Introduction to Computers

1.1 Meaning of Computer

"Computer" is a word derived from "Compute" which means to calculate. "Computer" is defined as an electronic computing device, characterized by high speed and accuracy. It can handle data processing, storing, and retrieval following a set of instructions and orders to get the required results.

"Computer" is one of the electronic devices which can perform a set of integrated and consequent operations on a set of input data. Computer can process these operations according to a set of instructions and orders which are logically and algorithmically coordinated to solve a specific problem to get useful information and results. The instructions and orders are called "Statements", which are consequently called a program. The person who designs this program called programmer.

Computer can be defined as an electronic device for processing data that takes data input from its user, stores, processes data and generates the required output as per the processing instructions given to it by the user.

The set of instructions is called Program and can be written using artificial languages like C, C++, and Java etc. The programs run under the supervision of an Operating System. Example for popular operating systems is Windows, UNIX, LINUX, Solaris etc.

It performs the following three operations in sequence.

1. It receives data and instructions from the input device.
2. Processes the data as per instructions.
3. Provides the result (output) in a desired form.

1.2 Characteristics of a Computer

The characteristics of computer are high speed of operations, accuracy, reliability, flexibility and economy coupled with efficiency in storing and processing data.

- **High Speed:** Computers have the ability to perform routine tasks at a greater speed than human beings. They can perform millions of calculations in seconds.
- **Accuracy:** Computers are used to perform tasks in a way that ensures accuracy.
- **Storage:** Computers can store large amount of information. Any item of data or any instruction stored in the memory can be retrieved by the computer at lightning speeds.
- **Automation:** Computers can be instructed to perform complex tasks automatically (which increases the productivity).
- **Diligence:** Computers can perform the same task repeatedly & with the same accuracy without getting tired.
- **Versatility**: Computers are flexible to perform both simple and complex tasks.
- **Cost effectiveness:** Computers reduce the amount of paper work and human effort, thereby reducing costs.

1.3 Areas of Applications / Uses of Computers in different fields

Computers have their application or utility everywhere. We find their applications in almost every sphere of life–particularly in fields where computations are required to be done at a very fast speed and where data is so complicated that the human brain finds it difficult to cope up with.

As you must be aware, computer now-a-days are being used almost in every department to do the work at a greater speed and accuracy. Some of the prominent areas of computer applications are:

Applications of Computers in Education

Computers are used in colleges to provide the methods of teaching in different ways. Computer education is becoming mandatory in most of the universities across the world. They basically teach the subjects which enable the students to acquire a job in software engineering Industry. Teachers use computers as teaching aids which leaves some time for the discussion at the end of session. Nowadays colleges are setting up such a system where student and faculty attendance, syllabus, scheduled of tests, exams etc are put on the web and students, their parents and faculties can access it from anywhere and get updated.

Applications of Computers in Industries

Mostly the software or the hardware that are produced by companies would be used to automate the manual task. One kind of industry will have the task of producing such products and is called software industry. Other companies which use these services are called clients. Computers can be used to produce pattern in textile industries, colors combinations in paint industries, automate the operation of a machine in an industry using robotics etc.

Applications of Computers in Business

They are used in commercial organization for clerical and administrative purposes. Tax calculations, salary slip preparations etc. can be done using computers. Stock market predictions can be done. Banks are using computers to maintain the account details and transactions. E-banking is picking up popularity because of the flexibility of banking sitting at a terminal anywhere. Excluding the matter of much talked security, they are used comfortably by the customers. E – Shopping is one more concept gaining popularity in industry where a customer can buy the displayed items by paying using credit card or cash on delivery options.

Applications of Computers in Entertainment

Animations and Special Effects for the movies are done using high end workstations. In Titanic movie they used 100 high end Linux workstations in parallel to produce the special effects. Also, the movies and music are available in the form of CDs, VCDs, and DVDs which cost less compared to watching movies at theatres. People prefer to watch them through these media in their leisure time. Kids enjoy playing games using computers.

Applications of Computers in Home

Nowadays people have computers at home and it has become a necessity electrical home appliance used in home. Children play games; keep track of the stamp collections, draw pictures, play music, view movies and do some sort of reading and writing according to their needs. A typical domestic system consists of a PC with a relatively small hard disk; printer, modem and DVD-Writer Drive etc. people can utilize computers for keeping records, making home budgets, using electronic mail and internet services to learn and increase their knowledge. The uses of microprocessor technology in manufacturing of electronic home appliances like microwave, air-condition, washing machine, sewing machine etc have completely changed our way of life.

Applications of Computers in Weather Forecasting

Computer based weather forecasting depends on accurate collection of data from weather stations, airports, satellites, different sensitive devices all around the world. Computer depends on building a model of hot, cold air, dry and humid air interaction, and how this is interactions are effected by land and sea temperature, season and so on. Once this is done, the data is collected on atmospheric phenomena over a region. The computer model then generates a forecast of how the air will change. The necessary parameters can never be measured with total accuracy and it is impossible to make a perfect representation of all the factors that affect weather. Some businesses, however, are so dependent on the weather that they need constantly updated information. SPARCO weather forecasting department offer analysis of live weather data, and provides help to make business decisions based on weather forecasting.

Applications of Computers in Airline Systems

In airline system, computers are used to control passenger aircrafts and vehicles. Early aircraft were controlled by moving parts attached to the controls using cables. In modern, fly-by-wire system, electronic signals from the cockpit are sent to that adjusts the flight surfaces. Computer is embedded in the pilot's or driver's controls. It is linked up among different cities and gives full information about its flight and seat reservation.

1.4 Anatomy of Digital Computer

It is otherwise called Parts of a Computer System or Block Diagram of Computer or Basic Functional Units of a Computer or Component of a Computer System or Basic Functional Units of a Computer.

A computer as shown in figure performs basically five major operations or functions irrespective of their size and make. These are 1) it accepts data or instructions by way of input, 2) it stores data, 3) it can process data as required by the user, 4) it gives results in the form of output, and 5) it controls all operations inside a computer. We discuss below each of these operations.

1. **Input:** This is the process of entering data and programs in to the computer system. You should know that computer is an electronic machine like any other machine which takes as inputs raw data and performs some processing giving out processed data. Therefore, the input unit takes data from us to the computer in an organized manner for processing.

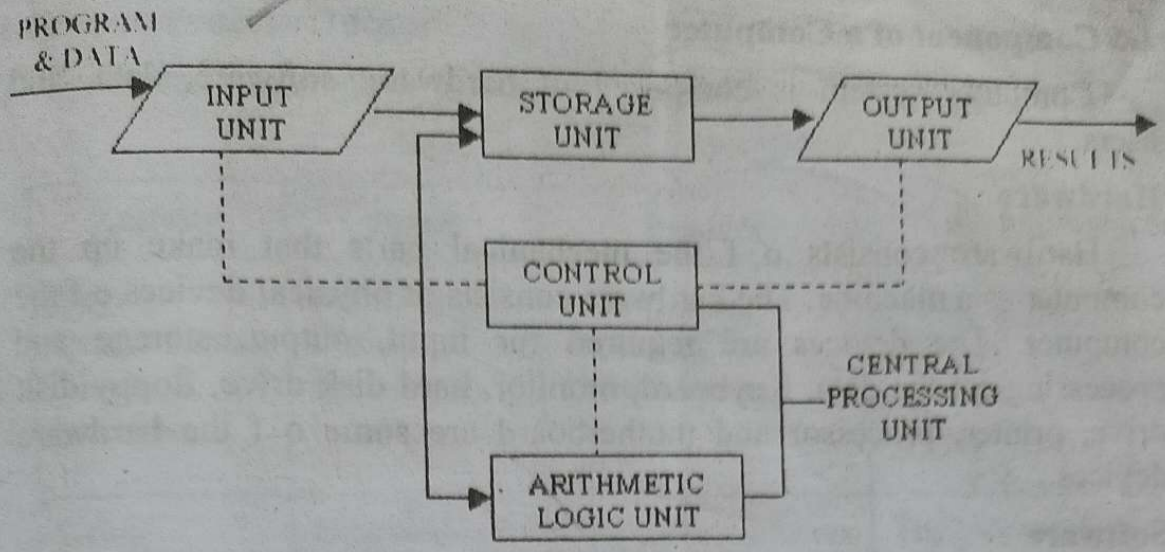


Figure - Block diagram of a Computer

2. Storage: The process of saving data and instructions permanently is known as storage. Data has to be fed into the system before the actual processing starts. It is because the processing speed of Central Processing Unit (CPU) is so fast that the data has to be provided to CPU with the same speed. Therefore the data is first stored in the storage unit for faster access and processing. This storage unit or the primary storage of the computer system is designed to do the above functionality. It provides space for storing data and instructions.

The storage unit performs the following major functions:

- All data and instructions are stored here before and after processing.
- Intermediate results of processing are also stored here.

3. Processing: The task of performing operations like arithmetic and logical operations is called processing. The Central Processing Unit (CPU) takes data and instructions from the storage unit and makes all sorts of calculations based on the instructions given and the type of data provided. It is then sent back to the storage unit.

4. Output: This is the process of producing results from the data for getting useful information. Similarly the output produced by the computer after processing must also be kept somewhere inside the computer before being given to you in human readable form. Again the output is also stored inside the computer for further processing.

5. Control: The manner how instructions are executed and the above operations are performed. Controlling of all operations like input, processing and output are performed by control unit. It takes care of step by step processing of all operations inside the computer.

1.5 Component of a Computer

Computer system is composed of hardware, software, data, and users.

Hardware

Hardware consists o f the mechanical parts that make up the computer as a machine. The hardware consists of physical devices o f the computer. The devices are required for input, output, storage and processing o f the data. Keyboard, monitor, hard disk drive, floppy disk drive, printer, processor and motherboard are some o f the hardware devices.

Software

Software – also called programs – consists of organized sets of instructions for controlling the computer. Some programs exist for the computer's use, to help it manage its own tasks and devices. Other programs exist for the user, and enable the computer to perform tasks for you, such as creating documents.

Data

Data consists of raw facts, which the computer can manipulate and process into information that is useful to people. Computerized data is digital, meaning that it has been reduced to digits, or numbers. The computer stores and reads all data as numbers. Although computers use data in digital form, they convert data into forms that people can understand, such as text, numerals, sounds, and images.

People/Users

People are the computer's operators, or users. either the programmer who designs the program in programming languages, the end user who uses applicable program's in managing daily terms, or the administrator who management computer networks. Some types of computers can operate without much intervention from people, but personal computers are designed specifically for use by people.

1.6 Input-Process-Output Cycle

The process of a computer task can be divided into three stages:

Input→ Process→Output

Activity	Input	Process	Output
Buying Drinks from a Vending machine	Inserting Coins, Pressing a button	Select a drink according the button pressed	Drink, Coins changed
Using Computer	Data and commands via input devices.	The CPU works on the data according to the input commands	The processed result on the output devices

1.7 Memory and Control Unit

1.7.1 Memory Unit

There are two kinds of computer memory: *primary* and *secondary*.

Primary memory is accessible directly by the processing unit. RAM is an example of primary memory. As soon as the computer is switched off the contents of the primary memory is lost. You can store and retrieve data much faster with primary memory compared to secondary memory.

Secondary memory such as floppy disks, magnetic disk, etc., is located outside the computer.

Primary Memory or Main Memory

The various types of primary memory are as follows:

1. RAM(Random Access Memory)
2. ROM(Read Only Memory)

Random Access Memory (RAM)

The primary storage is referred to as random access memory (RAM) because it is possible to randomly select and use any location of the memory directly store and retrieve data. It takes same time to any address of the memory as the first address. It is also called read/write memory. The storage of data and instructions inside the primary storage is temporary. It disappears from RAM as soon as the power to the computer is switched off. The memories, which lose their content on failure of power supply, are known as volatile memories .So now we can say that RAM is volatile memory.

A computer program or set of instructions must be stored in memory for a computer to process data. The CPU uses its CU to execute these instructions. Further, the CU directs and coordinates most of the operations of the computer. The speed at which the processor carries out its operations is measured in megahertz (MHz). The higher the number of MHz the faster the computer can process information. The Intel i7, Athlon, Celron, and Duron, Ultra Spark are some examples for the brands of processors available in the market.

1.8 Input and Output Devices

Any device that allows information from outside the computer to be communicated to the computer is considered an input device. An output device is a device which accepts results from the computer and displays them to user.

1.8.1 Input Devices

These devices are used to give information to the computer. The input devices are given below

- Mouse
- Keyboard
- Joystick
- Scanners
- Light pen
- Touch screen
- Barcode reader
- MICR
- OCR
- OMR
- OBR

Mouse

It is a hand-held electronic device that is used to input the information to the computer system. It has three switches on its upper surface. It has also has a ball on its lower surface that the mouse to move to any direction and select object. A mouse is also called as an electronic index finger.

There are predominantly two kinds of mouse.

a. **Normal Mouse**: This mouse typically has a roller ball, which requires regular cleaning for proper functioning.

b. **Optical Mouse**: This mouse typically has optical light through which the it sends the computer its x and y coordinates

c. **Cordless Mouse**: This mouse is typically one of the above, but instead of using a cord for connecting itself to the PC, it uses Radio Frequency or Infra Red technology to communicate. However this has a problem, one it consumes too many batteries, and second it causes interference with other RF or IR devices.

Keyboard

It is a device, which is used to enter the data into a computer. Usually there will be 108 keys in a keyboard. It consists of alphanumeric keys, function keys and special keys.

1. *Alphanumeric:*

   (A-Z), (0-9), (#, %>.";{}[]) etc.

2. *Function keys:*

   F1.....F12 it is used perform set off operation in single store.

3. *Special keys:*

   Enter (or) return key, backspace, number lock, capital lock, control key, shift along with any character.

Joystick

It is a device that is used by children to play games on the computer. A joystick is a device that moves in all directions and controls the movement of the cursor. The joystick offers three types of controls are Digital, Glide, and Direct.

Digital – Digital controls allows movement is a limited number of directions such as up, down, left and right.

Glide – Glide direct control allow movements in all directions (360 degrees).

Direct – Direct control joystick have the added ability to respond to the distance and speed with which the user moves the stick.

Scanners

Scanners convert any image into electronic form. The images scanned can be stored in a computer's memory. You can scan your photos and view on the computer screen or print them on a color printer.

Scanner read s the graphical images or line art or text from the source and converts it into digital information and send it to the computer. The various types of scanners are as follows:

a. Flat bed scanner

b. Sheet fed scanner

c. Hand held scanner

Light Pen

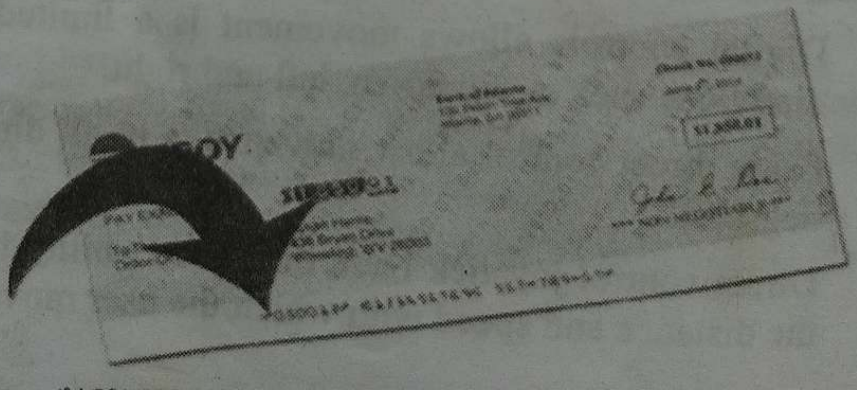
Light Pen this device is just like the pen used to write on some pad the written matter is taken directly to the screen. A light pen is a hand-held electro optical pointing device which when touched to a connected computer monitor.

Touch Screen

Touch screen is even taken as the Input device as well as the Output device. Touch screen is a special kind of display screen device. Which is placed on the computer monitor in order to allow the direct selection or activation of the computer when somebody touches the screen? Typically they are used in information providing systems like the hospitals airlines, and railway stations, amusement parts, ATM and so on.

Magnetic-ink character recognition (MICR)

Used by banks to process checks. This is widely used by banks to process large volumes of cheques and drafts. Cheques are put inside the MICR. As they enter the reading unit the cheques pass through the magnetic field which causes the read head to recognize the character of the cheques.



Optical Mark Reader (OMR)

A scanning device that senses the magnetized marks from #2 pencils. This technique is used when students have appeared in objective type tests and they had to mark their answer by darkening a square or circular space by pencil. These answer sheets are directly fed to a computer for grading where OMR is used.

Optical Character Recognition (OCR)

This technique unites the direct reading of any printed character. Suppose you have a set of hand written characters on a piece of paper. You put it inside the scanner of the computer. This pattern is compared with a site of patterns stored inside the computer. Whichever pattern is matched is called a character read. Patterns that cannot be identified are rejected. OCRs are expensive though better the MICR.

Optical Bar Code Reader (OBR)

These scan a set of vertical bars of different widths for specific data and are used to read tags and merchandise in stores, medical records, library books, etc. These are available as hand held devices.

Digitizer

Digitizer is an input device which converts analog information into a digital form. Digitizer can convert a signal from the television camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet because it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for doing fine works of drawing and images manipulation applications.

1.8.2 Output Devices

An output device is a device which accepts results from the computer and displays them to user. Some of the output devices are as follows:

- Monitor
- Printer
- Speaker
- Plotter

Monitor

Monitors are also known as display screens, CRT or simply screens are output devices that show programming instructions and data as they are being input and information after it is processed. The size of a computer screen is measured diagonally from corner to corner in inches. For desktop microcomputers, the most common sizes are 13, 15, 17, 19 and 21 inches, for laptop computers, 12.1, 13.3, and 14.1 inches. There are two types of monitors:

- CRT (Cathode-Ray Tube)
- LCD (Liquid Crystal Display)

Cathode-Ray Tube (CRT)

The CRT display is made up of small picture elements called pixels. The smaller the pixels, the better the image clarity, or resolution. It takes more than one illuminated pixel to form whole character, such as the letter 'e' in the word help. A finite number of characters can be displayed on a screen at once. The screen can be divided into a series of character boxes - fixed location on the screen where a standard character can be placed. Most screens are capable of displaying 80 characters of data horizontally and 25 lines vertically. There are some disadvantages of CRT:

- Large in Size
- High power consumption

Printer

Printer is a very common and popular output device. It accepts text and graphic output from a computer and transfers the information to paper, usually to standard size sheet of paper. Printed output provides permanent record and is easy to copy and distribute. Generally we divide printers into two categories: impact and non-impact.

Impact Printers

Impact printers are printers that create characters by striking a print page with a print hammer (like in typewriter).

Dot Matrix Printer

This is also a character printer. In the dot-matrix printer, an arrangement of tiny hammers strikes to produce the desired characters. Each hammer prints a small dot on the paper.

Line Printer

It prints a line at a time. In the line printer, raised characters extend the length of the drum. There are as many bands of type as there are printing positions.. Each band contains all the possible characters. The drum rotates rapidly, and one revolution is required to print each line.

Non Impact Printers

Non-impact printer employ some process other than hammers or similar "percussion type" mechanisms to form characters on a print page.

Inkjet Printer

It is a non-impact character printer. It fires a fine jet of dots of quick drying ink onto the paper to form character or dot graphics by using an electrostatic field. When Continuous stream inkjet printers are used, droplets of ink are electronically charged after leaving a nozzle. The droplets are then guided to the proper position on the paper by electrically charged deflection plates. The print quality is good because the character is formed by dozens of tiny dots.

Laser Printers

They are page printers, i.e., print a whole page at a time. Laser printers write the desired output image on a copier drum with a light beam that operates under computer control. A difference in a electric charge is created on those parts of the drum surface exposed to the laser beam. These laser-exposed areas attract a toner that attaches itself to the laser generated charges on the drum. The toner is then permanently fused on the paper with heat or pressure.

Plotter

Plotter is used to draw high-resolution charts, graphs, blue prints, maps, circuit diagrams and other line-based diagrams. Plotters are similar to printers, but they draw lines using pen. They are mainly used for computer aided design (CAD) and computer aided manufacturing (CAM) applications.

1.9 Hardware

Hardware represents the physical and tangible components of a computer i.e. the components that can be seen and touched.

Example:

Input devices – keyboard, mouse etc.

4.1 Fundamentals of Computerized Accounting

Computerized Accounting involves making use of computers and accounting software to record, store and analyze financial data. A computerized accounting system brings with it many advantages that are unavailable to analog accounting systems.

This article does not tackle the use of spreadsheets that are often used instead of proper accounting software to process financial data. It is common knowledge that spreadsheets do not provide a scalable solution for accounting purposes and therefore are a dangerous solution to invest in.

4.2 Requirements of the Computerized Accounting System

Accounting Framework

A good accounting framework in terms of accounting principles, coding and grouping structure is a pre-condition. It is the application environment of the computerized accounting system.

Operating Procedure

A well-conceived and designed operating procedure blended with suitable operating environment is necessary to work with the computerized accounting system. The computer accounting is one of the database-oriented applications, wherein the transaction data is stored in well-organized database.

The user operates on such database using the required interface. And he takes the required reports by suitable transformations of stored data into information. Hence, it includes all the basic requirements of any database-oriented application in computers.

4.3 Need for Computerized Accounting

The need for computerized accounting arises from advantages of speed, accuracy and lower cost of handling the business transactions.

Numerous Transactions

The computerized accounting system is capable of large number of transactions with speed and accuracy.

Instant Reporting

It is capable of offering quick and quality reporting because of its speed and accuracy.

Reduction in Paper Work

Manual accounting system requires large storage space to keep accounting records/books, and vouchers/documents. The requirement of books and stationery and books of accounts along with vouchers and documents is directly dependent on the volume of transactions beyond certain point.

There is a dire need to reduce the paper work and dispense with large volume of books of account. This can be achieved with the help of computerized accounting system.

Flexible Reporting

The reporting is flexible in computerized accounting system. It is capable of generating reports of any balance as when required and for any duration which is within the accounting period.

Accounting Queries

There are accounting queries, which are based on some external parameters. For example, a query relating to overdue customers' accounts can be easily answered by using the structured query language [SQL] support of database technology in the computerized accounting system. Such an exercise would be quite difficult and expensive in manual accounting system.

Online Facility

Computerized accounting system offers online facility to store and process transaction data so as to retrieve information to generate and view financial reports.

Accuracy

The information and reports generated are accurate and quite reliable for decision-making. In manual accounting system, as many people do

the job and the volume of transactions is quite large, such information and reports are likely to be distorted and unreliable and inaccurate.

Security

This system is highly secured and the data and information can be kept confidential, when compared to manual accounting system.

Scalability

The system can cope easily with the increase in the volume of business. It requires only additional data operators for storing additional vouchers.

4.4 Salient Features of Computerized Accounting

1. Fast, Powerful, Simple and Integrated

Computerized accounting is designed to automate and integrate all the business operations, such as sales, finance, purchase, inventory and manufacturing. With Computerized accounting, accurate, up-to-date business information is literally at the fingertips. The Computerized accounting combine with enhanced MIS, Multi-lingual and Data organization capabilities to help the company simplify all the business processes easily and cost-effectively.

2. Complete Visibility

Computerized accountings giving the company sufficient time to plan, increase the customer base, and enhance customer satisfaction. With Computerized accounting the company will have greater visibility into the day-to-day business operations and access to vital information.

3. Enhanced User Experience

Computerized accounting allows the company to enter data in a variety of ways which makes work a pleasure. Adapting to the specific business needs is possible.

4. Accuracy, Speed

Computerized accounting has User-definable templates which provides fast, accurate data entry of the transactions; thereafter all documents and reports can be generated automatically, at the press of a button.

5. Scalability

Computerized accounting adapts to the current and future needs of the business, irrespective of its size or style.

6. Power

Computerized accounting has the ability to handle huge volumes of transactions without compromising on speed or efficiency.

7. Improved Business Performance

Computerized accounting is a highly integrated application that transforms the business processes with its performance enhancing features which encompass accounting, inventory, reporting and statutory processes. This helps the company access information faster, and takes quicker decisions. Computerized accounting also guarantees real-time optimization of operations and enhanced communication.

8. Quick Decision Making

Generates real-time, comprehensive MIS reports and ensures access to complete and critical information, instantly.

9. Complete Reliability

Computerized accounting makes sure that the critical financial information is accurate, controlled and safe from data corruption.

4.5 Advantages and Disadvantages of computerized Accounting

The advantages and disadvantages of computerized accounting system:

Advantages

- Faster and efficient in processing of information;
- Automatic generation of accounting documents like invoices, cheques and statement of account;
- With the larger reductions in the cost of hardware and software and availability of user-friendly accounting software package, it is relatively cheaper like maintaining a manual accounting system;

4.6 Manual Accounting Vs Computerised Accounting

Point of Difference	Manual Accounting	Computerised Accounting
Definition	Manual accounting is the system in which we keep physical register of journal and ledger for keeping the records of each transaction.	In this system of accounting, we use computer and different accounting software for digital record of each transaction.
Recording	Recording of financial transactions is through books of original entry.	Data content of these transactions is stored in well designed data base.
Calculation	In manual accounting, all calculation of adding and subtracting are done manually. For example, we find the balance of any ledger account. We will calculate the debit and credit side and then we will find its difference for showing balance.	In computerized accounting, our duty is to record the transactions manually in the database. All the calculations are done by computer system. We need not to calculate each account's balance, it is calculated automatically by computerized accounting system.
Ledger Accounts	In manual accounting, we check the journal and then we transfer figures to related accounts' debit or credit side through manual posting.	Computerized accounting system will automatically process the system and will make all the accounts ledgers because we have pass the voucher entries under its respected ledger account.
Trial Balance	In this system of accounting, we have to collect the information of the balances of all accounts in our ledger, on this basis, we have prepared the trial balance manually.	Our computerized accounting system will produce trial balance automatically.

Books	Large number of books is maintained	No Books. Only Computer hard disk.
Financial statements	The preparation of financial statements assumes the availability of trial balance	The preparation of financial statements is independent of producing the trial balance.

4.7 Problems Faced in Computerized Accounting System

1. User Training

The user, for using computer accounting software, needs to understand the concepts of the software. Hence, he should undergo proper training. A computer operator must learn the basics of computer concepts of software, working with the operating system software [such as Windows/DOS] and the accounting software.

2. System Dependency

Using a computer solution makes the user to depend fully on the computer system and necessitates the availability of computer at all times. If the system is not available [due to hardware failure or power cut], it would be difficult to verify the accounts.

3. Hardware Requirements

A full-fledged computer system with a printer is required to operate the computerized accounting system. Most small organizations may not afford to have such facility with necessary software.

4. System Failure

When there is a system crash [hard disk crash], there is high risk of losing the data available on the hard disk drive at any point of time. It would be highly painful, if the problem occurs at end of the financial year, when the financial statements should be ready.

5. Backups and Prints

Backups of the data should be done regularly so that, when the data is lost, it can be restored from floppies [backups]. Regular print outs of the system information would be useful as manual records.

6. Voucher Management

Accounting software allows easy alteration of data. If a voucher is wrongly placed in a wrong head, it would be very difficult to sort out and bring back the voucher. A good voucher management is very essential.

7. Security

Additional security has to be provided because improper handling of the system [hardware/software] could be dangerous. Passwords, locks, etc., have to be set so that no unauthorized person can handle the system.

4.8 Limitations of Computerized Accounting Systems

The main limitations of Computerised systems are being dependent upon the operating environment they work in.

Some of them are listed as follows:

(i) **Heavy Cost of Installation:** Computer hardware needs replacing and software needs to be updated from time to time with the availability of newer versions.

(ii) **Cost of Training:** To ensure effective and efficient use of computerized system of accounting, newer versions of hardware and software are introduced. This requires special training and cost is incurred to train the staff personnel as specialists.

(iii) **Fear of Unemployment:** Reflects the feelings of the staff on the introduction of computerized accounting system. The staff fears redundancy and show less interest in computers.

(iv) **Disruption in Work:** When computerized system is introduced, there might be loss in the work time and certain changes in the working environment.

(v) **System Failure:** The danger of a system crashing due to some failure in hardware can lead to subsequent loss of work. This occurs when no back-up is retained.

(vi) **Time Consuming:** In order to avoid loss of work at the time of system failure, there is a need for providing backup arrangements which is a time consuming process.

6.3 Creating a Group

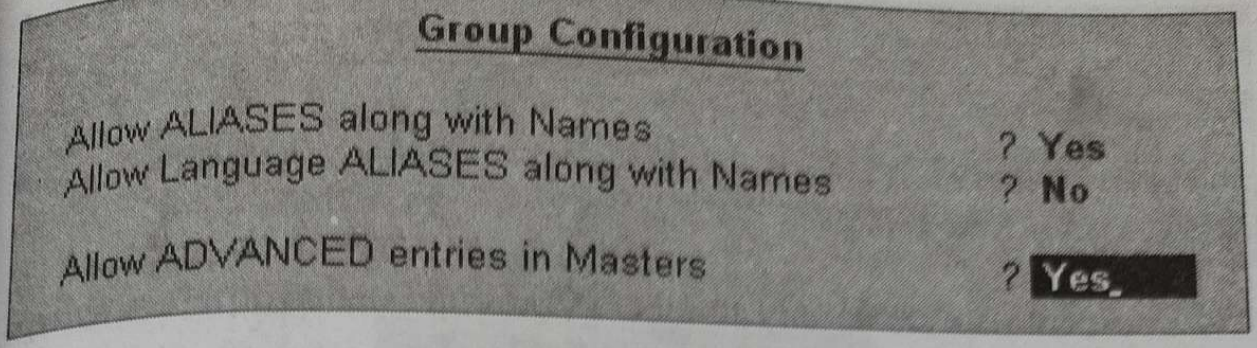
In Tally.ERP 9 there are two options for creating Groups:

1. **Single Group** – We can create only one Group by using Single Group creation screen.
2. **Multiple Groups** – We can create multiple Groups by using Multiple Group Creation screen.

6.3.1 Creating a Single Group

Group is a collection of Ledgers of the same nature, Tally.ERP 9 allows you to create groups as per your requirements.

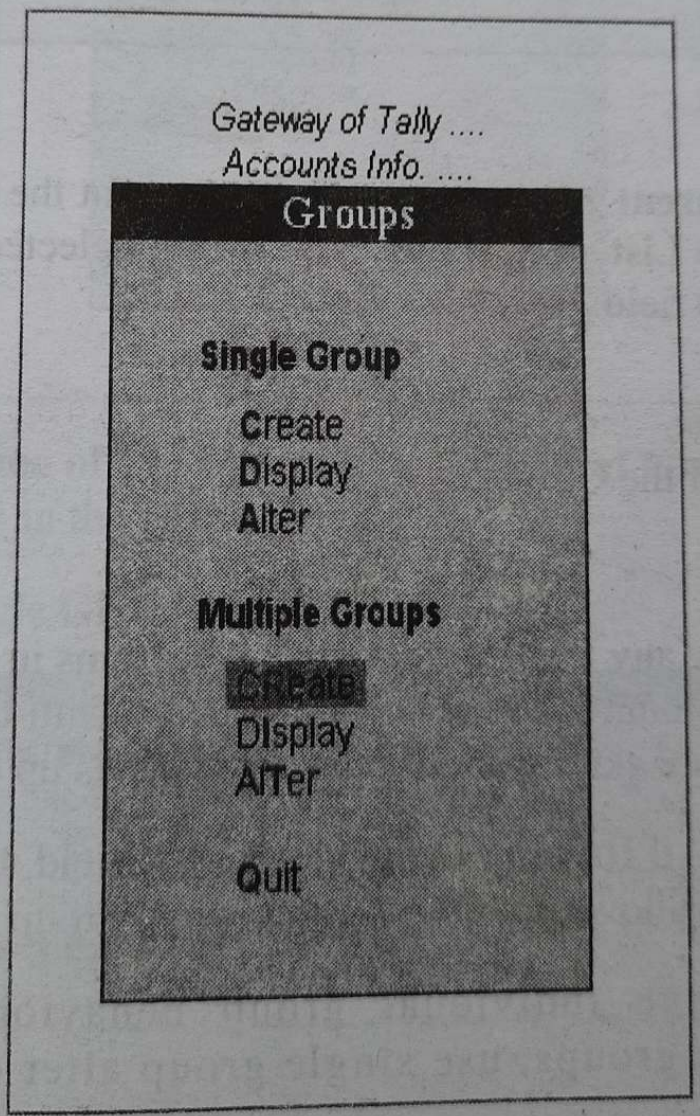
Go to **Gateway of Tally > Accounts Info. > Groups > Create under Single Group**



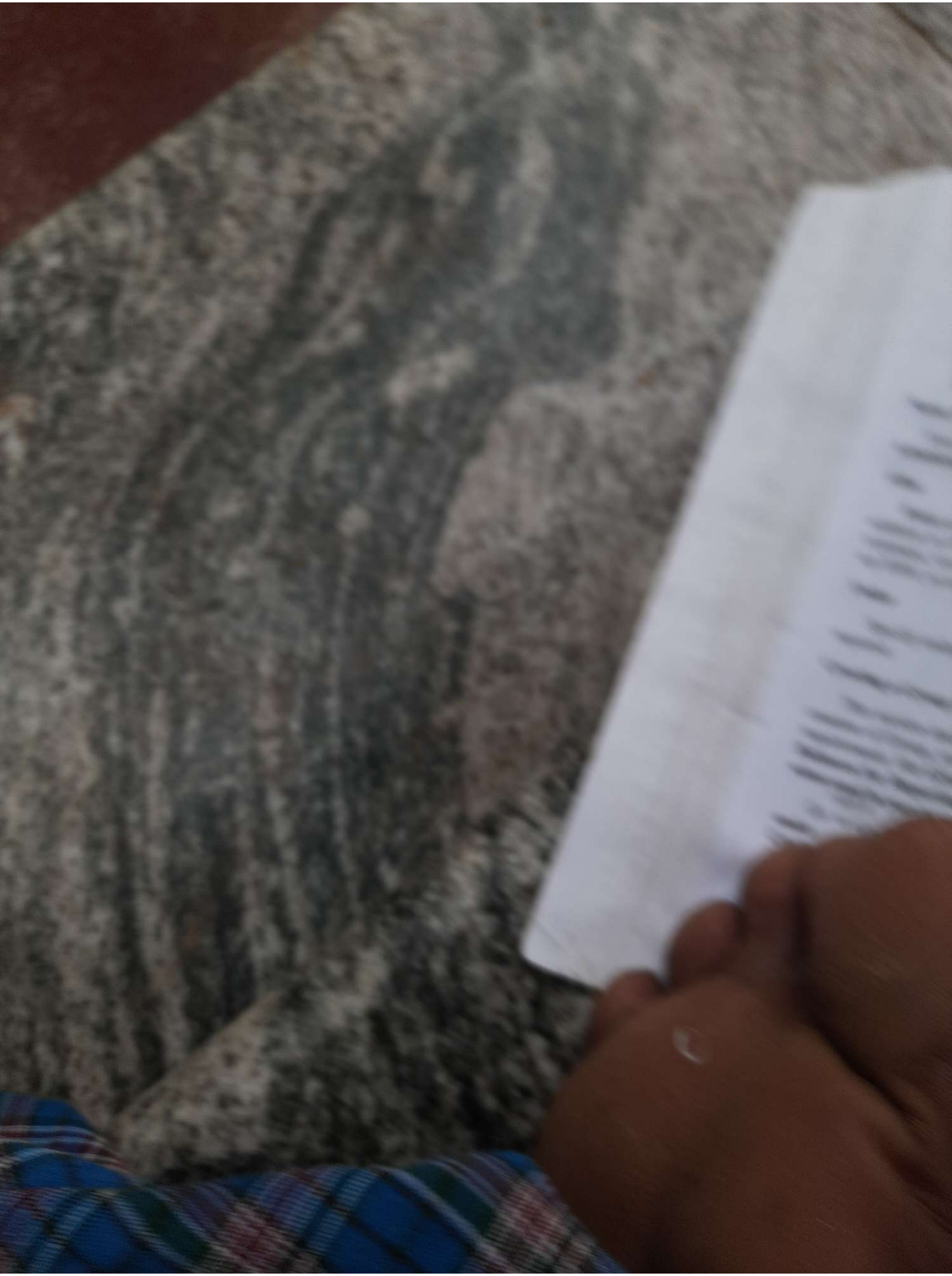
6.4 Creating Multiple Groups

Tally.ERP 9 allow you to create **Multiple Groups** simultaneously, you can create them by pressing Enter on Create under Multiple Groups.

Go to **Gateway of Tally > Accounts Info. > Groups > Create (under Multiple Groups)**

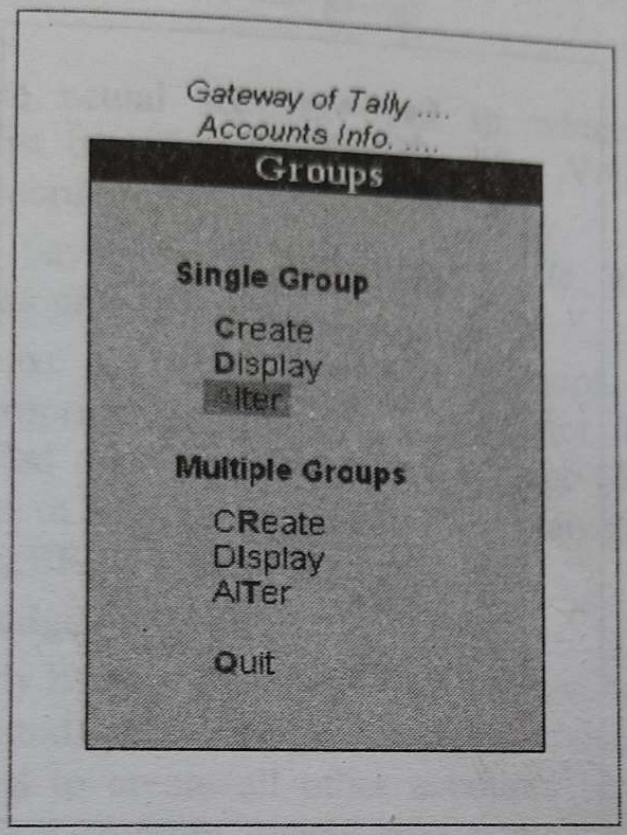


You can create any number of Groups under an already created/selected Group. In this mode of group creation, the sub-groups will automatically inherit the characteristics of their parent groups.



Single Mode

Go to **Gateway of Tally > Accounts Info. > Group > Alter** (under Single Group)



Select the **Group** that you wish to alter from the **List of Groups**. Make the necessary changes and click **Yes** to save the changes.

Altering a Single Group

Group Alteration — Company A

Name : Administrative Expenses
(alias) : Office Expenses

Under : **Indirect Expenses**

Group behaves like a Sub-Ledger ? **No**
Nett Debit/Credit Balances for Reporting ? **No**
Used for Calculation (eg. Taxes, Discounts) ? **No**
(for Sales Invoice Entry)
Method to Allocate when used in Purchase Invoice ? ☐ **Not Applicable**

Note: You cannot delete a group if it is a reserved group or a group that has sub-groups or ledgers in it. A new group created under primary will not be reflected in reports until you pass masters/transactions for that group.

6.7 Ledger

A Ledger is the actual account head to which you identify a transaction and must be used in all Accounting Vouchers. Without a ledger we cannot record any transactions.

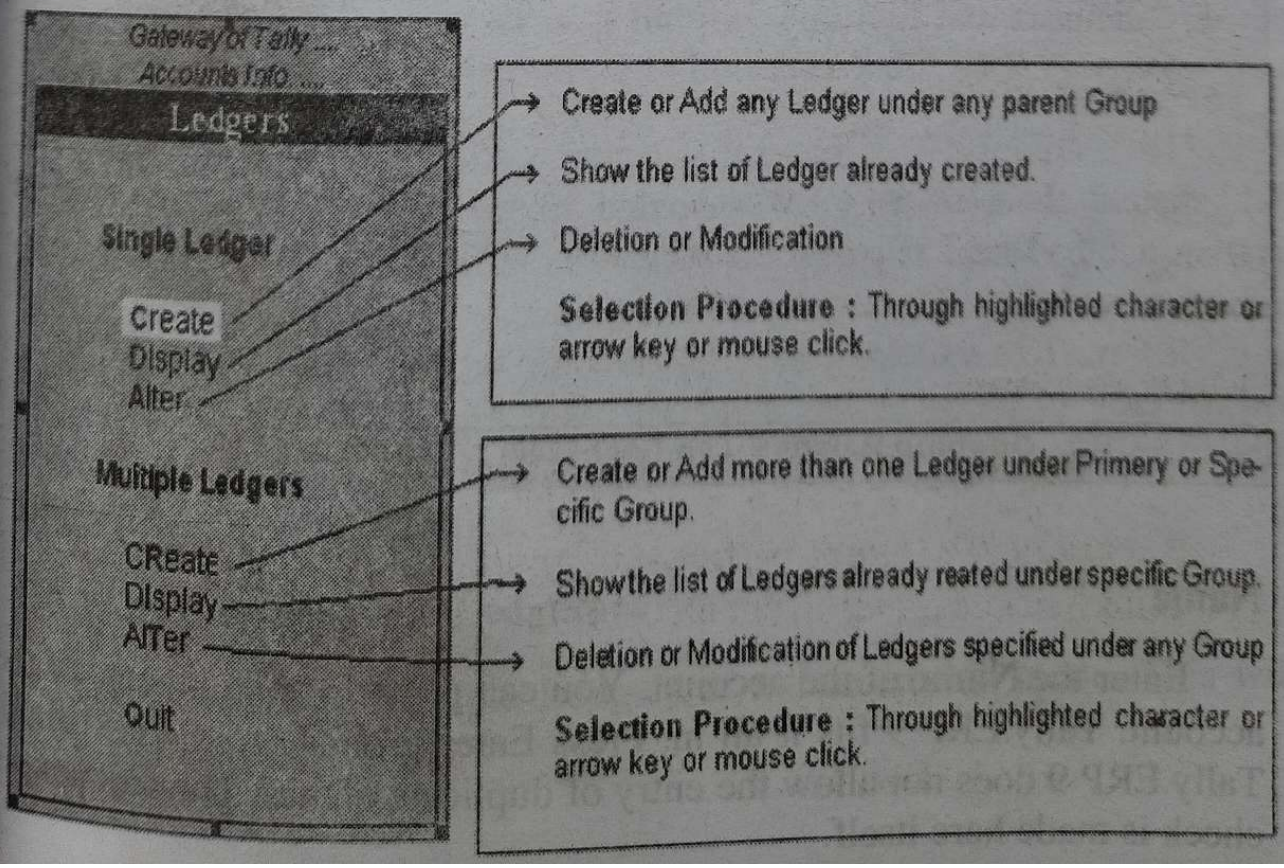
Ex: Purchase, payments, sales, Receipts, etc, all these accounts heads are ledger Accounts.

All Ledgers have to be classified into Groups. Classification of Ledgers to the appropriate groups is very important. These Groups and Ledgers are classified to Profit & Loss or Balance Sheet. The creation and usage of Groups in Tally.ERP 9 has been explained earlier. Now you will learn how Tally.ERP 9 works with Ledgers.

6.7.1 Creating a Ledger

By default, Tally.ERP 9 contains two Ledger accounts namely, Cash (Under Cash-in- Hand) and Profit and Loss Account (direct Primary Account). You need to create all other accounts heads. There are no restrictions in Ledger creation except that you cannot create another Profit & Loss A/c. Any number of Cash Accounts may be created in any other name for ex: Petty Cash.

Go to **Gateway of Tally > Accounts Info > Ledgers > Create**



7.2 Voucher Entry

1. Go to Gateway of Tally
2. In Account Information menu
3. Enter on Voucher Types
4. Enter on Create

Voucher Creation screen open & fill up all Information Like---

Name:-> Purchase Invoices (Enter)

Alias:->(Enter)

Type of Voucher:- >Purchase (Enter)

Abbr:-> Purc (Enter)

Method of Voucher Numbering:-> Automatic (Enter)

Use Advance Configuration:->Yes(Enter)

Accept: Yes(Enter)

7.3 Editing and Deleting Vouchers

Editing Voucher in Tally ERP9

1. Go to Gateway of Tally
2. In Account Information menu
3. Enter on Voucher Types
4. Enter on Alter

Voucher Alter screen open & Change Information

Accept : Yes (Enter)

Displaying Voucher in Tally ERP9

1. Go to Gateway of Tally
2. In Account Information menu
3. Enter on Voucher Types
4. Enter on Display

Display all Information

Deleting Voucher in Tally ERP9

1. Go to Gateway of Tally
2. In Account Information menu
3. Enter on Voucher Types

Inventory Masters

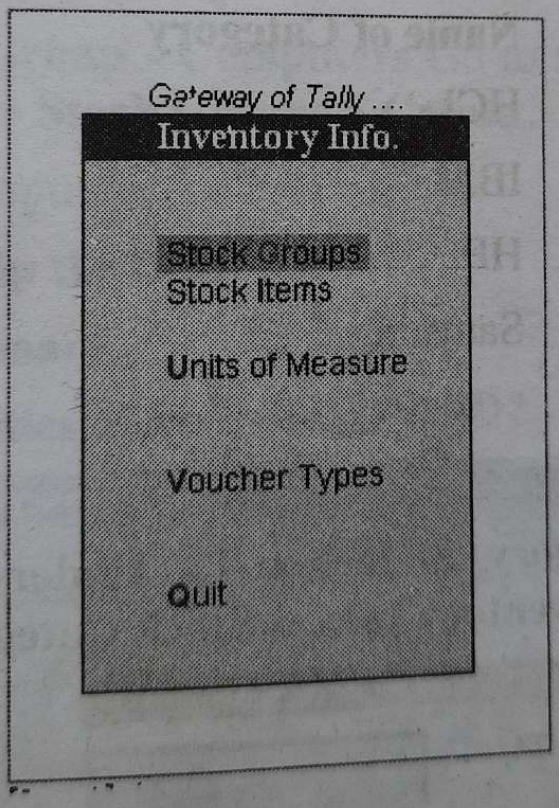
8.1 Introduction to Inventory

Inventory is the total amount of goods and/or materials contained in a store or factory at any given time. Store owners need to know the precise number of items on their shelves and storage areas in order to place orders or control losses. Factory managers need to know how many units of their products are available for customer orders. Restaurants need to order more food based on their current supplies and menu needs.

Inventory Information

The Inventory Info menu, lists the inventory masters like Stock Group, Stock Items, Units of Measure of the company, using which you can create, alter and display the inventory master details.

Go to **Gateway of Tally > Inventory Info**



Note: The Inventory Info menu is displayed in the Gateway of Tally, if you select Type of company as Maintain Accounts with Inventory in the Company Creation screen.

8.2 Stock Categories

This is a feature, which offers a parallel classification of stock items. Like Stock Groups, Stock categories are also classified based on some similar behavior. The advantage of using Tally.ERP 9 lies in categorizing Stock items together, (based on functionality) across different stock groups. This enables you to obtain reports for alternatives or substitutes of a stock item.

Set **Yes** to **Maintain Stock Categories** in **F11: Features (F2: Inventory Features)** to get an additional option **Stock Categories** under **Inventory Info.**

8.2.1 Creating Stock Category

Creating Single Stock Categories

Go to the **Gateway of Tally > Inventory Info. > Stock Categories > Create.**

Name	**Under**
National	Primary

Creating Multiple Stock Categories

Go to the **Gateway of Tally > Inventory Info. > Stock Categories > Create**

Under Category	**Name of Category**
Primary	HCL
Primary	IBM
Primary	HP
Primary	Samsung

Example

i. Create Stock Category 29 inches TV Under Primary Go to the **Gateway of Tally > Inventory Info. > Stock Categories > Create.**

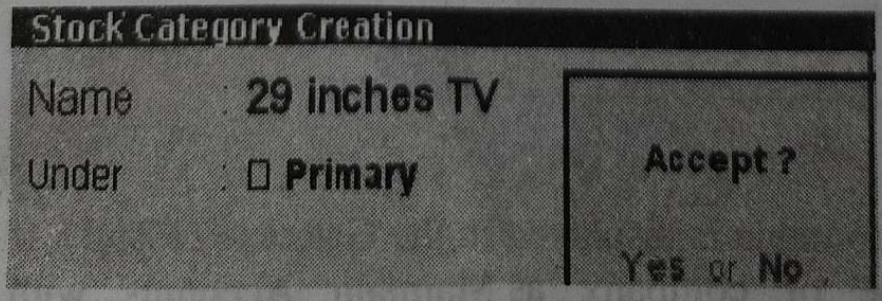


Figure – Stock Category Creation — 29 inches TV

Similarly , create Stock Category **25 inches TV** under **Primary**.

8.2.2 Displaying and Altering Stock Categories

Once created, stock categories can be displayed and altered in single and multiple mode. You can delete a stock category via **Single Stock Category > Alter** by pressing **Alt+D**. However, you cannot delete a stock category with sub-categories. The lower levels must be deleted first.

8.3 Stock Groups

Stock Groups are provided to help in the classification of stock items. Classification is done based on some common behavior. Grouping stock items makes it easy to identify and report them in the statements. For example, items of a particular brand can be grouped together so that you can get the inventory details of all the items of that brand.

8.3.1 Creating Stock Group

We can create stock group in Single and multiple mode

- **Single stock Group:** Using this mode we can create a single stock item under a main group.
- **Multiple Stock groups:** Using this mode, you can create multiple stock items under a main group, or under multiple main groups.

i) Creating single stock groups

Create a **Stock Group - Computers** Go to the **Gateway of Tally > Inventory Info. > Stock Groups > Create**.

1. **Name: Computers**
2. **Aliases: Skip the field**
3. **Under: Primary**
4. **Can quantities of items be ADDED?: Yes**

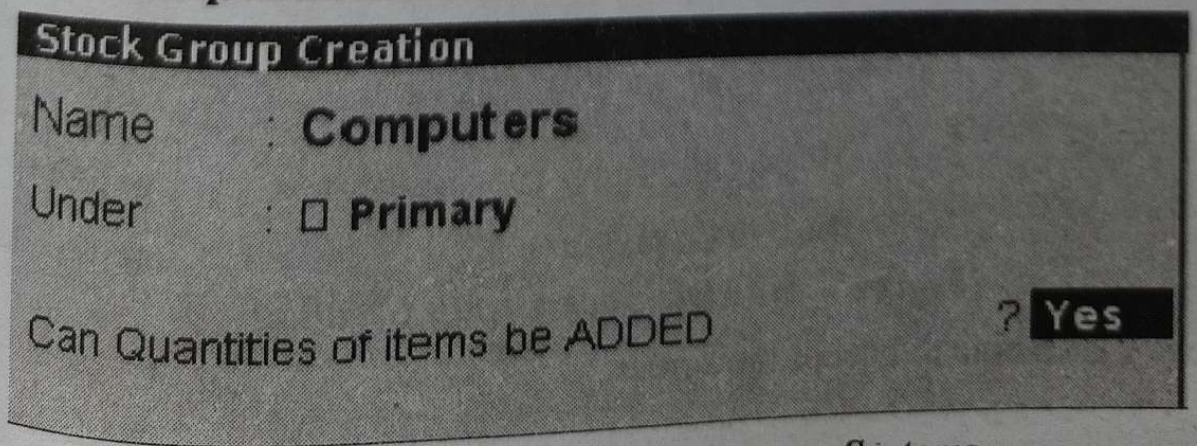


Figure – Stock Group Creation — Systems

Chapter 9

Introduction to Cost and Budget

9.1 Introduction to Cost Centre

A Cost Centre is any unit of an organization to which transactions (generally, revenue) can be allocated. When only costs or expenses are allocated to these units, they are referred to as Cost Centre. When profits are also allocated to these units, they become Profit Centre. You can now obtain a Profit and Loss account of each such Profit Centre.

Cost Centre in Tally allows an additional dimension to a transaction where a

Ledger account indicates the nature of three transaction. It does not readily disclose, except in the narration field, which part of the organization was involved in the transaction.

By providing Cost Centre, a transaction can be allocated to it, which would then enable extraction of all transactions for a Cost Centre. Tally gives you the Cost Centre break-up of each transaction as well as details of transactions for each Cost Centre.

Some examples of Cost Centers are

- Departments of an organization – Finance, Manufacturing, Marketing, and so on.
- Products of a company.
- Individuals such as Salesman A, Salesman B.

9.2 Introduction to Cost Category

Cost Categories are useful for organizations that require allocation of resources to parallel sets of Cost Centre. Such organizations would usually be project oriented. Most organizations would not need Cost Categories. The proper use of Cost Centre itself would offer the same benefits. Cost Categories could increase data entry work and make it more complicated. Hence, before opting for Cost Categories, evaluate whether you actually need this option. Always attempt to first use Cost Centre.

9.3 Cost Centre and Cost Category in Tally.ERP 9

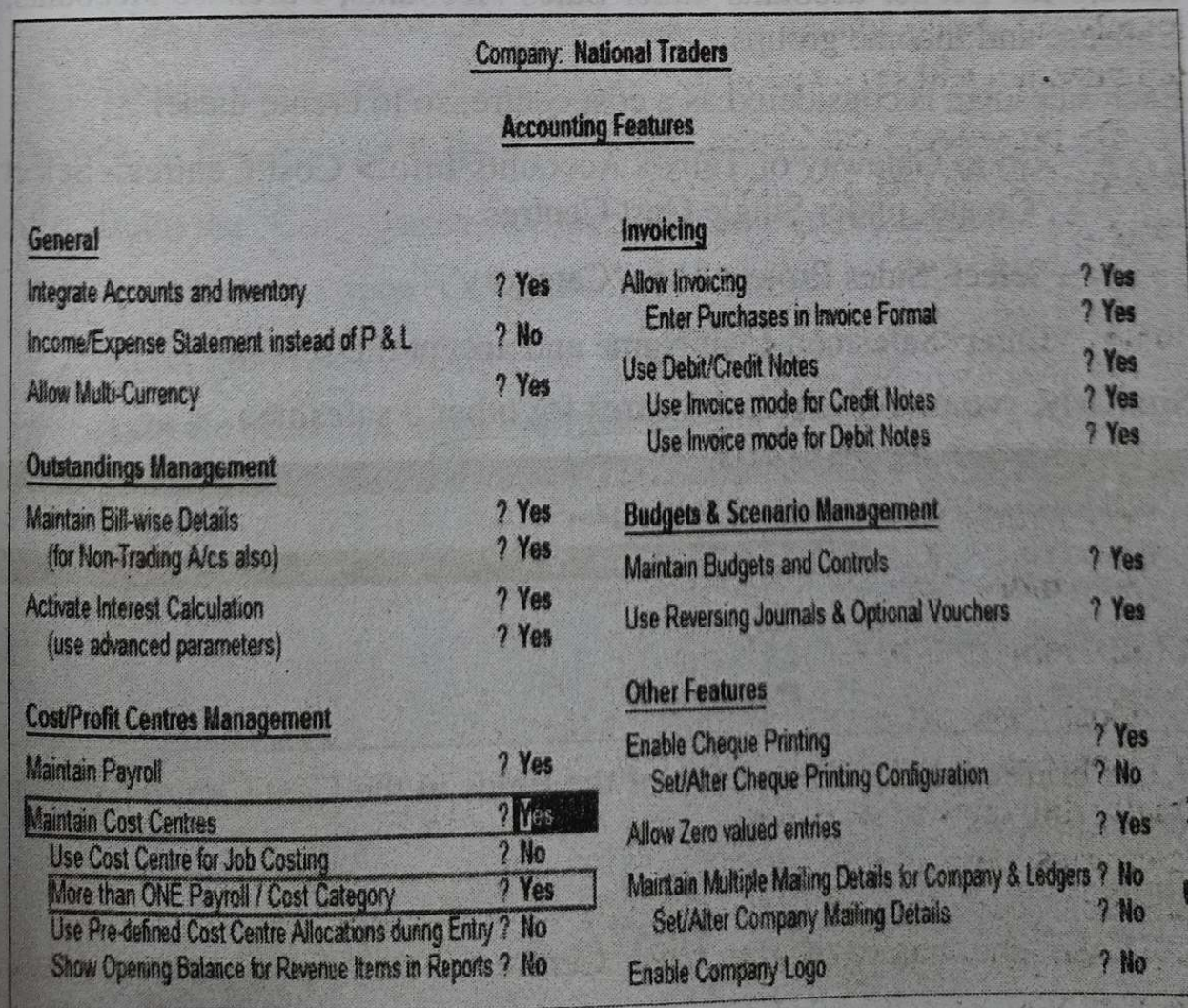
The cost centre in Tally.ERP 9 refers to an organizational unit to which costs or expenses can be allocated during transactions while the cost category is used to accumulate costs or profits for parallel sets of cost centres. For example, you can use cost centre to track expenses of each employee while cost category can be used to see the effectiveness of each project.

To use cost centre in Tally.ERP 9, let's consider a 'Sales department' in an organization which has 4 different Salesmen. To record their expenses and incomes, let's follow the steps below:

Enabling Cost Centre and Cost Category

To do this:

- Go to Gateway of Tally > F11: Features > F1:Accounting Features
- Set 'Maintain Cost Centres' to 'Yes'
- Set 'More than ONE Payroll/ Cost Category' to 'Yes'



Company: National Traders

Accounting Features

General

Integrate Accounts and Inventory ? Yes
Income/Expense Statement instead of P & L ? No
Allow Multi-Currency ? Yes

Outstandings Management

Maintain Bill-wise Details ? Yes
(for Non-Trading A/cs also) ? Yes
Activate Interest Calculation ? Yes
(use advanced parameters) ? Yes

Cost/Profit Centres Management

Maintain Payroll ? Yes
Maintain Cost Centres ? Yes
Use Cost Centre for Job Costing ? No
More than ONE Payroll / Cost Category ? Yes
Use Pre-defined Cost Centre Allocations during Entry ? No
Show Opening Balance for Revenue Items in Reports ? No

Invoicing

Allow Invoicing ? Yes
Enter Purchases in Invoice Format ? Yes
Use Debit/Credit Notes ? Yes
Use Invoice mode for Credit Notes ? Yes
Use Invoice mode for Debit Notes ? Yes

Budgets & Scenario Management

Maintain Budgets and Controls ? Yes
Use Reversing Journals & Optional Vouchers ? Yes

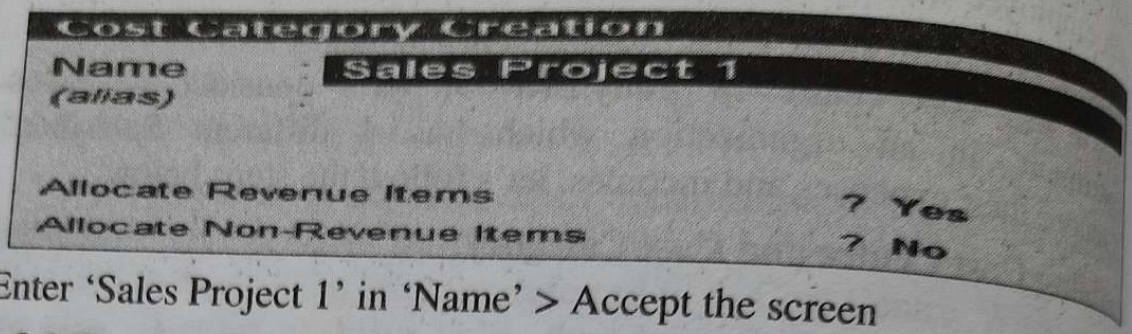
Other Features

Enable Cheque Printing ? Yes
Set/Alter Cheque Printing Configuration ? No
Allow Zero valued entries ? Yes
Maintain Multiple Mailing Details for Company & Ledgers ? No
Set/Alter Company Mailing Details ? No
Enable Company Logo ? No

9.3.1 Creating Cost Categories

To group the salesmen under one Cost Category (one similar project):

Go to **Gateway of Tally > Accounts Info. > Cost Categories > Select 'Create'** under 'Single Cost Centre'



Enter 'Sales Project 1' in 'Name' > Accept the screen

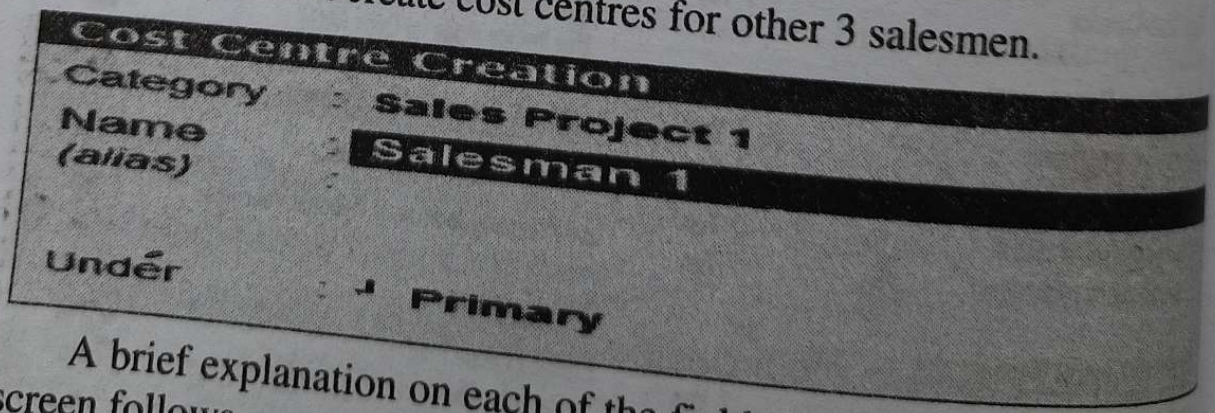
9.3.2 Creating Cost Centres

To create a Cost Centre, set Maintain Cost Centres to Yes in F11 Features. It is advisable not to set More than ONE Payroll/Cost Category to Yes, unless required. By default, Tally activates the Cost Centre feature for Ledger accounts under Sales Accounts, Purchase Accounts, Expense and Income groups.

Each salesman is considered as a cost centre, so to create these:

- Go to Gateway of Tally> Accounts Info.> Cost Centres> Select 'Create' under Single Cost Centres
- Select 'Sales Project 1' in 'Category'
- Enter 'Salesman 1' in Name and accept the screen

Similarly, you can create cost centres for other 3 salesmen.



A brief explanation on each of the fields in the Cost Centre Creation screen follows.

Name

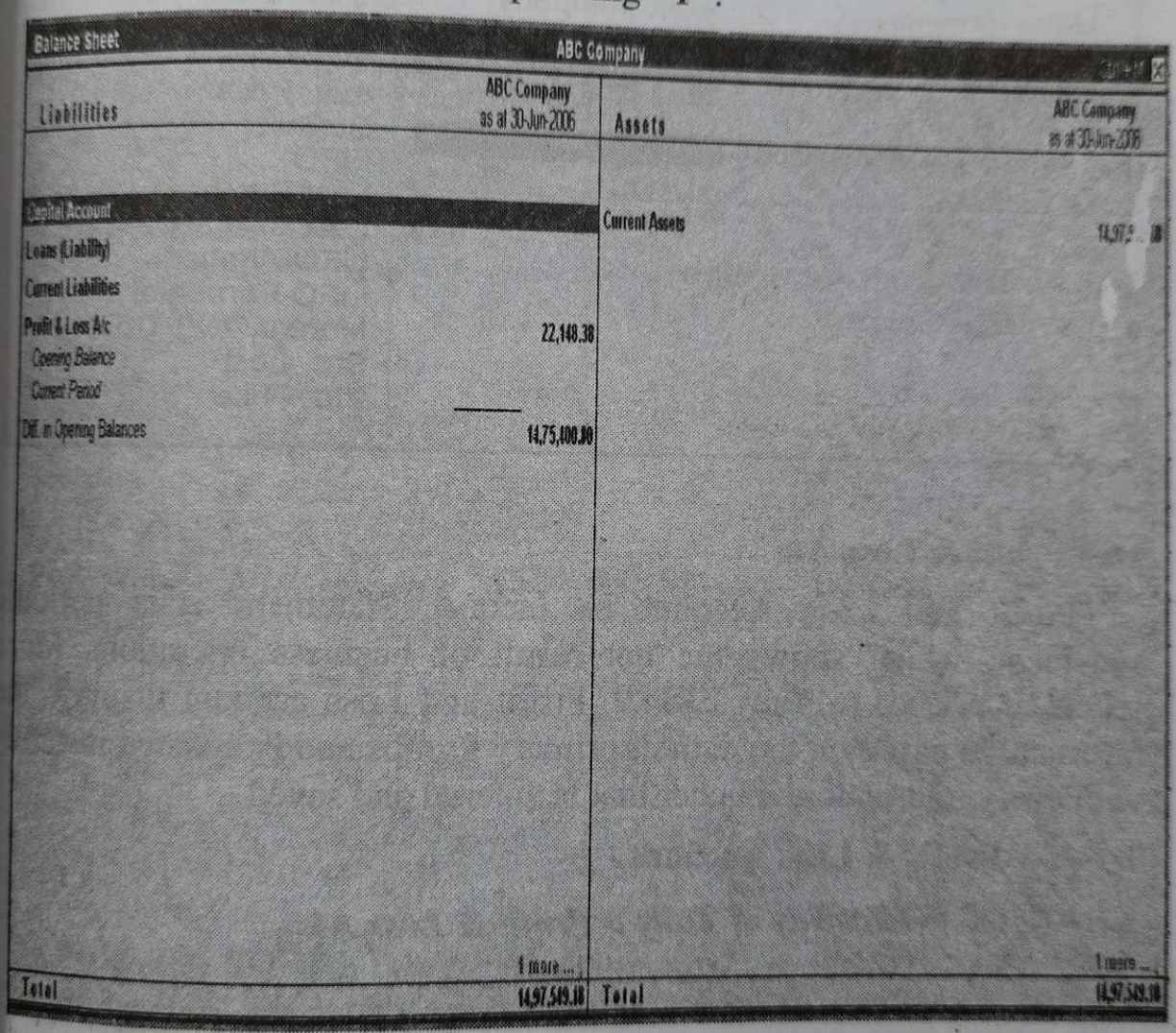
Enter the name of the Cost Centre in this field. For example Bangalore.

10.2 Balance Sheet

A **Balance Sheet** is a financial statement that reports a firm's financial position at a specific time. It shows a balance between the assets and liabilities of a firm and the owner's funds (i.e., Assets = Liabilities + Owner's Equity).

To view **Balance Sheet**:

- Go to ***Gateway of Tally > Balance Sheet.***
- Click F1 button for condensed mode.
- Click Print button and pressing "Y".

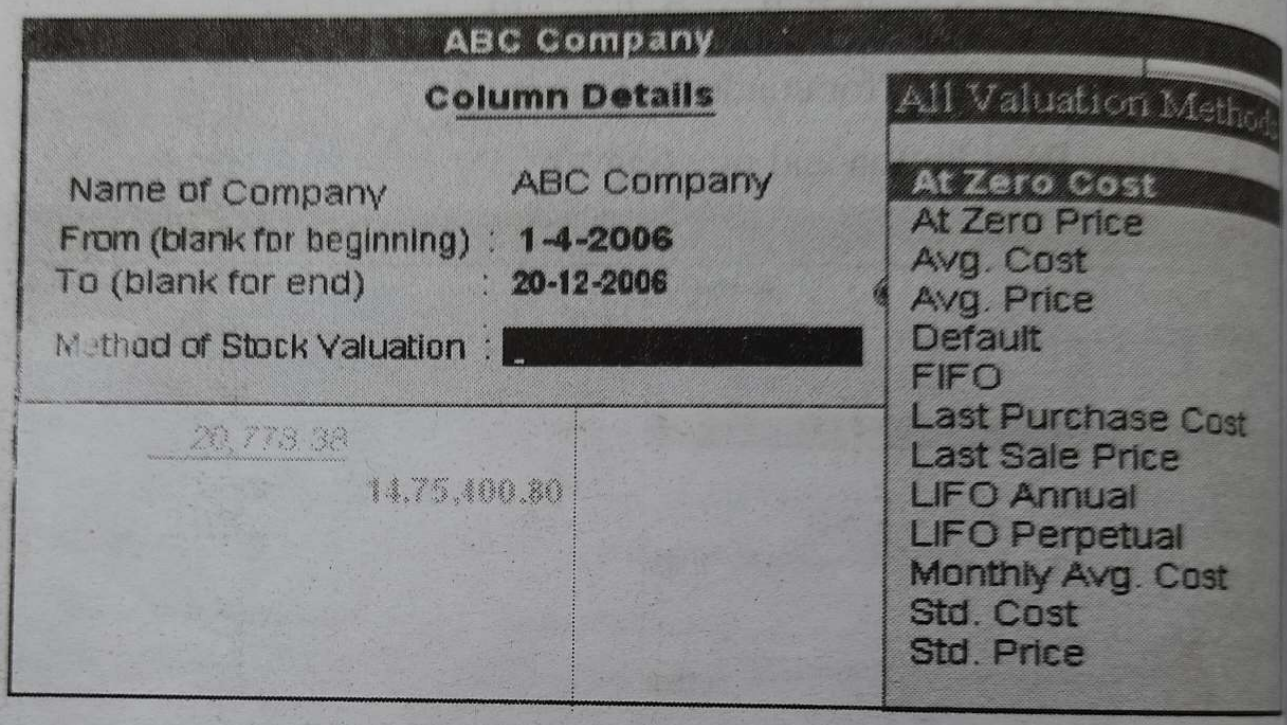


Extract information from the Balance sheet using options available in the Button.

Bar.

1. Select F1: – Detailed/Condensed to explode the summarized information.
2. Change the date of the Balance Sheet using F2: Period.
3. Add up new columns and

1. Display a Balance Sheet for a different date to compare with current one.
2. Display the Balance Sheet in a different currency.
3. Display Budget figures and analyze the variances or
4. See the effect of different Stock Valuations on the Balance Sheet.



10.3 Profit & Loss A/c

Profit and Loss Account or Income Statement is a periodic statement, which shows the net result of business operations for a specified period. In Tally.ERP 9, Profit and Loss account displays the information based on the default primary groups and is updated instantly with every transaction/voucher that is entered and saved.

To view **Profit & Loss Account**:

- Go to ***Gateway of Tally > Profit & Loss A/c***

- Click **F1: Detailed**, to view the **Profit & Loss** Account in detailed format.

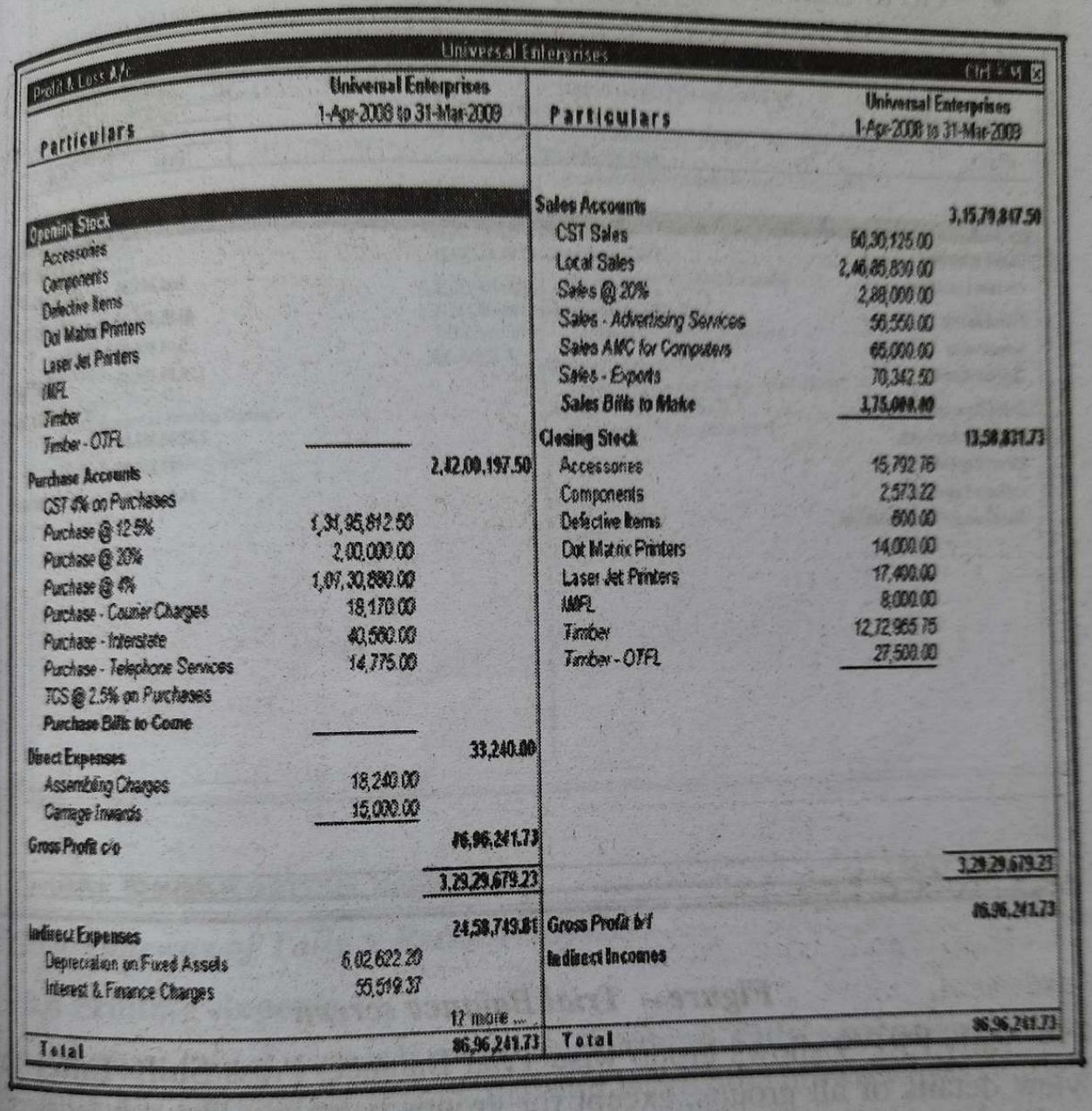


Fig - Profit & Loss A/c screen

Press **F2: Period** to change the period as required. Press **F12: Configuration** and set the required parameters to display the Profit & Loss A/c according to our preferences.

10.4 Trial Balance

A Trial Balance is a summary of all ledger balances to check whether the figures are correct and balanced. In Tally.ERP 9, all the ledgers appear with their ledger balances.