

**COMPUTERISATION OF FINANCIAL SYSTEM  
AND EVALUATION OF INTERNAL CONTROL**

**(A Case Study of Nitel Plc. Minna)**

**BY**

**OKPOFUT ETOP AKPAN  
(PGD/MCS/499/1997/98)**

**DEPARTMENT OF MATHEMATICS AND COMPUTER  
SCIENCE SCHOOL OF POST GRADUATE STUDIES  
FEDERAL UNIVERSITY OF TECHNOLOGY MINNA,  
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**MARCH, 2000**

## CERTIFICATION

This project work has been read and approved having met the requirement for the award of post Post-Graduate Diploma in Computer in Mathematics/ Statistics/ Computer Science Department of the Federal University of technology, Minna.

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Date

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Date

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External Examiner

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Date

## **DEDICATION**

This project is Dedicated to my SON and my wife Maria.

## ACKNOWLEDGEMENT

In a work of this nature, it hardly possible for the writer to single handedly thank all those that helped to make it a success. However, there are some whose contributions and kind gestures can hardly be forgotten. To these people, if I fail to express my gratitude, I shall be doing them the worst of injustice.

First and foremost, I give glory and honour to God Almighty for all His support in making it possible for me to successfully completed this course. I acknowledge the guidance of my supervisor Dr. Y. M. Aiyesimi for his systematic sense of supervision. He meticulously read through through the original draft and made constructive criticism. Also thank the H. O. D Dr. Reju and the well articulated members of Staff especially, the course co-ordinator Mr. L. N. Ezeako for their efforts and advice. May God reward them accordingly.

I wish to express my gratitude to Mr. Ndubusi Lundy Ozoemelam (chartered Accountant) of Nitel Plc. Minna for giving in all the necessary assistance in making this study possible.

My sincere gratitude to my beloved wife Maria for her encouragement and co-operation.

May God Almighty bless you all - Amen.

## ABSTRACT

Thousands of years ago, devices were used to help man process data over the centuries there have been many improvement in these tools which today are computers.

In the past, evaluation of internal control system and appraisal of financial keeping was usually done manually with a lot of manual files and jackets.

This was probably due to the relatively unlimited resources. In the recent time, the evolution of mechanical/Electronic devices culled computers has brought a great relief to financial planners and management.

We mankind live in an era which beset by uncertainty.

It is the setting of this kind that computers is of importance that the management of any institution. A computer being a qualitative machine serving as one of the tools for planning and control of the organisation.

Also, we were in an age of infinite information expansions, which require collection, recording and processing. The volume of information generation, collection and processing that we are witnessing today is unprecedented in history

and as such becoming impossible to collate manually.

Furthermore, this volume is increasing daily and will continue to explode for many years to. EDP technology has already made the work. A large majority of people are affected and benefited by computerised data storage management and processing technology. Private and public organisations, individual citizen in developed and developing nations derived immense benefits from computerisation.

It has been accepted world wide that a vast portion of our data needs will be stored more economically on computer files and data banks than papers.

What we now store on computer. It is believed that computerisation of financial system, and evaluation of internal control is one of the important procedures that management must employ to control operations. Therefore, this study is designed to evaluate the computerised financial system and evaluation of internal control of NITEL PLC. Minna, with a view to determine its strengths and weakness, so that improvement and modification could be made.

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# CHAPTER ONE

## INTRODUCTION

The initial conception that education is a Western Culture, kept ingenuity, innovation, creativity and of course early development far away from our society for many years.

When this was eventually appreciated and adopted, it was given a position among those other aspects of our live - which have found a common place in our society.

When considering the pace of development in our society since the inception of Western Education, it is conclusive that we are trailing behind, giving one the impression that the initiative towards technological advancement is for the West. Thus for many decades now, we are only succeeded in producing many learned, who are experts in searching for what has already been and never the proprietor.

This situation has kept our nation on a constant dependence on foreign technologies, which of course, come to us almost after being considered obsolete there.

Currently, we are witnessing the move towards being current with the technological advancement, in the West, more so that our educational system is Western.

One major factor identified among others which would enhance the success of this move is adequate and timely information. We had been trailing behind in the development race perhaps because we lack the mechanism to keep us up with the trend of development in the West. The availability of Information at the time most needed is an important tool towards decision making which in turn enhances the implementation of any development project. Considering the Nigerian telecommunication Plc, the need for information resource cannot be over emphasized. The scarcity of adequate information for a standard specification of modern scientific instrumentation and the non-availability of information on the older versions, their spares and accessories, especially those declared obsolete by the manufacturers are the basic problems to the telecomm Research and development, Centre at Engineering School, Oshodi - Lagos.

More problematic still, (in terms of specification) are the new equipment with their sophistication relative to their respective specified applications.

The on-going expansion on telecommunication services and vigorous research and development programmes nation wide is one of the Federal Government objective to enhance adequate and dependable telecomm services for all and availability of locally fabricated spares for effective maintenance services. This is to enhance effective Research and Development work, as well as improve our maintenance culture, toward technological advancement, the Rehabilitation of Old equipment (which demands the acquisition of proprietary spare from the manufacturers) and the procurement of new ones. This has proved the most difficult as the information needed to evolve a list with standard specification of modern scientific instrumentation, their spares and accessories for the rehabilitation of the broken down equipment, is not readily available.

There had been an unanticipated waste of money, time and energy in employing the "Old System" of gathering information through:-

- (i) Catalogues: which the procuring agents have not found satisfactory and comprehensive enough.
- (ii) Enquiries From Manufacturers: Information here is limited to proprietary items. In addition, there is much waste of time.
- (iii) Other texts

Generally, information obtained in this way had often been proved inadequate by Overseas Consultants for the project that attracts International Interest such as the Nigerian Telecommunication Plc in Nigeria.

It is for this reason and for similar Institution in the future that a thought was given to the development of a new system. The computerisation of its financial system and Evaluation of its Internal Control System for proper financial, project appraisal and for efficient allocation of responsibility in the Institution. This serves as an alternative to the problems. Unlike the library of ledgers manually stock-up which was as well thought of in the Counsel of the feasibility study of this system - Computerised System offers more advantages and it is proffered to the manually operated system.

Some of the advantages of the new system are

- (i) Quick access to information needed hence Quick implementation of programmes.
- (ii) Quick decision making. The most needed technical information on any items in the finance is readily accessed. This is made possible by the data management facility the system offers.



- (iii) Conservation of space. A single unit of Micro-Computer with a large storage capacity is capable of holding information for thousands of items; unlike the manual methods which demands a large storage space to accommodate a reasonable volume.
- (iv) The system provides the facility for
- (a) Data capturing
  - (b) Facility listing
  - (c) Data modification
  - (d) Updating of data
  - (e) Data deletion
  - (f) Data Display
  - (g) Report generation
- (v) It is easier and quicker with the system to compare financial information obtained from different territorial headquarters and single subject with the new facility proved by the system.
- (vi) The system provides information for a variety of both managerial and financial applications.
- (vii) It provides the facility for sorting all the items in the most desired manner (i.e.alphabetically), for print-outs if required).

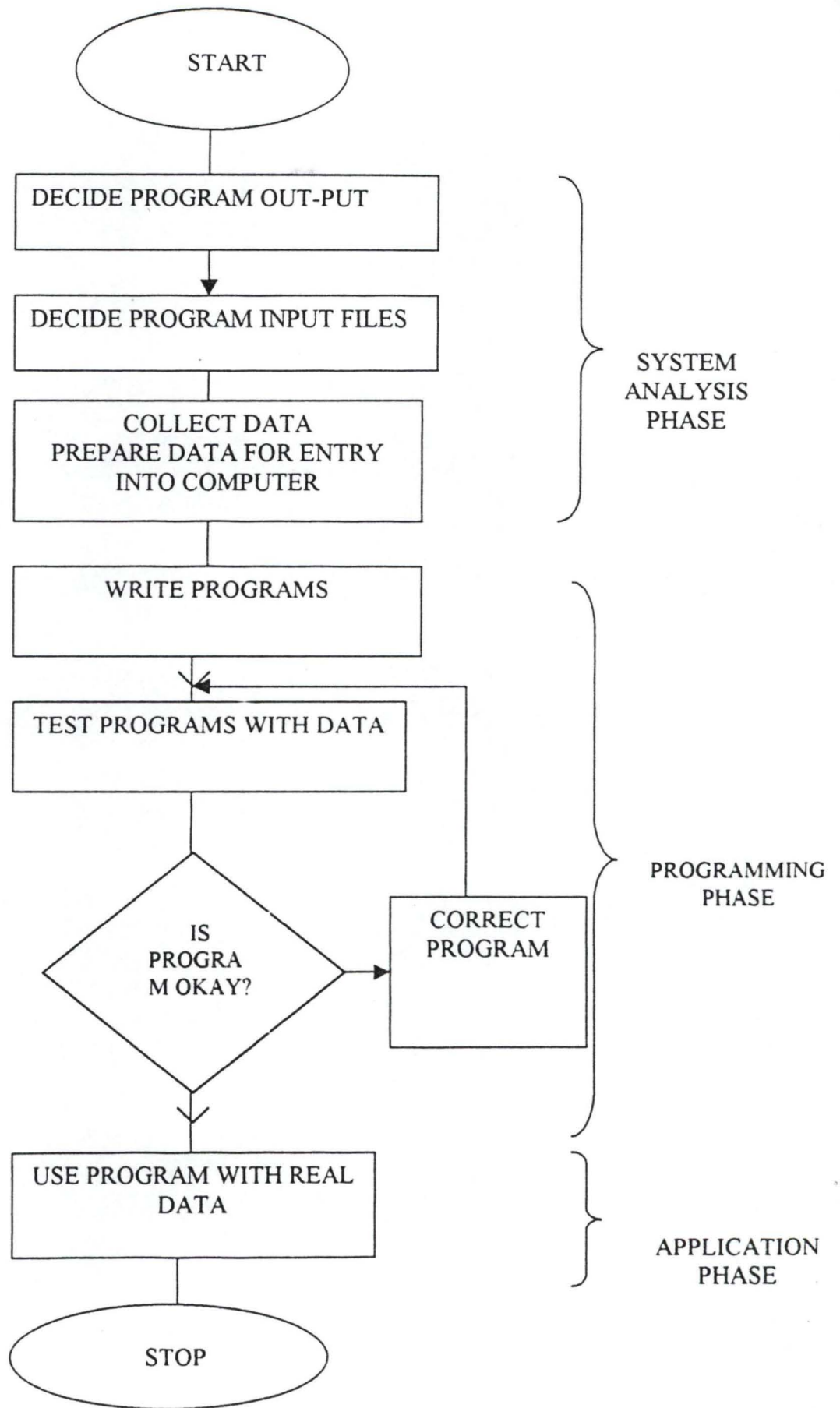
## **DATABASE MANAGEMENT SYSTEM**

Database is an organised and integrated collections of data expected to be used by a number of users in various ways.

Example is a Company with an Organisation Model on a database to allow users access to information about the organisation by making enquiries of the database.

Data retrieval as applied in this very system is accomplished by a Computer program written in a conventional programming language. The language of choice is this work is .....

The following is the flow-chart of the stages involved in developing this system:-



This system is developed to take into consideration:-

**DESIGN STAGES OF A COMPUTER APPLICATION**

- (i) The type of output needed
- (ii) The frequency of need
- (iii) The media to use
- (iv) Who needs the output - and in what form?
- (v) The need to recall information from time to time.
- (vi) Data validity
- (vii) Data Management and Maintenance
- (viii) Data Security

These forms the modules on which the programs of these systems are written.

It is believed that the most needed information exchange, both at low and high levels of this project implementation, with regards to equipment specification, shall be achieved by this system.

## **GENERAL BACKGROUND OF NITEL**

**HISTORICAL BACKGROUND:-**Ownership: It is one of the Federal Government Parastatals. The Minister of Communication is saddled with the supervisory responsibility, for smooth functioning of the organisation. The

Managing Director shouldered the administrative function of the whole system, assisted by Executives directors and General Managers.

**Birth:-** Its legal existence was made possible in 1985. The then Post and Telecommunication (P&T) was separated to perform two distinct functions:

- (1) Postal Services-NIPOST
- (2) Telecomm-Services-NITEL Plc.

Since its inception, the existence has justified the primary objectives of its goals.

### **THE GOALS AND OBJECTIVES NITEL PLC.**

Nitel Plc has her objectives spelt out as follows:

- (1) To ensure the development of Telecommunication Services in Nigeria.
- (2) To ensure the reliability of the Inter-Connectivity.
- (3) To render Consultancy services through the Training arm of the organisation.
- (4) It provides Fax - and leased circuit services.
- (5) Local and International calls services.
- (6) Internet - Connectivity Services.

From inception Nitel had enjoyed the monopolistic Control of telecomm Services both at local and International level in Nigeria.

### **SOURCES OF FUNDS/FINANCE:**

Both Capital and recurrent expenditure of Nitel Plc are financed by the Internal generated funds. It numerous services earned the organisation billions in hundreds annually.

On: International Calls

Local Calls

Consultancy Services

Internet - Connectivity

Fax/Leased Circuits

These services earned Nitel it reputation as the largest telecommunication Industry in West - African Sub-Region.

In other to achieve her numerous objectives, Nitel has engaged in vigorous manpower development to meet up with the current challenge in telecomm - technical-manpower development. Its focus has been on engineering technological manpower training.

Telecommunication Industrial equipments,. Experts Services and networking digital expansion nationwide is a pointer to her relentless effort to ensure availability of her services at all levels of operations.

Research and Development.

Computerisation of financial system.

Evaluation of Internal Control System.

# CHAPTER TWO

## INTRODUCTION

Computerization is the effective replacement of repetitive human interaction in an existing system by an automation process or implementation of Electronic Data Processing technology in the achievement of a desired objectives. It also put into consideration the minimal intervention of human operations.

## DEFINITION OF COMPUTER

A computer is an electronic device that is capable of accepting data, storing data, processing data and producing the result fastly. (or storing results as may be desired).

1.2 There are three basic classes of computer, they are analogue, digital and hybrid.

Analogue Computers:- These are computers which measure changes in continuous physical or electrical states, e. g. pressure, temperatures, voltages, speed e.t.c.

The analogue computer accepts directly from measuring instruments without need for intermediate conversion from/to some symbol or code and to its high speed of data collection, it is used in industries.



Digital Computer works with numbers, words and symbol expressed as digits, which it manipulates and counts discretely.

Lastly, Hybrid Computer combines the feature of the two others and utilizes both.

The computers used by majority today are the digital, which are referred to general-purpose computers.

The basic functions of a computers is to input, control, process, store and bring out report as output.

## **BASIC CONCEPTS OF COMPUTER**

We have seen that a computer commonly, it is really a programmed and that performs only the operations it is instructed to do. A computer is faster, more economical and more reliable. It converts input data unto output data by operating on it.

The computer processing is performed by a program written by a computer programmer which indicates the instructions necessary to operate on the input so that meaningful output is realized.

## **PARTS OF COMPUTER**

A) **HARDWARES:** Hardware is the term used to indicate all physical components associated with a computer system. A computer system generally consists of three main components; An input device is a device through which data/information are fed into computer's memory. The processing device that controls the computer operations. It is the brain of the computer system. It is called the Central Processing Unit. An output device is the actual device that translate the processed codes into human understandable form.

The C.P. U. (central Processing Unit) consist of three sections:

- (a) Storage Sections is where the system stores information. The storage is composed of location or addressable positions.
- (b) The control section is the CPU where the instructions of a program are located in order for the computer to act upon.
- (c) The arithmetic logic section of the CPU is under the control of the particular program that is being executed. It is in this section where calculations and decisions are made.

**(B) SOFTWARE:-** Software are series of programs designed to allow users to operate the computer system in order to perform a specific tasks. These include

em programs control computer operations (called operating system) and programs to aid trouble shooting when computer develops problems. Application programs are series of instructions known as programs which are executed by the computer to accomplish desired task for users.

**DATA PROCESSING:-**No organisation can do without an accounting system. It is as much a part of an organisation as its people. Modern businesses automate their accounting systems enabling precise record keeping and a wealth of features and capability not available in a manual accounting system.

Besides processing the routine financial transactions that support the day to day operations, automated accounting system play a key role in the overall financial and mgt. reporting that ties the company together. The two primary objectives of an accounting system are:-

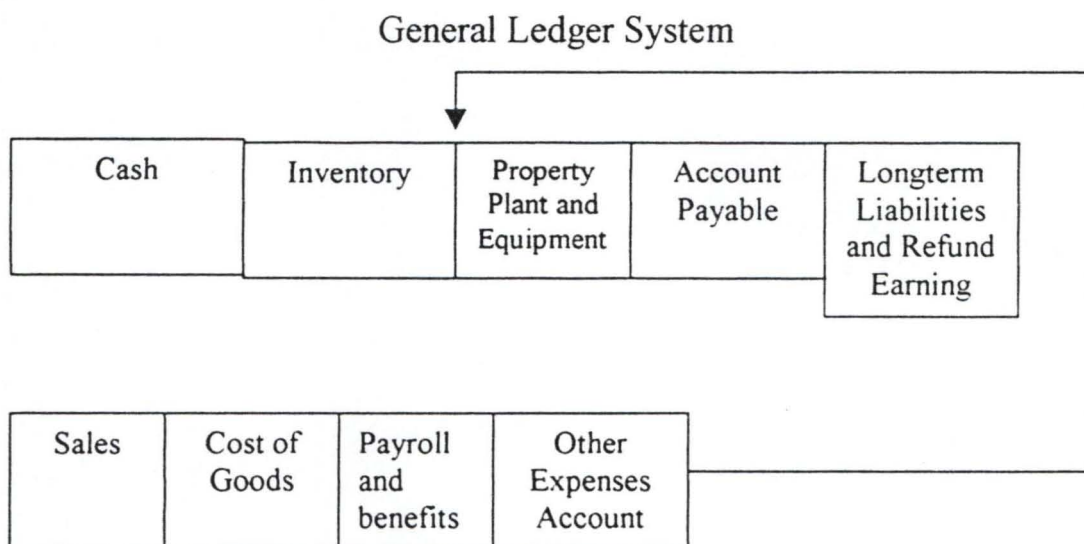
- (1) To carry out the routine transaction processing and recording keeping required of the accounting organisation.
- (2) To measure and report the performance of the organisation in financial and other terms.

Through the use of automation, well implemented accounting systems can achieve these objectives in a most cost effective manner.

## FLOW OF ACCOUNTING DATA

Figure 1 shows the data flows from various subsidiary accounting systems into the general ledger.

By definition a subsidiary accounting system contains accounting details reconcilable to but not available in the general ledgers



## GENERAL SYSTEM FEATURES

Modern automated systems have certain features that cross applications boundaries and characteristically appear in all automated accounting systems. The design and appearance of these features play an important role in the system's acceptance usefulness and on-going operation.

(1) Standard report Format

The user Interface

Searching and selecting records.

) Journals and transaction reporting

5) Master files and tables.

The user interface is a set of automated system features that is visible to operators and accountants using the systems.

Broadly speaking, a system's user interface includes all modes of interaction with the system, screen layout, online system use, reported messages, error conditions and printed documentation.

## **SEARCHING AND SELECTING RECORDS**

Many systems provide a capability for searching and selecting transactions, table entries and master file records. This is a universal requirement that extends to all applications. For example, in account payable, it may be useful to search a group of vouchers entered in unposted batches in the general, an accountant may wish to per use the chart of accounts.

to accomplish this, the system can use a special selection screen that shows one record per line of on the screen, allowing any item displayed to be selected for digital viewing.

Searching and sorting often must occur on several data elements. e.g. different customer master records may be displayed in response to

- (1) Customer name starts with "JOH"
- (2) Customer number Starts with :II".
- (3) Customer state = "MA"

Systems should allow selected records to be sorted differently for viewing. For example, account payable transaction history records may have the three different views:

**View I:-** Sorted by check number, to the question, "What vouchers were paid with check number 11209'.

**View II:-** sorted by general ledger account number so that according can reconcile the general ledger accounts back to their source.

**View III** Sorted by voucher number, to allow a particular voucher to be selected for detailed viewing (when only the voucher number is available in advance)

## **JOURNALS AND TRANSACTION REPORTING**

Journals report create important audit trails that record and report all transactions entering the accounting system. Also called journal report lists its transaction by sequence in which they were entered, usually sorting them by batch and line number.

The best use of a journal is to provide accountant with enough information about posted transactions so that they need not refer back to source documents when performing their work. Hard copy printing of transaction journals is not always necessary. Most systems allow the user the option of saving this information on-line and allowing it to be reviewed as such.

## **MASTER FILE AND TABLES**

Master files are the large, data intensive files that form the cornerstone(s) of particular accounting applications. Tables are smaller files (usually under 100 records) that further support specific system features and capabilities. Accounting systems have specific features pertaining to master files and tables that generally appear to wherever these structure exist:

(1) A listing features that reports the important information off of cash master file or lists of file out in its entirety.

(2) Record searching and selection as described earlier.

(3) The ability to search a table of valid values from a data entry screen and selected one table entry via cursor movement and without keying that item into the screen.

Note a modern accounting system will rarely compromise these features.

## **SECURITY**

System Security restricts access to system functions so that only those who require this access have it. Security is an internal control mechanism that is part of the automated system's functionality. Look for security to provide the following restrictions based on an individual user's I.D.:-

(1) On-line system access restricted to users with a valid user I.D and password.

(2) Restricted access to menu items.

(3) Restricted access to certain functions, such as the ability to update master file information.

(4) Restricted access to particular cross sections of accounting data such as restrictions to working only within a designated company in the chart of accounts.

The last three restriction are function (security Controls) which are usually part of the accounting software itself.



## **PERSONAL COMPUTER APPLICATIONS IN FINANCIAL REPORTING.**

(1) The flexibility and popularity of the personal computer provide unparalleled capabilities for manipulating and analyzing extracted general ledger financial information. The ability to use, this tool effectively not only enhances the organisations custom reporting and financial report preparation capabilities, but also allows accountants to use a personal computer to accomplish specific tasks for which the general ledger system itself may not be well adapted. personal computer application for finance and accounting.

### **(2) GRAPHICS AND OUTPUT PRESENTATION:**

Humans assimilate graphic information for easier than tabular information. The mind quickly, recognise trends and performance comparisons when the underlying quantitative information is represented graphically. Line graphs, pie-charts and bar charts provide a popular format for conveying financial and operating information stored in the general ledger. Most often people rely on line graphs, such as the one below, that use the X-axis to represent passage of time.

The cost and versatility of personal computer graphics products make the personal computer the device of choice for reporting graphic out-put from the

general ledger. Although many general ledger systems do at their ability to produce graphic information, personal computer graphic capabilities are much more elegant.

Modern personal computer systems allow an entire template of graphic display information to be set up to receive quantitative information from the general ledger.

Currently a variety of graphic output devices can attach to personal computers, laser printer, dot-mat, ix printer, ink-jet printers plotters can all print attractive graphic reports with the proper personal computer software.

### **(3) EXECUTIVE INFORMATION, DECISION SUPPORT, AND FINANCIAL MODELING:**

Executive information systems, decision support systems, and financial modeling systems are all personal computer applications that extend and enhance the financial reporting capabilities devices so far, The versatility and cost effectiveness of personal computer based systems for performing these functions are well-established and many organisation employ these tools. Like personal computer application for graphics and output presentation, each of these applications also has special requirements for getting at information in the general ledger system.

## **SPREADSHEET ANALYSIS:**

The accountants often use the general ledger system as the central repository of financial information and rely on a spreadsheet to perform any additional financial reporting and analysis on this data. Because of its ease of use and overall flexibility, this approach has become a popular technique.

Since the spreadsheet is two-dimensional, like the printed page, report preparation becomes very simple and can be easily enhanced with special features of the spreadsheet.

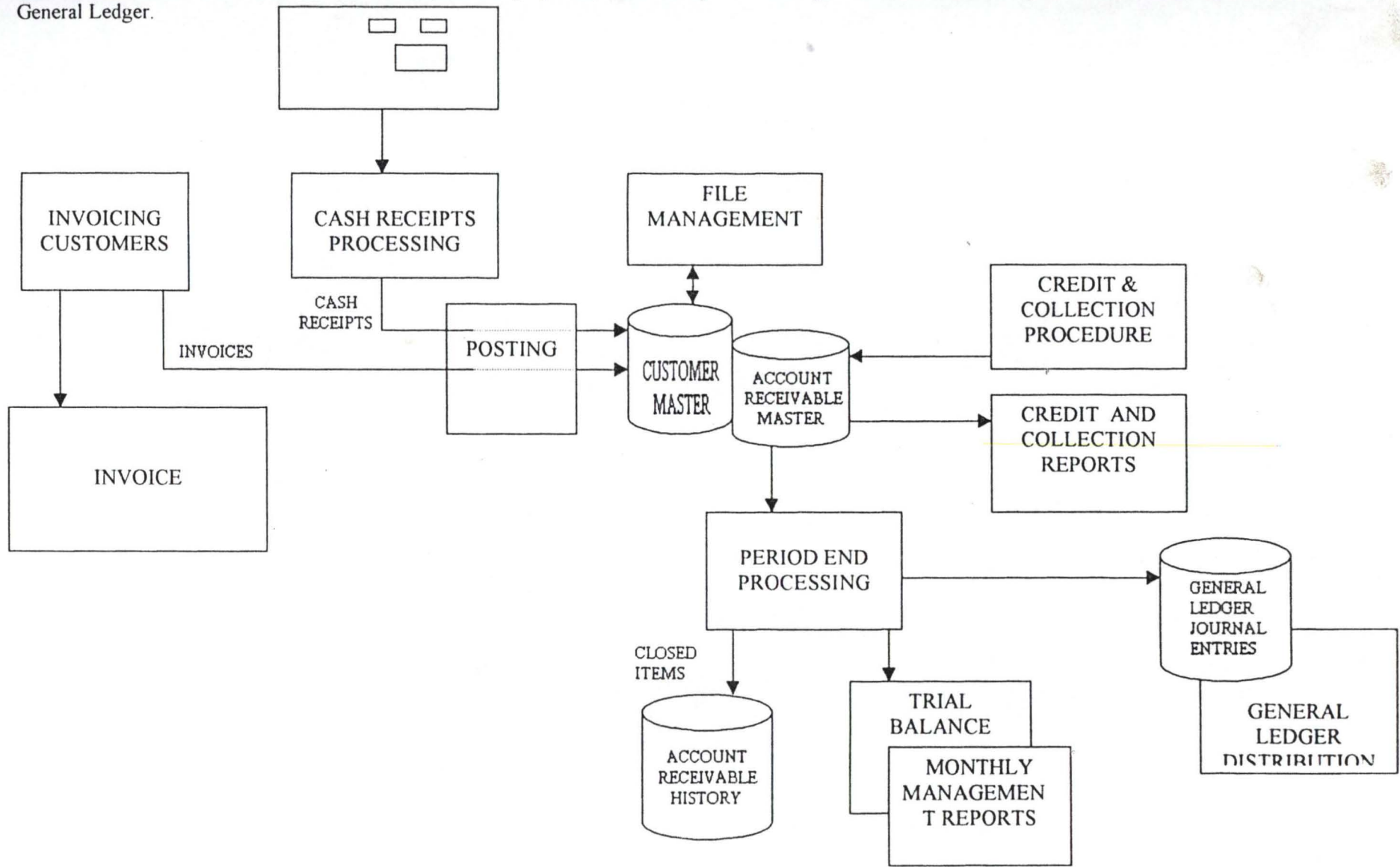
## **THE ROLE OF THE ACCOUNTS RECEIVABLE SYSTEM**

An A/C receivable system within every business that offers trade services to its customers. The system helps manage the customers accounts and assist with the timely collection of amounts due. Associated with these objectives are numerous ancillary processes, such as the maintenance of customer information, the tracking and evaluation of customer account transaction's and the forwarding of appropriate financial information into the general ledger. In an integrated environment several of these accounts receivable processes are related to other business processes, such as sales and customer services.

Extending trade services credit to customers creates a need for effective, efficient, and controlled accounts receivable system. The following factors add to the importance of achieving these goals.

- (1) The accuracy of receivables accounting contributes to customers perceptions about the organisation's quality and level of service.
- (2) The account receivable system is the link between the sales of an asset or services and the cash receipts.
- (3) Competitive pressures usually require a certain level of credit sales of services, creating the need to manage and collect these receivable.
- (4) Internal and external auditors are likely to target the a/c receivable system for periodic auditing.
- (5) Account receivable is an area of exposure for fraud due to employee's handling cash receipts.
- (6) Write-offs of un-collectable accounts are a controllable expense that directly affects net income, the bottom line.

Fig.2: Subset of the Accounts Receivable Environment; Invoicing System, Cash Receipts Processing, Account Receivable System File Credit & Collection, General Ledger.



# **CHAPTER THREE**

## **SYSTEM ANALYSIS AND DESIGN**

### **3.1 GENERAL EVALUATION OF INTERNAL CONTROL**

The under mentioned factors contributes to the constantly expanding recognition of the significance of Internal Control.

- (1) The scope and size of the business entity has become complex and wide spread that management must rely on numerous reports and analysis to effectively control operations.
- (2) The check and review inherent in a good system of Internal Control afford protection against human weakness and reduces the possibility that errors or irregularities will occur.
- (3) It is impracticable for auditors to make audits of most companies within economic fees limitations without relying on the clients' system of internal control.

### **THE NATIONAL COMMISSION OF FRAUDULENT**

Financial reporting (Treadway Commission) reemphasized the importance of Internal Control in reducing the incidence of fraudulent financial reporting - The commission final report, issued in October 1987 highlight the following:-

(1) Of Overriding Importance is preventing fraudulent financial reporting is the "tone set by top Management" that influences the corporate environment within which financial reporting occurs.

(2) All Public companies should maintain Internal Control that will provide reasonable assurance that fraudulent financial reporting will be prevent or subject to early detection.

(3) The organisations sponsoring the Commission (Including the auditing standards Board) (ASB) should cooperate in developing additional guidance on Internal Control Systems.

**3.2 THE SURVEY:** For the purposes of financial statement audit, an entity's Internal Control structure (ICS) Control of the following three elements (1) the control environment, (2) The accounting system (3) the control procedures.

An entity's control exist within a set of factors that collectively is referred to as the control environment. These factors are:

- (1) The Management philosophy and operating cycle.
- (2) Organisational structure
- (3) Board of Directors

- (4) Methods of assigning authority and responsibility
- (5) Management Control Methods
- (6) Internal Auditing
- (7) Personnel Policies and Practices
- (8) External Influences.

Note that the Control environment may enhance or mitigate the effectiveness of Specific Controls.

The personnel practices that result in hiring untrustworthy or incompetent employees may make a specific control in operations or ineffective. An entity's control environment reflects the overall "Tone" or attitude of management and the board of directors regarding the importance of controls in the company.

**3.3 MANAGEMENT PHILOSOPHY AND OPERATING STYLE:-** Management plays a key role in establishing a favourable control environment within the organisation. The control environ is adversely affected when management is unwilling to prescribe appropriate controls or fails to adhere to establishment controls.

1. Management approach to taking and monitoring business risk may significantly influence the environment.
2. The emphasis management places on meeting budget, profit and other financial and operating goals, influenced the control environment.



### 3. Management; attitude and actions toward financial reporting.

Note If management is unduly aggressive about maximizing earning in financial reporting, The auditor may decide to access control risk at the maximum for most assertions.

**Organisational Structure:** Contributes to a good internal control environment by providing Over all frame work for planning, co-ordinating and controlling operations. It's Involves(a) determining the form and nature of it's organisational units including identification of related management functions and reporting relationships(b) providing for the assignment of responsibility and delegation of authority with in each organisational unit.

**Board of Directors.** The board of directors has important fiduciary responsibility within an entity. An active board of directors that includes an effective audit committee contributes to good internal control. The former oversees business activities where as the latter monitors financial report.

The audit committed helps to ensure a direct line of communication between the board and the entity's external and internal auditors.

### **METHODS OF ASSIGNING AUTHORITY AND RESPONSIBILITY:**

Control consciousness in an organisation is enhanced when management method of assigning authority and responsibility are clearly established and

communicated. That is written policies should be disseminated regarding acceptable business practice, conflict of interest and codes of conduct. Written job should delineate specific duties report of relationships, and constraints. There should be computer systems documentation that describes the procedures for authorizing transactions and making system changes.

**Internal Auditing:** It is dependent appraisal activity within an entity. Internal auditing contribute to be a good control environment by assisting management in monitoring the effectiveness of other control policies and procedures. Internal auditors can offer construction suggestions for improving the Internal control structures. The effectiveness of an internal audit functions relates to (a) it's authority (b) the qualification of the staff and (c) the resources available to them.

Internal audits should be independent of the unit they audit and they should report directly to the board of directors or it's audit committee.

### **3.4 ACCOUNTING SYSTEM**

The second element of an entity's ICS is the accounting system. It consist of the method and records established to identify, assemble, analysis, classify, record and report's an entity's transactions and maintain accountability for the related assets and liabilities. For effective accounting system the following elements should be observed.

- (A) Identify and record all valid transactions
- (B) Describes on a timely bases the transactions in sufficient detail to permit proper classifications of transaction for financial reporting.

## **ACCOUNTING SYSTEM**

- (1) Measure the value if transactions in a manner that permit recording their proper monetary value in the financial statement.
- (2) Determine the tenure period in which transactions occurred to permit recording of transactions in the proper accounting period.
- (3) Present properly the transaction and related disclosures in the financial statements.

If should be evident from the foregoing list that the focus of the accounting system is on transactions. Transactions consist of assets and services between a business enterprise and outside parties as well as the transfer or use of assets and service within a company.

A company's' allocating system should provide a complete audit or Transaction trail for each transaction. A transaction trail is a chain of evidence provided for coding cross reference and documentation connecting account balances and other summary

results with original transaction data. Transaction trail are essential both to management and auditors. That is management uses trail in responding to enquiries from customers or suppliers concerning balances. Auditors use the trail in vouching and trailing transactions.

### **3.5 EVALUATION OF CONTROLS IN SIMPLE COMPUTER SYSTEMS**

Apparent weakness in any of the input processing and output controls are matters of concern. However absence of a control at the input stage may be offset by other controls at later stages. For example if check digits are not calculated when the input is prepared but input transaction numbers are compared to Master files numbers and nonmatches are rejected and printed in an error report, the control is likely to be satisfactory and effective. Of course it usually more efficient to catch error early rather than late but control still can be considered reliable for the accounting records and financial statements. Internal auditors, however may be very interested in when controls are applied, Since they are concerned about the efficiency of computer Operation.

Material weakness in manual and computer control become a part of the independent auditor's evaluation of control risk. Lack of input control way permit

data to be lost or double counted, and poor processing control can permit accounting calculation, allocation, and classification errors to occur. Poor output control over distribution of reports and other Output (negotiable checks) can be the source of errors and irregularity that can make 40 financial statement materially misleading.

The purposes of the review of internal control is to gain an understanding of the flow of transaction processing and to determine the strengths (Controls) that can be relied on and weaknesses (Lack of Controls) that need to be considered in designing substantive audit procedures. In a computer environment, the general Controls must be reviewed if any application system contains Computer Controls that can be relied in. Based on the audit documentation (working Papers) of the computer controls and manual controls the audit manager must determine whether processing is accurate and complete.

### **COST AND BENEFIT ANALYSIS.**

Controls identified should not be applied without considering their cost effectiveness. No one would buy a \$10,000 safe to store \$500 = cash. In some cases, it may be better to allow a minor internal control weakness to exist rather than to spend excessive amounts to mitigate it.

The cost effectiveness of an internal control is a judgement made by accounting Management in Considering all of the auditors recommendation.

Small business have to be specially careful here. Suppose that the auditors recommendation required paying overtime so that printed checks could be matched against Original Vouchers Instead of acceding to this, management may decide to allow the weakness to exist and Instead Substitute their monthly review of financial record as a compensating measure to ensure that no gross irregularities occurred.

An automated accounting System with the accompanying effective control procedures is one of the quality oriented and cost accessing projects. This orientation will reflect on the quality of services and will vividly exposed the calibre of personnel in the System.

**Equipments:-** Cost purchasing the needed computer equipment and the accessories the housing cost, the installation, the maintenance cost, Operational cost, Personnel Training, Customer's satisfaction.

**Benefits:-** Customers satisfaction, Controlling greater segments of the market, meeting up with competitions, Effective Process Control Techniques, Adequate frauds reduction and Identification of Responsibilities.

## CHAPTER FOUR

### 4.0 COMPUTERISED ALLOCATION CONTROL SYSTEM.

4.1 Projects actualisation and disbursement of fund for various reasons are centrally controlled. Nitel management at the Headquarter segment allocations and forwarded the same to various Divisions through official and authorised channels of communication cutlets. These system are computerized and all the allocations are monitored through an authorised agents called project evaluation monitoring unit.

4.2 Various Divisional General Managers and Territorial Managers ensure the proper implementation of the planned scheme.

The allocation controlled system are segmented into four computerised units:

- (1) Allocation Control
- (2) Expenditure Control
- (3) Report Production
- (3) System Exit.

## **THE ALLOCATION CONTROL**

The Control is subdivided into four operational functions in the computerised unit.

(a) The New Allocation Details

(b) Edit Allocation Details

(c) The View Allocation Details

(d) Delete Allocation Details

The allocation are authorised by the General manager. Each amount of the allocation is spelled out in words and figure laid be signed and collected by the Territorial manager in charge of various state project.

The Disbursement of this fund to various departments through the HOD's are properly scrutinised to ensure that the properly and Judiciously spent for any planned project scheme.

A committee of four is setup for effective editing and Evaluation of any project implementation the same will forward their report to the management.

The details oft the expenditure are properly presented which enable to committee to view if objectively based on the organisational objectives and goals.



The allocation details can be corrected and remarked by the committee if the implementation process is below the predetermined standards.

(b) The editing of allocation details enable the standard committee to scrutinise the amount in figures and words to ascertain non-duplication of figures from the previous project which had already received acceptance.

The budget properly will then be examined in the light of the presented allocation. If the mapped out implementation strategy is strictly adhered to then committee will give recommendation if not it will be referred back to the department. Concern for amendment to align with standard layout.

(C) The view of the allocation details calls for comparison of the proposed budget proposal with the current allocation implementation design for the period.

The HOD will have to defend each sub proposed expenditure design. If there is any deviation from the original proposal the variance need to be Identified and need for such variance to be cleared.

Then comprehensive report will be presented by the committee to the General manager as regard the General allocation details.

### **4.3 EXPENDITURE CONTROL**

Expenditure, Requisition and supplies of the various goods and service requires sound commercial judgement from the management. The management decision must reflect commercial competency required of a competitive and services oriented organisation like Nigerian Telecommunication limited liability.

Good market survey will enable the management to invest on materials to ensure availability for prompt services.

The materials and personnel involvement for the provision of services must commensurate with the expected yields from the investment.

The HOD's will ensure that before various projects are recommended for approval to the Territorial manager Both Departmental and the organisation objective are in view.

organisations expenditure guideline's must be strictly adhere to ensure that adequate controls are put in places to minimise frauds.

Stores or materials management department should be handled by experienced and competence personnel for possible advice for material investment proposal and purchase.

Policies for effective controls for requisition, Approval, purchase, supplies and the received of the quoted items must be strictly followed to ensure compliance to specification.

Report production will give a good detail of activities visited within the commercial periods in view.

The summary of the amount spent during the service period must be shown at a glance.

## CHAPTER FIVE

### 5.1 IMPLEMENTATION CONSIDERATIONS

Automated accounting systems implementation follows steps that are similar to other system implementation projects, however, there are some differences that bear understanding. These differences include:

- 1 Services partner involvement in system implementation.
- 2 The implementation process itself.
- 3 Implementation costs required to develop a working system.

5.2 In most cases servicing partners are already using EDI to conduct business. They are aware of the particular EDI environment being built and what they as a trading partner expect to receive or plan to send. Because of the value of the trading partner knowledge and experience, businesses new to EDI often begin holding talks with their best trading partners and continue that dialogue throughout implementation. The services partner experience can help reduce the risk of missed project dead lines and project cost overruns.

It can also prove helpful when circumstances require internal selling of project benefits to management. Obviously project risk will be higher if trading partners are also being indoctrinated into the world of EDI for the first time.

**5.2.1 THE IMPLEMENTATION PROCESS:-** The compounding effect of both services and trading partners, Third party net works, and accepted standard sufficiently complicated the traditional system implementation process loden applied to EDI. because of these unique factors, EDI system implementation requires a somewhat unique approach.

**5.2.3** Shows the results or outputs of each phase of a traditional approach as it pertains to the implementation of a new EDI system.

### **5.3 SYSTEM IMPLEMENTATION PHASE APPLIED TO EDI**

**FEDSIBILITY STUDY:-** Definition of scope, Reasonable costs and benefits.  
Setting of preliminary inspections. Acceptance by executive management, Agreement with services partners.

### 5.3.1

**CONCEPTICAL DESIGN:** Definition of EDI components definition of components functions outline of procedures for errors Identification, reporting and resolution Agreement on timing requirements for message transmittal and receipt. preliminary list of hardware and equipment needs and specifications.

### 5.3.2

**SOFTWARE PACKAGE SELECTION:** Final decision on use of a choice packaged system. Identification of area for customization and in-house programming.

**DETAIL DESIGN, PROGRAMMING AND UNIT TESTING:** Design and development of all in-house required programs, completed list for all programs and programs functions.

### 5.3.3

**SYSTEM TESTING:-** Transfer of documents b/w trading partners. completed test for documentation and Integration testing. EDI system tables loaded.

### 5.3.4

**TRAINING AND CONVERSION:** System documentation produced. People trained in Error Identification and resolution, system management procedures defined.

### 5.3.5

**CUT-OVER:** Phased (Low volume) cut over to new system operational EDI system. New servicing partner added.

### 5.3.6

**POST IMPLEMENTATION REVIEW:** Follow-up tasks identified and follow-on implementation defined. Analysis of actual benefits.

## 5.4 IMPLEMENTATION AND ACCESS CONTROL.

To control system access and help ensure that only authorised trading partners access the EDI system, the following internal control procedures apply:

- Assigning a user ID and password to each authorised officer.
- Requiring each functional official to change his password after a certain time interval, such as six months.
- Disallowing any subsequent log-on attempts after the third unsuccessful attempts.
- Reporting to the system operator any instances of three consecutive unsuccessful log-on attempt.

- Using a modem call-back feature to control what location can connect to the central computer.

A mitigating factor regarding general system access is the fact the EDI is a batch-based environment. Because of this the communication portion of most EDI systems are oriented around the basic transfer of a file, rather than support of an on-line interaction with the system. Without on-line interaction the threat of intrusion becomes greatly diminished and the exposure to compromise is less than, e.g. an environment in which outsiders call in and are granted on-line system access.

A personal computer based EDI system may have a fairly high exposure to unauthorised access. These systems generally lack the layers of software security and security procedures that project larger and more expensive systems often have. The best way to initiate this risk is by not allowing outsiders to call into such an environment. In other words, use the personal computer only to initiate out-bound calls to trading partners. A modem with a call-back feature can help accomplish this.

#### **5.4.1 THE DATA BASE FILE APPROACH**

A proper database design is critical to a successful system. It permits efficient storage of data in the system, planning a database includes careful considerations of



all outputs of the system to determine all of the storage needs. All database systems need careful testing to determine the net Impact on the overall system.

Developing a database driven design which withstands the test of use over a period of time to the biggest problem with the approach and the biggest reward to designer. Database design Implies several things.

- (1) First, a through understanding of the business-all aspects of the business that Impinge upon profitability and thus constitute critical functions- is Implied.
- (2) Successful design implies a comprehensive understanding of how all the "Pieces" of a business fit together and influence each other. This is not a static concern but a dynamic series of problems that form design parameters and constraints.
- (3) A successful database driven system Implies the thoughtful and deliberate development of a written plan which documents carefully all of the critical decisions and judgements that must be made. An Integrated database system is a synergistic segmented organism. It feeds and nourishes into various parts through an elaborate network or fabric of relationships. Database design is the collecting organising, evaluating and assembling of many of these relationships.

**5.4.2 DEFINITION:** In a database driven design most of the data or information required to keep the business running is stored in files. This fact, in and of itself, does not make the database approach unique. What does is that with few exceptions, data are stored only once that is, a specific data element is stored in only one place.

### **5.4.3 DATABASE FILE**

Database, then, is the design of files in such a way that its accumulates all the information about a subject in one place of multiple uses. Central to database design is the Identification of the proper central foci or "the subject matter" of the files around which to collect data.

In the case of Nitel Plc. services changes, we could focus on the-customer's names, Amount paid, Telephone numbers, passport territory, Zone and the site.

The taste of file development is to Identify all aspects of the business as they affect the sales territory; customer, the Tel number, the zone the numbers and names classification sold in that territory, and so forth, until all of the pertinent data needed to run the company are stored in the file.

**5.4.5 THE DATABASE RECORD:** All of these data are assembled into one electronic file folder called a record. i.e. in that folder is everything you would ever

want to know about a sales territory. The record is composed of many pieces of information, all of which identify a particular characteristic of the record.

Additional internal control procedures may be possible in a computer-based system. Approval of each credit sale described in the above paragraph, is but one example of an internal control procedure that makes use of the unique capabilities of the computer. Such a procedure may not be practical in a manual system, especially if the account receivable subsidiary ledger is not kept continually up-to-date.

#### **5.4.6 INTERNAL CONTROL AND THE COMPUTER**

Computer hardware itself is highly reliable and the possibility of errors caused by computer malfunctioning is very small. However, the use of reliable equipment does not entirely eliminate the possibility of errors in account records. Human beings create the information which is entered into the computer, and human beings make mistakes. In addition, the computer program may contain errors and, therefore may process certain transactions improperly. Thus internal control is just as important in a computer-based system as in a manual accounting system. The undermentioned are important internal control concepts for computer based accounting systems.

- (1) Organisational controls.
- (2) Security controls.
- (3) Input controls.
- (4) Program controls.

**5.5 ORGANISATIONAL CONTROLS:** We stressed the need for separation of duties as a means of achieving internal control. This concept is equally Important in manual and computer-based accounting system. An employee with custody of assets should not also have access to accounting records. If these duties are assigned to the same employee, the person has the opportunity to conceal a shortage of assets by falsifying the accounting records.

Separation of duties is also necessary among a company's computer department, personnel. The purpose of such separation is to ensure that no one person is in position to make unauthorized changes in programs or computer based records. This, all programs should be tested by someone other than the programmer who wrote the program.

In addition, the responsibility for programming and actual operation of the computer should be assigned to different employees. Several computer-based

frauds have occurred when programmers were also responsible for daily computer operations. An individual with this combination of duties is in a position to use the computer to make unauthorised changes in programs.

As an additional precaution, the computer should create a log of all Instructions given to the machine by the computer operator. This record should be received daily by a computer department control group to determine that the operator has not made any unauthorised changes in programmer files.

**NOTE:** One recent computer fraud in a large company wells linked to a well-publicized change in the amount of income tax rates. Knowing that employees expected a change in the amount of income taxes withheld from their pay checks a computer programmer wrote a new payroll program which overstated by a few dollars the income tax withheld from each employee. The program then added these excess with holdings to the programmer's own paycheck. As a large labour force was involved, the dollars amount of this fraud was quite substantial.

This fraud would not have been possible if the new payroll program has been carefully tested by other employees.

### 5.5.1 SECURITY CONTROLS

The purpose of Security control is to safeguard computer, based records, Computer programs and computer equipment against damage, theft or unauthorized use. It is essential that only authorized personnel have access to computer-programs and accounting records. When programs or record can be accessed them a computer terminal, the user of the terminal should be required to enter secret passwords to gain access to the system.

The computer should issue a warning to the computer department control group if repeated attempts are made to gain access to the system programs and records should be safely locked after working hours.

**Note** A consultant for a large bank has able to use the bank's electronics funds transfer #10 million of the bank money to his account at another bank. The consultant had noticed that the "Secret" passwords necessary to make wire transfer were posted on the wall beside a computers terminal.

The fraud remained undetected for eight days. In the meantime the consultant transferred the money to a Swiss bank account and converted it into diamond. He

might never have been caught except that he returned to his home state and tried to sell some of the diamonds.

### **5.5.2 INPUT CONTROLS**

Input Controls are precaution taken to ensure that the data being entered into the computer is correct. Input Control vary, depending upon whether transaction are being entered into the system as they occur (Online, real time) or whether they are processed periodically in large groups or batches.

In an Online real time (OLRT) System, Input Controls include Such Concepts, as identification numbers and passwords to identify authorized users. In addition, terminals used for recording specific types of transaction should have only limited access to the computer - based records for example - the point - of sale terminal in retail department stores are used to record cash sales and credit sales. Therefore the only entries that need to be made from these terminals are debit to cash and Account Receivable accounts and credit to sale accounts. These terminals should not have access to other accounts or records.

Another Input Control in an OLRT System is the use of Machine-readable Input. i.e. many items in supermarket are labeled with machine read able codes. The cashier passes this merchandise over an optical scanner which identify the merchandise to the computer. The computer then determine the price of the item the master price list and displays this amount for both the cashier and the customer to see. This automatic entry procedure virtually eliminates errors in recording the sales prices of merchandise.

### **5.5.3 PROGRAM CONTROLS**

Program Controls are errors detecting measures built into the computer program. An example of a program control test as a limit test, which compared every item of data processed by a computer to a specified naira limit. In the event an amount exceeds the naira limit, the computer does not process that item and prints out an errors report. A limit test is particularly effective in such computer applications as preparing paychecks, when it is known than none of the paycheck should be for more than a specified amount, such as #1,000.

Another program control is an item count. The total number of data items to be processed by the computer is predetermined and that the total is entered as part of the input to the computer. The computer then counts the number of items it processed and



if this number differ from the predetermined total, an error report is printed. This item count ensures that all the data are actually processed by the computer.

#### **5.5.4 ACCOUNTING APPLICATION OF THE COMPUTER**

The use of electronic data processing equipment is possible for virtually every phase of accounting Operations. Even a CPA firm, in conducting an annual audit, may use the computer as an audit tool. For this purpose the auditors may employ specially written computer programs to aid in their work of sampling and analysing data to determine the fairness of the financial statements.

The most common application of the computer, however, is to process large masses of accounting data relating to routine repetitive operation such as recording retail sales, Maintaining perpetual inventory records, preparing payroll and posting to ledger accounts.

#### **5.5.5 RETAIL SALES - ACCOUNTS RECEIVABLE AND INVENTORY RECORDS.**

The point - of - sales terminals now prominent in many retail establishments greatly reduce the work involved in accounting for sales transaction many of these terminals use an optical Scanner or other electronic device to “read” Magnetically coded labels

attached to the Merchandise. As the merchandise is passed over the optical Scanner, The code is sent instantaneously to the computer. From the code number the computer is able to identify the item being sold, record the amount of the sale and transfer the cost of the item from the inventory account to the cost of Goods sold accounts. If the transaction is a credit sales, the salesclerk enters the customer credit card number in the electronic register. His number enables the computer to update instantly the customer's account in the subsidiary ledger.

### **5.5.6 PAYROLLS**

In a manual accounting System the preparation of payroll checks is usually separate from the maintenance of records showing pay rates position time unlocked, payroll reduction and other personnel data. A computer however has the capability of maintaining all records relating to payroll as well as turning out the required paychecks. Payroll processing is usually one of the first accounting operations to be placed on the computer.

The company's record must be designed to facilitate filing regulate reports to the Federal and State government showing the amounts with held for income taxes, Unemployment insurance and social security. The time and the expense required to prepare payrolls have risen in proportion to the need for more information.

A computerised payroll system will not only maintained the necessary records prepare the checks and print the required reports, but also keep management informed of the cost of various functions within the business.

For example, data can be produced showing the worked - hours and labour cost on each job, labour cost by department for each sales clerk or time required by different employees to perform similar work.

### **5.5.7 COMPUTER - BASED JOURNALS AND LEDGERS**

Computer may be used to maintain the journals and ledger and to prepare financial statements Transaction and end of period adjustment still must be analysed by person processing a knowledge of accounting principles However, after this transaction have been analysed and prepared in computer Input form the computer can be used to print the journals post to the ledger accounts and print the financial statement and other financial reports.

The advantage of maintaining accounting records by computer is that the possibility of mathematical errors are greatly reduced and the speed of the computer permits the records to be kept continuously up to date.

Other accounting application of computer include forecasting the profit possibilities inherent in alternatives courses of section analysing gross profit margins

by department or by product line and determining future cash requirement long in advance. Recent development of accounting applications of the computer provide much more information about business operations than has available to management in the past.

### **5.5.8 SOFTWARE OPERATION**

Software is the essential complement to computer hardware. The term Software has acquired several meanings in computer literature but in essence it describes the "software: portion of the computer installation that is the computer programs that are executed by the hardware. Defined most narrowly, software indicates an operating system a program designed to control the execution of other programs and to achieve efficient use of the computer hardware. The term can be more broadly defined as the group of programs (including the operating System) that provides the means to utilise the computer hardware efficiently. Software can represent all the programs required by an installation and in particular the programs the installation needs to perform its primary tasks.

For examples the software for a retail store includes not only the operating system and its associated programs but also the application programs which handle inventory control and customer billing provide statistical analysis of the data and perform other

necessary processing. Computer hardware is inexorably linked to computer Software, Without programs the hardware is merely a complex set of electronic gear with no problem solving capability of its own. For the hardware to perform even the smallest task a program must be created and stored within the computer. Software is the fundamental ingredient that makes the innate power of the hardware available to the user.

Software - that is, programs that is written to be executed by the computer. Writing a program requires the careful specification of a set of instruction to be executed by the computer. the group of instructions constitutes a program. The format and contents of the individual instructions are determined by the computer language in which the program is written.

Both the operating system and application programs simultaneously reside in RAM together with any data relevant to the problem. The operating System is permanently stored in RAM but different application programs can be loaded which allow the computer to be used as a general-purpose machine to solve a wide variety of problems.

Both the operating system and the application programs are written in what is called a programming language. In general each series of computer from a computer

manufacturer uses its own particular code, called "machine language" which is easily understood by the computer but is unintelligible except to a trained human. These codes are in binary digits. To overcome this problem the binary digits are replaced by mnemonics to give an assembly language, which is then processed by a program called an assembler to produce the desired machine code. As most computers have different machine and assembly languages due to the variation in basic hardware design, it is not possible to transfer software b/w different series of computers.

### **5.5.9 HARDWARE OPERATIONS**

An electronic Computer is composed of basic Sections.

The Control Unit.

The arithmetic/Logic Unit.

The central Memory.

The input/output devices.

**5.5.9.a The Control Unit:-** The control Unit determines which instructions are to be executed, obtains the instruction from the central memory, and interprets the instruction. The computer then executes the instruction with the aid of other machine Units. The entire Operation of the Computer and its input/output devices is directed by the control Unit.

**5.5.9.b The Arithmetic/Logic Unit:-** This is the section of the Computer that performs the arithmetic operations that are directed by the control Unit. For example, an instruction to add two numbers causes the numbers to be transferred to this Unit. The addition is performed and the result of such is returned to the memory Unit. Subtraction, multiplication and division are also performed within the arithmetic/Logic Unit.

**5.5.9.c Input/Output Devices:-** For a computer to perform any operation - such as addition or subtraction - on data, the data must be stored within the central memory. Before the data can be transferred to the central memory, it must be prepared in a form suitable for processing by one of the Input devices on the Computer. For example, data may be placed on punched Cards and then entered into the main memory by means of a card reader attached to the Computer. Similarly, the computer must communicate the result of its computations to humans. Thus, the results may be printed onto paper by the computer by means of a printer.

**5.5.9.d The central Memory:-** Program instructions and data are stored as binary numbers in the central memory Unit, which is also called the primary memory. The memory consists of a lot of memory storage locations, each of which has a numerical designation, called its address. Each location contains a binary number that represents

either an instruction or data. A computer memory is analogous to a set of mailboxes, which each box is labeled with a number that is its address.

## **5.6 COMPUTER - BASED ACCOUNTING SYSTEMS.**

The Concepts of Special journals and Subsidiary Ledgers apply to computer-based accounting systems as well as manual systems. In fact special journals and subsidiary ledgers are far easier to maintain in computerised system. reasons for special purpose journal are to reduce the amount of time involved in writing journal entries and Posting in Ledger accounts.

In computer based system the accountants need only enter the data needed for the computer to prepare journal entries. All the writing and all the posting to general ledger and subsidiary ledger account is then handled by machine with no further human effort.

### **5.6.1 ADVANTAGES OF COMPUTER - BASED SYSTEMS**

(1) The Primary advantage of the Computer is its incredible speed. The time needed for a computer to post a transaction or determine an account balance is but a few millionths of a second.



(2) Large amount of data can be processed quickly and efficiently. Large business may engage in tens of thousands of transaction per day. In processing such a large volume of data, computer can saves most amount of time in each step of accounting process including the recording of transaction posting to ledger accounts and preparing of accounting records, Schedules and reports

(3) Account balance may be kept up - to - date. The speed with which data may be processed by a computer enables business to keep subsidiary ledger accounts, perpetual inventory records, and most general ledger accounts continually up-to- date.

(4) Additional Information may be developed at virtually additional Cost.

(5) Instant feedback may be available as transactions are taking place, In on - line, real time (OLRT) Computer Systems, the employee executing transaction may have a terminal which is in direct communication with computer. Thus, the employee has immediate access to accounting information useful in executing the current transaction.

**NOTE:-** The electronic cash register now found in many departmental stores are point - in - size terminals in direct communication with the store's computer System. When a sales person make a credit card the sales person enters the credit card number into the terminal. The Computer Compares this number to the last of cancelled or stolen credit cards and also determines whether the current sales transaction would cause the customer's account balance to exceed a predetermined credit limit. If any of these

procedures indicate that credit should not be extended to the customer, the computer notified the sales person not to make credit sale.

## REFERENCES

- (1) C.S French, (1989): Computer Science International Student Edition. Third Edition.  
Publisher: - DP Publication ltd Aldine Place 142/144 Ux bridge Road, Shepherds  
Bush Green. London W128AA.
- (2) Donald A. Watne & Peter B.B Turney, (1984): Auditing EDP Systems. Publisher: -  
Prentice Hall International Editions printed and bound in Great Britain by A.  
Wheaton & Co. ltd, Exeter.
- (3) Douglas A. Potter (1991): Automated Accounting Systems and Procedures  
Handbook. Publishers: Newport Consulting Group Newport Beach, California.
- (4) Walter G. Kell & William C. Boynton: Modern Auditing Fifth Edition. Publisher:  
John Wiley & Sons, Inc. U.S.A
- (5) Glenn A. Welsch & Daniel G. Short, (1987): *Fundamental of Financial Accounting*.  
Publisher: - Richard D. IRWIN. INC. U.S.A

COMPUTERISED ALLOCATION CONTROL SYSTEM

NITEL PLC MINNA.

M A I N M E N U

- 1 ..... ALLOCATION CONTROL
- 2 ..... EXPENDITURE CONTROL
- 3 ..... REPORT PRODUCTION
- 4 ..... SYSTEM EXIT

Press CODE [1,2,3,4] for Choice:

COMPUTERISED ALLOCATION CONTROL SYSTEM

ALLOCATION CONTROL MENU

- 1 ..... NEW ALLOCATION DETAILS
- 2 ..... EDIT ALLOCATION DETAILS
- 3 ..... VIEW ALLOCATION DETAILS
- 4 ..... DELETE ALLOCATION DETAILS
- 5 ..... SUBMENU EXIT

Press CODE [1,2,3,4,5] for Choice:

NITEL PLC MINNA

NEW ALLOCATION RECORD SCREEN

ALLOCATION NUMBER (Press "ENTER" KEY To Exit)AL/ 234

AUTHORISED BY:GENERAL MANAGER

RECIEVED BY:TERR. MANAGER

AMOUNT ALLOCA# 500,000.00 DATE ALLOCATED:21/05/99

DATE RECIEVED:25/05/99

DISBURSEMENT TO DEPARTMENT

PLANNING DEPT 50,000.00 CUSTOMERS'S ENGINEERING DEPT 100,000.00

EXCHANGE SYSTEM DEPT 150,000.00 ACCOUNTING DEPT 75,000.00

TOTAL AMOUNT DISBURSE 375,000.00

BALANCE FROM DISBURSED AMOUNT 125,000.00

SAVE NEW DATA (Y/N):

DATE: 08/06/99

COMPUTERIZED ALLOCATION CONTROL,NITEL PLC MINNA

UPDATING ALLOCATION RECORD SCREEN

ALLOCATION NUMBER (Press "ENTER" KEY To Exit):AL/ 234

AUTHORISED BY:GENERAL MANAGER

RECIEVED BY:TERR. MANAGER

AMOUNT ALLOCA# 500,000.00 DATE ALLOCATED:21/05/99

DATE RECIEVED:25/05/99

DISBURSEMENT TO HOD'S

PLANNING DEPT HOD 50,000.00 CUSTOMERS'S ENGINEERING DEPT 100,000.00

EXCHANGE SYSTEM DEPT 150,000.00 ACCOUNTING DEPT 75,000.00

TOTAL AMOUNT DISBURSE 375,000.00

BALANCE FROM DISBURSED AMOUNT 125,000.00

DO YOU WANT TO SAVE THE CHANGES (Y/N)

DATE: 08/06/99

COMPUTERIZED ALLOCATION CONTROL, NITEL PLC MINNA

VIEWING ALLOCATION RECORD SCREEN

ALLOCATION NUMBER (Press "ENTER" KEY To Exit):AL/234

AUTHORISED BY:GENERAL MANAGER

RECIEVED BY:TERR. MANAGER

AMOUNT ALLOCA# 500,000.00 DATE ALLOCATED:21/05/99

DATE RECIEVED:25/05/99

DISBURSEMENT TO HOD'S

PLANNING DEPT 50,000.00 CUSTOMERS'S ENGINEERING DEPT 100,000.00

EXCHANGE SYSTEM DEPT 150,000.00 ACCOUNTING DEPT 75,000.00

TOTAL AMOUNT DISBURSE 375,000.00

BALANCE FROM DISBURSED AMOUNT 125,000.00

VIEWING ALLOCATION RECORDS.PRESS ANY KEY TO CONTINUE DATE: 08/06/99



COMPUTERIZED ALLOCATION CONTROL,NITEL PLC MINNA

DELETING ALLOCATION RECORD SCREEN

ALLOCATION NUMBER (Press "ENTER" KEY To Exit):AL/ 234

AUTHORISED BY:GENERAL MANAGER

RECIEVED BY:TERR. MANAGER

AMOUNT ALLOCA# 500,000.00 DATE ALLOCATED:21/05/99

DATE RECIEVED:25/05/99

DISBURSEMENT TO HOD'S

PLANNING DEPT 50,000.00 CUSTOMERS'S ENGINEERING DEPT 100,000.00

EXCHANGE SYSTEM DEPT 150,000.00 ACCOUNTING DEPT 75,000.00

TOTAL AMOUNT DISBURSE 375,000.00

BALANCE FROM DISBURSED AMOUNT 125,000.00

ARE YOU SURE YOU WANT TO DELETE THIS RECORD (Y/N) DATE: 08/06/99

COMPUTERISED ALLOCATION CONTROL SYSTEM

EXPENDITURE CONTROL MENU

- 1 ..... NEW REQUISITION DETAILS
- 2 ..... EDIT REQUISITION DETAILS
- 3 ..... VIEW REQUISITION DETAILS
- 4 ..... DELETE REQUISITION DETAILS
- 5 ..... SUBMENU EXIT

Press CODE [1,2,3,4,5] for Choice:

NITEL PLC MINNA

NEW REQUISITION FORM

REQUISITION NUMBER (Press "ENTER" KEY To Exit):345

REQUESTED BY: MR. A.J. NJOKU

AUTHORISED BY:MR. JOHN CHUKWU

AMOUNT REQUESTED:# 15,000.00

APPROVED BY:TERRITORIAL MANAGER

REQUESTED DATE : 01/06/99 DEPARTMENTPLANNING

REQUISITION PURPOSE FOR PURCHASES

SAVE NEW DATA (Y/N):

DATE: 08/06/99

NITEL ELC MINNA

UPDATING REQUISITION FORM

REQUISITION NUMBER (Press "ENTER" KEY To Exit):345

REQUISTED BY: MR. A.J. NJOKU

AUTHORISED BY:MR. JOHN CHUKWU

AMOUNT REQUISTED:#

0.00

APPROVED BY:TERRITORIAL MANAGER

REQUESTED DATE : 01/06/99 DEPARTMENPLANNING

REQUISITION PURPOSE FOR PURCHASES

SAVE CHANGES (Y/N):

DATE: 08/06/99

NITEL PLC MINNA

VIEWING REQUISITION RECORD

REQUISITION NUMBER (Press "ENTER" KEY To Exit):345

REQUISHED BY: MR. A.J. NJOKU . . . . . AUTHORISED BY:MR. JOHN CHUKWU

AMOUNT REQUISHED:# . . . . . 0.00 APPROVED BY:TERRITORIAL MANAGER

REQUESTED DATE : 01/06/99 DEPARTMENPLANNING

REQUISITION PURPOSE FOR PURCHASES

VIEWING REQUISITION RECORD, PRESS ANY TO CONTINUE DATE: 08/06/99

NITEL PLC MINNA

DELETING REQUISITION RECORD

REQUISITION NUMBER (Press "ENTER" KEY To Exit):345

REQUISTED BY: MR. A.J. NJOKU

AUTHORISED BY:MR. JOHN CHUKWU

AMOUNT REQUISTED:#

0.00 . APPROVED BY:TERRITORIAL MANAGER

REQUESTED DATE : 01/06/99 DEPARTMENPLANNING

REQUISITION PURPOSE FOR PURCHASES

DELETE RECORD (Y/N):

DATE: 08/06/99

COMPUTERISED ALLOCATION CONTROL SYSTEM

REPORT PRODUCTION MENU

- 1 .....ALLOCATION REPORT
- 2 .....SUMMARY DETAIL REPORT
- 3 .....REQUISITION REPORT
- 4 .....SUBMENU EXIT

Press CODE [1,2,3,4] for Choice:

NITEL PLC MINNA

=====

ALLOCATIONS' DETAIL REPORT

=====

AL. NO	APPROVED BY	RECIEVED BY	AMOUNT ALLOCATED
100	ALHAJI ALI GM	MR. JOHN TM	1,000.00
101	MR DANIEL GM	MRR MARY TM	2,344,555.00
102	DR. MIKE GM	DR. ALI TM	2,333,444.00
103	PROF ALIYU GM	DR. AKIN TM	1,010.00
111	ALHAJI JOHN	ALHAJI MUSA	23,344.00
113	RAMATU YAKUBU	MICHAEL	8,000,000.00
111	ALHAJI JOHN	ALHAJI MUSA	100.00
111	ALHAJI JOHN	ALHAJI MUSA	1,000.00
112	DANJUMA	DANLADI	10,000,000.00
123	MRF	DGF	345,534.00
234	GENERAL MANAGER	TERR. MANAGER	500,000.00

TOTAL ALLOCATION SO FAR = 23549987



INTERCITY BANK PLC MINNA

=====

SUMMARY DETAIL REPORT

=====

TOTAL ALLO	TOTAL DISBURSEMENT	TOTAL REQUISITION	BALANCE
23,549,987.00	17,423,377.00	15,344.00	6,111,266.00

NITEL PLC MINNA

=====

REQUISITION DETAIL REPORT

=====

REQUESTED BY	APPROVED BY	DEPARTMENT	AMOUNT
MARY OCHE	DR MIKE TM	PLANNING DEPARTMENT	344
MR. A.J. NJOJU	TERRITORIAL MANAGER	PLANNING	15000

TOTAL AMOUNT REQUESTED SO FAR # 15,344.00

Structure for database: C:\PRO\ALLOCATE.DBF

Number of data records: 11

Date of last update : 08/06/99

Field	Field Name	Type	Width	Dec	Index
1	ALLNO	Character	8		N
2	AUTHOR	Character	25		N
3	AMTA	Numeric	14	2	N
4	RECIEVE	Character	15		N
5	DATE1	Date	8		N
6	DATE2	Date	8		N
7	AMT1	Numeric	12	2	N
8	AMT2	Numeric	12	2	N
9	AMT3	Numeric	12	2	N
10	AMT4	Numeric	12	2	N
11	TAMT	Numeric	14	2	N
12	BAMT	Numeric	12	2	N
** Total **			153		

Structure for database: C:\PRO\REQUEST.DBF

Number of data records: 2

Date of last update : 08/06/99

Field	Field Name	Type	Width	Dec	Index
1	REQNO	Character	6		N
2	REC	Character	20		N
3	AUTH	Character	20		N
4	APPR	Character	20		N
5	AMT	Numeric	12	2	N
6	DATE	Date	8		N
7	PURPOSE	Character	30		N
8	PURPOSE1	Character	45		N
9	PURPOSE2	Character	45		N
10	AMTL	Numeric	12	2	N
11	DEPT	Character	34		N
** Total **			253		

Structure for database: C:\PRO\DEPT.DBF

Number of data records: 4

Date of last update : 08/06/99

Field	Field Name	Type	Width	Dec	Index
1	CODE	Character	1		N
2	DESC	Character	20		N
3	ALL1	Numeric	12	2	N
4	BAL	Numeric	12	2	N
** Total **			46		

## MENU.PRG

set talk off

set stat off

set safe off

set scor off

set date brit

do whil .t.

clea

@ 3,15 to 21,64 doub

@ 2,20 to 4,61 doub

@ 4,32 to 6,50 doub

@ 3,21 say ' COMPUTERISED ALLOCATION CONTROL SYSTEM '

@ 5,33 say ' NITEL PLC MINNA.'

@ 7,30 to 9,49 doub

@ 8,32 say 'M A I N M E N U'

@ 11,22 say '1 ..... ALLOCATION CONTROL'

@ 13,22 say '2 ..... EXPENDITURE CONTROL'

@ 15,22 say '3 ..... REPORT PRODUCTION'

@ 17,22 say '4 ..... SYSTEM EXIT'

@ 19,16 to 19,63 doub

@ 20,22 say 'Press CODE [1,2,3,4] for Choice:'

do whil .t.

check=''

@ 20,57 get check pict '!'

read

if check \$ '1234'

exit

endi

endd

do case

case check='1'

do allo

case check='2'

do revl

```
case check='3'  
do rep  
othe  
exit  
endc  
endd  
clea  
retu
```

### **ALLO.PRG**

```
set talk off  
set stat off  
set safe off  
set scor off  
set date brit  
do while .t.  
clea  
@ 3,15 to 21,64 doub  
@ 2,20 to 4,61 doub  
@ 3,21 say ' COMPUTERISED ALLOCATION CONTROL SYSTEM '  
@ 5,27 to 7,51 doub  
@ 6,28 say "ALLOCATION CONTROL MENU"  
@ 9,21 say ' 1 ..... NEW ALLOCATION DETAILS'  
@ 11,22 say ' 2 ..... EDIT ALLOCATION DETAILS'  
@ 13,22 say ' 3 ..... VIEW ALLOCATION DETAILS'  
@ 15,22 say ' 4 ..... DELETE ALLOCATION DETAILS'  
@ 17,22 say ' 5 ..... SUBMENU EXIT'  
@ 19,16 to 19,63 doub  
@ 20,22 say 'Press CODE [1,2,3,4,5] for Choice:'  
do while .t.  
check=' '  
@ 20,57 get check pict '!'  
read  
if check $ '12345'
```

```
    exit
  endi
endd
do case
  case check='1'
    do allo11
  case check='2'
    do allo13
  case check='3'
    do allo12
  case check='4'
    do allo14
  othe
  exit
endc
endd
clea
retu
```

### ALLO11.PRG

```
set talk off
set stat off
set scor off
set safe off
set date brit
SELE 1
use allocate
SELE 2
use dept
do while .t.
  nowd = date()
  clea
  mallno = spac(8)
  @ 0,4 to 24,75 doub
```

```
@ 22,5 to 22,74
@ 18,5 to 18,74 doub
@ 13,5 to 13,74 doub
@ 0,31 to 4,47 doub
@ 1,32 say "NITEL PLC MINNA"
@ 2,27 to 4,56 doub
@ 3,28 say "NEW ALLOCATION RECORD SCREEN"
@ 23,60 say 'DATE:'
@ 23,66 get nowd
clea gets
@ 5,11 say 'ALLOCATION NUMBER (Press "ENTER" KEY To Exit):'
@ 5,56 say 'AL/'
@ 5,60 get mallno
read
if mallno = spac(8)
    exit
endi
mempno = 'AL/'+ mallno
sele 1
go top
loca for mallno = allno
if found()
    @ 23,10 say 'ALLOCATION RECORD ALREADY EXIST, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
endi
stor spac(25) to mauthor
stor 0 to mamta,mtamt
stor 0 to mamt1,mamt2,mamt3,mamt4,mbamt
stor ctod(' / / ') to mdate1,mdate2
stor spac(15) to mrecieve
@ 7,5 say 'AUTHORISED BY:'
```

```

@ 7,19 get mauthor pict '@!'
@ 7,47 say 'RECIEVED BY:'
@ 7,59 get mrecieve pict '@!'
@ 9,5 say 'AMOUNT ALLOCATED:'
@ 9,19 get mamta pict '999,999,999.99'
@ 9,34 say 'DATE ALLOCATED:'
@ 9,49 get mdate1 &&pict ' / / '
@ 11,5 say 'DATE RECIEVED:'
@ 11,19 get mdate2 &&pict ' / / '
@ 9,18 say '#'
read
@ 12,27 say "DISBURSEMENT TO DEPARTMENT "
@ 14,35 say "CUSTOMERS'S ENGINEERING DEPT "
@ 14,63 get mamt3 pict '9,999,999.99'
@ 14,5 say 'PLANNING DEPT '
@ 14,19 get mamt4 pict '9,999,999.99'
@ 16,5 say 'EXCHANGE SYSTEM DEPT '
@ 16,26 get mamt1 pict '9,999,999.99'
@ 16,41 say 'ACCOUNTING DEPT '
@ 16,58 get mamt2 pict '9,999,999.99'
read
mtamt=mamt1+mamt2+mamt3+mamt4
mbamt=mamta-mtamt
tamt=mtamt
bamt=mbamt
@ 19,5 say 'TOTAL AMOUNT DISBURSE'get mtamt pict '9,999,999,999.99'
@ 21,5 say 'BALANCE FROM DISBURSED AMOUNT' get mbamt pict
'9,999,999.99'
read
@ 23,29 say 'SAVE NEW DATA (Y/N):'
ans =' '
do while .t.
@ 23,50 get ans pict '! '
read

```



```
if ans='Y' .or. ans='N'
  exit
endi
ans=' '
endd
if ans='Y'
  appe blan
  repl allno with mallno,author with mauthor,recieve with mrecieve
  repl amta with mamta,amt1 with mamt1,amt2 with mamt2,amt3 with mamt3
  repl amt4 with mamt4,bamt with mbamt,tamt with mtamt
  repl date1 with mdate1,date2 with mdate2
  sele 2
  mall1=all1
  mbal=bal
  mall1=mall1+mamt4
  mbal=mbal+mamt4
  repl all1 with mall1
  repl bal with mbal
  skip
  mall1=all1
  mbal=bal
  mall1=mall1+mamt3
  mbal=mbal+mamt3
  repl all1 with mall1,bal with mbal
  skip
  mall1=all1
  mbal=bal
  mall1=mall1+mamt1
  mbal=mbal+mamt1
  repl all1 with mall1,bal with mbal
  skip
  mall1=all1
  mbal=bal
  mall1=mall1+mamt2
```

```
mbal=mbal+mamt2
repl all1 with mall1,bal with mbal
skip
endi
endd
clos all
clea
retu
```

### **ALLO13.PRG**

```
set talk off
set stat off
set scor off
set safe off
set date brit
use allocate
do whil .t.
  nowd = date()
  clea
  mallno = spac(8)
  @ 0,4 to 24,75 doub
  @ 13,5 to 13,74 doub
  @18,5 to 18,74 doub
  @ 22,5 to 22,74
  @ 1,20 say "COMPUTERIZED ALLOCATION CONTROL,NITEL PLC MINNA"
  @ 2,27 to 4,61 doub
  @ 3,28 say "UPDATING ALLOCATION RECORD SCREEN"
  @ 23,60 say 'DATE:'
  @ 23,70 get nowd
  clea gets
  @ 5,6 say 'ALLOCATION NUMBER (Press "ENTER" KEY To Exit):'
  @ 5,52 say 'AL/'
  @ 5,56 get mallno
  read
```

```
if mallno = spac(8)
  clea
  exit
endi
mempno = 'AL/'+ mallno
go top
loca for mallno = allno
if .not. found()
  @ 23,14 say ' SUCH RECORD DO NOT EXIST, PRESS ANY KEY'
  set cons off
  wait
  set cons on
  loop
endi
mallno=allno
mauthor=author
mrecieve=recieve
mamta=amta
mamt1=amt1
mamt2=amt2
mamt3=amt3
mamt4=amt4
mbamt=bamt
mtamt=tamt
mdate1=date1
mdate2=date2
@ 7,5 say 'AUTHORISED BY:'
@ 7,19 get mauthor pict '@!'
@ 7,47 say 'RECIEVED BY:'
@ 7,59 get mrecieve pict '@!'
@ 9,5 say 'AMOUNT ALLOCATED:'
@ 9,19 get mamta pict '999,999,999.99'
@ 9,34 say 'DATE ALLOCATED:'
@ 9,49 get mdate1 &&pict ' / / '
```

```

@ 11,5 say 'DATE RECIEVED:'
@ 11,19 get mdate2 &&pict ' / / '
@ 9,18 say '#'
@ 12,28 say "DISBURSEMENT TO HOD'S "
@ 14,35 say "CUSTOMERS'S ENGINEERING DEPT "
@ 14,63 get mamt3 pict '9,999,999.99'
@ 14,5 say 'PLANNING DEPT HOD'
@ 14,22 get mamt4 pict '9,999,999.99'
@ 16,5 say 'EXCHANGE SYSTEM DEPT '
@ 16,26 get mamt1 pict '9,999,999.99'
@ 16,41 say 'ACCOUNTING DEPT '
@ 16,58 get mamt2 pict '9,999,999.99'
read
mtamt=mamt1+mamt2+mamt3+mamt4
mbamt=mamta-mtamt
@ 19,5 say 'TOTAL AMOUNT DISBURSE'get mtamt pict '9,999,999,999.99'
@ 21,5 say 'BALANCE FROM DISBURSED AMOUNT' get mbamt pict
'9,999,999.99'
clear gets
@23,10 say 'DO YOU WANT TO SAVE THE CHANGES (Y/N)'
ans=' '
do while .t.
@23,48 get ans pict '!'
read
if ans='Y' .or. ans='N'
clea
exit
endi
ans=' '
endd
if ans='Y'
repl allno with mallno,author with mauthor,recieve with mrecieve
repl amt1 with mamt1,amt2 with mamt2,amt3 with mamt3,amt4 with mamt4
repl amta with mamta,bamt with mbamt,date1 with mdate1,date2 with mdate2

```

```
    repl tamt with mtamt
endif
endd
close all
retu
```

### **ALLO12.PRG**

```
set talk off
set stat off
set scor off
set safe off
set date brit
use allocate
do while .t.
    nowd = date()
    clea
    mallno = spac(8)
    @ 0,4 to 24,75 doub
@ 13,5 to 13,74 doub
    @ 22,5 to 22,74
    @ 1,20 say "COMPUTERIZED ALLOCATION CONTROL,NITEL PLC MINNA"
    @ 2,27 to 4,61 doub
    @ 3,28 say "VIEWING ALLOCATION RECORD SCREEN"
    @ 18,5 to 18,74 doub
    @ 23,60 say 'DATE:'
    @ 23,66 get nowd
    clea gets
    @ 5,6 say 'ALLOCATION NUMBER (Press "ENTER" KEY To Exit):'
@ 5,52 say 'AL/'
@ 5,55 get mallno
    read
    if mallno = spac(8)
        exit
    endi
```

```
mempno = 'AL/'+ mallno
go top
loca for mallno = allno
if .not. found()
  @ 23,19 say ' SUCH RECORD DO NOT EXIST, PRESS ANY KEY'
  set cons off
  wait
  set cons on
  loop
endi
mallno=allno
mauthor=author
mrecieve=recieve
mamta=amta
mamt1=amt1
mamt2=amt2
mamt3=amt3
mamt4=amt4
mbamt=bamt
mtamt=tamt
mdate1=date1
mdate2=date2
@ 7,5 say 'AUTHORISED BY:'
@ 7,19 get mauthor pict '@!'
@ 7,47 say 'RECIEVED BY:'
@ 7,59 get mrecieve pict '@!'
@ 9,5 say 'AMOUNT ALLOCATED:'
@ 9,19 get mamta pict '999,999,999.99'
@ 9,34 say 'DATE ALLOCATED:'
@ 9,49 get mdate1 &&pict ' / / '
@ 11,5 say 'DATE RECIEVED:'
@ 11,19 get mdate2 &&pict ' / / '
@ 9,18 say '#'
@ 12,28 say "DISBURSEMENT TO HOD'S "
```

```
@ 14,35 say "CUSTOMERS'S ENGINEERING DEPT "  
@ 14,63 get mamt3 pict '9,999,999.99'  
@ 14,5 say 'PLANNING DEPT '  
@ 14,19 get mamt4 pict '9,999,999.99'  
@ 16,5 say 'EXCHANGE SYSTEM DEPT '  
@ 16,25 get mamt1 pict '9,999,999.99'  
@ 16,41 say 'ACCOUNTING DEPT '  
@ 16,58 get mamt2 pict '9,999,999.99'  
@ 19,5 say 'TOTAL AMOUNT DISBURSE'get tamt pict '9,999,999,999.99'  
@ 21,5 say 'BALANCE FROM DISBURSED AMOUNT' get bamt pict '9,999,999.99'  
@23,5 SAY 'VIEWING ALLOCATION RECORDS.PRESS ANY KEY TO  
CONTINUE'
```

```
clea gets  
read  
set cons off  
loop  
set cons on  
endd  
close all  
retu
```

#### **ALLO14.PRG**

```
set talk off  
set stat off  
set scor off  
set safe off  
set date brit  
use allocate  
do while .t.  
nowd = date()  
clea  
mallno = spac(8)  
@ 0,4 to 24,75 doub  
@ 13,5 to 13,74 doub
```

```
@18,5 to 18,74 doub
@ 22,5 to 22,74
@ 1,20 say "COMPUTERIZED ALLOCATION CONTROL,NITEL PLC MINNA"
@ 2,27 to 4,61 doub
@ 3,28 say "DELETING ALLOCATION RECORD SCREEN"
@ 23,60 say 'DATE:'
@ 23,67 get nowd
clea gets
@ 5,6 say 'ALLOCATION NUMBER (Press "ENTER" KEY To Exit):'
@ 5,52 say 'AL/'
@ 5,56 get mallno
read
if mallno = spac(8)
    clea
    exit
endi
mempno = 'AL/'+ mallno
go top
loca for mallno = allno
if .not. found()
    @ 23,14 say ' SUCH RECORD DO NOT EXIST, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
endi
mallno=allno
mauthor=author
mrecieve=recieve
mamta=amta
mamtl=amt1
mamt2=amt2
mamt3=amt3
mamt4=amt4
```



```

mbamt=bamt
mtamt=tamt
mdate1=date1
mdate2=date2
@ 7,5 say 'AUTHORISED BY:'
@ 7,19 get mauthor pict '@!'
@ 7,47 say 'RECIEVED BY:'
@ 7,59 get mrecieve pict '@!'
@ 9,5 say 'AMOUNT ALLOCATED:'
@ 9,19 get mamta pict '999,999,999.99'
@ 9,34 say 'DATE ALLOCATED:'
@ 9,49 get mdate1 &&pict ' / / '
@ 11,5 say 'DATE RECIEVED:'
@ 11,19 get mdate2 &&pict ' / / '
@ 9,18 say '#'
@ 12,28 say "DISBURSEMENT TO HOD'S "
@ 14,34 say "CUSTOMERS'S ENGINEERING DEPT "
@ 14,63 get mamt3 pict '9,999,999.99'
@ 14,5 say 'PLANNING DEPT '
@ 14,19 get mamt4 pict '9,999,999.99'
@ 16,5 say 'EXCHANGE SYSTEM DEPT '
@ 16,26 get mamt1 pict '9,999,999.99'
@ 16,40 say 'ACCOUNTING DEPT '
@ 16,57 get mamt2 pict '9,999,999.99'
@ 19,5 say 'TOTAL AMOUNT DISBURSE'get tamt pict '9,999,999,999.99'
@ 21,5 say 'BALANCE FROM DISBURSED AMOUNT' get bamt pict '9,999,999.99'
clea gets
read
@23,8 say 'ARE YOU SURE YOU WANT TO DELETE THIS RECORD (Y/N)'
ans=' '
do while .t.
@23,57 get ans pict '! '
read
if ans='Y' .or. ans='N'

```

```
    clea
  exit
endi
ans=' '
endd
if ans='Y'
  dele
pack
@9,9 to 13,68 doub
@12,43 say reccount()
@10,64 say recno()
@10,21 say ' RECORD NUMBER  HAVE BEEN DELETED '
@12,10 say 'THE TOTAL NUMBER OF RECORDS LEFT IS'
read
  endif
endd
close all
retu
```

### **REV1.PRG**

```
set talk off
set stat off
set safe off
set scor off
set date brit
do whil .t.
  clea
  @ 3,15 to 21,64 doub
  @ 2,20 to 4,61 doub
  @ 3,21 say ' COMPUTERISED ALLOCATION CONTROL SYSTEM '
  @ 5,27 to 7,52 doub
  @ 6,28 say "EXPENDITURE CONTROL MENU"
  @ 9,22 say '1 ..... NEW REQUISITION DETAILS'
  @ 11,22 say '2 ..... EDIT REQUISITION DETAILS'
```

```

@ 13,22 say '3 ..... VIEW REQUISITION DETAILS'
@ 15,22 say '4 ..... DELETE REQUISITION DETAILS'
@ 17,22 say '5 ..... SUBMENU EXIT'
@ 19,16 to 19,63 doub
@ 20,22 say 'Press CODE [1,2,3,4,5] for Choice:'
do while .t.
  check=' '
  @ 20,57 get check pict '!'
  read
  if check $ '12345'
    exit
  endi
endd
do case
  case check='1'
    do rev11
  case check='2'
    do rev12
  case check='3'
    do rev13
  case check='4'
    do rev14
  othe
  exit
endc
endd
clea
retu

```

### REV11.PRG

```

set talk off
set safe off
set date brit
sele 1

```

```
use request
sele 2
use allocate
do while .t.
sele 1
  nowd = date()
  clea
  mreqno = spac(6)
  @ 0,4 to 24,75 doub
  @ 22,5 to 22,74
  @ 18,5 to 18,74 doub
  @ 0,31 to 4,47 doub
  @ 1,32 say "NITEL PLC MINNA"
  @ 2,29 to 4,50 doub
  @ 3,30 say "NEW REQUISITION FORM"
  @ 23,60 say 'DATE:'
  @ 23,66 get nowd
  clea gets
  @ 5,11 say 'REQUISITION NUMBER (Press "ENTER" KEY To Exit):'
  @ 5,58 get mreqno
  read
  if mreqno = spac(6)
    exit
  endi
  go top
  loca for mreqno = reqno
  if found()
    @ 23,10 say 'REQUISITION RECORD ALREADY EXIST, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
  endi
  stor spac(20) to mrec
```

```
stor 0 to mamt,mamtl
stor ctod(' / / ') to mdate
stor spac(20) to mauth
stor spac(20) to mappr
stor spac(30) to mpurpose
stor spac(45) to mpurpose1
stor spac(45) to mpurpose2
stor spac(34) to mdept
@ 7,5 say 'REQUESTED BY:'
@ 7,19 get mrec pict '@!'
@ 7,41 say 'AUTHORISED BY:'
@ 7,55 get mauth pict '@!'
@ 9,5 say 'AMOUNT REQUESTED:'
@ 9,23 get mamt pict '999,999,999.99'
@ 9,41 say 'APPROVED BY:'
@ 9,53 get mappr pict '@!'
@ 11,5 say 'REQUESTED DATE :!'
@ 11,22 get mdate &&pict ' / / '
@ 11,31 say 'DEPARTMENT'
@ 11,41 get mdept
@ 13,5 say 'REQUISITION PURPOSE'
@ 13,25 get mpurpose
@ 15,10 get mpurpose1
@ 17,10 get mpurpose2
@ 9,22 say '#'
read
@ 23,29 say 'SAVE NEW-DATA (Y/N):'
ans = ' '
do whil .t.
  @ 23,50 get ans pict '!'
  read
  if ans='Y' .or. ans='N'
    exit
  endi
```

```
ans=' '  
endd  
if ans='Y'  
sele 1  
  appe blank  
  repl reqno with mreqno,auth with mauth,rec with mrec  
  repl purpose with mpurpose,purpose1 with mpurpose1,purpose2 with mpurpose2  
  repl date with mdate,appr with mappr,dept with mdept  
endi  
endd  
clos all  
clea  
retu
```

#### **REV12.PRG**

```
set talk off  
set stat off  
set scor off  
set safe off  
set date brit  
use request  
do whil .t.  
  nowd = date()  
  clea  
  mreqno = spac(6)  
  @ 0,4 to 24,75 doub  
  @ 22,5 to 22,74  
  @ 18,5 to 18,74 doub  
  @ 0,31 to 4,47 doub  
  @ 1,32 say "NITEL PLC MINNA"  
  @ 2,27 to 4,56 doub  
  @ 3,28 say "UPDATING REQUISITION FORM"  
  @ 23,60 say 'DATE:'  
  @ 23,66 get nowd
```

```
clea gets
@ 5,11 say 'REQUISITION NUMBER (Press "ENTER" KEY To Exit):'
@ 5,58 get mreqno
read
if mreqno = spac(6)
  exit
endi
go top
loca for mreqno = reqno
if .not. found()
  @ 23,10 say 'REQUISITION RECORD DO NOT EXIST, PRESS ANY KEY'
  set cons off
  wait
  set cons on
  loop
endi
mreqno=reqno
mauth=auth
mdate=date
mrec=rec
mappr=appr
mamt=amt
mpurpose=purpose
mpurpose1=purpose1
mpurpose2=purpose2
mdept=dept
  @ 7,5 say 'REQUISTED BY:'
@ 7,19 get mrec pict '@!'
@ 7,41 say 'AUTHORISED BY:'
@ 7,55 get mauth pict '@!'
@ 9,5 say 'AMOUNT REQUISTED:'
@ 9,23 get mamt pict '999,999,999.99'
@ 9,39 say 'APPROVED BY:'
@ 9,51 get mappr pict '@!'
```

```

@ 11,5 say 'REQUESTED DATE : '
@ 11,22 get mdate &&pict ' / / '
@ 11,31 say 'DEPARTMENT'
@ 11,40 get mdept
@ 13,5 say 'REQUISITION PURPOSE'
@ 13,25 get mpurpose
@ 15,10 get mpurpose1
@ 17,10 get mpurpose2
@ 9,22 say '#'
  read
@ 23,29 say 'SAVE CHANGES (Y/N):'
ans = ' '
do while .t.
  @ 23,50 get ans pict '!'
  read
  if ans='Y' .or. ans='N'
    exit
  endi
  ans = ' '
endd
if ans='Y'
  repl reqno with reqno,auth with mauth,rec with mrec,amt with mamt
  repl purpose with mpurpose,purpose1 with mpurpose1,purpose2 with mpurpose2
  repl date with mdate,appr with mappr,dept with mdept
  endi
endd
clos all
clea
retu

```

### REV13.PRG

```

set talk off
set stat off
set scor off

```



```
set safe off
set date brit
use request
do while .t.
  nowd = date()
  clea
  mreqno = spac(6)
  @ 0,4 to 24,75 doub
  @ 22,5 to 22,74
  @ 18,5 to 18,74 doub
  @ 0,31 to 4,47 doub
  @ 1,32 say "NITEL PLC MINNA"
  @ 2,27 to 4,56 doub
  @ 3,28 say "VIEWING REQUISITION RECORD"
  @ 23,60 say 'DATE:'
  @ 23,66 get nowd
  clea gets
  @ 5,11 say 'REQUISITION NUMBER (Press "ENTER" KEY To Exit):'
  @ 5,58 get mreqno
  read
  if mreqno = spac(6)
    exit
  endi
  go top
  loca for mreqno = reqno
  if .not. found()
    @ 23,10 say 'REQUISITION RECORD DO NOT EXIST, PRESS ANY KEY'
    set cons off
    wait
    set cons on
    loop
  endi
  mreqno=reqno
  mauth=auth
```

```
mdate=date
mrec=rec
mappr=appr
mamt=amt
mpurpose=purpose
mpurpose1=purpose1
mpurpose2=purpose2
mdept=dept
  @ 7,5 say 'REQUISTED BY:'
  @ 7,19 get mrec pict '@!'
  @ 7,41 say 'AUTHORISED BY:'
  @ 7,55 get mauth pict '@!'
  @ 9,5 say 'AMOUNT REQUISTED:'
  @ 9,23 get mamt pict '999,999,999.99'
  @ 9,39 say 'APPROVED BY:'
  @ 9,51 get mappr pict '@!'
  @ 11,5 say 'REQUESTED DATE : '
  @ 11,22 get mdate &&pict ' / / '
  @ 11,31 say 'DEPARTMENT'
  @ 11,40 get mdept
  @ 13,5 say 'REQUISITION PURPOSE'
  @ 13,25 get mpurpose
  @ 15,10 get mpurpose1
  @ 17,10 get mpurpose2
  @ 9,22 say '#'
@ 23,10 say 'VIEWING REQUISITION RECORD, PRESS ANY TO CONTINUE'
clea gets
  read
  set cons off
  loop
  set cons on
  endd
clos all
clea
```

retu

## REV14.PRG

set talk off

set stat off

set scor off

set safe off

set date brit

use request

do whil .t.

nowd = date()

clea

mreqno = spac(6)

@ 0,4 to 24,75 doub

@ 22,5 to 22,74

@ 18,5 to 18,74 doub

@ 0,31 to 4,47 doub

@ 1,32 say "NITEL PLC MINNA"

@ 2,27 to 4,56 doub

@ 3,28 say "DELETING REQUISITION RECORD"

@ 23,60 say 'DATE:'

@ 23,66 get nowd

clea gets

@ 5,11 say 'REQUISITION NUMBER (Press "ENTER" KEY To Exit):'

@ 5,58 get mreqno

read

if mreqno = spac(6)

exit

endi

go top

loca for mreqno = reqno

if .not. found()

@ 23,10 say 'REQUISITION RECORD DO NOT EXIST, PRESS ANY KEY'

set cons off

```
wait
set cons on
loop
endi
mreqno=reqno
mauth=auth
mdate=date
mrec=rec
mappr=appr
mamt=amt
mpurpose=purpose
mpurpose1=purpose1
mpurpose2=purpose2
mdept=dept
  @ 7,5 say 'REQUISTED BY:'
  @ 7,19 get mrec pict '@!'
  @ 7,41 say 'AUTHORISED BY:'
  @ 7,55 get mauth pict '@!'
  @ 9,5 say 'AMOUNT REQUISTED:'
  @ 9,23 get mamt pict '999,999,999.99'
  @ 9,39 say 'APPROVED BY:'
  @ 9,51 get mappr pict '@!'
  @ 11,5 say 'REQUESTED DATE : '
  @ 11,22 get mdate &&pict ' / / '
  @ 11,31 say 'DEPARTMENT'
  @ 11,40 get mdept
  @ 13,5 say 'REQUISITION PURPOSE'
  @ 13,25 get mpurpose
  @ 15,10 get mpurpose1
  @ 17,10 get mpurpose2
  @ 9,22 say '#'
clea gets
  read
  @ 23,29 say 'DELETE RECORD (Y/N):'
```

```
ans = ' '
do while .t.
  @ 23,50 get ans pict '!'
read
  if ans='Y' .or. ans='N'
    exit
  endi
  ans= ' '
endd
if ans='Y'
  dele
  pack
endi
endd
clos all
clea
retu
```

### **REP.PRG**

```
set talk off
set stat off
set safe off
set scor off
set date brit
do while .t.
  clea
  @ 3,15 to 21,64 doub
  @ 2,20 to 4,61 doub
  @ 3,21 say ' COMPUTERISED ALLOCATION CONTROL SYSTEM '
  @ 5,28 to 7,51 doub
  @ 6,29 say 'REPORT PRODUCTION MENU'
  @ 9,22 say '1 .....ALLOCATION REPORT'
  @ 11,22 say '2 .....SUMMARY DETAIL REPORT'
  @ 13,22 say '3 .....REQUISITION REPORT'
```

```
@ 15,22 say '4 .....SUBMENU EXIT'  
@ 19,16 to 19,63 doub  
@ 20,22 say 'Press CODE [1,2,3,4] for Choice:'  
do while .t.  
  check=' '  
  @ 20,57 get check pict '!'  
  read  
  if check $ '12345'  
    exit  
  endi  
endd  
do case  
  case check='1'  
    do rep1  
  case check='2'  
    do rep2  
  case check='3'  
    do rep3  
  othe  
  exit  
endc  
endd  
clea  
retu
```

### REP1.PRG

```
clea  
set devi to prin  
@ 1,28 say 'NITEL PLC MINNA'  
@ 2,28 say repl( '=',15)  
@ 4,26 say "ALLOCATIONS' DETAIL REPORT"  
@ 5,26 say repl( '=',26)  
@ 7,2 say repl( '-',76)  
@ 8,2 say '|'
```

```
@ 8,4 say 'AL. NO'
@ 8,11 say '|'
@ 8,15 say 'APPROVED BY '
@ 8,40 say '|'
@ 8,42 say 'RECIEVED BY'
@ 8,55 say '|'
@ 8,57 say 'AMOUNT ALLOCATED'
@ 8,77 say '|'
@ 9,2 say '|'+repl('-',74)+'|'
r=9
msum=0
use allocate
do while .not. eof()
  r=r+1
  mauthor=author
  mallno=allno
  mrecieve=recieve
  mamta=amta
  msum=msum+mamta
  @ r,2 say '|'
  @ r,5 say allno
  @ r,11 say '|'
  @ r,16 say mauthor
  @ r,40 say '|'
  @ r,43 say mrecieve
  @ r,55 say '|'
  @ r,58 say mamta pict '999,999,999.99'
  @ r,77 say '|'
  skip
@ 7,2 say repl('-',76)
endd
r=r+2
@ r,20 say 'TOTAL ALLOCATION SO FAR ='
@ r,47 say abs(msum)
```

set devi to scre

wait

use

retu

## REP2.PRG

clea

set devi to prin

@ 1,28 say 'INTERCITY BANK PLC MINNA'

@ 2,28 say repl('=' ,24)

@ 4,26 say "SUMMARY DETAIL REPORT"

@ 5,26 say repl('=' ,27)

@ 7,2 say repl('-' ,76)

@ 8,2 say '|'

@ 8,4 say 'TOTAL ALLO'

@ 8,19 say '|'

@ 8,20 say 'TOTAL DISBURSEMENT'

@ 8,39 say '|'

@ 8,40 say 'TOTAL REQUISITION'

@ 8,59 say '|'

@ 8,64 say 'BALANCE'

@ 8,77 say '|'

@ 9,2 say '|'+repl('-' ,74)+'|'

r=9

use allocate

do whil .not. eof()

r=r+1

mallno=allno

mamta=amta

mtamt=tamt

mbamt=bamt

sum amta to mtamta

sum tamt to mstamt

use request



```
sum amt to msamt
bamt=mtamta-mstamt-msamt
@ r,2 say '|'
@ r,5 say mtamta pict '999,999,999.99'
@ r,19 say '|'
@ r,22 say mstamt pict '999,999,999.99'
@ r,39 say '|'
@ r,43 say msamt pict '999,999,999.99'
@ r,59 say '|'
@ r,63 say bamt pict '999,999,999.99'
@ r,77 say '|'
endd
r=r+1
@ r,2 say repl('-',76)
set devi to scre
wait
use
retu
```

### REP3.PRG

```
clea
set devi to prin
@ 1,28 say 'NITEL PLC MINNA'
@ 2,28 say repl('=',15)
@ 4,26 say "REQUISITION DETAIL REPORT"
@ 5,26 say repl('=',26)
@ 7,2 say repl('-',76)
@ 8,2 say '|'
@ 8,4 say 'REQUESTED BY'
@ 8,20 say '|'
@ 8,22 say 'APPROVED BY '
@ 8,40 say '|'
@ 8,42 say 'DEPARTMENT'
@ 8,61 say '|'
```

```
@ 8,63 say 'AMOUNT'  
@ 8,77 say '|'  
@ 9,2 say '|'+repl('-',74)+'|'  
r=9  
msum=0  
use request  
do while .not. eof()  
r=r+1  
mrec=rec  
mappr=appr  
mdept=dept  
mamt=amt  
msum=msum+mamt  
@ r,2 say '|'  
@ r,5 say mrec  
@ r,20 say '|'  
@ r,21 say mappr  
@ r,40 say '|'  
@ r,41 say mdept  
@ r,61 say '|'  
@ r,64 say mamt  
@ r,77 say '|'  
skip  
endd  
r=r+1  
@ r,2 say repl('-',76)  
r=r+2  
@ r,15 say 'TOTAL AMOUNT REQUESTEDS CAR #'  
@ r,46 say msum pict '999,999,999.99'  
set devi to scre  
wait  
use  
retu  
□
```