

Computer Application in Business
V Semester B.B.M

Introduction to Information System

INTRODUCTION

Computers are every where. In business and industry are using them in a new ways unthought of even a decade ago. We can list thousands of these modern uses. When the power to computers ever shut off, business and industry would almost instantly grind to a halt. Without computers, the modern corporation and industry would almost grind to a halt. Without computers, the modern corporation could not even exist. Computer have become so deeply embedded in information processing and communications systems that almost no activity would be possible without them. ;

Business data processing is a major application of computers. It is concerned with abstracting meaningful Information from large volumes of Data. The word 'Data' is used to refer to a fact or facts about the person, place, object, event or concept. It can be considered as the raw material of information. On the other hand, Information is a processed data, placed into a meaningful context for the recipient. Information can be easily analogous to light. When light is present, objects are visible. Thus, information presents a picture of reality to a user who is not aware of that reality.

Today, it is widely recognized that information systems knowledge is essential for managers because most organizations need information system to survive and prosper. Information systems can help companies extend their reach to faraway locations, offer new products and services, reshape jobs and workflows and perhaps profoundly change the way they conduct business.

Information systems and technologies have become a vital component of successful businesses and organizations. They thus constitute an essential field of study in business administration and management.

SYSTEM

A system is a group of interrelated components working together towards a common goal by accepting inputs and producing outputs in an organised transaction process. It is a group of interrelated or interacting elements forming a unified whole.

System is a set of related activities which may or may not involve computers. It is generally used for a group of actions, personnel and procedure used for processing data.

Definition of System

According to *Raymond Mcleod* "A system is the set of elements in the form of ideas, things and people which are interrelated and part of a cohesive set-up, those synergies to achieve a specific goal or goals."

A System is a scientific method of inquiry, that is, observation, the formulation of an idea, the testing of that idea, and the application of the results.

A System is a combination or arrangement of parts to form an integrated whole. System includes an orderly arrangement according to some common principles or rules.

CHARACTERISTICS OF SYSTEM

A system has following characteristics:

- (i) **Components:** A component is either an irreducible part or an aggregate of parts, also called a *subsystem*. The simple concept of a component is very powerful. *For example*, in case of an automobile we can repair or upgrade the system by changing individual components without having to make changes the entire system.
- (ii) **Organization:** Organization implies structure and order of the system. *For example*, the hierarchal relationship in a business organization/system represents the organization structure.
- (Hi) **Interrelationships:** Interrelationships is the manner in which each component functions with other components of the system. *For example*, in a computer system, CPU must interact with input, output devices, main memory holds data and program and ALU does computation.
- (iv) **Boundary:** A system has a boundary, within which all of its components are contained and which establishes the limits of a system, separating it from other systems.
- (v) **Purpose or central objective:** Central Objective or Purpose means all components of a system assemble together towards a common goal, purpose or objective. The system's goal is the reason for its existence.
- (vi) **Environment:** A system operates within an environment - everything outside the system's boundary. The environment surrounds the system, both affecting it and being affected by it. *For example*, the environment of a university includes prospective students, foundations, funding agencies and the new media. Usually the system interacts with its environment. A university interacts with prospective students by having open houses and recruiting from local high schools.
- (vii) **Interface:** The point at which the system meets its environment are called interface.
- (viii) **Constraints:** A system must face constraints in its functioning because there are limits to what it can do and how it can achieve its purpose within its environment. Some of these constraints are imposed inside the system (e.g., a limited number of staff available). Others are imposed by the environment (e.g., due to regulations). A system interact with the environment by means of inputs and outputs.
- (ix) **Input:** Input is anything entering the system from the environment.
- (x) **Output:** Output is anything leaving the system crossing the boundary to the environment. Information, energy, and material can be both input and output in relation to the environment.

People, *for example*, take in food, oxygen, and water from the environment as input. An electrical utility takes on input from the environment in the form of raw materials (coal, oil, water power, etc.), requests for electricity from customers. It provides for output to the environment in the form of electricity.

(xi) *Interdependence*: Interdependence means how various components of the system depend on each other. Output of one system may be the input to another system.

(xii) *Integration*: Integration means how a system is tied together. Components of a system may work independently and each component performs a unique function but they have to work together within the system to achieve the system goals.

TYPES OF SYSTEM

1. Open and Close System

An open system continually interacts with its environment. It receives input from the outside and delivers output to outside. A closed system is isolated from environment influences.

2. Adaptive and Non-adaptive System

A system that reacts to its environment in such a way as to improve its functioning, achievement or probability of survival is called an adaptive system. For the success of the business, the organizations need to change and adapt to the changing environment, like they need to change as per the changing customer demands. Today computers are a non-adaptive systems

because if computers learn how to modify and upgrade themselves, then they would become an adoptive system.

3. Physical (Empirical) and Abstract (conceptual) System

Abstract systems are concerned with theoretical structures. They are systems of explanation. A conceptual system is an orderly arrangement of ideas. A physical or empirical system is a set of tangible entities that may be static or dynamic and operates together to accomplish an objective. Physical systems may be derived from or based upon conceptual systems and thus represent the conversion of concepts into practice.

4. Deterministic and Probabilistic System

A deterministic system is one in which the occurrence of all events is perfectly predictable. If we get the description of the system state at a particular time, the next state can be easily predicted. Probabilistic system is one in which the occurrence of events cannot be perfectly predicted. *For example*, an accounting system, a computer program; both these systems performs exactly according to a set of instructions. A probabilistic system is one whose exact state at any given time cannot be predicted. An inventory system is an example of probabilistic system. The average demand, average

time for replenishment etc., may be defined but the exact value at any given time is not known.

5. Temporary and Permanent Systems

A permanent system is a system enduring for a time span that is long relative to the operation of human. Temporary system is one having a short time span. The policies of a business operation are permanent as far as year-by-year operations are concerned. A small group-research project in the laboratory is temporary. Very less man-made systems are permanent. Truly temporary systems are designed to last a specified period of time and then dissolve.

6. Natural and man-made Systems

System which is made by man is called man made system. Systems which are in the environment made by nature are called natural system. There are natural and man-made systems. Natural systems may not have an apparent objective but their outputs can be interpreted as purposes. Man-made systems are made with purposes that are achieved by the delivery of outputs.

COMPONENTS OF SYSTEM

Different system components are explained as follows:

- (i) Inputs (ii) Processors (iii) Outputs (iv) Control (v) Feedback (vi) Environment (vii) Boundaries and interface.
- (i) Inputs:** Input involves capturing and assembling elements that enter the system for the processing. *For example*, raw materials, energy, data, and human effort must be secured and organized for processing.
- (ii) Processors:** Processing involves transaction processes that convert input into output. Examples are a manufacturing process, the human breathing process or mathematical calculations.
- (Hi) Output:** Output involves transferring elements that have been produced by a transformation process to their ultimate destination. *For example*, finished products, human services, and management information must be transmitted to their human users.
- (iv) Control:** Control involves monitoring and evaluating feedback to determine whether a system is moving towards the achievement of its goal. The control function then makes necessary adjustments to a systems input and processing components to ensure that it produces proper output. *For example*, a sales manager exercises control when reassigning sales persons to new sales territories after evaluating feedback about their sales performance.
- (v) Feedback:** Feedback is data about the performance of a system. *For example*, data about sales performance is feedback to a sales manager.
- (vi) Environment:** A system does not exist in a vacuum, rather, it exists and functions in an environment containing other systems. If a system is one of the components of a larger system, it is a subsystem and the larger system is its environment.

(vii) **Boundaries and interface:** Several systems may share the same environment. Some of these systems may be connected to one another by means of a shared boundary or interface.

SUPER SYSTEM, SUBSYSTEM AND SYSTEM INTERFACE

Each system is a part of a larger system. A **subsystem** is a set of elements, which is a system itself and part of a larger system. Super system denotes extremely large and complex systems. *For example*, a customer support system might have an order entry subsystem that creates new orders for customers. Another subsystem might handle fulfilling the orders, including shipping and back orders. A third subsystem might maintain the product catalog database. Every system, in turn, is a part of a larger system, called a **super system**. So the customer support system is really just a subsystem of the production system. The production system, as it is shown in figure below, includes other systems, such as inventory management and manufacturing.

If a system is one of the components of a large system, it is a **subsystem** and the large system is an environment. Each subsystem is divided further into subsystems or modules. Decomposition into subsystems is used to analyse both an existing system and to design and implement a new system.

System Interface

System in real life do not operate in isolating. A system has to interface with one or more systems that are in their active phase of life cycle. **System interface** is a boundary between two systems. The interfaces are often expressed in the form of information interchange by way of inputs and outputs.

INFORMATION

Information can be defined as data that have been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective actions or decisions.

Davis & Olson define a fairly good definition as, "data that have been processed into a form, that is meaningful to the recipient and is of real or perceived value in current or prospective actions or decisions".

FEATURE OF INFORMATION

- (i) Information adds to a representation.
- (ii) It corrects or confirms previous information.

- (iii) It has surprise element or news value.
- (iv) It reduces uncertainty.
- (v) It has value in decision-making.
- (vi) It is reusable.

IMPORTANCE OF INFORMATION

1. *Information helps in management control:* Information helps in ensuring proper management control. There are three types of control that exist in an organization. These are preliminary controls, screening controls and post action control. Preliminary controls ensure that the information is collected. Screening control ensures that the information is put to use in the right way. Post action control ensures that the gathered information reaches the right audience.
2. *Information helps in decision-making:* The process of decision-making is marked by a great deal of uncertainty and risk. Decisions in organizations are usually taken based on past experience and their outcome. Decision-making under certainty assumes perfect information as outcomes; risk assumes information as to the probability of each outcome. The person taking decision has to have good knowledge about various aspects and alternatives available.
3. *Information helps in building background, models and motivation:* Information helps in building up knowledge within the organization so that decisions can be talcen internally without external experts having to be employed. An organization's business model is also decided on the basis of the flow of information in the organization. Such models enable learning and build expertise within the organization. Information also acts as a motivational factor as the employees feel good and get motivated if they receive information about their work being appreciated by their superiors. Such information is vital as it affects the performance of the individual employee as well as the overall productivity of the organization.

DIFFERENT BETWEEN DATA AND INFORMATION

Data	Information
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1. Data is raw, unorganized facts that need to be processed. Data can be something simple and seemingly random and useless until it is organized.	1. When data is processed, organized, structured or presented in a given context so as to make it useful, it is called Information.
2. Data is the lowest level of knowledge.	2. Information is the second level.
3. Data by itself alone is not significant.	3. Information is significant by itself.
4. Observations and recordings are done to obtain data.	4. Analysis is done to obtain information.
5. Data is used as input for the computer system.	5. Information is the output of data.
6. Data doesn't depend on Information.	6. Information depends on data.
7. Data is not specific.	7. Information is specific.
8. Data is a single unit.	8. A group of data which carries meaning is information.
9. For example: Each student's test score is one piece of data.	9. For example: The class average score is the information that can be concluded from the given data.

(iv) **Secondary Information:** Secondary data has been output by processing other data. Secondary data is not reliable as sometimes, because it has been processed from primary data that is not up to date.

BASED ON NATURE

Based on nature, information can be classified into quantitative information, qualitative information, formal information and informal information.

- (i) **Quantitative Information:** Quantitative information refers to information like numbers, statistics, scores etc., which is quantitative in nature. This information provides factual unbiased data. It is not biased or interpreted in light of personal opinions or experiences as it is quantifiable and can be measured.
- (ii) **Qualitative Information:** Qualitative information refers to information which is gathered through personal and direct methods like personal interview, observation, case studies etc. Qualitative information is used for understanding the perceptions and interpretations of individuals and situations.
- (iii) **Formal Information:** Formal information refers to the information which is presented in a structured format. Compared to informal information, formal information should be the roughly verified and checked for accuracy and reliability.
- (iv) **Informal Information:** Informal information is presented in unstructured format. It is more casually presented and also is less reliable than formal information. *For example*, informal information in an organization is usually shared among employees through word of mouth, what usually is called as "grapevine".

BASED ON LEVEL

- (i) **Strategic Information:** Strategic information pertains' mostly to the organisation as a whole and its environments, such as information about population changes, natural resources, new technologies, new products.
- (ii) **Tactical Information:** Tactical information is required for short-term planning by middle level managers, sales analyses and forecasts, cash flow projections etc., are examples of tactical information.
- (iii) **Operational Information:** Operational information relates to very short period that may be a few hours to a few weeks. It may be about current stock levels of inventory, outstanding orders from customers, work schedule for next shift etc.

BASED ON APPLICATION/USE

Based on application, information can be divided into planning information, control information and knowledge information.

- (i) **Planning Information:** Specific rules, norms, standards and specifications that need to be adhered to while planning any activity. Hence, such information is called the planning information. The time standards, operational standards, the design standards are

the examples of planning information.

- (ii) **Control Information:** The information that is used to put in place a feedback mechanism is called control information. Such information is used to compare the actual with the predetermined standards and to take corrective action wherever there are deviations.
- (iii) **Knowledge Information:** This is the information collected through library reports and research studies. Such information is collected for building a knowledge base and may not directly influence decision-making.

BASED ON STRUCTURE/TYPE

Based on structure, information can be classified into detailed information, summarized information, sampled information and aggregated information.

- (i) **Detailed Information:** Detailed information contains very specific details about a particular object, person, place, company or an issue. *For example*, information regarding the performance of a company over the years would provide detailed information about the company. However, using this information, one cannot make assumptions or arrive at conclusions about other companies. Thus, this type of information provides all the information about a particular aspect.
- (ii) **Summarized Information:** Summarized information comprises an outline of the total information. It is a summary of several items. Such information cannot be used for drawing conclusions about a single entity in the group. *For example*, the average amount of pocket money received by a teenager in Bangalore maybe Rs. 500 per month. However, there will be many teenagers in the city who receive much higher pocket money than just Rs. 500 and at the same time there would be many who don't get the pocket money at all.
- (iii) **Sampled Information:** Sampled information is a type of information which is obtained by examining a set of items that are randomly selected. *For example*, a product is tested in the market by distributing it to a set of selected customer base. The information obtained from such a test is called sampled information. The information assumes that the sample selected is a true representation of the entire population under consideration.
- (iv) **Aggregated Information:** Aggregated information comprises every single bit of information about all the entities in a group. This information is very detailed in nature and is gathered from various data sources. Aggregated information is different from detailed information. Detailed information provides the details about a single entity in the group while aggregated information provides details about all the entities in the group. *For example*, an industry report on the textile industry would include the performance and contribution of the industry to the economy, the various players in the industry, their individual performance and respective contribution to the industry, etc. This is an aggregated information as one can find information about the entire

textile industry as a whole as well as the detailed information about individual players in the industry.

BASED ON TIME

- (i) *Historical Information:* Information based on data collected over some period in the past e.g., sales figures for the past year. Whether or not information is historical depends on how quickly the underlying data is changing.
- (ii) *Current Information:* Based on the latest data.
- (iii) *Future Information:* Information based on predicted or possibly known future data values. Predicted data values could be based on current data modified by historical data. Sometimes predictions are little more than guesses and must be viewed with a great deal of care.

BASED ON FREQUENCY

- (i) *Real Time Information:* Real time information will be based on current data in a transaction processing application such as a supermarket. The information could be changed as the underlying data is updated. *For example*, at the start of the day there may be 42 bottles of a particular red wine in stock. Immediately a bottle is sold, the stock level is changed to one less.
- (ii) *Periodic Information:* How often the information is put together - e.g., annual report, quarterly sales report. The longer the period, the more likely it is that the information will be strategic rather than operational.

BASED ON FORM

The form that information is presented in will often be decided by the mechanism that is used to transmit it through the organisation.

- (i) *Written Information:* Information is typed onto a piece of paper, a hard copy. It is low tech, but really quite reliable. The paperless office has been long promised but never delivered.
- (ii) *Visual Information:* Presentation of sales trends in the form of a chart, or line graph.
- (iii) *Aural Information:* At its simplest, this means listening to a senior person in the organisation droning on. You will find out that it's not just teachers who drone on. Aural presentation is often forgotten almost as soon as it's received. Some organisations record presentations onto tape so that people can listen to the tape while driving into work.
- (iv) *Sensory Information:* Often when a new product is released, people in the organisation want to see it, touch it, and feel it for themselves. Communication is often at its most effective if all the senses are involved.

BASED ON FLOW OF INFORMATION

Information can be classified into vertical and horizontal based on its flow within an organisation.

- (i) **Vertical Information:** Information flowing up or down the organisation hierarchy is called vertical information.
- (ii) **Horizontal Information:** The information which is flowing opposite of vertical information is called horizontal information.

OTHER CLASSIFICATIONS

- (i) **Action and No-action Information:** Action information refers to information that induces some action while information that does not induce any action is called no-action information. *For example,* 'no stock' report calls for purchasing action while the stock ledger showing the store transactions and the stock balances is no-action information.
- (ii) **Recurring and Non-recurring Information:** The information that is gathered at frequent intervals of time is recurring information e.g. monthly sales report while the information that is generated once at the end of any particular time period is non-recurring information, *for example,* the market research study conducted by the company would constitute nonrecurring information as it may be conducted periodically.

INFORMATION SYSTEM

Information system is the study of complementary networks of hardware and software that people and organizations use to collect, filter, process, create and distribute data. It encompasses a variety of disciplines such as: the analysis and design of systems, computer networking, information security, database management and decision support systems.

An information system is an organized combination of people, hardware, software, communications networks and data resources that collects, transforms and disseminates information, to support decision making and control in an organization. In addition to supporting decision making and control, information system may also help managers in co-ordination, analyze problems, create new products etc.

IMPORTANCE OF INFORMATION SYSTEM

- (i) Information system supports - (a) Business processes and operations (b) Business decision making and (c) Strategies for competitive advantage.
- (ii) Information system plays a vital role in the e-business and e-commerce operations.
- (iii) Information system maintain enterprise collaboration and management and strategic success of business through internet, which is worked global environment.

FUNCTIONS OF INFORMATION SYSTEM

Functions of information system are describing below:

- (i) Information system help managers, works analysis problems, visualize complex subjects and create new products.

- (ii) Information system will contain information about people, place and things with the organization.
- (iii) It will contain data that have been shaped into a form, which are meaningful and useful to human beings.
- (iv) Information system will produce information so that organizations will take decisions, control operators and analyze problems.
- (v) Information system will encompass the understanding of the management and organizational dimensions of system.
- (vi) Information system is used for building and managing system.
- (vii) Information system designates a specific category of serving management level functions.
- (viii) Information system is saving as foundation for new services and products. (i) Information system supports - (a) Business processes and operations (b) Business decision making and (c) Strategies for competitive advantage.
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ESSENTIALS OF GOOD INFORMATION SYSTEM

The process of generation of information must focus on the quality of information by-aiming at improving the degree of each of these attributes. The following are the essentials of good information system.

1. Promptness

Decision making is to be taken within a time frame and therefore. Information must be available within the desired time frame. It is well said 'Information delayed is information denied'. Some types of information are required periodically and should be made available to the user regularly and timely so as to avoid delay in decision making.

2. Accuracy

It means that information is free from mistake and errors this implies that the information is totally correct. It is an essential. and important feature of good information. Increasing the accuracy may have a cost. It is therefore. It's Necessary to determine the acceptable levels of accuracy for each type of information.

3. Precision

Precision is an important virtue of good quality information. Too much of information sometimes results in dumping of important information in the heap of details that may not be required at a particular point of time only precise information is respected and used by the management.

4. Adequacy or Completeness

Adequacy generally refers to the complete and full detailed information. It means the information must contain sufficient quality information may be said to be complete if the decision maker can satisfactorily solve the problem by using the information. If the information is incorrect or inadequate than it can be quite harmful to the. organization.

5. Unambiguity

Clarity of information is an important attribute of good information. Information must be unambiguous and should be communicated in such a way that it conveys the same meaning to different levels of management.

6. Timeliness

Timeliness is important information essential. This explains that information should reach the managers or users within the prescribed time for effective decision making. Information must be delivered at the right time the right place to right person or user.

7. Exception based

In moderns business the organizations are exception based organization. This means the management and managers are provided with only those items of information that are of particularly interacted to the management. This type of information is quite useful in saving time and resources of the top management.

8. Availability

Information always should available in right time and right place to take the decisions. If information is not readily available at the time of decision making the information that information is considered to destroy.

9. Format

For making and information useful it should be made available in a form which suits the recipient most. Information may be communicated in visual written or verbal form.

10. Frequency

Frequency of useful information should be based on the actual requirements of a management or managers. The requirements depend on the recipient's organizations positions and his interaction with other departments.

COMPONENTS OF INFORMATION SYSTEM

The five components that must come together in order to produce a Computer-Based Information system are:

/. **Hardware:** The term hardware refers to machinery. This category includes the computer itself, which is often referred to as the central processing unit (CPU), and all of its support equipment's. Among the support equipment's are input and output

devices, storage devices and communications devices.

2. **Software:** The term software refers to computer programs and the manuals (if any) that support them. Computer programs are machine-readable instructions that direct the circuitry within the hardware parts of the system to function in ways that produce useful information from data. Programs are generally stored on some input / output medium, often a disk or tape.
3. **Data:** Data are facts that are used by programs to produce useful information. Like programs, data are generally stored in machine-readable form on disk or tape until the computer needs them.
4. **Procedures:** Procedures are the policies that govern the operation of a computer system. "Procedures are to people what software is to hardware" is a common analogy that is used to illustrate the role of procedures in a system.
5. **People:** Every system needs people if it is to be useful. Often the most over-looked element of the system is the people, probably the component that most influence the success or failure of information systems.

BUSINESS SYSTEM

A methodical procedure or process that is used as a delivery mechanism for providing specific goods or services to customers is called business system.

Objectives of a Business System

1. To establish standard operating procedure in the organization.
2. To handle the data efficiently.
3. To ensure proper processing of data.
4. To control the procedure of processed data.
5. To establish most desirable distribution of data service.
6. To provide timely information to the management.
7. To meet the users and customers costs and savings.
8. To eliminate unnecessary services.
9. To define proper method of handling business activities.

10. To ensure optimum utilization of resources.

BUSINESS INFORMATION SYSTEM

Business information systems are sets of interrelated procedures using IT infrastructure in a business enterprise to generate and disseminate desired information. Such systems are designed to support decision making by the people associated with the enterprise in the process of attainment of its objectives. Business Information Systems contains within it not just the technology that drives business. It also relates to the processes, data and the people that use these technologies, processes and data every day. Business information systems is involved in almost every aspect of doing business and it is about using IT in useful and effective ways to improve how business operate.

Business Information system deals with the conceptualization, development, introduction, maintenance and utilisation of systems for computer-assisted information processing within companies and enterprise-wide networks. Central components of such information systems are a organisations application systems. They assist the user in the organizations to accomplish task.

The business information systems get data and other resources of IT infrastructure as inputs from the environment and process them to satisfy the information needs of different entities associated with the business enterprise. There are systems of control over the use of IT

resources and the feedback system offers useful clues for increasing the benefits of information systems to business.

OBJECTIVES OF BUSINESS INFORMATION SYSTEM

- (i) To establish the most desirable distribution of data services and equipment throughout the organisation.
- (ii) To handle data effectively and provide timely information to the management.
- (iii) To meet the user and customer's cost and savings.
- (iv) To cut down the operating costs and savings.
- (v) To eliminate duplicated, conflicting and unnecessary services.
- (vi) To define a proper method of handling business activities.

USES OF BUSINESS INFORMATION SYSTEMS

- 1. Business Information Systems for Marketing and Sales
- 2. Business Information Systems for Production
- 3. Business Information Systems for Accounting and Finance
- 4. Business Information Systems for Human Resources Management

1. Business Information Systems for Marketing and Sales

Marketing activities are directed toward planning, promoting and selling goods and services to satisfy the needs of customers and the objectives of the organization. Marketing information systems support decision making regarding the marketing mix. These include:

- a)Product
- b)Price
- c)Place
- d)Promotion.

a) Product Subsystem

The product subsystem helps to plan the introduction of new products. Continually bringing new products to market is vital in today's competitive environment of rapid change. The product subsystem should support balancing the degree of risk in the overall new-product portfolio, with more aggressive competitors assuming higher degrees of risk for a potentially higher payoff.

b) Price Subsystem

Pricing decisions find a degree of support from DSSs and access to databases that contain industry prices. These highly unstructured decisions are made in pursuit of the companies pricing objectives. General strategies range from profit maximization to forgoing a part of the profit in order to increase a market share.

Information systems provide an opportunity to finely segment customer groups, and charge different prices depending on the combination of products and services provided, as well as the circumstances of the sale transaction.

c) Place Subsystem

The place subsystem assists the decision makers in making the product available to the customer at the right place at the right time. The place subsystem helps plan the distribution channels for the product and track their performance. The use of information technology has dramatically increased the availability of information on product movement in the distribution channel.

d) Promotion Subsystem

The promotion subsystem is often the most elaborate in the marketing information system, since it supports both personal selling and advertising. Media selection packages assist in selecting a mix of avenues to persuade the potential purchaser, including direct mail, television, print media, and the electronic media such as the Internet and the WEB in particular. The effectiveness of the selected media mix is monitored and its composition is continually adjusted.

2. Business Information Systems for Production

Global competitive pressures of the information society have been highly pronounced in manufacturing and have radically changed it. The new marketplace calls for manufacturing that are:

1. Lean - highly efficient, using fewer input resources in production through better engineering and through production processes that rely on low inventories and result in less waste.
2. Agile - fit for time-based competition. Both the new product design and order fulfillment are drastically shortened.
3. Flexible - able to adjust the product to a customer's preferences rapidly and cost effectively.
4. Managed for quality - by measuring quality throughout the production process and following world standards, manufacturers treat quality as a necessity and not a high-price option.

Information technology must play a vital role in the design and manufacturing processes. Manufacturing information systems are among the most difficult both to develop and to implement.

TPSs are embedded in the production process or in other company processes. The data provided by the transaction processing systems are used by management support subsystems, which are tightly integrated and interdependent.

Manufacturing information subsystems include:

- a) Product design and engineering
- b) Product scheduling
- c) Quality control
- d) Facilities planning, production costing, logistics and inventory subsystems

a) Product Design and Engineering

Product design and engineering are widely supported today by computer-aided design (CAD) and computer-aided engineering (CAE) systems. CAD systems assist the designer with automatic calculations and display of surfaces while storing the design information in databases. The produced designs are subject to processing with CAE systems to ensure their quality, safety, manufacturability, and cost-effectiveness. CAD/CAE systems increasingly eliminate paperwork from the design process, while speeding up the process itself. As well, the combined techniques of CAD/CAE and rapid prototyping cut time to market.

b) Product Scheduling

Production scheduling is the heart of the manufacturing information system. This complex subsystem has to ensure that an appropriate combination of human, machinery and material resources will be provided at an appropriate time in order to manufacture the goods.

Production scheduling and the ancillary processes are today frequently controlled with a manufacturing resource planning system as the main informational tool. This elaborate software converts the sales forecast for the plants products into a detailed production plan and further into a master schedule of production.

c) Quality Control

The quality control subsystem of a manufacturing information system relies on the data collected on the shop floor by the sensors embedded in the process control systems.

Total quality management (TQM) is a management technique for continuously improving the performance of all members and units of a firm to ensure customer satisfaction.

d) Facilities Planning, Production Costing, Logistics and Inventory Subsystems

Among the higher-level decision making supported by manufacturing information systems are facilities planning - locating the sites for manufacturing plants, deciding on their production capacities, and laying out the plant floors.

Manufacturing management requires a cost control program, relying on the information systems. Among the informational outputs of the production costing subsystem are labor and equipment productivity reports, performance of plants as cost centers, and schedules for equipment maintenance and replacement.

Managing the raw-materials, packaging and the work in progress inventory is a responsibility of the manufacturing function. In some cases, inventory management is combined with the general logistics systems, which plan and control the arrival of purchased goods into the firm as well as shipments to the customers.

3. Business Information Systems for Accounting and Finance

The financial function of the enterprise consists in taking stock of the flows of money and other assets into and out of an organization, ensuring that its available resources are properly used and that the organization is financially fit. The components of the accounting system include:

- a) Accounts receivable records
- b) Accounts payable records
- c) Payroll records
- d) Inventory control records
- e) General ledgers

Financial information systems- rely on external sources, such as on-line databases and custom produced reports, particularly in the areas of financial forecasting and funds management. The essential functions that financial information systems perform include:

- a) Financial forecasting and planning
- b) Financial control
- c) Funds management
- d) Internal auditing

a) Financial Forecasting

Financial forecasting is the process of predicting the inflows of funds into the company and the outflows of funds from it for a long term into the future. Outflows of funds must be balanced over the long term with the inflows. With the globalization of business, the function of financial forecasting has become more complex, since the activities in multiple national markets have to be consolidated, taking into consideration the vagaries of multiple national currencies. Scenario analysis is frequently employed in order to prepare the firm for various contingencies.

Financial forecasts are based on computerized models known as cash-flow models. They range from rather simple spreadsheet templates to sophisticated models developed for the given industry and customized for the firm or in the case of large corporations to specify modeling of their financial operations. Financial forecasting serves to identify the need for funds and their sources.

b) Financial Control

The primary tools of financial control are budgets. A budget specifies the resources committed to a plan for a given project or time period. Fixed budgets are independent of the level of activity of the unit for which the budget is drawn up. Flexible budgets commit resources depending on the level of activity.

Spreadsheet programs are the main budgeting tools. Spreadsheets are the personal productivity tools in use today in budget preparation.

In the systems-theoretic view, budgets serve as the standard against which managers can compare the actual results by using information systems. Performance reports are used to monitor budgets of various managerial levels. A performance report states the actual financial results achieved by the unit and compares them with the planned results.

c) Funds Management

Financial information systems help to manage the organization's liquid assets, such as cash or securities, for high yields with the lowest degree of loss risk. Some firms deploy computerized systems to manage their securities portfolios and automatically generate buy or sell orders.

d) Internal Auditing

The audit function provides an independent appraisal of an organization's accounting, financial, and operational procedures and information. All large firms have internal auditors, answerable only to the audit committee of the board of directors. The staff of the chief financial officer of the company performs financial and operational audits. During a financial audit, an appraisal is made of the reliability and integrity of the company's financial information and of the means used to process it. An operational audit is an appraisal of how well management utilizes company resources and how well corporate plans are being carried out.

4. Business Information Systems for Human Resources Management

A Human Resource Information System (HRIS) supports the human resources function of an organization with information. The name of this function reflects the recognition that people who work in a firm are frequently its most valuable resources. The complexity of human resource management has grown immensely over recent years, primary due to the need to conform to new laws and regulations.

A HRIS has to ensure the appropriate degree of access to a great variety of internal stakeholders, including:

1. The employees of the Human Resources department in performance of their duties.
2. All the employees of the firm wishing to inspect their own records.
3. All the employees of the firm seeking information regarding open positions or available benefit plans.
4. Employees availing themselves of the computer-assisted training and evaluation opportunities.
5. Managers throughout the firm in the process of evaluating their subordinates and making personnel decisions.
6. Corporate executives involved in tactical and strategic planning and control.

USERS OF INFORMATION SYSTEMS

1. Users of Accounting Information System
2. Users of Marketing Information System
3. Users of Manufacturing Information System
4. Users of Human Resource Information System

1. Users of Accounting Information System

Accounting can be said to be a process that collects, collate, record, analyze, interpret and communicate financial information to end users in the form/ format that they will

understand. There are many people that rely on accounting as a profession to provide them with much needed information to make an informed economic decision.

The Users of accounting information system

- a) **Shareholders of a company:** Company's shareholders are the real owners of a business and needs information from those that manage the business on their behalf.
- b) **Government:** It is the duty of government to protect lives and property and in so doing will need information concerning every facet of her jurisdiction. Information from businesses in the form of financial report will help government properly formulate her Strategic plan.
- b) **Suppliers/Creditors:** Suppliers and creditors of a company need information concerning the financial position of a company. They need to be convinced that the company is liquid enough to meet with her obligations upon maturity.
- c) **General public:** The general publics will some time need information about the finance of a company in order to protect their interest.
- d) **Students:** Students need information about company's finance to take some decisions that relates to courtesy visit and demand for financial support.
- f) **Employees:** Employees and lower cadre managers are only interested in a company's financial statements because they want the safety of their daily bread. They may also want increase in wages and salaries.
- g) **Management:** Management in this context is the top level managers and they have similar interest with ordinary managers. The only difference is that management also needs this information to make economic decision that concerns the running of the business, h) **Tax authority:** They are only concerned about the returns that come to them in the form of tax revenue.
- i) **Trade union:** Their concern is to seek a fair wage for their members. Knowing what a company is making will give them an insight of what to agitate for as fair wage
- j) **Professional bodies:** Professional bodies need accounting information as a tool that will be used to educate her members.
- k) **Potential investors:** For potential investors to be in a position to make investment decision some analysis has to be made and this can only be made from accounting information.

2. Users of Marketing Information System

Marketing manager is the user of Information system for performing marketing

activities. Marketing activities are directed toward planning, promoting, and selling goods and services to satisfy the needs of customers and the objectives of the organizations; marketing information systems (MKIS) support decision making regarding to these activities. (MKIS) is a continuing and interacting structure consist of people, equipment and procedures designed to gather, sort, analyze, evaluate and distribute needed, timely and accurate information to marketing decision makers; it begins and end with information users- marketing managers, internal external partners, and others who need marketing information.

A good marketing information system balances the information users would like to have against what they really need and what is feasible to offer. Marketing information system as a structured, interacting complex of persons, machines and procedures designed to generate an orderly flow of pertinent information collected from both intra and extra-firm sources for use as the bases for decision making.

Marketing information system is efficient tool providing past, present and projected information relating to internal operations and external intelligence. It supports the planning, control, and operational function in an organization by furnishing uniform information in the proper time frame to assist the decision maker. Applegate commented that earlier generations of managers tended to 'adopt technology first and then try to figure out what to do with it'; they add, 'that approach is now grossly inadequate'.

3. Users of Manufacturing Information System

Production manager is the user of Information system. The manufacturing function is concerned with the production of goods that, the business sells. The manufacturing manager uses the information system for providing services to support the provide services to support the manufacturing function.

Manufacturing information system that is targeted for use anywhere production is taking place. Modern manufacturing information systems are generally computerized and are designed to collect and present the data which managers need in order to plan and direct operations within the company.

Inventory control is often considered to be a manufacturing information system because manufacturing because, manufacturing produces the goods for inventory. Purchasing may also be a manufacturing information system in some businesses.

4. Users of Human Resource Information System

Human Resource manager also the user of Information System for performing HR activates. The Human Resources Information System Management specialist operates and manages the information systems for field personnel as well as trains and assists all system users. They receives, reviews, analyzes, processes, distributes and maintains personnel information files and supporting documentation, Prepares update cycle control documents and input and transmits to servicing data processing facility. Maintains authorized strength levels, organizational and systems control files.

COMPONENTS OF BUSINESS INFORMATION SYSTEMS

(i) Operating Personnel

Operations personnel refers to personnel who support the maintenance and operation of system, system security and peripheral services, such as the maintenance operating system, application software, hardware devices and internet security etc. for services operations.

(ii) Data

Data are facts that are used by programs to produce useful information. Like programs, data are generally stored in machine-readable form on disk or tape until the computer needs them.

(Hi) Hardware

All physical components of a computer system compose the computer hardware. Important components include the central processing unit, input/output devices, storage units and communication devices. Communication can be over fiber-optic cables or wireless networks.

(iv) Software

The term software refers to computer programs and the manuals that support them. Computer programs are machine-readable instructions that direct the circuitry within the hardware parts of the system to function in ways that produce useful information from data. Programs are generally stored on some input/output medium, often a disk or tape.

(v) Procedures

Three types of procedures are required for an management information system to operate effectively: user instructions, instructions for input preparation and operating instructions for MIS personnel who maintain the management information system.

(vi) Networking

A network is any collection of independent computers that communicate with one another over a shared network medium. A computer network is a collection of two or more connected computers. When these computers are joined in a network, people can share files and peripherals

such as modems, printers, tape backup drives or CD-ROM drives. When networks at multiple locations are connected, people can send e-mail, share links to the global Internet or conduct video conferences in real time with other remote users. As companies rely on applications like electronic mail and database management for core business operations, computer networking becomes increasingly more important.

Database Management

Systems

INTRODUCTION

Database systems are designed to manage large bodies of information. Management of data involves both defining structures for storage of information and providing mechanisms for the manipulation of information. In addition, the database system must ensure the safety of the information stored, despite system crashes or attempts at unauthorized access. If data are to be shared among several users, the system must avoid possible anomalous results.

A database-management system is a collection of interrelated data and a set of programs to access those data. The collection of data, usually referred to as the database, contains information relevant to an enterprise. The primary goal of a DBMS is to provide a way to store and retrieve database information that is both convenient and efficient.

Because information is so important in most organization, computer scientists have developed a large body of concepts and techniques for managing data. These concepts and technique form the focus of this book. This chapter briefly introduction the principles of database systems.

PURPOSE OF DATABASE SYSTEMS

Database management systems were developed to handle the following difficulties of typical file-processing systems supported by database management systems were developed to handle the following difficulties of typical file-processing systems supported by:

conventional operating systems,
conventional operating systems.

1. Data redundancy and inconsistency.
2. Difficulty in accessing data.
3. Data isolation-multiple files and formats.
4. Integrity problems.
5. Atomicity of updates.
6. Concurrent access by multiple users.
7. Security problems.

DATA

Data are raw facts or observations, typically about physical phenomena or business transactions. In other words, data are objective measurements of the attributes of entities such as people, places, things and events.

Data is a collection of known facts, figures or statistics that can be recorded and that is meaningful. Data can be text, numbers, audio, video or any combination of these. Data in its raw form may not be useful for decision-making. It must be processed so as to become useful.

DATABASE

A database is an integrated collection of logically related records and files. It stores only transaction data. It does not contain any input or output data. A database is an integrated collection of logically related records and files. *Example:* Sales database, customer database.

It is collection of related data, having valid and implicit meaning and is designed to meet the information needs of an organization.

Example 1: A personnel Telephone directory, which contains name, address and telephone numbers, arranged in some particular order, say sorted according to name, acts as a collection of related data having valid and implicit meaning and hence it is a telephone database.

Example 2: A college staff register, containing the data regarding name, date of joining, basic salary, net salary etc. for each staff member, when arranged in some order, becomes a Staff database.

Implicit Properties of Database

1. A database represents some aspect of the real world. A database has some source from which data is derived. There will be some degree of interaction with events in the real world. There will be multiple applications and multiple users are interested in the contents of the database.
2. A database is a logically coherent collection of data with some inherent meaning.
3. A database is designed, built and populated with data for a specific purpose. A database can be of any size and any level of complexity. If huge amount of data is involved, the data must be organized and managed, so that users can search for, retrieve and update the data whenever needed.
4. A database may be generated and maintained manually or by a group of application programs written specifically for that task or by a database management system.
5. A database may be generated and maintained manually or by a group of application programs written specifically for that task or by a database management system.

TYPES OF DATABASE

There are two types of database on the basis of their functionality and their location. They are Centralized database and Distributed database.

1. Centralized Database

2. Distributed Database

1. Centralized Database

Centralized database work on a client-server basis. They are located on a particular location. The controlling mechanism is also Centralized and data are deposited in a central location. Files are kept on the base of the location of disk drives and names. Security is not-so crucial part here. A DBA is appointed as the controller of the whole database. It is only suitable for small organization and small-scale operations.

2. Distributed Database

Distributed database is dispersed across many geographical locations. Data communication is harder they should communicate through different system to different platforms. Security is a very much crucial part because it can be tapped or hacked in between the transmission. Files are maintained on the basis of names rather than location because 'location independence' is one of the major characteristics of distributed database system. It is much suitable for such types of organizations, which spread all over with similar objective and similar data sets, large operation and heterogeneous systems.

IMPLICATIONS OF DATABASE APPROACH

The implication of using Database approach against the Traditional File Approach is that, it is beneficial for most organizations. The implications can be listed as follows:

1. Potential for Enforcing Standards

Database approach permits the DBA to define and enforce standards among database users in a large organization. This helps in people from various departments, to communicate and cooperate on various projects and various users.

Typically standards can be defined for the following: (i)

Names of data elements (ii) Formats of data elements .

(iii) Display formats

(iv) Report structures

(v) Terminologies

(vi) Convenience etc.

2. Reduced Application Development Time

Developing a new application such as the retrieval of certain specific data from the database or generating and printing a new report is less time consuming in a DBMS approach. Using DBMS facility, once a database is up and running, very little time is required to create new applications.

3. Flexibility

DBMS must be flexible to accept any structural changes. Suppose the end user needs change, accordingly the database has to be changed to meet the needs of the user. It may require addition of new files to the DBMS or only addition of a new data filed to the existing structure.

Most DBMS allow alternations in their structure without affecting the stored data and existing application programs.

4. Availability of Up-to-Date Information

Since a number of users are using the DBMS simultaneously, it is necessary that updation made by one user must be immediately seen by the other users also. This feature is very much essential in systems such as reservation counters and banks,. This is achieved by concurrency control and recovery system of the DBMS.

DATABASE SYSTEM

Database system is a general term that refers to the combination of a database, a database management system and a data model. This system is responsible for the following data manipulation acts; data controlling, data retrieving, data maintenance and data definition.

A database system is a collection of related data stored in a well-organised and solid manner. This system ensures that the data is simplified, secure and easy to access. Database systems eradicate the need for the use of bulky manual files.

OBJECTIVES OF DATABASE SYSTEM

1. *Controlled Redundancy*: Redundant data occupies space and, therefore, is wasteful. If versions of the same data are in different phases of updating, the system often gives conflicting information. A unique aspect of database design is storing data only once, which controls redundancy and improves system performance.
2. *Data Independence*: An important database objective is changing hardware and storage procedure or adding new data without having to rewrite application programs.
3. *Accuracy and Integrity*: The accuracy of a database ensures that data quality and context remain constant. Integrity controls detect data inaccuracies where they occur.
4. *Privacy and Security*: For data to remain private, security measures must be taken to prevent unauthorized access. Database security means that data are protected from various forms of destruction; users must be positively identified and their actions monitored.
5. *Ease of Learning and Use*: A major feature of a user-friendly database package is how easy it is to learn and use. Related to this point is that a database can be modified without interfering with established ways of using the data.
6. *More Information at Low Cost*: Using, storing, and modifying data at low cost are important. Although hardware prices are falling, software and programming costs are on the rise. This means that programming and software enhancement should be kept simple and easy to update.
7. *Shared*: In multi-user applications, it is expected that the database is designed such that the data can be shared or accessed by different users. The sharing of data is possible only if the database is; integrated.
8. *Recovery from Failure*: With multi-user access to a database, the system must recover quickly after it is down with no loss of transactions. This objective also helps maintain data

accuracy and integrity.

DATABASE SYSTEM APPLICATIONS

Databases are widely used. Here are some representative applications:

- *Banking:* For customer information, accounts, and loans, and banking transactions.
- *Airlines:* For reservations and schedule information, Airlines were among the first to use databases in a geographically distributed manner-terminated situated around the world accessed the central database system though phone lines and other data networks.
- *Universities:* For student information, course registration, course registrations, and grades.
- *Credit card transactions:* For purchases on credit cards and generation of monthly statements.
- *Telecommunication:* For keeping records of calls made, generating monthly bills, maintaining balances prepaid calling cards and storing information about the communication networks.
- *Finance:* For storing information about holdings, sales, and purchases of financial instruments such as stocks and bonds.
- *Sales:* For customer, product, and purchase information.
- *Manufacturing:* For management of supply chain and for tracking production of items in factories, inventories of items in warehouses/stores, and orders for items.
- *Human resources:* For information about employees, salaries, payroll taxes and benefits, and for generation of paychecks.

DATABASE LANGUAGE

The DBMS must provide appropriate languages for each category of users. Some of them are Data Definition Language (DDL), Data Manipulation Language (DML), view Definition Language (VDL), Stored Definition Language (SDL).

1. Data Definition Language (DDL)

- a) Acts as the formal language.
- b) Generally used by the various computer professionals.
- c) Helps in the specification of the database schema.
- d) The result of the compilation of the Data Definition Language statements is a set of the tables.
- e) Defines each of the data element at it appears in the database.

2. Data Manipulation Language (DML)

- a) Acts as a very specialized language.
- b) Mainly used by the end users and the programmers. •
- c) Helps in manipulating the data in the database.
- d) Provides the facility for the retrieval of the information that has been stored.
- e) Helps in the insertion of the new information.

- f) Also helps in deleting some particular information.
- g) Modifies the stored information. ,
- h) Helps in the development of the applications.

TRANSACTION MANAGEMENT

A transaction is an execution of a program that satisfies certain properties like Atomicity, Consistency, Isolation and Durability. A transaction is an atomic unit. A database transaction must be atomic, meaning that it must be either entirely completed or aborted. Ideally, a database

System will guarantee the properties of Atomicity, Consistency, Isolation and Durability (ACID) for each transaction. The effects of all the SQL statements in a transaction can be either all committed or all rolled back.

A transaction is an event which occurs on the database. Generally a transaction reads a value from the database or writes a value to the database. If you have any concept of Operating Systems, then we can say that a transaction is analogous to processes.

A transaction in Oracle begins when the first executable SQL statement is encountered.. An executable SQL statement is a SQL statement that generates calls to an instance, including DML and DDL statements.

When a transaction begins, Oracle assigns the transaction to an available undo tablespace to record the rollback entries for the new transaction.

A transaction ends when any of the following occurs:

- A user issues a COMMIT or ROLLBACK statement without a SAVEPOINT clause.
- A user runs a DDL statement such as CREATE, DROP, RENAME or ALTER. If the current transaction contains any DML statements, Oracle first commits the transaction and then runs and commits the DDL statement as a new, single statement transaction.
- A user disconnects from Oracle. The current transaction is committed.
- A user process terminates abnormally. The current transaction is rolled back.

STORAGE MANAGEMENT

The term storage management encompasses the technologies and processes organizations use to maximize or improve the performance of their data storage resources. It's a broad category that includes virtualization, replication, mirroring, security, compression, traffic analysis, process automation, storage provisioning and related techniques.

Lower Data Center Operational Costs

- Use an advanced management framework to optimize administration, operations, performance and resilience for Hitachi storage environments.
- Simplify complex storage environments to lower both storage capital and operational costs
- Build a sustainable storage management foundation with efficient management practices for virtualized storage and servers with limited staff resources.

DATABASE ADMINISTRATOR

In a database environment, the primary resource is the database itself and the secondary resource is the DBMS and its related software. In an organization, many users share these resources. Then there arises a need to manage these resources. The DBA is responsible for authorizing access to the database, coordinating and monitoring its use and for acquiring software and hardware resources as needed. The DBA is accountable for problems such as breach of security or poor system response time.

The person controlling and co-ordinating the DBMS system is called the Database Administrator (DBA).

The responsibilities of the DBA can be listed as follows:

1. The DBA administers the three levels of the database like internal level, conceptual level and external level of the DBMS architecture and, in consultation with the overall user community, sets up the definition of the global view or conceptual level of the database. The DBA further specifies the external view of the various users and applications. He is responsible for the definition and implementation of the internal level, including the storage structure and access methods to be used for the optimum performance of the DBMS. Changes to any of the three levels necessitated by changes or growth in the organization and/or emerging technology are under the control of the DBA. Mappings between the internal and the conceptual levels, as well as between the internal and conceptual levels, as well as between the conceptual and external levels, are also defined by the DBA.
2. The DBA ensures that appropriate measures are in place to maintain the integrity of the database and that the database is not accessible to unauthorized users. The DBA is responsible for granting permission to the users of the database and stores the profile of each user in the database. This profile describes the permissible activities of a user on that portion of user profile can be used by the database system to verify so that a particular user performs a given operation on the database.
3. The DBA is also responsible for defining procedure to recover the database from failures due to human, natural, or hardware causes with minimal loss of data. This recovery procedure should enable the organization to continue to function and the intact portion of the database should continue to be available.

DATABASE USERS

There are different classes of database users which are explained below.

- (a) *Database Administrator (DBA):* Database Administrator is administering the database and the secondary resources. The job of a DBA is to plan, design, create, modify and maintain the database with special emphasis on security and integrity. A DBA also maintains the schema and data dictionary.
- *Database Designer:* The designer are identifying the data to be stored in the Database and choosing appropriate structures to represent and store those data. They also developed a view

of the data that meet the requirements of data and processing.

- (b) *End User*: The job of end user is to access the database for querying, updating and generating reports. There are several groups of end user.
- (i) *Casual*: The users access the database occasionally when they need different information each time.
 - (ii) *Naive or parametric*: The users access the database constantly with standard types of queries & updates.
 - (Hi) *Sophisticated*: The class includes engineers, scientists, business analysts as a sophisticated user.
 - (iv) *Stand alone user*: The users only maintain personal database by using ready-made program package that provide easy to use menu or graphics based interfaces.
- (d) *System Analysis and Application Programmers*: Application Programmers implements those specifications as programs, then testing, debugging, documenting and maintaining. System analysis is also known as software engineers, determines the requirement of end user and develop specifications for canned transaction.

DATABASE MANAGEMENT SYSTEM

A database management system (DBMS) is a collection of programs that enables users to create and maintain a database. This is a software system that allows access of the data contained in the database. The primary goal of a DBMS is to provide an environment that is both convenient and efficient to use in storing and retrieving database information.

Features of DBMS

1. ***Support for Data Modeling***: One of the most important features of **DBMS** is that they encourage the separation of the logical structure of the data from the physical structure of the data. A data Model is an abstract representation of data. It defines the way data items are organized and related.
2. ***Physical vs. Logical Data Structure***: The physical data description specifies how the data is to be stored in the hardware. This includes specifying the file type, the size of the fields, the file formats, etc. In contrast, the logical data description is intended to capture more of the meaning of the data. These models often focus on identifying the relationships that exist between data elements.
3. ***Data Modeling*** : The challenge in logical data modeling is to capture the relationships between pieces of data in a concise, consistent way.
 - (a) ***Hierarchical and Network Data Models***: The hierarchical model relates different entities by a parent-child relationship. Representation of relationships is being done by a tree structure. The problem of hierarchical data model, where it is not possible to represent a many-to-many relationship is overcome in the network model. In network model an entity can have more than one parent.
 - (b) ***Relational Data Model***: A relational database or a Relational Database Management

Systems (RDBMS) is a system, which supports the use of the relational data model as the logical model.

Advantages of DBMS

The purpose of DBMS is to facilitate huge storage and quick retrieval of data from the database. It provides the following advantages:

1. **File sharing:** This is perhaps the biggest benefit. Now all authorized users can work with the same set of files.
2. **Reduced data redundancy:** Data redundancy means that the same data fields (a person's address, say) appear in many different files and often in different formats. In the old file system, separate files would repeat the same data, wasting storage space. In a database, the information appears just once, freeing up more storage capacity. Moreover, the same information is available to different users.
3. **Improved data integrity:** Data integrity means that data is accurate, consistent and up to date. In the old system, when a change was made in one file, it might not get made in another. The result was that some reports were produced with erroneous information. In a DBMS, reduced redundancy increases the change of data integrity - the chances that the data is accurate, consistent and up to date because each updating change is made in only one place.
4. **Increased security:** Although various departments- may share data, access to specific information can be limited to selected users. Thus, through the use of passwords, a student's financial, medical, and grade information in a university database is made available only to those who have a legitimate need to know.

Disadvantages of DBMS

1. **Higher data processing costs:** The system causes higher data processing costs due to the austere and large procedure for data access, updating and processing.
2. **Increasing hardware and software costs:** It requires more direct access memory capacity, greater communication capability and additional processing powers which increase hardware and software costs.
3. **Insufficient database expertise:** Database technology is complex. That's why most organizations don't have enough personal expertise to implement and manage database systems.

FUNCTIONS OF DBMS

I. Defining a database

This involves specifying the types, structures and constraints for the data to be stored in the database.

II. Constructing the database

This is the process of storing the data on some storage medium that is controlled by DBMS.

III. Manipulating a database

This includes function such as updating the database to reflect changes, querying the database to retrieve specific data, and generating reports from the data.

IV. Sharing a database

This function allows multiple users and programs to access the database concurrently i.e. multiple users can use the database simultaneously without creating inconsistent database.

V. Protection of database

This includes system protection against hardware or software malfunction and security protection against unauthorized or malicious access.

VI. Maintenance of database

Maintenance of the database by the DBMS allows the system to evolve as and when the system requirements change over a period of time.

DIFFERENT TYPES OF DATABASE SYSTEMS

Every database system logically organizes data with respect to some model called "Data Model". A data model describes how various pieces of data in the database are logically related to each other. The data model represents the relationship between the entities. The database model is also well known as "Database Architecture". The most common database models are:

- (i) Hierarchical Database Model (iii) Relational Database Model

(i) Hierarchical Database Model

In this model, files are arranged in a top-down structure that resembles a -tree or genealogy chart. The top file is called the root, the bottom files are called leaves, and intermediate files have one parent or owner file and one or several children files. Among the oldest of the database architectures, many hierarchical database exist in larger organizations. This technology is best applied when the conceptual data model also resembles a tree and when most data access begins with the same file. Hierarchical database technology is used for high-volume transaction processing and MIS application.

For example, we consider the hierarchical model representation of an inventory - system. If we want to search records of truck engines to find a particular year and model we must first specify the warehouse. Then we search mechanical parts until we reach engines. Finally we search the engine file.

Advantages

- (i) It is the easiest model of database.
- (ii) A database owner is more secured because nobody else can see and modify a child without consulting to its parent.

(iii) Searching is fast and easy, if parent is known, (iv)
Very efficient in handling 'one-to-many' relationship.

- (ii) Network Database Model
- (iv) Object Oriented Database Model

disadvantages

- (i) It is old fashioned, outdated database model.
- (ii) Modification and addition of child without consulting the parent is impossible or very hard. So, it is non-flexible .database model.
- (iii) Can't handle 'many-to-many' relationship.
- (iv) Increases redundancy because same data is to be written in different places.
- (v) Deleting a parent from the database deletes all the children.

(ii) Network Database Model

In this model, each file may be associated with an arbitrary number of files. Although very flexible as any relationship can be implemented, the form of implementation, usually using pointers between related records in different files, creates significant overhead in storage space and maintenance time.

Network model systems are still popular on powerful mainframes and for high-volume transaction processing applications. Since the database designer has such detailed control over data organizations, it is possible to design highly optimized database with network systems.

Network systems support a wider variety of processing requirements than do hierarchical database systems, but network systems still require significant programming and database design knowledge and time, and hence are used primarily in those organizations with significant expertise~with such technology.

For example, Let us consider a network data model for an inventory system. Suppose an order clerk wants to know the part list for a specified subassembly on an order. He will request a query of the inventory master records to find the pointer that will locate the sub assembly

description in the sub assembly records. Once the sub assembly is located the parts list can be located.

Advantages

- (i) More flexible than hierarchical because accepts many-to-many relationship.
- (ii) Reduces redundancy because data shouldn't be repeated if same type of data is needed. For such case, a parent can have more than one virtual parents and one real parent.
- (iii) Searching is faster because of multidirectional pointers.

Disadvantages

- (i) Very complex type of database model.
- (ii) Needs long programs to handle the relationship.
- (iii) Pointers needed in the database model increases overhead of storage.
- (iv) Less security in comparison to hierarchical model, because it is open to all.

(iii) Relational Model

This is a popular model in DBMS because of the simplicity and understandable nature. The relational model evolved by the efforts of E. F. CODD in 1971. Representation of data in this model is done using a named table.

In relational data model, data are placed into tables that are logically equivalent to files, where rows represent records and columns represents fields. In this model the data elements are not pre-related at all. Data can be related dynamically by users, as an application is being developed. The relational model is the most recent of the three database structures. It was developed in an attempt to simplify the representation of relationships among data elements in large database. Database management system packages based on the relational model can link data elements from various tables to provide information to users. For *example*, consider the relational model representation for a student.

A relational model uses a two dimensional table to represent its database. Rows represents records or tuples and columns show the attributes of entities (Domains). The values of an attribute of relation should have distinct name.

Advantages

- (i) The main advantage of relational model is its ability to simplify the process of accessing records.
- (ii) Records are accessed through one of the attributes' identified as the key attribute. A key attribute is a unique field knowing which, it is possible for the users to access the entire record.
- (iii) Relational model allow user to easily receive information in response to adhoc request. Because all the relationships between the data elements in a relational organized database do not need to be specified when the database is created.
- (iv) Relational database are easier for programmer to work and maintain than the other two models.
- (v) Normalization of database is possible in this method.

Disadvantages

- (i) It is more complex than other models.
- (ii) Too many rules make database non-user-friendly.

(iv) Object Oriented Model

The object oriented model defines a database in terms of objects, their properties and their

operations. Objects with the same structure and behavior belong to a class and classes are organized into hierarchical or acyclic graphs. The operations of each class are specified in terms of predefined procedures called methods. A set of variables that contain the data for the object is analogous to attributes in the E-R model. Another feature of object-oriented model is inheritance i.e., derived class can be made base class.

Objects in an OOP (Object Oriented Programming) language exist only during program execution. An object oriented database provides capabilities so that objects can be created to exist permanently or persist, and be shared by numerous programs. Hence, Object Oriented Databases store persistent objects permanently on secondary storage and allow the sharing of these objects among multiple programs and applications.

Object Oriented Databases were proposed to meet the needs of more complex applications. The object oriented approach offers the flexibility to handle some of these requirements without being limited by the data types and query languages available in traditional database systems. Key feature of object oriented databases is the power they give the designer to specify both the structure of complex objects and the operations that can be applied to these objects.

Accounting Software

INTRODUCTION TO TALLY

Tally is a Windows based accounting software. Therefore, the facilities available in windows operating system are available in Tally also. i.e. it is designed in menu driven concept. One can select the option from the given menu (list of options) in the screen (window). Different screens are designed for different processes. Tally is most commonly used and powerful accounting package.

Tally is a financial accounting software package, designed and marketed by Tally Solutions Pvt. Ltd. Tally is a complete business accounting and inventory management software that provides various facilities like Government Supported Format, Multi-lingual Operations, Online Functions and Processing for Small Business, Medium Business and Shops.

Mr. Bharat Goenka is the developer of this software in 1984, and his father Mr. S.S. Goenka is the founder of Peutronics Pvt. Ltd. It is fully Indian software, because it developed at Bangalore, India.

Manual Accounting

Accounting is the art and science of providing meaningful information about financial activities of the company's, as a tool for management. Which is used by a business for maintaining financial records on cash basis or accrual basis.

Definitions

The American Institute of Certified Public Accounts (AICPA) has defined accounting as, "The art of recording, classifying and summarizing, in a significant manner and in terms of money, transactions and events which are, in part at least, of financial character and interpreting the results thereof.

According to the *American Accounting Association*, (AAA) "Accounting is the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information".

CLASSIFICATION OF ACCOUNTS

Personal Accounts

The Account which relates to an individual, firms, companies or an institution are called personal account. The account of the person who receives the benefit of the transaction from the business should be debited, and the account of the person who gives the benefit of the transaction to the business should be credited.

Example: Account of Mr. Jai Gopi, Account of DSSBL Pvt. Ltd., Account of R. K. Institute

of Management, Account of Lakshmi pathi Balaji, Account of Rabin & Sons Co,

Types of Personal Account

Personal Account can be classified into following categories:

1. Natural Personal Account
2. Artificial Personal Account
3. Representative Personal Account

1. Natural Personal Account

Natural Personal Account refers to the accounts of human beings. It includes the accounts like, Subasis, Debasis, Rajkumar, Capital Account, Drawing Account, Debtors and Creditors Account.

2. Artificial Personal Account

Artificial Person do not have physical constructions as human beings but they works as personal accounts like Companies account Institutions account, Factory account etc. This accounts also involves accounts of Insurance Company, Hospital account, Club account etc.

3. Representative Personal Account

It is a particular person or a group of person such as outstanding salaries or wages account. In this case, instead of using the name of employees whose salary are outstanding. Here will be credit outstanding salaries account with represents employees, whom salary are payable. Representative personal account like, outstanding expenses account, prepaid expenses account, accrued income account and unearned income account etc.

Impersonal Account

Those accounts are not related with personal account, group of person account, any firm's account, companies account as known as impersonal account. Impersonal accounts are subdivided into -

There are separate rules for recording transactions in respect with real account and nominal account.

1. Real Account

Real Account related to all those things which exist and value can be measured in terms of money and which are assets of the business firm. It also known as assets account.

Example: Cash account, Furniture account, Plant & Machinery account, Goodwill account etc.

Types of Real Account

Real Accounts are classified into two categories:

- Tangible Real Account
- Intangible Real Account

(i) Tangible Real Account

Its are those account which have physical existence usually we can be seten, felt, measured, touched, purchased, and sold etc. The tangible real account like, Cash account, Furniture account, Building account etc.

(ii) Intangible Real Account

' Its are those account which have no physical existence that cannot be seen, touched, but only felt and measured in the term of money. *Examples* of such account are Goodwill account, Copyright account, Royalty account, Patents account and Trade Mark account etc.

2. Nominal Account

Nominal account is the records of a business firm's, expenses or losses and income and gains. Therefore, the account of expenses and losses of the business should be debited and the account of an income and gain of business should be credited. It is also known as fictitious account.

Example: Salary account, Wages account, Office Expenses account, Rent account, Commission account, Discount account, Interest account etc.

COMPUTERIZED ACCOUNTING

Today, with increasingly developing technology, computers are playing an important role in accounting process both in financial, management and cost accounting. Computerized accounting can ensure very high degree of accuracy of accounting and financial information. It is more efficient because it needs fewer people and the. output is available instantly.

Advantages of Computerized Accounting

Computerized Accounting saves a lot of labour and team involved in routine book keeping and accounting activities Following are the advantages of computerized accounting -

1. **Simplicity:** Computerised accounting is one of the most simple and complete business solutions available in the world. Anybody who has a basic knowledge of accounts or an average knowledge of English can use computerised accounting.
2. **Speed:** Computerised accounting packages can get any reports instantaneously for any date / period' and can toggle between reports, either accounting or inventory or even from one company to another company instantaneously. The user can also shift across dates in any report without any time loss.
3. **Power:** Computerised Accounting package has the power to generate management information, which would help the management in taking correct and quick decisions. This in turn would enable faster growth of business. The power of on-line information made available by internet helps one in keeping his business under complete control.

4. **Flexibility:** Computerised Accounting package is very flexible to use. Computerised Accounting package mimics the human thought process, i.e. It can adapt to any business needs rather than the user trying to change the way his business is run to adapt to the package.
5. **Real Time:** Computerised Accounting package updates all reports (from day book to Balance sheets) as and when the transactions are entered and hence does not need any back end or day/period end process to be done.
7. **Online Help:** Computerised Accounting package provides user-friendly context sensitive online help for the user.

Disadvantages of Computerized Accounting

- (1) Customizing the accounting packages is not easy.
- (2) More expensive.
- (3) Constant pressure for updating hardware and software system.
- (4) Security of data sometimes becomes risky.
- (5) Lacks of deficient employers.

Packages of Computerized Accounting

Various software packages are available, following are few of them -

- v(i) Tally
- (ii) Spreadsheet programs like for Lotus, MS-Excel (iii) Bank 2000 for banking transaction (iv) Quick FA (v) DacEasy (vi) WinCA.

TALLY SOFTWARE: INTRODUCTION

Tally is business accounting software. It is one of the well known as well as a highly acceptable accounting software. Tally use for simple accounting like Complete Book-Keeping Books, Registers & Statement of Accounts, General Ledger, Credit Control, Account Receivables and Payable, Birds Eye View/Drill Down Display Data Based Reporting, Voucher & Cheque Printing, Columnar Report and Bank Reconciliation. It is more flexible for Voucher Numbering and Classifications of Accounts Heads.

Tally 9 is the latest software including extra feature like taxation structure integrated feature. This feature makes Tally software simpler to manage many issues, which will arise due to the complexities of taxation in day-to-day activities. Tally 9 is business accounting software helps user to integrate inventory account and stock management together. Tally software ensures data reliability, data security, direct Internet access and ability to synchronized data across multiple offices.

FEATURES OF TALLY SOFTWARE

- (a) Accounting features

- (b) Integrated Enterprise features
- (c) Inventory features
- (d) Performance and implementation features

(a) Accounting Features

- (i) **Accounting without CODES:** Tally enables the user to do accounts by using regular names. The user need not know the accounting codes to use tally.
 - (ii) **Comprehensive Accounting:** The user can instantly obtain Balance Sheets, profit & Loss Statements, cash and Funds Flows, Trail Balances and others.
- (Hi) Complete Book-keeping:* Tally records all types of transactions including Receipts, payments. Income and Expenses, Sales and purchases, Debit Notes, Credit Notes, Adjustment Journals, Memorandum Journals as well as Reversing Journals. Transaction data entry through unique voucher entry that is easy and flexible to configure for diverse types of transactions.
- (iv) **Multi-Currency Accounting:** The user can have the flexibility of multiple currencies in the same transaction, and viewing all reports in one or more currency.
 - (v) **Unified Ledgers:** Tally pioneered the concept of Unified Ledgers where the General, Sales and purchase are integrated into a Single Ledger and organized in Groups management. This concept gives tremendous reporting power with ease of data entry.
 - (ii) **Receivables and payables:** Tally dynamically allocates payments against invoices with reference to due dates. Reports are classified, grouped, and aged to the definitions specified by the user.
 - (vii) **Budgeting, Auditing and Security Control:** Tally provides unlimited budgets and periods, (for example, Original and Revised Budgets), user definable security Levels for access control, and powerful Audit capabilities. The audit facility allows the user to track malafide changes, while making genuine corrections with unparalleled ease.

(b) Inventory features

- (i) **Multi-location Stock Control:** Tally provides the option for simple single location, or complex Multi-location Stocks.
 - (ii) **Comprehensive recording of stock movement:** All sorts of inventory transactions can be recorded using the inventory voucher forms that make inventory recording very easy and comprehensive. Vouchers include Goods Receipt Notes, Delivery Notes, Stock Transfer Journals, Manufacturing Journals as well as physical Stock Journals. All stock movements are fully recorded and maintained in stock Registers.
- (Hi) Variety of management reports:* Movement Analysis give party-wise details of goods bought, sold, and help identify good and bad business partners. Stock Query is a unique single sheet report that gives information on stocks at different locations as well as stock in hand of substitutes.

(c) **Integrated Enterprise Features**

- (i) *Synchronization*: It helps the user to transfer data between two or more locations, e.g., All data from branch office gets transmitted to head office and visa versa.
- (ii) The user can e-mail reports and documents directly from Tally, helps to consume postage and valuable time.
- (iii) The user can publish reports on web by HTML or Intranet and easily share them with suppliers, customers or own staff.
- (iv) Direct web browsing capability helps the user to avoid Switching between programs.
- (v) The user can exchange data with other system using XML.
- (vi) *ODBC connectivity*: This enables the user to integrate Tally data dynamically into other ODBC systems. It even design a form like remittance advice in Excel/Word and imbed fields from Tally like Customers name and address, account balances etc.

(d) **PERFORMANCE AND IMPLEMENTATION FEATURES**

- (i) **Rapid implementation**: It means nil to low start-up costs, with the lowest training requirements of any accounting system in the world.
- (ii) **Real time processing**: Tally updated all the books, ledgers and reports as soon as jr transaction is accepted. There is no need to specifically ask for an update.
- (iii) **Blazing speed**: Tally outdistances all systems with its 'faster-than-thought' performance.
- (iv) **Work on platforms and network of user choice**: Tally works on all flavours of windows. The Multi-User license makes it the most cost effective way to share information on any network (NT/2000/XP/2003), Novell, Linux, Unix, Banyan, As/400, Lantastic etc.)
- (v) **Unlimited companies and periods of accounting**: Tally can handle the accounts of more than one company as well as compare across companies and financial periods.
- (vi) **Unbelievable period end handling**: This unique date-driven approach of Tally, with dynamic and automatic periods, makes it the single most important reason why accounts should be maintained on Tally.
- (vii) **Dynamic interactive reports and unique drill down facility**: All reports are dynamic and allow further interrogation from summary to the actual transaction voucher. No report is a dull print to screen output.
- (viii) **Print preview** from within Tally helps the user to view reports and their layout, prior to actual printing.

ADVANTAGES OF TALLY TECHNOLOGY

The following are the powerful technological advantages of tally that user can enjoy -

Data Reliability

Tally offers extremely high reliability data with extremely compact and fast database. If there

is a power failure or if the machine is shut down, the system is still functioning and there will be no data loss.

Data Security

Tally use of data integrity checks ensures that no external change to the data can pass through

Tally. It also uses a binary encoding format of storage to prevent devious grouping of information.

Tally Audit

Tally audit feature provides the user with administrator rights, a capability to audit for the correctness of the entries made by authorized users and alter them if needed.

Tally Vault

Tally offers a data encryption option, which is called **Tally Vault**. The Tally vault password given cannot be broken by any means. Tally follows DES (Data Encryption Standard) encryption method.

User Defined Security Levels

Tally offers high levels of security. The user can define multiple levels of security as per his requirements and have individual passwords.

Simple and Rapid Installation

Tally has a simple menu driven installation procedure. At the time of installation the user can select to install the program files on any drive as well as specify the directory names where the program files are to be installed. The user can also specify the location of the data directory. It does not take more than 60 seconds to install Tally on the local hard disk and takes only about 8 MB space in the local drive.

Unlimited Multi-User Support

A Multi-user Version (Gold) of Tally can be installed on a network having any number of machines (computers) working with different operating systems like Windows NT, 95, 98, 2000. The protocol TCP/IP is needed to detect.

Internal Backup / Restore

Tally has an in built user friendly Backup and Restore option to take a backup in the local hard disk or in any external media of one or more companies or all companies in a single directory.

Removal of Data Into Separate Company

Tally offers a feature of splitting company data. Tally allows users to maintain a company for any number of financial years. Once the books of accounts are completed for previous financial years and if the user wishes, he could split the company data into multiple companies as per financial periods required. Once the data has been split, the closing balance of the first period (first company) becomes opening balance for the next period (second company).

Multi Directory for Company Management

The user can create multiple directories to store data, which can be accessed directly by Tally after specifying the path.

Import Tally Data / Export Tally Data

Tally allows users to Import data from other software's as well as Export data from Tally to other software's. Tally allows users to Import and Export in ASCII, SDF and XML formats.

Graphical Analysis of Tally Data

Sometimes, pictures can say better than figures. Tally also provides graphical (Bar graph) analysis of data. The user can do a graphical analysis reports like Sales register, Purchase register, Ledgers, Funds flow, Cash flow, Item registers etc. This helps the user in deeper analysis of data. In Tally, a graphical analysis can also show month wise graphs for the year in comparison with any other period. This will help the management in quickly locating the highs and lean periods in a financial year and hence be better prepared for difficult times.

Scenario Management

The new "Scenario Management" capability allows to plan, as well as analyse business performance, under varying assumptions. Use this feature for forecasting and planning, prepare reports including provisional figures without affecting actual accounts, using automatically reversing journals. This is useful for reporting interim statements.

Web Enabled

This will help the user in reducing his paper work. Now-a-day, not only report but also invoices and purchase orders can be e-mailed directly from Tally.

Ability to Publish Reports and Documents on the Internet

Now-a-day, Tally allows users to upload reports on the website directly. Many companies would also like to publish their reports and price list on their websites along with the product they deal with.

Direct Internet Access

Tally now offers direct Internet access. A Tally user while working on Tally can directly log on to tally website get details of all the facilities offered by Tally. Tally website also offers a facility of Tally Chat. Any user can now chat with a Tally representative and get any information regarding Tally.

Print Preview

Tally now offers a facility of print preview. Now any reports / Invoices / Vouchers can be viewed before printing or before it is mailed.

Cutting Edge technology

Tally has achieved major technological breakthroughs to enable to benefit from collaborative technology such as protocol support for HTTP, HTTPS, FTP, SMTP, ODBC and Raw Sockets with data interchange formats like XML, HTML, SOAP, SDF and related formats, rule-based collaboration supporting export, upload and synchronization.

Here, *Protocol* refers to a mechanism by which information (data) can be pushed into Tally or from Tally. And *Formats* means the standard for Information to be generated from Tally or from other applications that can exchange data with Tally.

HTTP : Hyper Text Transfer Protocol.

HTTPS : Hyper Text Transfer Protocol (Secure)

.FTP : File Transfer Protocol

SMTP : Simple Mail Transfer Protocol

ODBC : Open Data Base Connectivity

XML : Extensible Markup Language

HTML : Hyper Text Markup Language

SOAP : Simple Object Access Protocol "

SDF : Standard Data Format

BENEFITS OF TALLY SOFTWARE

Tally is the ultimate business solution, designed to meet the growing needs of the business. The benefits of Tally software which are given below -

- (i) *Simplicity*: Tally is one of the most simple and complete business solutions available in the world. Anybody who has a basic knowledge of accounts or an average knowledge of English can use Tally. It is easy to learn, configure and use Tally. Tally is not a computerized accounting package but is Account on computers.
- (ii) *Speed*: A Tally user can get any reports instantaneously for any date / period and can toggle between reports, either accounting or inventory or even from one company to another company instantaneously. The user can also shift across dates in any report without any time loss (i.e.: If one is viewing a daybook for 1st of April he can immediately select 31st of March of the next year and will be able to see the daybook instantaneously for that date).
- (Hi) *Power*: Tally has the power to generate management information which would help the management in taking correct and quick decisions.
- (iv) *Flexibility*: Tally is very flexible to use. Tally mimics the human thought process, i.e. Tally can adapt to any business needs rather than the user trying to change the way his business is run to adapt to the package.
- (v) *No codes*: Tally was the first accounting package in the world to introduce the No Codes concepts for Accounts. Tally accepts alphanumeric characters for accounts" and inventory masters and hence any accounts or stock items can be created and identified by their names. The codeless concept introduced by Tally is now the widely accepted norm across the world today.

(vi) **Sheer Power:** Tally has the ability to handle huge volumes of transactions without compromising on speed or efficiency.

(vii) **Real Time:** Tally updates all reports (from *Day Book to Balance sheets*) as and when the transaction are entered and hence do not need any back end or day/period end process to be done.

On-line Help: Tally provides user-friendly Context Sensitive on-line help for the user. Hence a first time Tally user can start using Tally without any training. Press the Help button while in Tally, and it will bring up the relevant topic.

(viii) **Expanding Business:** With the concurrent multi-lingual capability and multi-currency features that allow to transact beyond geographical boundaries without language barriers.

(ix) **Amazing Accuracy:** Tally provides user-definable templates for fast accurate data entry.

NEW FEATURES IN TALLY 9

Tally 9 empowers business owners to manage their businesses smoothly. Designed keeping in mind the needs of the Indian businessman, it has several key additions in terms of functionalities.

Multilingual

The multilingual capacity of Tally 9 gives tremendous freedom of communication - users can maintain business accounts in any Indian language, view it in another and print it in yet another language of choice... all at the same time. Users can send separate documents to suppliers, business associates, customers etc., in their language, while maintaining accounts in own language. The advanced technology empowering Tally 9 allows you to -

Value Added Tax (VAT)

Features of VAT is completely integrated with Tally 9. It determine user-defined VAT, which supports the following features, making it easier for computation -

<=> Quick & easy setup.

<=> Fast & error-free voucher entry.

<=> Generate VAT rates on products, VAT computation report and VAT-compliant invoices.

<=> Classification of purchase and Sales transactions based on VAT definitions.

<=> Printing of Tax invoice.

■=> Better VAT-returns management.

"=> Monthly Return.

Service Tax

Service tax integrated in Tally 9 takes care of your service tax transactions. It eliminates error-

prone information, incorrect remittance, penalties, interests, compliance issues etc. Service Tax in Tally 9 needs a one-time configuration for service tax features to be activated, which supports the following features -

- <=> Tally tracks bill-wise (bill-by-bill) detail and automatically calculates service tax.
- => Service tax is part of a regular transaction. Information on service tax is maintained and produced category-wise, which is mandatory in service tax returns.
- <=> Adjusts input credit towards service tax payable.
- «=> Transfer earlier pending service tax payable and available service tax input credit into Tally.
- <=> Reports are generated as per government suggested format. Print and file reports: TR6 Challans, Input Credit Form, ST3 Report and ST3-A Report.
- <=> Management Information Services (MIS) reports: Service Tax Payable Report .and Input Credit Form.

e-TDS

It determines user-defined expense/payment type with user-defined rates. The TDS functionality in Tally supports the following features -

- <=> Simple and user-friendly.
- «=> Quick and easy to set up and use.
- <=> Auto-deduction of TDS, based on pre-defined rates.
- => Generates Form 16A, TDS Challan, TDS Computation and TDS Payable reports.
- «=> Can be printed for a transaction for a period or yearly and allows multi-party printing.
- <=> Electronic format (e-TDS return) with Form 26Q, Form 26 , Form 27 and Form 27A which will be validated by the utility, provided by the government.
- <=> Exporting of data in NSDL compliant TDS file format.

Excise For Traders

- <=> Generation of Excise Invoice for Trader
- <=> Tracking of Purchase Invoice during sales and ability to pass on Cenvat Credit
- "=> Generation of Quarterly Returns (Form 2)
- <=> Generation of Excise Stock Register (RG 23D)

Fringe Benefit Tax (FBT)

- ^ Accounting for FBT. &
- Computing FBT Payable.

<=■ Generating Challans (Quarterly)

■=> Filing FBT Returns (Yearly)

What is more, Tally 9 will also have many other major improvements to enhance user experience and performance -

<=> Ability to copy text to and from Tally to

Windows. <=> Close 'X' option in all screens <=>

Improved interface colors

DIFFERENT VERSIONS OF TALLY

Tally 4.5

Tally was started with its first version of Tally 4.5, which was a DOS based program. This program was very light weight and very fast in operation.

Tally 5.4

The next version was 5.4 which was graphic interface version. It became popular in the masses. Its pirated copy made it most popular accounting software.

Tally 6.3

Next version was tally 6.3 which was truly windows based version which could support fast printing and with VAT implemented. Tally 6.3 came with water tight security in terms of piracy. With its dongle it was almost impossible to crack. Although crack of software were available but Tally's policy of frequent upgrades and newer releases does the trick.

Tally 7.2

Next version of Tally was Tally 7.2. It was also fast version with lots of new feature like statutory compliant versions. Different VAT rules for different states, was achieved' with this version.

Tally 8.1

Tally 8.1 was developed with new^ data structure of Tally. A module of POS and Payroll was added to it. It could not live up to the expectations with the people and marred by bugs.. Company rectified many but the version could not become popular and company has to abort it before time and launch new version.

Tally 9

This version has maximum features. All other versions have been declared end of life period by Tally Company. Tally 9 has advance features like Excise for Dealers, Payroll, FBT, TDS, e-TDS filing facility etc along with its regular features related to accounting and inventory management.

Tally ERP 9

Tally.ERP 9 has all the features required for high-performance business management including remote access, audit and statutory compliance services, an integrated support centre and security management, all focused on delivering peace of mind.

INSTALLATION OF TALLY SOFTWARE

Before learning installation of Tally software let know about Licensing Policies of Tally software. It has two different types of licensing policies. They are -

(i) "Tally Silver" for Single User (ii) "Tally

Gold" for Multiuser **(i) Tally Silver for Single**

User

The single-user licensing allows deploying Tally on one computer only, with two options of activating "On-line" or "Off-line". However, some licenses can be used on another computer. But for that, first surrender the existing license activated on the first computer and then reactivate it on the other computer.

(ii) Tally Gold for Multi User

A Multi-user Version (Gold) of Tally can be installed on a network having any number of machines (computers) working with different operating systems like NT, Win 95, 98, Win 2000. Tally works on any kind of network (i.e. NT, Novell, Peer-Peer N/W etc). The protocol needed to detect the lock is TCP/IP. One of the computers is designated as the License Server and other computers are designated as License Clients. Even Tally Gold has similar provision of activating the license "On-line" or off-line."

INSTALLATION TALLY 9 SILVER: STEP BY STEP PROCESS

1. Insert Tally 9 Silver CD in the CD-ROM drive. Tally 9 installation wizard is displayed.
2. Click **Next** to go to License Agreement screen. The License Agreement screen is displayed as shown. .
3. Read the license agreement before you proceed. Click I Agree to continue to go to the Set Up screen. Click **I Decline** to stop the set-up' or click Back to go to the previous screen.
4. The **Tally 9 Setup** screen is displayed as shown (Fig 1.2). In the Installation screen, you may accept the suggested directories. Else, click Change Application Directory or Change Data Directory or Change Configuration Directory or Change Language Directory to change the respective directory paths. Use Tab or the mouse to change the path in any of the directories. A brief description is given below -

O Application Directory - The Tally program files reside in this directory. <=>

Data Directory - The Tally data resides in this directory.

The default directory where data is stored is **C:\Tally\Data**. To change click on **Change Data Directory** button and enter the new directory.

<=> *Configuration Directory* - Tally configuration files reside in this directory. It is usually the same path as the Application Directory.

*=> *Language Directory* - Tally Language files (.dct) reside in this directory. It is also the same path as that of the Application Directory.

5. Click **Next** to go to the **Country/Language Selection** screen.

6. From the **Country/Language Selection** screen, select the country of your residence and the default language in which Tally should start. Based on the country selected, the required statutory files will be loaded.
7. Click **Install**. The installation progress status is displayed. Once the installation is complete, the Installation Completion screen is displayed.
8. Click **Finish** to complete the installation.

INSTALLATION TALLY 9 GOLD ON LICENSE SERVER: STEP BY STEP PROCESS

1. Insert **Tally 9 Gold CD** in the **CD-ROM** drive. Tally 9 installation wizard is displayed.
2. Click **Next to go to License Agreement** screen. The **License Agreement** screen is displayed as shown,
3. Read the license agreement before you proceed. Click **I Agree** to continue to go to the **Set Up** screen. Click **I Decline** to stop the set-up or click **Back** to go to the previous screen.
4. In the **Programs** section check **License Server**, the **License Server Setup** section appears. The **Tally 9 Setup** screen is displayed as shown below.
5. By default, a folder named **Tally** is created in the drive where the Operating System is installed on your computer and the 9090 is the default port. To change the default license server directory, click on the button provided and select the required directory, enter the port number in port.

Note: The Tally License Server will be installed in the prescribed directory and starts automatically when the system starts and runs as a service in the background.

The installation progress status is displayed. Once the installation is complete, the Installation Completion screen is displayed.

PROCESS OF TALLY ON-LINE ACTIVATION (CONNECTION OF INTERNET)

1. Start Tally 9.
2. The Activation Form screen is displayed as shown.
3. Type the Serial number and the activation Key provided on the back cover page of Tally Reference Manual for Tally Silver, For a Tally Gold user, the Serial number and activation Key are provided on the back cover of the CD Box. Type in a valid email address, this enables

Tally to send you information regarding the latest updates, upgrades and product promotions.

4. Press Enter.
5. If the **Serial** and **Key** provided are correct, Tally displays the message - "**Congratulations! Tally 9 is activated!**" and displays the serial number on the top right corner of the screen.

Alternatively you can Activate Tally as Follows:

Go to **Gateway of Tally > F12: Configure > Licensing > Online > Activate**

Note: If you are using Windows Vista Operating System, Right click on Tally icon from the desktop and select Run as Administrator and. then follow the instructions to Activate Tally 9.

8. Copy the new file, **tallyjresp.lic** onto a floppy or CD and paste it to the Tally folder in the main computer on which Offline Activation is required.
9. Start Tally, the serial number appears on the top right which indicates that the Tally license has been activated.

VALIDATING TALLY

Once activating license, it provide with On-line Menu, which shows two options

- (i) Validate / Update - for updating new features of Tally
- (ii) Surrender - for surrender the Tally license

After successful activation the Tally user has to update/ Validate the Tally License on within 45 days of Activation.

In case, the updating license is unable, after 37 days Tally will display a message - "**Your License is about to expire! Please re-activate**". Further it is not done, Tally will automatically switch over to **Edu-cational** mode and the user has to re-activate the license once again.

Updation can be done both **On-line** and **Off-line**. Tally will validate the license automatically, if the system is connected to the Internet. Else, Tally prompts shows with the message - "**Your License is about to expire! Please re-activate**".

On-line Validation

Go to Gateway of Tally > F12: Configure > Licensing > Online > Update

The **Information** screen with the message - "**License Updated Successfully!**"

Off-line Validation

Go to Gateway of Tally > F1 2: Configure > Licensing > Offline > Update

Follow the steps 4 to 6 given in Offline activation process and complete the validation.

On completion of the validation process, the **Information** screen with the message -"**License Updated Successfully!**" is displayed.

Registering Tally

On successful installation and activation, Tally will need to register, which can be done by both **On-line** or **Off-line**. This will enable users to get the latest product updates, promotions and offers.

On-line Registration

1. **Go to Gateway of Tally > F12: Configure > Licensing, click the Register Yourself**

button.

2. Enter the **Serial** and **Key/ Email** in the respective fields. The Login screen is displayed (Fig 7),

which is shown in below -

4. The Customer Registration form is displayed.
5. Enter the required details.
6. Click Submit.

A message indicating Registration Successful appears on the screen.

Off-line Registration

For Off-line registration user have to visit website at *www.tallysolutions.com* and click the **Register Tally link**.

Surrendering Tally Licenses

Tally offers an option to surrender the existing license, which allows portability of the license. This facility avail by only Tally registration process is completed. This option is available for both Tally Single-user and Tally Multi-user Licenses. Once surrendered, Educational appears instead of the serial number on the top right corner of the screen.

On-line Surrender

Go to Gateway of Tally > F12: Configure > Licensing > Online > Surrender

Tally displays a message - "**Surrender Success-ful**". -

Off-line Surrender

1. **Go to Gateway of Tally > F12:Configure > Licensing > Offline > Surrender**
2. Tally displays a message that the **Tally_req.lic** file is generated.
3. Copy the **tally_req.lic** file from the Tally 9 folder onto a floppy or CD.
4. Copy the file **tally_req.lic** from the CD or floppy into a folder of another computer, where Tally is installed and is connected to the Internet.
5. Run Tally on that computer and **Go to Gateway of Tally > F12:Configure > Licensing > Offline > Send External Request**

Tally displays the message - "**License Surrendered Successfully**".

WORKING WITH TALLY 9 SILVER / GOLD

To start Tally, Click Start > Programs > Tally 9 > Tally 9

Or,

Double click the Tally 9 shortcut icon that appears on the desktop, (the shortcut icon is created during the installation process). Tally 9 opens in Education Mode.

TALLY FIRST TIME START-UP SCREEN

The very first time start Tally, it would require to ^create' a company. 'Create Company' simply means giving basic information about the company whose books of accounts Tally is to maintain. Tally is smart, but it does need an introduction the company. The Tally start-up screen is displayed, which is shown in below -

In the screen, the Main Area is separated into two areas:

1. The *left-hand side area* in Main Area provides information of Current Period, Current Date and List of Selected Companies (Name of the company and the date of last entry details).
2. The *right-hand side area* in the Main Area screen displays the Company Information menu (to select your instructions to Tally) > Select a Company, .Create a Company, Backup a Company or Restore a Company.

GATEWAY OF TALLY START-UP SCREEN

The Gateway of Tally menu of an menu of an Accounts-with-Inventory company is separated into following sections, which are explained below (fig: 9) —

D Task Bar

- Title Area / Product Info
- Gateway of Tally / Main Area (Ctrl + M)
- Hot Keys

D Button Bar

- Calculator Area (Ctrl + N)

TASK BAR

The taskbar contain "**Tally with version**" on left-hand side and Minimize, Restore and Close Button on the right-hand side. Minimize button performs the standard Windows Operating Systems function (Windows 95 onwards), allowing you to minimize Tally and work on other applications. To restore Tally, click on the restore button on the taskbar.

TITLE AREA / PRODUCT INFO

It provides information about the **developer, version and release, product Brand** on the upper-left corner. The **Product type** (Tally Gold, Tally Silver, Tally Bronze or Educational) and **Tally Serial Number** appears on the upper-right corner. The software serial number is usually a unique number, which is taken directly from the TallyLock connected to the USB / Parallel port of the system.

Tally logo is displayed at the centre of the Top Area.

In bottom area are displayed - "**Gateway of Tally**" on right-hand side, **Release details** (every time a new release of Tally is made, like 9-Release 2.14) in the middle, the **Name of the Day, Current Date** (computer configured date) in Date, Month, Year (DD, MM, YYYY) format and **System Time** (computer configured time) appears on the upper-right corner in Hour:Minutes:Seconds (HH:MM:SS) format on the left-hand side.

D GATEWAY OF TALLY / MAIN AREA (CTRL + M)

Main Area is separated into two areas:

«=^ Left-hand side area-List of Companies <=>

Right-hand side area - Pop-up Menu

The right-hand side area in the Main Area screen displays the Company Information menu (to select the instructions to Tally) > Select a Company, Create a Company, Backup a Company or Restore a Company

c> **Left-hand side area - List of Companies:** The left-hand side gives information of - *Current Period* - Currently loaded or selected company's accounting period. *Current Date* - The date of the last Voucher Entry of the selected company. *List of Selected Companies* - Displays the name of the loaded or selected company.

<=> **Right-hand side area - Pop-up Menu:** The pop-up menus show -

Masters - For creation of Accounting Masters and Inventory Masters and Importing Master information.

Transactions/Vouchers - For creation of Accounting Vouchers and Inventory Vouchers and Importing transaction information.

Reports - For viewing and printing financial and inventory reports using the information given in Masters and Transactions.

□ HOTKEYS

Hot keys are the text that are capitalized and are red in colour on all the menu screens. Typing any of the Hot Keys in the Company Info Screen will either take you to that particular screen or it may display the sub - menu's within that Option. The various hotkeys are Help, Web Browser, Upload, E-Mail, Export, Print,

□ BUTTONBAR

The buttons are designed to make the work easier and faster. These buttons vary from one screen to another based on the screen functionality. The buttons appear on the right hand side of the Tally screen which provide quick access to different options. Only buttons relevant to the current screen will be active and the inactive buttons are greyed. These buttons are enabled with the short cut keys (like F1, F2 and so on).

Tally 9

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TallyGold Multi-User

http://www.tallysolutions.com

Sl. No. : 42203876

P: Print E: Export M: Master ID: Upload K: Keyboard H: Help

Gateway of Tally

Current Period: 1-4-2009 to 31-3-2010

Current Date: Thursday, 23 Apr, 2009

List of Selected Companies

Name of Company	Date of Last Entry
Honey	23-Apr-2009

Gateway of Tally

- Masters
 - Accounts Info
- Transactions
 - Accounting Vouchers
- Import
 - Import of Data
- Reports
 - Balance Sheet
 - Profit & Loss A/c
 - Ratio Analysis
 - Display
 - Multi Account Printing
 - Quit

Calculator

ODBC Server

F1: Select Cmp
F1: Shut Cmp
F2: Date
F2: Period
F3: Cmp Info
F11: Features
F12: Configure

Gateway of Tally

9 - Release 2.14 (English) Fri, 24 Apr, 2009 21:57:25

□ CALCULATOR (CTRL.+N)

By default, Calculator remains inactive. Press [Ctrl + N], to activate the calculator functionality. Calculator Area is used for calculator functions. Any type of Independent calculation can be done using calculator to get quick answers. Make use of all the mathematical operators. Eg. +, -,/,*,(,), %.

Tally Clock

Additionally, while Tally processes data, a clock on the screen indicating that it should wait until it disappears before performing the next action.

Switching between Gateway of Tally Screen Areas

To toggle between Gateway of Tally Screen Areas and the Calculator/ODBC Server area at the bottom of the screen, press [ctrl] + [n] or [ctrl] + [M] as indicated on the screen. The active area of the screen is highlighted by a green bar.

CONSOLIDATION OF COMPANIES

Yet another outstanding feature in Tally is its ability to handle Group companies. Tally allows the user to create multiple companies which could be either branch companies or sister concerns. These companies could be grouped together to get consolidated reports so as to enable the management to analyse the performance of the group company. Any changes done in any one of the branch companies, is automatically updated in the group company. At any point of time a new company could be included in the list of companies of a particular group. Tally also allows the user to create multiple levels of group companies.

Procedure:

> **Create** multiple companies and load those companies, which have to be grouped together > **Company Info (Alt + F3) > 'Create Group Company'** > specify name of the Group Company and other information's > select companies that are to be grouped together and save the screen. A group company is automatically created.

CREATION OF A LEDGER ACCOUNT

It should be noted that Tally automatically creates two ledger accounts, viz., Cash (under Cash-in-hand) and Profit & Loss Account (direct Primary account). It does not make any other presumptions. It must create all other account heads. There are no restrictions in ledger creation except that cannot create another Profit & Loss A/c (actually an account that behaves like one). It may create any number of Cash accounts (by another name like "Petty Cash").

Gateway of Tally > Accounts Info. > Ledgers > Single Create

VOUCHER ENTRY/CREATING A VOUCHER

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 may be called **Creating a Voucher** or **Voucher Entry**. You may create a voucher on-line on Tally and print it for hard copy and authentication. The procedures to create a new voucher type are -

Gateway of Tally > Accounting Vouchers

This will open the **Accounting Voucher Creation** screen. Or,

Select **Accounts Info > Voucher Type > Create**

Now enter the Voucher name, specify the type of voucher, specify the method of numbering, activate or deactivate the other functions as per needs.

Types of Vouchers

(i) **Purchase Voucher:** It records all the purchase entries. If inventory values are affected for purchase accounts in case of accounts with Inventory companies, item details must be given. To enter the values into purchase voucher follow the steps:

Gateway of tally > Accounting Voucher > click Alt F9: Purchase button from button bar.

(ii) **Sales Voucher:** It records all the sales entries related to sales. To enter the item details if inventory value gets affected due to sales. To enter the values into sales voucher follow the steps:

Gateway of Tally > Inventory Voucher > Click Alt F8: Sales button from button bar.

(iii) **Contra Voucher:** It involves fund transfers between cash and Bank accounts only. *Example:* transfer of funds/ cash from one Bank to another bank. The steps involved in creation of this voucher is:

Gateway of Tally > Accounting voucher > click Alt F4: Contra button from buttonbar.

(iv) **Payment Voucher:** This voucher records all the entries of payments made through bank and cash.

Gateway of tally > Inventory voucher > Click Alt F5: Receipt button from button bar. (v) **Receipt Voucher:** This receipt voucher records all the receipts into Bank or cash accounts.

MANAGE AND OPERATE VOUCHER TYPES

Tally acknowledges the special requirements of some users for more voucher types. These arise in cases like when the same voucher but in different names or separate series of numbers.

Examples include Cash Payment Vouchers and Bank Payment vouchers where the relevant predefined voucher is Payment Voucher. It may have two or more sets of Sales Vouchers for different kinds of sales transactions e.g., Credit Sales, Cash Sales, etc.

It would need to alter a voucher type to change default settings for different information appearing in vouchers. Using [F12] can further configure a voucher.

Alter a Pre-defined Voucher Type

Even do not need extra voucher types, it would normally alter the predefined voucher types to customize them according to your needs, e.g., to control their numbers. Display or alter each voucher type (by pressing or double clicking) after -

Gateway of Tally > Display > List of Accounts > + [Voucher Types]

PRE-DEFINED VOUCHER TYPE

Transaction recording and analysis are greatly facilitated by having specific formats for different types of transactions. Tally provides 16 different predefined voucher formats or what it calls predefined types of vouchers, which pertain to both accounting and inventory. These predefined vouchers fulfil your normal transaction needs. A payment voucher is used for all types of payments, a receipt voucher for all types of money receipts, a sales voucher for recording sales transactions and so on. Some of these vouchers can also be used differently according to the situation, e.g., sales vouchers can be used as invoices, vouchers can be post-dated etc. The predefined voucher types can be displayed as follows –

JOURNAL ENTRY

The word Journal derived from the French word Jour. Journal is a daily record of each business transaction. It is also called a Day Book and is used for recording all day-to-day transactions in the order in which they occur. It is a book of prime entry because all transactions are recorded first in this book. It is also called book of original entry.

The main advantages of journalizing are as follows:

- (i) It reduces the possibility of error as both aspects of a business transaction are written side by side.
- (ii) It provides information of debit and credit in an entry and an explanation in form of narration to make it understandable property.
- (iii) It removes the need for reliance on memory of the accounts keeper.
- (iv) It provides information of credit sale and purchases of assets, investment etc.
- (v) It also provides information about special allowances received from supplier or given to customers.

COLUMNAR REPORTS

Tally provides columnar reports in Sales register, Purchase Register and Journal registers as well as Ledgers and Cash / Bank Books. For columnar reports follow the following procedure - Select **Display > Accounts Book > any of the registers > Press F5 (Columnar)**.

TALLY REPORTS

Tally maintains all Books of accounts starting from records of vouchers, ledgers etc. Tally handles different types of vouchers like Payment, receipt, adjustment entries like Journals, Debit notes, Credit notes, Sales, Purchases, Receipt notes, Delivery notes etc. Tally follows the double entry system of accounting and hence will eliminate any

possible errors. Tally enables the users to e-mail reports and documents directly from Tally and also enable the user to publish reports in HTML on Web or Intranet and share them with suppliers, customers etc.

Tally enables to publish various reports like:

- (i) **FBT (Fringe benefit tax):** It is a one time, easy to enable configuration. Tally provides the complete tracking of expenses covered under FBT. It computes FBT based on the eligibility criterion and generates FBT Challan and returns.
- (ii) **VAT Composition Returns:** It provides fast and error-free voucher entry with complete tracking of each transaction. The Composition Rate of VAT is automatically recognised based on the turnover. It prints VAT Composition Returns for VAT enabled states. The tax payable is calculated automatically and displays in the Return Form.
- (iii) **Excise for Dealers in Tally:** It provides complete tracking of duty credit availed and passed on. It supports printing of excise invoice and generates the required statutory reports.
- (iv) **TDS:** Tax Deducted at Source (TDS) in Tally provides an easy-to-use interface with complete flexibility. It helps to handle any intricate cases and automatically/manually calculate the tax amount payable to the Income Tax Department. It generate TDS challan and Exception reports,
- (v) **Bill-wise Tracking of Trading and Non-Trading Accounts:** Tally tracks Party accounts or Loan Accounts on a Bill-by-Bill basis (for example, new bills raised, payments, receipts, adjustments against bills).
- (vi) **Management Reports:** Movement analysis that gives party-wise details of goods bought and sold and helps identify good and bad business partners. Stock Query is a unique single sheet report that gives information on stocks at different locations as well as total stock-in-hand.
- (vii) **Aged stocks Analysis:** This report identifies old stocks to aid in decisions relating to their quick disposal.
- (viii) **Credit Control (Outstanding Management) Including credit Limit:** A Tally user can maintain 'Outstanding Reports' along with Age Wise analysis. Credit Limits can be given 'amount wise' as well as 'period wise'. Once Credit limits are set for a Party, then the user cannot bill the particular Party beyond the specified limit. Only the authorized user can alter the Credit Limits. This helps to monitor as well as control any potential slow collection and warns about the potential bad debts.
- (ix) **Invoicing:** Sales invoices are produced directly from Tally. Print, Export, E-mail or publish them. Tally has a very comprehensive invoicing system that allows flexible handling of charges and taxes. The invoice format is available in different formats and adopt them as the own or have a completely different layout designed.
 - Generates expiry reports
 - Generates gratuity reports

CREATING A SUNDRY DEBTOR OR CREDITOR

Accounts should be opened under Sundry Debtors or Sundry Creditors group with whom company is trading. Customers (Sundry Debtors) who buy goods or services for cash or on credit. Suppliers (Sundry Creditors) who supply goods and services for cash or on credit.

To create a Party Ledger,

Gateway of Tally > Accounts Info > Ledgers > Create

Currency of Ledger:

Tally.ERP 9 allows to maintain Ledgers in any currency and the amount is reflected in the selected currency. But it is strongly advised to maintain the currency of the Ledger as the Base currency.

Only foreign currency bank accounts are maintained in foreign currency and other ledgers are maintained in Base Currency. Nevertheless User can enter transactions in any other currency.

To create/maintain ledgers in multiple currency, set Allow Multi Currencies to Yes under F11: Features.

BRANCH ACCOUNTING

Tally provides a convenient method of handling Branch accounts. Each branch can handle their individual accounts. When any transaction or transfers are happened between branches or offices, then the user enters a transaction by debiting the other branch account and at the other branch a reverse entry is made (i.e., first branch is credited). Then these branches are grouped together and there is no net effect on the books is nil. In case there is a difference it can be easily used for branch reconciliation.

Example: Create two branch companies, Branch A and Branch B. Now if funds are transferred from Branch A to Branch B. In Branch A's accounts books, Branch B is debited and in Branch B's books. Branch A is credited. Now when the two branches are consolidated there is no net effect on the combined

CASH FLOW

Tally provides with a cash flow statement using which the user can track the movement of cash flow. By selecting F4, get a daily cash flow statement and by F12 (configuration), activate average details and get average cash in-flow/out-flow for any period.

Procedure:

Select **Display > Cash / Funds Flow > Funds Flow > Select any month**

FUNDS FLOW

Funds Flow is a statement, which reflects the movement in working capital as well as, Flow due to operations, movement of capital and acquisition and sale of fixed assets. Tally automatically tracks all the transactions entered and readily provides Funds Flow Statement.

BUDGETING AND CONTROL

Tally provides a wonderful tool to the user to have a control over his business through the feature of budgets. The procedures are:

> **Features (F11)** and activate '**Budgets and Controls**' > **Accounts Info** > **Budgets** > **Create** > specify name for the budget > specify the date range for the budget > **Activate Groups** > Select **groups A/c** > assign budget value and save > **Activate ledger** > select ledgers and assign budget values and save the screen.

To View Budget Reports:

Select **any report (B/S, P/L, T/B etc)** > Select **new column (Alt + C)** > Select **period** > Select **type of Budget** > **activate Variance and save screen.**

CREATE STOCK CATEGORIES

> **F11 (Features)** > activate Stock Categories and save screen > **Inventory Info** > **Stock Category** > **Create** > specify name of Category > specify under which Parent category and save screen.

To View Stock Categories Reports

> Display (from Gateway of Tally) > Statement of-Inventory > Stock Category > Select any particular category. Tally displays all items under the selected Category.

To View Stock Query Report

> Display > Statement of Inventory > Stock Query > Select the req'd stock item. Tally displays information for the selected stock item. Select F4 (Item) to change to another item.

SALES AND PURCHASE ORDERS

Tally permits users to generate reports for Purchase order outstanding and Sales order outstanding reports based on the information, which can be e-mailed or printed and sent to suppliers.

Procedure:

> **F11 (features)** > Activate Purchase orders and Sales Orders and save screen > Select **Voucher Entry** > **F9** > opt for P.O. > Select supplier name and related details > Enter Order No. > Select item and enter other details and save Voucher.

Likewise, Sales orders rec'd are entered in Sales order Voucher screen.

To View Reports

> Display > Statement of Inventory > Select Purchase order summary or Sales order summary > Tally shows Group wise summary.

Now, drill down till you get P.O. details. If the user wishes to view orders, which are over due then he selects F7 (Due only) and Tally displays order, which are already overdue for that item. The user can also shift to another item by clicking on F4 (Item).

ACTIVATE TALLY AUDIT

Tally Audit is a checking tool available to the administrator. Tally Audit feature should be enabled while creating the Company and its Security levels. The step-by-step procedures are -

1. Select Acme Corporation Limited and login using the administrative user name & password
2. Press Alt + F3 from Gateway of Tally
3. Select Alter from Company Info, menu
4. Select Acme Corporation Limited from the drop-down List of Companies displayed
5. Press Enter until! you reach the field Use Tally Audit Features?
6. Set Yes to Use Tally Audit Features
7. Press Ctrl 4- A to accept the screen.

ACTIVATE TALLY VAULT

The Tally Vault can be activated at the time of creating a new company or by altering the existing company. If it is a new company, then,

From **Company Info screen**, > **Create** > Specify Company Name and other company related details > specify Tally Vault Password and repeat the same and save screen.

If it is an existing company, then,

Load the particular the company > **Comp Info (AU+F3)** > **Change Tally Vault** > specify New Password and save screen.

ACTIVATE ADMINISTRATOR LEVEL PASSWORD

Admin level password can be activated while creating a company. Following are the procedure

From **Company Info screen**, > **Create** > specify Company Name, Company address and other company related details > **Activate security control** > specify administrator name > specify password and repeat password and save screen.

If the company is already created, then,

>**Load Company** > **Alt+F3 (Comp Info)** > **Alter** > **come down to security control** and

activate the feature 'Use **security control**'.

GRAPHICAL ANALYSIS OF TALLY DATA

The user can do a graphical analysis reports like Sales register, Purchase register, Ledgers, Funds flow, Cash flow, Item registers etc. In Tally, a graphical analysis can also show month wise graphs for the year in comparison with any other period. *For example*, Comparison for Sales Registers (Month wise):

>**Display** > **Account Books** > **Sales Register** > **Alt + C** (new column) > specify previous financial year date and save.

Tally shows month wise comparisons.

BACKUP AND RESTORE

In Tally, back up and restore functions are built into the application and made extremely easy. The best practice that has evolved over time is to backup data periodically and ensure that there is minimal loss of information. The periodicity of data back that is suggested is daily. As a user have the option to back up on any type of media, *for example*, flash memory sticks, CDR, CDRW, external Hard disks, Network storage media, Tape drives, etc. It is advised that data backup should not overwrite a recent backup.

