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Financial Education in India With Special Reference to Use of Computers And it Techniques

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Now-a-days many businessmen use Computers to maintain accounts. Hence, it is necessary for a student of accounting to have a working knowledge of Computers. Computer is an electronic machine which can handle a large amount of details at a very fast speed. The details or facts handled by the Computer are known as data. A Computer can accept data, process the data (calculate, classify and compare), store the data and give a report of the results. Hence, Computer is called an Electronic Data Processing (EDP) machine. Thus, the main functions of a Computer are : Input, Processing, Storage and Output of Data.

A Computer can now be defined as a machine which processes data according to a given set of instructions and reports the results. To perform a big job (e.g. maintaining all accounts on Computer), we need many computers, many programmes and many operators. We need a proper system so that the large amount of data is handled in an organized manner. A Data Processing System is set of Machines (hardware), Methods (software) and Men (humanware) required to perform the data processing operations in an organized manner. A System Analyst is an especially skilled person who designs a Data Processing System.

Till 1970's, the use of computers was mainly restricted to scientific applications. The computers in those days were very huge in size, used to create heat during their use and were using a different technology altogether. After the introduction of IBM Punch Card technology, the computers were started being used for commercial applications also.

Somewhere in 1980, the personal computers were introduced in USA which totally revolutionized the computing scenario. This technology was introduced in India around 1983 and since then there is a constant flow of technological developments to India.

The main features of personal computers were as follows :

- 1.The use of integrated circuitry and small silicon chips resulted in reducing the size of the computers drastically. Therefore, the use of such personal computers became possible in small offices also where the space was acting as a constraint.
- 2.The old computers were designed for specific applications and in the absence of large scale production, the costs of these computers were exorbitant. But the cost of the personal computers was affordable to small size concerns also.
- 3.The computers in the olden days were difficult to be operated by the common man as it required expert knowledge of the hardware as well as the software. However, the introduction of Personal Computers has altogether eliminated the need of extensive knowledge of computers.
- 4.Because of the constant technological developments, the Personal computers have become so powerful today that the volumes these computers can handle and the speed at which these volumes are handled are simply astonishing.

All the above mentioned factors have contributed to the widespread use of personal computers for practically any application and their tremendous popularity.

Computer has many units or devices to perform these functions of accepting, processing, storing and reporting. These physical devices or units are known AS Hardware.

Computer Hardware is made up of the following devices, equipments or units : [A] Input Devices : Key-Board and Monitor which accept outside data into the Computer. [B] Processing Device : The Central Processing Unit (CPU) which processes the data. [C] Storage Devices : Internal Storage known as RAM, and External Storage on Magnetic Disks which store the data, and [D] Output Devices : Monitor which displays the results on the screen or Printers which print out the results. The Input, Storage and Output Devices other than the CPU are known as Peripherals. The peripherals and the CPU are connected with each other by means of cables.

Computer is a dumb machine. It has to be instructed how to handle the data. It must be given detailed, step-by-step instructions regarding how to accept, process, store and report the data. All such instructions given to the Computer regarding a particular job are known AS Computer Programme. All such programmes together are known AS Software.

Input Devices:

1.Keyboard: Input means the data entered in the Computer. Data is entered into the Computer through a Key-Board which is similar to a typewriter. The Key-Board contains keys for all letters (A to Z), all numbers (0 to 9), all arithmetic signs (+, -), special symbols like %, @ and Function Keys (F1, F2 etc. whose function is determined by each program) etc. Data is entered in the Computer by pressing the relevant keys. Letters and Symbols are together known as Characters and numbers are known as Numerals. Data thus can be in the form of either characters or numerals.

2.Monitor: The Monitor is a Television-like screen. The Monitor and the Key-Board are known as a visual Display Unit (VDU). Monitor is both an Input and Output Device. As an Input device, it shows on the screen whatever is entered through the Key-Board. As an output device it shows on the screen the final results or the processed data. A Monitor may be a Monochrome (Black and White) or Colour. Normally the screen can show 80 letters on a single line and 24 such lines one below the other at a time.

CPU : The Input is processed by the Central Processing Unit (CPU) of the Computer. The CPU is the brain of the Computer. Physically, the CPU is nothing but a collection of electronic switches. The CPU has the following units or sections : (a) Arithmetic-Logic Unit (b) Control Unit and (c) Storage Area.

Arithmetic-Logic Unit: The Arithmetic Unit is where all arithmetical calculations of addition, subtraction, multiplication and division are made. The Logic Unit makes comparisons i.e. whether one number is greater than, equal to or less than the other number.

Control Unit: The Control Unit selects, interprets and executes the programme instructions. It controls the working of all other parts of the computer.

Storage Area: The Storage Area of CPU stores the input, the programmes, and the results in different are as. The Storage Section in the CPU (or Memory) is called the Internal storage. It is also known as the primary or main storage. The entire storage area is divided into small boxes. Each such box is known as a memory cell. Each item of data is stored in a particular memory cell. This is the address of that item. In case of RAM (Random Access Memory), Computer can search for (access) a particular item stored in the memory cells at random. No sequence is necessary. Thus, if computer has to search for the data stored in Cell No. 100; it does not have to go through Cell No. 1 to Cell No. 99 to reach No. 100: it can directly go to Cell No. 100. Hence this type of internal memory is known as Random Access Memory (RAM). Such immediate access increases the speed of processing. However, the internal memory of a computer is unstable or volatile. As soon as the Computers is put off, all switches which make up the internal memory are OFF and all the data stored in the memory cells disappears. Hence the data and output needs to be stored outside the Computer for later use.

Storage Devices :

External (Magnetic Disks) : Data stored inside the Computer usually on a magnetic disk. This is called external or secondary storage. Such disk like a music cassette, records the data for future playback. A disk fixed inside the Computer is called a Hard Disk and a removable disk is called a Floppy Disk. Disks act as Output as well as Input Devices. As an Output Device, the final results (output) from the CPU can be stored on the disks for future use. As an Input Device, the data stored earlier on the disks can be fed into the Computer for further processing to update the data.

Disk Drives : Data (input and output) is transferred between the CPU and the Floppy Disks through a device called Floppy Disk Drive. Similarly, data transfer between the CPU and the Hard Disk is done through a Hard Disk Drive.

Output Devices : After the processing is complete, the final results can be : (a) either displayed (shown) on the Monitor (b) stored (saved) on magnetic disks or (c) printed on paper through a printer. The output can be seen on the Monitor only so long as the Monitor is switched ON. The output stored on the magnetic disks cannot be directly read by human eyes. Hence it is necessary to print the output on paper through a printer. A Printer automatically prints the output received from the Computer. There is no need to press any keys like in a typewriter or Key-Board. A Dot Matrix Printer prints letters and numbers using a set of dots. It has a print head with a set of vertical and horizontal pins. When a particular letter is to be printed the required pins move forward to hit the paper through an inked carbon ribbon. This creates the pattern or design of printed dots in the form of that letter on the paper. Even numbers, pictures, graphs etc. can be printed in this way. A small printer can print 80 characters on a single line. A large printer can print 132 characters on a single line.

Commercial use of Computers : Because of the factors explained above, computers have become an essential part of any business organisation. There are many functions in the business organisation which can be computerized. In fact, most of the routine tasks which human beings can do, the computers can do in a more efficient manner, more accurate manner and at a mind boggling speed.

Management Information Systems (MIS) and Information Technology (IT) have become the buzz-words of today. In manual accounting systems, the management used to get data from the accounts from decision making, but its accuracy was questionable and the data was not available timely. In such situations, the managers used to develop their own thumb rules in the absence of required data or took the decisions merely on intuitions. In such a situation, the computers can come to the rescue of the management by providing a reliable and accurate data whenever it is required.

The functions which can be effectively computerized in the business organisations have been listed below

- a) Inventory control.
- b) Purchase Function
- c) Sales – order processing and credit rating verification
- d) Sales - Invoicing
- e) Payroll preparation
- f) Accounting
- g) Routine correspondence.

Machine Language : A Programme is a set of instructions. The instructions must be written in a language understood by the Computer. Computers understand only machine language made up of machine codes (binary numbers or Bytes). In the beginning when Computers were newly introduced, all programmes were written in machine language.

Assembly Language : Then Assembly Language was developed which used Symbolic Codes in place of Machine Codes. An Assembler Programme supplied by the Computer manufacturer translated the Symbolic Codes into Machine Codes. However, such programmes could be used only on the particular Computer supplied by the manufacturer. The programmes were machine-oriented i.e. designed for a specific machine.

High-Level Languages : To overcome this defect, High Level Languages were developed which can be used on any Computer. These languages are known as procedure-oriented languages. These languages use simple English words to write instructions. The programmes are translated into machine language by a software known as Compiler or Interpreter. A Compiler is a software supplied by the manufacturer that first translates the entire programme written in the High Level Language into machine codes, and then executes it. An Interpreter is a software that translates each instruction (in a high level language) into machine code, one at a time, and then executes it. Thus, a Compiler translates and executes the entire program, while an Interpreter translates and executes one instruction at a time. BASIC, COBOL, FORTRAN, PASCAL etc., are the names of various high level languages. While BASIC and COBOL are used by businessmen for commercial purposes such as maintaining accounts etc. FORTRAN and PASCAL are used by scientists and engineers. Each such language has its own compiler and interpreter. Each high level language has its own rules known as syntax for writing programmes.

A factory machine processes raw materials into finished goods. A Computer processes data (input) into results (output). Data Processing means the conversion of the input into output. Data Processing involves the following stages : (a) Conversion of Human-readable Data into Machine Codes and (b) Processing of Data (Calculations and Comparisons) explained below.

Data-Conversion (Machine Codes) : Data fed into the Computer through the Key-Board is made up of letters, symbols or numbers. Computer is a machine and cannot directly recognize or read such data. The data must be converted into a machine-readable form. Computer uses electronic switches to read data. A switch is ON when an electric current passes through it. Otherwise, the switch is OFF. If OFF is taken to be 0, ON can be 1. Suppose a Computer has five switches, each switch can be either OFF (=0) or ON (=1). The letter A, for example can be converted into a machine-readable form, by keeping all switches OFF (=00000). Letter B, can be converted by keeping first four switches OFF and only the last switch ON = (00001). Similarly, all other letters, symbols or numbers can be converted into machine codes by keeping some switches OFF and other switches ON.

Binary System : Each letter, symbol or number thus has a special machine code made up of 0 and 1. This is known as the Binary System as it uses only two numbers 0 and 1. Thus a Computer needs only two numbers 0 and 1 to read data, while human beings need many letters, symbols and numbers for the same purpose. Each Binary digit (0 or 1) is called a BIT. A set (or string) of BITS (e.g. 00000) is called a BYTE. Each BYTE is a machine code indicating a letter or a symbol or a number. 1,024 BYTES are equal to 1 Kilo Byte (KB), 1,024 Kilo Bytes are equal to 1 Mega Byte (MB) (approx. 10,00,000 bytes) and so on.

Data Processing (Calculations & Comparisons) : The data converted into machine readable form (machine codes) is processed by the Central Processing Unit (CPU) of the Computer in the following manner.

The data entered through the Key-Board and converted into machine codes or BYTES is received first into the Input Storage Area. Data remains in the Input Storage till the processing begins. The Programme Storage Area contains the instructions (software programmes) for step-by-step processing of data. Processing begins when the first instruction is sent from the Programme Storage Area to the Control Unit. The actual processing (calculations and comparisons) takes place in the Arithmetic-Logic Unit. During actual processing, data moves from the input storage to the Arithmetic-Logic Unit. The Working Storage Area is like a black board or rough sheet. It holds for the time being the data being processed as well as the results at each stage. These stages are repeated until all the instructions are

executed and the processing is complete. Once the job is complete, the final results are stored in the Results Storage Area to be sent to the Output Devices (disks, printer or monitor).

Software is of two kinds : (a) Operating System and (b) Application Programmes.

Operating System : When we buy a Computer, along with the machine the manufacturer also gives us a basic programme to operate (run) the machine. This is known as the Operating System (OS). OS is the bASic software forming the link between the Computer and the user (computer Operator). OS is the link between the hardware and the humanware, the link between the input-output devices, the CPU and the operator. The OS is permanently stored inside the Computer itself on a Read Only Memory (ROM) chip. The ROM never gets erased even if the Computer is switched off. As soon as the computer is switched on, the OS starts its work. The OS first checks that all the devices of the Computer (the Key-Board, the Monitor, the RAM, the printer etc.) are OK or not. If there is some fault, the OS gives a message of error on the screen. Thus, before the Computer is ready to accept any input, the OS makes sure that everything is in order. Once the Computer is loaded i.e. ready to accept input, OS controls and manages the entire work of input, processing, storage and output of data till the Computer is switched off. OS also includes many ready-made programmes which help the operator to : (1) prepare the magnetic disks for use (format) (2) show on the monitor a list of all files stored on the disk in a Directory (3) Go to (access) a Directory containing a set of files (4) Copy the data of one file to another file (5) erase (delete) the data in a file (6) transfer data from CPU to disks or from disks to CPU and so on.

Application Programmes : The High Level Languages are used to write a programme to make use of the Computer to solve a problem. Such a programme is known as an Application Programme. Application Programme means a programme to solve a specific problem or to do a particular job. Such programmes are of two types : (a) programmes written by a particular user to solve his specific problem or (b) ready made (package) programmes written by a specialist to solve the common problems of a large number of users.

Thus a businessmen wishing to computerize his accounts may either employ System Analyst to study his accounting system and Programmers to write specific programmes for his exclusive use; or he may buy a readymade accounting package programme available in the market.

Computers are used to maintain accounts because of their following advantages:

Speed :

Accuracy :

Storage :

Before entering the transactions listed in Illustration 9.1, let us understand how a particular type of transaction is entered using a particular type of format of voucher. A voucher is used to record the transactions. TALLY provides 16 different predefined voucher formats or what it calls predefined types of vouchers. Each type is used for recording a particular type of transaction. A payment voucher is used for all types of payments (cash, bank etc.), a receipt voucher for all types of money receipts, a sales voucher for recording sales transactions, and so on. You can create your own voucher types e.g. Credit Sales and Cash Sales etc.

A voucher is the basic recording document. To input any data into TALLY, you must use a voucher. Inputting data through the voucher entry mode is called creating a voucher or voucher entry. You may create a voucher on-line and print it for hard copy and authentication.

The default voucher entry screen that is displayed the very first time you opt for it is the Payment Voucher. You do not need to get out of this screen for other vouchers. Simply switch the vouchers using the Button Bar or Function keys, e.g. press F4 for recording a Contra voucher. The following steps are involved in entering a voucher :

1. Select the voucher type (payment etc.) on the basis of the type of transaction. Change the transaction type by using the Function keys F4 to F10.
2. Enter the date of transaction. Change the date by using F2.
3. Enter the Voucher no. (if it is not automatic).
4. Enter the reference number (e.g. No. of the "C" Form received against the concerned Sale Invoice; or the Goods Received Note No. against the concerned purchase bill).
5. Enter the first ledger account concerned. (If it is a new account, create it). "To" means enter the account to be credited and "By" means the account to be debited. Whether the first account is to be debited or credited depends upon the Voucher Type. A Receipt Voucher shows on the first line the account to be credited; a Payment voucher shows on the first line the account to be debited and so on.
6. Enter the amount concerned.
7. Enter the next ledger account. Choose whether such account is to be debited or credited.
8. Enter the amount of the next ledger account(s). If there are only two accounts, TALLY will automatically enter the amount and the sign Dr. or Cr.
9. Enter the narration. TALLY allows you to create standard narrations (e.g. Being payment made for rent for Flat No. 1 for the month of), which can be created only once and used automatically.
10. Enter details of bills which are paid or due date of bill, in case of party account, to help prepare the Outstanding statements.
11. Once all the details are entered, check them and click on Accept the voucher. This will automatically "post" the voucher and update all data.

We will take up our Illustration 9.1 and record the transactions in different types of vouchers. The screens for entering accounting vouchers are all very similar.

Advantages of computerized accounting?

1. Speedy Data Entry: The data entry on computers is relatively fast as compared to manual accounting because of the following factors :

There is no need to type the full name of the account as the accounts are accessed either through codes or through few starting alphabets. e.g. The code for Printing and Stationery may be "10PRST" which means that just by typing a 6 digit code, the account "Printing and Stationery" can be invoked. Some accounting packages are totally codeless i.e. the ledger names themselves are the codes, but in that case also the ledger name can be invoked by just typing first few letters from the account head like 'Prin'.

The data which is repeatedly used can be duplicated. e.g. If you start the input of vouchers from 1-4-94, the dates need not be given for every voucher. Each subsequent voucher will presume that the date is same as per the earlier voucher till the user specifically issues commands for change of date. Similarly, some packages offer the facility of storing commonly used narrations, so that by using few key strokes, such narrations can be incorporated into the vouchers, thereby avoiding the efforts of typing out large and repetitive narrations again and again.

In computerized accounting packages, the posting need not be done to the ledger accounts. The earlier financial accounting packages used to run in "Batch processing" mode, i.e. the postings to the ledgers were not made immediately as soon as the original entry was made, but was done in batches on the specific request of the user. But some such systems either totally prohibited backdating of entries once the posting is over or shown some erratic results when the already posted entries are altered or entries are backdated. However, the days of "Batch Processing" packages have gone and most of the packages available today are truly "On Line". The advantage of on-line accounting package is that the ledger accounts, whenever seen on the screen or printed, always show the status upto the last entry punched. In fact, in such systems the ledger is never preserved in the computer but is processed and created every time whenever it is required.

Another advantage of computerized accounting is that all the narrations written in the day books automatically go to the ledger which is either not possible in the manual accounting system or is very time consuming. Since the ledgers also carry the descriptive narrations, there is no need to refer back to the day books at all at the time of scrutiny of ledger accounts.

Arithmetical Accuracy : The arithmetical accuracy is religiously ensured by the financial accounting software and the accounts clerks are not required to break their heads and spend days together in locating the mistakes in the trial balance. The trial balance being always accurate, the accountants can divert their manpower and energy towards more fruitful areas. The situation of Trial Balance not agreeing would arise in computerized environment only because of Bug in the software or corruption of data. However, one has to keep in mind that the computers may not be able to pinpoint the wrong application of accounting principles. i.e. It will be impossible for the computer to detect an error, where repairs expenses which were of revenue nature were wrongly capitalised by debiting the Building account. In manual accounting systems, certain extra controls are required to be incorporated to ensure arithmetical accuracy like Control Accounts or Self Balancing Ledgers which implies extra accounting work. These controls are normally taken into consideration by the accounting software itself.

Further, the manual accounting system needs control accounts for ensuring arithmetical accuracy, whereas the control accounts in computers help in grouping and analysing the data. The following example will make this analytical feature little clear.

The numbers indicated against each of the above items indicate the groups and their level in the control account structure. Wherever numbers have not been indicated, these are the individual ledger accounts. Sundry Debtors is a highest level control account and serves the purpose of holding the information together in respect of all the groups and ledger accounts lying below it.

If you take the trial balance at level 1, it will give the total amount receivable from all the debtors. Whereas if you go for a Trial balance at 2, it will show the breakup of total debtors into outstandings from Maharashtra and outstandings from Rajasthan. The 3rd level goes into the further breakup of Maharashtra territory.

One more example will make the above concept crystal clear :

The expenses may be grouped under following control accounts :

Reports available as and when needed : Quick availability of reports is the most striking feature of computerized accounting systems. In the presently available software, most of the required reports are defined and built into the software and the user has to just press few key strokes for generating the required reports. In manual system, preparation of report takes so much of a time that the report loses its relevance by the time it is made available to the management. In manual system, the Profit and Loss Account may be prepared quarterly or at the most monthly, but with the help of computers, you can have a daily profitability statement also irrespective of the volume of transactions involved.

Analysis possible: The manual accounts are hardly amenable for analytical exercises e.g. If the accountant wants to know how many times a particular person has claimed travelling expenses during the year along with the amounts claimed each time, it will be very difficult to extract this information from the ledger if sufficient narrations are not written in the ledger or if the ledger is running into several pages. This analysis can be made on computers in few seconds. This is commonly known as “Filtering the data” or “Query facility”.

Allied Work at no extra efforts: The computers can do certain allied work also which is based on accounting data which is quite difficult to be done in case of manual accounting. e.g. If the recovery department wants to concentrate on debtors whose balances are more than Rs.50,000 and whose balances are outstanding for a period of more than 3 months, you can imagine the efforts the accountant may have to take if the ledger accounts are running into thousands in number. The computer can quickly scan through the data base, select the records which match the above mentioned criteria and also generate the

reminder letters to be sent to the concerned parties. It will also put the mailing address of the party on the letter. After all this, what the recovery department has to do is to put these letters into window envelopes and simply post it to the party. Now you can imagine how the computers have made the life so simple. In the latter part of this chapter, we will come across some more allied functions which the computer can undertake based on the accounting data.

Paperless Office: The computers have helped in reducing lot of paperwork. Today's businessmen have started dreaming of having a practically paperless office wherein all the employees will have computer terminals on their tables and will have access to a common data base. Each employee can use this data base for his own requirements. He may generate reports and send it across the terminals directly into the Managing Directors cabin, where the director can view the report. He can store this report for future reference or can destroy it if it is no longer needed. This concept is called "Local Area Network (LAN)" where the computers located within one office or building are fused or knit together. One can have "Wide Area Network (WAN)" also where linkage between computers located at remote places is established through satellites. The computerized data can be transferred to a remote location by using the telephone line which is called as "Modem". Because of technological developments in the telecommunications field, the transmission of data has become very easy which facilitates quick retrieval of information even from the computers located at a remote place and taking prompt decisions based on such data. By using these facilities, a foreign company based at London can have a report on the operations of its branch located at Bombay on day-to-day basis.

Computerisation : The Practical Aspects : After having gone through the advantages which the computerized accounting system may have over the manual accounting system, let us have a look at the practical considerations the businessman has to keep in mind before going for the computerization of accounts. Very little stress has been given on Hardware selection because of the rapid technological developments. Today's workhorse may be proved to be a dull machine few months later. Nevertheless, broad guidelines have been given.

Hardware Selection

Configuration: The type of the machine required for the business will have to be decided. This has to be decided in consultation with the Software consultant. Because some software need a specific amount of memory or they do not run on old slower machines. In the fastest developing technology, one should always go for the latest technology available. The speed of the machine also will have to be considered with reference to the software that is going to be used on it. Some software take less time for input of data, but they do consume a considerable time in processing of the data. In such cases, machines having higher clock speed should be selected. The supplier should be instructed to put standard components from the known manufacturers and it should be checked with the help of hardware consultant, whether the same has been done or not.

Cost: The quotations for the desired system can be obtained from various suppliers for comparative analysis. In the market, the branded items supplied by some renowned companies are sold at a premium price as compared to the systems supplied by non-organized sector which are called as "Assembled". The lowest quotation need not be selected, because lower cost may indicate supply of sub-standard components. The customer support set-up of the supplier has to be checked up with few references.

The available space: The space for the system will have to be decided in advance. The air conditioning machine be provided preferably, though it is not a must, which will avoid heating up of the systems and may also provide a dust free environment. The space available will decide whether to go for flat models (occupy larger table space) or vertical models (which save space because of their tower design).

Selection of Computerized Accounting Software This Is Very Important Stage Before Computerization Of Accounts And If No Proper Precaution Is Taken At This Stage, It Proves To Be A Very Costly Decision. Because, Once A Software Is Selected It Is Advisable At Least To Stick To It For One Whole Financial Year. Various Important Considerations Have Been Discussed Below In Length :

Identification of Special requirements of the Business: In addition to the normal accounting records, each industry may require some peculiar reports to be generated. e.g. The Newspaper authorities stating month wise copies printed, copies sold, unsold copies returned by the selling agents and monthly consumption of paper etc. Further, a company may have a Head Office and four different branches. If the accounts of Head office and Branches are maintained separately, the software should have the facility of consolidating the data at the end of the year. If such special requirements are defined and listed down before software selection, it can be checked before purchase of the software selection, it can be checked before purchase of the software whether it is offering such features or not. In case of development of software, the software developer can be asked to incorporate such features in the software.

Tailor made Package V/s Standard Package : The tailor made accounting package means a software designed specially for a particular business, whereas, a Standard package means the package which tries to standardize various accounting features and which is normally not developed keeping a particular industry in mind. Of course, you may have standard accounting package developed specially for cement manufacturing concerns or textile manufacturers etc. The tailor made accounting packages are obviously costly as compared to standard packages because of the fact that the development cost of a standard package has to be borne by one businessman only as against the standard package wherein the development cost can be spread over a larger user base.

Following are the advantages of going for a Tailor made package :-

All the requirements of the business can be incorporated into the package, because the user can get himself involved at the time of systems study and development of the software.

It is also easy to upgrade the package to take into consideration any further requirements.

But the major disadvantages are the prohibitive cost and inability of the user to spell out his requirement clearly at the outset which affects the quality of the software.

Standard Accounting packages offer following advantages :

Since the product is readily available, there is no gestation period. It can become operational right from the day it is bought.

Enough material is available to study the features of the package in the form of brochures, video cassettes, user manuals etc. Some software developers also offer a demonstration diskette which can be used for viewing the package in action.

Some users might have already purchased and used the software with whom the experiences can be shared.

The cost of the standard package is much lower as compared to a Tailor made package.

The major drawback of the standard package is it becomes very rigid in the sense that developments or modifications at the instance of an individual user are normally not entertained by the software developer till it is found to be of use for the whole user community. The package is upgraded only when the supplier wishes to upgrade it.

Reasonably priced: The cost of the software should be affordable to the user. A package may offer various features, but the user will have to always carry out a "Cost-benefit analysis". Especially, the standard accounting packages are always stuffed with lot many features, but if some of the features are unwanted the user doesn't get a price reduction. Therefore, software offering the required features with affordable price only should be selected. But a good software will always help the businessman in recovering the cost of it in a very short span of time by offering better information for control.

Customer Support: The concept of “After Sales Service” applies equally well to the software industry also. The user will come across certain operational problems or may need some training, which should be offered by the software supplier. Therefore, before purchasing the software, the credentials of the supplier in the area of “Customer Support” should be verified.

Upgradeability and scope for modifications: As mentioned above, the standard packages are not easily upgradeable or modifiable according to the customers needs. But some standard packages have started offering “Add-on” facilities. e.g. A particular standard package may not have a report which is required by the user. He can then get this report developed from any software developer which can be linked to the main package, and once linked it becomes the integral part of the whole package. In case of Tailormade package, the purchaser should always ask for the “Source Code” of the software (i.e. the original copy of the software which allows modification to be done into it). This will help the purchaser to modify the program on his own also when the software developer is unable to take up the modification job or is unwilling to offer these services.

Ease of Learning: The package has to offer utmost simplicity (at least as far as day to day operations are concerned) so that it hardly requires any formal training. The data entry screens should be designed keeping in mind the aesthetic values without cluttering up the whole screen with unwanted information. It should give warning messages in a language simple to understand if wrong selections are made. The computer “Jargon” (Technical terminology) should be avoided. Well documented “User Manual” is an essential part, which can be referred to by the user whenever he feels like.

Another important aspect as far as the learning goes in the type of “On-line” help available to the user. On-line help tries to incorporate user manual itself in the software so that instead of referring to the book time and again, the user can call the information on the screen and read it. The order of the day is On-line help facility which is “Context Sensitive”. This type of help facility offers the correct type of help depending on the situation in which the user has called for the help facility.

Almost all the packages available today are totally “Menu driven”. An analogy from practical life may not be out of place. If you enter a restaurant, you may have to first decide whether you want to South India, Punjabi, Continental or Chinese Food. After deciding on this, you will select the desired menu which will show various options available under that category. Similarly, once the user enters the accounting package, the available options are shown through which the user will have to select the desired option. Once selected, a further menu may be shown to the user and the selection procedure will continue. Thus, throughout the package, the user is guided through a series of options. Because of this concept of “Menus”, operating the computerized package becomes an interactive process without having need to have an expert knowledge in the software. The menus are normally self explanatory and written in simple English.

Speed: The software will have to be tested for the speed at which it processes the data. The processing speed will be slow in spite of the use of fastest computer, if the programmer has employed a faulty processing logic in the software. If reports are not quickly available, it will defeat the purpose of computerization to some extent.

Availability of Reports: This aspect has to be given it’s due weightage during the selection or development stage because this is the end product of the computerized accounting. The reports should meet following criteria:

- The report headings should be properly indicated to know the exact nature of information the report is offering.
- The date range of the report has to be clearly indicated. e.g. If a Profit and Loss account is printed, it should show the period for which it is printed very clearly.
- Run date should be printed on the report upon specific user request. This indicates when the report was actually generated.

- The data should be properly arranged so that readability is not affected. Wherever emphasis is to be supplied, bold or dark letters or Large fonts may be used. The report which is beautifully divided into header, body and footer parts carries a better impression in the minds of the reader.
- Wherever the filters are used before generating the report, such filters should be printed on the report to avoid misinterpretation. e.g. The user may generate a Trial Balance of Sundry Debtors having balances more than Rs.10,000/-. In such cases, the fact that such filter was applied has to be clearly printed in the report to make it more meaningful.
- Reports should be available in Detailed as well as summary formats. This helps in providing the right type of information to the right type of persons. e.g. The top management may be interested in knowing the outstanding from debtors summarized region wise, whereas the recovery department may be interested in having the detailed party wise outstanding position. Such requirement can be met by the software if summarizing the reports at various levels is possible.
- Cosmetic effects should be used in the reports to enhance the effectiveness of the report.
- Graphs are easy to understand and one graph may speak for hundreds of lines. Same information should be possible to be plotted on different types of graphs like line graph, bar graph, pie chart etc.
- It is better, if the report formats correspond to the reports usually available in manual system, so that the reader not accustomed to computerized reports doesn't develop a resistance to read these reports.
- The reports should be possible to be viewed on screen also as most of the time, the report is required for quick information and it's preservation in the form of a print-out is not necessary.

Built-in Controls and Security Measures: Following features should be normally provided by the software to ensure the integrity and secrecy of the data:

Passwords should be provided for ensuring that only authorized persons have an access to the data. Some software provide more than one password levels for different types of users. e.g. User whose job is to do data entry on day-to-day basis is given lower level password so that he can have access only to those facilities in the software which he is required to use. He may be prohibited from deleting the entries already added or viewing the profitability position of the company. The user who is topping the Accounts department may be given higher level password who can do practically anything that is available in the software. Especially in LAN environment, since many terminals use a common data base, the access to the data has to be restricted by adopting proper security measures.

Logging the use of the package should be done automatically. Logging means keeping track of the activities and the identification of the user each time anybody uses the software. The supervisor can view these log entries generated by the software whenever needed.

Facilities for freezing or locking the data should be available. This will prevent any unauthorized or accidental alteration of data which was checked and finalised. e.g. Once the Sales day book for the month of April, 94 is checked and finalised, the sales data should be locked and frozen by the person having the highest level password to prevent alterations and the access to this data should not be allowed to users having lower level passwords.

Different software follow different methods for storing data. If the accounting data files can be read by using any other software, the secrecy of the data is at stake. Therefore, some software use "Data Encryption Utilities" to store the data in such a format that it cannot be accessed through any method other than using it through the software which stored the data in encrypted format.

Sturdiness of the package: The effects of voltage fluctuation or the power failures on the package should be studied. There are certain software available which take automatic periodical backups of the data when the package is in operation, so that in case of power failure, the data loss is minimised. There

have to be some built in utilities in the software, which will at least detect that the data has been corrupted and will ask the user to restore the data from the available backups.

Integrity Checking and Disaster Recovery Procedures: The arithmetical accuracy is the backbone of any accounting package. Each transaction should have double effect which should be ensured by the package itself. On line checks are available in most of the packages to reject the vouchers which violate the accounting norms. e.g. In journal data entry program, the voucher should not be saved till the total debits in the journal voucher match with total credits. The payment voucher entry should ensure that the cash/bank account is invariably credited in each voucher. The vouchers whose date does not fall in the concerned accounting period should not be accepted. It is also possible that the data was proper at the time of input but because of the power failure, malfunctioning of the computer or deliberate tampering with the data by the unauthorized persons, the data may lose its integrity. The financial accounting package should be able to spot such situations and should warn the user to take corrective action. A few softwares also come along with the "Disaster Recovery Procedures" whereby the software tries to retrieve the corrupted data to the extent possible with a list of lost transactions which can be again input by the user.

Exportability of Data to other Software: The accounting packages will allow the user to do only such things which have been incorporated in the software or to generate only those reports which have been defined originally. Though some software houses claim that their software offers a Flexible report writer wherein the user defines his own report, such facilities are available only to a limited extent. To overcome this handicap, it should be possible to export the accounting data into some other packages like Lotus 1-2-3 (Spreadsheet) or Wordstar (a Word Processor) where the user will be more comfortable with the data and will have total liberty to handle the data in the manner he wishes.

Single User V/s Multi User Accounting Packages: The single user accounting packages allow the input of data entry from one terminal at a time only, which means when the package is in use, nobody else is allowed an access to that data till the earlier user exits from the package. These type of packages can be used by small businessmen. Whereas, in multi-user accounting package, simultaneous data entry from various terminals is allowed. The Multi-user accounting packages can be used in Local Area Networks or Wide Area Networks. Thus, where the information is originating from different points which has to go into a common integrated data base, one has to go for integrated multi-user accounting package. A model of typical integrated multi-user accounting package works on the following lines. The stores keeper inputs the data of receipt of goods as soon as it is received in the stores from his terminal and makes issue entries whenever he issues goods to production department.

After all the above steps are taken, before the day-to-day data entry begins, there is a step in between which is called as "Master Creation".

In computerized accounting package, the data can be divided into two types.

(a) Masters, (b) Transactions.

Masters: The master information means the information which will be stored only once but will be used frequently by the computer. This information is more of a static nature and changes in this are not required to be done so frequently. Following are some examples of the data which falls in the category of Masters.

Groups: Groups are masters which do the function of holding the various sub-groups or ledger accounts together. A small example will illustrate this.

Group	Indirect Expenses
Sub Group	Indirect Expenses (Mumbai)
Sub Group	Administrative Expenses (Mumbai)
Ledger Account	Printing and Stationery (Mumbai)
Ledger Account	Conveyance (Mumbai)
Sub Group	Selling and Distribution Expenses (Mumbai)

Sub Group	Indirect Expenses (Delhi)
Sub Group	Administrative Expenses (Delhi)
Sub Group	Selling and Distribution Expenses (Delhi)

The groups can hold the subgroups or ledger accounts but transactions cannot be posted to groups.

Ledger Accounts: Ledger accounts do the function of holding the transaction of a similar nature together. All expenses on printing and stationery incurred at Mumbai will be shown under the Ledger Account "Printing and Stationery (Mumbai)".

Customer Master: The customer master will keep the following information in respect of a customer.

- Full Name
- Postal Address
- Sales Tax Registration No.
- Income Tax Permanent Account No.
- Credit Period to be allowed
- Credit Rating
- Maximum credit to be allowed.

The transaction will not be accepted if the required ledger is not created in masters. A ledger account cannot be created if the group to hold that ledger account is not present in the master. A group will not be allowed to be created if it is a sub group and the primary group to which it is to be linked is not created.

The computer uses master information in various ways. e.g.

While printing the customers balance confirmation letter, the postal address to which the letter is to be sent is directly picked up from the masters unlike manual system where each time a letter is to be posted, the address is required to be written.

The computer will not allow dispatch of goods to a customer if after raising the invoice on him for fresh supplies his balance is going to exceed the maximum permissible credit limit as specified in the master.

While printing the Purchase register, the suppliers sales tax numbers, will be picked up from suppliers master to fulfill the statutory requirement under Sales Tax Act.

Transactions: The Transactions in any accounting system can be divided into following broad categories:

- Sales Transactions
- Purchases Transactions
- Cash and Bank Transactions
- Journal Transactions

After the creation of masters, the transactions will be entered into the package as and when they occur. The transaction will not be accepted by the package if required master information is not present. In such case, the user will have to create the required master first and then enter the transaction.

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