AUTOMATED ASSETS AND LIABILITIES MANAGEMENT IN COMMERCIAL BANKS

A CASE STUDY OF

AFRIBANK NIG. PLC MINNA BRANCH

BY

ABRAHAMS MICHAEL BUNMY
PGD/MCS/269/97

**DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE
SCHOOL OF SCIENCE AND SCIENCE EDUCATION
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**

MARCH, 2000

AUTOMATED ASSETS AND LIABILITIES MANAGEMENT IN COMMERCIAL BANKS

A CASE STUDY OF

AFRIBANK NIG. PLC MINNA BRANCH

BY

ABRAHAMS MICHAEL BUNMY
PGD/MCS/269/97

A PROJECT SUBMITTED TO THE DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE OF THE FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF POST-GRADUATE DIPLOMA IN COMPUTER SCIENCE.

MARCH, 2000

i

APPROVAL SHEET

This project has been examined and found acceptable in partial fulfilment of the

requirement for the Post - Graduate Diploma in Computer Science of the Federal

University of Technology (F.U.T.) Minna.

MALLAM ISAH AUDU
PROJECT SUPERVISOR

DATE

DR. S. A. REJU
HEAD OF DEPARTMENT

DATE

EXTERNAL EXAMINER

DATE

DEDICATION

This project work is dedicated to my little daughter Sandra Abrahams as an inspiration for her to achieve greater heights in her academic pursuit.

ACKNOWLEDGEMENT

To God Almighty be the glory for granting me the grace, strength and wisdom to pursue this programme.

I want to appreciate the contributions of my project supervisor mallam Isah Audu for his efforts and guidance in the course of this study. I also want to acknowledge the contribution of the Head of Department Mathematics/Computer Science and other lecturers of the department.

My special thanks to my wife for her understanding; my little Sandra for her cooperation and A. O. Gandy for his support.

Finally, I wish to express my gratitude to Paul .A. Abuh, S. M. Ukata for their understanding and support; Mrs. H. M. Suleiman for her unalloyed support and encouragement. May God reward all of them bountifully (Amen).

ABSTRACT

Afribank Nigeria Plc., is divided into eight regions in view of its large number of branches. This large number of branches have hampered the full automation of their system into on line.

This study therefore, aims at analysing computerised procedure which is intended to replace the present partial level of computerisation system of the bank.

TABLE OF CONTENTS

CHAPTER ONE

CHAPTER TWO

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

CHAPTER ONE

1.0   BACKGROUND STATEMENT

1.1   INTRODUCTION

Assets and liabilities in banking circle refers to the entire resources or possession on the one hand of a bank, and obligations or debts owed by a bank on the other hand. The management of these elements proportionately by a trade-off or its balancing structure determines the strength and weaknesses of the bank. It also tells whether the bank will survive or not.

The Oxford Advanced Learners Dictionary defined asset as a property, owned by a person, company and so on, that has value and can be used or sold to pay debts while liability is defined as debts or financial obligations - a state of being liable by a person or a company.

In the context of the above definition the assets and liabilities of any commercial bank of which Afribank Nigeria Plc., is one is therefore, the core of this research work. Emphasis will be placed on Afribank Nigeria Plc.

The structure or composition of Afribank assets is not quite different from those of other commercial banks except that it's classification varies.

Today's banking is an off-shoot of the sixteen century banking which originated from the Italian Goldsmith who were working in London traditionally, as Goldsmith.

These Goldsmith in addition to their traditional duties engaged in lending. This they do by accepting the risks of keeping peoples valuable and money in consideration for a fee. They also trade with the money at their custody by lending to borrowers for a fee or income (interest). They also traded with part of the money in their possession.

This practice gave rise to the present day banking that is now highly computerised. The assets of these Goldsmith then, were the monies they borrowed out while the valuables and monies kept with them constituted their liabilities. Hence, assets and liability.

This initiative have today undergone several surgical development from the ledger days to the automated age. Such that, it is now survival of the fittest where the bank's are trying to outdo one another. And, it has led to a lot of competitive ideals and technological improvement for the benefit of the banks and their customers in particular and the global economy and financial services in general.

AFRIBANK NIGERIA PLC., was granted its banking license in October, 1959. Subsequently, it opened its first branch in Kano in 1960. The bank was on inception known as Banquet International Pour L'afrique Occidental (BIAO). It was then in Senegal where it was accorded currency issuing notes function (a central bank function) because of its dominant role in West Africa and region. The name later became International Bank for West Africa (IBWA) which has today metamorphosed into Afribank Nigeria Plc.

The bank has its Head Office at 51/55, Broad Street, Lagos and with a network of about one Hundred and Thirty One (131) branches across the Land. The ownership structure of the bank prior to 1976 was purely that of BIAO. It was in 1976 during the indigenisation period that the Federal Government of Nigeria acquired sixty percent of the share and BIAO left with forty percent. The Share Capital was also increased from ₦3.6m to ₦6.0m then. The first indigenous chairman was Alhaji .T. Galadima and in 1979 Mr. O. O. Olashore was appointed the first indigenous managing Director.

Presently, the ownership of the bank is widely diluted with staff having 10% BIAO 40% (held in trust by BPE) and 50% for the public. Its old name IBWA was finally changed to Afribank Nigeria Ltd in 1990 and Plc in 1991. The authorised share capital of the bank as at 31st December, 1997 is ₦575.0m.

The bank's branch network is about 131 and with about five subsidiaries ranging from Estate company, Insurance brokerage, Merchant banking, finance company to trustees and securities. Afribank Nigeria Plc. Therefore, performs the role of a holding company in addition to its traditional role of commercial banking

1.2 IMPORTANCE OF THE STUDY

Automation in today's banking is very paramount and essential. The vogue now within and without the industry is INTERNET. To compete favorably and remain relevant in the scheme of events, automation is the main thing now, particularly as we march into the 21st century.

Basically, one of the aims of automation or this vogue is on-line which enables customers to transact business at any branch of the bank. Such businesses may be deposit, withdrawals or confirmation of balances. So, the on-line system seems to be ultimate goal of the computerisation of the banks.

The system has the following advantages:

- It is a tool for effective and accurate processing of transaction, data storage and its retrieval with minimal effort.
- Better techniques and methods of controlling and obtaining large volume of business transactions necessary to supplement information storage and retrieval at optional load.
- Reduction in excessive paper work, redundancy and data repetition usually associated with manual operation.
- Summarises and condense information produced as a daily report.
- It allows confidentiality of information through the use of password and other security devices
- It improves on the overall performance of the bank's activities.

1.3 OBJECTIVES OF THE STUDY

The main objective of this research work is to improve on the level of automation of the bank particularly, the SAMBA application package which is constantly breaking down.

The study is also to improve on the inadequacies inherent in the existing system operation such as:

- Reducing to the barest minimum the frequent and incessant breakdown of the old system

- Providing a broad based system that will require less interference with the program as it is presently done.

- Highlight areas requiring immediate management action.

- Simplification of the new system such that it can easily be understood by the users as well as reducing paper work.

1.4 SCOPE OF THE STUDY

The scope of this study includes the functional control measures put in place by management and used to properly or effectively manage the assets and liabilities of Afribank Nigeria Plc. both at the Branch level and the entire cooperate entity. Such reports includes the general Ledger, Litigious Query, Nominals, Posting journals, Accounts balances and the proof journal.

Usually, studies of this nature requires time and a lot of resources. The greatest constraint of the researcher is that of time and financials, hence the scope is limited to what is obtainable at the branch level here in Minna.

1.5 SIGNIFICANCE OF THE STUDY

The significance associated with this study is the improvement to be recorded on the automation of the assets and liabilities management. This is to be achieved via trading off of the assets and liabilities in order to maximise the value of the bank.

It will also enable the branch to effectively monitor the use and control of the branch's assets as well as it's liabilities in order to achieve the overall objective of customer satisfaction and profit maximisation. The ability to successfully trade-off these components in a structured proportion is engendered by automation.

It will also reduce the inadequacies of skilled manpower and human limitation slow processing of records associated with the existing system.

1.6 METHODOLOGY

This research work is to analyse the developmental changes in the system currently in use the samba system of processing. This has some short comings that can be corrected or improve upon by the proposed system.

The new system intends to review the account opening procedures, lodgement and withdrawal procedures, recording, storing and retrieval procedures. The equipment's used in the old system are obsolete and constantly breaking down probably because of the volume of transactions involved, and the non-flexibility of the system to frequents changes or amendments intended to be corrected.

1.7 ASSETS AND LIABILITIES

1.7.1 ASSETS

The resources or possession (regarded as assets) of Afribank Nigeria Plc., Minna Branch is synonymous to those of other commercial banks. These assets are constantly or daily monitored to know the trend of the branch's performance.

Assets in question includes the following:

Cash in the Vault; Stamps and stamp duties; central bank balances (if in debit); Assets for collection, loans to individuals; savings; cheques and currents accounts in debit; Bankers payments (if debit) cheques to be paid (Debit); sundry debtors; suspense accounts; fixed assets and other assets.

Generally, the above assets are classified into five major component, that is:-

- Loans and Advances,

- Cash and Short term funds,

- Investment;

- Receivables; and

- Other Assets.

1.7.2 LIABILITIES

The financial obligations or indebtedness of Afribank Nigeria Plc., Minna Branch otherwise, known as liabilities which are been controlled through daily reports generated by computer includes the following:

- Balances with central bank (credit); savings, cheque and current accounts balances (credit); Bankers payments (credit); cheques to be paid (credit); sundry creditors; suspense accounts, Term deposits; provisions and reserves.

Broadly, the components above can also be grouped into five components and are:

- Deposit and current accounts (clients a/cs)

- Share capital and reserves

- Profit and loss

- Provision; and

- Other liabilities.

1.8 DEFINITION OF TERMS

This portion of the study attempt to shed more light on some of the key words used so far in the project. Some of these words may re-occur from time to time in this project work hence, the need to give their proper meanings as it relates to the study.

ASSET

This has been defined as any resources or possession belonging to a person, group of persons or corporate bodies. In order words, it is the property owned by a bank in the context of this study which have value and can be sold to pay off debts or used.

LIABILITIES

The word liabilities is regarded as financial obligations or indebtedness of the bank or that which the bank owed its customers or creditors.

MANAGEMENT

The ability of the senior or top level officials of the bank (saddle with the responsibility of overseeing the day - to - day running of the branch) to effectively supervise, control, and monitor these resources and obligations to achieve the overall objective of the bank through trade-off or structured balance at minimal cost is regarded as management.

AUTOMATION

This is defined as the use of automatic machines and equipments to do work previously done by people, by the Oxford Advanced Learners Dictionary.

Automated assets and liabilities management therefore, in the context of the above definitions can be said to mean an art of control and organising the business property and the debts of the bank through the use of computer machines in a good proportion, structured balance or trade-off; that best serve the interest of the bank towards the attainment of the overall objective of the bank, which is profit maximisation.

BANKING

Banking can be said to mean financial institution where the activities of financial transactions, receipts and payments of money, safekeeping of valuable items for a fee, advisory services, investments and other financial functions takes place.

1.9 SAMBA APPLICATION PACKAGES

Generally, Samba Package consists of three basic levels. That is, they are divided on the basis of their level of operation into three categories namely: Daily Batch processing, Weekly Batch processing and Monthly Batch processing.

DAILY BATCH PROCESSING (DBP)

The DBP (Daily Batch Processing) consists of three stages that is Batch 1, 2, and 3. in between batches 2 and 3 exist a silent batch called batch R detailed description on the DBP is given after the discussion of other batch processing below.

WEEKLY BATCH PROCESSING (WBP)

The major use of weekly batch processing is for the operation of the bank's interbranch Central Journalist usually called 'ICJ'. The batch accept capturing or imputed upcountry transactions into the system, store them, back them up and list them by producing, a hard copy. The transactions which are stored in a tape with the hard copy are now taken to the Nodal Centre. The Nodal Centres, are coordinating branches of all the ICJ branches under their area i.e. Having about eight to seventeen branches under them depending on the number of branches under the area. At the Nodal Centres, they collate all the branches backup tape, restore them into their system in succession, compare them with the hard copy to ensure their correctness. The Nodal Centres also backed up the collated data, produce hard copy before sending them to Lagos for consolidation. These back ups from the Nodal Centres with the

produced hard copies are now compared with the consolidated copies at the branch level and then consolidated copies at the branch level and then consolidated finally.

MONTHLY BATCH PROCESSING (MBP)

The MBP is further divided into Batch's M1, M2 and M3 respectively.

Batch M1 produces the monthly Historical file which consists of all the transactions that have taken place within the month and the balances on the respective accounts. It also produce the monthly credit engagement returns. This return shows all the facility granted by the branch, authorization of each of the accounts, expiry data, overstepping, last movement data and the outstanding balances.

The batch also prints the budget position review, cancellation of withdrawals from savings account by each customer for the month for the purpose of determining the monitor of withdrawals in the succeeding month.

Batch M2 does no other function apart from producing customers monthly bank statements in duplicate. One for the customer and the copy for the banks's retention as a referral copy. The statements shows all the transactions that have taken place for the month, current balance, charges on the account, last movement date, Names and addresses of the customers and their respective account numbers, the total amount of withdrawals and lodgement and the number of entries.

Batch M3 is specifically for house cleaning exercise. This it does by preparing some important file for the coming months. It clears all the garbage i.e. remove all

unwanted transactions such as closed accounts and dormant accounts from the important transaction files. It is also used for volume back-up and signature verification back-up.

BATCH 1

Samba 1 of this application package perform the following routine functions:-

-       Testing unvalidated batches

-       Correct or adjust the expiring dates of facility accounts on Samba 2 branches i.e. On line branches.

-       Preparatory for subsequent batches.

-       Check all enclosed tills at the end of the days operations

In addition to the Samba 1 functions, it perform the following:-

-       Produces the daily litigious reports.

-       It enables the daily working tape back-ups i.e. backing up important daily transaction files as at previous working day incase there is problem in batch 3 so that it can be fall back to.

BATCH R

Batch R is basically for Recovery. It uses the daily working tape to recover the previous day's operation and restore the same into the system.

BATCH 3

In batch three, the following are achieved:-

- Listing of all the rejected entries for the day.

- Producing the daily list of transactional entries.

- Producing the Proof Journal (PJ)

- Produces daily listing of Assets and liabilities.

- General Ledgers, Norminals and accounts balances

- All the accounts created and modified.

- Cash Management Services (CMS) daily accounts balances.

- Update of all necessary files.

SAMBA 1

Samba 1 is a centralised level of computerisation where operation of the bank is basically manual in terms of cash operation. All departments of the bank performs their transaction, journalised them and send these journalised vouchers in batches to the computer operator who captures them and produces hard copies at the close of business of the day.

SAMBA 2

This level of computerisaction is also referred to as ON-LINE. At this stage all transaction are on-line processing particularly, cash transaction that is withdrawals or deposits made as soon as any cash transaction is being made, be it withdrawals or lodgement the transaction is immediately being reflected in the account.

The rule guiding this level of operation is usually, debit before payment, that is every withdrawal's request must be punched into the system for updating into the customer's

account before handing over the cash withdrawn. Receipt before credit is another implied rule which means that in the case of deposit into an account (cash) the cash must first of all be received, counted and confirmed correct as indicated on the filled teller before imputing it into the system for capturing and updating.

SAMBA 3

Samba 3 is the re-engineered stage of Samba 2. And at this level, every operation of the bank is on-line processing. This on-line processing includes, processing of branch drafts and cheques to be paid, signature verification, standing order and the cash management services.

All the above three levels of the Samba operation are been used in Afribank Nig., Plc., depending on the location and size of the branch. Branches are group depending on the level of their operation, deposit base, and profitability into Grades 0, 1, 2, and 3 branches.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 COMPONENTS OF ASSETS AND LIABILITIES

(a) ASSETS

Asset have been defined in chapter one of this study. Emphasis will therefore be on those assets that constitute the properties and or belonging of Afribank Nigeria Plc., Minna branch and as it relates to the entire organisation.

Basically, the assets of commercial banks are virtually the same irrespective of the size, level of operation and their strength. The only areas of difference is in classification of the assets into groups.

Typically, Afribank Nigeria Plc, has it's assets classified under the following with their respective accounting Codes series.

ACCOUNT NAME:	ACCOUNT CODE SERIES
i. Cash	10
ii. Stamps	11
iii. Foreign Monies	12
iv. Central Bank Current Account (Debit)	13
ʀ. Local Bank Current Account	15 - 0
ʀi. Local Bank Current Account (Debit)	18 - 0

vii.	Assets for Collection	19
viii	Loans to Individuals	30
ix	Cheque Accounts	35
x.	Current Accounts	36
xi.	Sundry Debtors	46
xii.	Suspense Accounts	50
xiii.	Depreciation	54 - 1
xiv.	Provisions	54 - 2
xv.	Fixed Assets	66
xvi.	ICJ	88
xvii.	Computer Deferred	99

(b) LIABILITIES

This term has been defined earlier on and in line with that definition, the obligations of the bank relates to the classification hereunder:

ACCOUNT NAME	ACCOUNT CODE SERIES
Central Bank Current Account (Credit)	13
Local Bank Current Account	45 - 0
Local Bank Current Account (Credit)	18 - 0
Savings	34
Cheque Accounts	35
Current Accounts	36

2.2 CODING SYSTEM

For ease of reference, various accounting codes have been designed by the branch to describe and identify each of the asset and liability items. This simplify the working process of the system. It also enable easy communication and referencing between the system and the operator or user(s), either during posting of transactions, storing data or retrieving information.

Figures ranging from 0 to 9 are used in this coding system. Each class or group of assets and liabilities are accorded a particular code series and all related items of asset or liability falling in that group are further divided into sub-group. For instance, cash account is accorded accounting code series 10 (i.e. 10 - 000 - 000X) subsequent item in the group may now take 10 - 100 - 000 and so on.

Each coded item usually, has eight digits or figures as illustrated in cash account above. This language of coding is well understood by the system and the same principle for coding assets applies to liabilities.

2.3 ACCOUNTS CREATION

Having classified and coded all assets and liabilities of the branch into groups and sub-groups as explained above, accounts will then be created in the computer by the operator.

This account creation or opening must be preceeded by a duly completed form for that purpose, duly signed by the officer in charge and approved by either the Manager or the Deputy Manager, in the absence of the Manager. The form is in three steps under appendix.

The accounts so created are done in such a way that it display detailed information of the accounts such as account Name, Number, Amount Column. Date of creation last date of operation and account balances. This is done in readiness for the acceptance

of daily operational transactions which may be to update, store, retrieve, validate, close or block.

These creation are done in file form and data store on cumulative basis. To access any of the files requires punching only account number. Once the account is created, a computer index number is allocated to the file.

2.4 OBJECTIVES OF ASSETS AND LIABILITIES

Afribank Nigeria Plc., has a global vision and mission. The Minna branch of the organisation is just one of the outlets through which these vision and mission can be attained. And, to achieve these aims, the objectives of the branch must be clearly defined in line with the mission statement. Thus, to provide world class quality financial services that meets the business needs of their local and international clients using highly skilled professionals and modern technology. Their vision, from which the mission was derived is to be Nigeria's foremost financial services organisation.

The aim of the vision and mission are to attain the underlisted objectives through proper management of their resources (Human and Material) and their obligations by a trade - off; the use of modern technology and skilled professionals. the objectives includes:

- To achieve superior performance thus providing outstanding returns to their stake holders.

- To reduce the overall operational Costs of the bank (cost of doing business) in order to maximise their returns and compete favourably.

- Improve its overall performance, winning valuable customers for the branch, generate greater income for enhanced profitability.

- For the fully maximisesation of all its assets to achieve greater growth of the branch and the bank as a whole.

- In order to reduce the difficulties associated with the present system, make the new system more flexible and adaptive and to remain relevant in the industry by keeping the communication pace of time.

- For the improvement of the branch's operation and performance through improved technological know how, thereby keeping abreast of turbulent times, retain customers patronage and market share.

2.5 MANAGEMENT OF ASSETS AND LIABILITIES

The management of assets and liabilities are in three folds. The first fold involves generating and imputing data into the system. While these condition involves processing of the raw data inputted and output it. The output been the result. The last fold is the ability to read, understand and interpret the output of the entire system. This is where the bulk of the job lies - ability to read, understand and interpret results. This is the only meaningful stage to the decision makers.

Afribank Nigeria Plc., Minna has been successfully doing this over the years even though there are no permanent staffers and managers. The bank has been able to trade-off its assets with its liabilities in such a proportion that is comfortable and profitable to the branch in particular and to the bank in general.

In managing the assets and liabilities of the branch effectively, the inputted data are processed and an output generated in various forms depending on the nature of the report been sought. These generated output guides the knowledge and understanding of the management of the·branch. These reports highlights weakness and strengths. Areas demanding urgent and immediate attention of the branch's management.

In doing this and with regards to the lists of the branch's assets and liabilities, the following reports are devised for proper management. some are daily, some are weekly and others monthly.

- Assets and Liability Report

- General Ledger Report

- Litigious Quarry Report

- Posting Journal Report

- List of Entries Report

- Accounts Balances Report

- Nominals report

- Weekly Data Report

- Historical File Report

- Statement of accounts

- Engagement Reports

- Continuous Statistical Report

The above reports are the basic instruments employed to manage the assets and liabilities of the branch. Assets and liability. Litigious quaerry, Posting journal, List

of entries, General ledger, Accounts balances and Norminal reports respectively, are produced daily, weekly data reports prepared on weekly basis while Historical file, Statement of accounts and Engagement reports are monthly monitoring and control reports for management.

Assets and Liability report is a daily report which shows all the Accounts codes, Names and Summarised balances of the account 2 to account 99. The cumulative total balances for the year is indicated on the report for all the account as at the close of business on the day it is been printed.

It highlights those accounts that should not be in debit or credit that are in debit and credit respectively. Comparison of two days report will also reveal areas of improvement of the investigation. with this report, the management of the branch is fully armed for control and monitoring. The report summarises the total balances of all the branch's assets and Liabilities as at when printed, such as those detailed out in chapter one.

General ledger is another form of daily report that is computer generated. It shows the Account codes, Names, the days operational balances for all the accounts that were updated, total for the month, total for the year (cumulative for the month & the year) and the Net balances between the cumulative total debit for the year.

Items of assets and liabilities that were not updated or have no transaction will not be printed. This allows management to detect any sensitive entry(ies) that may be raised

and captured without his consent. It is a check on all the departmental operation of the branch.

The Litigious query report is also a daily printed report which shows all the accounts that were overdrawn at the close of business of the previous days. It shows the facility accounts that have overstepped their limit and by how much, expired facilities and all maintained bookings.

Litigious query is basically used to monitor the most important assets of the branch, that is, loans and advances. This is the core of banking and proper attention must be paid to this. This report indicates customer's name, account number, computer index number, date of operation, transactional entries and the carried forward debit balances.

It also indicates the limit of the facility of the accounts and those that have expired.

Posting journal report is used to reconcile the actual vouchers journalised and captured during the days operation. this reveals on matching the original vouchers with the journal, any entry that is not properly raised or journalised and those that are fictitious. This is aimed at detecting fraud easily.

The report indicates the batch number, voucher number, account number, date, amount and operator's name. It also gives the total of each batch of vouchers captured.

Another daily report used by management for control purpose is list of entries. It is used jointly with the posting journal and it shows the Batch, Voucher and Account code numbers, Operational date, Reference number, Value date, Amount and Customer's name. This enables the management to check all entries of the previous day's transaction that have been captured correctly, wrongly or omitted.

Account balances report are produced daily by the computer to give the exact position of all the accounts opened to date within the branch. It is used to honour or dishonour instruments issued by the respective account holders depending on their daily balances on the report.

Litigious is another way of controlling and monitoring the accounts against granting of unauthorised credit, such that liability does not revert to a worthless assets that will eventually be lost and provisionised. Details of the report are Account number, Name, Last entry date, Current balance for all the normal accounts. But, for facility accounts it displays their authorisation (limit), available balance and overstepping.

Nominals are produced daily in form of accounts statements for all the bank's expenses, suspense accounts (Debit and Credit) for accounts department and other departments, ICJ, and for some valued customers' account. It is more or less like a statement of account where closing balances of each account from the previous days transactions are brought forward. The days transactions are then posted and the balances updated.

Weekly data are prepared every Fridays manually, to give the position of the branch as at that day. the data used to prepare the report are generated by the computer and as reflected on the asset and liability report. A copy is also faxed to Regional Office for their own control and supervision of the branch.

Historical file is usually a monthly report which shows all the transactions on all the accounts in the branch (from account 2 to account 99) for the whole month and the closing balances as at the end of the month (last working date of the month).

Statements of accounts report are printed like the Historical file and usually in duplicate. Originals are issued to customers and the bank retain the duplicate. It gives the exact bank position of the accounts of each customer at the end of the month.

Statement can also be generated daily depending on the strength of the account holder. Some corporate entity collects theirs daily and some weekly. This they used in planning their cash flow projections.

Engagement report is generated monthly and all overdrawn, unauthorised, and unformalised credit accounts are shown. The limits of approved facilities, their expiry date, last movement date, current balance, security for the facility and level of approval. Copies of these are sent to regional Office, Head office, Inspectorate department and a copy retained in the branch.

Continuous statistical report is a monthly return report on all approved facility accounts. This is used to monitor the performances of the accounts that are doing well or not. It is a very good device. It signal the branch on when to recall an asset that is deteriorating., assets that should be enhanced or the ones that needs restructuring.

The report shows the month of operation, year, customer's name and account number, branch, highest debit (lowest credit), lowest debit or highest credit, average highest (lowest), total monthly debit, total monthly, average monthly overdraft turnover in days and the current monthly balances.

2.6 STAGES OF AUTOMATION

Different organisation have different types of system automation depending on the size or level of its operation, the need of the organisation, what it intends to achieve (objectives), material and manpower resources available and their financial strength.

Afribank Nigeria Plc., Minna branch in its bid to remain relevant has been automated from inception. The automation of the branch is however in a stage of the SAMBA system. The system hardware is either the BULL or UNISYS Computer.

Using the samba application package enables the branch to operate in stages depending on the level of operation of the branch, the criteria for determining which stage to be installed are size, operational level, performance in terms of profitability, location, and deposit base among others. The various stages of this automation (samba application) has been described in chapter one of the study.

2.7 DATABASE MANAGEMENT SYSTEM (VERSION IV)

This is a high speed filing system that manages the data base. Data base is said to be collection of important data about a firm less duplication, serving as a proof of information for several users. The software useful to manage the data base is called database.

Database management system is on computer application package (program) that is used to maintain and create base (set of files in a cabinet) to extract information from it. It is therefore an ideal software for management of bank's assets and liabilities.

2.8 COLLECTION OF ASSETS AND LIABILITIES DATA

Data is a raw fact that is gathered and process into what is regarded as information. With this, we can understand the background on which assets and liabilities of banks have their analysis for management decisions.

Since we have understood data as the foundation of any information, it becomes an important aspect of management. Preliminary information such as accounts name, number, reference number, amount column, data, originating department, amount and balance column are first collected at the accounts creation section in cash department, relevant forms are then filled in steps 1 and 2, signed by two signatures and then transferred to the computer room for capturing.

Transactions carried out on daily basis are then capture into the system using the accounts number code and accounts name earlier created. Summarised information are

then generated in report form and used to analyses which management attention is required.

2.9 FILING SYSTEM

There are three types of filing system and it includes:

(i) Savings Account Filing

(ii) Current Account Filing

(iii) Other Account Filing

i. *Savings Accounts Filing*

It records in exact chronological order according to the accounts number allocated to each accounts holder in order in which they open their accounts. They are usually of eight digits with computer digit column(CD). That is, 34-000-000A; 34-000-001B; 34-000-002E.

Advantages associated with this filing system are that:-

- It permits the use of passbook with passport photograph.

- Withdrawals can only be made by the account holder.

- It minimises fraudulent practices on the system.

The demerit includes:-

- Customer has to personally visit the bank for any withdrawal.

- No use of cheque book, therefore cannot be used to transact businesses.

ii.   *Current Account Filing*

Usually, this also has eight digits with provision for computer digit (this is alphabet). Current accounts filing are of two types, that is; cheques account and current accounts. The cheque accounts are personal current while the current accounts are basically business accounts.

The filing system is differentiated from one another by the first two digits. For example, cheque accounts could be: 35-000-000C; 35-000-001B; 35-000-002A while business current accounts are 36-000-000A; 36-000-001P; 36-000-002F.

The advantages of this system are that:

-    No use of passbook

-    Cheque books are used to operate the accounts.

-    Statements of accounts are generated monthly and as at when required for reconciliation

-    Overdraft and other short term facilities can be granted.

The demerit of the system are ghat:

-    Fraud can easily be perpetrated.

-    Cheque leaves can be stolen for fraudulent withdrawals

iii   *Other Accounts Filing*

In this system, filing is done on departmental basis and internal working general accounts classification approach. For instance, the accounts classification for each department is as follows:

Department	Department Code
Clearing	02
Cash	04
Accounts	6
Credit	10
Transfers	24
Icj	28

The creation of the accounts in each of these departments are then as follows:

CASH DEPT	10 - 000 - 000 X
	13 - 000 - 000 L
	46 - 304 - 000 P
	47 - 304 - 000 A
	50 - 504 - 000 C
	51 - 504 - 000 F
CLEARING DEPT	19 - 100 - 000 E
	19 - 200 - 000 F
	46 - 302 - 000 G
	47 - 302 - 000 P
	50 - 504 - 000 A
	51 - 504 - 000 X

The above approach is used in all other departments to code their transactions.

The general internal working accounts classification used for filing is already discussed in the earlier part of this chapter. This includes all the Customers accounts, Nominals, Assets, Liabilities, Profits and Loss accounts, Expenses accounts and Suspense accounts. It includes all the accounts discussed above and several others like:

Accounts Number	Accounts Name
46 - 500 - 000 Q	Passage Account - ICJ.
47 - 324 - 000 I	Passage Account - Transfer.
47 - 500 - 000 J	Passage Account - ICJ.
53 - 330 - Series	Expenses on Office Furniture & Eqt.
53 - 3420 - Series	Electricity, Gas & Water.
53 - 170 - Series	Medical Expenses
54 - 108 - Series	Depreciation on Vehicles
55 - 595 - Series	Commissions
56 - 509 - Series	Accessory Profits
57 - 359 - Series	Other Exceptional Profits
88 - 005 - 031	Interbranch Central Journalist
99 - 999 - 080	Computer Differed Account

It is from the above three classes of filing data base, that information are generated and condensed into assets and Liabilities used for management information purposes.

2.10 ADMINISTRATION OF ASSETS AND LIABILITIES

The assets and liabilities of the bank is being administered by the Branch Manager through the departmental heads. The Branch Manager is responsible for the general administration of these departments. Each departmental head is assigned duties on the basis for which the departments were created. For instance, clearing, cash, accounts, credit, forex, transfers.

Each of these department heads have subordinates working with them and at the end of each days transaction, filing are done using the account names and numbers. The departmental heads supervises all activities in their departments as well as monitoring the assets or liabilities at their disposal.

The operation of cash departments starts from the accounts opening, creation of the accounts after allocating account number withdrawals and payments are made and balance updated. Every deposit made by a customer is a liability on the bank and withdrawals are assets.

The administration of these activities are being supervised by the operations or deputy manager and a cash officer who works directly with him. They jointly manage and administer the assets and liabilities. This is what the project tends, to simplify for easy analysis, understanding, and decision making.

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

The effectiveness and efficiency of any automation project is usually measured in terms of its response time, accuracy of information, integrity or security of the system, flexibility or adaptability to change, et cetera.

An organisation that supports efficient information system is geared towards spontaneous response to significant events within its environment, and is secured against environmental hazards and can easily adapt positively to changing environments. System analysis and design therefore, can be said to include the analysis (study and interpreting the findings of the study) of an existing system in order to identify the problems of the system and proffering solutions to the problems as well as fashioning out an improved new system.

Efforts was geared towards the designing of a new improved system that promotes better understanding, enhance result oriented, and with minimal problems, in comparison to the existing system.

3.2 PROBLEM IDENTIFICATION

There is hardly any system, whether closed or open that does not have one form of problem or the other.

Ordinarily, Afribank Nigeria Plc., like any other financial institution has the duty of safe keeping monies on behalf of their customers, honouring their financial instruments when presented as well as managing its assets and liabilities generally.

It was observed that in the course of discharging duties, the underlisted were identified as bottleneck in the system.

(i)   Inability to validate cheques/other instruments for genuiness and availability of funds at any of its branches within a few minutes

(ii)   Inabilities of its customers to withdraw within a few minutes from another branch of the bank different from where the customer's account is domiciled.

(iii)   Untimeliness and too many documentation at the point of establishing a relationship.

(iv)   Too many paper work which may be prone to fire hazard and consequent destruction of vital documents.

(v)   Constant breakdown of the present system and excessive maintenance cost of the system.

(vi)   Obsoleteness of the current system equipments which are not in time with contemporary banking.

3.3   FEASIBILITY STUDY

In order to design a new system, the developer of the system must first of all embark on reasonable feasibility study. It is therefore very paramount for this study.

Feasibility study focuses at the existing system or the system currently in use. It also highlights problems asscciated with the system and designing an alternative approach for the system. This is achieved by gathering and interpreting data in order to evolve proper understanding of the system, diagnose the problem associated with it and proffering solutions. This outcome is used to determined what must be done to solve the problems of the existing old system.

The existing system may be manual or partially automated. To this effect, other possibilities or alternatives may be outlined compiled with the cost-benefit analysis of the option and a recommendation of the solution to the management.

3.4 PROJECT FEASIBILITY

For the purpose of this study, the existing system of partial computerisation and samba application packages was analysed on the basis of:

1. Operational Feasibility;

2. Technical Feasibility; and

3. Economic Feasibility.

1. **OPERATIONAL FEASIBILITY.**

This indicates that the existing system is slow and not a reflection of the present day banking as it involves a lot of delay, paper work and almost manually in its operation. The proposed system in comparison to the old system which will be on-line with a D-base application package is faster and more reliable with less incidence of breakdown.

2. TECHNICAL FEASIBILITY

The proposed system cannot be done using the current equipment in view of its almost obsolete nature. Using the existing software technology may also not be in tune with the present day challenges of the banking industry. The available personnel may have to be re-trained and re-orientated if the system is to succeed. Alternatively, the operation of the new system should be done by well experienced personnel with both sound educational background and on the job experience in computer science as against the old practice of engaging just anybody as operators. This will arrest the present decline in efficiency and courteousness of the bank.

3. ECONOMIC FEASIBILITY

This basically analyses the cost-benefit ratio of the system proposed i.e. cost of implementing the system with the associated benefit. It is viewed from three perspectives:

(i)   Development cost;

(ii)   Operational cost; and

(iii)   Maintenance cost.

i.   *Development Cost*

This involves the actual total cost of installing the computer such as the cost of the computer hardware and other associated cost of installing the

software and its accessories. After a careful cost and benefit analysis the estimated unit of the computer required is Ten, one streamer, one printer and one uninterrupted power supply (PUS) and stabilizers and are all valued at about ₦3.3m

ii. *Operational Cost*

After the installation of the new system it will have to be put in use or make operational otherwise, it's purpose will be defeated. The cost of doing this is regarded as operational cost. And this involves the cost of employing at least, one programmer and one analyst. There may be no need to employ supporting staff as those presently in the system are capable of operating the system after training.

The estimated salary per annum of the programmer and the analyst will be in the region of ₦260,000.00 and ₦210,000.00 respectively. The cost of training of eight cashiers for two weeks two cash officers, one deputy manager for one week and the manager for three days is estimated at ₦876,500 as per details below:

Manager's Training	26,500.00
Deputy Managers	30,000.00
2 Cash Officers Training	70,000.00
8 Cashiers Training	280,000.00

1 Programmer	260,000.00
1 Analyst	<u>210,000.00</u>
	<u>876,500.00</u>

Whether a new system is introduced or not the salaries of existing staff would be paid so, it is a fixed cost not relevant for this estimates.

iii. *Maintenance Cost*

This cost is the routine maintenance cost of the newly installed system. It may also be referred to as enhancement cost. The estimated cost of maintaining the new system will be relatively cheaper since the equipments are quite new. The estimated cost of doing this is in the region of ₦250,000.00 p/a and it includes, stationeries, electricity and servicing.

Other advantages associated with the new system will includes reduction in:-

(i)   Cost of Stationeries

(ii)   Cost of Servicing

(iii)   Cost of Repairs as a result of constant breakdown.

(iv)   Spending on Overtime that is Recovered.

(v)   Timeliness.

3.5 OBJECTIVES GUIDING THE INVESTIGATION

In system analysis, problem identification is the starting point of a system's life-cycle. Ability to therefore, identify this problem permits further analysis. Once the problem is discovered the design of the new system can be carried out. On the basis of the above, the following objectives were used as a guide in this investigation:

(a)   Reliability or durability of the system

(b)   Timeliness in information preparation, and its accuracy

(c)   Eliminates rigidity in the system.

The above objectives were use as a guide in the investigation and were reflected in the design of the new system from the implementation plan to the conversion stage.

3.6 THE CURRENT SYSTEM

The system will be partial automation using the Database Management System (dBASE IV) as the language of communication.

Based on the principles of reasonable cost, flexibility and reliability, the new system of assets and liabilities management is a customised type that allows further integrating of other aspect of automation into the system when the need arises.

The new system have all the features of a user-friendly system with the feature simplified for the operations and user-staff involved in the operation of the system (see Appendix I for the system menu).

3.7 REQUIREMENT SPECIFICATION

This is divided into two for easy identification:

(i)   Software Requirement Specification

(ii)   Hardware Requirement Specification

i.   SOFTWARE REQUIREMENT SPECIFICATION

This involves the type of software that is to be used. The software is in the

internal structure of the computer and it includes:-

        (i)   MS-DOS Version 6.22

(ii)   Dbase IV

(iii)   DOS base Networking Operating System (NOS)

ii.   THE HARDWARE REQUIREMENT SPECIFICATION

This is the physical part of the computer system and they are:-

(i)   1024 Kb Random Access Memory (RAM)

(ii)   40Mb Hard Disk

(iii)   Printer 132 Column Line Printer

(iv)   SVGA Monitor with Colour Capabilities or Networking System

(v)   Sevens work station, one in each of the four cubicles, cash officers

        table, Deputy Managers and the Branch Manager.

3.8 COST BENEFIT ANALYSIS

After details sampling of the different hardware component available, the following

cost was estimated for the new proposed system under the following headings:

3.8.1 *SYSTEMS COST*

a. **Development Cost:**

System analysis and design - the job was done by the researcher and other volunteers who do not take any monetary reward for their contributions.

b. Software development and implementation for 16 weeks this was done by four people including the researcher. It took the team about 625 hours to complete the task and the rate charged per hour was ₦150.00. This amounted to ₦93,750.00

c. Equipment purchase hardware, such as personal computer (PCS), printers, stabilizer et cetera and the cost of installation amounted to about ₦3.3m (previously stated in the study).

d. Personnel training for 2 weeks, one week and 3 days for cashiers, cash officers and the Deputy Manager respectively on the operation of the new system will cost ₦876,500.00 as previously calculated under operational cost.

e. System operation cost per annum using the following operational heading are:

(a)	Equipment maintenance	75,000.00
(b)	Program maintenance	50,000.00

(c)	Utilities - Electricity, Diesel	96,000.00
(e)	Miscellaneous	29,000.00
	Total Per annum	**₦250,000.00**

The total cost of operating the new system summarised below:

(i)	Software Development/Implementation	93,750.00
(ii)	Acquisition of Equipment	3,300.000.00
(iii)	Personnel Training	876,500.00
(iv)	Operating Cost	250,000.00
	Total Cost	**4,520,250.00**

3.8.2 *SYSTEM BENEFITS*

(i) Saving from employing additional personnel since no more hand may be required for the work load.

(ii) Savings from engaging the services of the old staff whose salaries are fixed and does not relate to the introduction of the new system.

(iii) Operating time saving as records are made available timely.

(iv) Reduction on stationeries expenses.

(v) Reduction in overtime claims.

These savings will impact positively on the branch through.

(a) Better planning of job routine and schedules

(b) Prevent carrying two many paper work and the misplacement of some vital records.

(c)   Security of records and customers' secrecy.

(d)   Cater for future expansion of the branch

(e)   Encourages and challenges the staff to put in their best.

Other benefits associated with the new system may not be quantifiable in monetary terms as they are qualitative. However, the change will impact immensely on the overall performance of the branch.

3.9   INPUT SPECIFICATION

Input data are provided from the creation form coded CRF step 1 to 3 (see appendix). This form contains details information of each customer that can be modified or updated from time to time.

The filling of this form is being done by the accounts opening officer which is derived or obtained from the customer at the point of establishing the relationship.

3.10 OUTPUT SPECIFICATION

The output is what is expected to be produced by the new system. This could be viewed by displaying on the screen or printed out from the printer to obtain the hard copy.

The following are the type of output that can be operated from the system:

(i)   Accounts balances

(ii)   Posting Journals

(iii)   Litigious query

(iv)   General Ledger

(v)   Assests and liabilities

CHAPTER FOUR

4.0   SYSTEMS DEVELOPMENT AND IMPLEMENTATION

4.1   INTRODUCTION

Software is a term used to describe all written programs which are used in a particular computer installation. It is a program procedure or rules and any associated documentation pertaining to the operation of a computer system. Software development entails series of activities or processes that should be carried out in the cause of developing a new system. The software development begins with the laid down structure in general design and detailed design of the automated system.

The design determine the appropriate language for implementing the system. However, since system life cycle is all about system development, the software development is a bye-product of the system development. When a system is on ground, the fool that automate the system is software. Hence, the stages for their development are interwoven.

1.2   CHOICE OF LANGUAGE

'omputer language is a means of communicating between programmer(s) and the)mputer programmer that use the language to instruct computer on how certain task job should be done.

is choice of language depends on the following:

i.   Type of task or job

ii.   The application of the task or job

iii.   Volume of data element

iv.   The structure of files and records

v.   Complexity of the task or job.

In this automation of the system, Database Management System (dBASE IV) is the language of choice adopted for implementation. The choice of dBASE IV is based on its high speed filing system and its ability to manage database effectively. It is also capable of maintaining and creating the database to extract information from it. It is simple to understand by its users and an ideal software for management information system (MIS). It is also very interactive (user-friendly) with a simple procedure orientation.

The Database Management Version IV used in this program is known as Dbase, provided along with Disk Operating system (DOS) from microsoft (MS-DOS). It is provided with the following features:-

        (a)   Bits

        (b)   Character

        (c)   Field

        (d)   Record

        (e)   File

        (f)   Data Base

4.3   SOFTWARE DEVELOPMENT AND TESTING

In the course of developing this program or software (Assets and Liabilities) the following essential stages were followed:

i.   UNDERSTANDING THE PROBLEM

The programmer needs to know what exactly the program is to do and work from a program specification of the banks assets and liabilities. The specification in this system are:-

(a)   The need for data base.

(b)   The systems recording

(c)   Updating daily transactions

(d)   Perfect control of program and high restriction.

(e)   Types of files and record processing need.

Generally, program specification defines the inputs, processing and output. A good specification will define inputs, processing and output. It will normally, specify what is needed by giving the exact relationship between output and inputs from which they are derived rather than prescribing how the program should be written.

ii.   PLANNING THE METHODS OF SOLUTION

The method of solution is prepared using a flowchart for the design of the source program (see Appendix III). This flowchart was used to generate the source programs. These programs are separated into different parts called

"Procedure and modules' (See Appendix II). Each procedure is tested separately and linked together as a whole by a process called "Integration". The record system is broken down into simple and more manageable tasks in a step fashion. The module section deals with the report generation output.

iii. TYPING THE INSTRUCTION IN A PROGRAMMING LANGUAGE

This is the last step of step-wise refinement. The instruction design in a flow chart are converted to a programming language called Dbase.

iv. TESTING THE PROGRAM

Once a program is written, it has to be subjected to various tests that have been written out and transcribes correctly. These tests reveal errors which are immediately corrected. Areas tested include:

(a)   Unit Testing

(b)   Integrating Testing

(c)   System Testing

(d)   User Acceptance Testing

This program has been tested for A to C above and D is left for the user to execute.

4.4   SYSTEM TESTING

This testing ensure that the individual programs have been written correctly and that the system as a whole will work with the link between the programs in a suit. There must be coordination with clerical procedure involved. To this end the system must provide the necessary list data as follows:

(i) PROGRAM TESTING

Test data is supplied to ensure that all possible contingencies (as specified in the system specification) have been catered for by the programmer. Expected results of the test is worked out for comparison purposes.

(ii) PROCEDURE TESTING

This ensures that the whole system fits together as planned. This involves the clerical procedure which preceeds input and output procedure. Over timing and ability of staff to handle the anticipated volumes will be under scrutiny.

4.5 CHANGE-OVER PROCEDURE

Change over procedure is the process of executing the new system vis-a-vis the old system:

(i) Parallel

(ii) Direct

(iii) Pilot

i. PARALLEL

It is the process of running old and new system concurrently using the same inputs. The outputs are compared and reasons for differences resolved. Output from the old system continue to be distributed until the new system has proved satisfactory. At this stage the system is discontinued and the new one takes its place.

ii.   **DIRECT**

The old system is discontinued altogether and the new system becomes operational immediately. The direct method is adopted for this research work because the new system is:

-   Less expensive

-   It is more reliable and effective

-   The calibre of staff involved is high and do not require any further training

iii.   **PILOT**

This involves the changing over of the part of the system at a time either as parallel or direct. That is, a variation of either of the two methods previously discussed.

4.6   STARTING THE SYSTEM

The system can be started by carrying out the following steps:

i.   Boot the computer

ii.   At C-prompt, type CD\ALM and press ENTER key

iii.   Type DBASE and press ENTER key

iv.   At the dot prompt, type DO ALM and press ENTER key

At this point, an introductory screen represented by Figure I (in Appendix I) appears after which the system prompts the user to enter the password. On entering the correct password, the main menu appears on the screen as shown in Figure II.

4.7 DESCRIPTION OF THE MENU STRUCTURE

The menu structure is designed in such a way that options are displayed with each representing a specific operation provided in the system. The system has five options in its main menu as represented by Figure II in the appendix. These options are as follows:

i.   Accounts creation

ii. Accounts Modification

iii. Accounts Closure

iv. Daily Transaction

v.   Reports Generation

v.   Exit Main Program

i.   ACCOUNTS CREATION

The accounts opening officer, each departmental head or their delegates collect accounts creation form and enter all the information into the system data base for the respective accounts to be created. The format of the form is as shown in Figure III.

ii. ACCOUNTS MODIFICATION

The procedure is same as in above except that this does not affects the totality of information in data base. It is used for the purpose of modification incase the need arises for changing the content of a database. The format of this is presented in Figure IV.

iii. ACCOUNTS CLOSURE

This becomes necessary when any of the accounts earlier created is no larger required in the system database. The presentation of this screen is as displayed in Figure V.

iv. DAILY TRANSACTION

The daily transaction is used to update all the respective files or accounts in the data base. Every transaction that takes place daily is entered into the system by the use of the Daily Transaction option using the accounts number created for each transactions. Its format is as shown on Figure VI.

iv. REPORTS GENERATION

This option is required to be activated for the purpose of generating hard copy reports. As shown in Figure VII in Appendix 1, the new system is designed to produce 5 types of reports.

v. EXIT MAIN PROGRAM

This is the last option in the main menu and it is used to quit the system. This is always required when the user is through with the operation of the system at any point in time.

CHAPTER FIVE

5.0 SUMMARY AND CONCLUSION

5.1 DISCUSSION

An outdated old system could be made new and useful by system analysis and design. It can therefore be interesting when you see such an old system bouncing back to life once again.

Afribank Nigeria Plc., Minna branch's method of managing their assets and liabilities prior to the commencement of this study can be described as "Archaic" because of the associated problem and difficulties encountered with the system, particularly, in this computer age.

The analysis and design of the automated assets and liabilities management system has undergone a computer system life cycle. This analysis was through with the aim of identifying associated problems, the feasibility studies carried out was to determine how feasible or viable the system would be. The cost and benefit analysis done was aimed at the benefit of the new system to the organisation.

The emergence of this automation will help in eliminating or reducing minimally most of the problems or difficulties associated with the old system as well as improving its performance. Even though the new system has obvious advantages over the existing system, it is not without its own constraints, such as, Administrative bottlenecks in getting approval for the new system from both the regional office and the Head office.

It is capital intensive and the finance of the automation may be slowed or delayed. It may even be difficult to carry out. The operating result of the branch and that of the bank as a whole will be reduced as a result of increased realisation of the new system.

Logistic constraints and power failure can frustrate the implementation plan of the new system.

5.2 LIMITATION

There are unavoidable constraints that limits this project. The limitations may range from that of time to financials. The limitation of the project can be summed as follows:-

1. The project is designed to handle most of the financial activities of the branch. Some of the reports generated by this design for effective and accurate performance of the system includes:-

   (a) Accounts Balances

   (b) Account Journals (posting Journals)

   (c) Litigious Query.

   These in themselves are not exhaustive and it becomes limitation as a result of time factor.

2. Most of the entries are done manually. This could result to errors due to human limitations.

3. End of the Month/Year data processing is not included in the program.

4. The system can only be implemented on stand alone PCs

5. The system is designed using dBASE IV, hence it can not work outside dBASE IV. That is, the system must be implemented where there is dBASE IV programming language.

5.3   CONCLUSION

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

It is therefore rational to introduce an improved application package like the Database System in storing and retrieving information as well as processing same in Afribank Nigeria Plc in order to enhance the overall operations and performance of the bank.

5.4   RECOMMENDATION

Based on the researcher's findings, it was discovered that Afribank operate on a large scale and therefore require information for effective performance. In view of this need, the manual system of recording and processing data is not fast enough in obtaining information for prompt decision.

The new system has carefully looked for a more advantageous way by which information can be achieve more accurately, timely and efficiently.

It is therefore recommended that bank (Afribank Nigeria Plc.,) should introduce the designed system - AUTOMATED ASSETS AND LIABILITIES MANAGEMENT into their operation for accuracy, good quality output and effective and efficient operation which will improve the standard of the bank as well as enhancing the attainment of their global vision and mission.

REFERENCES

1. **ABDULRAHEEM, KOLA**   Database Management IV Course CPD 726 Handout for PGD Student in Computer Science.

2. **AFRIBANK NIGERIA PLC.**   Credit Manual Valume 1.

3. **AFRIBANK NIGERIA PLC.**   Manual of Produre (MOP).

4. **AYO, C. K.**   Computer Literacy (Operations and Application) First Edition. By Alanukitan Commercial Press Nig. Ltd. Egbe, Kogi State.

5. **BADMUS, R.O.**   Systems Analysis and Design Course CPD 726 Handout for PGD Student in Computer Science.

6. **AJAKAIYE D. A.**   Effective Utilisation of Management Reports with Exphasis on Computerised MIS.

APPENDIX I

A S S E T S   A N D   L I A B I L I T I E S   M A N A G E M E N T

A   PGD   P R O J E C T

SUBMITTED TO THE DEPT. OF MATHS/COMPUTER

F U T,   M I N N A.

BY

MR. M. B. ABRAHAMS

REG. NUMBER : PGD/MCS/97/269

FIGURE I

```
+--------------------------------------------------+
|        A F R I B A N K      N I G . P L C        |
|   AUTOMATED ASSETS AND LIABILITIES MANAGEMENT    |
+--------------------------------------------------+
```

```
+----------------------------+
| ===== MAIN  MENU ====       |
| - - - - - - - - - - - - - - |
|  ACCOUNT   CREATION         |
|  ACCOUNT  MODIFICATION      |
|  ACCOUNT    CLOSURE         |
|  DAILY TRANSACTIONS=>       |
|  REPORTS GENARATION=>       |
|  EXIT   MAIN   PROGRAM      |
+----------------------------+
```

Press first letter of menu choice, or highlight and press <Enter>

FIGURE II

Date: Wed 19 May 1999

```
+===============================================+
‖              procedure open account           ‖
+===============================================+
```

```
+===================================================================+
‖Customers's Surname:  ABRAHAMS        Customer's First Name: MICHAEL ‖
‖                                                                    ‖
‖Customer'S Initials: M.B.      Customer's Address: FLAT 27, CBN QTRS, MIN‖
‖                                                                    ‖
‖Type of Account   :  CHEQUE            Customer's index: 65117803   ‖
‖                                                                    ‖
‖Customer's Account Number 35000011A                                ‖
‖                                                                    ‖
‖Department in charge:  04        Branch code:  080    Residence code : 00‖
‖                                                                    ‖
‖               Data ok ? [Y/N/Q] N                                  ‖
+===================================================================+
```

Enter Y to continue : N for correctio : Q to quit

FIGURE III

60

Date: Wed 19 May 1999

```
╔═══════════════════════════════════════╗
║ Account modification section - step 1 ║
╚═══════════════════════════════════════╝
```

Customers's Surname: ABRAHAMS   Customer's First Name: MICHAEL

Customer'S Initials: M.B.   Customer's Address: FLAT 27, CBN QTRS, MINN.

Type of Account   :   CHEQUE   Customer's index: 65117803

Customer's Account : 350000'11A   Authorisation   0

Department in charge: 04   Branch code: 080

Data ok ? [Y/N/Q] N

Enter Y to continue : N for correctio : Q to quit

FIGURE IV

Date: Wed 19 May 1999

```
╔═══════════════════════════════════════════════╗
║ Account closing   section - step 1            ║
╚═══════════════════════════════════════════════╝
```

Customers's Surname: ABRAHAMS   Customer's First Name   :MICHAEL

Customer'S Initials: M.B.   Customer's Address:FLAT 27, CBN QTRS, MII

Type of Account   :   CHEQUE   Customer's Account index: 65117803

Department in charge: 04   Branch code: 080

Are you sure of closing this Account ? [Y/N/Q] N

Enter Y to close : N to try again : Q to quit

'

FIGURE V

'

62

```
+--------------------------------------------------------+
|            A F R I B A N K    N I G . P L C            |
|                                                        |
|                    M I N N A                           |
|                                                        |
| CURRENT/CHEQUES ACCOUNT WITHDRAWAL/DEPOSITE SECTION     |
+--------------------------------------------------------+
```
                    Date: Wed 19 May 1999

   Customers's Surname: ABRAHAMS   Customer's First Name :MICHAEL

   Customer'S Initials: M.B.   Customer's Address: FLAT 27, CBN QTR
MINNA
   Type of Account   : CHEQUE   Customer's Account :   35000011A

   Department in charge: 04   Branch code: 080 Balance :   50000

 Current Balance =:   300000
 Transaction amount: 200000

FIGURE VI

63

```
╔══════════════════════════════════════════╗
║          A F R I B A N K    N I G . P L C ║
║  AUTOMATED ASSETS AND LIABILITIES MANAGEMENT ║
╚══════════════════════════════════════════╝
```

```
┌────────────────────────────────┐
│ ===== MAIN  MENU ====          │
│ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─┌───────────────────────────────┐
│ ACCOUNT   CREATIO│ === Daily Transaction ==      │
│ ACCOUNT MODIFICA │ SAVINGS ACCOUNT               │
│ ACCOUNT   CLOSUR │ CURRENT ACCOUNT               │
│ DAILY TRANSACTIO │ CHEQUES ACCOUNT               │
│ REPORTS GENARATI │ DEBIT ENTRIES                 │
│ EXIT  MAIN  PROG │ CREDIT ENTRIES                │
└──────────────────│ EXIT TO MAIN MENU             │
                   └───────────────────────────────┘
```

Press first letter of menu choice, or highlight and press <Enter>

FIGURE VII

APPENDIX II

MAIN_PRG.PRG

```
set score off
set status off
set talk off
SET COLOR TO R/W
CLEAR
TY = "A S S E T S   A N D   L I A B I L I T I E S   M A N A G E M E N T"
L = LEN(TY)
K = 1
M = 8
DO WHILE K < = L
   @3,M SAY SUBSTR(TY,K,1)
   DO DELAY2
   K = K + 1
   M = M + 1
ENDDO
I = 1
DO WHILE I < = 78
   @1,I SAY CHR(219)
   DO DELAY
   I = I + 1
ENDDO
I = 1
DO WHILE I < = 24
   @I,78 SAY CHR(219)
   DO DELAY
   I = I + 1
ENDDO
I = 78
DO WHILE I > = 1
   @24,I SAY CHR(219)
   DO DELAY
   I = I - 1
```

```
ENDDO
I = 24
DO WHILE I > = 1
    @I,1 SAY CHR(219)
    DO DELAY
    I = I - 1
ENDDO
SET COLOR TO R/BR
@6,22 CLEAR TO 21,61
SET COLOR TO W/B+
@5,20 CLEAR TO 20,59
@6,26 SAY "A  PGD   P R O J E C T"
@10,20 SAY "SUBMITTED TO THE DEPT. OF MATHS/COMPUTER"
@12,30 SAY "F U T,   M I N N A."
@15,40 SAY "BY"
@17,30 SAY "   MR. M. B. ABRAHAMS"
@19,28 SAY "REG. NUMBER : PGD/MCS/97/269"


N = 1
DO WHILE N < = 100000
  N = N + 1
ENDDO
mclose = 0
do while mclose < = 24
@mclose,00 clear to mclose,79
mclose = mclose + 1
do delay2
enddo
do Start
PROCEDURE DELAY
DELAY = 1
DO WHILE DELAY < = 500
  DELAY = DELAY + 1
ENDDO
RETURN
PROCEDURE DELAY2
DELAY = 1
```

```
DO WHILE DELAY < = 2000
 DELAY = DELAY + 1
ENDDO
RETURN



LIA_ASSE.PRG


******************************
* PROGRAM NAME: LIA_ASSE.PRG
*              MAIN MENU
* WRITTEN BY:
******************************
*   Set up environment
*   SET CLOCK ON
  SET TALK OFF
  SET SCOREBOARD OFF
  SET STATUS OFF
  * Define help key
   SET DELETED ON
       * Save colors
       PUBLIC c_save
       PUBLIC MLEVEL
       c_save = SET("ATTRIBUTES")

  * Set display characteristics - depends on hardware
  IF ISCOLOR()
    c_normal = "W+/B,GR+/R,B"
    c_pop    = "B/W,GR+/R,W+/R"
    red      = "R/W"
    blue     = "B/W"
    lt_blue  = "W/BG"
  ELSE
    STORE "W+/N,N/W" TO c_normal, c_pop
    STORE "W"   TO red, blue
    STORE "N/W" TO lt_blue
  ENDIF
```

67

```
* Define popup
DO Main_def
* Display menu and loop for choices
**mstrloop = .T.
DO WHILE BAR() < > 8
   SET COLOR TO &c_normal.
    * CLEAR
    DO Title
    SET COLOR TO &c_pop.
    ACTIVATE POPUP mainmenu
 ENDDO
 CLOSE ALL
 CLEAR ALL
RETURN
*** END MAIN PROCEDURE
**********************************************************

PROCEDURE Title
   CLEAR
   * Draw lines and box for menu with colors for effect
   @ 2,20 TO 5,64 DOUBLE COLOR &blue.
   @ 2,20 FILL TO 5,57  COLOR &blue.
   SET COLOR TO &red.
   @ 3,21 SAY "   A F R I B A N K    N I G . P L C     "
   @ 4,21 SAY "AUTOMATED ASSETS AND LIABILITIES MANAGEMENT"
   SET COLOR TO &c_normal.
   save screen to mres
RETURN

PROCEDURE Main_def
   * Defines the main popup menu
   DEFINE POPUP mainmenu FROM 8,27 TO 17,50;
     MESSAGE "Press first letter of menu choice, " + ;
         "or highlight and press < Enter > "
   DEFINE BAR  1 OF mainmenu PROMPT " = = = = = MAIN  MENU = = = ="
SKIP
   DEFINE BAR  2 OF mainmenu PROMPT "--------------------" SKIP
```

```
    DEFINE BAR  3 OF mainmenu PROMPT " ACCOUNT  CREATION   "
    DEFINE BAR  4 OF mainmenu PROMPT " ACCOUNT MODIFICATION"
    DEFINE BAR  5 OF mainmenu PROMPT " ACCOUNT  CLOSURE   "
    DEFINE BAR  6 OF mainmenu PROMPT " DAILY TRANSACTIONS=>"
    DEFINE BAR  7 OF mainmenu PROMPT " REPORTS GENARATION=>"
    DEFINE BAR  8 OF mainmenu PROMPT " EXIT  MAIN  PROGRAM "
    ON SELECTION POPUP mainmenu DO Main
RETURN                       ,


PROCEDURE Main
    * Execute case depending on user's choice
    DO CASE
      CASE BAR() =  3
        DO ACC_CREAT
      CASE BAR() =  4
        DO ACC_MODI
      CASE BAR() =  5
        DO ACC_CLOS
      CASE BAR() =  6
        DO TRANS         ,
      CASE BAR() =  7
        DO RPTMENU
      CASE BAR() =  8
        RELEASE ALL
        SET COLOR TO W/B
        clear
        cancel
      RETURN TO MASTER
    ENDCASE
RETURN


PROCEDURE TRANS      ,
    * Defines the Daily transaction popup menu
    DEFINE POPUP TRAN FROM 10,45 TO 18,70;
      MESSAGE "Press first letter of menu choice, " + ;
          "or highlight and press <Enter>"
    DEFINE BAR  1 OF Tran PROMPT "=== Daily Transaction ====" SKIP
```

```
        DEFINE BAR  2 OF Tran PROMPT " SAVINGS ACCOUNT"
        DEFINE BAR  3 OF Tran PROMPT " CURRENT ACCOUNT"
        DEFINE BAR  4 OF Tran PROMPT " CHEQUES ACCOUNT"
        DEFINE BAR  5 OF Tran PROMPT " DEBIT ENTRIES  "
        DEFINE BAR  6 OF Tran PROMPT " CREDIT ENTRIES "
        DEFINE BAR  7 OF Tran PROMPT " EXIT TO MAIN MENU"
        ON SELECTION POPUP Tran DO TRAN_PRG
        activate popup tran
RETURN


PROCEDURE RPTMENU
        * Defines the Daily Reports popup menu
        DEFINE POPUP RPT FROM 10,45 TO 19,70;
          MESSAGE "Press first letter of menu choice, " + ;
                "or highlight and press <Enter>"
        DEFINE BAR  1 OF RPT PROMPT "=== Daily REPORTS GEN.====" SKIP
        DEFINE BAR  2 OF RPT PROMPT " ACCOUNT BALANCES"
        DEFINE BAR  3 OF RPT PROMPT " LIST OF ENTRIES "
        DEFINE BAR  4 OF RPT PROMPT " POSTING JOURNALS"
        DEFINE BAR  5 OF RPT PROMPT " LITIGIOUS QUERY "
        DEFINE BAR  6 OF RPT PROMPT " ASSETS AND LIABILITIES "
        DEFINE BAR  7 OF RPT PROMPT " GENERAL LEDGER REPORT"
        DEFINE BAR  8 OF RPT PROMPT " EXIT TO MAIN MENU"
        ON SELECTION POPUP RPT DO RPT_PRG
        ACTIVATE POPUP RPT
RETURN

PROCEDURE RPT_PRG
    DO CASE
     CASE BAR() = 2
       DO REPT1
     CASE BAR() = 3
       DO REPT2
     CASE BAR() = 4
       DO REPT3
     CASE BAR() = 5
       DO REPT4
```

```
     CASE BAR() = 6
       DO proc
     CASE BAR() = 7
       DO REPT6
     CASE BAR() = 8
     DEACTIVATE POPUP
     ENDCASE
RETURN

PROCEDURE TRAN_PRG
  DO CASE
    CASE BAR() = 2
      DO ACC_SAVE
    CASE BAR() = 3
      DO ACC_CUR
    CASE BAR() = 4
      DO ACC_CUR
    CASE BAR() = 5
      DO REST_DB
    CASE BAR() = 6
      DO REST_CR
    CASE BAR() = 7
      DEACTIVATE POPUP
    RETURN
  ENDCASE

PROCEDURE Colo_rese
PRIVATE old_color, c_messages, c_titles, c_box, c_info, c_fields
old_color = c_save

* Set the Primary colors
SET COLOR TO &old_color.

* Remove primary colors and start at the secondary colors
old_color = STUFF(old_color, 1, AT("&",old_color)+2, "")

comma = AT(",",old_color)
```

```
c_messages = LEFT(old_color, comma-1)              && Get MESSAGES color
old_color = STUFF(old_color, 1, comma, "")    && Remove MESSAGES color


comma = AT(",",old_color)
c_titles = LEFT(old_color, comma-1)           && Get TITLES color
old_color = STUFF(old_color, 1, comma, "")    && Remove TITLES color


comma = AT(",",old_color)
c_box = LEFT(old_color, comma-1)              && Get BOX color
old_color = STUFF(old_color, 1, comma, "")    && Remove BOX color


comma = AT(",",old_color)
c_info = LEFT(old_color, comma-1)             && Get INFORMATION color
old_color = STUFF(old_color, 1, comma, "")    && Remove INFORMATION color


comma = AT(",",old_color)
c_fields = old_color                          && Get FIELDS color

SET COLOR OF MESSAGES    TO &c_messages.
SET COLOR OF TITLES      TO &c_titles.
SET COLOR OF BOX       · TO &c_box.
SET COLOR OF INFORMATION TO &c_info.
SET COLOR OF FIELDS      TO &c_fields.
RETURN

*** END PERSYS.PRG
*********************************************************


ACC_CREA.PRG


*********************************************************
* program    : Acc_creat.prg                   *
* Description : This procedure creates various accounts  *
*********************************************************
set color to w/b
clear
```

```
set escape on
set safety off
Use Gen_Acc index Gen_Acc
store "Y" to ans
Do while uppe(ans) = "Y"
     store space(13) to S_name
     store space(13) to F_name
     store space(4) to minitial
     store space(25) to maddress
     store space(2) to mres_code
     store ctod(" / / ") to mdate_cre
     store space(15) to mgen_name
     store space(2) to mdept
     store space(3) to mbranch
     store space(10) to mtype
     store space(9) to mindex
     store space(9) to maccount
     store "N" to as
   do while uppe(as) = "N"
     date = date()
     set color to w/b
     clear
     @2,31 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+ "
"+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
     @4,26 to 6,60 doub
     @5,31 say "procedure open account "
     @7,2 to 19,79 doub color r/b
     @8,3 say "Customers's Surname: " get S_name pict "@!X"
     @8,40 say "Customer's First Name:" get F_name pict "@!X"
     @10,3 say "Customer'S Initials:" get minitial pict "@!X"
     @10,34 say "Customer's Address:" get maddress pict "@!X"
     @12,3 say "Type of Account   : " get mtype pict "@!X"
     @12,43 say "Customer's index:" get mindex pict "99999999A"
     @14,3 say "Customer's Account Number" get maccount pict "99999999A"
     @16,3 say "Department in charge: " get mdept pict "@!X"
     @16,35 say "Branch code: " get mbranch pict "999"
     @16,55 SAY "Residence code :" get mres_code
```

```
read
@18,30 say "Data ok ? [Y/N/Q]" get as pict "!" valid as $ "YNQ" error "Enter Y
or N or Q";
     message "Enter Y to continue : N for correctio : Q to quit"
read
if as = "Q"
   cancel
endif
@18,00 clear to 22,78
enddo
Seek maccount
If found()
@18,10 say "Account Number Already  Exist"
@20,20
wait + space(10) + "press any key to continue"
@18,00 clear to 24,78
loop
else
Append blank
Repl Surname with S_name
Repl First_name with F_name
Repl Address with maddress
Repl initials with minitial
Repl Type with mtype
Repl Cus_index with mindex
Repl date_cre with mdate_cre
Repl Account_no with maccount
Repl date_cre with mdate_cre
Repl branch with mbranch
Repl Dept with mdept
Repl res_code with mres_code
clear
@10,20 SAY "MORE CUSTOMERS[Y/N] " GET ANS PICT "!"
read
clear
@10,20 SAY "THANKS FOR PATRONAGE"
endif
```

```
Enddo
@23,20
WAIT "              GOODBYE FOR NOW & GOD BLESS YOU"
close all



ACC_MODI.PRG


*******************************************************
* program    : Acc_modi.prg                     *
* Description : This procedure modifies various accounts  *
*******************************************************
clear
set escape on
set safety off
set talk off
store space(9) to acc_m
Use Gen_Acc index Gen_Acc
clear
store "Y" to ans
Do while uppe(ans) = "Y"
    @10,20 say "Enter Account number to modify :" get acc_m pict "@!X"
    read
    Seek acc_m
   If .not. found()
    @17,10 say "Account Number Does not  Exist"
    @20,20
    wait + space(10) + "press any key to continue"
    @17,00 clear to 24,78
    loop
      else
    store Surname to S_name
    store First_name to F_name
    store Address to maddress
    store initials to minitial
    store Type to mtype
    store Cus_index to mindex
```

```
        store account_no to maccount
        store date_cre to mdate_cre
        store branch to mbranch
        store Dept to mdept
        store Autorisatn to mautho
        store "N" to as
    do while uppe(as) = "N"
        date = date()
        clear
        @2,31 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+ "
    "+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
        @4,22 to 6,60 doub
        @5,23 say "Account modification section - step 1"
        @7,2 to 17,79 doub color r/b
        @8,3 say "Customers's Surname: " get S_name pict "@!X"
        @8,40 say "Customer's First Name:" get F_name pict "@!X"
        @10,3 say "Customer'S Initials:" get minitial pict "@!X"
        @10,34 say "Customer's Address:" get maddress pict "@!X"
        @12,3 say "Type of Account   : " get mtype pict "@!X"
        @12,43 say "Customer's index:" get mindex pict "@!X"
        @14,3 say "Customer's Account :" get maccount
        @14,40 say "Authorisation  " get mautho
        @16,3 say "Department in charge: " get mdept pict "99"
        @16,40 say "Branch code: " get mbranch pict "999"
        read
        @18,30 say "Data ok ? [Y/N/Q]" get as pict "!" valid as $ "YNQ" error "Enter Y
    or N or Q";
            message "Enter Y to continue : N for correctio : Q to quit"
        read
        if as = "Q"
            cancel
        endif
        @18,00 clear to 22,78
    enddo
        Repl Surname with S_name
        Repl First_name with F_name
        Repl Address with maddress
```

76

```
        Repl initials with minitial
        Repl Type with mtype
        Repl date_cre with mdate_cre
        Repl Cus_index with mindex
        Repl Account_no with maccount
        Repl date_cre with mdate_cre
        Repl branch with mbranch
        Repl Dept with mdept
        Repl Autorisatn with mautho
        clear
        @10,20 SAY "MORE ACCOUNTS TO MODIFY [Y/N] " GET ANS PICT "!"
        read
        clear
        @10,20 SAY "THANKS FOR PATRONAGE"
        endif
Enddo
@23,20
WAIT "                GOODBYE FOR NOW & GOD BLESS YOU"
close all


*release window Head
*release window fullscr



ACC_CLOS.PRG


*****************************************************
* program    : Acc_close.prg                    *
* Descrition : This procedure closes  various accounts *
*                Step 1                         *
*****************************************************
clear
set escape on
set safety off
set talk off
store space(8) to acc_m
Use Gen_Acc index Gen_Acc
```

```
clear
store "Y" to ans
Do while uppe(ans) = "Y"
    store "N" to as
    do while uppe(as) = "N"
    @10,20 say "Enter Account number to close :" get acc_m pict "@!X"
    read
    Seek acc_m
    If .not. found()
        @17,10 say "Account Number Does not  Exist"
        @20,20                    '
        wait + space(10) + "press any key to continue"
        @17,00 clear to 24,78
        loop
          else
      clear
      date = date()
      @2,31 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+ "
"+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
      @4,22 to 6,60 doub
      @5,23 say "Account closing  section - step 1"
      @7,2 to 16,79 doub color r/b
      @8,3 say "Customers's Surname:   " + surname
      @8,40 say "Customer's First Name  :" + First_name
      @10,3 say "Customer'S Initials:   "+ initials
      @10,36 say "Customer's Address:"+ address
      @12,3 say "Type of Account  :    " + type
      @12,36 say "Customer's Account index:   " + cus_index
      @14,3 say "Department in charge:   "+dept
      @14,40 say "Branch code:   " +branch
      @17,20 say "Are you sure of closing this Account ? [Y/N/Q]" get as pict "!" valid
as $ "YNQ" error "Enter Y or N or Q";
          message "Enter Y to close : N to try again  : Q to quit"
      read
      if as = "Q"              '
        cancel
      endif
```

```
      @17,00 clear to 22,78
    endif
    clear
    enddo
      clear
      @10,20 SAY "MORE ACCOUNTS TO CLOSE [Y/N] " GET ANS PICT "!"
      read
      clear
      @10,20 SAY "THANKS FOR PATRONAGE"
*    endif
Enddo
@23,20
WAIT "              GOODBYE FOR NOW & GOD BLESS YOU"
close all
```

ACC_SAVE.PRG

```
*********************************************************
* This procedure handles daily transaction on savings  *
*        database in use are: Acc_save.dbf             *
*                 acc_save.prg                          *
*-----------------------------------------------------*
set talk off
set safety off
set score off
set escape on
set color to w/b
clear
set color of box to rg/g
define window head from 2,10 to 9,63 color r/w
define window fullscr from 9,00 to 22,79
activate window head
@1,11 say " A F R I B A N K   N I G .  P L C"
@3,19 say "M I N N A"
@5,8 say "SAVINGS ACCOUNT WITHDRAWAL/DEPOSITE SECTION"
activate window fullscr
```

```
store space(9) to acc_m
clear
store "Y" to ans
Do while uppe(ans) = "Y"
    Use Gen_Acc index Gen_Acc
    store "N" to as
    do while uppe(as) = "N"
    @10,20 say "Enter Account number  :" get acc_m pict "@!X" ;
        message "Enter Account num for this transaction "
    read
    if acc_m = " "
       clear
       @11,20 say "Invalid entries"
       wait
       clear
       loop
     endif
    Seek acc_m
    If .not. found()
       clear
       @8,10 say "Account Number Does not  Exist"
       @10,20
       wait + space(10) + "press any key to continue"
       @8,00 clear to 11,77
       loop
         else
       store surname to s_name
       store First_name to fname
      clear
      date = date()
      @00,29 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+
 " "+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
      @2,3 say "Customers's Surname:   " + surname
      @2,40 say "Customer's First Name  :" + First_name
      @4,3 say "Customer'S Initials:    "+ initials
      @4,36 say "Customer's Address:     "+ address
      @6,3 say "Type of Account  :    " + type
```

```
@6,36 say "Customer's Account number:   " + Account_no
@8,3 say "Department in charge:   "+dept
@8,37 say "Branch code:   " +branch
set color to r
@8,57 say "Balance :" + str(Balance)
set color to w/b
@10,20 say "Are you sure of this transaction ? [Y/N/Q]" get as pict "!" valid as $
"YNQ" error "Enter Y or N or Q";
     message "Enter Y to continue : N to try again  : Q to quit"
read
if as = "Q"
   clear
   cancel
endif
store space(1) to opt
store 0 to mamount
if as = "Y"
   set color to r/w
   @10,00 clear to 11,77
   @9,00 to 9,77
   @10,00 say "press D for deposite"
   @11,6 say "W for withdrawal"
   @10,30 say "OPTION : " get opt pict "!" valid opt $ "DW" error "Only  D  and
W  are valid";
        message " "
   read
   if opt = "D"
      @10,00 clear to 10,67
      @11,2 say "Enter amount to Deposite" get mamount
      read
      store (Balance+mamount) to new_balan
      @9,00 clear to 11,77
      replace Balance with new_balan
      @10,2 say "Current Balance =:  " + str(Balance)
      @11,2say "Transaction amount: " + str(mamount)
      read
      set color to w/b
```

```
        USE DAILY_FL
        Append blank
        repl Acc_num with Acc_m
         repl Name with s_name +" "+ltrim(fname)
         repl Tran_date with date()
         repl balance with new_balan
         repl Tran_amt with mamount
         repl Tran_type with "CR"
        repl Avail_bal with New_balan
    endif
    if opt = "W"
      do while .t.
        @10,00 clear to 10,67
        @11,2 say "Enter amount to Withdraw" get mamount
        read
        store (Balance-mamount) to new_balan
        @9,00 clear to 11,77
        if new_balan < 300
           ? chr(7)
           @10,10 say "Error !!! Amount is greater than the current balance"
           wait space(10) + "press any key to try again"
           @9,00 clear to 11,77
           loop
             else
           exit
         endif
        enddo
        replace Balance with new_balan
        @10,2 say "Current Balance =:  " + str(Balance)
        @11,2say "Transaction amount: " + str(mamount)
        read
        set color to w/b
        USE DAILY_FL
        Append blank
        repl Acc_num with Acc_m
         repl Name with s_name +" "+ltrim(fname)
         repl Tran_date with date()
```

82

```
                repl balance with new_balan
                repl Tran_amt with mamount
                repl Tran_type with "DR"
          endif
        endif
        @10,00 clear to 10,60
      endif
      clear
      enddo                    ,
        clear
        @10,20 SAY "MORE TRANSACTIONS [Y/N] " GET ANS PICT "!"
        read
        clear
        @10,20 SAY "THANKS FOR PATRONAGE"
Enddo
WAIT "               GOODBYE FOR NOW & GOD BLESS YOU"
close all
RELEASE WINDOW HEAD
RELEASE WINDOW FULLSCR
RETURN
                            ,


ACC_CUR.PRG

    ***********************************************************************
    * This procedure handles daily transaction on current/cheques account*
    *     database in use are: Acc_save.dbf, Daily_Fl.dbf and Gen_acc.dbf*
    *              acc_cur.prg                              *
    *_____*
set talk off
set safety off
set score off
set escape on             ,
clear
define window head from 2,10 to 9,63 color r/w
define window fullscr from 9,00 to 22,79
activate window head
```

```
@1,11 say " A F R I B A N K    N I G . P L C"
@3,19 say "M I N N A"
@5,00 say "CURRENT/CHEQUES ACCOUNT WITHDRAWAL/DEPOSITE
SECTION"
activate window fullscr
store space(9) to acc_m
clear
store "Y" to ans
Do while uppe(ans)  =  "Y"
    Use Gen_Acc index Gen_Acc
    store "N" to as
    do while uppe(as)  =  "N"
    @10,20 say "Enter Account number  :" get acc_m pict "@!X" ;
        message "Enter Account num for this transaction "
    read
    if acc_m  =  " "
      clear
      @11,20 say "Invalid entries"
      wait
      clear
      loop
     endif
    Seek acc_m
    If .not. found()
        clear
        @8,10 say "Account Number Does not  Exist"
        @10,20
        wait + space(10) + "press any key to continue"
        @8,00 clear to 11,77
        loop
          else
        store surname to s_name
        store First_name to fname
      clear
      date = date()
      @00,29 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+
" "+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
```

```
@2,3 say "Customers's Surname:  " + surname
@2,40 say "Customer's First Name  :" + First_name
@4,3 say "Customer'S Initials:   "+ initials
@4,36 say "Customer's Address:    "+ address
@6,3 say "Type of Account  :    " + type
@6,36 say "Customer's·Account :   " + Account_no
@8,3 say "Department in charge:   "+dept
@8,37 say "Branch code:   " +branch
set color to r
@8,57 say "Balance :" + str(Balance)
set color to w/b
@10,20 say "Are you sure of this transaction ? [Y/N/Q]" get as pict "!" valid as $
"YNQ" error "Enter Y or N or Q";
    message "Enter Y to continue : N to try again  : Q to quit"
. read
if as = "Q"
   clear
   cancel
endif
store space(1) to opt
store 0 to mamount
if as = "Y"
   set color to r/w
   @10,00 clear to 11,77
   @9,00 to 9,77
   @10,00 say "press D for deposite"
   @11,6 say "W for withdrawal"
   @10,30 say "OPTION : " get opt pict "!" valid opt $ "DW" error "Only  D  and
W  are valid";
       message " "          '
   read
   if opt = "D"
      @10,00 clear to 10,67
      @11,2 say "Enter amount to Deposite" get mamount
      read
      store Balance to Mbal
      store (Balance+mamount) to new_balan
```

85

```
        store Autorisatn to mauto
        store (mauto+new_balan) to mavail
        replace avail_bal with mavail
        @9,00 clear to 11,77
        replace Balance with new_balan
        if avail_bal > 0
          repl overstep with 0
        endif
        if avail_bal < 0
            repl overstep with (0-avail_bal)
        endif
        @10,2 say "Current Balance =:  " + str(Balance)
        @11,2say "Transaction amount: " + str(mamount)
        read
        set color to w/b
        USE
        USE DAILY_FL
        Append blank
        repl Acc_num with Acc_m
         repl Name with s_name +" "+ltrim(fname)
         repl Tran_date with date()
         repl balance with new_balan
         repl Tran_amt with mamount
         repl Tran_type with "CR"
         repl Bal_b4_Tr with Mbal
     endif
     if opt = "W"
         @10,00 clear to 10,67
         @11,2 say "Enter amount to Withdraw" get mamount
         read
         store balance to Mbal
         store (Balance-mamount) to new_balan
         @9,00 clear to 11,77
         if new_balan < 0
            store(0-new_balan) to over
            replace overstep with over
            ? chr(7)+chr(7)
```

```
        @10,10 say "Warning !!!  This account is oversteping with :  "+ str(over)
        wait space(10) + "press any key to continue...."
        @9,00 clear to 11,77
     endif
     replace Balance with new_balan
     store Autorisatn to mauto
     store (mauto+new_balan) to mavail
     replace avail_bal with mavail
     if avail_bal > 0
       repl overstep with 0
     endif
     if avail_bal < 0
        repl overstep with (0-avail_bal)
     endif
     @10,2 say "Current Balance =:  " + str(Balance)
     @11,2say "Transaction amount: " + str(mamount)
     read
     set color to w/b
     USE
     USE DAILY_FL
     Append blank
     repl Acc_num with Acc_m
      repl Name with s_name +" "+ltrim(fname)
      repl Tran_date with date()
      repl balance with new_balan
      repl Tran_amt with mamount
      repl Tran_type with "DR"
   endif
  endif
  @10,00 clear to 10,60
endif
clear
enddo
  clear
  @10,20 SAY "MORE TRANSACTIONS [Y/N] " GET ANS PICT "!"
  read
  clear
```

```
      @10,20 SAY "THANKS FOR PATRONAGE"
Enddo
WAIT "            GOODBYE FOR NOW & GOD BLESS YOU"
use gen_acc
do while .not. eof()
  if Balance < 0
      store(0-balance) to ty
      store((ty*25.5*1)/100*12) to mint
      store(interest+balance) to new_int
      replace interest with new_int
*       use Acc_tran
*       append blank
*       repl A_acc_m with "55"
*           repl A_type with "CR"
*           repl descript with "Interest on overdraft"
*           repl Amount with mint
*           repl date with date()

      skip
      else
      skip
    endif
Enddo
close all
RELEASE WINDOW HEAD
RELEASE WINDOW FULLSCR
RETURN



PROC.PRG


******************************************************************
* This procedure summarises daily transactions and writes result *
* to Temp_fl.dbf.                                    *
* This is where we generate Asstes and Liability Reports       *
******************************************************************
set talk off
```

```
set status on
set score off
m = 3
mdebit = 0
mcredit = 0
sele a
use acc_code
sele b
use daily_fl
sele c
use acc_tran
sele d
use temp_fl
zap
*sele a
*do while .not. eof()
  store "34" to mcode
  store "Savings Accounts" to mdescr
  do sav
  store "35" to mcode
  store "Current Accounts" to mdescr
  do sav
  store "36" to mcode
  store "Cheques Accounts" to mdescr
  do sav
  do continue
  procedure sav
  sele b
  go top
  do while .not. eof()
    if substr(acc_num,1,2) = mcode
      if Balance < 0
          Mdebit = Mdebit+Balance
      endif
      if Balance > 0
          Mcredit = Mcredit+Balance
      endif
```

```
        skip
         else
         skip
        endif
      enddo
      sele d
      append blank
      repl Acc_num with mcode
      repl Acc_name with mdescr
      repl Debit with Mdebit
      repl Credit with Mcredit
      mdebit = 0
      mcredit = 0
      return
*sele a
*skip
*enddo
procedure continue
   mdebit = 0
   mcredit = 0
sele a
go top
  Do while .not. eof()
      store code to mcode
      store acc_name to mdescr
      sele c
      do while .not. eof()
      if substr(A_acc_m,1,2), =  mcode
         store len(Balance) to verify
         if Right(Balance,2) = "DR"
            store Left(balance,verify-2) to Tram_Amt
            Mdebit = Mdebi.+Val(Tram_Amt)
         endif
         store len(Balance) to verify
         if Right(Balance,2) = "CR"
            store Left(balance,verify-2) to Tram_Amt
            Mcredit = Mcredit+Val(Tran_Amt)
```

90

```
        endif
      skip
        else
        skip
      endif
    enddo
    sele d
    append blank
    repl Acc_num with mcode
    repl Acc_name with mdescr
    repl Debit with Mdebit
    repl Credit with Mcredit
    mcredit = 0
    mdedit = 0
sele a
skip
enddo
do rept5
procedure ttt
*******Procedure for report***********
set device to file 'lit.txt'
@2,32 say "AFRIBANK (NIG) PLC"
@4,36 say "MINNA BRANCH"
@6,18 say "ASSETS AND LIABILITY REPORTS AS AT      " + dtoc(DATE())
N = 8
M = 10
@N,00 say "ACC_NUM"
@N,12 say "ACC_NAME"
@N,48 say "DEBIT"
@N,66 say "CREDIT"
sle d
debit = 0
credit = 0
 top
 while .not. eof()
  @M,00 say ACC_NUM
  @M,12 say ACC_NAME
```

```
   @M,44 say DEBIT
   @M,60 say CREDIT
   mdebit = mdebit+debit
   mcredit = mcredit+credit
   M = M + 1
   skip
enddo
@M+2,10 say "TOTALS"
@M+2, 53 say mdebit
@M+2, 70 say mcredit
```

REST_CR.PRG

```
*********************************************************************
* This procedure handles daily transaction entries on the rest accounts *
*        database in use are: Acc_tran.dbf                           *
*                Rest_cr.prg                                        *
*_____*
set talk off
set bell off
set safety off
set clock OFF
set score off
set escape on
set color to w/b
*set color of message to b/w
*set color of highlight to w/b
set color of box to rg/g
clear
store space(15) to mname
store space(15) to b_mname
store space(8) to mref_num
store space(8) to b_mref_num
store ctod("  /  /  ") to mval_date
store ctod("  /  /  ") to b_mval_date
```

```
clear
define window head from 2,10 to 9,63 color r/w
define window fullscr from 9,00 to 23,79
@1,00 say "A U T O M A T E D   A S S E T S   A N D   L I A B I L I T Y   M A N
A G E M E N T " COLOR w/R
activate window head
@00,20 SAY "I N"
@1,11 say " A F R I B A N K    N I G .   P L C"
@3,19 say "M I N N A"
@5,8 say "C R E D I T   ENTRIES   SECTION"
activate window fullscr
store space(9) to acc_m
store space(9) to  b_acc_m
store space(60) to mdescr
store 0 to T_amount
clear
date = date()
store "Y" to ans
Do while uppe(ans) = "Y"
@00,29 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+ "
"+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
    set color to w/b
    Use Gen_Acc index Gen_Acc
    @00,1 say "Account [A]"
    @2,1 say "Account holder's Name:" get mname pict "@!X"
    @4,1 say "Reference number     :" get mref_num
    @6,1 say "Account number       :" get acc_m pict "@!X" ;
        message "Enter Account num for this transaction "
    @8,1 say "Value date         :" get mval_date
    read
    @1,39 to 12,39
    @00,60 say "Account [B]"
    @2,40 say "Account holder's Name:" get b_mname pict "@!X"
    @4,40 say "Reference number     :" get b_mref_num
    @6,40 say "Account number       :" get b_acc_m pict "@!X" ;
        message "Enter Account num for this transaction "
    @8,40 say "Value date         :" get b_mval_date
```

```
set color to r/w
@10,00 clear to 12,77
@10,00 to 10,77 doub
@11,2 say "Amount : " get t_amount
@11,33 say "Description : " get mdescr
read
seek acc_m
if found()
store balance to mbalan
store(mbalan+t_amount)'to tot_balan
if tot_balan < 0
   store(0-tot_balan) to real_baln
   store(str(real_baln)+"DR") to balan
     else
        store(str(tot_balan)+"CR") to balan
endif
use acc_tran
append blank
repl A_name with mname
repl A_ref_num with mref_num
repl A_acc_m with acc_m
repl A_type with "Credit"
repl A_val_date with mval_date
repl B_name with mname
repl B_ref_num with mref_num
repl B_acc_m with B_acc_m
repl B_val_date with mval_date
repl Balance with balan
repl descript with mdescr
repl date with date()
set color to w/b
@12,15 say "more data ?" get ans pict "!" valid ans $ "YN";
     error "Only Y and N are valid"
 read
 else
  set color to b/w
  @10,00 clear to 12,77
```

```
            @10,20 say "Account number "+ "   "+acc_m+" "+"is not found"
            wait space(10) + "Press any key to try again..."
            set color to w/b
            clear
            loop
        endif
    clear
Enddo
release window Head
release window Fullscr


PASS.PRG

**********************
*PROCEDURE PASSWORD   *
**********************
    Clear
    set status off
    set talk off
    @6,0 CLEA TO 23,79
    @6,32 TO 8,41
    @7,33 SAY "SECURITY" COLO R/
    @10,12 TO 12,61 DOUBLE
    @11,14 SAY "ENTER YOUR PASSWORD:"
    SET COLO TO /GB+
    @11,37 CLEA TO 11,41
    TRIAL = 0
    DO WHILE TRIAL < 3
        STORE 0 TO I, CNT
        CPASS = ""
        J = 37
        @11,37 SAY SPACE(23)
        DO WHILE CNT < 10 .AND. I < > 13
            J = J + 1
            I = 0
            DO WHILE I = 0
```

```
            I = INKEY()
      ENDDO
      @14,16 SAY SPACE(40)
      IF I < > 13
         @11,J SAY CHR(15)
         CNT = CNT + 1
         CPASS = CPASS + CHR(I)
      ENDIF
   ENDDO
   IF UPPER(CPASS) < > "ASSETS"
      @14,23 SAY CHR(7)
      IF TRIAL < 2
         @14,23 SAY "WRONG PASSWORD! TRY AGAIN"
      ELSE
         @14,23 SAY "WRONG PASSWORD! ACCESS DENIED"
         @23,23 SAY "PRESS ANY KEY TO CONTINUE..."
            K = 0
            DO WHILE K = 0
               K = INKEY()
            ENDDO
      ENDIF
         TRIAL = TRIAL + 1
         LOOP
   ENDIF
   IF UPPER(CPASS) = "ASSETS"
      @14,23 SAY " CORRECT PASSWORD! ACCESS ALLOWED"
      @23,23 SAY "PRESS ANY KEY TO CONTINUE..."
            K = 0
            DO WHILE K = 0
               K = INKEY()
            ENDDO
            EXIT
   ENDIF
ENDDO
do lia_asse
```

REST_DB.PRG


```
********************************************************************
* This procedure handles daily transaction entries on the rest accounts *
*        database in use are: Acc_tran.dbf                      *
*                 Rest_db.prg                                    *
*_____*
set color to w/b
clear
set talk off
set bell off
set safety off
set score off
set escape on
set color of box to rg/g
store space(15) to mname
store space(15) to b_mname
store space(8) to mref_num
store space(8) to b_mref_num
store ctod(" / / ") to mval_date
store ctod(" / / ") to b_mval_date
clear
define window head from 2,10 to 9,63 color r/w
define window fullscr from 9,00 to 23,79
@1,00 SAY "A U T O M A T E D   A S S E T S   A N D   L I A B I L I T Y  M A
N A G E M E N T" COLOR GR/R
activate window head
@00,20 SAY "I N"
@1,11 say " A F R I B A N K    N I G .  P L C"
@3,19 say "M I N N A"
@5,8 say "D E B I T   ENTRIES  SECTION"
activate window fullscr
store space(9) to acc_m
store space(9) to b_acc_m
store space(60) to mdescr
store 0 to T_amount
clear
```

```
date = date()
store "Y" to ans
Do while uppe(ans) = "Y" '
@00,29 say "Date: "+substr(CDOW(DATE),1,3)+" "+ltrim(str(DAY(DATE)))+ "
"+substr(CMONTH(DATE),1,3)+" "+ltrim(str(YEAR(DATE))) color g*
    Use Gen_Acc index Gen_Acc
    @00,1 say "Account [A]"
    @1,1 say "Account holder's Name:" get mname pict "@!X"
    @3,1 say "Reference number     :" get mref_num
    @5,1 say "Account number       :" get acc_m pict "99999999A" ;
       message "Enter Account num for this transaction "
    @7,1 say "Value date         :" get mval_date
    read
    @1,39 to 12,39
    @00,60 say "Account [B]"
    @1,40 say "Account holder's Name:" get b_mname pict "@!X"
    @3,40 say "Reference number     :" get b_mref_num
    @5,40 say "Account number       :" get b_acc_m pict "@!X" ;
       message "Enter Account num for this transaction "
    @7,40 say "Value date         :" get b_mval_date
    set color to r/w
    @10,00 clear to 12,77
    @10,00 to 10,77 doub
    @11,2 say "Amount : " get t_amount
    @11,33 say "Description : " get mdescr
    read
    seek acc_m
    if found()
    store balance to mbalan
    store(mbalan-t_amount) to tot_balan
    if tot_balan < 0
       store(0-tot_balan) to real_baln
       store(str(real_baln)+"DR") to balan
          else
            store(str(tot_balan)+"CR") to balan
    endif
    use acc_tran
```

```
        append blank
        repl A_name with mname
        repl A_ref_num with mref_num
        repl A_acc_m with acc_m
        repl A_type with "Debit"
        repl A_val_date with mval_date
        repl B_name with mname
        repl B_ref_num with mref_num
        repl B_acc_m with acc_m
        repl B_val_date with mval_date
        repl Balance with balan
        repl descript with mdescr
        repl date with date()
        set color to w/b
        @12,15 say "more data ?" get ans pict "!" valid ans $ "YN";
              error "Only Y and N are valid"
      read
      else
        set color to b/w              ,
        @10,00 clear to 12,77
         @10,20 say "Account number "+ "   "+acc_m+" "+"is not found"
         wait space(10) + "Press any key to try again..."
         set color to w/b
         clear
         loop
    endif
  clear
Enddo
release window Head
release window fullscr
```

REPT1.PRG

```
**********************************************************
* This module produces the current status of Account Balances*
*              rept1.prg                              *
```

```
************************************************************
set talk off
set score off
n = 4
m = 6
run del accbal.txt
use gen_acc
set device to file "Accbal.txt"
*procedure heading
@0,50 say "AFRIBANK NIG. PLC"
@1,53 SAY "MINNA BRANCH"
@2,44 SAY "ACCOUNT BALANCES AS AT"
@2,75 SAY DATE()
@n,00 say "Account_no"
@n,15 say "Acc. Holder's Name"
@n,40 say "Current_balance"
@n,65 say "Authorisation"
@n,85 say "Available_balan"
@n,107 say "Overstepping"
@n+1,00 say replicate("-",120)
*@n,122 say "Last Tran_date"
do while .not. eof()
  @m,00 say Account_no
  @m,15 say surname+" "+ltrim(first_name)
  @m,43 say balance
  @m,63 say Autorisatn
  @m,83 say Avail_bal
  @m,105 say Overstep
*  @m,124 say date_cre
  skip
  m = m + 2
enddo
set device to screen
run edit accbal.txt
wait "  "
set color to w/b
clear
```

```
return
****END OF REPT1.PRG***



REPT2.PRG


*********************************************************************
*********
* This module displays all the accounts that has transaction at the end of the day *
*              rept2.prg     (list of entries)                          *
*********************************************************************
*********
set talk off
set safety off
set score off
n = 6
m = 8
clear
store "Y" to ans
do while uppe(ans) = "Y"
set device to screen
store space(2) to macc
@7,10 clear to 14,70
@7,10 to 14,70 double
@9,11 say "Enter Account no to display" get macc
read
if macc ='34'
   store 'Savings Account' to mdesc
endif
if macc ='35'
   store 'Current Account' to mdesc
endif
if macc ='36'
   store 'Cheques Account' to mdesc
endif
set device to file macc+".txt"
if macc = "35" .or. macc ="34" .or. macc = "36"
```

```
use daily_fl
do head
do while .not. eof()
if substr(acc_num,1,2) = macc
  @m,00 say Acc_num
  @m,15 say name
  @m,43 say Tran_type
  @m,63 say Tran_amt
  @m,83 say Balance        '
  @m,109 say Tran_date
  m = m + 2
  skip
if m > = 40
  m = 8
  do head
endif
else
skip
endif
enddo
set device to screen        '
clear
@10,20 say "More reports" get ans pict "!" valid ans $ "YN"
read
if ans = "N"
cancel
endif
else
use acc_code index acc_code
seek macc
if found()
store acc_name to mdesc
@11,11 say "You are generating Reports on "+"   "+mdesc
wait space(11) + "Tap any key to contunue..."
clear

use acc_tran
```

```
do head
do while .not. eof()
if substr(a_acc_m,1,2) = macc
   @m,00 say A_acc_m
   @m,15 say A_name
   @m,43 say A_type
   @m,63 say Amount
   @m,83 say Balance
   @m,109 say date
   m = m + 1
   skip
 if m > = 40
   m = 8
   do head
  endif
  else
  skip
endif
enddo
clear
set device to screen
@10,20 say "More reports" get ans pict "!" valid ans $ "YN"
read
endif
endif
enddo


PROCEDURE HEAD
   @1,40 say "A F R I B A N K    N I G.  P L C"
   @2,45 say "M I N N A   B R A N C H"
   @3,37 say "D A I L Y  T R A N S A C T I O N S   R E P O R T S"
   @4,37 say "-------------------------------------------------"
   @n,00 say "Account_no"
   @n,15 say "Acc. Holder's Name"
   @n,40 say "Tran_type"
   @n,65 say "Trans. Amount"
```

```
        @n,85 say "Current Balance"
        @n,109 say "Trans. Date"
RETURN



REPT3.PRG                  '


***************************************************************
* This module produces the current status of Account Balances*
*          rept3.prg   (posting journal)              *
***************************************************************
set talk off
set score off
set safety off
n = 6
m = 8
set device to file "post.txt"
use acc_tran                 '
do head
do while .not. eof()
  @m,00 say A_acc_m
  @m,15 say A_name
  @m,43 say A_ref_num
  @m,63 say Amount
  @m,83 say date
  skip
  m = m+ 1
  if m > = 18
    m = 8
    do head                  '
endif
enddo
set device to screen
****END OF REPT1.PRG***
run edit post.txt


PROCEDURE HEAD
```

```
@1,40 say "A F R I B A N K    N I G.  P L C"
@2,45 say "M I N N A    B R A N C H"
@03,40 say "P O S T I N G    J O U R N A L    R E P O R T S"
@4,40 say "------------------------------------------------"
@n,00 say "Account_no"
@n,15 say "Acc. Holder's Name"
@n,40 say "Voucher_ref.Num"
@n,65 say "Trans. Amount"
@n,85 say "Trans. Date"
RETURN
```

REPT4.PRG

```
**********************************************************
* This module displays acc. that are overdrawn          *
*            rept4.prg   (litigious query report)       *
**********************************************************
set talk off
set score off
set safety off
n = 6
m = 8
set device to file "over.txt"
use Daily_fl
do head
do while .not. eof()
  if balance < 0
  @m,00 say Acc_num
  @m,15 say Name
  @m,43 say Bal_b4_Tr
  @m,63 say Tran_amt
  @m,83 say Balance
  @m,105 say Tran_date
  skip
  m = m+ 1
  else
```

```
  skip
  if m > = 18
    m = 8
    do head
 endif
endif
enddo
set device to screen
****END OF REPT1.PRG***
run edit over.txt

PROCEDURE HEAD
  @1,40 say "A F R I B A N K   N I G.  P L C"
  @2,45 say "M I N N A   B R A N C H"
  @03,40 say "L I T I G I O U S   Q U E R Y   R E P O R T S"
  @4,40 say "----------------------------------------------"
  @n,00 say "Account_no"
  @n,15 say "Acc. Holder's Name"
  @n,40 say "Bal_before_withd."
  @n,65 say "Trans. Amount"
  @n,85 say "Bal_carry_fwd"
  @n,105 say "Tran_date"
RETURN
```

APPENDIX III (FLOWCHART)

```
          ┌──┬──────────────┬──┐
          │  │  A/c Creation │  │
          └──┴──────────────┴──┘
                    │
                    ▼
          ⟨ Display Data Entries ⟩
                    │
                    ▼
           ╱──────────────╱
          ╱   Read Data   ╱
         ╱──────────────╱
                    │
                    ▼
                  ◇
              ╱       ╲
            ◇  Entries  ◇────── N
              ╲  Ok?   ╱
                  ◇
                    │ Y
                    ▼
          ┌──────────────────────┐
          │  Move Data to Storage │
          └──────────────────────┘
                    │
                    ▼
                  ◇
          Y ──── ◇ Continue ◇
                  ◇
                    │ N
                    ▼
          ┌──────────────┐
          │  Close File  │
          └──────────────┘
                    │
                    ▼
              (  Stop  )
```

```
        ┌──┬────────┬──┐
        │  │  A/C   │  │
        │  │Modification│  │
        └──┴────────┴──┘
              │
              ▼
        ╱──────────╲
       ╱ Accept A/C No╲
       ╲──────────────╱
              │
              ▼
        ╱──────────╲
       ╱ Read data from╲
       ╲    File      ╱
        ╲────────────╱
              │
              ▼
        ◁──────────────▷
        │ Display Cust. Data │
        ◁──────────────▷
              │
              ▼
        ╱──────────╲
       ╱ Accept Changes╲
       ╲──────────────╱
              │
              ▼
        ┌──────────────┐
        │ Process Changes &│
        │ Store New Data to│
        │   File (Disk)    │
        └──────────────┘
              │
              ▼
            ◇─────◇
           ╱  More  ╲
          ◇  A/c to  ◇──────►
           ╲ Modify ╱
            ◇─────◇
              │
              ▼
          ╭─────────╮
          │  Stop   │
          ╰─────────╯
```

A/C Modification

Accept A/C No

Read data from File

Display Cust. Data

Accept Changes

Process Changes & Store New Data to File (Disk)

More A/c to Modify

Stop

FLOWCHART ON ACCOUNT CLOSURE

```
        ┌──┬──────────────┬──┐
        │  │   A/C close  │  │
        └──┴──────┬───────┴──┘
                  │
                  ▼
          ╱──────────────╲
         ╱  Accept A/c No. ╲
         ╲                 ╱
          ╲───────┬───────╱
                  │
                  ▼
         ⟨  Display        ⟩
         ⟨  Customer Data  ⟩
                  │
                  ▼
             ╱╲
            ╱  ╲        No
           ╱Close╲──────────────────►
           ╲  ?  ╱
            ╲  ╱
             ╲╱
              │ Yes
              ▼
        ┌──────────────┐
        │   Delete     │
        │   Pack       │
        └──────┬───────┘
               │
               ▼
             ╱╲
            ╱  ╲      Yes
           ╱Close╲──────────────────►
           ╱More ╲
           ╲  ?  ╱
            ╲  ╱
             ╲╱
              │ No
              ▼
         ╭──────────╮
         │   Stop   │
         ╰──────────╯
```
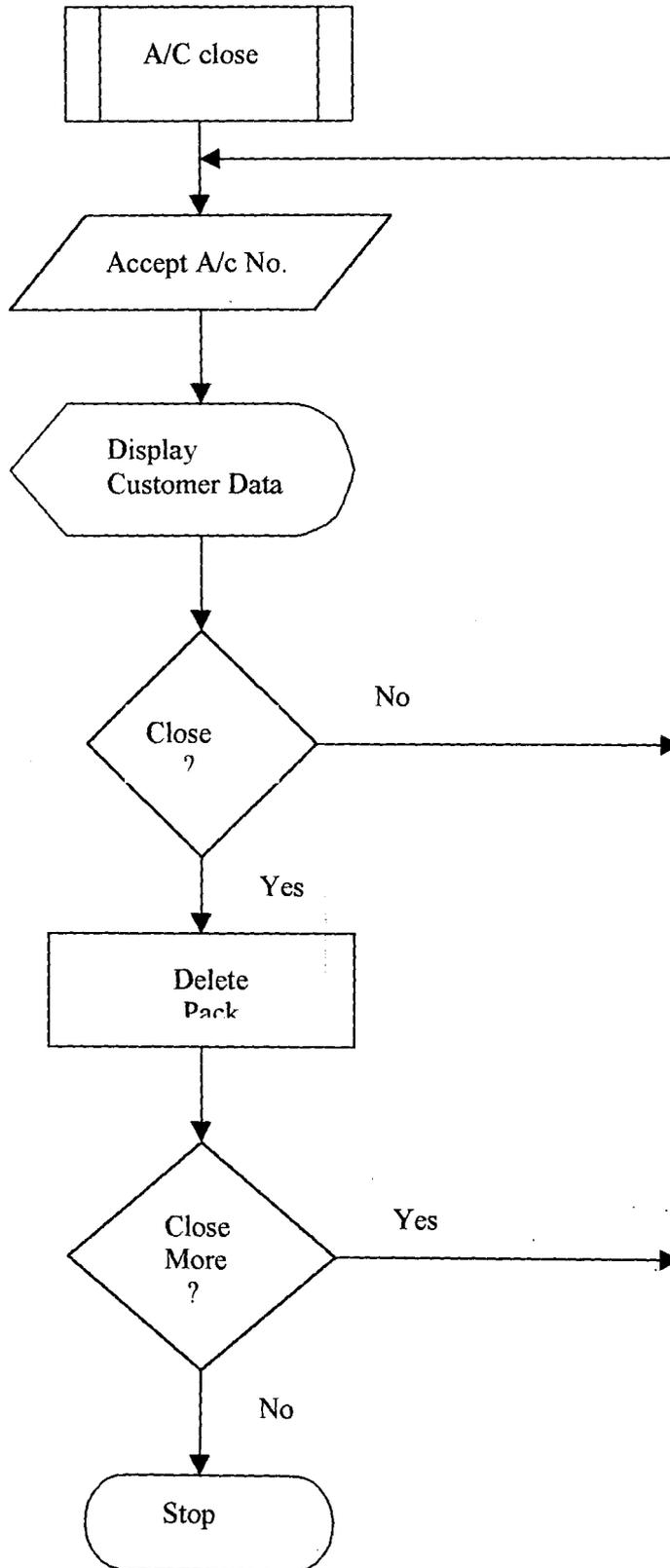
FLOWCHART ON REPORTS GENERARION

```
        ┌──┬──────────────┬──┐
        │  │ Reports      │  │
        │  │ Generation   │  │
        └──┴──────────────┴──┘
                 │
                 ▼
              ◇ Bar()        Yes      ┌──────────────────────┐
              =1 ?  ─────────────────▶│ Display A/C Balances  │──────▶
                 │                     └──────────────────────┘
                 ▼
              ◇ Bar()        Yes      ┌──────────────────────┐
              =2 ?  ─────────────────▶│ Display List of Entries│─────▶
                 │                     └──────────────────────┘
                 ▼
              ◇ Bar()        Yes      ┌──────────────────────┐
              =3 ?  ─────────────────▶│ Display Posting       │─────▶
                 │                     │ journals              │
                 ▼                     └──────────────────────┘
              ◇ Bar()        Yes      ┌──────────────────────┐
              =4 ?  ─────────────────▶│ Display Assets and    │─────▶
                 │                     │ Liabilities           │
                 ▼                     └──────────────────────┘
              (  stop  )
```