COMPUTERISED STOCK CONTROL SYSTEM: A CASE STUDY OF UPPER NIGER RIVER BASIN DEVELOPMENT AUTHORITY, MINNA

BY

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APPROVAL SHEET

This project has been examined and found acceptable in partial fulfillment of the requirement for the Post-Graduate Diploma in Computer Science of the Federal University of Technology, Minna.

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CERTIFICATION

This is to certify that this project was carried out by Mr. Aliyu A. Abubakar to meet the requirement for the award of Post Graduate Diploma in Computer Science of Federal University of Technology, Minna, Niger State.

DEDICATION

This work is dedicated to my parents: Alhaji Abubakar Maraja of blessed memory and Hajiya Maryam Abubakar. May Allah reward them bounteously.

ACKNOWLEDGEMENT

ALL GLORY BELONGS TO THE ALMIGHTY ALLAH.

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ABSTRACT

This research work establishes the need to develop a new computerised procedures for the Store Unit of the Account Department of Upper Niger River Basin Development Authority (UNRBDA), Minna. It emphasised the need for a new system to replace the existing one based on the current problems that were inherent in the current procedures used in the Authority.

To this end, the project work analysed the existing mode of stock operations currently in use in UNRBDA, Minna. This was done in order to build a computerised procedure that would replace the manual procedures. The design and development was intended to solve the current problems encountered in the organisation.

For proper implementation of the proposed system, the documentation manual for the usage of the system would be described as well as the conducive environment for the operation of the system.

CHAPTER ONE

1.0 GENERAL PREAMBLE

1.1 INTRODUCTION

Sometimes ago, computer was so inconspicuous that most people were hardly aware of its existence. Today, things are different. We are all intensely aware of the computer as a force in our society. We live in the computer age and computer is reshaping our world. It is more deeply involved in our daily activities than any other dominant technology.

The link between computer technology and our present day is evident by the increased activities worldwide. The use of computer is so widespread that there are very few people who are not affected by their use. Bank operations, seat reservation system, electricity billing system, water billing system, accounting operation in various organisations and host of others are handled by computer system. The continued substitution of electronic data processing for manual operation is due to increased activities through out the world. This has gone to such an extent that it is obvious that human efforts alone can no longer cope with the increased pace of these activities. Therefore, with the industrial revolution which brought about the introduction and application of computers in many diverse fields, the problem is under control. This is because a computer has the capability of processing a large data within a very short period of time and with high accuracy.

However, a computer can be defined as an electronic device that accepts input, process the input according to the instructions programmed in order to generate output. Specifically, the benefit of using computer include accuracy, speed and efficiency. This is because computer has the capacity for processing a large data within a very short period of time and with the most possible accuracy.

Every business in general, regardless of its size or purpose is concerned with the processing of facts or data about its operations in order to provide current and accurate information to management and customers as well. Computer is well adapted to perform this task. It then become an indispensable part of any business concern.

It is therefore important to note that one of the areas that has benefitted mostly from the expansion of computer technology is the area of business. Business, of course, uses computers for a variety of tasks which include - Stock inventory control, Payroll processing, Account receivable, Account payable, Personnel information management system, and so on.

Given the above, it is necessary to point out that computer application is of great relevance and importance in Accounting profession. This is why today's Accountants, whether in industry, commerce, or governmental units cannot shy away from the impact which the advent of the computer has brought into the profession. There is therefore an inevitable need for today's accountants to acquire technical skills in computer operations and electronic data processing.

1.2 AN OVERVIEW OF UPPER NIGER RIVER BASIN DEVELOPMENT AUTHORITY

The Niger River Basin Development Authority (NRBDA) was established in 1976 along with ten other River Basin Development Authorities (RBDAS) by Decree No. 25 of 15th June, 1976 while the eleventh, the Niger Delta Basin Development Authority was established by Decree No. 37 of 3rd of August 1976. The continued existence of these RBDAS was reconfirmed by Decree No. 87 of 28th September, 1976.

In 1984, the initial eleven RBDAS were further restructured into eighteen RBDAS along political boundaries except for Lagos State that shared a River Basin with Ogun State and Niger State that shared with the Federal Capital Territory. This experiment was shortlived as the River Basin and Rural Development Authorities, as they were renamed, were re-merged into the initial eleven RBDAS as contained in Decree No. 35 of 1986 with their objectives and function redefined and concentrated on water resources and irrigation development.

However, this major re-organisation of 1986 led to the re-emergence of NRBDA with its headquarters at Minna and their operations covering Niger, Kwara, Kogi and Kaduna States including the Federal Capital Territory. In 1994, the RBDA was further splitted into two, viz: Lower Niger River Basin Development Authority which has its headquarters at Ilorin, and Upper Niger River Basin Development Authority (UNRBDA) with its headquarters in Minna. Specifically, the geographical mandate of Upper Niger River Basin Development Authority now includes Niger and Kaduna States and the Federal Capital Territory.

Based on the above, the Authority has been operating as a parastatal under the Federal Ministry of Water Resources. However, with the promulgation of a decree by the Federal Military Government of Nigeria on 19th of July, 1988 to privatise and commercialise most government enterprises in the country, UNRBDA has now commercialised some of its operations. This policy entails that the Authority generates enough revenue to meet the operational cost of the organisation while the Government will fund capital Projects.

1.3 OBJECTIVES OF UNRBDA

The corporate objectives and existence of UNRBDA was defined by Decree No. 35 of 1986. According to this decree, the specific objectives of UNRBDA which are to be performed within its geographical mandate are stated as follows:

a) To make comprehensive development of both surface and underground water resources for multi purpose use with particular emphasis on the provision of irrigation infrastructure and the control of floods and erosion and for watershed management.

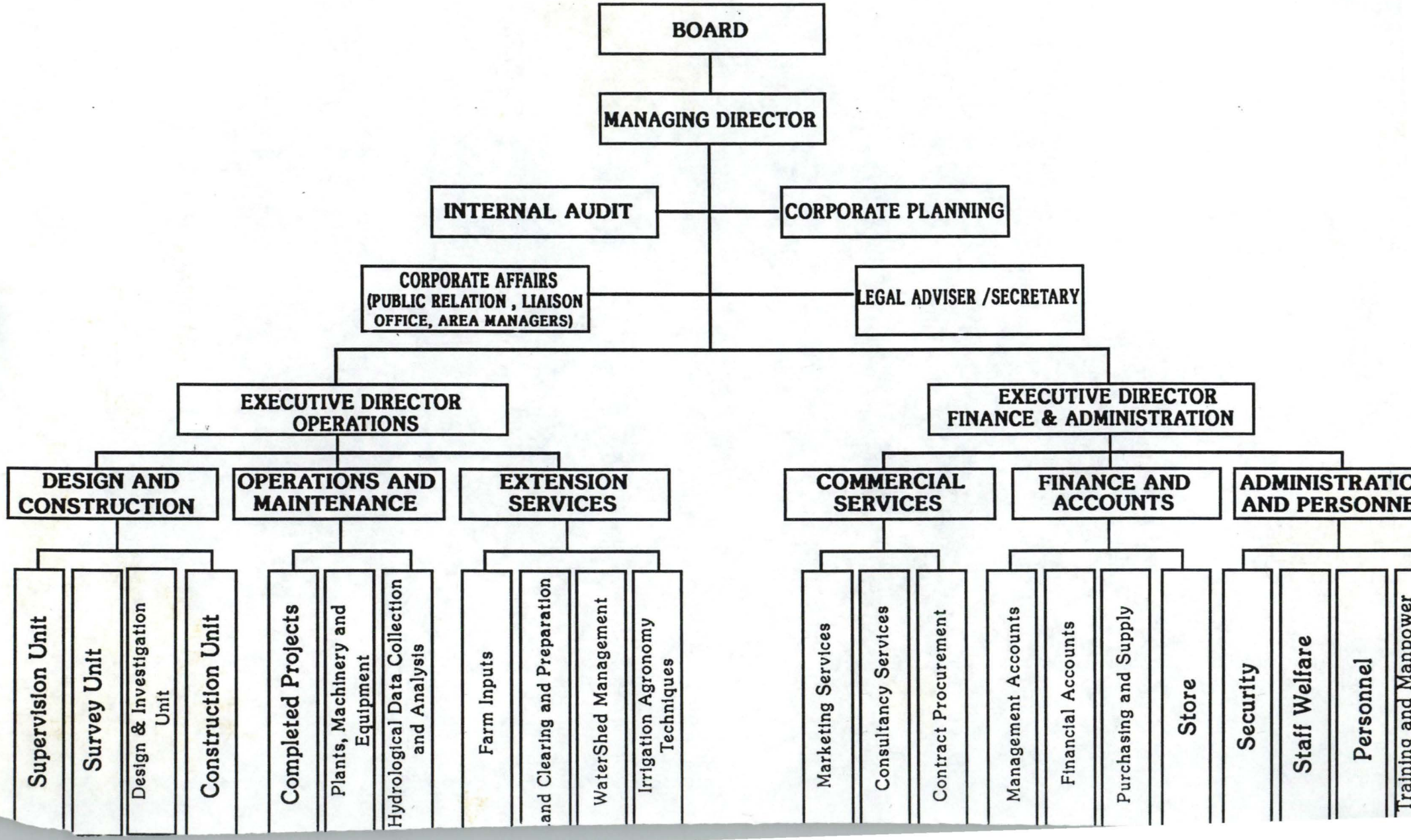
b) To construct, operate and maintain dams, dykes polders, wells, boreholes, irrigation and drainage system and other work necessary for the achievement of the Authority Function and handover all lands to be cultivated under the irrigation scheme to the farmers.

c) To supply water from the Authority's completed storage schemes to all users within its areas of coverage at a fee to be determined by the Authority with the approval of the minister concerned.

d) To construct, operate and maintain infrastrutural services such as roads, and bridges linking project sites, provided that such infrastrutural services are included and form an integral part of the list of approved projects.

e) To develop and keep up to date comprehensive water resources master plan, identify all water resources equipments in the Authority area of operation through adequate collection and collection of water resources, water use, socio-economic and environmental data of the River Basin.

UPPER NIGER RIVER BASIN AND RURAL DEVELOPMENT AUTHORITY, MINN



From the above chart, the organisation is headed by a Managing Director who is the Accoounting officer and the Chief Executive of the Authority and he is responsible to the Board of Directors.

The Authority operates two main departments which are Operations and Maintenance (OPS), and Finance and Administration (F & A) with each being headed by an Executive Director. The other units which are directly responsible to the Managing Director include Internal Audit Unit, Public Relation Unit, Corporate Planning and Legal Unit.

However, each of these two main departments is made up of some sections. For instance the Operations and Maintenance department consists of Construction, Operation, Maintenance and Planning and Design and Survey sections. Its major functions include in-house construction of dams, boreholes, supervision of jobs, engaging in feasibility studies and engineering designs and services of water resources projects. It also maintains up-to-date services for the Authority's catchment areas and the control and maintenance of all the Authority's equipment such as machinery, plants and vehicles.

The Finance and Administrative department is made up of two sections which are Accounts and Administrative sections. The functions of these departments include the supervision of staff welfare in general, supervision of staff school and clinic and the maintenance of guest houses. Others are the supervision of the stores, preparation and payment of staff salaries and other financial claims and charges, and also the preparation of financial information necessary for management function.

Furthermore, the unit under the Managing Director's office also performs some specific functions. For instance, the Internal Audit Unit serves as managerial and supervisory control over the operations of the organisation in order to assure the management of internal checks. It also safeguard the assets of the organisation and ensure that they are maintained. The Specific Services Unit co-ordinates non-commercial services to the public through monitoring of contractual jobs so as to be able to present progress report on any projects as may be required. The task of supervising, co-ordinating, preparation and publication of Authority's journals are performed by the Public Relations Unit on the activities of the Authority in order to create awareness. Furthermore, Legal Unit reviews and advises the Authority on petitions and complaints emanating from both within and outside the organisation. The unit also deals with the security of the organisation as regards cases and even stand for the Authority in court if the need arises. Finally, the task of preparing short and long range plans of the organisation is being performed by the Corporate Planning Unit. It also monitors the operations of the authority so as to ensure compliance with the stated targets.

1.5 STATEMENT OF THE PROBLEM

In some Government parastatals where there is a weak accounting department, there are always complaints of fraud and mismanagement of fund. This problem always emanate from lack of proper keeping of records and inefficiency on the part of the staff of the accounts department of the organisations. The problem could be so

pronounced that most of these parastatals rely on government to subsidise their income at regular intervals.

This, therefore led to the introduction of privatisation and commercialisation of some government parastatals. The government hoped that the introduction of this policy will lead to increased revenue generation and proper control of expenditure by these parastatals which would in turn reduce the amount of monetary allocation to them.

However, it was later discovered that the gross mismanagement in the eighties could be traced to lack of good record keeping system in the public sector. This is largely attributed to lack of management information system of which the fundamental problem is the difficulties in keeping and retrieval of information. The net effect of this is the inability to have a proper representation of operations within a particular time.

In addition, most of these parastatals are faced with in adequate and competent staff due to the embargo placed on employment by the government. Upper Niger River Basin Development Authority, Minna is not left out of these series of problems.

1.6 OBJECTIVES OF THE STUDY

The main aim of this study is to provide an indepth analysis and need for a computerised stock control procedures in
Upper Niger River Basin Development Authority. Specifically, its main objectives are as follows:

i. To study and analyse the activities of the stores department of the organisation.

ii. To observe the problems associated with the existing stock receipt and issue operations in UNRBDA, Minna and provide the need for a computerised operation in the organisation.

iii. To provide a logical and physical design of a computerised stock control system that will suit the organisation.

iv. To describe the various operations of the proposed system and its mode of operations.

v. To eliminate delays involved in the preparation of various stock reports.

vi. To ensure automatic generation of the necessary stock reports required by the Authority.

1.7 JUSTIFICATION OF THE STUDY

The year 1955 to 1963 saw the take off of Business Computing throughout the world. Today, computer is more relevant in all spheres of business world which include accounting activities, storage of sales information, stock inventory control, keeping personnel records, and so on.

In the past five years, there has been a boost in the utilization of information technology for the running of business enterprises in Nigeria. Much of this has come about as a result of the advent of micro or personal computers. The application of computer therefore, enables business to meet up with the demand of increased economic activities nation wide. It also aids business in making decisions that will help the business to thrive despite the competition from other firms.

However, many businesses are beginning to realise that computer systems can help them keep ahead of the competition, perhaps by providing new delivery systems for services, or by supplying accurate and up to date information on which immediate decision can be based. This is because the information derived from the use of computer is more reliable and efficient than manual system. Many professionals found in playing their roles as financial advisers, auditors or Store managers/controllers of resources have to be re-educated in the new technology and methodologies.

The Nigeria Store managers in the future therefore, would have to learn to do with this new technology. He would need to be as knowledgeable as many computer specialists with the expertise to write, debug and run his own programs.

It is against the aforementioned points that it is necessary to design a computerised procedure for a part of the operations of the stores department of upper Niger River Basin Development Authority, Minna. It is, therefore, hoped that all other operations will have to be automated too in the near future.

1.8 METHODS OF DATA COLLECTION

Specifically, the methods to be used in gathering information on the existing systems and other considerations are as stated below:

i. **OBSERVATION**:- This method is used to directly study the operations of the existing system.

ii. **RECORD REVIEW**:- Written information such as forms and reports used in the operations of the system were reviewed and analysed.

iii. **INTERVIEW**:- This is used mainly to confirm some information gathered using the above two methods. It was also used to obtain information or suggestions that can be considered relevant to the proposed system.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 RECORD KEEPING

Records are facts and figures about events and activities. Every material that comes into or goes out of an organisation becomes a record. Records could be looked into as an account in written or other permanent form serving as evidence of a fact or event. Information is preserved and handed down on it. For example, the performance of an organisation depends on the mode by which information is extracted from records either manually or by automation. It offers evidence of an event.

Every organisation whether business or otherwise keeps a record in one form or the other. Record-keeping is the method by which facts and figures are recorded and stored with ease and the speed with which findings are retrieved when needed makes the difference between success and failure.

As efforts were directed towards identifying, collecting and making available the most urgently needed information at all levels of organisation, the type of records available in any organisation depends on the type of services provided by the organisation. The type of records kept for a business organisation may be quite different from that of an educational Institution. Generally, records are categorised into the following:

1. **ACCOUNTING RECORDS**: This type of records include records of accounts payable, invoices, account ledger, balance sheet, bank statement deposit, budget, capital asset, record cash, receipt and payment records, etc. All these involve accounting record of an organisation for the accounting period. Some organisation may undertake part or all of the above.
2. **ADMINISTRATIVE RECORDS**: This includes the executive and general correspondence form used for administrative work, system and procedure record, management project, paper work, and so on.
3. **COMMUNICATION RECORDS**: This involves, bulletin on communications, messenger records, postage report, postal records, telecommunication copies, and so on.
4. **CORPORATE RECORD**: This deals with annual report, authority to issue security, bonds, surety, corporate election records etc.
5. **LEGAL RECORDS**: Like claims and litigation on torts and breach of contract, copyright, trade mark constitution and bye-laws.
6. **PERSONNEL RECORDS**: Such as records of employees activities, application records, injury claims and settlement, health and safety bulletins, insurance records, job description, time cards, training manual, union agreement.
7. **STOCK RECORDS**: This includes records of items and materials. A good example is the record of an organisation's tools, consumable items, and the like.

8. Other types of records could be grouped as miscellaneous records such as office suppliers and services, inventories, Office equipment, requisition for suppliers, and so on.

2.2 THE ROLE OF RECORD KEEPING IN AN ORGANISATION

One of the important roles of record in any organisation is to give information. This information is then used by the organisation, customers and even the competitors.

In the business world, the information is used for planning and taking decisions, such information is also used by the customers and competitor for guidance. It would be good to know such things as the length of time the average customers waits in line, the length of time from receipt of a customer's request to the time of acknowledgement via the mail or the average numbering of telephone.

A good record keeping will make retrieval of information easier and faster because of the modern method of keeping records which allow for retrieval at optimal level with efficiency. Retrieval of the referenced record enables the user to locate the desired record (document). In many sophisticated retrieval system, part of records may be retained for a time not exceeding the period for which other records are retained.

A good record keeping must also play the role of storing information. If an information could not be stored properly, then the method of keeping the record should be checked. References to the information are made at one time or the other

for updating the fact and figures in the record in order to make decisions for the next plan of action.

The essence of keeping record is to make sure information are readily available at all times when needed. Therefore, a good record keeping must be properly stored so as to be retrieved quickly for instant use.

2.3 RECORD MANAGEMENT

Today, there are many ways and methods of regulating the volume of records which are usually destroyed because the information is either duplicated or changed due to changes in law and regulations, business practice and the need of the user. The system of controlling these records is known as Record Management.

The available system and techniques needed to support information retention and retrieval at optimal level are not being used to any large degree. Because of these, a highly sophisticated system which could collect, evaluate, store, remove, reproduce and reference information through mechanization and automation was developed. However, it is entirely possible to achieve dramatic reduction in cost without employing an elaborate and expensive equipment and methods.

The adoption of some of the most elementary concepts and techniques of record management will result in the number of idle records being processed and stored in order to provide easier and accurate records in the identification and retrieval of essential records.

2.4 THE BASIC OBJECTIVES OF RECORD MANAGEMENT

The basic objectives of record management program embrace the following concept of relevance, self improvement and custodianship.

1. The program must provide every level of organisational activities with the most accurate and visible information in a timely and an understandable manner.
2. Increase the productivity of the administrative functions through the identification and addition of improved and responsive system, techniques and equipment which enlarge information potential, reduce records and files requirement, expand dissemination capability and effect cost-savings.
3. Protect the organisation's assets by preserving essential and valuable information vital to the continuance of profitable activity interposing meaningful control over the flow of records and safeguarding them against physical hazard, sabotage, business espionage.

Successful attainment of the stated objectives depend largely upon the competence and communicative skills of the records management professionals. It is their ability to understand and be relevant to the needs of management at every significant level that will determine the extent to which they enjoy the confidence and support vital to their work.

2.5 STOCK AND STOCK CONTROL

Stock or inventory consists of useable, but idle resources. These resources could be men, materials, machine or money. In other words, stock are goods or services used in the business activities for the operations of the day-to-day activities. Stock control is the techniques adopted by which materials of the correct quantity and quality are made available as and when required with due regard to economy storage and ordering costs, purchase prices, and working capital. It involves the following:

(a) Accessing the extent of stockholding of items individually and collectively.

(b) Accessing the items to be held in stock.

(c) Regulating the input of stock into the store house.

(d) To act as a buffer against an unpredictable high rate of stock uses.

The objectives of stock control is to ensure a correct balance between the cost of stockholding and the benefits from stockholding.

It therefore follows that stock is held for the purpose of providing a reservoir for materials to absorb the effects of variations in delivery and consumptions, and to maintain the availability of supplies within the organization concerned. It further means that it is inevitable to hold stocks of materials which are regularly used and also items which may be required at short notice in the event of plant breakdown.

In practice, every industrial concern or public undertaking has store houses and finds it necessary to keep stock for one reason or the other. Among these reasons are:

1. Delivery cannot be exactly matched with usage day-by-day.
2. Discounts or improved prices for bulk purchases more often than not offset the cost of storage.
3. Operational risks or possible changes in program requires the holding of stock as a precaution against serious breakdown or interruption of production or other activities.
4. Fluctuations in the price of commodity is considered desirable to hold stocks against when price are low.

We should note that the importance to be given to each of these factors depend on the circumstances of individual business.

2.6 FORMS OF STOCKS

Forms of stocks here simply referred to stock levels which is a means by which correct quantity of products are made available. It is also methods of controlling or preventing excess and shortage of stocks in an organization. The five basic levels are considered below:

1. **MAXIMUM LEVEL**: The maximum level of a given material is the maximum quantity that may be held in store. It is essentially an uppermost limit that the buyer must ensure is not exceeded (unless an excess is specifically authorised by higher management, for example, when unusually favourable purchasing conditions arise). It is set after consideration of the following:

(a) Rate of consumption;

(b) Risks of obsolence;

(c) Risks of deterioration;

(d) Cost of storing above-normal stocks;

(e) Storage space available.

2. **MINIMUM LEVEL**: The minimum level is the lowest level to which stock should fall. It is essentially a buffer stock which will not normally be touched. In the event of any item falling to its minimum level, management is immediately alerted and the acquisition of new supplies given top priority. It is set after the consideration of the following:

(a) Rate of consumption;

(b) The time required under top priority conditions to acquire enough supplies to avoid a production stoppage;

(c) The availability of raw materials.

3. **REORDER STOCK LEVEL** : The reorder level is the level at which a purchase requisition is made out. The level selected is such that, in the normal course of events, by reordering when the stock falls to the reorder level, new supplies will be received just before the minimum level is reached. It is set after the consideration of the following:

(a) Rate of consumption;

(b) Minimum level;

(c) Delivery time;

(d) Variations in delivery time.

4. **REORDER QUANTITY**: The reorder quantity is the quantity to be reordered in normal circumstances. By setting this quantity, the buyer is saved the task of recalculating the quantity to purchase each time there is need send order. The level of the reorder quantity is set after the following considerations:

(a) Rate of consumption;

(b) Cost of holding stock as against cost of purchasing (the quantity that minimises the sum of these costs is termed the Economic Order Quantity);

(c) Bulk discounts;

(d) Transport costs (half a load involves virtually the same transport cost as a whole load);

(e) Obsolence deterioration risks.

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

The system analysis and design stage involves analysing the existing system in order to aid the designing of the proposed system. The analysis is considered important because the design of the new system is dependent on whatever information gathered during the analysis stage.

In recognition of the above, this chapter begins with outlining the problems associated with the existing system so that the new system to be designed will be able to meet the expected benefits. It also discusses the choice of software to be used as well as its features. In addition, the chapter discusses the design of the new system in terms of the input requirement, output requirement and the data files required for the system to work conveniently.

3.2 PROBLEMS IDENTIFICATION AND DEFINITION

The introduction of computer in the present day world is expected to replace manual operations. This is considered necessary due to increased activities in our present day life. However, in areas where manual system is still in place, there exist various problems such as loss of vital information, insecurity of data, late retrieval of necessary details and host of others which lead to inefficiency in the general

operations of the system. The net effect is that the organisation that faces such problems would not be able to meet up the set objectives. The Stores department of Upper Niger River Basin Development Authority, Minna is not left out of the above problems. Specifically, the problems observed are as stated below:

i. The existing system allows for fraudulent practices by the staff of the organisation.

ii. There is a waste of time in retrieving information about stock position of each store item.

iii. The system of keeping records is poor and as such the information retrieved are inaccurate.

iv. Finally, there exists the problem of loss of data especially the detail records of items received and issued.

In recognition of the above problems, the stores department has not been able to meet up most of its obligations. Infact, it has been observed that some items are discovered out of stock at the point of usage. The expected solution to the problem enumerated above is a computerised procedure as against the manual operation that is currently in existence.

3.3 OBJECTIVES OF THE INVESTIGATION

Normally, an investigation is always carried out in order to give the researcher an indepth analysis about what is in practice. This is necessary in order to allow for

the creation of an alternative and a more efficient operations. The objectives guiding this investigation are outlined below:

i. To allow for proper understanding of the existing procedures in keeping and retrieving stock records.

ii. To put in place an efficient and better procedures of information keeping and retrieving using modern equipment.

iii. To design a good and reliable software for the department.

iv. Finally, to completely eradicate incessant problems due to increased number of stock items used in the organisation.

3.4 THE ANALYSIS OF THE CURRENT SYSTEM

This is an important stage of system development and it involves carrying out some findings as regards the existing procedures in an organisation. It is therefore based on the analysis made that a design will be carried out such that it will suit the present and future needs of the organisation.

In Upper Niger River Basin Development Authority, Minna, stock is regarded as consumable materials and goods constituting a part of the working capital of the Authority which are acquired, produced, used and could be sold in the ordinary business of the authority. The Head of Stores in consultation with the Executive Director, Finance and Administration, and Heads of Department should ensure that adequate stock levels are determined based on rate of consumption and usage.

For each stock item, Bin card/Tally card is maintained and the card shows the following information:

a) The description of item;

b) The unit of quantity;

c) The Date and Quantity of Receipts and Issues;

d) The running stock balance.

In addition, a stock ledger is kept in the Stores Section of the Authority which shows the details of each store item. However, it is the responsibility of the Store Officers to ensure that periodic stock count is carried out and the quantities counted compared with balances appearing on both the Bin/Tally cards and stock ledger.

The Store Section maintains three types of Store Unit which are General Store, Mechanical Store, and Stationery Store. Each of these Store Units stores stock items within their category. However, the major operations performed by the Stores Department include Receipt of stock items, Issue of stock items, Returns of stock items, and Transfer of stock items. The detailed procedure for carrying out each of these operations are enumerated below:

3.4.1 STOCK RECEIPT OPERATION

A Stores Receipt Voucher is prepared for all goods received from suppliers after necessary inspection must have been made on the goods supplied as meeting the required specifications set out in the Local Purchase Order earlier issued by the

Authority. After this, the description of each of the items, the unit quantity of each item, the date of receipt, and the running stock balance are entered into the appropriate Bin/Tally card.

3.4.2 STOCK ISSUED OPERATION

The Store Keeper issues item only on presentation of authorised and approved requisition voucher and thereafter raise a Store Issue Voucher. While issuing goods, the Store Keeper enters the quantity issued in the Stores Issue Voucher. The voucher is then registered while goods leaving the store are checked by another person independent of the Store Keeper. After this, the description of each of the items, the unit quantity of each item, the date of issue, and the running stock balance are entered into the appropriate Bin/Tally card.

3.4.3 STOCK RETURNS OPERATION

A goods return note, Stores Return Voucher is raised and registered for all goods returned from the store either as a result of surplus to requirements or damaged stock. The voucher is raised after an inspection by an officer independent of the Store Keeper. On the confirmation of this, the details of the returns are entered into the appropriate Bin/Tally card.

3.4.4 STOCK TRANSFER OPERATION

Transfer of goods from one store to another is authorised by the appropriate senior officer who has the authority to do so. The issuing Store Keeper raises Stores Transfer Voucher and post the necessary details into the appropriate Bin/Tally card while the receiving Store Keeper raises Stores Receipt Voucher and also post the necessary details into the appropriate Bin/Tally card.

3.5 THE DESIGN OF THE PROPOSED SYSTEM

The design of the proposed system is done to suit the analysis specified above. The design takes cognisance of the software that would be applicable to the full computerisation of the existing procedures in the organisation.

In the proposed system, each of the store items are coded for easy identification and less error prone. The coding takes cognizance of the store location of each items which forms the first two characters of the stock code followed by the stock number of each of the items. This is aimed at ensuring easy location of store items. The stock code would serve as the key field which will be entered for the sake of references to any item of stock.

3.6 SYSTEMS INPUT SPECIFICATION

For computer to perform the task of data processing, data needs to be inputed into the system. The system input specification states the source and type of data

that needs to be supplied into the system. This is considered important because if the information supplied are correct, definitely the result the computer will give would be right. This is in consonance with a computer parlance which states: "Garbage in Garbage out (GIGO)". It is in recognition of this that the input of the proposed system is designed to produce a cost effective method, achieve the highest level of accuracy and ensure that the input is acceptable and understandable to the users.

For the proposed system, there are four types of source document required. These include Stores Receipt Voucher, Stores Issue Voucher, Stores Returns Voucher, and Stores Transfer Voucher. Each of this has its area of application.

For the Stores Receipt Voucher, it becomes useful as a data input when items are received into store. The details on this form include the following:

i) Invoice Number;

ii) LPO/Job Order Number;

iii) Date of supply;

iv) Name of Supplier;

v) Total Amount of Supply;

vi) Stock Code;

vii) Stock Description;

viii) Quantity Received;

ix) Rate (Price Per Item);

x) Sales Value of each item.

The Stores Issued Voucher is required when items are being issued out of the store. The details on this form include the following:

i) Requisition Form Number;

ii) Date of Issue;

iii) Department;

iv) Section;

v) Total Amount of Issue;

vi) Stock Code;

vii) Stock Description;

viii) Quantity Issued;

ix) Rate (Price Per Item);

x) Sales Value of each item.

For the Stores Returns Voucher, it becomes useful as a data input when items are returned to the supplier. The details on this form include the following:

i) Invoice Number;

ii) Date of Return;

iii) Name of Supplier;

iv) Total Value of Return;

v) Stock Code;

vi) Stock Description;

vii) Quantity Returned;

viii) Rate (Price Per Item);

ix) Sales Value of each item.

Finally, the Stores Transfer Voucher is required when items are being transferred from one store to the other. The details on this form include the following:

i) Store Transfer Voucher Number;

ii) Date of Transfer;

iii) Place of Transfer;

iv) Total Amount of Transfer;

v) Stock Code;

vi) Stock Description;

vii) Quantity Transfer;

viii) Rate (Price Per Item);

ix) Sales Value of each item.

3.7 SYSTEMS OUTPUT SPECIFICATION

A computer performs its expected task internally and the results may not be produced until it is told to display them. However, output refers to the results and information that are generated by a system. The output from a computer system are required primarily to communicate the result of processing to users or other system or more importantly to provide a permanent copy of these results for consultation.

Basically, the proposed system requires the generation of various forms of reports. These include the Stock Balances Report, Stock Receipt Report, and Stock Issue Report. The Stock Balances Report lists all the stock items with their respective balances at any point in time. The Stock Receipt Report displays the details of transactions of items received into stores while the Stock Issue Report contains all the details of issues within a particular period.

3.8 DATABASE FILES DESIGN

The new system is proposed to be designed using database management system. This requires storing the data to be used in a database file. The design of database file defines the description of all the files that will be used in the proposed system. It includes the description of the content of the files used and their structures. The structure states the field names, field type and the field width associated to each of the file.

The proposed computerised stock control system is designed to make use of five database files namely: RECEIPT.DBF, ISSUE.DBF RETURNS.DBF, TRANSFER.DBF and CODE.DBF. The description and contents of these files are stated as follows.

RECEIPT.DBF:- This is a database file that contain the list of transactions as regards items received into the store within a particular time. Its structure is as stated below:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD WIDTH
1.	INVOICE	INVOICE NUMBER	CHARACTER	5
2.	LPO	LPO/JOB ORDER NO	CHARACTER	5
3.	STCODE	STOCK CODE	CHARACTER	7
4.	STDESCR	STOCK DESCRIPTION	CHARACTER	30
5.	DSUPPLY	DATE OF SUPPLY	DATE	8
6.	NSUPPLY	NAME OF SUPPLIER	CHARACTER	30
7.	QTY	QUANTITY RECEIVED	NUMERIC	6
8.	RATE	PRICE PER UNIT	NUMERIC	9/2
9.	VALUE	VALUE PER ITEM	NUMERIC	13/2
10.	ODEPT	ORDERING DEPARTMENT	CHARACTER	30

ISSUE.DBF:- This is a database file that contain the list of transactions as regards items issued out of the store within a particular time. Its structure is as stated below:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD WIDTH
1.	REQ	REQUISITION FORM NO	CHARACTER	5
2.	DISSUE	DATE OF ISUUE	DATE	8
3.	DEPT	USER DEPARTMENT	CHARACTER	20
4.	SECT	USER SECTION	CHARACTER	15
5.	STCODE	STOCK CODE	CHARACTER	7
6.	STDESCR	STOCK DESCRIPTION	CHARACTER	30

7.	QTY	QUANTITY ISSUED	NUMERIC	6
8.	RATE	PRICE PER UNIT	NUMERIC	9/2
9.	VALUE	VALUE PER ITEM	NUMERIC	13/2

RETURNS.DBF:- This database file is expected to store details of items returned within a particular period. The structure of this file is as stated below:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD WIDTH
1.	INVOICE	INVOICE NUMBER	CHARACTER	5
2.	DRETURN	DATE OF RETURN	DATE	8
3.	NSUPPLY	NAME OF SUPPLIER	CHARACTER	30
4.	DSUPPLY	DATE OF SUPPLY	DATE	8
5.	STCODE	STOCK CODE	CHARACTER	7
6.	STDESCR	STOCK DESCRIPTION	CHARACTER	30
7.	QTY	QUANTITY ISSUED	NUMERIC	6
8.	RATE	PRICE PER UNIT	NUMERIC	9/2
9.	VALUE	VALUE PER ITEM	NUMERIC	13/2

TRANSFER.DBF:- This database file is expected to store details of items transferred within a particular period. The structure of this file is as stated below:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD WIDTH
1.	TRANSFER	TRANSFER VOUCHER NO	CHARACTER	5
2.	DTRANSFER	DATE OF TRANSFER	DATE	8

3.	PTRANSFER	PLACE OF TRANSFER	CHARACTER	25
4.	STCODE	STOCK CODE	CHARACTER	7
5.	STDESCR	STOCK DESCRIPTION	CHARACTER	30
6.	QTY	QUANTITY ISSUED	NUMERIC	6
7.	RATE	PRICE PER UNIT	NUMERIC	9/2
8.	VALUE	VALUE PER ITEM	NUMERIC	13/2

CODE.DBF:- This database file is expected to store details of all the stock items available in the organisation. The details include the total quantity remaining, price, and location of each store item. The structure of this file is as stated below:

S/NO	FIELD NAME	FIELD DESCRIPTION	FIELD TYPE	FIELD WIDTH
1.	STCODE	STOCK CODE	CHARACTER	7
2.	STDESCR	STOCK DESCRIPTION	CHARACTER	30
3.	BALANCE	QUANTITY REMAINING	NUMERIC	6
4.	RATE	PRICE PER UNIT	NUMERIC	9/2
5.	NPRICE	VALUATION PRICE	NUMERIC	9/2
6.	VALUE	VALUE PER ITEM	NUMERIC	13/2

3.9 THE SOURCE PROGRAM DOCUMENTATION

This section deals with the physical construction of the logical design above. It has to do with the program specification required for performing the expected task. The designing of the computer software is important to ensure that the actual

programs produced perform all tasks as intended and to allow for future modifications to be performed in an efficient manner and with a minimum destruction to the design of the system. Therefore, the documentation of the program specification are listed in Appendix 2.

CHAPTER FOUR

4.0 SYSTEMS IMPLEMENTATION AND APPLICATION

4.1 INTRODUCTION

The systems implementation and application stage is required to put into use the newly designed system. This is always done to provide the environment conducive for efficient working of the system. This chapter begins with choice of software used and its features. The requirements in terms of hardware configuration and software types required for the computerised procedure is also stated. The mode testing of the new system and conversion to the system which are considered important are described in this chapter. Finally, the documentation of the workings of the system is also considered essential in order to aid references by the users as well as to aid proper understanding of the system.

4.2 CHOICE OF LANGUAGE

The proposed system is written using Database Management System (DBMS). A database is an organised collection of related information designed to meet the various needs of an organisation or establishment. DBMS is a package of computer programs and its documentation used to create, maintain, organise and retrieve information from a database. It is a software package that help establishments or institutions manage their data resources.

Specifically, the important functions of a DBMS are as follows:

- create and populate a database
- Retrieve data from the database.
- Generate report from the database
- Update information in the database
- Organise the data of the database.
- Maintain integrity and consistency of data.
- Provide shareability of data to users.

Database management software is of various types which include dBASE, Foxbase, Informix, Paradox, Oracle and a host of others. Specifically, the new system is developed in dBASE. dBASE is also of different versions such as dBASE II, dBASE III, dBASE III+, dBASE IV and the latest dBASE V. dBASE IV which is the particular dBASE program used in the development of this system has capabilities for programming.

4.3 FEATURES OF DBMS

In the early days, programs were developed in a file processing environment. In this environment, user's requirements are treated in isolation with application program operating almost independently. Files and records are designed in such a way to satisfy individual operational needs thus imposing organizational barriers with regards to the data.

However, in most information systems, it is desirable to have the ability to jump over these imposed barriers and access data right across the organisation.

This led to the introduction of database environment. In data processing environment, data are viewed as a whole irrespective of their type. Furthermore, the integration of data of different types are linked by logical relationships through a DBMS. The features of DBMS are as follows:

1. **DATA INTEGRATION**:- In a database, information from several files is co-ordinated, accessed and operated upon as though it is in a single file. Logically, the information is centralised, physically the data may be located in different files. In addition, it is possible for two or more application to be sharing compatible data.

2. **DATA REDUNDANCY IS ELIMINATED**:- Data redundancy occurs when the same data appears in more than one file. This leads to wastage of storage space and duplication of efforts during data entry. One basic feature of DBMS is that it eliminates data redundancy since data are not duplicated in files.

3. **DATA INDEPENDENCE**:- Another feature of DBMS is that it ensures data independence because application programs are isolated from the physical or logical storage of data. This feature seeks to allow for changes in the content and organisation of physical data without re-programming of applications.

4. **DATA INTEGRITY**:- This is an important features of DBMS. Since data is stored once without duplication, the information retrieved is consistent as only one update is enough if there is a change in the data.

4.4 WORKSTATION REQUIREMENT

The new system is designed to work on a standard micro-computer. Specifically, the computer configuration should include a micro-computer, a printer and an uninterrupted power supply, (UPS). The description and capacity of each of these are as follows:-

i) **COMPUTER HARDWARE**:- A micro-computer of not less than 80486 microprocessor with a minimum RAM (Random Access Memory) of 8 MB and a speed of about 66 MHZ (megahertz). The computer should possess a hardware disk capacity of about 850MB (megabyte) and a floppy disk drive unit providing for 3.5 inches diskette. The features of the proposed micro-computer is to a ensure speedy retrieval of information and to meet up the future computer needs of the Authority.

ii) **PRINTER**:- A printer is required to make hard copies of the reports that will be generated. In the proposed system, a printer is required for the generation of the necessary reports. For this purpose, a printer of neat letter quality feature and speed of about 1200 lines per minute with a maximum width of 132 characters per line is recommended. Specifically, an EPSON printer, LQ 2170 is recommended.

iii) **UPS**:- This facility will ensure constant power supply to thecomputer and its environment. It will have the capability for automatic provision of power incase there is power failure in order to allow for continuity of job. This is considered very important because of the erratic power supply.

4.5 SOFTWARE REQUIREMENT

The introduction of computer in Upper Niger River Basin Development Authority, Minna should not only be used to facilitate the activities of the Stores Department alone. This is because computers can also be used for other purposes like text preparation, data analysis, engineering design and other forms of data processing. This, mostly requires the use of application packages. Application packages are ready made programs developed by group of experts for specific applications. They have the advantages of flexibility, relatively cheap and easy to use.

Specifically, I would recommend that the management of Upper Niger River Basin Development Authority, Minna to purchase dBASE IV, WordPerfect 6.0 (a word processing package) and Lotus 1-2-3 (a spreadsheet package). The dBASE IV is needed to allow for modification of the suite of programs of the new system since they were developed in the environment. For the word processing package, the WordPerfect 6.0 will be used to produce text document which will be of immense importance to the department. The Lotus 1-2-3 is expected to aid some calculations and analysis which may be required in the department.

4.6 SYSTEMS TESTING

Systems testing is the stage of implementation which is aimed at ensuring that the system works accurately and efficiently before life operation commences. The logical design and the physical design should be thoroughly and continually examined

on paper to ensure that they will work when implemented. Therefore, the systems testing in implementation should serve as a confirmation that all is correct and an opportunity to show the user that the system works.

However, this proposed system was fully tested to confirm its reliability. Specifically, a user acceptance testing was performed. This type of testing involves the users of the program in testing to confirm that the system is doing what is required to be done. The testing was done using a set of carefully selected test data which was entered into the system. The result was compared with the result obtained from the previous run and they were found to be the same.

In view of this, it is then concluded that the newly developed systems is working accordingly.

4.7 SYSTEMS CONVERSION

This involves file conversion, file setup and changeover. File conversion requires changing the old (existing) system files to the format and content required by the new system. File setup is the process of setting up the converted files on the computer. Changeover is the full replacement of all the old procedures by the new ones.

The change over could be in any of the three following forms:

i) Parallel changeover

ii) Direct changeover

iii) Pilot changeover

(i) Parallel ChangeOver requires with the old and new system to run concurrently for some time using the same inputs. The output of the two systems are compared. This will continue until the new system is confirmed to be working satisfactorily

(ii) In the case of direct ChangeOver the old system becomes operational immediately.

iii) The pilot ChangeOver requires changing to the new system on a piece meal.

All the above highlighted procedures of a system conversion are required for the new system. It should be noted that the file conversion and file set-up can be performed by a computer operator under a close supervision. However, it is recommended that a parallel changeover method for the full conversion of the system. This is to ensure that within the period of changeover, the store activities in terms of storage and information retrieval are not, in any way affected.

CHAPTER FIVE

5.0 SYSTEMS DOCUMENTATION AND CONCLUSION

5.1 SYSTEMS DOCUMENTATION

Documentation is the description of how a system works. This is done to ensure better understanding of the system by the users incase of any problem. Therefore, in documenting the proposed system, the mode of starting the new system and the description and linkage of the menu structure would be stated.

5.1.1 STARTING THE SYSTEM

As stated earlier, the new system is developed using dBASE IV. For the system to work at all, there is need to install dBASE IV on the computer to be procured. If this is done, the program would be started by typing "DO STOCK". This would lead into the first level of menu in which user would select from the choice available.

5.1.2 DESCRIPTION OF THE MENU STRUCTURE

The menu structure will be discussed using the diagram in the appendix. Note that the diagram represent the screen design of the proposed system.

Specifically, the new system is composed of FIVE options in the main menu as represented by Diagram I in the Appendix. These options are STOCK MANAGEMENT, STOCK ENQUIRY, CODE MANAGEMENT, REPORTS PRODUCTION and SYSTEMS

EXIT. Each of these options has a code which is used for selection. The options are discussed in turns as follows:

i. **STOCK MANAGEMENT**:- This option contains a submenu like STOCK RECEIPT, STOCK ISSUED, STOCK TRANSFER, and STOCK RETURNS used to update the stock position. The STOCK RECEIPT menu is used when stock items are received into stores as displayed in DIAGRAM III while the STOCK ISSUED menu, on the other hand, is used when stock items are issued out to the users department. Its format is as shown in DIAGRAM IV. The STOCK TRANSFER menu is an option used to when stock items are transfer from one store to the other as diplayed on DIAGRAM V, while the STOCK RETURNS menu is used for items to be returned to supplier. Its format is as shown on DIAGRAM VI.

ii. **STOCK ENQUIRY**:- The STOCK ENQUIRY menu is used to carry out enquiry on the stock position as indicated on DIAGRAM VII. It contains two options namely: INDIVIDUAL STOCK CODE and GENERAL STOCK CODE. The INDIVIDUAL STOCK CODE is used to carry out enquiry on individual stock item as displayed on DIAGRAM VIII, while, the GENERAL STOCK CODE lists the stock position of all the items of store as shown on DIAGRAM IX.

iii. **CODE MANAGEMENT**:- This option is used to manipulate the stock code associated to each of the stock items. It contains a submenu with the list of the following options: ADD STOCK CODE, EDIT STOCK CODE, VIEW STOCK CODE, and DELETE STOCK CODE. The ADD STOCK CODE is used to make entries for new stock item and the screen design is as represented in DIAGRAM

XI. The EDIT STOCK CODE is used to modify the details of each stock item as displayed in DIAGRAM XII. The VIEW STOCK CODE is used to list individual stock item as represented by DIAGRAM XIII. The DELETE STOCK CODE is used to delete stock item that are no longer relevant in the system.

iv. **REPORT PRODUCTION MENU**:- This contains the list of various reports to be generated by the system. The list of reports to be generated are STOCK RECEIPT REPORT, STOCK ISSUED REPORT, STOCK TRANSFER REPORT and STOCK RETURNS REPORT as represented by DIAGRAM XV.

5.2 RECOMMENDATIONS

The need for the installation of the proposed system is to ensure the maximization of its benefits. However, for the system to be of immense benefits, the following recommendations should be adopted.

1. **MANPOWER REQUIREMENT**:- The use of computer in the organisation requires a review of the manpower presently available. Some staff like the typist will have to be trained to the use of

WordProcessor and new staff will have to be employed. There is also for the Authority to employ an in-house programmer who is fully knowledgeable about the concept of Database Management System. The programmer should be able to write programs in dBASE IV. This is to ensure future modification of the suite of programs that constitute this proposed system.

2. **TRAINING REQUIREMENT**:- There is the need for the training of a staff in the Accounting Department on how to use the proposed system. This is expected to be done before the installation of the system.

3. **SECURITY**:- In any computer based system, there is the need for security in order to avoid both logical and physical problems. In view of this, people (both staff and outsider) should not be given any access into the computer room.

4. **COMPUTER ENVIRONMENT**:- Normally, a computer environment should be air-conditioned. The Authority should provide a good cooling facility for the computer so as to ensure durability of the system.

However, it should be realised that the above recommendations need to be adopted in order to fully maximize the importance of a computer based system.

5.3 CONCLUSION

The continued substitution of computer based system for manual procedures has in modern days, become a world wide affairs. This is due to its relevance in virtually all aspects of human endeavour. This interest is, however, intensified by the capability of computers in performing a given set of procedures with all the necessary accuracy. It is not subjected to committing errors, and Its ability of accomplishing any task with high speed.

Therefore, it could be stated that the introduction of a computer based system in processing and storage of Store activities of the Accounts department of Upper

Niger River Basin Development Authority would solve all the highlighted problems and any future ones.

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APPENDIX 1

UPPER NIGER RIVER BASIN DEVELOPMENT AUTHORITY

COMPUTERISED STOCK CONTROL SYSTEM - MAIN MENU

CODE	TASK CODE
1	STOCK MANAGEMENT
2	STOCK ENQUIRY
3	CODE MANAGEMENT
4	REPORTS PRODUCTION
5	SYSTEMS EXIT

PICK A CODE:

DIAGRAM I

COMPUTERISED STOCK CONTROL SYSTEM

STOCK MANAGEMENT MENU

CODE	TASK CODE
1	STOCK RECEIPT
2	STOCK ISSUED
3	STOCK TRANSFER
4	STOCK RETURNS
5	EXIT TO MAIN MENU

PICK A CODE:

DIAGRAM II

STORES RECEIPT VOUCHER

)ICE NO: A0012 LPO/JOB ORDER NO: J123 DATE OF SUPPLY: 12/01/98

:R DEPARTMENT: ACCOUNTS TOTAL RECEIPT VALUE: # 22,000.00

OF SUPPLIER: KENDO BOOKSHOP, MINNA

STOCK CODE	STOCK DESCRIPTION	QUANTITY	RATE(#)
G10/9876	REAM OF A4 SIZE PAPER	15	750.00
G10/9875	REAM OF FOOLSCAP PAPER	5	850.00
G10/9877	REAM OF QUARTO PAPER	10	650.00

TO ENTER MORE ITEM (Y/N):

DIAGRAM III

STORES ISSUE VOUCHER

SITION FORM NO: RQ023 DATE OF ISSUE: 02/02/98

:TMENT: ACCOUNTS SECTION: STORES

STOCK CODE	STOCK DESCRIPTION	QUANTITY	RATE(#)
G10/9876	REAM OF A4 SIZE PAPER	10	750.00
G10/9877	REAM OF QUARTO PAPER	4	650.00
G10/9875	REAM OF FOOLSCAP PAPER	4	850.00

TO ENTER MORE ITEM (Y/N):

DIAGRAM IV

STORES TRANSFER VOUCHER

TRANSFER VOUCHER NO: TV340 DATE OF TRANSFER: 06/02/98

PLACE OF TRANSFER: MECHANICAL STORE

S/NO	STOCK CODE	STOCK DESCRIPTION	QUANTITY	RATE(#)
1	M11/1234	MOTOR ENGINE	1	12,500.00
2	M11/1235	TRACTOR TYRE	2	3,000.00

TO ENTER MORE ITEM (Y/N):

DIAGRAM V

STORES RETURNS VOUCHER

ETURNS VOUCHER NO: RV010 INVOICE NO: A0012 DATE OF RETURN: 22/01/98

AME OF SUPPLIER: KENDO BOOKSHOP, MINNA

/NO	STOCK CODE	STOCK DESCRIPTION	QUANTITY	RATE(#)
1	G10/9875	REAM OF FOOLSCAP PAPER	3	850.00
2	G10/9877	REAM OF QUARTO PAPER	2	650.00

TO ENTER MORE ITEM (Y/N):

DIAGRAM VI

COMPUTERISED STOCK CONTROL SYSTEM

STOCK ENQUIRY MENU

CODE	TASK CODE
1	INDIVIDUAL STOCK CODE
2	GENERAL STOCK CODE
3	EXIT TO MAIN MENU

PICK A CODE:

DIAGRAM VII

COMPUTERISED STOCK CONTROL SYSTEM

INDIVIDUAL STOCK ENQUIRY

STOCK CODE (Enter "X99/9999" To Exit): M11/1235

DESCRIPTION: TRACTOR TYRE

CURRENT STOCK BALANCE: 12

PRESS ANY KEY TO CONTINUE

DIAGRAM VIII

GENERAL STOCK POSITION

S/NO	ITEM CODE	DESCRIPTION	QUANTITY
1	M11/1234	MOTOR ENGINE	526
2	G10/9876	REAM OF A4 SIZE PAPER	35
3	G10/9875	REAM OF FOOLSCAP PAPER	18
4	G10/9877	REAM OF QUARTO PAPER	27
5	M11/1235	TRACTOR TYRE	12

IT IS END OF FILE - PRESS ANY KEY TO EXIT

DIAGRAM IX

COMPUTERISED STOCK CONTROL SYSTEM

CODE MANAGEMENT MENU

CODE	TASK CODE
1	ADD STOCK CODE
2	EDIT STOCK CODE
3	VIEW STOCK CODE
4	DELETE STOCK CODE
5	EXIT TO MAIN MENU

PICK A CODE:

DIAGRAM X

COMPUTERISED STOCK CONTROL SYSTEM

STOCK CODE ADDITION

STOCK CODE: (Enter "X99/9999" To Exit): M13/0012

DESCRIPTION OF ITEM: BRAKE FLUID

PER UNIT VALUE: 550.00

TO SAVE ENTRY (Y/N):

DIAGRAM XI

COMPUTERISED STOCK CONTROL SYSTEM

STOCK CODE MODIFICATION

STOCK CODE: (Enter "X99/9999" To Exit): G10/9876

DESCRIPTION OF ITEM: REAM OF A4 SIZE PAPER

PER UNIT VALUE: 750.00

TO SAVE ENTRY (Y/N):

DIAGRAMXII

COMPUTERISED STOCK CONTROL SYSTEM

STOCK CODE VIEWING

STOCK CODE: (Enter "X99/9999" To Exit): G10/9877

DESCRIPTION OF ITEM: REAM OF QUARTO PAPER

PER UNIT VALUE: 650.00

PRESS ANY KEY TO CONTINUE

DIAGRAM XIII

COMPUTERISED STOCK CONTROL SYSTEM

STOCK CODE DELETION

STOCK CODE: (Enter "X99/9999" To Exit): M13/0012

DESCRIPTION OF ITEM: BRAKE FLUID

PER UNIT VALUE: 550.00

TO DELETE RECORD (Y/N):

DIAGRAM XIV

COMPUTERISED STOCK CONTROL SYSTEM

REPORT PRODUCTION MENU

CODE	TASK CODE
1	STOCK RECEIPT REPORT
2	STOCK ISSUED REPORT
3	STOCK TRANSFER REPORT
4	STOCK RETURNS REPORT
5	EXIT TO MAIN MENU

PICK A CODE:

DIAGRAM XV

APPENDIX 2

```
SET TALK OFF
SET STAT OFF
SET SAFE OFF
SET SCOR OFF
SET BELL OFF
SET DATE brit
SET PROC TO STOCK
DO WHILE .T.
 CLEAR
 @ 1,12 TO 23,67 DOUBLE
 @ 2,17 SAY "UPPER NIGER RIVER BASIN DEVELOPMENT AUTHORITY"
 @ 3,17 TO 3,61 DOUBLE
 @ 5,17 SAY "COMPUTERISED STOCK CONTROL SYSTEM - MAIN MENU"
 @ 6,17 TO 6,61 DOUBLE
 @ 8,20 SAY "CODE"
 @ 8,42 SAY "TASK CODE"
 @ 9,20 TO 9,23 DOUBLE
 @ 9,42 TO 9,50 DOUBLE
 @ 10,21 SAY "1"
 @ 10,40 SAY "STOCK MANAGEMENT"
 @ 12,21 SAY "2"
 @ 12,40 SAY "STOCK ENQUIRY"
 @ 14,21 SAY "3"
 @ 14,40 SAY "CODE MANAGEMENT"
 @ 16,21 SAY "4"
 @ 16,40 SAY "REPORTS PRODUCTION"
 @ 18,21 SAY "5"
 @ 18,40 SAY "SYSTEMS EXIT"
 @ 20,13 TO 20,66 DOUBLE
 @ 22,33 SAY "PICK A CODE:"
 DO WHILE .T.
  CH = SPACE(1)
  @ 22,46 GET CH PICT '!'
  READ
  IF CH='1' .OR. CH='2' .OR. CH='3' .OR. CH='4' .OR. CH='5'
   EXIT
  ENDIF
 ENDDO
 DO CASE
  CASE CH = '1'
   DO SMANAGE
```

```
   CASE CH='2'
     DO ENQUIRY
   CASE CH='3'
     DO CMANAGE
   CASE CH='4'
     DO REPORT
   OTHERWISE
     EXIT
  ENDCASE
ENDDO
CLEAR
RETURN


PROC SMANAGE

DO WHILE .T.
  CLEAR
  @ 1,12 TO 23,67 DOUBLE
  @ 2,23 SAY "COMPUTERISED STOCK CONTROL SYSTEM"
  @ 3,23 TO 3,55 DOUBLE
  @ 5,29 SAY "STOCK MANAGEMENT MENU"
  @ 6,29 TO 6,49 DOUBLE
  @ 8,20 SAY "CODE"
  @ 8,42 SAY "TASK CODE"
  @ 9,20 TO 9,23 DOUBLE
  @ 9,42 TO 9,50 DOUBLE
  @ 10,21 SAY "1"
  @ 10,40 SAY "STOCK RECEIPT"
  @ 12,21 SAY "2"
  @ 12,40 SAY "STOCK ISSUED"
  @ 14,21 SAY "3"
  @ 14,40 SAY "STOCK TRANSFER"
  @ 16,21 SAY "4"
  @ 16,40 SAY "STOCK RETURNS"
  @ 18,21 SAY "5"
  @ 18,40 SAY "EXIT TO MAIN MENU"
  @ 20,13 TO 20,66 DOUBLE
  @ 22,33 SAY "PICK A CODE:"
  DO WHILE .T.
    CH = SPACE(1)
    @ 22,46 GET CH PICT '!'
    READ
    IF CH='1' .OR. CH='2' .OR. CH='3' .OR. CH='4' .OR. CH='5'
```

```
    EXIT
   ENDIF
  ENDDO
  DO CASE
   CASE CH = '1'
    DO SM1
   CASE CH='2'
    DO SM2
   CASE CH='3'
    DO SM3
   CASE CH='4'
    DO SM4
   OTHERWISE
    EXIT
  ENDCASE
ENDDO
CLEAR
RETURN


PROC SM1

clea
use receipt
copy stru to temp
do whil .t.
 @ 1,0 to 24,79 doub
 @ 1,28 say ' STORES RECEIPT VOUCHER '
 @ 0,27 to 2,52 doub
 mtsales=0
 stor spac(5) to minvoice,mlpo
 mdsupply=ctod('  /  /  ')
 mnsupply=spac(30)
 morddept=spac(15)
 @ 3,2 say 'INVOICE NO (Enter "99999" to Exit):' get minvoice pict '@!'
 read
 f minvoice='99999'
  exit
 endi
 @ 3,13 clea to 3,50
 @ 3,12 say ':' get minvoice
 clea gets
 @ 3,25 say 'LPO/JOB ORDER NO:' get mlpo pict '@!'
 @ 3,54 say 'DATE OF SUPPLY:' get mdsupply
```

```
 @ 5,2 say 'ORDER DEPARTMENT:' get morddept pict '@!'
 @ 7,2 say 'NAME OF SUPPLIER:' get mnsupply pict '@!'
 read
 @ 5,40 say 'TOTAL RECEIPT VALUE: #'
 @ 5,62 get mtsales pict '9,999,999,999.99'
 clea gets
 @ 8,1 to 8,78 doub
 @ 9,2 say 'S/NO'
 @ 9,9 say 'STOCK CODE'
 @ 9,27 say 'STOCK DESCRIPTION'
 @ 9,58 say 'QUANTITY'
 @ 9,70 say 'RATE(#)'
 @ 9,7 to 21,7
 @ 9,20 to 21,20
 @ 9,56 to 21,56
 @ 9,67 to 21,67
 @ 10,1 to 10,6
 @ 10,8 to 10,19
 @ 10,21 to 10,55
 @ 10,57 to 10,66
 @ 10,68 to 10,78
 @ 22,1 to 22,78
*  @ 24,0 to 24,79
 stor 0 to sno,mtsales
 r=11
 do whil .t.
   sno=sno+1
   stor 0 to mqreceive,mrate
   @ r,2 say sno pict '99'
   do whil .t.
     mstcode=spac(8)
     @ r,10 get mstcode pict 'A99/9999'
     read
     use code
*     go top
     loca for mstcode=stcode
     if .not. found()
       @ 23,23 say 'INVALID STOCK CODE - PRESS ANY KEY'
       set cons off
       wait
       set cons on
       @ 23,23 say spac(34)
       loop
     endi
```

```
    exit
  endd
  mstdescr=stdescr
  @ r,22 get mstdescr
  clea gets
  @ r,59 get mqreceive pict '999999'
  @ r,69 get mrate pict '99,999.99'
  read
  mvalue=mqreceive*mrate
  mtsales=mtsales+mvalue
  @ 5,62 get mtsales pict '9,999,999,999.99'
  clea gets
  use temp
  appe blan
  repl dsupply with mdsupply,stcode with mstcode,lpo with mlpo
  repl qreceive with mqreceive,rate with mrate,value with mvalue
  repl invoice with minvoice,stdescr with mstdescr
  repl nsupply with mnsupply,orddept with morddept
  @ 23,26 say 'TO ENTER MORE ITEM (Y/N):'
  do whil .t.
    resp=' '
    @ 23,52 get resp pict '!'
    read
    if resp $ 'YN'
      exit
    endi
  endd
  @ 23,26 clea to 23,53
  if resp='N'
    exit
  endi
  r=r+2
  if r>21
    @ 11,1 clea to 21,6
    @ 11,8 clea to 21,19
    @ 11,21 clea to 21,55
    @ 11,57 clea to 21,66
    @ 11,68 clea to 21,78
    r=11
  endi
endd
if resp='N'
  @ 23,28 say 'TO UPDATE FILE (Y/N):'
  do whil .t.
```

```
        resp = ' '
        @ 23,50 get resp pict '!'
        read
        if resp $ 'YN'
          exit
        endi
      endd
    endi
    if resp = 'Y'
      use receipt
      appe from temp
      use
      sele a
        use temp
      sele b
        use code
      sele a
      do whil .not. eof()
        mstcode = stcode
        mqty1 = qreceive
        sele b
        go top
        loca for mstcode = stcode
        mqty2 = balance
        mqty = mqty2 + mqty1
        repl balance with mqty
        sele a
        skip
      endd
    endi
    clos all
    use temp
    zap
    clea
  endd
  clos all
  eras temp.dbf
  clea
  retu


  PROC  SM2

  clea
```

```
use issue
copy stru to temp
do whil .t.
 @ 1,0 to 24,79 doub
 @ 1,29 say ' STORES ISSUE VOUCHER '
 @ 0,28 to 2,51 doub
 mtsales=0
 mreq=spac(5)
 stor spac(15) to mudept,musec
 mdissue=ctod('  /  /  ')
 @ 3,2 say 'REQUISITION FORM NO (Enter "99999" to Exit):' get mreq pict '@!'
 read
 if mreq='99999'
  exit
 endi
 @ 3,22 clea to 3,55
 @ 3,21 say ':' get mreq
 clea gets
 @ 3,54 say 'DATE OF ISSUE:' get mdissue
 @ 5,2 say 'DEPARTMENT:' get mudept pict '@!'
 @ 5,54 say 'SECTION:' get musec pict '@!'
 read
 @ 6,1 to 6,78 doub
 @ 7,2 say 'S/NO'
 @ 7,9 say 'STOCK CODE'
 @ 7,27 say 'STOCK DESCRIPTION'
 @ 7,58 say 'QUANTITY'
 @ 7,70 say 'RATE(#)'
 @ 7,7 to 21,7
 @ 7,20 to 21,20
 @ 7,56 to 21,56
 @ 7,67 to 21,67
 @ 8,1 to 8,6
 @ 8,8 to 8,19
 @ 8,21 to 8,55
 @ 8,57 to 8,66
 @ 8,68 to 8,78
 @ 22,1 to 22,78
*  @ 24,0 to 24,79
 stor 0 to sno
 r=9
 do whil .t.
  sno=sno+1
  stor 0 to mqreceive,mrate
```

```
   @ r,2 say sno pict '99'
   do whil .t.
    mstcode=spac(8)
    @ r,10 get mstcode pict 'A99/9999'
    read
    use code
*    go top
    loca for mstcode=stcode
    if .not. found()
     @ 23,23 say 'INVALID STOCK CODE - PRESS ANY KEY'
     set cons off
     wait
     set cons on
     @ 23,23 say spac(34)
     loop
    endi
    exit
   endd
   mstdescr=stdescr
   mnprice=nprice
   mqissue=0
   @ r,22 get mstdescr
   @ r,69 get mnprice pict '99,999.99'
   clea gets
   @ r,59 get mqissue pict '999999'
   read
   mvalue=mqissue*mnprice
*   mtsales=mtsales+mvalue
*   @ 5,62 get mtsales pict '9,999,999,999.99'
   clea gets
   use temp
   appe blan
   repl dissue with mdissue,stcode with mstcode,req with mreq
   repl qissue with mqissue,rate with mnprice,value with mvalue
   repl udept with mudept,stdescr with mstdescr,usec with musec
   @ 23,26 say 'TO ENTER MORE ITEM (Y/N):'
   do whil .t.
    resp=' '
    @ 23,52 get resp pict '!'
    read
    if resp $ 'YN'
     exit
    endi
   endd
```

```
    @ 23,26 clea to 23,53
    if resp='N'
      exit
    endi
    r=r+2
    if r>21
      @ 9,1 clea to 21,6
      @ 9,8 clea to 21,19
      @ 9,21 clea to 21,55
      @ 9,57 clea to 21,66
      @ 9,68 clea to 21,78
      r=9
    endi
  endd
  if resp='N'
    @ 23,28 say 'TO UPDATE FILE (Y/N):'
    do whil .t.
      resp=' '
      @ 23,50 get resp pict '!'
      read
      if resp $ 'YN'
        exit
      endi
    endd
  endi
  if resp='Y'
    use issue
    appe from temp
    use
    sele a
      use temp
    sele b
      use code
    sele a
    do whil .not. eof()
      mstcode=stcode
      mqty1=qissue
      sele b
      go top
      loca for mstcode=stcode
      mqty2=balance
      mqty=mqty2+mqty1
      repl balance with mqty
      sele a
```

```
      skip
    endd
  endi
  clos all
  use temp
  zap
  clea
endd
clos all
eras temp.dbf
clea
retu


PROC  SM3

clea
use transfer
copy stru to temp
do whil .t.
  @ 1,0 to 24,79 doub
  @ 1,27 say ' STORES TRANSFER VOUCHER '
  @ 0,26 to 2,52 doub
  mtsales = 0
  mtv = spac(5)
  mptrans = spac(25)
  mdtrans = ctod('  /  /  ')
  @ 3,2 say 'TRANSFER VOUCHER NO (Enter "99999" to Exit):' get mtv pict '@!'
  read
  if mtv = '99999'
    exit
  endi
  @ 3,22 clea to 3,55
  @ 3,21 say ':' get mtv
  clea gets
  @ 3,51 say 'DATE OF TRANSFER:' get mdtrans
  @ 5,2 say 'PLACE OF TRANSFER:' get mptrans pict '@!'
  read
  @ 6,1 to 6,78 doub
  @ 7,2 say 'S/NO'
  @ 7,9 say 'STOCK CODE'
  @ 7,27 say 'STOCK DESCRIPTION'
  @ 7,58 say 'QUANTITY'
  @ 7,70 say 'RATE(#)'
```

```
 @ 7,7 to 21,7
 @ 7,20 to 21,20
 @ 7,56 to 21,56
 @ 7,67 to 21,67
 @ 8,1 to 8,6
 @ 8,8 to 8,19
 @ 8,21 to 8,55
 @ 8,57 to 8,66
 @ 8,68 to 8,78
 @ 22,1 to 22,78
*  @ 24,0 to 24,79
 stor 0 to sno
 r=9
 do whil .t.
  sno=sno+1
  stor 0 to mqtrans,mrate
  @ r,2 say sno pict '99'
  do whil .t.
   mstcode=spac(8)
   @ r,10 get mstcode pict 'A99/9999'
   read
   use code
*   go top
   loca for mstcode=stcode
   if .not. found()
    @ 23,23 say 'INVALID STOCK CODE - PRESS ANY KEY'
    set cons off
    wait
    set cons on
    @ 23,23 say spac(34)
    loop
   endi
   exit
  endd
  mstdescr=stdescr
  mnprice=nprice
  @ r,22 get mstdescr
  @ r,69 get mnprice pict '99,999.99'
  clea gets
  @ r,59 get mqtrans pict '999999'
  read
  mvalue=mqtrans*mnprice
*  mtsales=mtsales+mvalue
*  @ 5,62 get mtsales pict '9,999,999,999.99'
```

```
    clea gets
    use temp
    appe blan
    repl dtrans with mdtrans,stcode with mstcode,tv with mtv
    repl qtrans with mqtrans,rate with mnprice,value with mvalue
    repl ptrans with mptrans,stdescr with mstdescr
    @ 23,26 say 'TO ENTER MORE ITEM (Y/N):'
    do whil .t.
      resp=' '
      @ 23,52 get resp pict '!'
      read
      if resp $ 'YN'
        exit
      endi
    endd
    @ 23,26 clea to 23,53
    if resp='N'
      exit
    endi
    r=r+2
    if r>21
      @ 9,1 clea to 21,6
      @ 9,8 clea to 21,19
      @ 9,21 clea to 21,55
      @ 9,57 clea to 21,66
      @ 9,68 clea to 21,78
      r=9
    endi
  endd
  if resp='N'
    @ 23,28 say 'TO UPDATE FILE (Y/N):'
    do whil .t.
      resp=' '
      @ 23,50 get resp pict '!'
      read
      if resp $ 'YN'
        exit
      endi
    endd
  endi
  if resp='Y'
    use transfer
    appe from temp
    use
```

```
    sele a
     use temp
    sele b
     use code
    sele a
    do whil .not. eof()
     mstcode=stcode
     mqty1=qtrans
     sele b
     go top
     loca for mstcode=stcode
     mqty2=balance
     mqty=mqty2+mqty1
     repl balance with mqty
     sele a
     skip
    endd
  endi
  clos all
  use temp
  zap
  clea
endd
clos all
eras temp.dbf
clea
retu


PROC SM4

clea
use returns
copy stru to temp
do whil .t.
  @ 1,0 to 24,79 doub
  @ 1,28 say ' STORES RETURNS VOUCHER '
  @ 0,27 to 2,52 doub
  mtsales=0
  stor spac(5) to mrv,minvoice
  mnsupply=spac(30)
  mdreturn=ctod('  /  /  ')
  @ 3,2 say 'RETURNS VOUCHER NO (Enter "99999" to Exit):' get mrv pict '@!'
  read
```

```
 if mrv='99999'
   exit
 endi
 @ 3,21 clea to 3,55
 @ 3,20 say ':' get mrv
 clea gets
 @ 3,32 say 'INVOICE NO:'
 do whil .t.
   @ 3,44 get minvoice
   read
   use receipt
   loca for minvoice=invoice
   if .not. found()
     @ 23,20 say 'UNRECOGNISED INVOICE NO - PRESS ANY KEY'
     set cons off
     wait
     set cons on
     minvoice='      '
     @ 23,20 say spac(40)
     loop
   endi
   exit
 endd
 @ 3,53 say 'DATE OF RETURN:' get mdreturn
 @ 5,2 say 'NAME OF SUPPLIER:' get mnsupply pict '@!'
 read
 @ 6,1 to 6,78 doub
 @ 7,2 say 'S/NO'
 @ 7,9 say 'STOCK CODE'
 @ 7,27 say 'STOCK DESCRIPTION'
 @ 7,58 say 'QUANTITY'
 @ 7,70 say 'RATE(#)'
 @ 7,7 to 21,7
 @ 7,20 to 21,20
 @ 7,56 to 21,56
 @ 7,67 to 21,67
 @ 8,1 to 8,6
 @ 8,8 to 8,19
 @ 8,21 to 8,55
 @ 8,57 to 8,66
 @ 8,68 to 8,78
 @ 22,1 to 22,78
*  @ 24,0 to 24,79
 stor 0 to sno
```

```
r=9
do whil .t.
 sno=sno+1
 stor 0 to mqreturn,mrate
 @ r,2 say sno pict '99'
 do whil .t.
  mstcode=spac(8)
  @ r,10 get mstcode pict 'A99/9999'
  read
  use code
*  go top
  loca for mstcode=stcode
  if .not. found()
   @ 23,23 say 'INVALID STOCK CODE - PRESS ANY KEY'
   set cons off
   wait
   set cons on
   @ 23,23 say spac(34)
   loop
  endi
  exit
 endd
 mstdescr=stdescr
 mnprice=nprice
 @ r,22 get mstdescr
 @ r,69 get mnprice pict '99,999.99'
 clea gets
 @ r,59 get mqreturn pict '999999'
 read
 mvalue=mqreturn*mnprice
*  mtsales=mtsales+mvalue
*  @ 5,62 get mtsales pict '9,999,999,999.99'
 clea gets
 use temp
 appe blan
 repl dreturn with mdreturn,stcode with mstcode,rv with mrv
 repl qreturn with mqreturn,rate with mnprice,value with mvalue
 repl nsupply with mnsupply,stdescr with mstdescr
 @ 23,26 say 'TO ENTER MORE ITEM (Y/N):'
 do whil .t.
  resp=' '
  @ 23,52 get resp pict '!'
  read
  if resp $ 'YN'
```

```
        exit
      endi
    endd
    @ 23,26 clea to 23,53
    if resp='N'
      exit
    endi
    r=r+2
    if r>21
      @ 9,1 clea to 21,6
      @ 9,8 clea to 21,19
      @ 9,21 clea to 21,55
      @ 9,57 clea to 21,66
      @ 9,68 clea to 21,78
      r=9
    endi
  endd
  if resp='N'
    @ 23,28 say 'TO UPDATE FILE (Y/N):'
    do whil .t.
      resp=' '
      @ 23,50 get resp pict '!'
      read
      if resp $ 'YN'
        exit
      endi
    endd
  endi
  if resp='Y'
    use returns
    appe from temp
    use
    sele a
      use temp
    sele b
      use code
    sele a
    do whil .not. eof()
      mstcode=stcode
      mqty1=qreturn
      sele b
      go top
      loca for mstcode=stcode
      mqty2=balance
```

```
      mqty=mqty2+mqty1
      repl balance with mqty
      sele a
      skip
    endd
  endi
  clos all
  use temp
  zap
  clea
endd
clos all
eras temp.dbf
clea
retu


PROC ENQUIRY

DO WHILE .T.
 CLEAR
 @ 2,12 TO 22,67 DOUBLE
 @ 4,23 SAY "COMPUTERISED STOCK CONTROL SYSTEM"
 @ 5,23 TO 5,55 DOUBLE
 @ 7,31 SAY "STOCK ENQUIRY MENU"
 @ 8,31 TO 8,48 DOUBLE
 @ 10,20 SAY "CODE"
 @ 10,42 SAY "TASK CODE"
 @ 11,20 TO 11,23 DOUBLE
 @ 11,42 TO 11,50 DOUBLE
 @ 12,21 SAY "1"
 @ 12,40 SAY "INDIVIDUAL STOCK CODE"
 @ 14,21 SAY "2"
 @ 14,40 SAY "GENERAL STOCK CODE"
 @ 16,21 SAY "3"
 @ 16,40 SAY "EXIT TO MAIN MENU"
 @ 18,13 TO 18,66 DOUBLE
 @ 20,33 SAY "PICK A CODE:"
 DO WHILE .T.
  CH = SPACE(1)
  @ 20,46 GET CH PICT '!'
  READ
  IF CH='1' .OR. CH='2' .OR. CH='3'
   EXIT
```

```
    ENDIF
  ENDDO
  DO CASE
    CASE CH = '1'
      DO ENQUIRY1
    CASE CH='2'
      DO ENQUIRY2
    OTHERWISE
      EXIT
  ENDCASE
ENDDO
CLEAR
RETURN


PROC ENQUIRY1

use code
do whil .t.
  clea
  mstcode=spac(8)
  @ 4,11 to 20,68 doub
  @ 3,21 to 5,57 doub
  @ 4,22 say ' COMPUTERISED STOCK CONTROL SYSTEM '
  @ 16,12 to 16,67 doub
  @ 7,28 say 'INDIVIDUAL STOCK ENQUIRY'
  @ 8,28 to 8,51 doub
  @ 10,17 say 'STOCK CODE (Enter "X99/9999" To Exit):' get mstcode pict
'A99/9999'
  read
  if mstcode='X99/9999'
    exit
  endi
  go top
  loca for stcode=mstcode
  if .not. found()
    @ 18,21 say 'UNRECOGNISED STOCK CODE - PRESS ANY KEY'
    set cons off
    wait
    set cons on
    @ 18,18 clea to 18,61
    loop
  endi
  mstdescr=stdescr
```

```
  mqty=balance
  @ 12,17 say 'DESCRIPTION:' get mstdescr
  @ 14,17 say 'CURRENT STOCK BALANCE:' get mqty pict '9,999,999,999'
  @ 18,27 say  'PRESS ANY KEY TO CONTINUE'
  set cons off
  wait
  set cons on
endd
use
clea
retu


PROC ENQUIRY2

use code
clea
@ 0,2 to 24,77 doub
@ 1,27 to 3,52 doub
@ 2,29 say 'GENERAL STOCK POSITION'
@ 4,3 to 4,76
@ 5,4 say 'S/NO'
@ 5,11 say 'ITEM CODE'
@ 5,27 say 'DESCRIPTION'
@ 5,67 say 'QUANTITY'
@ 5,9 to 21,9
@ 5,21 to 21,21
@ 5,64 to 21,64
@ 6,3 to 6,8
@ 6,10 to 6,20
@ 6,22 to 6,63
@ 6,65 to 6,76
@ 22,8 to 22,71
r=7
sno=0
do whil .not. eof()
  sno=sno+1
  mstcode=stcode
  mqty=balance
  mstdescr=stdescr
  @ r,4 get sno pict '9999'
  @ r,11 get mstcode
  @ r,23 get mstdescr
  @ r,66 get mqty pict '9999999999'
```

```
  clea gets
  skip
  if eof()
    @ 23,19 say 'IT IS END OF FILE - PRESS ANY KEY TO EXIT'
    set cons off
    wait
    set cons on
    exit
  endi
  r=r+2
  if r>21
    @ 23,27 say 'PRESS ANY KEY TO CONTINUE'
    set cons off
    wait
    set cons on
    @ 7,5 clea to 21,8
    @ 7,10 clea to 21,20
    @ 7,22 clea to 21,63
    @ 7,65 clea to 21,76
    r=7
  endi
endd
clos all
clea
retu


PROC CMANAGE.PRG

DO WHILE .T.
  CLEAR
  @ 1,12 TO 23,67 DOUBLE
  @ 2,23 SAY "COMPUTERISED STOCK CONTROL SYSTEM"
  @ 3,23 TO 3,55 DOUBLE
  @ 5,30 SAY "CODE MANAGEMENT MENU"
  @ 6,30 TO 6,49 DOUBLE
  @ 8,20 SAY "CODE"
  @ 8,42 SAY "TASK CODE"
  @ 9,20 TO 9,23 DOUBLE
  @ 9,42 TO 9,50 DOUBLE
  @ 10,21 SAY "1"
  @ 10,40 SAY "ADD STOCK CODE"
  @ 12,21 SAY "2"
  @ 12,40 SAY "EDIT STOCK CODE"
```

```
  @ 14,21 SAY "3"
  @ 14,40 SAY "VIEW STOCK CODE"
  @ 16,21 SAY "4"
  @ 16,40 SAY "DELETE STOCK CODE"
  @ 18,21 SAY "5"
  @ 18,40 SAY "EXIT TO MAIN MENU"
  @ 20,13 TO 20,66 DOUBLE
  @ 22,33 SAY "PICK A CODE:"
  DO WHILE .T.
   CH = SPACE(1)
   @ 22,46 GET CH PICT '!'
   READ
   IF CH='1' .OR. CH='2' .OR. CH='3' .OR. CH='4' .OR. CH='5'
    EXIT
   ENDIF
  ENDDO
  DO CASE
   CASE CH = '1'
    DO ACODE
   CASE CH='2'
    DO ECODE
   CASE CH='3'
    DO VCODE
   CASE CH='4'
    DO DCODE
   OTHERWISE
    EXIT
  ENDCASE
ENDDO
CLEAR
RETURN


PROC ACODE

use code
do whil .t.
 clea
 @ 2,11 to 22,68 doub
 @ 3,23 say 'COMPUTERISED STOCK CONTROL SYSTEM'
 @ 4,23 to 4,55 doub
 @ 6,28 to 8,50 doub
 @ 7,30 say 'STOCK CODE ADDITION'
 mstcode=spac(8)
```

```
 @ 10,14 say 'STOCK CODE: (Enter "X99/9999" To Exit):' get mstcode pict
'A99/9999'
 read
 if mstcode='X99/9999'
   exit
 endi
 go top
 loca for stcode=mstcode
 if found()
   @ 18,19 to 20,60 doub
   @ 19,21 say 'DUPLICATING ITEM CODE - Press any key '
   set cons off
   wait
   set cons on
   @ 18,19 clea to 20,60
   loop
 endi
 mstdescr=spac(30)
 stor 0 to mrate
 @ 12,14 say 'DESCRIPTION OF ITEM:' get mstdescr pict '@!'
 @ 14,14 say 'PER UNIT VALUE:' get mrate pict '9,999,999.99'
 read
 @ 18,26 to 20,52 doub
 @ 19,29 say 'TO SAVE ENTRY (Y/N):'
 do whil .t.
   resp=' '
   @ 19,50 get resp pict '!'
   read
   if resp $ 'YN'
     exit
   endi
 endd
 if resp='Y'
   appe blan
   repl stcode with mstcode,stdescr with mstdescr,rate with mrate
 endi
endd
use
clea
retu


PROC ECODE
```

```
use code
do whil .t.
 clea
 @ 2,11 to 22,68 doub
 @ 3,23 say 'COMPUTERISED STOCK CONTROL SYSTEM'
 @ 4,23 to 4,55 doub
 @ 7,28 say 'STOCK CODE MODIFICATION'
 @ 8,28 to 8,50 doub
 mstcode=spac(8)
 @ 10,14 say 'STOCK CODE: (Enter "X99/9999" To Exit):' get mstcode pict
'A99/9999'
 read
 if mstcode='X99/9999'
  exit
 endi
 go top
 loca for stcode=mstcode
 if .not. found()
  @ 18,12 to 18,67 doub
  @ 20,21 say 'ILLEGAL STOCK CODE - Press any key '
  set cons off
  wait
  set cons on
  @ 18,19 clea to 20,60
  loop
 endi
 mstdescr=stdescr
 mrate=rate
 @ 12,14 say 'DESCRIPTION OF ITEM:' get mstdescr pict '@!'
 @ 14,14 say 'PER UNIT VALUE:' get mrate pict '9,999,999.99'
 read
 @ 18,12 to 18,67 doub
 @ 20,29 say 'TO SAVE ENTRY (Y/N):'
 do whil .t.
  resp=' '
  @ 20,50 get resp pict '!'
  read
  if resp $ 'YN'
   exit
  endi
 endd
 if resp='Y'
  repl stcode with mstcode,stdescr with mstdescr,rate with mrate
 endi
```

```
endd
use
clea
retu


PROC VCODE

use code
do whil .t.
 clea
 @ 2,11 to 22,68 doub
 @ 3,23 say 'COMPUTERISED STOCK CONTROL SYSTEM'
 @ 4,23 to 4,55 doub
 @ 7,31 say 'STOCK CODE VIEWING'
 @ 8,31 to 8,48 doub
 mstcode=spac(8)
 @ 10,14 say 'STOCK CODE: (Enter "X99/9999" To Exit):' get mstcode pict
'A99/9999'
 read
 if mstcode='X99/9999'
   exit
 endi
 go top
 loca for stcode=mstcode
 if .not. found()
   @ 18,12 to 18,67 doub
   @ 20,21 say 'ILLEGAL STOCK CODE - Press any key '
   set cons off
   wait
   set cons on
   @ 18,19 clea to 20,60
   loop
 endi
 mstdescr=stdescr
 mrate=rate
 @ 12,14 say 'DESCRIPTION OF ITEM:' get mstdescr pict '@!'
 @ 14,14 say 'PER UNIT VALUE:' get mrate pict '9,999,999.99'
 clea gets
 @ 18,12 to 18,67 doub
 @ 20,27 say 'PRESS ANY KEY TO CONTINUE'
 set cons off
 wait
 set cons on
```

```
  @ 20,28 say spac(30)
endd
use
clea
retu


PROC DCODE

use code
do whil .t.
  clea
  @ 2,11 to 22,68 doub
  @ 3,23 say 'COMPUTERISED STOCK CONTROL SYSTEM'
  @ 4,23 to 4,55 doub
  @ 7,30 say 'STOCK CODE DELETION'
  @ 8,30 to 8,48 doub
  mstcode=spac(8)
  @ 10,14 say 'STOCK CODE: (Enter "X99/9999" To Exit):' get mstcode pict
'A99/9999'
  read
  if mstcode='X99/9999'
    exit
  endi
  go top
  loca for stcode=mstcode
  if .not. found()
    @ 18,12 to 18,67 doub
    @ 20,21 say 'ILLEGAL STOCK CODE - Press any key '
    set cons off
    wait
    set cons on
    @ 18,19 clea to 20,60
    loop
  endi
  mstdescr=stdescr
  mrate=rate
  @ 12,14 say 'DESCRIPTION OF ITEM:' get mstdescr pict '@!'
  @ 14,14 say 'PER UNIT VALUE:' get mrate pict '9,999,999.99'
  read
  @ 18,12 to 18,67 doub
  @ 20,27 say 'TO DELETE RECORD (Y/N):'
  do whil .t.
    resp=' '
```

```
    @ 20,51 get resp pict '!'
    read
    if resp $ 'YN'
      exit
    endi
  endd
  if resp='Y'
    dele
    pack
  endi
endd
use
clea
retu


PROC REPORT

DO WHILE .T.
  CLEAR
  @ 1,12 TO 23,67 DOUBLE
  @ 2,23 SAY "COMPUTERISED STOCK CONTROL SYSTEM"
  @ 3,23 TO 3,55 DOUBLE
  @ 5,29 SAY "REPORT PRODUCTION MENU"
  @ 6,29 TO 6,50 DOUBLE
  @ 8,20 SAY "CODE"
  @ 8,42 SAY "TASK CODE"
  @ 9,20 TO 9,23 DOUBLE
  @ 9,42 TO 9,50 DOUBLE
  @ 10,21 SAY "1"
  @ 10,40 SAY "STOCK RECEIPT REPORT"
  @ 12,21 SAY "2"
  @ 12,40 SAY "STOCK ISSUED REPORT"
  @ 14,21 SAY "3"
  @ 14,40 SAY "STOCK TRANSFER REPORT"
  @ 16,21 SAY "4"
  @ 16,40 SAY "STOCK RETURNS REPORT"
  @ 18,21 SAY "5"
  @ 18,40 SAY "EXIT TO MAIN MENU"
  @ 20,13 TO 20,66 DOUBLE
  @ 22,33 SAY "PICK A CODE:"
  DO WHILE .T.
    CH = SPACE(1)
    @ 22,46 GET CH PICT '!'
```

```
    READ
    IF CH='1' .OR. CH='2' .OR. CH='3' .OR. CH='4' .OR. CH='5'
      EXIT
    ENDIF
  ENDDO
  DO CASE
    CASE CH = '1'
      DO REPORT1
    CASE CH='2'
      DO REPORT2
    CASE CH='3'
      DO REPORT3
    CASE CH='4'
      DO REPORT4
    OTHERWISE
      EXIT
  ENDCASE
ENDDO
CLEAR
RETURN
```