COMPUTERISED BANKING OPERATIONS

(SAVINGS AND CURRENT ACCOUNTS)

CASE STUDY OF

INTER CITY BANK PLC.

B Y

DCN. EMMANUEL OKO AKANI

IN PARTIAL FUFILMENT FOR THE AWARD

OF

POST GRADUATE DIPLOMA IN COMPUTER SCIENCE OF

FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA.

MARCH, 1994

CERTIFICATION

We certify that this work was carried out by

Dcn. Emmanuel Oko Akani of the Post Graduate School,

Department of Mathematics and Computer Science,

Federal University of Technology, Minna.

_____
Dcn. Emmanuel Oko Akani
(Student)

_____
Mr. Sadiq Umar
(Supervisor)

_____
Dr. Adeboye
(Head of Department)

_____
21/4/94

(External Examiner)

(i)

ACKNOWLEDGEMENT

(ii)

DEDICATION

To

Engr. Akani O. Akani

in gratitude for his continued

support through thick and thin.

CONTENTS

A B S T R A C T

Computer has made a remarkable contribution in every facet of human development.

This work therefore is aimed at improving banking operations – using computer. The day-to-day operations of banks requires good knowledge of accounting procedures, accurate maintenance of customers accounts ledger, cash books, loans books, etc. It also needs intelligent and faithful employees so that fraud will be minimised.

Introduction of computer in banking operations has greately improved banking services. There are many softwares on banking operation already in existence. Most of them were developed from USA and Britain and lack the necessary ingredients common to our local banking operations. Therefore the need for this work is to produce a system that will take into consideration all the necessary banking operational procedures common in our banking services.

Much effort was made to gather sufficient and accurate information about banking operations. Though Inter City Bank was used as a case study, other banks were as well visited and information gathered was used to compare if there will be any major difference in their operations.

Checks and controls are provided in the designing of the

system to minimise fraud often carried out by unscrupulous customers. Passwords are also introduced such that every transaction made can be traced to a particular employee who may have operated the computer at a any work station in case of fraud or mistakes.

This system has been designed for local network. That means every transaction point (work station) must be provided with a terminal - from enquiry point to the bank manager.

Data is shared and accounts updated immediately as transactions are carried out.

This system provides confidence in the minds of customers and makes them recieve prompt attention since no transaction is expected to last more than ten munites.

I recommend that this system should be used by other banks other than Inter City Bank because of its numerous advantages.

INTRODUCTION

Accounting, as it is practised today, evolved gradually over the years, and we cannot pinpoint the time of the first accounting system. Acounting arose to satisfy people's needs for information, and its origins predate recorded history.

As societies become more complex, accounting was needed for maintaining tax records, answering to wealthy land owners, providing information about caravans, trading voyages, and other early business ventures.

Until fairly recent times, more businesses were small and easy to keep track of, however, with the industrial revolution, the sophisticated financial information was called for.

Computers have come to be the standard tools of carrying out Banking operations as well as indespensable in all branches of engineering, and the advances in aeronautics and space travel in the recent past could not have taken place without them.

This work is therefore directed towards making contribution in the banking industry by developing a database Management System that will automate the two major services in commercial banking - Savings and Current accounting operations.

It is a type of Management Information System which generates information for decision making and problem solving. It provides input information system for managerial

decision process from transaction process. The nature of decisions to be made have well defined procedures and as such that occur regularly (daily, weekly and monthly). Since the decision process is well defined, the set of information needed to formulate decision are very easily identified, so the system has been developed and documented in the form of reports, based on the transactional level of activities such as regular reports on DEPOSITS, WITHDRAWALS and Summary reports on the daily, weekly, and monthly transactions.

This information will be useful to the bank officials especially at their headquarters, indicating the performance of individual branches, the level of cash reserves, interest paid to depositors and other common performance indicators known to the bankers.

These information will guide the officers in taking decisions about the level of interest to charge the following week for various types of loans. It will also help them determine whether they must raise the interest rate they pay customers to attract more depositors.

CHAPTER ONE

OBJECTIVES

The task of this work is to develop a computerized Banking operation System that will process input, maintain files of data (ledger cards) about banking operations and produce information and other outputs. This is purely a transaction process system (TPS). It is aimed at assisting in carrying out day to day activities of the banking organisation. It is therefore operation oriented.

Banking services demand for accurate record keeping and prompt service to customers. This therefore call for automation of this important task to be able to meet the demand. During payment of salary to workers, most banks where this services has not been automated will keep customers waiting for a whole day just to withdraw money. In the course of this work, some banks visited in Minna, Niger state, who claimed to have automated their services still have this problems. Most of their activities were still mannualy done, their daily transactions were still being manually posted to the computer in batch at the close of business each day.

This work is therefore aimed at improving such semi-automated services, and to provide a standard banking system for those ones which are yet to be computerised.

S C O P E

This work is limited to the two major areas of operations in Commercial Banking - Savings and Current Accounting Operations. These are areas where most banks have most of their operations concentrated. Most people use banks to transfere money from one town to another, especially business men, some organisations use the bank as a point of payment to their workers while greater percentage use it for safe keeping of their money. Nearly all these transactions fall under Current Account operations or Savings Account operations, and requires the bank to concentrate the greater percentage of their man power and resources in these two areas.

REVIEW OF BANKING OPERATIONS

The Banking industry is literally refered to as money house. Some others see it as a place for exchange of money and a place of obtaining loan.

The banking industry offers more than all these services stated above. There are different types of banks and their services vary accordingly.

Agricultural Banks are concerned with giving loans to farmers and sponsoring agricultural projects and related project.

Merchant banks are cocerned with keeping and maintaining accounts of individuals and cooperate bodies,

including governments, foreign exchange services etc.

Mortgage banks are concerned with savings and investment schemes.

All these banks and others have one common goal; -to make profits for the shareholders.

We are concerned with the savings and current account generations of the banks in this work. "An account of any type represents in both legal and practical terms, a relatio-nship between the bank and a customer". It is important that all required account opening documents are obtained, duly and correctly completed by the customer. In each case residential address of the customer should be obtained. The totality account opening doccuments constitutes a mandate to the bank. A mandate defines the terms of Banking relationship with a customer and outlines how the customer wants the account to be conducted. It sets out instructions and preferences such as frequency of rendering statements, signing powers and amounts, restrictions etc. Instructions in a mandate must be respected. Failure to do so may result in financial loss and/or legal liability to the Bank. Breach of mandate instructions by staff resulting in loss or not, attracts summary disciplinary action including dismissal from service depending on the facts of a particular case.

The minimum initial deposit required to open each type

of account varies between the locations of the Bank and the

account type. "Reqiured initial deposit are advised
through circulars from time to time.

NOTE: Since account opening is a first step in a relationship
with the bank, it is important that every process is handled right
and that the bank is fully aware of any relevant information
pertaining to a customer. Accordingly, the following additional
guidelines are ofered and are expected to be observed.

1. On reciept of completed account opening documents, all unused
spaces on a signature card should be cancelled by drawing a
straight line across the spaces (preferably in red ink).

2. If in doubt about any piece of document for opening an
account, caution should be exercised and double checked to confirm
genuiness. Such documents include Certificates of Incorporation,
Letters of Administration, Letters of authority from Accounts
General or Ministers, etc.

3. Status Enquiries are important and must be conducted,
responses followed up, evaluated and then filed.

4. Originals of documents for sighting must be sighted and
compared with copies.

5. It is always ensured that account opening documentation is
complete. Where a delay of submission is allowed, it is ensured
that the remaining documents are submitted on or before the agreed
date.

6. Reference forms must be completed in full and signature
thereon verified.

CURRENT ACCOUNT

Various types of current accounts can be opened for customers as follows:-

1. Individual Account

2. Joint Account

3. Patnership Account

4. Limited Liability Account

5. Sole Proprietorship Account

6. Parastatals Account

7. Clubs, Societies and Unions Account

8. Administrators and Executors Account

9. Federal Government Account

10. State Government Account

11. Local Gorvernment Account

12. Official Military Account

13. Private Owned School Account

14. Government Controlled Schools Account.

For the type of accounts listed, the procedures for opening some are as follow:

INDIVIDUAL ACCOUNT

Customers intending to open an individual account are interviewd and this is to be conducted by the Manager or Officer designated or delegated to handle same.

It is ensured that in the course of the interview, an enquiry is made with regard to the customer's occupation whether self

emplolyed or in any employmet and if he or she maintains an account elsewhere.

Satisfied with responses to the questions, the customer is requested to complete the following forms:-

a) Request to Open Account

b) Signature Card (Form No. 2) Appendix 2

c) Letter of Set-Off

d) Two Referees Forms for completion by any referee of customer´s choice. Appendix 3

e) In addition to all the above, a letter of introduction

is obtained from employers if the individual is in

paid employment and the account is intended to be used

as salary account.

f) Two Passport photographs of the customer.

Ensure that the references are from undoubted sources preferably from the bank´s existing customers, other Bank´s or Government Departments. In cases where referees are customers of the Bank, ensure opinion request in respect of such referees are sent to their respective bankers. For cases where referees obtained are from the Bank´s existing customers, verify the signature on referee forms to ensure the authenticity.

The completed forms by the customer are checked by the current Accounts Officer for completeness and correctness as same passed to the Manager for additional checking and final approval to open the account.

Upon approval, details of the new account are entered in the Open and Closed Accounts Register where a number is given. Authorised Officers sign off on the register signifying the opening of the account.

The following documents are issued:

i) Ledger Cards/Statement to be issued out to a Ledger Keeper by the current accounts officer. It is to be ensured that Ledger keeper acknowledges receipt of same by signing against it in the ledger card issued register.

ii) Teller to the customer to enable the customer make payment into the newly opened account.

The current Account officer will then file the mandate file in the cabinet. All other documents are filed in a newly opened account file for the customer. Bank customer is to have a separate file in which all documents advices, correspondences etc, shall be filed.

The same procedure is used in opening other types of accounts except for slight changes depending on the type of account.

HOW TO OPERATE CURRENT ACCOUNT

DEPOSIT- Any one can pay cash or cheque into current Account. Also money can be transferd from savings account and from other branches into current account. Deposit into current Account can be made as many times as possible in a day.

WITHDRAWAL - Money is withdrawn from current account with a cheque
leaf. Anybody authorised by the account owner can withdraw money
using a cheque leaf duely signed by the account owner, and
withdrawal can be made as often as possible in a day.

SAVINGS ACCOUNT

Savings account is a form of interest bearing deposit
established for a customer, personalised in use and operated
through use of passbooks. Unlike current accounts, savings
accounts are limited to only individuals, minors, joint account
holders, club/unions and societies.

(The standard procedure to be followed when opening a
Savings Account for any of the above mentioned classes of
customers is as follows:
In order to open a savings account for a literate
individual, the following steps are to be followed:

Issue out signature card/index (form 46) (see appendix 10) to
the customer for completion after interviewing the customer to
ensure that he/she has a minimum amount of deposit allowed by the
bank.
Collect back the completed signature card/index from the
customer and ensure the customers signature on the signature card
corresponds with the one on the index card.

Collect two recent passport photographs of the customer and
attach to the reverse side of the signature card and index card.

Pass along all received documents to the savings account officer who will examine and pass on same to the branch Accountant/Branch Head for permission to open the account. If the approval to open the account is granted, obtain a new pass book and blank ledger card from the officer in charge of savings.

Complete the ledger card heading either through typing or manually by neatly writing full name, surname,first name,address and occupation of the customer.

Complete the open and closed account register by using the information of signature/index card and the passbook and give a number to the account opened.

Write the new account number on spaces provided for savings bank account number on:

a) Signature/Index Card

b) Ledger Card

c) Pass Book

Write pass book number on both ledger and signature/index card to the cashier and inform the customer of the account number. Direct the customer to make payment of initial deposit to the cashier using deoposit slip form (see appendix 4).

The cashier receives the money from the customer, records same in pass book, after which he/she will pass the pass book, deposit form together with the signature/index card to the ledger keeper/machinist.

Using the information on the savings deposit form, the ledger keeper confirms the records of deposit made by cashier in the pass

book and intial the deposit forms in the space provided termed "Ledger keeper's initials".

Pass the pass book, ledger card together with signature card/index card and deposit form to the savings account officer for authentication in the open and closed account register.

The savings account officer must ensure to authenticate the passport photographs attached to the reverse of signature card by signing across over official stamp. The Ledger keeper receives back the above mentioned items from the officer-in-charge of savings after authentication.

Return the pass book and deposit form back to the cashier while the cashier retains the deposit form and hands over the pass book to the customer.

File the ledger card in the tray concerned.

Separate the signature card from index card throuth perforation and file the signature card in numerical order while the index card is to be filed alphabetically using surname as the basis.

The same process is used for opening current accounts for other types of accounts mentioned above.

HOW TO OPERATE SAVINGS ACCOUNT

DEPOSIT- Money can be deposited into savings account as often as necessary by any person.

WITHDRAWAL- It is only the account holder that is authorised to withdraw from savings account. Withdrawals can be made only once per day and a minimum amount (depending on the

bank) must be left in the amount. Interest Calculation and Application - On the 15th of every month, the bank is expected to apply interest due to savings account both dormant and active. The interest rate applicable is as advised by management from time to time.

HISTORY OF INTERCITY BANK

Intercity Bank PLC was promoted on behalf of Niger State Government by the Niger State Development Conmpany and incorporated as a private limited liabilitgy company in April,1987. The company was granted license to commence commercial Banking business and also appointed as an Authoresed foreign Exchange Dealer by the Central Bank of Nigeria in October, 1987.

On 28th October,1988, the Bank commenced business at its Minna Head office and with a liaison office at Lagos under the management of First Bank Nigeria PLC. Inter City Bank offers a full range of commercial Banking services through an expanding network of branches. Spacialised services such as Financial Intermedeation and International Remittances are provided by dedicated departments located on Victoria Island, Lagos.

The basic elements of the bank´s mission are:

1. Profit/shareholder return

2. Service

3. Social responsibility especially in the light of the Bank´s history and origin.

The bank has seven branches, and a seventh branch located in Kano has just commenced operations in the first week of February, 1994. The branches and their dates of openning are; Minna- at inception in October 28, 1988,two branches in Lagos which are Victoria Island- September, 1991, Sabo-Yaba- March,1992 Market Agency - Minna May,1992, Kano branch-February,1994, others are Suleja branch and Kaduna branch.

All the branches except Kano branch are profitable. Kano branch could be said to be in its gestation period being relatively new. It is expected to be making profits by the end of Octobe 1994.

CHAPTER TWO

FEASIBILITY STUDY

The aim of this preliminary investigation was to find out the objectives of the present system and whether these objectives were being achieved. The objectives set to accomplish at this stage were:

(i) To clarify and understand the project request The guiding question is in this form:

(a) what is being done presently?

(b) what is required to improve the system?

(c) why is it needed?

(ii) Determination of the size of the project. This was necessary so as to estimate the number of people and amount it will require to develop the project. Since it was only me working on this project, it was therefore necessary to limit the scope to current and savings account to be able to meet the time schedule.

(iii) Assess cost and benefits of the proposal and its alternative approaches if any. What is the cost of the project including the cost of training the user of the system-bank staff?

(iv) To determine the technical, financial and operational feasibility of the proposed system.

(v) Report the findings to management of the bank.

During the study, selected members of staff from the information department, accounting section and auditing department were interviewed and some documents reviewed -

the procedure manual, History, business and ownership of the bank.

"The data for feasibility studies were gathered through two primary methods - reviewing documents and interviewing selected personnel in an organisation (especially those connected with the investigation)"

OPERATION OF THE EXISTING SYSTEM

Inter City bank can be said to have been computerised but that is very limited to the ledger oprations only. From my investigation, almost all the services in the bank are still manually done. In the Head Quarters of Intercity bank PLC, Minna, there is a computer installed in a Local Area Network form but the potentials of the system is not fully harnessed. With almost every staff having a terminal before him, yet most of their services are still manually done. The present use of their computer is to check the customers balance in his account and with the information obtained determines if he could make withdrawals, etc.

At the close of business, all the cheque forms, deposit and withdrawal forms, and all other documents used for transaction are sent in batch to the computer operator to key-in into the computer. When this process is completed the legher is then updated with that information and a print out of the daily transaction made.

PROBLEM WITH THE EXISTION SYSTEM

The major problem with the operational system of the bank even with the computer network is delay in services. One of the advantages of employing computer in processing information is speed, but here it is not, put into use in the proper way. Customers still cueue for hours waiting to be attended to due to delay in services. One would have expected to spend not more than ten minutes in the banking hall for whatever transaction he wants to do with the bank.

Another problem encountered is when balancing account at the end of the day´s business. There may be a situation whereby either over payment or under-payment is made and it becomes difficult to balance the account . The usual practice is to refere to the record of payment and check each of the denominations and by so doing the error is quickly discovered. There is no such record for reference incase of unbalanced account. What the cashiers do is to scrible something at the back of the cheque which later may not be readable.

Another problem discovered was that of volume of data processed. At the inception of the bank, very few customers were patronising the bank, therefore there were not much work to be done; very few data to process. Recently, the bank has grown and with many branches. The number of staff though has increased also but not adequate to meet

the growth rate of the business of the bank.

BENEFITS OF THE PROPOSED SYSTEM

This proposed system has many benefits to offer
which includes the following:

OPENING NEW ACCOUNTS

The proposed system has a facility for capturing the data in the
mandate and stores it permanently into database and reference is
made whenever required instead of keeping piles of files which is
the present system of opening new accounts. The account number of
every account to be opened is authomatocally generated by the
computer, increamenting

it by one. In so doing there will be no incident of
duplication of account numbers.

MAKING DEPOSITS

The proposed system has a facility for capturing the total
number of each currency and will authomatically calculate the sum
of each denomination and total the amount of cash deposited. In
case of current account, it will add the total sum of the cash to
the amount of cheque paid along with it and display the total
credit and allow the cashier to compair it with the teller, and
make corrections if any or save it.

Immediately the cashier confirms the entry, it will be
registered in the transaction file and the account updated.   In
case of unbalanced account, the record of each transaction for the
day will then be printed out for cross checking and if any mistake
or wrong entry, the update menu has a facility to call back such
accounts and corrections made (edited).

MAKING WITHDRAWALS

Before withdrawals could be made on any account savings or current, the balance in the account is verified. This proposed system has a facility to display the amount in the account (balance) by just typing the account number and

if the amount to be withdrawn is supplied it will advise the cahsier to either approve payment or not, depending on the amount to be withdrawn and balance left in the account.

Where approval is given, then the particulars of the payee, the amount, date on the cheque and other information required are captured and registered in the transaction file and the account immediately updated.

UPDATING ACCOUNTS

The update menu has facilities for deleting accounts – incases of closed accounts, wrong entry, ect., the update menu has the facility to call the account and correction made. The interest is calculated for every account that meets the required condition just by touching the botton and you will be required to confirm if you want the interest calculated for the day . You can view the accounts – current and savings from the savings, current and updating menu.

REPORT GENERATION

The daily report is generated and displayed either to the screen or printed as desired. The weekly and monthly reports are all generated by just entering the date or month

17

FUNCTIONAL DIAGRAM
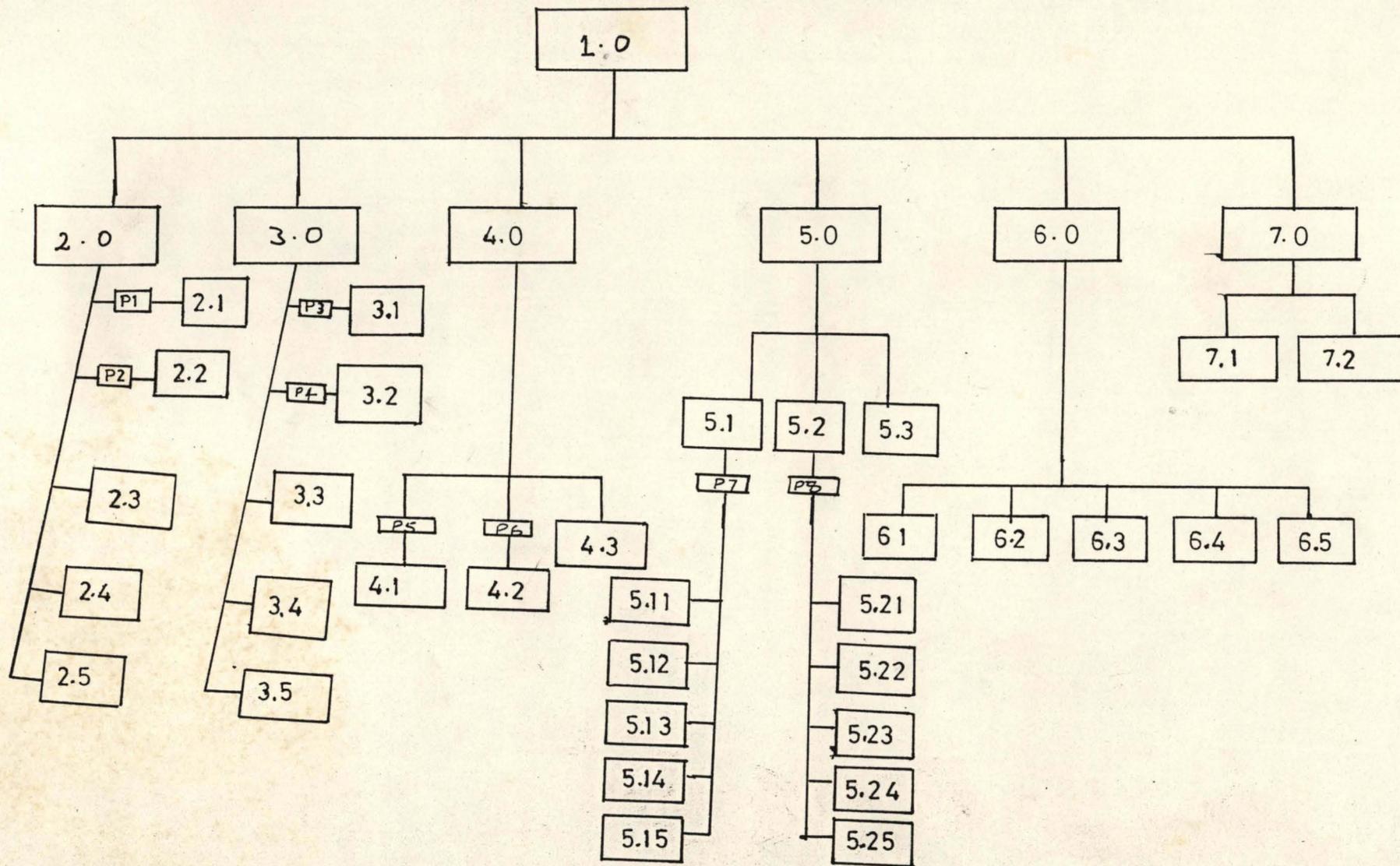
of the required report.

One interesting aspect of this proposed system is that it is designed for Local Area Network in an organisation and is completely menu driven such that users withount the knowledge of computer can conveniently use the system without assistance, just by responding to questions on the screen.

This proposed system will be appreciated better when demonstrated, since all it has to offer may not be mentioned here.

EXPLANATION OF FUNCTIONAL DIAGRAM

1.0 Opening Menu

2.0 Current Account Sub-Menu

p1 Password to Current A/C Withdrawal Program

2.1 Curent A/C Withdrawal Program (C1)

p2 Password to Current A/C Deposit (C2)

2.3 Balance of Current A/C

2.4 Viewing Current A/C

2.5 Exiting Current A/C Sub-Menu

3.0 Savings Account sub-Menu

P3 Password to Savings A/C Withdrawal (S3)

3.1 Savings A/C Withdrawal

P4 Password to Savings A/C Deposit (S4)

3.2 Savings A/C Deposit

3.3 Balance of Savings A/C

TESTING PROJECT FEASIBILITY

For testing project feasibility, the following have to be undertaken:

(i)   Operational feasibility

(ii   Technical feasibility

(iii) Economical (financial) feasibility.

OPERATIONAL FEASIBILITY

This is concerned with the workability of the proposed system when developed and installed. Though no contract was sighed with the management of the bank yet this project has gained the support of the management of Inter City Bank, the user and the customers of the bank. There is no complicated problem nor harm the proposed system could cause the user but will rather inprove performance.

The project therefore can be said to be operationaly feasible.

TECHNICAL FEASIBILITY

Technical feasibility seek to clarify if the proposed project can be done with current equipment, existing software technology and available personnel.

Already Inter City bank PLC Minna has met all these conditions and what the proposed project will offer is to improve on the system already in existence for efficient performance.

FINANCIAL FEASIBILITY

Financial feasibility is undertaken to assess cost of implementing a proposed project vis-avis the benefits derived from implementing the project. The cost and benefits are usually listed and weighed to determine whether it is financially advisale to continue with the proposed project.

In order to judge a project feasible, its proposal must pass all three tests mentioned above, otherwise the project is not feasible; for instance if this project failed to pass all three tests, no matter its operational attractiveness, financial benefits and its technical advantages, it would not have been pursued further. "Proposals that fail to pass feasibility test may not be pursued further".

Judging from the benefits, this project stands to offer to the bank, it is quite a feasible project.

CHAPTER THREE

SYSTEM ANALYSIS

FACT FINDING TECHNCS

"The specific methods used for collecting data requirements are called fact-finding technics". These include interview, questionnaire, record inspections(on-site

review) and observation. Usually more than one of these technics are employed to help ensure an accurate and comprehesive investigation. Three of these methods were employed in this work:

INTERVIEW

"Interviews are used to collect imformation from individuals or from groups". The respondents are generally current users of the existing system or potential users of the proposed system.

The respondents interviewed were the information officers of Inter City bank, Minna. These are the ones that oversee the infromation management of the bank. Other persons interviewed were the cashiers both from Intercity bank and First Bank, Deputy manager Operations, UBA Minna branch.

The interview provided opportunities for gathering information from these selected persons who have been chosen for their knowledge of the system under study.

"This method is frequently the best source of qualitative information (openions, policies, and subjective descriptions of activeties and problems)".

It is important to remember that respondents and analysts converse during an interview – the respondents are not being interrogated.

The format used for the interview was unstructured format. It involves the use of a question and answer format. The advantage is that it encourages the analyst to acquire general information about a system, and allows the respondents to share their findings, ideas, and beliefs.

As stated earlier, it is important to have adequate verification of data through other data collection methods.

RECORD REVIEW

Many kinds of records and reports can provide valuable information about organisations and operations. In record reviews informations are examined which has been recorded about the system and users.

Records include written policy manuals, regulations, and standard operating prodedures used by most organisations as a guide for managers and employees. Though they may not show what activities are actually occuring, where the decision-making power lies, or how tasks are performed, however, it helped me understand the system by familiarizing myself with what operations must be supported and with formal relations within the organisation.

Among the records reviewed are:

(1) Back ground information/status report of Inter City Bank PLC.

(2) History, Business and Ownership of Inter City Bank.

(3) Procedure Manual of Inter City Bank.

(4) Daily, weekly and monthly reports of Transactions.

OBSERVATION

Observation allowed the opportunity to gain information which could not be obtain by any other fact-finding method. Through observation, analysts can obtain firsthand information about how activities are carried out.

WHAT SHOULD HAPPEN

1. Standard operating procedures.

2. Controls and checks for accuracy and completeness.

3. Properly completed documents.

4. Efficiency and timely, completion of work.

WHAT ACTUALLY OCCURS

1. Delay in doing work.

2. Information recalled from memory (incorrectly).

3. Skipped steps.

4. Extra photocopy needed.

5. New controls needed.

6. Information not in file - telephone calls needed.

7. Documents not completed as required.

8. Employees not aware of prescribed procedures.

This method was most useful when needed to actually observe how documents are handled, how processes are carried out, and whether specified steps are actually followed.

Observation was made at various operation points and in some other banking firms. Observation was made at the cash payment and receiving points (counters) to see how processes

24

are carried out. Observation was also made to see how accounts are updated after withdrawal or deposit has been made. Also observation was made in the information room to see how entries are made into the computer of the processed accounts for the day.

CHAPTER FOUR

SYSTEM DESIGN

Having worked closely with the employees of banks - bank managers, cashiers, accountants, information officers, etc., the business process of banking has been studied and therefore the following key questions can be answered:

1. what is being done?

2. How is it being done?

3. How frequently does it occure?

4. How great is the volume of transactions or decisions?

5. How well is the task being performed?

6. Does a problem exist?

7. If a problem exists, how serious is it?

8. If a problem exists, what is the underlying cause?

"To answer these questions, variety of persons were talked to, to gather details about the business process and their opinions of why things happen as they do and their ideas for changing the process."

Questionnaires are used to collect this information from large groups of people who cannot be interviewed individually. Detailed investigation also require the study of manuals and reports, actual observation of work activities, and, sometimes, collection of samples of forms and documents to fully understand the process. These steps were taken in chapter three.

As the details were gathered, the requirement data were studied to identify features the new system should have, including both the information the system should produce and operational features such as processing controls, response times, and input and output methods.

SYSTEM DESIGN

The design of an information system produces the details that state how a system will meet the requirements identified during systems study.

"System spacialists often refer to this stage as Logical Design, in contrast to the process of developing programs software, which is referred to as Physical Design".

The design process was started by identifying reports and other outupts the system will produce, then the specific data on each were pinpointed. The systems design also describes the data to be input, or stored.

ELEMENTS OF DESIGN

DESIGN OF OUTPUT

Output, as you probably know, generally refers to the results and information that are generated by the system. For many end-users, output is the main reason for developing the system and the basis on which they will evaluate the usefulness of the application. Most end-users will not actually operate the information system or enter data through work stations, but they will use the output from the system.

The following were accomplished during design:

(1) The information to present were determined.

(ii) It was decided whether it will be displayed or printed.
(iii) The acceptable format of presentation was used.

(iv) The distribution of the output to intended recipients is already determined by the bank.

The format of column headings, totals and sub-totals of daily transactions were considered to make for easy interpretation of reports, (see appendix 7).

DESIGN OF FILES

The design of files includes decisions about the nature and content of the file itself such as whether it is to be used for storing transaction details, historical data, or reference information. About six files are used- three for current account and three for savings account. There are two master files one for current account and one for savings account. Two files are used as transaction files- one for paying cashier and the other for receiving cashier.

Among the decisions made during file design are the following:

(i) Which data items to include in a record format within the file.

(ii) Length of each record, based on the characterisltics of the data items on which it is based.

(iii) The sequencing or arrangement of records within the file (the storage stucture, such as sequential,

indexed, or relative).

28

DATA MODELLING/NORMALISATION

Data models define the structure of files and make clearer the data needs of a business. Data was segregated into separate files and its integrate data structure when developing the database.

Items which are independent of one another were separated into groups for recording in different files - (normalised). It was ensured that each of the six database files has a 'key' which uniquely identifies the object the data describes. Relationships between fields were established, eg. the relationship between the key field (Account) and the other fields of an object.

The file structures used were drawn out and normalised, the normalised structure are as follows:

1. Name of File:Mastercu.dbf - master file for current account.

Field	Fieldname	Type	width	dec
1	S_NAME	C	15	
2	OTHER_NAME	C	15	
3	ACCOUNT	N	10	
4	ADDRESS	C	40	
5	TYPE	C	10	
6	WITHDRAW	N	10	2
7	DEPOSIT	N	10	2
8	BALANCE	N	10	2
9	DATE	D	8	
10	INTEREST	N	10	2
11	INTRATE	N	2	

12	ODLIMIT	N	10	2
13	EXPDATE	D	8	
14	GARANTOR	C	30	
15	OPENDATE	D	8	

2. Name of File :Mastersv.dbf - Master file for savings account.

Field	Fieldname	Type	width	Dec
1	S_NAME	C	15	
2	OTHER_NAME	C	15	
3	ACCOUNT	N	10	
4	ADDRESS	C	40	
5	ACCT_TYPE	C	10	
6	WITHDRAWAL	N	10	2
7	DEPOSIT	N	10	2
8	BALANCE	N	10	2
9	DATE	D	8	
10	W_PER_MONT	N	2	
11	INTEREST	N	10	2
12	INTRATE	N	2	
13	OPENDATE	D	8	
14	PASSNO	N	5	
15	OLCCUPATION	C	12	

3. Name of File: Ptransac.dbf - Transaction file for current account paying cashiers.

Field	Fieldname	Type	Width	Dec
1	ACCOUNT	N	10	
2	NAME	C	15	
3	VOUCHER	N	10	2
4	CHEQUE	N	10	2
5	DATE	D	8	
6	MORDER	N	10	2
7	PORDER	N	10	2
8	BDRAFT	N	10	2
9	DEBIT	N	10	2

4. Name of File: Rtransac.dbf - Transaction file for current account recieving cashier.

Field	Fieldname	Type	Width	Dec
1	ACCOUNT	N	10	
2	PAIDBY	C	20	
3	CASH	N	10	2
4	CHEQUE	N	10	2
5	OTHERS	N	10	2

6	MORDER	N	10	2
7	PORDER	N	10	2
8	CREDIT	N	10	2
9	DATE	D	8	
10	FIFTY	N	4	
11	TWENTY	N	4	
12	TEN	N	4	
13	FIVE	N	4	
14	ONE	N	4	
15	KOBO	N	4	

5.   Name of file: Paysave.dbf – Transaction file for savings

account Withdrawal.

Field	Fieldname	Type	Width	Dec
1	ACCOUNT	N	15	
2	NAME	C	15	
3	PASSNO	N	10	
4	DATE	D	8	
5	WITHDRAWAL	N	10	2

6.   Name of file: Sdtransa.dbf – Transaction file for savings

account deposit.

Field	Fieldname	Type	Width	Dec
1	ACCOUNT	N	10	
2	DATE	D	8	
3	DEPOSIT	N	10	2
4	PAIDBY	C	20	
5	FIFTY	N	4	
6	TWENTY	N	4	
7	TEN	N	4	
8	FIVE	N	4	
9	ONE	N	4	
10	KOBO	N	4	

DESIGN OF INPUT

The following input design details were considered:

(i)   What data to input

(ii)   What medium to use

(iii) How the data should be arranged or coded.

(iv)   The dialogue to guide users in providing input.

(v)   Data   items and transactios needing   validation   to
detect errors.

(vi)   Methods for performing input validation and steps to
follow whem errors occur.

The   design   decisions for handling input   spacify
how data are accepted for computer processing.

It was decided that data should be entered directly

through work stations by using the source documents such as

bank cheques.

The design of input also includes specifying the means by
which end-users and system operators direct the system on which
actions to take. For example, the system user interacting through
a workstation is able to tell the system whether to accept input,
produce a report, or end processing.

The system is designed to be on-line which include a
dialogue or conversation between the user and the system. Through
the dialogue, users request system services and tell the system
when to perform a certain function.

The arrangement of messages and comments as well as the
placement of data, headings, and titles on display screen or
source documents, which is also part of input design is well
considered.   The system is fully menu driven and is very user
friendly.

DESIGN OF CONTROL

It is assumed that mistakes will be made in entering data or
in requesting the performance of certain functions. Some mistakes
may be very minor and inconsequential, while

CHAPTER FIVE

IMPLEMENTATION

Implementation includes all those activities that take place to convert from the old system to the new. The new system may be totally new, replacing an existing mannual or automated system, or it may be a major modification to an existing system. In either case, proper implementation is essential to provide a reliable system to meet organisation requirements. There are three aspects of implementation:

training personnel, conversion procedures and the post implementation review.

1. TRAINING

Even well-designed and technically elegant systems can succeed or fail because of the way they are operated and used. Therefore, the quality of training received by the personnel involved with the system in various capacities helps or hinders, and may even prevent the successful implementation of an information system. Those who will be associated with or affected by the system must know in detail what their roles will be, how they can use the system and what the system will or will not do. Both system operators and users need training.

TRAINING SYSTEM OPERATORS

The training of system operators must ensure that they are able to handle all possible operations both routine and

34

extra ordinary. Operator training must also involve the data entry personnel.

If the system calls for the installation of new equipment such as a new computer system, special terminals, or different data entry equipments the operators training should include such fundamentals as how to turn the equipment

on and use it, how to power it down, and a knowledge of what constitutes normal operations and use. The operators should also be instructed in what common malfunctions may occur, how to recognise them, and what steps to take when they arise. As part of the training, operators should be given both a trouble shooting list that identifies possible problems and remedies for them, as well as the names and the telephone numbers of individual to contact when unexpected or unusual problems arise.

Training also involves farmiliarisation with run procedures, which involves working through the sequence of activities needed to use a new system on ongoing basis. These procedures allow the computer operators to become farmiliar with the actions they need to take (such as mounting magnetic disks or tapes, copying files, changing printer forms or changing disk drives), and when these actions must occur.

2. CONVERSION

Conversion is the process of changing from the old system to the new one. There are four methods of handling a

systems conversion :- Parallel systems, Direct cutover, Pilot system, and Phase-in method.

Each method should be considered in light of the opportunities that it offers and problems that it may cause. However, some situations dictate the use of one method over others, even though other methods may be more beneficial. In general, Systems conversion should be accomplished as quickly as possible. Long conversion periods increase the possible frustration and difficulty of the task for all persons involved.

PARALLEL SYSTEMS

The most secure method of converting from an old to new system is to run both systems in parallel. Under this approach, users continue to operate the old system in the accustomed manner but they also begin using the new system. This method is the safest conversion approach, since it guarantees, shound problems suh as errors in processing or inability to handle certain types of transactions arise in using the new system, the organisation can still fall back to the old system without loss of time, revenue, or service.

This method of conversion is recomended for the proposed Banking system because of the sensitive nature of the banking business.

The disadvantages of the parallel sustems approach are significant. Firstly, the system costs double, sinced there are two sets of systems costs. In some intances it is necessary to hire temporary personnel to assist in

operating both systans in parallel. Secondly, the fact that users know they can fall back to the old ways may be a disadvantage if there is potential resistance to the change or if user prefer the old system.   In other words, the new system may not get fair trial.   All in all, the method offers the most secure implementation plan if things go wrong.

DIRECT CUTOVER

The direct cutover method converts from the old to the new system abruptly, sometimes over a weekend or even overnight. The old system is used until a planned conversion day, when it is replaced by the new system.

The advantage of not having a fall-back system can turn into a disadvantage if serious problems arise with the new system.   In some instances, organisations even stop operations when problems arise so that difficulties can be corrected.

PILOT APPROACH

When new systems also involve new technics or drastic changes in organisation performance, the pilot approach is often preferred.   In this method, a working version of the system is implemented in some part of the organisation, such as a single work area or department. The users in this area typically known that they they are piloting a new system and that changes can be made to improve the system.   When the system is deemed complete, it is installed throughout the

organisation, either all at once (dirrect cutover method) or gradually (phase-in method).

This approach has the advantage of providing a sound proving ground before full implementation.
However, if the implementation is not properly handled, users may develop the impression that the system continues to have problems and that it cannot be relied on.

PHASE-IN METHOD

The phase-in method is used when it is not possible to install a new system throughout an organisation all at once. The conversion of files, training of personnel, or arrival of equipment may force the staging of the implementation over a period of time, ranging from weeks to months.

POST IMPLEMENTATION REVIEW

After the system is implemented and conversion is completed, a review of the system is usually conducted by users and analyists alike, Not only is this a normal practice, but it should be a formal process to determine how well the system is working, how it has been accepted, and whether adjustments are needed.

The review is also important to gather information for the maintenance of the system. Since no system is really ever complete, it will be maintained as changes are required because of internal developments, such as new users or business activities, and external developments, such as new legal requirements, industry standards, or competition.

The post implementation review provides the first source of information for maintenance requiremants.

The most fundamental concern during post implementation review is determining whether the system has met its objective : that is, wanting to know if the performance level of users has improved and if the system is producing the result intended. If neither is happening, one may question whether the system can be considered successful.

The system's output quality merits spacial attention.

The concerns raised during analysis and design about the accuracy of information, the timeliness of presentation, completeness, and the appropriateness of format continue to indicate system quality. Reports that are awkward to use or that do not contain sufficient information to be useful may need redesign. Or the review may reveal that information previously thought unnecessary must be provided after all. This issue may in turn affect input requirements.

Ease of use and the tendency toward errors in input are fundamental questios for the analyst to address during this review. Is the system easy to use? Are there adequate safe guards to prevent errors in input and to detect, report, and correct them if they occur? If the answers to these questios are not favourable, the reliability and quality of the entire system may be doubted.

User confidence is generally also an indicator of system quality. The confidence that users, managers, and operators have in the system are sure to affect its longevity and use. If

evaluators find that confidence levels are not adequate, they must also determine why. The questions of accuracy, completeness, timeliness, and usability continue to be central to the review.

Ease of use and benefits of use balance each other. It is generally found that systems that are easy to use and that provide distinct benefits are accepted and well received by people. However, even when using a system that provides better performance, if the system itself is awkward to use, it is not uncommon to find that use of the system will be avoided. Thus, ease of use is as important an attribute as reliability.

REVIEW METHODS

In general, the data collection methods of questionnaire, interview, observation, sampling, and record inspection are most useful for collecting details about the new system. In addition, supplemental methods will reveal additionaal information to evaluators. For example, event (critical incident) logging requires users to record unusual or unexpected events that impact the system.

These events may reflect incidents that the system cannot handle because of incomplete design or activities that are not occurring in the prescribed manner.

Impact evaluation determines how systems affect or change the areas of the organisation in which they are installed. If new systems are proposed and developed on the basis of

increased speed, decreased errors, better integration of activities, reduced data redundancy, or improved productivity, systems should be evaluated against these expectations. Sampling records for errors, assessing the quantity of throughput, or observing users will provide concrete statistics of the effects of the system.

The impact of the system should also be compared with financial cost and benefits. Even if greate productivity is achieved with a new system, management will want to know whether the changes produce the intended financial, service, or competitive advantages. During the systems proposal stage, the expectations of costs and benefits are developed. After implementation, the system is reviewed to compare the actual costs and benefits with the expectation.

How do users and other persons affected by a new system, such as customers, suppliers, or internal managers, feel about the new system? This simple question reveals much about the future usefulness of the system. A system that is strongly desliked may not be in use long unless adjustments are made.

Attitude surveys, data collections of ideas and opinions about a system, provide this information. Pertinent questions probe individuals´ feelings about the changes in the amount of work they perform, quality of their efforts, quality of the service to customers , ease of use, or acceptance of the system by co-workekrs.

These review methods ephasize the importance of collecting both qualitative and subjective data to determine the suitability of the system. There is no substitute for effective review. Introspection and supposition have no place in systems development, even after the system is implemented.

COST AND BENEFITS

Development costs, including the cost already incurred for the systems study on which this report is based, will be approximately Five Thousand and five hundred naira (N5500.00) There are distinct benefits to the new system, described in three categories. By developing the new system, the bank will be serving their customers faster and gain good speed.

Owing to the new controls and improved procedures that is installed along with the new system, errors and unnecessary delays will be reduced. A very conservative estimate indicates that this amount will total at least N15,000 the first year. More customers will be attracted to the bank, more new accounts opened which means more revenue.

The system will produce benefits that are classified as intangible. Although they are both important and noticeable, it is difficult to place a naira value on them.

The new system has an anticipated life span of five years, althouth in the later years the cost of using and maintaining the system will increase. This is a normal expectation.

The system will pay for itself in 12 months. "industry experts normally consider a system a good investment if it pays for itself under 30 months" Hence the payback period for the proposed system is much better than average and is a cost-effective investment.

If Inter City Bank PLC. management wishes to adapt the new system, it is estimated that the training of personel, and implementation of the system require only 21 days.

"A system which is twice as good as another system and which cost twice as much should be considered equivalent on the basis of a cost benefit analysis"

Some of these intangible benefits are

(i)   Better planning information

(ii)   Better customer relations

(iii) More satisfied employees

(iv)   Ability to add communication and avoid courier costs(if expansion occurs)

MAINTENANCE

Maintenance is a fact of life in the development of information systems. However, the making of changes and adjustments do not necessarily signal correction of errors or the occurrence of problems.

Among the most frequent changes requested by end-users is the addition of information to a report format. Information requirements may be revised as the result of system usage or changing operational needs. Perhaps oversights that occurred during the development process need to be corrected.

Often the need will arise to capture additional data for storage in a database or in transaction file. Or, perhaps it will be necessary to add error-detection features to prevent system users from inadvertently taking an unwanted action.

These are the realities of application maintainance. When they occur, however, they are an indication that the system is being used and that it is serving a useful function rather that being "shelved" by the intended end-users.

This system will be maintained by me for a period of two years for problems and errors attributable to the designing.

CONCLUSION

The goal of developing a Computerised Banking Operations which operates in a Local Area Network has been well achieved. The System is limited to Savings and Current Account Account Operations.

The system covers from opening new account, depositing money, withdrawing money from existing accounts, cheching account balance, calculation of interest etc. to report generation.

Limitations due to finance and time contributed to limiting the work to savings and current accounts operations.

If the development of the system is sponsored, it is certain that nearly all the Banking operations will be fully authomated, and that has been the aim of employing *computer in the Banking Industry.

RECOMENDATION

Having achieved the set goal of developing a Database Management System that authomates the Savings and Current account operations, which is rare in our todays Banking operations, it is therefore recomended to all Banking institutions to improve on their services.

This system has the capacity of beeing used in a Local Area Network. It will save cost, improve services, and will build confidence in the minds of customers.

Incases where some aspects needs modification to suit a particular firm, it will be readily taken care of.

REFERENCE

1.   Dempsey Dupree & Matthew Marder, Principles   of Accounting published by Addison-Wesley Pubishing
            Company, 1984.

2.   Procedure Manual, Inter city Bank Plc.

3.   James A. Senn, Analysis and design of Information system,   second   edition,   Published   by   Mc   Graw-Hill Publishing Company, Singapore, 1989.

4.   Gordon C. Everest, Database Management,   System Functions, and Administration,   International   Edition, published by Mc Graw-Hill
            Company, Singapore, 1986.

A P P E N D I X 1

CB Intercity Bank Limited

FORM NO 1

....Branch   ....19. .

REQUEST TO OPEN A CURRENT ACCOUNT

*A prospective customer must be interviewed by the
accountant or a delegated officer and this form
completed in his presence.*

PART A (ALL CUSTOMERS)

1. Full names in block letters

    Mr./Mrs./Miss

2. Nationality

3. Full local address together with P.O. Box number, if any

4. Full address abroad (if any)

5. Occupation and name of employers (if any).
    If a married woman, please give full name of husband.

6. If you maintain an account with another Bank or branch
    in Nigeria or overseas pleases give particulars.

7. If you maintain any other type of account with the
    Branch e.g. Savings Bank, Fixed Deposit or other Account
    please give details.

8. If you are a trader and trade under a business name
    please give that name and the date it was registered.

PART B (FIRMS, SOCIETIES, COMPANIES ONLY)

1. Please give the date on which your business/society was
    established.

2. Give full names of all directors, partners, including those
    who will not be operating on the account.

PART C (REFEREES)

Please give full name, address, occupation of two referees   1.

2.

I/We note that the Bank will accept no liability whatsoever for funds handed to members of the staff outside banking hours or outside the Bank's premises (which includes agencies) unless specific arrangements have been contracted for and are in force.

My/Our attention has been drawn to the necessity of safe guarding my/our cheque book so that unauthorised persons are unable to gain access to it and to the fact that neglect of this precaution may be a ground for any consequential loss being charged to my/our account. I/We request that you will supply me/us with a statement of

my/our account on the .... day of each month/quarter.

SIGNATURE...

ACCOUNTANT/DELEGATED OFFICER   **MANAGER'S INITIALS & STAMP**

48

CB Intercity Bank Limited

DATE

NAME OF FIRM OR COMPANY

ADDRESS

CR. INTEREST RATE

Fixed Deposit
Receipt No.

DESCRIPTION

FULL NAME

USUAL SIGNATURE

Mr.   SIGNS

Mr.   "

Mr.   "

Mr.   "

Mr.   "

Mr.   "

Mr.   "

AUTHORITY NO......................

TELEGRAPHIC ADDRESS

LED. FO.

TELEPHONE NUMBER

PLEASE DO NOT FOLD THIS CARD.

FORM NO 2A

TURN OVER FOR CLOSED ACCOUNTS

CB

Intercity Bank PLC

....
....
....
....

THE MANAGER
INTERCITY BANK LIMITED

.... BRANCH

Dear Sir,

INTRODUCTION OF...

....

    I wish to introduce the above named person(s) who wants to operate a Current Account
with your Bank. I have known him/her (them) for the past....................................years and find
him/her (them) responsible and reliable.

    I hereby recommend that he/she (they) should be allowed to open an account with you
if you find him/her/they suitable.

                                    Thanking you for your consideration

                                    Yours Sincerely,

                                    ....

FORM NO 4

APPENDIX 4

DUPLICATE

ACCOUNT_____

BRANCH_____

Date_____

CASHIER'S STAMP

NOTES
- ₦20
- ₦10
- ₦ 5
- ₦ 1
- 50k

COIN

* M. O's & P. O's

TOTAL CASH

* LOCAL CHEQUES

* OTHER CHEQUES

TOTAL CREDIT

IMPORTANT
DO NOT ENTER CHEQUES AND CASH ON SAME TELLER

Total in words_____

_____

FORM NO. 3A

MONEY ORDERS
POSTAL ORDERS

ORIGINAL

CHEQUES ON OTHER TOWNS

IMPORTANT
DO NOT ENTER CHEQUES AND CASH ON SAME TELLER

CASHIER'S STAMP

NOTES
- ₦20
- ₦10
- ₦ 5
- ₦
- 50k

COIN

* M. O's & P. O's

TOTAL CASH

* Please List on Reverse

* LOCAL CHEQUES

* OTHER CHEQUES

TOTAL CREDIT

NOTE: CUSTOMERS ARE INFORMED THAT THE BANK RESERVES THE RIGHT AT ITS DISCRETION TO POSTPONE PAYMENT OF CHEQUES DRAWN AGAINST UNCLEARED EFFECTS WHICH MAY HAVE BEEN CREDITED TO THE ACCOUNT.

FORM NO. 3A

LOCAL CHEQUES

Intercity Bank Limited

BANK	K	₦	FULL CHEQUE NUMBER	BANK

Branch

_____Date

Total in words_____

_____

_____

Paid in by_____

Account No._____

Name._____

_____

Address._____

_____

**SAVINGS
BANK WITHDRAWAL**

CB Intercity Bank Plc

_____ BRANCH _____ DATE _____

ACCOUNT NUMBER	AMOUNT WITHDRAWN	AMOUNT IN WORDS	NEW PASSBOOK BALANCE	CASHIERS INITIALS

I WISH TO WITHDRAW FROM MY SAVINGS BANK ACCOUNT THE SUM STATED
HEREIN, RECEIPT OF WHICH I HEREBY ACKNOWLEDGE

ABOVE BALANCE CHECKED WITH	LEDGER CLERKS INITIALS
PASSBOOK	
LEDGER A/C	
O/S INTEREST POSTED TO P.B.	

_____ SIGNATURE

FORM NO 13A   IF RECIPIENT IS ILLITERATE SEE BACK OF SLIP

**SAVINGS
BANK DEPOSIT**

CB Intercity Bank Plc

_____ BRANCH _____ DATE _____

ACCOUNT NUMBER	NAIRA AMOUNT IN WORDS	AMOUNT DEPOSITED	NEW PASSBOOK BALANCE	CASHIERS INITIALS

I WISH TO DEPOSIT IN MY SAVINGS BANK ACCOUNT
THE AMOUNT STATED HEREIN

ABOVE BALANCE CHECKED WITH	LEDGER CLERKS INITIALS
PASSBOOK	
LEDGER A/C	
O/S INTEREST POSTED TO PASSBOOK	

_____ SIGNATURE

FORM NO 13

A P P E N D I X 7

INTER CITY BANK PLC. MINNA BRANCH
DAILY REPORT ON CURRENT ACCOUNT

DATE OF REPORT: DDATE

TE	NAME	ACCOUNT NO	WITHDRAWAL	DEPOSIT	BALANCE
==	====	==========	==========	=======	=======
/02/94	BASSEDA	225	0.00	0.00	2232.98
/02/94	BASSEDA	225	0.00	0.00	3360.49
/02/94	OLABAYO	227	0.00	0.00	22222.00
/02/94	OLABAYO	227	0.00	0.00	4480.65
/02/94	BAMGBOLA	254	0.00	0.00	43333.00
/02/94	BAMGBOLA	254	0.00	0.00	33345.00
/02/94	SHODIPE	273	0.00	0.00	1116.49
/02/94	SHODIPE	273	0.00	0.00	2.00
* Total ***					
			0.00	0.00	110092.61

A P P E N D I X 8

INTER CITY BANK PLC. MINNA BRANCH
DAILY REPORT ON SAVINGS ACCOUNT
=====================================
DATE OF REPORT: DDATE

DATE	NAME	ACCOUNT NO	WITHDRAWAL	DEPOSIT	BALANCE
02/02/94	ZUBAIRU	153	0.00	0.00	0.00
02/02/94	BAMGBOLA	154	0.00	0.00	0.00
02/02/94	BASSEDA	155	0.00	0.00	0.00
02/02/94	SHODIPE	172	0.00	0.00	0.00
02/02/94	JACOB	225	0.00	0.00	0.00
02/02/94	OKORONKWO	226	0.00	0.00	0.00
*** Total ***			0.00	0.00	0.00

A P P E N D I X 9

DATE	NAME	ACCOUNT NO	WITHDRAWAL	DEPOSIT	BALANCE
02/02/94	ZUBAIRU	153	0.00	0.00	0.00
02/02/94	BAMGBOLA	154	0.00	0.00	0.00
02/02/94	BASSEDA	155	0.00	0.00	0.00
02/02/94	SHODIPE	172	0.00	0.00	0.00
02/02/94	JACOB	225	0.00	0.00	0.00
02/02/94	OKORONKWO	226	0.00	0.00	0.00
03/02/94	ABUBAKAR	231	0.00	0.00	0.00
03/02/94	YUSUF	233	0.00	0.00	0.00
03/02/94	IBEZIM	234	0.00	0.00	0.00
03/02/94	IDRIS	235	0.00	0.00	0.00
03/02/94	AJISEGIRI	236	0.00	0.00	0.00
04/02/94	UCHENNA	243	0.00	0.00	0.00
04/02/94	EMEANA	244	0.00	0.00	0.00
04/02/94	UMAR	245	0.00	0.00	0.00
04/02/94	MOHAMMED	246	0.00	0.00	0.00
04/02/94	YABAGI	247	0.00	0.00	0.00
04/02/94	SOJE	248	0.00	0.00	0.00
04/02/94	APATA	248	0.00	0.00	0.00
05/02/94	OLANITORI	250	0.00	0.00	0.00
05/02/94	WILLEAMS	251	0.00	0.00	0.00
05/02/94	ADAMU	252	0.00	0.00	0.00
05/02/94	IDRIS	256	0.00	0.00	0.00
05/02/94	ALIYU	257	0.00	0.00	0.00
05/02/94	RAIMI	258	0.00	0.00	0.00
05/02/94	OLAYISADE	259	0.00	0.00	0.00
06/02/94	LEKWA	261	0.00	0.00	0.00
06/02/94	OJO	262	0.00	0.00	0.00
06/02/94	DOGARA	263	0.00	0.00	0.00

06/02/94
06/02/94
06/02/94
06/02/94
06/02/94
07/02/94
07/02/94
***

A P P E N D I X 10

```
*********************************************
****** OPENING MENU            ********
****** AUTHOR: AKANI E. O.     ********
****** DATE WRITTEN: 12/27/93*********
*********************************************
SET COLO TO B
PUBLIC DATE,TALK,ECHO,STATUS,delimiter
SET DATE BRITISH
set talk off
set delim to "[]"
set echo off
SET ESCAPE On
SET STATUS OFF
SET COLO TO W/R+
A=1
DO WHILE A <=20
@A,4 SAY REPLI(CHR(176),74)
A=A+1
ENDD
SET COLO TO W/B+
B=19
DO WHILE B>= 2
@B,8 SAY REPL(CHR(178),67)
B=B-1
ENDD
SET COLO TO G/N+
@3,11 CLEA TO 18,71
@4,13 TO 17,69 DOUB
SUB1 = "THIS INTEGRATED BANKING SYSTEM WAS DEVELOPED BY"
SUB2 = "DEACON  EMMAMUEL AKANI POST GRADUATE DIPLOMA"
SUB3 = "  COMPUTER SCIENCE 1992/93  F. U. T. MINNA"
SUB4 = "IF YOU FIND IT USEFUL OR HAVE COMMENTS, CONTACT "
SUB5 = " HIM AT RM 108 FEDERAL SECRETARIAT MINNA OR WRITE"
SUB6 =  "PMB 86, MINNA/P. O. BOX 4 AFIKPO ABIA STATE NIG."
R=6
A=1
B=18
DO WHILE A < 48
@R,B SAY SUBSTR(SUB1,A,1)
A=A+1
B=B+1
ENDD
R=R+2
A=1
B=19
DO WHILE A < 45
@R,B SAY SUBSTR(SUB2,A,1)
A=A+1
```

```
B=B+1
ENDD
R=R+2
A=1
B=19
DO WHILE A < 43
@R,B SAY SUBSTR(SUB3,A,1)
A=A+1
B=B+1
ENDD
R=R+2
A=1
B=18
DO WHILE A < 48
@R,B SAY SUBSTR(SUB4,A,1)
A=A+1
B=B+1
ENDD
R=R+2
A=1
B=17
DO WHILE A < 50
@R,B SAY SUBSTR(SUB5,A,1)
A=A+1
B=B+1
ENDD
R=R+2
A=1
B=20
DO WHILE A < 45
@R,B SAY SUBSTR(SUB6,A,1)
A=A+1
B=B+1
ENDD
SET COLO TO G/N*

?
?
?
?
?
?   SPACE(60)  + CHR(017)+CHR(196)+CHR(196)+CHR(217)
SET COLO TO G/N
AK = 0
SET CONSOL OFF
DO WHILE AK <= 300
?
```

```
AK = AK+1
ENDDO
SET CONSOL ON
DO WHILE .T.
DO ASCII
@2,5 TO 4,75 DOUBLE
@3,6 SAY "CURRENT        "
@3,18 SAY "SAVINGS       "
@3,30 SAY "NEW ACCOUNT       "
@3,46 SAY "UPDATING       "
@3,59 SAY "PRINT         "
@3,69 SAY "EXIT    "
SET COLO TO R+
@3,6 SAY "C"
@3,18 SAY "S"
@3,30 SAY "N"
@3,46 SAY "U"
@3,59 SAY "P"
@3,69 SAY "E"
STORE " " TO CHOICE
@3,75 get choice pict "!"
READ
DO CASE
CASE CHOICE = "C"
DO CURRENT
CASE CHOICE = "S"
DO SAVINGS
CHOICE = " "
CASE CHOICE = "N"
DO NEWACMEN
CHOICE = " "
CASE CHOICE = "U"
DO UPDATECU
CHOICE = " "
CASE CHOICE = "P"
SET COLO TO W/B
DO PMENU
CHOICE = " "
CASE CHOICE = "E"
DO EXIT
CHOICE = " "
EXIT
OTHERWISE
@10,15 SAY "PRESS ANY OF THE HIGHLIGHTED LETERS FROM THE MENU ABOVE"
WAIT""
ENDCASE
ENDDO
```

```
REENDIMO              ******* ENTERY ROUTINE FOR NEW CURRENT ACCOUNT *******
********  ******************************************************************
set talk off
set echo off
USE MASTERCU INDEX MASTERCU
BEGIN = 0
NEWACT = .T.
DO WHILE NEWACT
ENTR = " "
STORE SPACE(15)  TO SURNAME,OTHERS
STORE SPACE(40)  TO MADDRESS,GARANT
MACCOUNT = 0
STORE SPACE(10)  TO MTYPE
STORE SPACE(40)  TO GARANT
STORE CTOD("  /  /  ") TO OPEND
MODLIMIT =0
STORE CTOD("  /  /  ") TO MEXPDATE
SET COLO TO W/B+
MINTRATE = 0
MWITHDRAW =0
MDEPOSIT = 0
MBALANCE = 0
STORE CTOD("  /  /  ") TO MDATE
IF .NOT. EOF()
   GO BOTT
ENDIF
MACCOUNT=ACCOUNT+1
 CLEA
   DO WHILE .T.
    DO NEWACCT
   READ
      @23,20
      SET COLO TO G/B+
      WAIT SPACE(26) + "ENTERY CONFIRMED?(Y/N)"   TO ENTR
      SET COLO TO W/B
            IF UPPER(ENTR) = "N"
         LOOP
       ELSE
      IF UPPER(ENTR) = "Y"
      ENDIF
      ENDIF
    APPEND BLANK
   REPLACE S_NAME WITH SURNAME
   REPLACE OTHER_NAME WITH OTHERS
   REPLACE ADDRESS WITH MADDRESS
   REPLACE ACCOUNT WITH MACCOUNT
   REPLACE TYPE WITH MTYPE
```

```
      REPLACE OPENDATE WITH OPEND
      REPLACE ODLIMIT WITH MODLIMIT
      REPLACE EXPDATE WITH MEXPDATE
      REPLACE INTRATE WITH MINTRATE
      REPLACE DEPOSIT WITH MDEPOSIT
      REPLACE WITHDRAW WITH MWITHDRAW
      REPLACE BALANCE WITH MBALANCE
      REPLACE DATE WITH MDATE
      REPLACE GARANTOR WITH GARANT
      BEGIN=BEGIN+1
      CLOSE FORMAT
      EXIT
    ENDDO
    @23,0 CLEA
    SET COLO TO G/B+
    @23,26 SAY "ANY MORE ENTERY?(Y/N)"   GET   NEWACT PICT "Y"
    SET COLO TO W/B+
    READ
ENDDO
CLEA
@10,21 SAY "YOU HAVE OPENED  "+ STR(BEGIN,3) + " NEW ACCOUNTS"
@12,20 SAY "YOU NOW HAVE A TOTAL OF " + LTRIM(STR(RECCOUNT())) + " ACCOU
@13,25
WAIT SPACE(25) + "ANY KEY TO RETURN TO MENU"
CLOSE DATABASE
RETURN
```

```
*************************************************
****** PROGRAM THAT CHECKS BALANCE *****
****** IN CURRENT ACCOUNT           *****
*************************************************
store space(1) to sure,ckeck
NTOTAL = 0.00
MBALANCE = 0.00
MACCOUNT=0
MWITHDRAW=0.00
USE MASTERCU INDEX MASTERCU
DO WHILE  .T.
    DO WHILE .T.
        STORE SPACE(1) TO SURE,CHECK
        MACCOUNT=0
        GO TOP
        STORE SPACE(1) TO SURE,CHECK
        mwithdraw=0.00
        @15,18 TO 19,63 DOUBLE
        @16,19 CLEA TO 18,62
        @16,22 SAY "ENTER ACCOUNT NUMBER" GET MACCOUNT
        @18,22 SAY "ENTER AMOUNT           " GET MWITHDRAW PICT "9999999.99
        READ
        SEEK MACCOUNT
        IF FOUND()
            MBALANCE = BALANCE
            IF MWITHDRAW > MBALANCE
                @16,19 CLEA TO 18,62
                @16,22 SAY "THE BALANCE IN ACCOUNT NUMBER   " +LTRIM(STR(MA
                @17,30 SAY "AS AT NOW IS N"
                @17,45 SAY  MBALANCE PICT "@B99999999.99"
                @18,30 SAY "DO NOT APPROVE"
            ELSE
                @16,19 CLEA TO 18,62
                @16,22 SAY "THE BALANCE IN ACCOUNT NUMBER   "+LTRIM(STR(MAC
                @18,30 SAY "AS AT NOW IS N"
                @18,45 SAY MBALANCE PICT "@B99999999.99"
            ENDIF
            @20,24 SAY "ANY MORE ACCOUNT TO CHECK?(Y/N)" GET CHECK PICT "
            READ
            IF UPPER(CHECK) = "N"
                EXIT
            ELSE
            IF UPPER(CHECK) = "Y"
                LOOP
            ENDIF
            ENDIF
        ELSE
            @16,19 CLEA TO 18,62
```

```
            @17,30 SAY "ACCOUNT DOES NOT EXIST"
            @20,24 SAY "ANY MORE ACCOUNT TO CHECK?(Y/N)" GET CHECK PICT '
            READ
            IF UPPER(CHECK) = "N"
                EXIT
            ELSE
            IF UPPER(CHECK) = "Y"
                LOOP
            ENDIF
            ENDIF
        ENDIF
    ENDDO
    @16,22 CLEA TO 18,64
    @17,28 SAY "ARE YOU SURE?(Y/N)" GET SURE PICT "Y"
    READ
    IF UPPER(SURE) = "Y"
        EXIT
    ELSE
    IF UPPER(SURE) = "N"
        LOOP
    ENDIF
    ENDIF
ENDDO
CLOSE DATABASES
RETURN
```

```
************************************************
*********** SAVINGS DEPOSIT PROGRAM ******
************************************************
NDEPOSIT=0
SAVINGS = .T.
COUNTER=0
 DO WHILE  SAVINGS
      CLEA
      STORE CTOD("  /  /  ") TO MDATE
      STORE SPACE(20) TO S_NAME,MPAIDBY
      MACCOUNT=0
      MTOTAL=0
      N50=0
      N20=0
      N10=0
      N5=0
      N1=0
      K50=0
      STORE SPACE(1) TO AKA
      SELE 1
      USE SDTRANSAC
      SELE 2
      USE MASTERSV INDEX MASTERSV
      CLEA
      DO WHILE  .T.
       MACCOUNT=0
          SELE 2
          @12,20 TO 20,60 DOUB
          @13,27 SAY "INTER CITY BANK PLC. MINNA"
          @14,29 SAY "SAVINGS DEPOSIT FORM"
          @15,29 TO 15,48
          @17,22 CLEA TO 19,59
          @18,22 SAY "ENTER YOUR ACCOUNT NUMBER:" GET MACCOUNT PICT
          READ
          SEEK MACCOUNT
          IF .NOT. FOUND()
          @18,22 CLEA TO 19,59
          SET COLO TO R+
          @17,26 SAY "YOU HAVE NO ACCOUNT WITH US"
          SET COLO TO W/B
          @19,29 SAY "ANY KEY TO CONTNUE"
          WAIT""
          LOOP
          ENDIF
          EXIT
          ENDDO
          CLEA
        DO WHILE .T.
         SELE 2
      DO TEST
          READ
          FIFTY=K50/2
          @12,58 SAY "N" + LTRIM(STR(N50*50))
          @13,58 SAY "N" + LTRIM(STR(N20*20))
          @14,58 SAY "N" + LTRIM(STR(N10*10))
```

```
        @15,58 SAY "N" + LTRIM(STR(N5*5))
        @16,58 SAY "N" + LTRIM(STR(N1))
        @17,58 SAY "N"
        @17,59 SAY K50/2 PICT "@B999.99"
        MTOTAL=N50*50+N20*20+N10*10+N5*5+N1+K50/2
        SET COLO TO R+
        @18,52 SAY "N"
        @18,53 SAY MTOTAL PICT "@B.99"
        SET COLO TO G/B+
        @21,25 SAY "ENTERY CONFIRMED?(Y/N)" GET AKA
        SET COLO TO W/B
        READ
        IF UPPER(AKA) = "N"
           LOOP
        ELSE
           IF UPPER(AKA) = "Y"
              EXIT
           ENDIF
        ENDIF
     ENDDO
     COUNTER=COUNTER+1
     NDEPOSIT=NDEPOSIT+MTOTAL
     SELE 1
     APPEND BLANK
     REPLACE DATE WITH MDATE
     REPLACE ACCOUNT WITH MACCOUNT
     REPLACE DEPOSIT WITH MTOTAL
     REPL PAIDBY WITH MPAIDBY
     REPL FIFTY WITH N50,TWENTY WITH N20,TEN WITH N10,FIVE WITH N5
     REPL ONE WITH N1,KOBO WITH K50
     STORE SPACE(1) TO AKA
     SELE 2
     SEEK MACCOUNT
     REPL DEPOSIT WITH MTOTAL
     REPL BALANCE WITH BALANCE+MTOTAL
     REPL DATE WITH MDATE
     REPL W_PER_MONT WITH W_PER_MONT + 1
     SET COLO TO G/B+
     @21,0 CLEA
     @21,25 SAY "ANY MORE ENTERY?(Y/N)" GET SAVINGS
     SET COLO TO W/B
  READ
ENDDO
CLOSE DATABASE
CLEA
@12,23 SAY "YOU HAVE TREATED " + LTRIM(STR(COUNTER))+" CUSTOMER(S)"
@14,20 SAY "YOU HAVE RECEIVED THE SUM OF N"
@14,50 SAY NDEPOSIT PICT "@B.99"
?
@15,25
WAIT SPACE(22) + "PRESS ANY KEY TO RETURN TO MENU"
RETURN
```

```
@15,58 SAY "N" + LTRIM(STR(N5*5))
@16,58 SAY "N" + LTRIM(STR(N1))
@17,58 SAY "N"
@17,59 SAY K50/2 PICT "@B999.99"
MTOTAL=N50*50+N20*20+N10*10+N5*5+N1+K50/2
SET COLO TO R+
@18,52 SAY "N"
@18,53 SAY MTOTAL PICT "@B.99"
SET COLO TO G/B+
@21,25 SAY "ENTERY CONFIRMED?(Y/N)" GET AKA
SET COLO TO W/B
READ
IF UPPER(AKA) = "N"
LOOP
ELSE
IF UPPER(AKA) = "Y"
EXIT
ENDIF
ENDIF
ENDDO
COUNTER=COUNTER+1
NDEPOSIT=NDEPOSIT+MTOTAL
SELE 1
APPEND BLANK
REPLACE DATE WITH MDATE
REPLACE ACCOUNT WITH MACCOUNT
REPLACE DEPOSIT WITH MTOTAL
REPL PAIDBY WITH MPAIDBY
REPL FIFTY WITH N50,TWENTY WITH N20,TEN WITH N10,FIVE WITH N5
REPL ONE WITH N1,KOBO WITH K50
STORE SPACE(1) TO AKA
SELE 2
SEEK MACCOUNT
REPL DEPOSIT WITH MTOTAL
REPL BALANCE WITH BALANCE+MTOTAL
REPL DATE WITH MDATE
REPL W_PER_MONT WITH W_PER_MONT + 1
SET COLO TO G/B+
@21,0 CLEA
@21,25 SAY "ANY MORE ENTERY?(Y/N)" GET SAVINGS
SET COLO TO W/B
READ
ENDDO
CLOSE DATABASE
CLEA
@12,23 SAY "YOU HAVE TREATED " + LTRIM(STR(COUNTER))+" CUSTOMER(S)."
@14,20 SAY "YOU HAVE RECEIVED THE SUM OF N"
@14,50 SAY NDEPOSIT PICT "@B.99"
?
@15,25
WAIT SPACE(22) + "PRESS ANY KEY TO RETURN TO MENU"
RETURN
```

COMPUTERISED STOCK CONTROL SYSTEM
FOR
AJAOKUTA STEEL COMPANY LIMITED

A PROJECT SUBMITTED

TO

THE DEPARTMENT OF MATHEMATICS/STATISTICS/
COMPUTER SCIENCE

BY

ABDUL-RAHMAN, MUHAMMAD DAN-ASABE (B.Eng)
(PGD/MCS/013)

IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE AWARD OF POST GRADUATE DIPLOMA
IN COMPUTER SCIENCE

OF THE

FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA

MARCH, 1994

<u>CERTIFICATION</u>

I certify that this project entitled **"Computerised Stock Control System for Ajaokuta Steel Company Limited"** meets the regulations governing the award of POSTGRADUATE DIPLOMA IN COMPUTER SCIENCE of Federal University of Technology, Minna.

------------------------   -----------------

MALLAM MOHAMMED G TANKO   Date
(S U P E R V I S O R)

--------------------------   -----------------

DR. K. R. ADEBOYE
(HEAD OF DEPARTMENT)   Date

----------------------------   -----------------

External Examiner   Date

TABLE OF CONTENTS

CHAPTER ONE

CHAPTER TWO

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

REFERENCES

APPENDIX - PROGRAM TEXT

<u>DECLARATION</u>

I solemnly declare that this project is an original work, and that no part of it thereof was copied from any past project in this department or any other department from this university or any other university.

- A. M. DAN-ASABE

DEDICATION

To Hajiya Maryam, Faridah Gimba with all my Love.

ACKNOWLEDGEMENT

I must not fail to acknowledge the sincere friendship of various people, notably Yusuf H. Binji, Idris Ahmed, Mr & Mrs Abdullahi (Baba), Usman Isa, Mr G. B. Jiya, Ibrahim Alfa (IB) and Mr Emmanuel Alade of Intercity Bank Plc for his continuous assistance. Most importantly, I highly acknowledge the invaluable friendship of mr Joel Tsado Ndaegi (Ya-bee) who is always around to give me the courage and confidence in all my undertakings.

Finally, thanks be to Allah (SWA), most gracious, for seeing me through this work.

ABSTRACT

A feasibility study was conducted on the effect of computerised stock control system for Ajaokuta Steel Company Limited.

The familiar facts finding techniques, namely: Interview, Record Review and Observations were employed in this work during data collection.

dBase III plus, a classic database management systems for micro-computers that allows interaction with data through menu selections rather than through programming like commands is used.

Applications such as Stock Inventory, data entry into the system are in on-line, real-time environments. The system is designed to provide management with timely information, and ensure proper accountability as a result of timely reports to be generated for all transactions in the stores.

The implementation of the proposed system will ensure improvement in stock control in terms of reliability, security, effectiveness and privacy.

CHAPTER ONE

1.0   INTRODUCTION:

Stock control is critical to the functions of production control. Products and raw materials must be stored in a way that will make up for inaccuracies in demand forecasts. Stock Control system is aimed at keeping proper records of stock items in a departmental store. It is a way of safeguarding against running short of raw material or inability to meet demand directly from the assembly line. It is an expensive activity, for it involves the costs of storage space, handling and insurance, as well as costs associated with product obsolence and deterioration. Raw materials must be ordered to arrive in time for production.

Inventory/Stock Control answers the following questions:-

(a)   what is the optimum amount of inventory to carry?

(b)   what is the economic lot size for an order from a supplier or from a production department? and

(c)   What system of controlling stock should be used?

(a)   The optimum size of stock depends on the needs of the production department. some parts, materials, and

completed products have to be kept on hand in order to absorb discontinuities in production and to handle uncertainty. To have something to work on, some stock must be held. Finished stocks may be held to provide better service for customers.

(b) The economic lot size or economic order quantity (EOQ) as it is sometimes called, depends upon two costs:

(1) preparation costs and

(2) carrying costs

Preparation Costs:- are fixed costs relating to the starting of production or the writing of an order for a purchase and do not vary with the number of items in the lot. Examples of preparation costs are set up costs of machines, the clerical cost for writing an order and the administrative costs of executive attention in placing a lot into production.

Carrying Costs:- vary directly with the number of items involved. Carrying cost involves interest on capital, insurance, obsolescence, deterioration, handling, inventory taking and so on.

Many formulas have been developed that weigh preparation costs, carrying costs and rate of usage. One of the oldest and best known is:

$$Q = \sqrt{\frac{2RS}{1}}$$

Where

        Q = economic lot size

        R = annual use of the items in units per year

        S = Set up cost each time a new lot is started

        I = Carrying cost per unit per year.

(c) A number of systems of inventory control are available. A most popular one is the Periodic Order System, in which cards indicate the pertinent information concerning usage rate, items on order, items reserved for specific usage, and balance on hand.

Stock taking in Ajaokuta Steel Company is generated same with any other department. The automated stock control is an improvement on the tedious and repetitive not so reliable manual one used at present in the company.

A project to computerise stock control system involves a carefully planned procedure. Plans for specification writing, system analysis, systems design and development, implementation and re-organisation for the automation. The raw materials supplied to the Company and other items are 1st coded and entered into supply/purchase file. As these items are entered into supply/purchase file, the inventory file is automatically opened and the items which are entered into the supply file are copied into it. The inventory file keeps the records of stock balances. The items that are issued out from stores to production department and other departments are entered into issued file and automatically used to update the inventory file. Same goes with the sales file. In all cases, the system will locate the identical item codes in the inventory file and subtract the issued and sales items from it and automatically update the balance.

The use of Automated System for stock information is aimed at keeping proper records on every item supplied.purchased, issued to various departments and sold out of the Company thereby promoting efficiency. The system uses prompt file processing method and sorts records in appropriate order before producing any selected output. It ascertains stock balances after any

transaction has taken place, warns when the stock reaches re-order level but allows transactions until items balances becomes zero, at which level transaction is not possible. Receipts and issues on any stock item can be adjusted. This immediately update the stock master file (inventory file) thereby keeping it up-to-date. This system has screen output and printer output forms of reports.

Stock control system have the following general objectives:

(i)   To enable the most efficient handling of data and provide management with timely information;

(ii) To establish the most desirable distribution of data, services, and equipment throughout the organisation;

(iii) To provide responsive service to meet user and customer needs;

(iv) To minimize operating cost and maximize potential savings for the Company,

(v)   To eliminate duplicity as well as conflicting and unnecessary services in the Company;

(vi) To define orderly methods of handling transaction activities, using sound organisational procedures;

(vii)   To facilitate data interaction between and within various levels of management and

(viii)   To increase the speed with which reliable data is accessed and available in the system.

This project is aimed at automating stock and general business information management of the Ajaokuta Steel Company in Ajaokuta. The fundamental department in the Steel Company includes:

Production, Commerce (involving purchasing and procurement: Shipping, Haulage and Inspection; Marketing and Sales), Technical Services, Real Estate, Finance, Administration, Chairman and Chief Executive's Office. Attention will be paid to Commerce Department under which the Stores division charged with the Stock Control is.

1.1 <u>The New System Design Criteria</u>:

<u>Volume</u>:

The proposed system can handle large amount of data.

<u>Simplicity</u>:

The proposed system though can handle complex operations, it is simple to use.

<u>Flexibility</u>:

The system can operate in a dynamic rather than static environment.

Efficiency:

The system is designed to be of high efficiency ensuring the best output of the desired report.

User Friendliness:

The system is menu driven. It simply gives the operator a choice of different transactions for implementation.

Security:

The security of the system is taken into consideration such that facilities are provided only for authorised user to have access to it.

1.2 PLANS FOR SPECIFICATION:

Specification plans involves feasibility study and system analysis of the step-by-step transactions and pointing out the problems and later suggesting solutions to the problems.

1.3 SYSTEMS DEVELOPMENT:

Involves designing the system based on the outcome of the analysis and the recommendations made during the analysis. It also involve testing and implementing the new system to ensure its functionality.

1.4 **RE-ORGANISATION**:

This involves documentation of the new system. It covers the
final report documenting every aspect of the system's
operations. The report contains:

(i)   Over view of the project, describing the general
         purpose of the information available.

(ii)   Flow charts describing the procedures or series of
         steps used in the processing of data.

(iii)   Detailed narratives which describes each of the
         systems outputs, printer spacing charts.

(iv)   Financial analysis of both the old and new systems.

(v)   Projected cost of both systems currently and in
         future, as well as the cost saving.

(vi)   A description of the computer system and the
         peripheral equipment supporting the system.

CHAPTER TWO

2.0 **LITERATURE REVIEW**

2.1 **PREAMBLE**:

Ajaokuta Steel Company Limited was formed on 18th September, 1979 and charged with the duty of constructing and operating an integrated iron and steel plant at Ajaokuta.

The Company is divided into seven departments for administrative convenience. The divisions are:

(a) **Production**:

Coke oven and by-products, iron making steel making rolling mills:Power and utilities: Central Maintenance: Central Laboratory and Quality Control, Product iron Planning & Control, Safety, fire services.

(b) **Commerce**:

Purchasing & Procurement: Shipping, Haulage & Inspection; Marketing and Sales.

(c) **Technical Services**:

Construction, Erection, Engineering Service, Transport, Steel, Structures.

(d) **Real Estate**:

Real Estate Maintenance, Property Development.

(e) **Finance**:

Finance, Budget, Stores.

(f) **Administration**:

Establishment, Welfare. Metallurgical Training Institute, Special Services, Lagos Office.

(g) **Chairman & Chief Executive's Office**:

Company Secretary/Legal Adviser, Medical Services, Security Audit, Public Relations, Corporate Planning, Moscow Office.

Stock Control in a gigantic Company like AJAOKUTA STEEL COMPANY LIMITED is a tedious task that usually involves operations that are repetitive, of clerical nature but simple enough for computations.

It is surprising that at this era, the Steel Company no doubt the nations bedrock of technology, still uses the old fashioned tedious manual stock control system.

2.2 <u>STOCK MECHANISED DEVICES</u>:

The origin of these machines and the technological developments results from long claims of events, innovative thinking, and demonstrated need. The fundamental ideas behind computers are traceable to such primitive calculating devices as the ABACUS.

For centuries, the ABACUS was the only device that did numerical calculations. The development of numerical notations had an added impetus to data processing. Many societies developed their own different methods of representing numerical notations which could be used in computations. The concepts of place values, Arabic numerals and number systems (especially the binary system) were utilized. Today's computers utilizes binary system in their operations.

In the 17th century Blaise Pascal, in France, and Gothfried - Wilhelm Von Leibrutz, in Germany, developed gear-driven mechanical devices to perform numerical operations.

Pascal's calculator simplified addition and substraction while Leibnitz's calculator handled multiplication and division.

The capability for running machines under the control of a program was demonstrated in the early 1800s, the English inventor, Charles Babbage theorised the possibility of constructing an automatic mechanical calculator. He designed the difference engine and years later, the analytical engine. These concepts were eventually used by engineers in the development of the 1st computer prototypes.

Another significant development in program-controlled machine occurred in U.S in 1880s when Herman Hollerith developed punched card, coding and a tabulating machine that was used for the 1890 census. This reduced tabulation time from nine years for the 1880 census to two-and-half years. In 1937, H. G. Aiken at Harvard University produced a computer, the Mark 1 and electro-mechanical device, which was a prototype of most computers in use today.

Each of these devices is widely replaced by electric devices that allows for greater logical decision-making, increased speed and high efficiency. The evolution of the electronic computer traced back to world war II.

The Electronic Numerical Integrator and Calculator (ENIAC), developed between 1936 to 1944 is considered the 1st truly electronic digital computer until 1972 when court case gave that distinction to Atanasoff-Berry Computer (ABC) developed around 1942 (1935-1942).

A mathematician, John Von Neumann theorised the store-program concept: the operating instructions and data to be processed should be stored inside the computer. The computer should then, when necessary have the capability to modify these program instructions during execution. The stored-program concept was 1st implemented on the Electronic Delay Storage Automatic Calculator (EDSAC) in England. EDSAC is smaller than ENIAC but six times faster. In 1951, the UNIVAC1 (Universal Automatic Computer 1) made of vaccum tubes was introduced. It was the 1st commercially available computer. It also pioneered the magnetic tape system. The magnetic tape represented a great advance in computer technology that it permitted the sequential storage of millions of characters on a medium that was compact, portable and permitted the high-speed transfer of data to the computer.

From 1955 - 1965, the second generation of computers were built using transistors. These computers are smaller in size with more memory capacity and consumes less energy. These

computers have faster speed and have wide range of data applications. High speed magnetic disk was developed which enabled the random access of data, a problem associated to sequential access of data when tape was used. Magnetic disks revolutionized the computer field, in that, computer could go directly to a specific item of data and use it.

Between 1965 - 1980, third generation of computers was introduced. This period marked the introduction of integrated circuits (IC) technology. The machines were more reliable, used less power and were smaller. This period saw the introduction of compatibility, development of the mini-computers and the emergence of the software industry.

This marked the emergence of the computers as a major tool of business. One of these computers was IBM 360 series. In 1970, IBM 370 series was introduced which use silicon chips only. In the early 1970's, a new form of computers, the mini-computers emerged which was followed by micro-computers. Micro-Computers were small, highly-specialized computer systems with limited amount of data storage facility. They support specific business activities such as Financial Planning, Auditing, Management Planning, Stock Controls and other related business activities.

2.3 **LIMITATIONS**:

Although this software has been developed to handle general stock problems, emphasis is placed on the raw material aspect of the stock items for the purposes of analysis and simplicity.

CHAPTER THREE

3. **FEASIBILITY STUDY**:

3.1 PROBLEM DEFINITION

"THE PROJECT - "COMPUTERIZED STOCK CONTROL SYSTEM FOR AJAOKUTA STEEL COMPANY LIMITED"

3.2 OBJECTIVES:

(a) To enable the most efficient handling of large data and provide management with timely information on stock.

(b) To establish the most desirable distribution of services, and equipment throughout the Company.

(c) To provide responsive service to meet customers needs;

(d) To minimize the operating cost and maximize potential savings for the organization;

(e) To eliminate duplicated, conflicting and unnecessary service in the organization;

(f) To define orderly methods of handling transaction activities using sound organizational procedures;

(g) To facilitate data interaction between and within various levels of management and;

(h) To increase the speed with which reliable data is accessed and available in the system.

3.3 **FEASIBILITY STUDY:**

Feasibility study was conducted to analyse the current manual transactions and stock control in Ajaokuta Steel Company in order to determine whether the proposed computerised system should be developed.

The study was conducted with the maximum co-operation and assistance from Mr. Samuel O. A. Odeh of Commerce Department, Stores Division of Ajaokuta Steel Company Limited.

3.4 **METHODOLOGY:**

The techniques employed for the fact finding were: Interviewing, Observation, and Document Inspection or review.

INTERVIEW:

This is a fact finding technique used to collect information from individuals/groups. The respondents here are the current users of the existing system and potential users of the proposed system too. Interview techniques is the best in actual description of the process though time consuming.

DOCUMENT REVIEW:

In this technique, the records reviewed includes - written policy manuals, regulations and standard procedures and other relevant documents. This provide an introductory knowledge and later acts as basis for comparing actual operation with what the records indicates should be happening.

OBSERVATION:

This fact finding technique gives first hand information about how the activities are carried out. It enables the observer see how goods/documents and processes are carried out and whether or not specified steps are actually followed.

3.5 OPERATION OF THE EXISTING SYSTEM:

The department is at present yet to be fully functional. This is due to non-operational problems of the Company. It was established when the Company had hoped it will soon start operations so that stock (inventory) can be fully and appropriately taken care of.

The Stock Control Unit is charged with the maintenance of stock and non-stock items of the Company. It also monitors slow, fast and non-moving stock items.

CARDEX CARDS:

Information on the Cardex Cards is regarded as the most important. The Cards are kept under locks and access to it is only by the authorised personnel of Stores Division. The Cards are two types: one for purchases and receipts and the other for issues. From these cards, the entire activities of the Stores are monitored.

Information on the Cardex Card includes: the purchases and receipts of the Company as well as issues from the Stores to the various departments such as RE-ORDER level is set on the

Cardex Card of each row material or stock items card. Special request of items not usually used by the Company is marked as an EXTRACT on the Cardex Card and the date, quantity and department requesting such specific items entered onto the card for record purposes. As stated earlier, information on the Cardex Cards is regarded as the most authentic and therefore accorded high security.

PURCHASES:

All purchases are carried out only after a purchasing application form obtained, filled and approved have been by the appropriate officers concerned.

GOODS RECEIVED NOTES (GRN)

When the requested items are purchased and brought to the Company, a Goods Received Notes is filled. The GRN contains details about the various stock items received. The stores department also brings to the notice of the supplier in writing that such supplied goods are received subject to inspection by the appropriate and authorised persons from the departments concerned.

INSPECTION FORM:

The inspection request form is used for the detailed inspection of the stock items supplied and received by the Steel Company. The inspection form states clearly the quantity of goods accepted, rejected and remarks on each.

STORE ISSUE VOUCHER:

The Store Issue Voucher is used for stock issues. The voucher is in quadruplicate copies and different colours. The white original copy goes to accounts, yellow-duplicate stock control, Blue-triplicate goes to the receiver, Green-Quadruplicate has no designation while pink-quadruplicate is the book copy. The voucher contains details about the person to whom issues are made. It also contains gate pass number and date where necessary.

CODING:

To make stock control easy and fast, items are all coded. This reduces possibility of duplications and long varying descriptions etc. coding system is also used to avoid legal implication and high costs of replacing what is supplied but not required by the supplier(s). Basic criteria for coding are characteristics and end use.

The Plant Spare Parts have thirteen (13) figures while general store and consumables has nine (9) figures in their coding systems. The items are categorized into:

(1) Main group (represented by two digits)

(2) Sub-group   "

(3) Sub-sub group   "

No sub-group can have more than 999 items.

STANDARDIZATION & VARIETY REDUCTION

This reduces the number of items in stock. It also facilitate what items to buy, which not to and easy of getting suppliers.

STOCK LEVELS:

This sets to ensure that items are available at all times in order to maintain the continuity of production. There are three main stock levels in operation:

(a) Maximum stock level

(b) re-order level and

(c) minimum stock level

MAXIMUM STOCK LEVEL:

This is the level at which no stock material should be above.
An important factor here is the financial then, possibility of
deterioration and technological changes or items getting out
of use.
Maximum is calculated mathematically as:
    Maximum Level = ROL - (MC x MRP) + ROQ

    Where

    ROL = Re-order level
    MC = Minimum consumption of material in the period
    MRP = Minimum Re-order period &
    ROQ = Re-order quality

MINIMUM STOCK LEVEL:

The minimum Stock level is the level below which items should
NOT be allowed to fall.   The consequences of stock out on
production cannot be over emphasised.

Minimum stock level is calculated as:

    ROL - (NC X NRP)

    Where
            ROL = Re-order level
            NC = Normal consumption of material for the
                  period
            NRP = Normal Re-order period.

RE-ORDER LEVEL:

This is the level at which ordering of fresh stock items is
required before the stock items runs into minimum stock level.
Factors to consider here are:

(a) Rate of usage

(b) Lead time (How long it takes to get the supply of the
     goods ordered)

The Re-order level is calculated as:

ROL = MC X MRP
Where: ROL = Re-order level
       MC = Maximum consumption of material during the period
            and
       MRP = Maximum Re-order period.

ECONOMIC ORDER QUANTITY:

Knowing the right and economic quantity of stock items to purchase is very important. Large orders results in high storage costs, lighting and heating costs, more capital tied up in inventory, high taxes and insurance costs are higher. With large orders, there is likelihood of damage, deterioration goods and obsolescence. Smaller orders, too brings about increased handling costs, less discounts and likelihood of stock out.

The economic order quantity is calculated as:

$$EOQ = \sqrt{\frac{2DCO}{PCS}}$$

Where D = total demand
       CO = Cost of ordering
       P = Unit price
       CS = Cost of Storage

The economic order quantity is used only where prices are stable for appreciable time.

RETURNED/TRANSFERRED ITEMS:

Stock items may be returned if wrongly issued. Lack of wastages due to good production planning and process control may also return excess raw materials back to store. The returned items are accepted and registered into the Stores Credit Voucher (SCV) which indicates the department/unit returning the items, quantity and conditions of the items returned.

TRANSFERRED ITEMS:

To move items from one store to another, store transfer voucher (STV) is used. The transfer voucher shows which store or location. It also indicates the quantity, price, who authorised and who received the transferred item(s) . The items are also coded.

DISUSE/UNSERVICEABLE ITEMS:

When such items are returned to store, the stock control unit simply open a return to store register for the items. No cards are opened for such items.

3.6 FEASIBILITY REPORT:

The existing manual system serves as a very good source of information for the development of the computerized systems. The basic functions performed by the manual system involves: Purchasing (receiving), Issuing and stock taking. The problems of the present system are identified as:

(1) The manual system is tedious, tiring and highly uninteresting.

(2) Administrative delay

(3) Expensive to maintain

(4) Accessing information is tiring and time consuming.

(5) It is ineffective

(6) Misplacement and lost of vital papers due to large volume of papers to handle.

(7) Large human errors due to large volume of data to handle.

3.7 **FLOW CHART OF THE EXISTING SYSTEM:**

```
( S )──────┤ SUPPLIED ITEMS/TRANSFERRED ITEMS ├──────────┐
                         │                                │
                         ▼                                │
                  ┌─────────────┐                         │
                  │ INSPECTION  │                         │
                  └─────────────┘                         │
                         │                                │
                         ▼                                │
                    ◇ ITEMS OK? ◇ ──────────► NO ─────────┘
                         │
                         ▼
             / GOODS RECEIVED NOTES /
                         │
                         ▼
          / REGISTRATION & CODING
              INTO SUPPLY FILE /
                         │
                         ▼
                  ┌─────────────┐
                  │  STORING    │
                  └─────────────┘
                         │
┌──────────────┐         ▼
│ DEPARTMENTAL │   ┌──────────────────┐
│   DEMAND     │──►│ BROWSE THE STORE │
└──────────────┘   │ STORE TO PICK ITEMS │
                   └──────────────────┘
                         │
              ◇ ITEM A ◇ ─NO─► ◇ OTHER ◇ ─NO─► ( S )
              ◇ FOUND ◇        ◇ ITEMS ◇
                   │ YES            │ YES
                   ▼                ▼
                   └──► ┌──────────────┐
                        │  CHECK QTY   │
                        └──────────────┘
                              │
                              ▼
                        ◇ IS QTY OK? ◇ ─NO─► ( S )
                              │
                              ▼
                     ┌──────────────────┐
                     │ STOREKEEPER ISSUE│
                     │   THE ITEMS      │
                     └──────────────────┘
                              │
                              ▼
                            ( I )
```

```
                    ┌─┐
                    ( | )
                    └─┘
                     │
                     ▼
        ╱─────────────────────────╲
       ╱  ENTER ITEMS INT          ╱
      ╱   ISSUE VOUCHER           ╱
     ╱───────────────────────────╱
                 │
                 ▼
      ╱───────────────────────────╲
     ╱  RECORD DAILY ISSUES       ╱
    ╱───────────────────────────╱
                 │
                 │
                 ▼
      ┌───────────────────────┐
      │  TAKE STOCK           │
      └───────────────────────┘
                 │
                 ▼
      ┌─────────────────┐        ┌─────────────────────┐
      │  DATA ENTRY     ├───────>│  UPDATE MASTER      │
      └─────────────────┘        │  FILE               │
                 │               └─────────────────────┘
                 │
                 ▼
      ┌───────────────────────┐
      │  INVENTORY REPORTS    │
      └───────────────────────┘
                 │
                 ▼
      ┌───────────────────────┐
      │  SUPPLY   REPORTS     │
      └───────────────────────┘
                 │
                 ▼
      ┌───────────────────────┐
      │  ISSUE REPORT         │
      └───────────────────────┘
                 │
                 ▼
            ╭─────────╮
            │   END   │
            ╰─────────╯
```

3.8 <u>LOGICAL MODEL OF THE MANUAL SYSTEM</u>:

The logical model explains the general operations of the stores division. It starts from the purchase/supply of items to the stores and subsequent issuing of the items to the various departments requesting them. When items are purchased and supply made, the management checks and inspects the supplied items to see if they meet the standard and are acceptable. If acceptable, Goods Received Note is issued to the supplier(s) and the items registered into the supply file. This is followed by coding and then storing.

Demands from each department are sent to the stores where the items are checked and collected together for the departments and issue voucher entered. This is recorded daily and stock taken. At the end of the day's activities, all issues are entered into the issue ledger and then the stock is taken. Taking of stock involves balancing and updating inventory of items which are received and issued out.

3.9 <u>RECOMMENDED COMPUTER SYSTEM</u>:

Work-station or personal computers are recommended. The computing requirements of the business profession are very demanding. There is now urgent need for greater performance to run more sophisticated softwares at faster speeds and for

early access to the corporate, mainframe, however, remote, an on line remote and on-line public information database.

Though the operator of this system has only to learn a relatively simple sequence of keyboard operations since the processing operation are menu driven, well trained staff are necessary. This will ensure improvements and innovations into the system. A competent operator is therefore essential.

3.10 <u>SPECIFICATION OF RECOMMENDED WORK-STATION</u>:

Processor	IBM
Memory Expansion	Standard
Expansion slots	Two 8/16 bits slots
Mass storage options	1.6 MB 5.25/3.5 diskettes
Controlled, Monochrome	Graphic or enhanced.
Hard disk	
Output device	IBM printer; Epson FX-1050
Operating softwares	DOS 4.1 dBase III plus dBase IV plus packages.

3.11 <u>COST BENEFIT ANALYSIS OF THE PROPOSED SYSTEM</u>:

DEVELOPMENT COST:

	N : K
Inventory Control Package	7,000.00
System Analysis Cost	10,000.00
Labour Cost (5 months, 2500/month)	12,500.00

	29,500.00
	=========

OPERATING COST OF NEW SYSTEM:

	N	:K
Maintenance Cost	2,000.00	
Labour Cost (700/month)	3,500.00	
Personnel Cost (1500/month)	7,500.00	

	13,000.00	
	=========	

TOTAL COST OF THE SYSTEM   ₦42,500.00
                                  =========

The annual cost saving of the new system is ₦42,500.00

CHAPTER FOUR

4.0 <u>SYSTEMS DESIGN AND DEVELOPMENT</u>:

The analysis of the Ajaokuta Stock control System, shows clearly that the Stock Control needs a computerized system.

4.1 <u>STOCK ITEMS IN AJAOKUTA STEEL COMPANY STORES IN GROUP</u>:

S/No	ITEMS	GROUP
1	Abrasives & Miscellaneous Abrasives Items	1
2	Building Materials	2
3	Chemicals	3
4	Electrical Equipment Accessories	4
5	Fuels, Oil & Lubricants	5
6	Ferrous Metals	6
7	Gases Cylinders & Spares	7
8	Hardwares	8
9	Household Furniture & Equipment	9
10	Laboratory Equipment & Appliances	10
11	Medical	11
12	Motor Vehicles	12
13	Measuring & Weight Instrument	13
14	Materials handling Equipment	14

S/No	ITEMS	GROUP
15	Miscellaneous Items	15
16	Non Ferrous Metals	16
17	Pipes, Valves & Plumbing Fittings	17
18	Paints & Varnishes	18
19	Raw Materials	19
20	Rubber & Abestors Articles	20
21	Ropes & Chairs	21
22	Safety & Fire Fighting Equipment	22
23	Stationery, Office Equipment, Printing & Drawing Materials	23
24	Tools	24
25	Textiles, Accessories & Sewing Equipment	25
26	Welding Equipment & Accessories	26

The items are classified into category with each item being coded.

4.2 **INPUT OF DATA**:

In data input process, the user works with a screen based image of a form. This has blanks in which data can be entered. It is for the user to enter data at any point on the form.

4.3 DATABASE:

The system is a complete database system. a database is a collection of data usually files, arranged in such a way that

it is independent of any particular program or application. The arrangement eliminates data redundancy. Access to files is provided by a database management system.

A database management system (DBMS) is an organised collection of inter-related data and the set of programs to access that data. The aim of a database management system is to create an environment that is efficient and convenient for retrieving information from stored database.

4.4 OBJECTIVES OF DATABASE SYSTEM:

1. Reduce data duplication, inconsistency and increase its shareability.

2. Increase the integrity of the data

3. Increase the speed in implementing system

4. Improve the standard of the system development and

5. Provide a management view of the organisation.

4.5 THE SYSTEM DEVELOPMENT:

Here, the project will consider the followings:

1. Input, output and processing requirements.

2. Data files

3. System maintenance

4.6   <u>DATABASE FILED DESCRIPTION</u>:

There are three database files in use, namely:

(1) Supply Database file

(2) Issue Database file and

(3) Inventory database file

<u>SUPPLY DATABASE FILE</u>:

This is the file where items supplied newly to the stores are first recorded coded and inventory automatically updated by adding the new items to the old stock in the file.

<u>INVENTORY DATABASE</u>:

Keeps all records of the stock balance, supply records as well as issue records in stores.

<u>ISSUE DATABASE FILE</u>:

Keeps records of items issued out of stores to various units or departments. As issues are made, the inventory is automatically updated by reducing the items issued from the total quantity of items in the inventory file.

The item code serves as the identification (ID) key.

DATABASE STRUCTURE

ISSUE DBF

FIELD NO.	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	WIDTH	DEC
1	Item Code	Code	Numeric	4	0
2	Sub-Code	Sub-Code	"	3	0
3	Item Category	CAT	Character	12	
4	Item Description	DESCP	"	35	
5	Qty in Stock	QStock	Numeric	8	2
6	Qty Issued	QIssued	"	8	2
7	Issued Date	IRDATE	Date	8	
8	Unit Qty	QUNIT	Numeric	8	2
9	Extract	Extract	Logic	1	
10	Qty Received	QREC	Numeric	8	2
11	Date Received	RDATE	Date	8	
12	Vocab Number	V-NUM	Numeric	5	0
13	Voucher Number	Voc-Num	"	5	0
14	Qty Indented	QIndent	"	8	2
15	Indenting Unit	ID-Unit	Character	20	

DATABASE STRUCTURE

INVENTORY DBF

FIELD NO.	FIELD DESCRIPTION	FIELD NAME	FIELD TYPE	WIDTH	DEC
1	Item Code	Code	Numeric	4	0
2	Sub-Code	Sub-Code	"	3	0
3	Item Category	CAT	Character	12	
4	Item Description	DESCP	"	30	
5	Date	RDATE	Date	8	2
6	Location	Locate	Character	15	2
7	Qty in Stock	QStock	Numeric	8	
8	Qty Received	QREC	Numeric	8	2
9	Date Received	DREC	Date	8	
10	Qty Issued	QIssued	Numeric	8	2
11	Date Issued	RDATE	Date	8	
12	Stock Balance	STBAL	Numeric	15	0
13	Total Stock	TStock	"	15	
14	Indenting Unit	ID-Unit	Character	25	
15	Date	MRDATE	Numeric	8	
16	Cost of Item	Cost	Numeric	8	

STBAL = Q = QSTOCK + QREC

QSTOCK = STBAL - QISSUED

DATABASE STRUCTURE

SUPPLY DBF

ITEM NO.	ITEM DESCRIPTION	FIELD NAME	FIELD TYPE	ITEM WIDTH	DEC
1	Item Code No.	Code	Numeric	4	0
2	Item Category	CAT	Character	12	0
3	Qty Indented	QIndent	Numeric	8	2
4	Qty in Stock	QStock	"	8	2
5	Qty Received	QREC	"	8	2
6	Date	RDATE	Date	8	
7	Item Description	DESCP	Character	35	
8	Unit Qty	QUnit	Numeric	8	2
9	Extract	Extract	Logic	1	
10	Sub-Code	Sub-Code	Numeric	3	
11	Vocab Number	Voc-Num	"	5	0
12	Indenting Unit	ID-Unit	Character	20	
13	Qty supplied	QSupply	Numeric	8	2

4.6 CRT LAYOUT FORM AND SCREEN INPUT

1. Item Code Number: [   ]

2. Item Description: [   ]

3. Item Category: [   ]

4. Quantity in Stock: [   ]

5. Quantity Received: [   ]

6. Date Received: [   ]

7. Quantity Issued: [   ]

8. Date Issued: [   ]

9. Extract: [   ]

10 Indenting: [   ]

11. Quantity Indented: [   ]

12. Balance: [   ]

4.7 <u>OUTPUT DESCRIPTION:</u>

The computer print charts and information display system layout sheets are used as the output design aids for the computerised system. The screen output is slightly different from the print chart output due to limited screen space.

4.8 <u>ALGORITHMS FOR THE MODULAR PROGRAM</u>

```
        Begin:    Display Data Entry Menu
              Select option
              Case option = "$"  $
              Execute Stock Menu

End Case: Case Option =I
              Execute Issue Menu

End Case: Case Option = "S"
              Execute Supply Menu

End Case: Case Option = "R"
              Execute Report Menu

End Case
End Select
End:      Display Stock Menu
              Select Option
              Case Option
              Case Option = 'A'
              Execute Add Stock

End Case: Case Option 'D'
              Execute Delete Stock

End Case: Case Option = 'V'
              Execute view stock
```

```
End Select
End case
End:        Display Issue Menu
            Select Option
            Case Option = 'A'
            Execute Add issue

End Case: Case Option = 'M'
            Execute modify issue

End Case: Case Option = 'D'
            Execute Delete Issue

End Case: Case Option = 'V'
            Execute View Issue

End Case
End Select
End:        Display Supply Menu
            Select Option
            Case Option = 'A'

End Case: Case Option = 'M'
            Execute Modify Supply

End Case: Case Option = 'V'
            Execute View Supply

End Case
End Select
End:        Display Report Menu
            Select Options
            Case Option = 'D'
            Execute Supply Report
            if option = 'C'
            Execute Printer report

            Else

            Execute screen report.

End if
End Case
End:        Case Option = 'I'
            Execute Issue report
            if option = 'C'
            Execute Printer Report
```

```
          Else

          Execute Screen Report

End if
End Case
End:      Case option = '$'
          Execute Stock/Inventory Report
          if option = 'C'
          Execute printer report

          Else

          Execute Screen Report

End if
End Case
End.
```

4.9 MODULAR PROGRAM STRUCTURE OF THE NEW SYSTEM

ADD SUPPLY ──────┐
MODIFY SUPPLY ───┤ SUPPLY MENU
DELETE SUPPLY ───┤
VIEW SUPPLY ─────┘

ADD ISSUE ───────┐
DELETE ISSUE ────┤ ISSUE MENU
MODIFY ISSUE ────┤
VIEW ISSUE ──────┘

MAIN MENU

ADD INVENTORY ──────┐
MODIFY INVENTORY ───┤ INVENTORY MENU
DELETE INVENTORY ───┤
VIEW INVENTORY ─────┘

SUPPLY
ISSUE
INVENTORY ── SCREEN REPORT ──┐ REPORT MENU
SUPPLY
ISSUE ── PRINTER REPORT ─────┘
INVENTORY
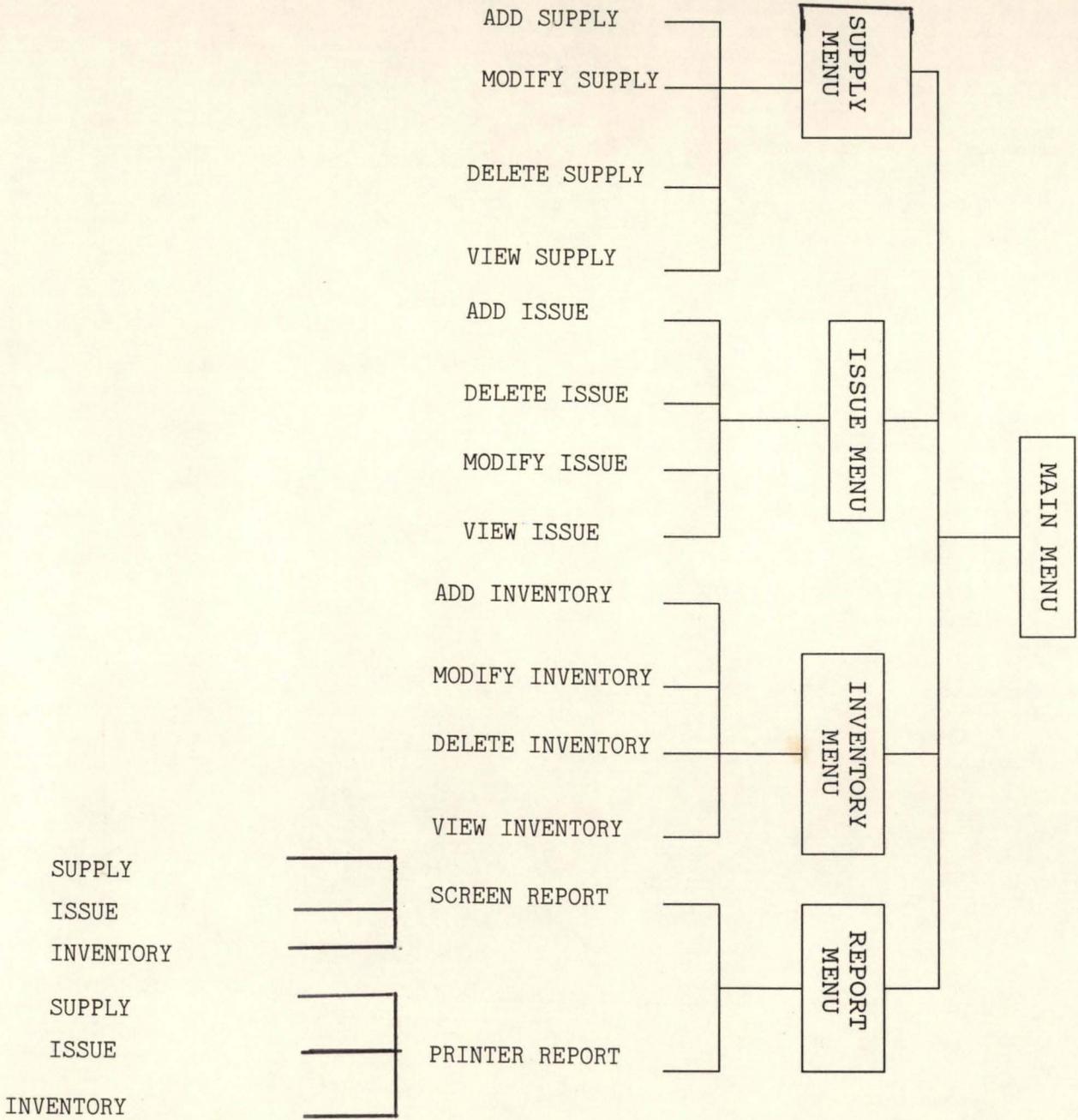
```
+---------------------+
|  DATA ENTRY MENU    |
+---------------------+

+-------------------------------------------------+
|                                                 |
|      SUPPLY MENU ..   ..   .. $                  |
|      ISSUE MENU   ..   ..   .. I                 |
|      INVENTORY MENU   ..   .. S                  |
|      REPORT MENU ..   ..   .. R                  |
|      EXIT    ..   ..   ..   .. E                 |
|                                                 |
|   +-----------------------------------------+   |
+---| PLS ENTER A CHOICE: S,I,$ R OR E        |---+
    +-----------------------------------------+
```

```
+---------------------+
|    SUPPLY MENU      |
+---------------------+

+-------------------------------------------------+
|                                                 |
|      ADD SUPPLY   ..   ..   .. A                 |
|      MODIFY SUPPLY     ..   .. M                 |
|      DELETE SUPPLY     ..   .. D                 |
|      VIEW SUPPLY ..   ..   .. V                  |
|      EXIT    ..   ..   ..   .. E                 |
|                                                 |
|   +-----------------------------------------+   |
+---| PLS ENTER A CHOICE: A,M,D V OR E        |---+
    +-----------------------------------------+
```

```
+---------------------+
|    ISSUE   MENU     |
+---------------------+

+-------------------------------------------------+
|                                                 |
|      ADD ISSUE    ..   ..   .. A                 |
|      MODIFY ISSUE      ..   .. M                 |
|      DELETE ISSUE      ..   .. D                 |
|      VIEW ISSUE   ..   ..   .. V                 |
|      EXIT    ..   ..   ..   .. E                 |
|                                                 |
|   +-----------------------------------------+   |
+---| PLS ENTER A CHOICE: A,M,D V OR E        |---+
    +-----------------------------------------+
```

```
┌─────────────────────┐
│  INVENTORY MENU     │
└─────────────────────┘
┌──────────────────────────────────────┐
│     ADD INVENTORY     ..   .. A       │
│     MODIFY INVENTORY       .. M       │
│     DELETE INVENTORY       .. D       │
│     VIEW INVENTORY    ..   .. V       │
│     EXIT     ..  ..  ..     .. E       │
│  ┌──────────────────────────────────┐ │
│  │ PLS ENTER A CHOICE: A,M,D V OR E │ │
│  └──────────────────────────────────┘ │
└──────────────────────────────────────┘
```

```
┌─────────────────────┐
│ │ REPORT   MENU     │
└─────────────────────┘
┌──────────────────────────────────────┐
│     ISSUE REPORT      ..   .. I       │
│     SUPPLY REPORT     ..   .. $       │
│     INVENTORY REPORT       .. S       │
│     EXIT     ..  ..  ..     .. E       │
│  ┌──────────────────────────────────┐ │
│  │ PLS ENTER A CHOICE: I,$,S OR E   │ │
│  └──────────────────────────────────┘ │
└──────────────────────────────────────┘
```

4.10 <u>NARRATIVE PROCEDURE OF THE MODULAR PROGRAM</u>

MAIN MENU:

This displays the main menu of the system showing different

sub-programs for implementation.

SUPPLY MENU:

This is a sub-program that displays the menu for transaction

under supply.

5.1 <u>RECOMMENDATIONS</u>:

Under the circumstances it was tested, the project has been found to work effectively and efficiently. However, for implementation at Ajaokuta Steel Company a 486 IBM Computer with 66MHz speed and a hard disk of storage capacity 640MB RAM is recommended due to the volume of work expected in Stores.

There is also a need for the stores to own a printer. EPSON 1050+ printer and enhanced keyboard are recommended. The Inventory Reports should begenerated on daily basis so as to know the daily balances of the stock items.

Any subsequent person working on this project should concentrate mostly on maintenance and expansion of the system.

REFERENCES

1. Anderson, R. G.   -   <u>Data Processing Principles and Practice</u>, Vol.1 M & E handbooks 7th Edition (1990)

2. Bamkefa, T   -   <u>History of Computers</u>, (1991) Lecture Notes

3. Austin H. R and Cassell   -   <u>Computers in Focus</u>, Brooks/Cole Publishing Company Monterey, CALIFONIA (1986)

4. Massie, J. L.   -   <u>Essentials of Management</u>, 4th Edition, Prentice-Hall India Private Limited (1987)

5. Schewe, C. D   -   <u>Marketing Principles & Strategies</u>, Business Publications Inc (1988)

6. Everest, G. C.   -   <u>Data Management - Objectives, System Functions & Administration</u>, McGraw-Hill Book Co. (1986)

7. Sadiq, U. Z.   -   <u>Programming Concept Using DataBase Management System</u>, Unpublished Course Material (1993)

8. Simpson, A   -   <u>Understanding dBase III PLUS</u> SYBEX SAN FRANCISCO

9. Bamgbola M. O.   -   <u>Systems Analysis & Design</u>, Lecture Notes (1993)

10. Lucas (Jnr), H.C   -   <u>The Analysis, Design and Implementation of Informantion systems</u>, 3rd Edition McGraw-Hill Book Co. SINGAPORE (1988)

11. Lester, G. C.   -   <u>Practical Systems Design</u>

12. Chou, G. T.   -   <u>dBase III(R) Plus Hand Book</u>, 2nd Edition

4.11 **PROGRAM TEXT**:

```
*************************************************
AUTHOR................ENGR. M. D. ABDULRAHMAN
PROGRAM ID............STOCK REC.
DATE WRITTEN..........1993
PROGRAM SUPERVISOR....MALL. S. U. ZUBAIRU
PROJECT TOPIC.........COMPUTERISED STOCK CONTROL SYSTEM
                                    FOR
                      AJAOKUTA STEEL COMPANY LIMITED

*******************************************************
SET COLO TO
SET ECHO OFF
SET STAT OFF
SET BELL OFF
SET CONS OFF
SET SCOR OFF
SET HELP OFF
SET PROC TO STOCK.PRG
public opt
CLEAR
SET COLOR TO W/R
@ 1,2 TO 23,70 DOUB
@ 2,3 CLEA TO 22,69
@ 2,10 SAY "A J A O K U T A  S T E E L  C O M P A N Y  L I M I T E
D"
@ 4,19 SAY "COMPUTERIZED STOCK CONTROL SYSTEM"
@ 6,3 TO 6,69
@8,30 SAY "FOR"
@10,20 SAY " AJAOKUTA STEEL COMPANY"
@12,3 TO 12,69
@16,15 SAY "DESIGNED BY ENGR. M. D. ABDUL-RAHMAN"
@18,22 SAY "VERSION 1.0 (1994)"
SET COLOR TO N/W
SET INTEN OFF
SET CONSOL OFF
@21,22 SAY "PRESS ANY KEY TO CONTINUE..."
WAIT ""
CLEAR
SET COLOR TO RG
@2,24 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@3,28 SAY "STOCK CONTROL SYSTEM"
@5,24 SAY "THIS SYSTEM TAKES INVENTORY"
@10,36 SAY "OF"
@14,23 SAY "STOCK ITEMS IN AJAOKUTA STORES"
@16,20 SAY " M. D. ABDUL-RAHMAN SOFTWARE DEVELOPMENT"
@17,38 SAY                   "1994"
@20,25 SAY "PRESS ANY KEY TO CONTINUE..."
WAIT " "
```

```
CLEAR
do whil .t.
store space(1) to opt
CLEAR
SET COLOR TO W/B+
@ 1,4 CLEA TO 4,70
@ 1,4 TO 4,70 DOUB
@ 2,8 SAY "A J A O K U T A  S T E E L  C O M P A N Y  S T O R E S"
@ 3,18 SAY "COMPUTERIZED STOCK CONTROL SYSTEM "
STORE SPACE (1) TO OPT
SET COLOR TO B+/W
@5,5 CLEAR TO 23,69
@5,4 TO 23,70
@ 22,15 TO 24,56
@ 7,20 SAY "D A T A  E N T R Y  F O R M "
@10,16 SAY "DATA ENTRY MENU......................[D]"
@12,16 SAY "INVENTORY MENU.......................[S]"
@14,16 SAY "ISSUE MENU...........................[I]"
@16,16 SAY "REPORT MENU..........................[R]"
@18,16 SAY "SUPPLY MENU..........................[$]"
@20,16 SAY "EXIT.................................[E]"
@23,16 SAY "PLEASE ENTER A CHOICE(D,S,I,P,R,OR E)[ ]"
@23,54 GET OPT PICT "!"
READ
DO CASE
CASE OPT = "D"
   DO   ENTRY
CASE OPT = "S"
   DO INVENT
CASE OPT = "I"
   DO ISSUE
CASE OPT = "$"
  DO SUPPLY
CASE OPT = "R"
  DO REPORT
CASE OPT = "E"
CLEAR ALL
  close all
  close proc
 EXIT
OTHERWISE
   @ 23,10 SAY "WRONG OPTION CODE " + OPT + " ENTERED"
   WAIT
ENDCASE
ENDDO
set echo on
set stat on
set bell on
set cons on
set scor on
return
```

```
****************
PROCEDURE SUPPLY
****************
DO WHILE .T.
CLEAR
SET COLO TO WG/RB
@1,4 CLEAR TO 4,70
@1,4 TO 4,70 DOUB
@3,20 SAY " S U P P L Y    M E N U "
@5,8 SAY "SUPPLY ENTRY FORM"
STORE SPACE (1) TO OPT1
SET COLO TO R+/N
@5,4 CLEAR TO 23,69
@5,4 TO 23,70
@22,17 TO 24,58
@10,20 SAY "ADD SUPPLY..................[A]"
@12,20 SAY "MODIFY SUPPLY...............[M]"
@14,20 SAY "DELETE SUPPLY...............[D]"
@16,20 SAY "VIEW SUPPLY.................[V]"
@18,20 SAY "EXIT........................[E]"
@23,18 SAY "PLEASE ENTER A CHOICE (A,M,D,V,OR E) ( )"
@23,56 GET OPT1 PICT "@!"
READ
DO CASE
CASE OPT1 = "A"
DO ASUPPLY
CASE OPT1 = "M"
DO MOSUPPLY
CASE OPT1 = "D"
DO DESUPPLY
CASE OPT1 = "V"
DO VISUPPLY
CASE OPT1 = "E"
CLEAR ALL
EXIT
OTHERWISE
@23,10 SAY "WRONG OPTION CODE " + OPT + " ENTERED"
WAIT
ENDCASE
ENDDO
SET COLO TO
RETURN
```

```
*******************
*   ADD SUPPLY
*******************
**   PROGRAMME TO ADD SUPPLY **
DO WHILE .T.
CLEAR
SET DATE BRITISH
CLOSE DATA
USE SUPPLY
CLEAR
mcode = 0
store spaCE (12) to mcat
MDESCP = SPACE (18)
STORE 0.00 TO MQSTOCK,MQREC
STORE 0.00 TO MCOST,MSELPRIC
MRDATE = CTOD ("  /   /   ")
DO WHILE .T.
CLEAR
@10,10 SAY "ENTER ITEM CODE NUMBER OR XX TO EXIT......"
@10,65 GET MCODE PICT "9999"
READ
IF MCODE = 00
CLEAR
RETURN
ENDIF
CLEAR
@3,10 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@4,4 TO 4,70 DOUB
@6,14 SAY "SUPPLY ENTRY IN PROGRESS"
@7,14  to 7,38
seT COLO TO RG/B
@3,60 SAY "DATE ( )"
@10,6 SAY "ITEM CODE NUMBER :"
@12,6 SAY "ITEM CATEGORY:"
@14,6 SAY "ITEM DESCRIPTION:"
@16,6 SAY "QUANTITY IN STOCK:"
@18,6 SAY "QUANTITY RECEIVED:"
@20,6 SAY "COST PER UNIT:"
@22,6 SAY "DATE RECEIVED:"
@10,24 GET MCODE PICT "9999"
@12,24 GET MCAT        && PICT "@!"
@14,24 GET MDESCP PICT "@!"
@16,24 GET MQSTOCK PICT "999999"
@18,24 GET MQREC PICT "999999.99"
@20,24 GET MCOST PICT "999999.99"
@22,24 GET MrDATE PICT "99/99/99"
READ
STORE SPACE (1) TO RP
@23,35 SAY "CONFIRM DATA ? (Y/N)"
@23,56 GET RP PICT "!"
READ
```

```
IF UPPER (RP) = "N"
EXIT
ENDIF
IF UPPER (RP) = "Y"
APPEND BLANK
REPLACE CODE WITH MCODE
REPLACE CAT WITH MCAT
REPLACE DESCP WITH MDESCP
REPLACE QSTOCK WITH MQSTOCK
REPLACE QREC WITH MQREC
REPLACE COST WITH MCOST
REPLACE RDATE WITH MrDATE
CLEAR

USE INVENTORY
LOCATE FOR CODE = mCODE
IF .NOT. EOF()
MSTBAL = MQSTOCK + MQREC
REPLACE CODE WITH MCODE
REPLACE CAT WITH MCAT
REPLACE DESCP WITH MDESCP
REPLACE QSTOCK WITH MQSTOCK
REPLACE QREC WITH MQREC
REPLACE COST with MCOST
REPLACE STBAL WITH MSTBAL
ENDIF
ENDIF
EXIT
ENDDO
ENDDO
RETURN
*****************
* MODIFY SUPPLY
******************
**MODIFICATION OF SUPPLY***
USE SUPPLY
DO WHILE .T.
CLEAR
MCODE = 0
SET COLO TO R/N
@11,8 TO 13,70
@12,10 SAY "ENTER THE ITEM CODE TO MODIFY" GET MCODE PICT "9999"
READ
IF MCODE = 00
CLEAR
RETURN
ENDIF
GO TOP
LOCATE FOR CODE = MCODE
IF .NOT. FOUND()
CLEAR
```

```
SET COLO TO RG/B
@10,20 SAY "INVALID NUMBER TRY ANOTHER PLEASE..."
@13,20 SAY " "
WAIT
CLEAR
LOOP
ENDIF

*****CHECK TO SEE IF RECORD EXIST ****

IF FOUND ( )
STORE CAT TO MCAT
STORE DESCP TO MDESCP
STORE QSTOCK TO MQSTOCK
STORE QREC TO MQREC
STORE COST TO MCOST
STORE RDATE TO MRDATE
ENDIF
CLEAR
SET COLO TO GR+/B,W/R,GB+
@1,1 TO 23,75 DOUB
@3,17 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@5,23 SAY "STOCK CONTROL SYSTEM"
@7,23 SAY "SUPPLY MODIFICATION"
@10,16 SAY "CODE NUMBER:"
@12,6 SAY "ITEM CATEGORY:"
@14,6 SAY "DESCRIPION:"
@16,6 SAY "QUANTITY IN STOCK:"
@18,6 SAY "QUANTITY RECEIVED:"
@20,6 SAY "COST PER_ITEM:"
@22,6 SAY "DATE OF SUPPLY:"
@10,35 GET MCODE
@12,35 GET MCAT PICT "!"
@14,35 GET MDESCP PICT "@!"
@16,35 GET MQSTOCK PICT "999999999"
@18,35 GET MQREC PICT "999999999"
@20,35 GET MCOST PICT "999999.99"
@22,35 GET MRDATE PICT "99/99/99"
READ
REPLACE CODE WITH MCODE
REPLACE CAT WITH MCAT
REPLACE DESCP WITH MDESCP
REPLACE QSTOCK WITH MQSTOCK
REPLACE QREC WITH MQREC
REPLACE COST WITH MCOST
REPLACE rDATE WITH MrDATE
APPEND BLANK
CLEAR
CHOICE = SPACE(1)
@20,0 CLEAR TO 21,78
```

```
@15,16 SAY "DO YOU WANT TO MODIFY MORE RECORDS? (Y/N)"
DO WHILE .T.
@ 15,58 GET CHOICE PICT '!'
READ
IF .NOT. UPPER (CHOICE) $ "YN"
  CHOICE=SPACE(1)
  LOOP
ENDIF
EXIT
ENDDO
CLEAR
IF UPPER (CHOICE) = "N"
CLEAR
EXIT
ENDIF
IF UPPER (CHOICE) ="Y"
CLEAR
LOOP
ENDIF
CLOSE ALL DATABASES
ENDDO
RETURN
******************
* DELETE SUPPLY
******************

***DELETING RECORD FROM SUPPLY DBF
PUBLIC MCODE
USE SUPPLY
DO WHILE .T.
MCODE =0
SET COLO TO GB
CLEAR
@11,8 TO 14,74 DOUB
@13,11 SAY "ENTER CODE NUMBER OF ITEM TO DELETE OR 00 TO QUIT..."
@13,66 GET MCODE PICT "9999"
READ

***VERIFYING THE CORRECT CODE
IF MCODE = 00
CLEAR
EXIT
ENDIF

***FIND CODE NUMBER IN SUPPLY.DBF
LOCATE FOR CODE = MCODE
***IF SUCH RECORD**
CLEAR
IF EOF()
CLEAR
```

```
@9,13 TO 11,70
@10,20 SAY "THERE IS NO SUCH RECORD IN FILE..."
@15,20 SAY " "
WAIT
ENDIF

***IF RECORD EXIST THEN STORE IT
IF .NOT. EOF( )
**REPLACEMENT**
STORE CAT TO MCAT
STORE DESCP TO MDESCP
STORE QSTOCK TO MQSTOCK
STORE QREC TO MQREC
STORE COST TO MCOST
STORE RDATE TO MRDATE
SET COLO TO GR+/B,W/R,GB+
@1,1 TO 23,75 DOUB
@3,17 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@5,23 SAY "STOCK CONTROL SYSTEM"
@7,23 SAY "SUPPLY DELETION"
@9,16 SAY "CODE NUMBER:"
@11,6 SAY "ITEM CATEGORY:"
@13,6 SAY "DESCRIPION:"
@15,6 SAY "QUANTITY IN STOCK:"
@17,6 SAY "QUANTITY RECEIVED:"
@19,6 SAY "COST PER_ITEM:"
@21,6 SAY "DATE OF SUPPLY:"
@9,35 GET MCODE
@11,35 GET MCAT PICT "!"
@13,35 GET MDESCP PICT "@!"
@15,35 GET MQSTOCK PICT "999999999"
@17,35 GET MQREC PICT "999999999"
@19,35 GET MCOST PICT "999999.99"
@21,35 GET MRDATE PICT "99/99/99"
CLEAR GETS
CHOICE=SPACE(1)
@ 23,35 SAY "ARE YOU SURE YOU WANT TO DELETE? (Y/N)..." GET CHOICE
READ

IF UPPER(CHOICE) ="N"
CLEAR
EXIT
ENDIF
IF UPPER(CHOICE) = "Y"
CLEAR
SET COLOR TO RG+
@6,30 SAY "SUPPLY DELETION"
SET COLO TO G+
DELETE
PACK
```

```
SET COLO TO R
@9,22 TO 11,54 DOUB
@10,23 SAY " THE RECORD HAS BEEN DELETED ! "
@10,52 SAY " "
WAIT
CLEAR
EXIT
ENDIF
ENDIF
ENDDO
RETURN
********************
* VIEW SUPPLY
********************
**PROGRAM TO LIST SUPPLIED ITEMS*
USE SUPPLY
CLEAR
C = 0
S = SPACE(2)
HEAD1 = "CODE "+" CATEGORY "+" DESCRIPTION "+" QUANT-IN-STOCK
"+"QUAT-RECEIVED"+"UNIT-COST "+" SU-DATE"
?HEAD1
@2,1 SAY " "
GO TOP
L = 2
DO WHILE .NOT. EOF()
*?LTRIM(CODE),S,CAT,S,TRIM(DESCRIP),S,Q_STOCK,S,Q_REC,S,COST,SDATE
@L,2 SAY CODE
@L,7 SAY CAT
@L,16 SAY DESCP
@L,28 SAY QSTOCK
@L,45 SAY QREC
@L,58 SAY COST
@L,74 SAY RDATE
L = L+1
SKIP
C = C+1
IF C = 5
IF .NOT. EOF()
@23,23 SAY "PRESS ANY KEEY TO CONTINUE...."
@2,60 CLEAR TO 20,60
L = 2
I = 0
DO WHILE I =0
I = INKEY()
ENDDO
ENDIF
@2,1 CLEAR TO 23,78
@2,1 SAY " "
C = 0
```

```
LOOP
ENDIF
ENDDO
@23,1 CLEAR TO 23,79
@23,18 SAY "PRESS ANY KEY TO RETURN TO THE PREVIOUS MENU"
I = 0
DO WHILE I =0
I = INKEY()
ENDDO
RETURN
***************
*PROCEDURE ISSUE
***************
CLEAR
DO WHILE .T.
CLEAR
SET COLO TO R+/N
@1,4 CLEAR TO 4,70
@1,4 TO 4,70 DOUB
@3,22 SAY " I S S U E   M E N U "
STORE SPACE (1) TO OPT2
SET COLO TO R/W
@5,5 CLEAR TO 23,69
@5,4 TO 23,70
@22,17 TO 24,58
@10,20 SAY "ADD ISSUE...............[A]"
@12,20 SAY "MODIFY ISSUE............[M]"
@14,20 SAY "DELETE ISSU.............[D]"
@16,20 SAY "VIEW ISSUE..............[V]"
@18,20 SAY "EXIT....................[E]"
@23,18 SAY "PLEASE ENTER A CHOICE (A,M,D,V, OR E)[ ]"
@23,56 GET OPT2 PICT "@!"
READ
DO CASE
CASE OPT2 = "A"
DO AISSUE
CASE OPT2 = "M"
DO MOISSUE
CASE OPT2 = "D"
DO DELISSUE
CASE OPT2 = "V"
DO VIISSUE
CASE OPT2 = "E"
CLEAR ALL
EXIT
OTHERWISE
@23,10 SAY "WRONG OPTION CODE "+OPT+" ENTERED"
WAIT
ENDCASE
ENDDO
SET COLOR TO
RETURN
```

```
****************
* ADD ISSUE
****************
***programm to ADD ISSUES
DO WHILE .T.
CLEAR
SET DATE BRITISH
CLOSE DATA
USE ISSUE
CLEAR
MCODE = 0
MSUB_CODE = 0
STORE SPACE(12) TO MCAT
MDESCP = SPACE(18)
STORE 0.00 TO MQSTOCK,MQISSUED,QISSUED
MIRDATE = CTOD("  /  /  ")
DO WHILE .T.
CLEAR
@10,10 SAY "ENTER ITEM CODE NUMBER OR 00 TO EXIT..."
@10,65 GET MCODE PICT "9999"
READ
IF MCODE = 00
CLEAR
RETURN
ENDIF
CLEAR
@3,10 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@4,4 TO 4,70 DOUB
@6,10 SAY "ISSUES ENTRY"
@7,10 SAY "REPLC("=",46)"
SET COLO TO RG+/B
@3,60 SAY "DATE()"
@10,6 SAY "ITEMCODE NUMBER:"
@12,6 SAY "ITEM CATEGORY:"
@14,6 SAY "ITEM DESCRIPTION:"
@16,6 say "QUANTITY IN STOCK:"
@18,6 SAY "QUANTITY ISSUED:"
@20,6 SAY "SUB_CODE:"
@22,6 SAY "DATE ISSUED:"
@10,24 GET MCODE PICT "9999"
@12,24 GET MCAT PICT "!"
@14,24 GET MDESCP PICT "@!"
@16,24 GET MQSTOCK PICT "999999"
@18,24 GET MQISSUED PICT "999999"
@20,24 GET MSUB_CODE PICT "999"
@22,24 GET MIRDATE PICT "99/99/99"
READ
STORE SPACE(1) TO RP
@23,35 SAY "CONFIRM DATA? (Y/N)"
```

```
@23,56 GET RP PICT "!"
READ
IF UPPER(RP) = "N"
EXIT
ENDIF
IF UPPER(RP) = "Y"
APPEND BLANK
REPL CODE WITH MCODE
REPL CAT WITH MCAT
REPL DESCP WITH MDESCP
REPL QSTOCK WITH MQSTOCK
REPL QISSUED WITH MQISSUED
REPL SUB_CODE WITH MSUB_CODE
REPL IRDATE WITH MIRDATE
CLEAR
USE INVENTOR
LOCATE FOR MCODE = CODE
LOCATE FOR MSUB_CODE = SUB_CODE
IF .NOT. EOF()
MSTBAL = MQSTOCK - MQISSUED
REPL CODE WITH MCODE
REPL SUB_CODE WITH MSUB_CODE
REPL CAT WITH MCAT
REPL DESCP WITH MDESCP
REPL QSTOCK WITH MQSTOCK
REPL QISSUED WITH MQISSUED
REPL IRDATE WITH MIRDATE
REPL STBAL WITH MSTBAL
MCODE = 4
MSUB_CODE = 3
ENDIF
ENDIF
EXIT
ENDDO
ENDDO
RETURN
*****************
* MODIFY ISSUE
*****************
*programm to modify issues
USE SUPPLY
DO WHILE .T.
CLEAR
MCODE = 0
MSUB_CODE = 0
SET COLO TO R+
@11,8 TO 13,70
@12,10 SAY "ENTER THE ITEM CODE TO MODIFY OR 0 TO EXIT..."
@12,64 GET MCODE PICT "9999"
READ
```

```
IF MCODE = 0
CLEAR
DO AISSUE
WAIT
ENDIF
GO TOP
LOCATE FOR CODE = MCODE
LOCATE FOR SUB_CODE = MSUB_CODE
IF .NOT. FOUND()
CLEAR
SET COLO TO B
@10,20 SAY "INVALID NUMBER,TRY ANOTHER PLEASE...."
@13,20 SAY " "
WAIT
CLEAR
ENDIF

***CHECK TO IF THE RECORD EXIST
IF FOUND()
STORE CODE TO MCODE
STORE SUB_CODE TO MSUB_CODE
STORE CAT TO MCAT
STORE DESCP TO MDESCP
STORE QSTOCK TO MQSTOCK
STORE QREC TO MQREC
STORE EXTRACT TO MEXTRACT
STORE RDATE TO MRDATE
ENDIF
CLEAR
MCODE = CODE
MSUB_CODE = SUB_CODE
MCAT =CAT
MDESCP = DESCP
MQSTOCK = QSTOCK
MQREC = QREC
MEXTRACT = EXTRACT
MRDATE = RDATE
SET COLO TO GR+/B,W/R,GR+
@1,1 TO 23,75 DOUB
@2,17 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@4,22 SAY "STOCK CONTROL SYSTEM"
@6,20 SAY "RECORD MODIFICATION"
@10,6 SAY "CODE NUMBER:"
@12,6 SAY "ITEM CATEGORY:"
@14,6 SAY "DESCRIPTION:"
@16,6 SAY "QUANTITY IN STOCK:"
@18,6 SAY "QUANTITY ISSUED:"
@20,6 SAY "SUB_CODE:"
@22,6 SAY "DATE OF ISSUE:"
@9,35 SAY "EXTRACT:"
```

```
@10,35 GET MCODE PICT "9999"
@10,35 GET MCAT PICT "!"
@14,35 GET MDESCP PICT "@!"
@16,35 GET MQSTOCK PICT "999999"
@18,35 GET MQREC PICT "999999"
@20,35 GET MSUB_CODE PICT "999"
@22,35 GET MRDATE PICT "99/99/99"
@9,60 GET MEXTRACT PICT "@!"
READ
REPL CODE WITH MCODE
REPL SUB_CODE WITH MSUB_CODE
REPL CAT WITH MCAT
REPL DESCP WITH MDESCP
REPL QSTOCK WITH MQSTOCK
REPL QREC WITH MQREC
REPL EXTRACT WITH MEXTRACT
REPL RDATE WITH MRDATE
APPEND BLANK
CLEAR
CHOICE = SPACE(1)
@20,0 CLEAR TO 21,78
@15,1 SAY " "
WAIT "DO YOU WANT TO MODIFY MORE RECORDS? (Y/N)" TO CHOICE
IF .NOT. UPPER(CHOICE) $ "Y/N"
CLEAR
@14,10 SAY "PLEASE ENTER Y OR N"
@15,14 SAY " "
WAIT
ENDIF
IF UPPER(CHOICE) = "N"
CLEAR
EXIT
ENDIF
IF UPPER(CHOICE) = "Y"
CLEAR
LOOP
ENDIF
CLOSE ALL DATABASES
ENDDO
RETURN
******************
* DELETE ISSUE
******************
*programm to delete issue from supply dbf
public mcode,msub_code
use supply
do while .t.
code = mcode
sub_code = msub_code
mcode = 0
```

```
MSUB_CODE = 0
set colo to g
clear
@11,8 to 14,74 doub
@13,11 say "enter code number of item to delete or 0 to quit..."
@13,67 get mcode pict "9999"
read

***check to verify the correct code
if Mcode = 0
clear
exit
endif
***find code number in supply.dbf
locate for code = mcode
locate for sub_code = msub_code

***if such record exists***
if eof()
clear
@9,13 to 11,70
@10,20 say "there is no such record in file..."
@15,20 say " "
wait
loop
endif

***if found before end of file store it
if .not. eof()
***replacement**
do while .t.
@18,0 clear to 20,78
@18,1 say " "
wait "are you sure you want to delete? (Yy/Nn).." to choice
do case
case UPPER(choice) = "N"
clear
exit
case UPPER(choice) = "Y"
clear
set colo to rg+
@6,22 say "deleting records"
set colo to r
delete
pack
set colo to g
@9,14 to 11,45 doub
@10,16 say "the record has been deleted"
@11,16 say " "
wait
```

```
clear
exit
otherwise
?chr(7)
loop
endcase
enddo
loop
close all
enddo
return
*****************
* VIEW ISSUE
*****************
**PROGRAMM TO VIEW ISSUES
USE SUPPLY
CLEAR
C = 0
HEAD1 = "CODE     "+ "SUB-CODE  " + "CAT    " +"DESCP    "+ "QSTOCK
ì
  "+ "QREC  " +"COST    " +"RDATE"
?HEAD1
@2,1 SAY " "
GO TOP
DO WHILE .NOT. EOF()
?CODE,SUB_CODE,CAT,TRIM(DESCP),QSTOCK,QREC,COST,RDATE
SKIP
C = C+1
IF C = 5 .AND. .NOT. EOF()
@23,23 SAY "PRESS ANY KEY FOR THE REST..."
I = 0
DO WHILE I = 0
I = INKEY()
ENDDO
@2,1 CLEAR TO 23,78
@2,1 SAY " "
C = 0
LOOP
ENDI
ENDDO
@23,1 CLEAR TO 23,79
@23,18 SAY "PRESS ANY KEY TO RETURN TO THE PREVIOUS MENU"
I = 0
DO WHILE I = 0
I = INKEY()
ENDDO
RETURN
```

```
******************
procedure invent.PRG
******************
DO WHILE .T.
CLEAR
SET COLO TO R/N+
@1,4 CLEAR TO 4,70
@1,4 TO 4,70 DOUB
@3,24 SAY "I N V E N T O R Y   M E N U"
STORE SPACE (1) TO OPT3
SET COLO TO WG/RB
@5,5 CLEAR TO 23,69
@5,4 TO 23,70
@22,17 TO 24,58
@10,22 SAY "ADD STOCK.............[A]"
@12,22 SAY "MODIFY STOCK.........[M]"
@14,22 SAY "DELETE STOCK.........[D]"
@16,22 SAY "VIEW STOCK...........[V]"
@18,22 SAY "EXIT.................[E]"
@23,18 SAY "PLEASE ENTER A CHOICE (A,M,D,V, OR E)[ ]"
@23,56 GET OPT3 PICT "@!"
READ
DO CASE
CASE OPT3 = "A"
DO AINVENT
CASE OPT3 = "M"
DO MOINVENT
CASE OPT3 = "D"
DO DEINVENT
CASE OPT3 = "V"
DO VINVENT
CASE OPT3 = "E"
CLEAR ALL
EXIT
  OTHERWISE
@23,10 SAY "WRONG OPTION CODE "+OPT+" ENTERED"
WAIT
ENDCASE
ENDDO
SET COLO TO
RETURN
********************
*ADD INVENTORY
********************
***PROGRAMM :INVENTORY ENTRY
   CLEAR
   SET DATE BRITISH
CLOSE DATA
USE INVENT
clear
```

```
RDATE = MRDATE
msub_code = 0
mcode = 0
STORE SPACE(12) TO MCAT
MDESCP = SPACE(18)
STORE 0.0 TO MQSTOCK,MQREC
STORE 0.00 TO MCOST,MSELPRIC
MRDATE = CTOD("  /  /  ")
DO WHILE .T.
CLEAR
@10,10 SAY "ENTER ITEM CODE NUMBER OR XX TO EXIT..."
@10,65 GET MCODE PICT "9999"
READ
IF MCODE = 00
exit
endif
CLEAR
@3,20 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@4,4 TO 24,70 DOUB
@6,26 SAY "INVENTORY ADDITION"
@7,26 SAY REPLIC("=",20)
SET COLO TO RG+/B
@3,60 SAY "DATE()"
@10,6 SAY "ITEM CODE NUMBER:"
@12,6 SAY "ITEM CATEGORY:"
@14,6 SAY "ITEM DESCRIPTION:"
@16,6 SAY "QUANTITY IN STOCK:"
@18,6 SAY "QUANTITY RECEIVED:"
@20,6 SAY "COST PER_UNIT:"
@22,6 SAY "DATE RECEIVED:"
@12,28 SAY "SUB_CODE:"
DO WHILE .T.
@10,24 GET MCODE PICT "99999"
@12,24 GET MCAT PICT "!"
@14,24 GET MDESCP PICT "@!"
@16,24 GET MQSTOCK PICT "999999"
@18,24 GET MQREC PICT "999999"
@20,24 GET MCOST PICT "999999.99"
@22,24 GET MRDATE PICT "99/99/99"
@12,48 GET MSUB_CODE PICT "999"
READ
STORE SPACE(1) TO RP
@23,35 SAY "CONFIRM DATA? (Y/N)"
@23,56 GET RP PICT "!"
READ
IF UPPER(RP) = "N"
LOOP
ENDIF
EXIT
ENDDO
```

```
APPEND BLANK
REPL CODE WITH MCODE
REPL CAT WITH MCAT
REPL DESCP WITH MDESCP
REPL QSTOCK WITH MQSTOCK
REPL QREC WITH MQREC
REPL RDATE WITH MRDATE
REPL SUB_CODE WITH MSUB_CODE
EXIT
ENDDO
EXIT
RETURN
*********************
*modify inventory
*********************
**programm to modify inventory

use invent
do while .t.
clear
MSUB_CODE = 0
mcode = 0
set colo to rb+
@11,8 to 13,70 doub
@12,10 say "Enter the ITEM CODE TO MODIFY OR 00 TO EXIT..."
@12,64 GET MCODE PICT "9999"
READ
IF MCODE = 00
CLEAR
WAIT
RETURN
ENDIF
GO TOP
LOCATE FOR CODE = MCODE
IF .NOT. FOUND()
CLEAR
SET COLO TO B+
@10,20 SAY "INVALID NUMBER,TRY ANOTHER PLEASE..."
@13,20 SAY " "
WAIT
CLEAR
LOOP
ENDIF
*****CHECK TO SEE IF THE RECORD EXISTS
IF FOUND()
STORE CODE TO MCODE
STORE CAT TO MCAT
STORE DESCP TO MDESCP
STORE QSTOCK TO MQSTOCK
STORE QREC TO MQREC
```

```
STORE COST TO MCOST
STORE RDATE TO MRDATE
ENDIF
CLEAR
CODE = MCODE
SUB_CODE = MSUB_CODE
MCAT = CAT
MDESCP = DESCP
MQSTOCK =QSTOCK
MQREC = QREC
MCOST =COST
MRDATE = RDATE
CLEAR
SET COLO TO GR+/B,W/R,GB+
@2,17 SAY "AJAOKUTA STEEL COMPANY LIMITED"
@4,19 SAY "STOCK CONTROL SYSTEM"
@6,17 SAY "INVENTORY MODIFICATION"
@10,6 SAY "CODE NUMBER:"
@12,6 SAY "ITEM CATEGORY:"
@14,6 SAY "DESCRIPTION:"
@16,6 SAY "QUANTITY IN STOCK:"
@18,6 SAY "QUANTITY RECEIVED:"
@20,6 SAY "COST PER_ITEM:"
@22,6 SAY "DATE OF SUPPLY:"
@9,35 SAY "SUB_CODE:"
@10,35 GET MCODE PICT "9999"
@12,35 GET MCAT PICT "!"
@14,35 GET MDESCP PICT "@!"
@16,35 GET MQSTOCK PICT "999999"
@18,35 GET MQREC PICT "999999"
@20,35 GET MCOST PICT "999999.99"
@22,35 GET MRDATE PICT "99/99/99"
@9,60 GET MSUB_CODE PICT "999"
READ
REPL CODE WITH MCODE
REPL CAT WITH MCAT
REPL DESCP WITH MDESCP
REPL QSTOCK WITH MQSTOCK
REPL QREC WITH MQREC
REPL COST WITH MCOST
REPL RDATE WITH MRDATE
REPL SUB_CODE WITH MSUB_CODE
APPEND BLANK
CLEAR
CHOICE = SPACE(1)
@20,0 CLEAR TO 21,78
@15,1 SAY " "
WAIT "DO YOU WANT TO MODIFY MORE RECORDS? (Y/N)" TO CHOICE
@14,10 SAY "PLEASE ENTER YOUR CHOICE Y OR N"
IF .NOT. UPPER(CHOICE) $ "YN"
ENDIF
```

```
IF UPPER (CHOICE) = "N"
CLEAR
EXIT
ENDIF
IF UPPER(CHOICE) = "Y"
CLEAR
LOOP
ENDIF
CLOSE ALL DATABASES
ENDDO
RETURN
**********************
* delete inventory
**********************
**THIS PROGRAMM DELETES ARECORD FROM SUPPLY.DBF

PUBLIC MCODE
USE INVENT
DO WHILE .T.
CODE = MCODE
MCODE = 0
SET COLO TO G+
CLEAR
@11,8 TO 13,74 DOUB
@12,11 SAY "ENTER CODE NUMBER OF ITEM TO DELETE OR 00 TO QUIT..."
@12,67 GET MCODE PICT "9999"
READ

****CHECK TO VERIFY THE CORRECT CODE
IF MCODE = 00
CLEAR
EXIT
ENDIF

***FIND CODE NUMBER IN SUPPLY.DBF
LOCATE FOR CODE = MCODE
***IF SUCH RECORD EXISTS***
IF EOF()
CLEAR
@9,13 TO 11,70
@10,20 SAY "THERE IS NO SUCH RECORD IN FILE..."
@15,20 SAY " "
WAIT
LOOP
ENDIF

***IF RECORD IS FOUND BEFORE END OF FILE THEN STORE IT
IF .NOT. EOF()
```

```
****START PERFORMING REPLACEMENT****
DO WHILE .T.
CHOICE = SPACE(1)
@18,0 CLEAR TO 20,78
@18,1 SAY "ARE YOU SURE YOU WANT TO DELETE? (Y/N)..." GET CHOICE
read
IF UPPER(CHOICE) = "N"
CLEAR
EXIT
ENDIF
IF UPPER(CHOICE) = "Y"
CLEAR
SET COLO TO RG+
@6,22 SAY "INVENTORY DELETION"
SET COLO TO G
DELETE
PACK
SET COLO TO R+
@9,14 TO 11,45 DOUB
@10,16 SAY "THE RECORD HAS BEEN DELETED"
@11,16 SAY " "
WAIT
CLEAR
EXIT
OTHERWISE
?CHR(7)
LOOP
ENDCASE
ENDDO
LOOP
CLOSE ALL
ENDDO
RETURN
********************
* VIEW NVENTORY
********************
**PROGRAM TO LIST INVENTORY ITEMS
USE INVENT
CLEAR
C = 0
S =SPACE(2)
HEAD1 = "CODE "+ "CATEGORY "+ "DESCRIPTION "+  "QUANTITY -IN-STOCK
ì
,"+ "QUANTITY-RECEIVED "+ "SU-DATE "
?HEAD1
@2,1 SAY " "
GO TOP
L = 2
DO WHILE .NOT. EOF()
?CODE,S,CAT,S,TRIM(DESCP),S,QSTOCK,S,QREC,S,COST,RDATE
```

```
@L,2 SAY CODE
@L,7 SAY CAT
@L,16 SAY DESCP
@L,28 SAY QSTOCK
@L,45 SAY QREC
@L,58 SAY COST
@L,73 SAY RDATE
L = L+1
SKIP
C = C+1
IF C = 5
IF .NOT. EOF()
@23,23 SAY "PRESS ANY KEY TO CONTINUE THE REST..."
@2,60 CLEAR TO 20,60
L = 2
I = 0
DO WHILE I = 0
I = INKEY()
ENDDO
ENDIF
@2,1 CLEAR TO 23,78
@2,1 SAY " "
C = 0
LOOP
ENDIF
ENDDO
@23,1 CLEAR TO 23,79
@23,18 SAY "PRESS ANY KEY TO RETURN TO THE PREVIOUS MENU"
I = 0
DO WHILE I = 0
I = INKEY()
ENDDO
RETURN

***************************
PROCEDURE REPORT GENERATION
***************************
CLEAR
DO WHILE .T.
CLEAR
SET COLO TO R+/N
@1,4 CLEAR TO 4,70
@1,4 TO 4,70 DOUB
@3,22 SAY " R E P O R T   M E N U "
STORE SPACE (1) TO OPT4
SET COLO TO R/W
@5,5 CLEAR TO 23,69
@5,4 TO 23,70
@22,17 TO 24,58
```

```
@11,20 SAY "ISSUE REPORT.............[I]"
@13,20 SAY "SUPPLY REPORT............[S]"
@15,20 SAY "INVENTORY REPORT........[$]"
@17,20 SAY "EXIT....................[E]"
@23,18 SAY "PLEASE ENTER A CHOICE (I,S,$,OR E)[ ]"
@23,53 GET OPT4 PICT "@!"
READ
DO CASE
CASE OPT4 = "I"
DO PRINT
CASE OPT4 = "S"
DO PRINT2
CASE OPT4 = "$"
DO PRINT1
CASE OPT4 = "E"
CLEAR ALL
EXIT
OTHERWISE
@23,10 SAY "WRONG OPTION CODE "+OPT+" ENTERED"
WAIT
ENDCASE
ENDDO
SET COLOR TO
RETURN
*******************
*report on issue
*******************

set talk off
set echo off
set devi to prin
use ISSUE
go top
set cons off
N=1
L=1
STORE 0 TO TOT,TOT1,TOT2
do while .not. eof()
IF L=1
@L,1  say  cmonth(date())   +   str(day(date()),3)   +   ",  "  +
str(year(date()),4)
L=L+2
@L,25 say "AJAOKUTA STELL COMPANY LIMITED"
L=L+1
@L,25 SAY "   STORE ISSUE VOUCHER"
L=L+1
@ 1,1  say "ITEM No."
@ 1,5  say "VOC. No."
@ 1,13 say "VOCAB No."
@ 1,23 say "ITEM DESC."
@ 1,33 say "QTY.ISSD"
```

```
@ 1,41 say "QTY.INDTED"
@ 1,52 say "BALANCE "
@ 1,62 say "INDENT UNIT"
@ 1,72 say "EXTRACT "
L=L+1
ENDIF
@ 1,1 say str(n,3)
@ 1,5 say V_NUM PICT "99999"
@ 1,13 say VOC_NUM PICT "99999"
@ 1,23 say TRIM(DESCP)
@ 1,33 say QISSUED PICT "99999999.99"
@ 1,44 say QINDENT PICT "99999999.99"
@ 1,57 say QSTOCK  PICT "99999999.99"
@ 1,65 say ID_UNIT PICT "99999999.99"
IF EXTRACT
@ 1,76 say "EXT."
ENDIF
TOT1=TOT1 + QSTOCK
L=L+1
N=N+1
SKIP
IF EOF()
  EXIT
ENDIF
IF L=56
  EJECT
   L=1
ENDIF
ENDDO
L=L+2
@ L,10 SAY "TOTAL BALANCED = "
@ L,26 SAY TOT1 PICT "9,999,999.99"
set devi to scre
wait "printing job completed,press any key."
set talk on
set echo on
EJECT
return


***************************
*report on inventory
***************************

***this program prints inventory report
set echo off
set talk off
set score off
set devi to prin
use inventor
set cons off
```

```
N=1
L=1
store 0 to TOT,TOT1,TOT2,QREC,QISSUED
do while .not. eof()
 if L=1
  @L,1   say   cmonth(date())   +   str(day(date()),3)   +   ","   +
str(year(date()),4)
   L=l+2
   @L,25 say "AJAOKUTA STEEL COMPANY LIMITED"
   L=L+1
   @L,25 say " INVENTORY REPORT"
   L=L+1
   @l,1 say "ITEM NO."
   @l,5 say "CODE NO."
   @l,13 say "ITEM DESC."
   @l,23 say "QTY.RECD"
   @l,33 say "QTY.ISSD"
   @l,41 say "STOCK BAL."
   @l,52 say "INDENT UNIT"
   @l,62 say "EXTRACT"
   L=L+1
 ENDIF
 @l,1 say str(n,3)
 @l,5 say CODE PICT "9999"
 @l,13 say TRIM(DESCP) PICT "@!"
 @l,23 say QREC PICT "999999.99"
 @l,33 say QISSUED PICT "999999.99"
 @l,41 say STBAL PICT "999999.99"
 @l,52 say ID_UNIT PICT "@!"
 IF EXTRACT
    @l,66 say "EXT."
 ENDIF
 TOT=TOT+QSTOCK
 TOT1=TOT+QREC
 TOT2=TOT1
 L=L+1
 N=N+1
 SKIP
 IF EOF()
    EXIT
 ENDIF
  IF L=56
    EJECT
    L=1
  ENDIF
ENDDO
L=L+2
```

```
@L,10 SAY "TOTAL QUANTITY OF ITEM IN STOCK = "
@L,46 SAY TOT PICT "9,999,999.99"
set devi to scre
wait "printing job completed,press any key to continue"
set echo on
set talk on
set scor on
EJECT
RETURN
************************
*report on supply
************************

***this program gives report on supply
set talk off
set echo off
set devi to prin
use supply
go top
set cons off
L=1
N=1
store 0 to TOT,TOT1,TOT2
do while .not. eof()
   IF L=1
   @L,1   say   cmonth(date())   +   str(day(date()),3)   +   ","   +
str(year(date()),4)
   L = L+1
   @L,25 say "AJAOKUTA STEEL COMPANY LIMITED"
   L=L+1
   @L,25 SAY "GOODS RECEIVED NOTES"
   L=L+1
   @l,1 say "ITEM NOT."
   @l,5 say "VOCAB NO."
   @l,13 say "ITEM DESC."
   @l,23 say "QTY.INDENTED"
   @l,33 say "QTY. SUPPLIED"
   @l,41 say "BALANCE"
   @l,52 say "INDENT UNIT"
   @l,62 say "EXTRACT"
    L=L+1
 ENDIF
 @l,1 say str(n,3)
 @l,5 say VOC_NUM PICT "99999"
 @l,13 say TRIM(DESCP) PICT "@!"
 @l,23 say QINDENT PICT "99999999.99"
 @l,33 say QSUPPLY PICT "99999999.99"
 @l,41 say QSTOCK PICT "99999999.99"
 @l,52 say ID_UNIT PICT "99999999.99"
 IF EXTRACT
 @l,76 SAY "EXT"
 ENDI
```

```
    TOT=TOT + QSTOCK
L=L+1
N=N+1
SKIP
IF EOF()
    EXIT
ENDI
IF L = 56
  EJECT
  L = 1
ENDI
ENDD
 L = L+1
@L,10 SAY "TOTAL STOCK = "
@L,26 SAY TOT PICT "9,999,999.99"
set devi to scre
wait "printing job completed,press any key
set talk on
set echo on
return
```