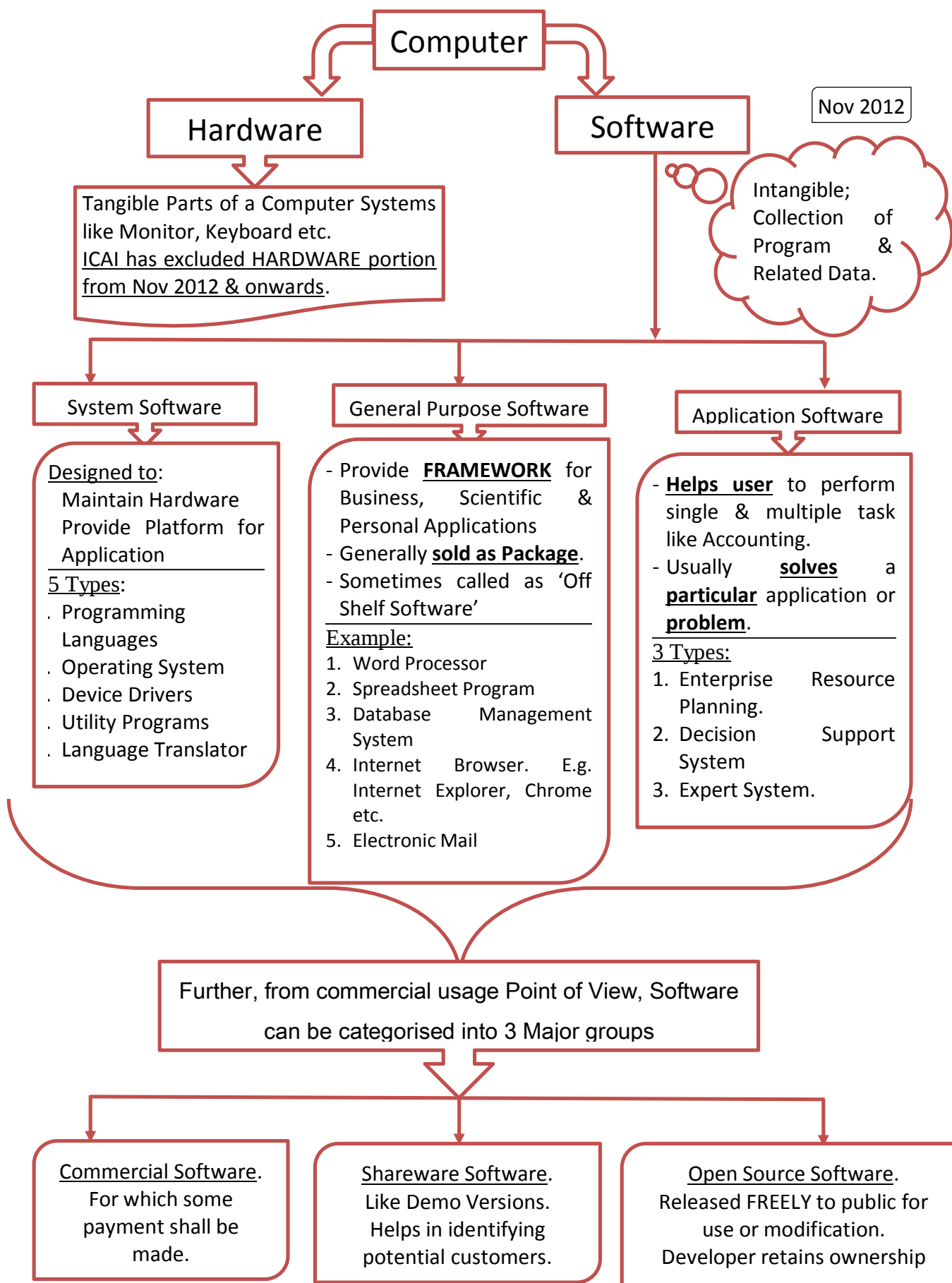


CHAPTER 1 – INTRODUCTION TO COMPUTERS



1. SOFTWARE →

Set of programs, combined together to perform specific task. Also intangible.

2. GENERAL PURPOSE SOFTWARE

Helps to solve common or general problems and non-unique. Accompanied by documentation, template etc.

Types:

- A) **Word Processor** → Do work of composition, editing, formatting. User can add text, images and tables together.
- B) **Spreadsheet Program** → rectangular table which save quantitative or financial data. Provides various mathematical, statistical, financial functions. Ability to re-calculate the entire sheet automatically after a change to a single cell.
- C) **Database Management System** → to manage a large collection of records (rows).
- D) **Internet Browser** → enables opening any web page. Support hyperlinks i.e. linking one page to another. Ex. Microsoft Internet Explorer.
- E) **Electronic mail software** → composing, sending, storing, and receiving messages. Uses SMTP & POP3. Ex. Microsoft Outlook

3. APPLICATION SOFTWARE

Designed to process a particular problem or work. Different organisations require different programs as their procedures, reports, etc. are differently done.

A) **Enterprise Resource Planning (ERP)** →

PM

- a. latest, comprehensive, integrated, readymade and high-end
- b. integrates various business processes
- c. effectively utilise the resources
- d. Not possible to maintain custom/in-house developed ERP due to complexity.
- e. Takes information from every function.
- f. A global software and is hence suitable for MNCs
- g. **What an ERP do (Benefits of ERP)** →
 - i. Integrates all areas of business management system.
 - ii. Improve information flows.
 - iii. schedule production, fully utilise capacity, reduce inventory
 - iv. Replaces many independent software. So less cost & maintenance.
- h. Examples are SAP R/3, Oracle Applications, etc.

B) **Decision Support Systems (DSS)** →

Nov 2009

- a. Assist managers in solving semi structured & unstructured problems i.e. non-routine problems.
- b. Support the human decision-making process NOT replaces.
- c. Provide analysis and flexible reports.
- d. **Characteristics of DSS** →
 - i. ***Support Semi-structured/unstructured Decision Making*** - Unstructured decisions where only partial information available.
 - ii. ***Ease of Learning & Use*** - built and operated by managers, so should be easy to learn. Tools like (i) GUIs, (ii) Tables, (iii) Graphs, added.
 - iii. ***Ability to adapt to changing needs*** - DSS must provide for enough flexible to enable users to model/design their own information needs.

Nov 2009

For Regular Classes, Contact CA Kunal Agrawal @ 9929503735

ITSM no more a 'Theory Subject': Learn & Understand ITSM in 'PRACTICAL WAY'

e. **Components of Decision Support System** →

May 2012

- i. **Users** – manager of any level with an unstructured or semi-structured problem and not a computer professional.
 - ii. **Database** -- one or more databases containing routine and non-routine data from both internal and external sources.
 - iii. **Planning languages** -- set of **interactive** commands facilitates the user to communicate with model base. 2 types:
 1. General-purpose planning languages – EXCEL
 2. Special-purpose planning languages -- like SAS, SPSS.
 - iv. **Model base** -- brain of the DSS as it performs data manipulations and computations. Most of them are custom-developed [self-designed] models.
- f. **Examples of DSS in Accounting System** → A) Cost Accounting System, B) Capital Budgeting System, C) Budget Variance Analysis System, General Decision Support System (GDSS)

C) **Expert system** →

Nov 2011

- a. A **computerised information system** that allows non-experts to make decisions like an expert.
- b. Used for complex tasks.

c. **Components of Expert System** →

PM

Nov 2012

- i. **Knowledge base** -- equivalent of knowledge and insight of an expert.
 - ii. **Inference engine** -- contains the logic and reasoning mechanisms. Form its conclusions, and recommend a course of action.
 - iii. **User interface** -- allows to communicate with the other components.
 - iv. **Explanation facility** – provides explanation of the logic.
 - v. **Knowledge acquisition facility** -- responsible for updating KB.
- d. **Expert systems offer the following benefits (Advantage)** →

- i. cost-effective alternative
- ii. better than a single expert because
- iii. faster and more consistent
- iv. better-quality
- v. preserve the expertise

See DIAGRAM of ES from book. Must be made with question if on ES or components. Page 1.6

e. **Disadvantages of Expert System** →

PM

- i. can be costly and time-consuming
- ii. difficult to obtain knowledge from experts
- iii. common sense into current systems can't be developed yet.
- iv. the poor quality of the early expert systems create non-trust.

Artificial Intelligence → the science and engineering of making intelligent machines. AI assumes intelligence can be simulated/copy by a machine.

neural networks → A neural network is an interconnected group of nodes, akin/like to the vast network of neurons in the human brain.

4. SYSTEM SOFTWARE

Designed to operate the computer hardware. Provide platform for running application software. Computer manufactures build and supply system software as there are complex.

Programming Languages → languages used in writing computer programs and has vocabulary and set of grammatical rules.

- A) **Machine Language or I-generation Language** →
 - a. uses machine codes or **binary code** i.e. 0 or 1
 - b. No translation is required so fast.
- B) **Assembler Language or II-generation Language** →
 - a. uses **Mnemonic codes** i.e. symbols for programming
 - b. before execution of program, translation became essential using Assembler
- C) **Compiler Language (High-level language) or III- generation Language or Procedural language** →
 - a. Need to tell computer what to do & How to Do
 - b. easiest language to learn and use
 - c. Different language for different work.
- D) **Fourth generation Language (4 GL)** →
 - a. “Need to tell computer what to do only”
 - b. requires very little to be written by programmers
 - c. two major types
 - i. Production-oriented 4 GL = Software development by professionals.
 - ii. User-oriented 4 GL = end users like SQL.
- E) **Object oriented Languages and Programming** →
 - a. Defines readymade and re-usable programs as **classes**.
 - b. Facilitates saving in cost, time, debugging.
 - c. More reliable and contain fewer errors as code already tested.

For difference between 3GL & 4 GL refer page 1.10

Nov 2010

Modularity → refers to a programming technique in which a large program is first divided into several small parts called modules, then each module is programmed independently.

Operating or (Executive) Systems

1. Used to manage all the hardware and application software resources.
2. Vital role to play in security.
3. It may be MULTI-TASKING OR SINGLE TASKING.
4. **six basic functions** →
 - a. ***Schedule Jobs*** -- sequence in which jobs/work are executed.
 - b. ***Manage Hardware and Software Resources***.
 - c. ***Maintain System Security*** – allow authorised users only.
 - d. ***Enable Multiple User Resource Sharing*** – handle many user at same time.
 - e. ***Handle Interrupts*** -- temporarily suspend one program to allow another.
 - f. ***Maintain Usage Records***.
5. **Features of Operating System** →
 - PM a. ***Multiprogramming*** -- two or more programs concurrently using a time-slice approach. scheduling jobs a CPU (hardware) has to process at a time.
 - b. ***Multi-Threading*** – Application is executed in multiple process. used to execute any application effectively.
 - May 2010 c. ***Multi-Tasking*** – OS’s capability to execute two or more tasks concurrently.
 - Nov 2010 d. ***Virtual Memory*** -- primary memory that does not in actual fact exist. it is a secondary memory used as primary. hard disk is allocated to use as RAM which is called Virtual Memory
 - PM e. ***Multi-processing*** -- two or more independent CPUs are linked together. often used in airline, credit card verification.

May 2013

Nov 2010

May 2010

Nov 2010

PM

For Regular Classes, Contact CA Kunal Agrawal @ 9929503735

ITSM no more a ‘Theory Subject’:: Learn & Understand ITSM in ‘PRACTICAL WAY’

Device Drivers → Helps operating system to recognise the device and handle them effectively & efficiently. Windows OS generally include drivers for many devices but for newer devices drivers need to be installed to use.

Nov 2011

Language Translator → converts a program written in one language into the other. After developing a program in III-generation language it is translated before execution into I-generation code using a language translator.

Compiler	translates one entire source program into machine language before the program is executed.
Interpreter	translates the source program to machine-level language but only one line at a time. No object module is ever produced.
Assemblers	Assemblers are used assembly language program into machine language.

[For compiler Vs Interpreter, refer page 1.15]

Utility Programs or Service Programs → to help, analyse, configure, optimise and maintain computer.

Task →

1. Sorting and storing the data.
2. Making a copy of all information stored on a disk
3. Providing encryption and decryption of data
4. Analysing the computer's network connectivity
5. Partitioning of drive into multiple logical drives
6. Dumping of data to disc or tape

May 2011

Types →

1. **Sort utilities** → Sort utility programs are those that sort data
2. **Spooling software** → to compensate for the speed differences between the computer and its peripheral (I/O) devices and saves from being slowed down by input and output devices. Spooling utilities can also be used on the input side. PM
3. **Text editors** → most useful to professional programmers, who constantly face the problems of cutting and pasting programs. mainly used by programmers for writing program code. User use WORD-PROCESSORS.

May 2013

Other commonly used utilities

Disk copy program, File copy program, File deletion program, File viewing program,

Disk formatting program -- The formatting process writes the sectors on the diskette.

Directory program -- to view the names of files and folders on disk.

Debugging Program -- process of detecting & removing such bugs is called 'Debugging' and the tool used is called "Debugging Program".

Diagnostic Routines -- written to detect errors or problems in hardware or software components

Subroutine -- independent program which needs to be processed more than once in one or more programs. A subroutine may be called any number of times from any program.

Firmware -- middle of Hardware & Software. micro-programs instruct CPU to perform operations such as addition, multiplication etc.

Classification of Software from commercial point of view

Given on first page and for details once read from book @ page no 1.18. Important hai :P :D