such as
  - controlling all of the operations,
  - required to move data into and out of a computer and
  - all the steps in executing an application program.

- *Hence, we can say that system software is a software package consisting of a large number of programs required for the functioning of computer itself.*
- *System software is needed for translation and loading of computer programs and also for supervision, control and running of computer programs.*

The general uses of system software are :

- System packages support the running of other software;

- Communicate with peripheral devices (printers, card readers, disk and tape devices, etc.);

- Support the development of other types of software;

- monitor the use of various hardware resources (memory, peripheral, CPU etc.).

Good systems software allows application packages to be run on the computer with less time and effort.

- *Without systems software, application packages could not be run on the computer system.*

- However, the production of system software is a complex task that requires extensive knowledge and considerable specialised training in computer science.

- That means, System programmers, who prepare systems software, are highly trained computer specialists and important members of the computer architectural team.

- Because of its technical complexity, systems software is rarely developed in-house.
- They are normally developed and distributed by the computer manufacturers.
- The customer who buys or leases a computer system would usually receive some system software in addition to the hardware.
- A computer without some kind of systems software would be very ineffective and most likely impossible to operate.

Thanks!

For any question ...

...Leave Comment!