AUTOMATION OF BANK RECONCILIATION

IN FINANCIAL INSTITUTIONS

(A CASE STUDY OF INTERCITY BANK PLC)

BY

ABDULRAHMAN MUHAMMED
PGD/MCS/97/342

DEPARTMENT OF MATHS-STATISTICS-COMPUTER SCIENCE
FEDERAL UNIVERSITY TECHNOLOGY
MINNA

DECEMBER 1999

TITLE PAGE

AUTOMATION OF BANK RECONCILIATION IN FINANCIAL INSTITUTIONS

A CASE STUDY OF INTERCITY BANK PLC

BY

ABDULRAHMAN MUHAMMED
PGD/MCS/97/342

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD
POST GRAUDUATE DIPLOMA IN COMPUTER SCIENCE IN
IN THE DEPARTMENT OF MATHEMATICS, STATISTICS
AND COMPUTER EDUCATION
IN THE FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA, NIGER STATE

DECEMBER 1999

DECLARATION

I hereby declare that this Project research work for the Post Graduate Diploma in Computer Science in the Department of Mathematics, Statistics and Computer Science has not been presented either wholly or partially elsewhere for another Degree program.

All information derived from either published or unpublished work of others has been acknowledged in the test.



A. MUHAMMED

(Student)

CERTIFICATION

I certify that this Project Work titled "**Automation of Bank Reconciliation in Financial Institutions**" was carried out by Abdulraham Muhammed of the Department of Mathematics, Statistics and Computer Science, School of Science and Education, Federal University of Technology, Minna.

.....	.....
DR. S.A. REJU	DR. YOMI AIYESIMI
Head of Department	**Supervisor**

.....
External Examiner

ABSTRACT

The advent of Information Technology into the banking industries has become very dynamic which necessitated the Managers of funds to adopt sophisticated systems capable of processing large volume of data at high speed and accuracy for improved service delivery. Many application packages are already being marketed from the industrialized countries like United State of America (USA), Europe, etc.

In the light of the above this project seeks to assist financial institutions in a more efficient, reliable and quicker means of reconciling their accounts.

It is my opinion that the use of this Software will abreast the Management of the actual cash backing, reduction of paper work, automatic updating of records and maintenance, improve accuracy and data/information to customers which will enhance customers' confidence in the financial institutions.

ACKNOWLEDGEMENT

I wish to express my profound gratitude to my Supervisor Dr. Yomi Aiyesimi in the Department of Mathematics, Statistics and Computer Science who spared a lot of his time to go through the script and make necessary corrections and advices.

I would like to acknowledge the untiring efforts, supports and understanding of all the Lecturers in the Department of Mathematics, Statistics and Computer Since.

I also like to acknowledge the untiring efforts, guidance and financial support of my brothers, friends and colleagues in the PGD Programme 1997/98 session.

Finally to Mr. Daniel Ali who spared much of his time to type the Project and the entire Management of Intercity Bank Plc for giving me the opportunity to attend the Programme.

DEDICATION

This Project Work is dedicated to late Muhammed Bagudu's family.

TABLE

TABLE OF CONTENT **PAGE**

Title Page i
Declaration ii
Certification iii
Abstract iv
Acknowledgement v
Dedication vi
Table of Content vii

Chapter 1 - Introduction

1.1 Statement of Problem ..... 1 - 5
1.2 Scope and Objective of the Study..... 6
1.3 Definition of Terms ..... 7 - 9

Chapeter 2 - Literature Review

2.1 Historical Background of Banking System ..... 10 - 11
2.2 The Nigerian Modern Banking Industry ..... 12 - 13
2.3 Functions of the Bank ..... 14 - 15.
2.4 Bank Reconciliation ..... 16 - 17
2.5 Essence of Reconciliation ..... 18 - 19
2.6 Historical Background of Intercity Bank Plc... 20
2.7 Application of the Computer in Reconciling Bank Statement with customers ..... 20 -24

Chapter 3 - System Analysis & Design

3.1 Problem Definition 25
3.2 Feasibility Study 26
3.3 Investigation & Records inspection 27
3.4 Analysis of the existing System and Objective of the proposed System Design..... 28 -29
3.5-8 System design, Input Specification, output specification, PC requirements, implementation & review ..... 30 - 39

Chapter 4 - Software Development

4.1 Introduction 39
4.2 Programming Language used ..... 39 - 40
4.3 Algorithms 41
4.4 Flow Chart ..... 42 - 43
4.5 Details on the Operation of the new System ..... 44 - 46

Chaper 5

5.1 Performance Assessment 47
5.2 Evaluation 47
5.3 Conclusion 48
5.4 Recommendation ..... 49 - 50
- References ..... 51 - 52
Appendices

CHAPTER ONE

INTRODUCTION

1.1 STATEMENT OF PROBLEMS

The Nigerian banking industries is made up of the following set up:

(a) The Central Bank of Nigeria (CBN)

(b) The Commercial Banks

(c) The Development Banks

i. Nigerian Agricultural & Development Banks

ii. Urban Development Banks

In accordance with the Company Laws Act 1948, which made provision to the number of persons that, can form banking business as 10 for banking and 20 for non-banking, set up. But based on this research work we are limited to the banking set up – commercial aspect.

Commercial Banks are profit-oriented ventures with assets and liabilities just like order profit oriented business organizations. They are Banks that perform a number of functions among others are: acceptance of deposit from customers, giving out loans, provide credit facilities, facilitate foreign exchange transactions, financing foreign trade. These functions are performed to individual business organizations, government and the entire economy as a whole.

In order to maximize profit and attain other set organizational goals, they are structured on the basis of the above functions, departmentally such as the Treasury and Financial Institutions Department, Credit and

Marketing Department, Foreign Exchange Department, Savings and Current Accounts Departments, Legal Department, Branches Coordination Department, Personnel and Administrative Department to mentioned but a few.

Merchant Banks are referred to investment banks because their major or primary role is the provision of long term financing and securities for customers.

Merchant Banks perform other related functions but major on the purchase of securities issued by private enterprises and government in need of money and scale of securities to the investing public. They are engaged in bulk purchases of securities with the aim of setting them at a higher price to the purchasing public.

The functions of savings by individual and other financial institutions constitute the major source of funds for the security market for investment banks. The process of these savings is spare headed through various intermediaries that undertake the actual investment, e.g. life insurance company. Commercial and Savings bank, Provident and Pension Fund, etc. In this regard, enterprises and government form the major demand for these resources.

Merchant Bank can be grouped into three on the basis of their modus operandi as:

i. Whole

ii. Retailers

iii. Dealers.

Whole sale functions is performed by investigating and obtaining securities for sale to other houses and in turn sale to investing public.

The retail function performed by the investment bank is the purchase of securities for its account and risk to the investors, they also under write and distribute as part of its functions.

However, the present day Merchant Banks operate in all the three level of securities, act as brokers and partake in direct placement activities as investment management and acceptance of bills. Merchant Banks are engaged in some of commercial banking functions as the acceptance of deposit and lending money. To achieve the departmental and over all organization goal various departments were structured in Merchant Banks such department as international remittances department dealing with foreign operations, savings and corporate affairs department, etc.

Having discussed banking as a financial institution, we now go onto bank reconciliation as the basis of this research work.

Bank Reconciliation Statement

This is one of the major operations of the banking industries. This is a unit curved carried out from the accounting department called reconciliation Unit. The department is saddled with the responsibilities of reconciling accounts of the bank on daily basis. This is done to effectively enhance rendering of the account on weekly, monthly, quarterly and annual basis to the organization.

In order to maximize profit and achieve the organizational set objective bank reconciliation Unit is very vital for every financial set up to ascertain the correctness of the customers' accounts with the Bank. The reconciliation of the banks are manually basis which is done by opening a card for each customer thereby crediting by opening a card for each customer account and debiting all the withdrawals from that accounts and a new balance obtained at the end of the transaction.

The reconciliation of sundry account entails the removal of already settled items and each provision of file copies for fresh entries and each jacket trial balance on the total of the sundry account compared with the sundry General Ledger. Since entries are receivables, payables, Cheques for collection, Uncleared effects and salary suspense account.

Shortcomings Of Bank Reconciliation Statement

The operations of Bank Reconciliation Statement manually has the following disadvantages:

i. repetitiveness task of book keeping, copying and rearranging of information already produced.

ii. It involves a lot of paper work in its operations.

iii. The computation of the balance any time transaction takes place and the involvement of a lot of paper work in its operations.

The advancement of information technology wipe out a lot of paper work and information/data is produced speedier and accurately for managerial decision making.

In essence the development of information technology has made the following if fully implemented in the banking industry as the elimination of the repetitiveness work of book keeping, automatic mathematical/arithmetical calculation, minimizing paper work, automatic updating of records continuously, sorting and arranging information in various sequential order in which information is easily obtained.

Banks also prepare reconciliation for deposits and withdrawals of individuals and organization accounts and as such individual and organization maintain a cash book records of their deposits and withdrawal as same in the banks. The difference in the operation of individual and organization with the bank is that customers' information are represented at the debit side while liabilities at the credit side.

The importance of timely and accurate Bank Reconciliation cannot be overlooked in the banking industry like Intercity Bank for the following reasons:

i. To adequately have information of its financial information/data at any particular given period of time.

ii. To know the amount of financial commitment paid and received at any given period of time.

1.2 SCOPE & OBJECTIVE OF THE STUDY

Intercity Bank Plc is chosen as a case study because it is a set up which has a lot of accounts that are normally reconciled on timely basis. Although it is a set up with a lot of Computers in which if properly utilized more information/report could be acquired faster, accurately and timely basis for managerial decision making.

The project research work will cover the historical background of the banking industries and Intercity Bank Plc.

Objectives

The objective of this Project research work include among other things;

i. To critically examine the manual system of reconciliation in the Bank.

ii. To analyze the disadvantages of the manual system and the need for its changes.

iii. To identify the objective of the proposed system and the benefit that could be derived.

iv. To design and develop a new system for accurate faster and speedier operation.

v. To evaluate and assess the performance of a new system and made recommendation for managerial decision making.

1.3 DEFINITION OF TERMS

The following definition and explanation of terms will be imperative to this Project research work.

Unpresented Cheques

These are normally Cheques drawn by business organisations on itself and given to customers who failed to present the Cheques before the bank statement is prepared.

Uncredited Cheque

These are Cheques drawn by customers upon themselves and given to a business. The business having deposited the Cheques to the Bank but not given direct credit to their account due to the fact that the cheque is undergoing clearing session.

Dishonoured Cheques

A Cheque is dishonoured if a customer's cheque is initially credited in a bank statement and later debited as a result of irregularity regarding the cheque.

Bank Charges

These are cost of transactions/COT by the banks in respect of the services rendered to customers such services are bank cheque issued, clearing, insurance and draft, etc.

Interest Charges

These are charges made in Savings and deposit accounts. This could be paid to Savings and at the other hand, interests are charged on Current Account, cost of transaction (COT), interests paid on Savings and deposit account increases the bank's liquidity position, while that of Current Account reduces its liquidation.

Standing Order

This refers to an order by individual or organization to pay certain sum of money on a particular given date on their behalf.

Journals

These are subsidiary books of account used for classifying transactions made before being posted to the ledger, e.g. sale purchases, return inward and outward, etc.

Assets

These are referred to the Capital an organization or individual has in the running of the business. This could either be Fixed Asset or Permanent Assets.

Liabilities

This refers to the money owned for goods supplied to a firm for expenses. This could either be long term or short term.

Uncleared Effects/Uncredited Lodgement

These are Cheques paid into a business organization or individual account that the bank has not given direct credit in its statement.

Ledger

This is the summary of customers' transactions in words and figures. Ledger Cards is normally in two aspects/parts containing detailed information of the credit and debit balances; with credit columns as given and debit as receiving.

Cash Book

This is same as Ledger Book having debit and credit column/entries. This can simply be defined as a book of transaction where money is received and paid by Cash.

Bank Statement

A summary of customers account in the banks ledger normally advise to the customers on timely basis.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 HISTORICAL BACKGROUND OF THE BANKING INDUSTRIES

The historical background of the banking industries can be traced to the Goldsmith era in the 17thCentury. The Goldsmith worked and shaped the precious metal and undertook other functions base on the fact that Gold wares were extremely valuables, customers looked to the Goldsmith for safe keeping or storage of their treasurers. In return for the deposit with Goldsmith warehouse receipt is issued to customers in the promise to return the valuable to the customer on demand.

During the period, the customers deposited Unique Gold Ornament and the customers naturally waited to get back precisely the items, which had been left with Goldsmith. A Goldsmith held not only unique items for their customers, golden bars and coins were also deposited. In this situation it was not essential to the depositor to get exactly the same gold that was deposited and for that the development of banking was established.

After some years of experience holding gold for many different depositors, Goldsmith noticed something interesting. Although he was committed to repay the Gold of the depositors on demand. Although he did not actually repay them all at once in the normal course of events, each

week some of the depositors made withdrawals while others added to their balances.

On the above basis, there was in flow and out flow of the gold from the Warehouse. This actually led to the fluctuation in the total holding of gold, and a sizeable quantity remained on deposit at all times. This situation led Goldsmith to think of lending some of these gold that were just lying in the Vaults "collecting dust" by so, doing he was able to earn interest. This also made Goldsmith to think of issuing loan.

The Goldsmith started by keeping a relatively large quantity of gold in his vaults to enable him pay off depositors in the event that a group of them suddenly demanded their gold back. He lent out the remaining Gold to borrowers and in turn collected promissory notes from them stating their commitment to pay in interest and repay the principal after a period of time. With this development, the Goldsmith had then ceased to be a simple warehouse keeper and became a mini bank. In granting loans the Goldsmith went beyond warehousing and entered the fractional reserve-banking business.

In the event, the Goldsmith gained confidence in the banking business, this was experimented keeping gold reserved that were lower in fraction of their deposit liabilities, sometimes having 20% in reserve or less than. Each time money equivalent of gold is taken out of reserves and loan, an individual interest is earned.

2.2 THE NIGERIAN MODERN BANKING INDUSTRY

The Nigerian modern banking industries is dated back to the early colonial period, the financial transaction of the colonial government the decline of the barter system of trade and increasing acceptance of the British saver currency led to the development of an institution in the form of commercial banking in Nigerian banking corporation to open a branch in Lagos and then activities was short lived by the trade recession that hit Lagos in that very year.

However, the Bank was later taken over by the Elder Denster and Company until December 1892 when the Bank of British West Africa (currently known as the First Bank of Nigeria) was organized and registered in London. The first Branch of the Bank was opened at Lagos in 1894. After five years the Paiges trading firms in Eastern Nigeria under the leadership of the Royal Niger Company established the bank of Nigeria.

In 1912, the West African Currency Board was established and the Bank for British West Africa was appointed as the sole Agent for the custody and distribution of British Silver Currency issued by the Currency Board.

In 1925, Barclays' Bank, Anglo-Equiptment Africa were formed. For other foreign banks also established such as African International Bank (AIB), Bank of Indian, Arab Bank, Bank of America (now Savannah Bank

Ltd chase Manhathan Bank formed in 1930's. These Banks controlled 56% of the branch network 54% of the total paid up Capital 70% of the total deposits and 2% of the total loans and advances of the commercial banking system in 1940s and 1950s.

In the year 1973, the Federal Government declared its decision to intervene more directly in commercial banking activities by acquiring 40% of the equity of Barclays Bank (Nigeria) Limited, Standard Bank (Nig) Limited and United Bank for Africa Limited.

The essence of this intervention by the then Head of State in the maiden budget broadcast was to increase the benefits of commercial banking to the national economy. Also the participation is for the government to get intimately involved in commercial banking activities so as to guide them to operate to the maximum benefit of the economy.

The promulgation of indigenization decree (NEPD) in 1972 and amended in 1977, the distinction here between foreign and indigenous commercial banks became more cleared and indigenous became purely for Nigerian in terms of ownership and management.

The industrial and commercial bank was established at Lagos in 1929 as the first indigenous bank but later went into liquidation in 1930. The failure was due to inadequacy of capital exercise in both management, accounting and depressive prevailing economy.

In 1931, the Nigerian Merchantile Bank was established which suffered steady losses until 1936 that it went into voluntary liquidation.

The successful indigenous banking efforts in Nigeria began with the establishment of National Bank of Nigeria in 1933. In 1947 the Nigerian Farmers and Commercial Bank was incorporated, African Continental Bank in 1948, Pan African Bank 1951 and Standard Bank of Nigeria in 1954.

In 1976, the Okigbo Committee set up as at then were 21 banks in Nigeria and by March 1991 the number had gone up to one hundred and fifteen as at June 1992, and the number of licenced banks had risen to one hundred and twenty two. Currently in the Nigerian banking system, we have about one hundred and twenty four banks operating countless of the twenty-six liquidated banks in the Country.

2.3 FUNCTIONS OF THE COMMERCIAL BANKS

The commercial banks can be referred to a business entity set up to do banking business. They are the most common types of banks in Nigeria and had started earlier than all other types of banks. The commercial banks solely deal with a special kind of business, which is money business, acceptance of deposit from the public, and make profit by lending money to the public.

Commercial banks are money market set up to renders variety of services acceptable to customers with a view to earning maximum profit

for its proprietors. The commercial banks in addition to its function deals with money generation. The functions can thus be grouped into special service and money generation.

i. **Special Service Functions**

(a) **Acceptance of Deposit**

Banks on behalf of their customers accept deposit in three kinds of deposit, Savings, Current and Fixed deposits.

Savings can be individual group or organization operations here is done by the use of Passbooks. There is a limit to the number of withdrawals before interest is attracted.

In Current account, Cheques are used for withdrawal at any time as much as he is the owner of the account and the cost of transactions (COT) is charged. Deposits on this account are made on demand and do not earn interest.

Fixed deposits are also deposits made for a specific period of time. Within the period no withdrawal is made.

Banks give loans and overdrafts to the customers. Customers are granted loan facilities and also to customers who need money for investment and other businesses.

Banks provide banking facilities to their customers both within and outside the Country- internationally. Transactions within the Country are done through Cheques and standing orders; and internationally by selling

through CBN travelers Cheques with their customers.

Banks serve as a source of status information and reference to their customers.

Banks perform executor and trustee services for wills and trustee deeds.

Banks also give financial services to their customers on the use and management of funds and how to manage their business. Provide facilities for the safe keeping of valuables like jeweries and documents for its customers.

The money generation functions are done by keeping a current account with the Central Bank of Nigeria. The commercial bank is required by the law to keep a certain percentage of their deposits with the CBN called the cash ratio. The ratio varies from one country to another for example- for the purpose of this analysis is 40%. This means that if a bank accepts current deposit of N1000 it must at least keep N400 and lend out N600.00. The process of keeping some percentage is money generation since interest is earned on the both sides.

2.4 BANK RECONCILIATION STATEMENT

A Bank Statement is a copy of the ledger account sent by the bank to its customers periodically to show what they have deposited, what they have withdrawn within a certain period, the bank charges, if any, and the balance remaining.

A statement made by businessmen to reconcile the bank balance shown in his cash book with the balance shown in the bank's statement.

Bank Reconciliation Statement for Bank Account: Mr. Alpha

Jan 1st 1998	N20,000	March 1st, 1998 Mr. Alpha	N4,000
		March 1st balance c/d	N16,000
	N20,000		N20,000
March 2nd 98 balance b/d N16,000			

The relationship above shows between the bank and its customer, which is that of debtor and creditor. Thus when Mr. Alpha pays N20,000 cash into the bank, the bank will debit cash account and credit the personal account for Mr. Alpha, meaning it owes him the N20,000, which he has deposited.

Now Mr. Alpha's balance on the above is N16,000 but until the cheque is presented for payment at the bank if not the bank will not know and will say that Mr. Alpha still has a balance of N20,000 standing to his credit at the bank.

The above discrepancy in the statement of the bank and the customer's own cash book records can be as a result of the following:

i **Unpresented Cheques:** When a cheque is drawn in favour of a customer for one reason or the other and have not presented it for payment, the cheque will cause a discrepancy in the bank's balance as it must have been entered in the drawers book.

ii **Uncredited Cheques:** when a cheque is paid into the bank and have not been given a direct credit by the bank it will cause a

discrepancy in the bank balance as it must have been entered in the cash book.

iii **Bank Charges:** interest paid to etc the bank might debit its customers account with such items as cost of cheque books, cost of transaction (COT) etc and credit the account with such items like interest received which are known to customers.

iv **Dishonoured Cheques:** when the cheque is dishonoured, the customer's account in the books of the banker is immediately debited and if the information does not reach the customer on time for him to reverse the entry in his cash book there is bound to be discrepancy in the bank balance.

v **Direct Payment:** refers to payment made into or from the balance. Sometimes authority is given by a customer to his banker to pay regular subscription to certain organization when they fall due.

2.5 ESSENCE FOR RECONCILIATION IN FINANCIAL INSTITUTIONS

The essence of preparing the reconciliation in a financial sector can never be over emphasized for the fact that individual, organization, government

and institutions have an account with the banks, and they have to, from time to time prepare reconciliation statement in order to ascertain the balance of what they have at anytime in the bank.

The following are some of the importance of bank reconciliation in a commercial set up:

(a) Ensure that management is kept abreast of the actual cash backing for meeting organizational needs.

(b) Highlight bank charges or other deductions from the balance at the bank that may have escaped management attention or was never initiated by management so that the banks book of account reflects such discrepancy.

(c) Highlight all payments to the banks and other credits made directly to the bank by the person paying it so that full account can be taken of all such receipts.

(d) Ensure that all Cheques drawn on the account or other payments or transfer instrument made by the institution are full debited to the account.

(e) Ensure that any difference between the bank entries and entries into the institutions cash book are fully investigated followed up and corrected in the book of account.

(f) Ensure that all bank charges or bank initiated debits are in line with prevailing regulations.

Having taken care of all the above items, ensure that the balance in the institutions cash book is fully in agreement with the balance in the bank as at the date of the statement.

The preparation of the bank statement should not be done with same staff who prepares Cheques for drawing on the bank. The officer-in-charge of bank reconciliation statement should always prepare journal vouchers for all entries in the bank statement not in the cash book.

HISTORICAL BACKGROUND OF INTERCITY BANK PLC

The bank Intercity Plc was incorporated on 27th April, 19987. It obtained a banking licence on the 28th October 1998. Pursuant to a technical management agreement, first bank of Nigeria Plc undertook the provision of technical management services to Intercity Bank Plc. This was in place until December 1990 when International Merchant Bank Plc took over this function following the termination of the First Bank of Nigeria Plc. Subsequently expire on 3rd December 1995. The bank currently has the following branches and Cash Centres: Minna branch, Minna Market Agency, Victoria Island branch, Balogun Cash Centre, Yaba branch, Kaduna branch, Kano branch, Kano Market Agency, Suleja branch, Abuja branch.

The bank is currently undergoing expansion with the aim of opening more branches nation wide.

APPLICATION OF COMPUTER IN RECONCILING BANK ACCOUNT

The uses of MicroComputer have increased as the Computers themselves have acquired more featuring. MicroComputers can be used as typewriters, calculators, accounting systems, record keepers and telecommunication instrument.

In business, banks and some organizations, MicroComputers are used for ordering, controlling inventory, book keeping, processing payroll and many other tasks. Executives are putting MicroComputers in their offices so that they can have access to the information they need for managerial decision making. MicroComputers have a wide variety of users in homes. People with little or no programming experience can use MicroComputers to balance cheque books, stores receipt, prepare budgets, bank reconciliation and play games, etc.

With the advent of Computer information technology – MicroComputers many Softwares were developed/introduced for accounting packages. They include ACCPAC plus, BEDFOR INTEGRATED ACCOUNT, DACEASY ACCOUNTING REALWORD PAYROOL – DAC EASY accounting is a low cost package with a large number of accounting functions; an integrated accounting package that provides seven functions: general ledger, account receivable, account payable, purchase orders, billing, product and services. It provides two inventory modules – one dealing with products for use by merchandizing business and the other

dealing with services for service businesses. Using DACEASY modules, account receivable transactions once posted will update customer with account balances as well prepare summary transactions for the General Ledger.

The most recent software that deals more on the bank reconciliation is the Data perfect (Checks books and budget management system) by the word-perfect corporation of the United States in 1993.

This program is divided into four parts:

A. The bank account/budget data under this can:
    i. add/review bank account
    ii. general budget categories
    iii. View/edit budgets
    iv. view/edit creditors list
    v. set account preferences
B. The second part deals with making of a transaction. Here you can:
    i. enter Cheques into register
    ii. make deposit into an account
    iii. prepare account reconciliation
C. This section sends reports to Printer/Disks files under this we have:
    i. account listing
    ii. taxable income/deductible

iii. budget summary to date

iv. printing of Cheques

D. The final part is the notices/maintenance. Here we can:

i. define notice

ii. create a new account

iii. remove a single account

Using this software, the reconciliation report will help in balancing Chequebooks so that books will be the same as the banks. It will first present a look up list containing various accounts. Data perfect will then compare this to what it thinks we have and let us know if we are in agreement with the bank.

The program will then ask the following questions and will expect us to highlight any one. The questions are 'do we want to:

i. return to reconciliation

ii. exit reconciliation (and finish later), and

iii. exit reconciliation and get account balance equal to the current balance?

Douglas A. Potter in his book "Automated Accounting System and Procedures Handbook" design accounting system from the modern accounts payable system that can support computerized bank reconciliation. This allows the Accountant or whoever is responsible to enter the bank's reported balance and any adjustments to either the general

ledger or the bank's records. This will help the Accountant to complete the reconciliation quickly and accurately.

There are two parts of integration that are said to make this system from other automated accounting process and make this a practical beneficial approach. The first part of integration is automatic journalization of General Ledger adjustments entered into the left side figure. These adjustments not only help complete the bank reconciliation process, but they also appropriately update the general ledger. The second part of integration is the record of outstanding Cheques report in the upper right of the screen figure.

From the above explanations, it can be concluded that the application of

Computer in preparing bank reconciliation is a new development. It could however be noted that in some organizations like banks, comparing that introduces the use of Computers in some of their activities, the reconciliation aspect is done manually.

The automation of bank reconciliation in financial institutions can never be over emphasized due to the following advantages which assist the organization in the following ways:

i. It assist in eliminating many of the repetitive tasks of book keeping

ii. It helps to eliminate copying and rearranging of information, which has already been entered into the system.

iii. It performs all the mechanical computations faster and accurately.

iv. It eliminates most of the paper work involved.

v. Assists in updating records automatically.

vi. It produces reports that are timely and accurate.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

3.1 PROBLEM DEFINITION

The theme of this Chapter is to find out whether there is a need to change the existing system. This can only be done by defining the problem to be solved.

In preparing bank reconciliation manually the following problems are envisaged:

i. repetitive task of book keeping.

ii. computations of balance any time transaction takes place.

iii. The usage of papers in the operation of the accounting system

iv. Mistake in the preparation of bank reconciliation means cancellation of work done and start all over.

v. When reconciliation is done it is difficult to insert or delete information.

On the basis of the above problems associated with the existing system and based on the fact that the organization has a lot of computers and manpower of which if properly implemented can solve the problems. It is therefore advisable that the existing system be changed.

3.2 FEASIBILITY STUDY

Generally, in conducting this project research work investigation on the problems of the existing system in operation are made and a look at all the possible alternative solutions.

In other word, feasibility study is designed to assist in choosing from among arrangement of alternatives rather than from two choices.

In comparing the alternative solutions, the cost benefit analysis of the alternatives are considered and then recommendation of the best made to the organization.

Lack of proper and timely reconciliation of the bank accounts can cause an organization making payments more than the amount it has in the bank. This can result to overdraft and then bank charges. Using Computer in

preparing bank reconciliation reduces the use of paper work – this couple with the rising cost of paper materials.

Going by the automation of reconciliation system, the organization needs not to buy any Computer since they have a lot of PCs in use. The only thing needed for the organization is the training of manpower on how to use the Computer.

3.3 INVESTIGATION AND RECORD INSPECTION

In designing a new system, it is very important to conduct a detailed study and understand the existing system. By so doing, all the strengths and weaknesses will be discovered. The new system if designed will eliminate the weaknesses and return the strength ones.

In conducting this project research work, I took into consideration of the basic information requirement, the range of data types, the volume of data to be processed and exceptional cases – that is where the unusual/problem occurs and problems associated with the existing system.

The record inspection and interview methods were used as fact-finding method in the investigation procedures of this project.

the interview, a lot of facts about the existing system come to lime light together with the opinion of the interviewee regarding the shortcomings in the system and suggestions on how to go about solving them.

3.4 ANALYSIS OF THE EXISTIG SYSTEM AND OBJECTIVES OF THE PROPOSED SYSTEM

The analysis of this Project research work is based on full description of the existing system and the objective of the proposed system. These are expected to lead to a full specification of the Organizations requirement.

The strength and weaknesses of the existing system are spelt out which further provide the feasibility and sensibility of proceeding with the computerization.

3.4.1 Operation of the Existing Bank Reconciliation System

Bank reconciliation in Intercity Bank Plc can be traced back to the inception of the Bank in 1987.

Bank reconciliation is prepared on monthly basis. To prepare reconciliation statement all records of payments, receipts and settlement by the customers and the bank statements for a particular month to be reconciled.

The next steps to produce a Cash book for the period under consideration. It will show the previous monthly's closing balance, which will serve as the new opening balance for the month to be reconciled. The total receipt items are summed up and deductions of the total payments are done to arrive at a new balance.

After obtaining the Cash book balance, it is then transferred to the appropriate account for reconciliation. While reconciling the Cash book, the reason for any disagreement is explained as shown.

3.4.2 Objective of the Proposed System

The objectives of the proposed system are:

(i) reduction in the use of paper work;

(ii) sorting or arranging of information in various ways can be done easily and faster;

(iii) automatic updating of records and maintenance

(iv) elimination of many repetitive work of book keeping.

3.5 SYSTEM DESIGN

The proposed system involves the automation of the manual operations of the existing system. The purpose of the design is to work from the

requirements' specification to produce a system specification. The system specification will be a detail set of documents that provide all features of the system.

The system design include, the development of the structure of the data base files required, input specification and the output specification. It also provides step-by-step logical operation of the program.

3.6 Input Specification

The input specification is influenced by the need of the output. Thus, in carrying out this project research work, six data base files are used. These include: receipt dbf, payment dbf, unpresen deft, uncredit dbf, dishonor dbf and reconcile dbf.

(i) RECEIPT DBF

FIELD	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1.	VRSNOS	CHARACTER	10		N
2.	D-OF-DAY	CHARACTER	35		N
3.	AMOUNT	NUMERIC	15	2	N
4.	DATE	DATE	8		N
5.	PAYFORM	CHARACTER	10		N
6.	TRANS	CHARACTER	10		N
7.	YR-TRANS	CHARACTER	5		N
8.	MN-TRANS	CHARACTER	10		N
9.	OPN BAL	NUMBERIC	15	2	N

(ii **PAYMENT DFT**

FIELD	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1.	VRSNOS	CHARACTER	10		N(I)
2.	D-OF-DAY	CHARACTER	35		N
3.	AMOUNT	NUMERIC	15	2	N
4.	DATE	DATE	8		N
5.	PAYFORM	CHARACTER	10		N
6.	TRANS	CHARACTER	10		N
7.	YR-TRANS	CHARACTER	5		N
8.	MN-TRANS	CHARACTER	10		N
9.	OPN BAL	NUMBERIC	15	2	N

(iii) **UNPRESEN DBF**

FIELD	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1	CHQNUM 1	CHARACTER	10		N
2	AMOUNT 1	NUMBERIC	12	2	N
3	YR-TRANS	CHARACTER	12		N
4	MN-TRANS	CHARACTER	5		N
5	UNPRE.CHQ	CHARACTER	35		..... N

(iv)

UNCREDIT DBF

FIELD	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1	CHQNUM 2	CHARACTER	10		N
2	AMOUNT 2	NUMBERIC	12	2	N
3	YR-TRANS	CHARACTER	12		N
4	MN-TRANS	CHARACTER	5		N
5	UNPRE.CHQ	CHARACTER	35		... N

(v)

RECONCIL DBF

FIELD	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1	OPN BAL	NUMBERIC	12	2	N
2	INT-BANK	NUMBERIC	12	2	N
3	BANK-CHQ	NUMBERIC	12	 2	N

(vi)

DISHONOUR DBF

FIELD	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1.	OPN BAL	NUMERIC	12	2	N
2.	UNPR.CHQ	CHARACTER	35		N
3.	CHQ NUM 1	CHARACTER	10		……..N
4.	AMOUNT 1	..NUMERIC	12	2	…… N
5.	DP-TOBANK	NUMBERIC	12.	2	N
6.	INT-BANK	NUMERIC	12	….. 2	…… ..N
7.	UNCR-CHQ	CHARACTER	35		N
8.	CHQ NUM 2	CHARACTER	10		…….. N
9.	AMOUNT 2	NUMERIC	12	2	N
10.	DISH-CHQ	CHARACTER	35		N
11	CHQ NUM 3	CHARACTER	10		……..N
12.	AMOUNT 3	NUMERIC	12	2	N
13.	BANK CHQ CHRG	NUMERIC	12	2	N
14.	CLOSE BAL	NUMERIC	12	2	N
15.	DATE	CHARACTER	8		N
16.	MN-TRANS	CHARACTER	12		N
17.	YR.TRANS	CHARACTER	5		N

3.7.1 Output Specification

The program designed is based on the requirement of the system which includes - producing of monthly reports that shows, Cash balance (i.e. total payments and receipts); the bank reconciliation statement and lost of unpresented, uncredited and dishonoured Cheques.

The program consisting of three aspects as follows:

i. Records

ii. Reports

iii. Exist

3.7.2 **Records**

This section consists of six parts; the receipts, payments, unpresented, uncredited, dishonour and reconciliation. It deals with the information/data records of the bank account. The section shows detail description of the records on monthly basis. In addition, the section allows you to append, modify or delete record(s).

3.7.3 **Reports**

The types of reports that can be generated from this program are: Cash book balance, bank reconciliation statement and list of unpresented, uncredited and dishonoured Cheques on monthly basis. The menu that handles this report allows records to be viewed or printed.

3.7.4 **Exit**

This section of the program allows the termination of the application system to return to either Dos prompt when you enter "Yes" or to the main menu when you enter "No" 3.8 PCs REQUIRMENT.

The proposed bank reconciliation system a Personal Computer, PC/XT - Micro Computer with the following configurations:

i. 80286, 80386 and 80486 main processor

ii. At least 1024k of RAM

iii. 3.5" or 5.25" floppy disk drive

iv. Colour or black and white monitor

v. Printer of 24 pin dot or LaserJet

vi. Stabilizer of 250VA and UPS of 500VA against power fluctuation.

On the Software aspect, the system being a database management application program requires the followings:

i) Microsoft disk operating system version 6.0 or later.

ii) Database management system - dbase IV

3.8 IMPLEMENTATION AND REVIEW

The development of the new system in place with the entire working requirement, the next stage is the implementation. To effectively put into operation of the new system the cooperation of the user department (accounts) and data processing section has to be sought. A Coordinating Committee can be formed comprising staff from the Accounts and Computer Sections (Supervisor, Operator, Analyst or Programmer) as members.

The implementation stages can be grouped under the following activities:

i. Training

ii. System

iii. Review

3.8.1 Staff Training

The amount of training required to develop a system depends on its complexity and the skill presently available.

The proposed system is easy to operate.

Intercity Bank Plc: The Head Office Operators in coordination with the Finance Department does the bank wide reconciliation. So also applicable to other branches operation.

The training will cover areas like basic computing and operation guideline for the account staff in particular and basic accounting for the Computer staff. On the job training is also recommended.

3.8.2 System Testing

In developing a new system, the testing of its workability is very essential. The program written for the proposed system is done correctly and in such a way, that it can be amended to suit a changing environment. The system testing is also known as the change over procedure, which could be done in any of the three ways i.e. parallel, direct, or one to one or pilot change.

In the parallel system testing, the old and the new system run concurrently using same inputs. The output from the old system can continue to be used until the new system proffered satisfactorily. At this juncture, the old system is then stop and new system takes its place. This system testing is recommended. This is due to the fact that it has advantage of keeping all data in the former procedure in case of system failure. It also allows comparison of the output of the two systems. It is very effective for the large and complex project. The only disadvantage is that it is costly.

Direct or one to one system testing on the other hand involves switching over from old system to the new one immediately. This type of system testing if any problem should arise, the whole work has to be started over because previous record might have been lost. However, it is good for small and simple project. The cost is low but very risky.

The Pilot system testing involves gradual adoption of the new system until proved satisfactorily before final change over completely. It is more or less like the parallel change over but in a small scale

3.8.3 System Review

Whenever there is the need for the introduction of a new system. It is very important to obtain a feedback from time to time on the performance. The performance is therefore, compared with the set up objectives to ensure its conformity.

In the event that the system is not working fine, the reason should be easily identified and correction effected immediately. While on the other hand, if the system is working fine, some modifications or improvements of the new system can be done as may required by the user.

The automated bank reconciliation system should be able to eradicate or reduce to minimize the problem/shortcomings identified in the former procedure. It should also give room for changes wherever necessary.

3.8.4 Cost Benefit Analysis

In analyzing the cost benefit, it is pertinent to analyze a number of factors to be considered as follows:

(i) The development cost

(ii) The operational cost

(iii) The maintenance cost

The Development Cost

The development cost refers to the actual cost of analysis, design and installation for the new system. These costs are highly sensitive to the amount of time spent to develop the system and are directly proportional to the number of analysts, programs and users staff involved, and the length of their involvement.

The Operational Cost

This refers to the cost of operating a new system when assessing the total cost. The new system will require the use of part of the time available on an existing Computer or may necessitate an upgrading of the present system or even the acquisition of a new Computer.

Maintenance Cost

This refers to the cost routine maintenance and enhancements. It is said that no system is ever finished "bugs" will need repairs and users will request periodic enhancements as they work with a system.

However, having analyzed the different types of costs involved and their operations. The project researcher believed that the proposed new system will reduce costs, enhance operational activities and better profit for the management based on the following advantages over the existing system.

i. **Reduction of the clerical activities**: The introduction of the new system designed will reduce the operational activities of the clerical staff, manual entry, at times calculate before transferring to the Computer for processing. If the old system continue to exist, it will be time consuming knowing fully well the importance of the time to the bank and her customers, also a danger of inaccuracy will arise in an automation system.

ii. **Improvement in Operations**: The practice whereby the old system cannot correct the idea where a customer's accounts is credited to another customers account, with the new system it will eliminate this and bank reconciliation problem will be eliminated.

CHAPTER FOUR

SOFTWARE DEVELOPMENT

4.1 INTRODUCTION

In every Software development, the emphasis is to develop a system structure into a program that will help in achieving the goals of proposed system.

The Fourth Chapter of this research project deals with the programming language used, shows the algorithms and flowchart. In addition, details on the operation of the new system are explained.

4.2 PROGRAMMING LANGUAGE USED

In selecting programming language, it involves determining the best programming language for the application. Some of the factors to be considered includes:

i. The difficulty of the program

ii. The technical skill required of the Computer programmer

iii. The availability of programmers for various language

iv. The availability of sub routine that may be used by program

v. The existing hardware and software configuration.

In developing the Software dbase IV programming language is used. The essence of choosing this language is that it easy in usage and understanding.

The usage of dbase VI has the following advantages over other programming languages.

i. It provides a full relational database environment to users.

ii. With this programming language, one can design database, manipulate and edit records and files, generate reports, perform database, query, design labels and browse databases without the use of command language.

iii. Data can be verified automatically as they are entered in to fields up to 255 heads can be specified per records. So also a database can be related to more than two other databases.

iv. Programs and procedures can be compiled and saved as object codes for faster execution.

v. Pop-up menus and windows can be defined.

vi. It has a larger number of memory variables, user define functions up to 99 files can be opened at a time.

vii. It has improved indexing, command line editor, printer handling capacities and faster execution.

viii. The most advantage of database IV is the full relational database capacity using SQL (Structured Query Language) that is capable with IBM machines. Data base queries and updates can be performed using SQL command language. It made it possible for SQL to perform queries or relationships that span several databases without using a large number of commands.

4.3 ALGORITHMS

Algorithms can be defined as a set of well-defined instructions for the solution of a problem in a finite number of steps.

The algorithms for the proposed Software is shown below:

ALGORITHMS

1. Load dbase and all program
2. The main menu appears
3. Do you wish to quit the program, if yes, at menu exit press "Yes"
4. Otherwise at 3 press "No" to return to the main menu.
5. Select an option from 2 for example "PAYMENTS"
6. The sub menu appears
7. Select an option from 6, for example "APPEND"
8. Do you wish to return to 2? If yes, press enters.
9. Otherwise at 8, enter the voucher number of the receipt transaction for process update.
10. Update database file
11. Do you wish to update more record? If yes, press "y" to go to 7.

12. Otherwise press "N" to go to 2

13. Output payments and receipt summary report.

14. Output Bank reconciliation Summary report

15. Output Bank reconciliation unpresented Cheques reports

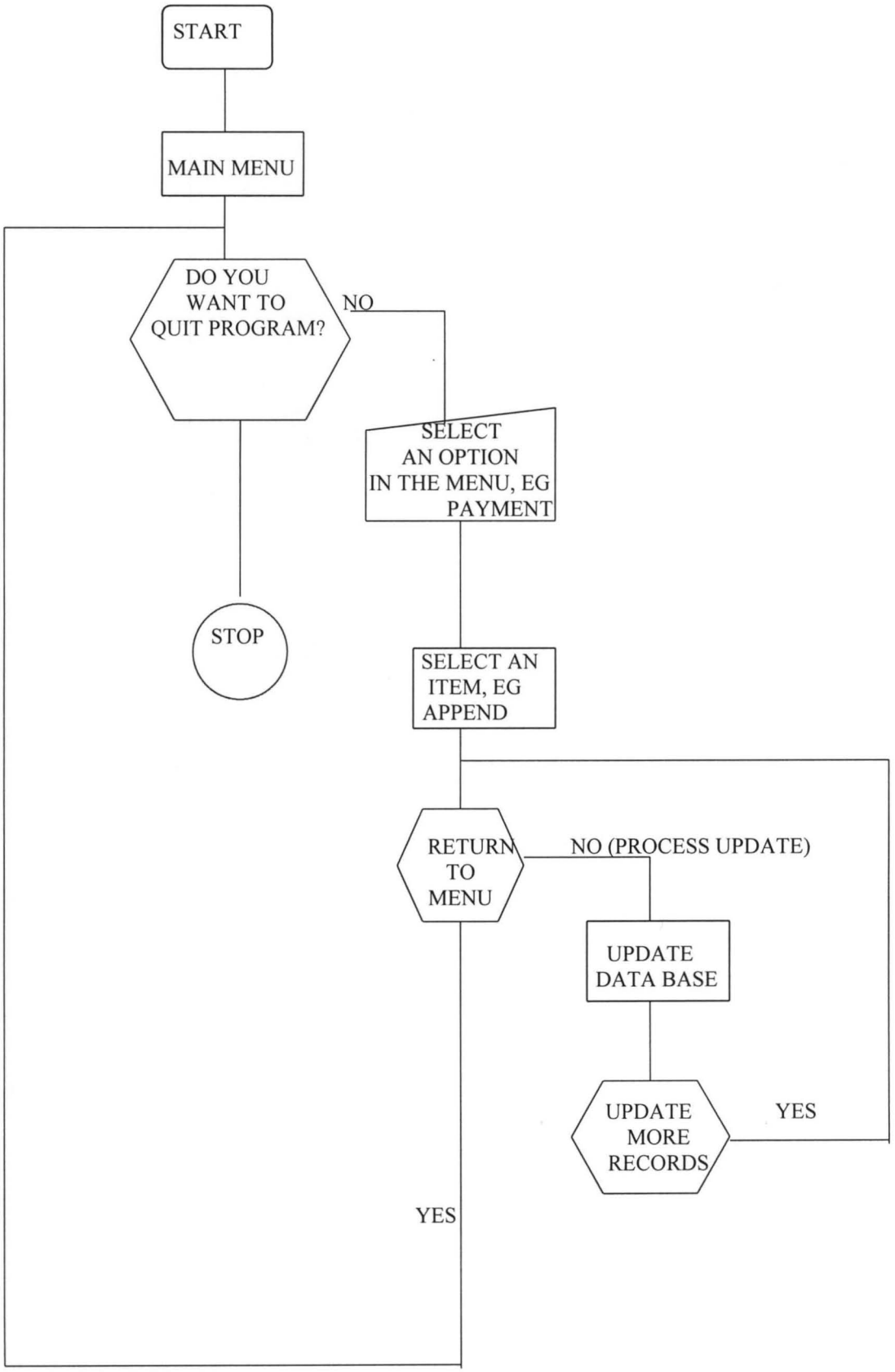
16. Output Bank reconciliation uncredited Cheques report

17. Output bank reconciliation dishonoured Cheques report.

4.4 FLOWCHART

Flowchart can be defined as a graphic representation in which symbols represent the flow, operations logic data, equipment and so on of a program. This is also referred to as a block program or logic diagram.

The flow chart for the propose Software is shown below:


START
MAIN MENU
DO YOU WANT TO QUIT PROGRAM?
NO
SELECT AN OPTION IN THE MENU, EG PAYMENT
STOP
SELECT AN ITEM, EG APPEND
RETURN TO MENU
NO (PROCESS UPDATE)
UPDATE DATA BASE
UPDATE MORE RECORDS
YES
YES

4.5 DETAILS ON THE OPERATION OF THE NEW SYSTEM

Details on the operation of the proposed Software covered the following areas:

4.5.1 Diskette Containing the Program

The diskette containing the Software program is 3.5 inch and is very flexible. It should be handled with extra care. It should be disassembled and not allowed to fall on the ground, or subjected to high temperature, humidity or dust. The backup of the diskette into another diskette is advisable before installation in the event that the one installed has a problem later. The diskette should always be kept at a cool dry place.

4.5.2 Starting the System Software

The Software has been designed in such a way that it can be used by the people with even little Computer knowledge. To operate the system Software, after successful installation on the hard disk, the Software can be invoked by the following steps:

(a) At C prompts, types CD Dbase (4) and press enter = C: \>CD Dbase(4).

(b) When the directory is changed to Dbase (4), you then type Dbase (4) and press enter = C:\Dbase (4).Dbase(4)

(c) After pressing enter, the control centre of the drive C will appear, you then press "ESC" (escape) to quit the control panel to Dot prompt

(d) At the dot prompt, you type "set default to A", i.e. to diskette

(e) You then type "set directory to A:\RECONCIL and press enter

(f) Lastly you then type "DO RECONCIL" and press enters. After pressing enter, the main menu screen will be displayed below:

BANK RECONCILIATION PROGRAMME: A CASE STUDY OF INTERCITY BANK PLC

PAYMENTS	RECEIPTS	UNPRESENTED CHQS	UNPRES-ENTED CHQS	DISHONO-RED CHQS	REPORTS	EXIT
APPEND	APPEND	APPEND	APPEND	APPEND	PYTS & REC	YES
MODIFY	MODIFY	MODIFY	MODIFY	MDOFIY	BANK REC	NO
DELETE	DELETE	DELETE	DELETE	DELETE	UNPRES CHQ	
					UNCRE CHQ	
					DISH CHQ	

WRITTEN BY: ABDULARAHMAN MUHAMMED
PGD/MCS/342/97

The main menu of the above program can be classified into three (3) main parts; the record/data-input section, the report and exit sections. The record inputting section contains the payments, receipts, and unpresented, uncredited, dishonoured Cheques. In any of this we can either append, modify or delete record(s).

The report section, containing payments and receipts, Bank reconciliation, unpresented, uncredited and dishonoured Cheques. In any of this one can obtain a report of a particular month needed.

The exit menu, you can either quit the main program and return to C prompts by pressing "Yes" or return to the main menu screen by pressing "No"

CHAPTER FIVE

5.1 PERFORMANCE ASSESSMENT

Performance appraisal/assessment is referred to a way of receiving the goals and objectives of the organization in respect of the system developed to ensure that it is perfectly working according to plan.

After the conversion is completed, the analyst must obtain feedback on the systems performance. This is done by conducting an audit to evaluate the system's performance in terms of the initial objectives established for it.

All persons engaged in developing the system should be aware that a thorough audit would be performed. The anticipated audit acts as a strong incentive, helps to ensure that a good system is designed and delivered on schedule. As a result of the audit or of users requests, some modification or improvements of the new system may be required.

5.2 EVALUATION

This is done by measuring and reporting of the performance and impact of the system design. To be able to evaluate the system, two operational goals have to be considered. These are reliability and materiality. The system must be reliable, meet the requirements and should be working properly.

The program should try to prevent error from occurring in the Software used. The program should also have error detection, correction and tolerance in the events of running.

The system must be maintained from time to time to ensure its continuos working under any working condition. This is done by identification of the system features.

5.3 CONCLUSION

Automation of Bank reconciliation in any organization is done with the hope of reducing to minima, the use of Manual System in carrying out its activities. It is also done with the intention of improving the speed and efficiency in collection, manipulation, storage, reporting and dissemination of data.

Also the automation of Bank reconciliation program is aimed at eliminating most manual work involved in book keeping of any set up.

The system makes it possible to obtain all the records of receipts and payments, outstanding Cheques and reconciliation statement on a continuos basis due to its updating nature. All the transaction records are updated automatically.

In addition the program generates reports in good time. Thus, the reports will enable the organization to take quick decision over its financial obligation as the system tells the financial position of the organization at any point in time as required.

5.4 RECOMMENDATION

The world of Computer technology is dynamic, so therefore this system needs to be improved upon in future.

The above is based on the fact that among the system users believe that after a system has been installed, nothing more has to be done. On the contrary, all systems must be continually maintained. System maintenance detects and corrects error, meets new information needs of the Management and responds to charges in the environment.

A well-planned approach to system maintenance and follow-up is essential to the continued effectiveness of an information system.

A well-designed information system should be flexible and adaptable. Minor charges should be easily accommodated without large accounts of re-programming. In this regard a structured programming method is suggested. If each programming module is independent, a minor charge in one module will not affect the whole system.

Also, I am appealing to the Management of the School of Science and Science Education, Federal University of Technology, Minna to provide more personal Microcomputers for students' use, as the number of students are increasing yearly.

REFERENCES

Danjuma N. N. (1993) — The Bankers' Liability - Heinemann Educational Books (Nig) Plc Ibadan, Nigeria

Dunikoski R.H & Mandell S.L (1989) — Computer and Information Today, 3rd Edition West Publishing Company Kellogg Boulevard St Paul, USA

Etuk U.J.S (1976) — Principles of Accounting for West Africa I & II Oxford University Press, Ibadan, Nigeria

Elliason A.L & Kits K.D (1979) — Business Computer & Application Science Research Association, Chicago

John R.H. & Paul H (1979) — Accounting & Information Systems, Reston Publishing Company, Reston V.A

Lipsey R.G. (1983) — Introduction to Positive Economics 6th Edition, Westfield and NICOLSON Ltd, London

Nwankwo G.O (1985) — The Nigerian Financial System Macmillan Publishers Limited, Nigeria

Potter D.A (1991) — Automation Accounting System Procedures Handbook, John Wiley & Sons Inc, New York

Truett L.V & Truett D.B (1987) — Economic Times Mirror, Mosh College Publishing, St Louis, Missouri USA

Wonaja Cott & Wonna Cott (1982)	2nd Edition International Students Edition, MC Graw Hill International Book Company
Wood F & Omuya J O 1982	I & II Business Accounting West African Version 2.0 Word Perfect Corporation, USA

APPENDIX I

```
*****SECURITY : ABDULRAHAMAN MUHAMMAD
******AUTOMATION OF BANK RECONCILIATION,
******IN INTERCITY BANK PLC, MINNA.
******
SET TALK OFF
SET ECHO OFF
SET STATUS OFF
SET COLOR TO W+/B
SET ESCAPE OFF
CLEAR
B = .T.
DO WHILE B
@4,6 TO 22,70 DOUBLE
@6,8 SAY [SECURITY  :  ABDULRAHMAN MUHAMMED]
@8,8 SAY [PROGRAM   :  BANK RECONCILIATION]
@10,8 SAY [DATE      :  25-11-98]
@12,8 SAY [FUNCTION  :  TO AUTOMATE BANK RECONCILIATION IN]
@14,8 SAY [             FINANCIAL INSTITUTION]
@16,8 SAY [CASE STUDY:  INTERCITY BANK PLC. MINNA]
@22,8 SAY [PRESS ANY KEY TO CONTINUE---]
B = .F.
WAIT ""
ENDDO
CLEA ALL
store 0 to barkey
SET COLOR TO GR+, G, G
CLEAR
ABORT = ' '
DO WHILE ABORT = ' '
CLEAR
DO DEFIN
CLEAR
DO DESIGNSC
DO MAIN
ENDDO
*QUIT
RETURN

PROCEDURE DEFIN
IF ISCOLOR()
   SET COLOR OF BOX TO GR+/BG
   SET COLOR OF NORMAL TO W+/B
   SET COLOR OF HIGHLIGHT TO GR+/BG
   SET COLOR OF MESSAGES TO W+/N
   SET COLOR OF TITLES TO W/B
   SET COLOR OF FIELDS TO N/BG
   SET COLOR OF INFORMATION TO B/W
ENDIF

SET BORDER TO DOUBLE
DEFINE POPUP OPEMENU FROM 6,45
DEFINE BAR 1 OF OPEMENU PROMPT " O P E R A T I O N   M E N U " SKIP
DEFINE BAR 2 OF OPEMENU PROMPT "============================" SKIP
DEFINE BAR 3 OF OPEMENU PROMPT "ADD RECORD(s)";
   MESSAGE "Addition of record(s) to the database file"
DEFINE BAR 4 OF OPEMENU PROMPT "DELETE RECORD(s)";
   MESSAGE "This option allows deletion of record(s)"
```

```
DEFINE BAR 5 OF OPEMENU PROMPT "MODIFY RECORD(s)";
   MESSAGE "This option allows modification of record(s)"
DEFINE BAR 6 OF OPEMENU PROMPT "E X I T ";
   MESSAGE "You want to Shutdown"
ON SELECTION POPUP OPEMENU DO OPE_PARA

DEFINE POPUP FILEMENU FROM 6,45
DEFINE BAR 1 OF FILEMENU PROMPT " F I L E   M E N U " SKIP
DEFINE BAR 2 OF FILEMENU PROMPT "==================" SKIP
DEFINE BAR 3 OF FILEMENU PROMPT "PAYMENTS";
   MESSAGE "Want to work on PAYMENTS Database file"
DEFINE BAR 4 OF FILEMENU PROMPT "RECEIPTS";
   MESSAGE "Want to work on RECEIPTS Database file"
DEFINE BAR 5 OF FILEMENU PROMPT "UNPRESENTED CHEQUES";
   MESSAGE "Want to work on UNPRESENTED Database file"
DEFINE BAR 6 OF FILEMENU PROMPT "UNCREDITED CHEQUES";
   MESSAGE "Want to work on UNCREDITED Database file"
DEFINE BAR 7 OF FILEMENU PROMPT "DISHONOURED CHEQUES";
   MESSAGE "Want to work on DISHONOURED Database file"
ON SELECTION POPUP FILEMENU DO FILE_PARA

DEFINE POPUP MAINMENU FROM 6,15
DEFINE BAR 1 OF MAINMENU PROMPT " M A I N   M E N U " SKIP
DEFINE BAR 2 OF MAINMENU PROMPT "====================" SKIP
DEFINE BAR 3 OF MAINMENU PROMPT "1 ===  RECORDS";
   MESSAGE "Want to work with Database Record(s)"
DEFINE BAR 4 OF MAINMENU PROMPT "2 ===  REPORTS";
   MESSAGE "Want to see report summary(s)"
DEFINE BAR 5 OF MAINMENU PROMPT "3 ===  Q U I T ";
   MESSAGE "You want to Shutdown"
ON SELECTION POPUP MAINMENU DO MAIN_PARA
RETURN

PROCEDURE DESIGNSC
@ 1,15 to 4,36 double
@ 2,17 SAY "INTERCITY BANK PLC."
@ 3,17 SAY "MINNA, NIGER STATE "
RETURN

PROCEDURE MAIN
ACTIVATE POPUP MAINMENU
RETURN

PROCEDURE MAIN_PARA
DO CASE
   CASE BAR() = 3
      DO RECORDS
   CASE BAR() = 4
      DO REPORTS
   CASE BAR() = 5
   @18,20 to 20,60
    store 'N' to reply
   @19,25 say 'Are you sure? (Y/N)' get reply pict '!';
      valid reply $ 'YN' error 'Invalid entry!!!'
   read
   if reply = 'Y'
      ABORT = 'A'
```

```
        CANCEL
    endif
    CLEAR
ENDCASE
RETURN

PROCEDURE OPE_PARA
DO CASE
    CASE BAR() = 3
         DO ADDREC
    CASE BAR() = 4
         DO DELREC
    CASE BAR() = 5
         DO MODREC
    CASE BAR() = 6
         DEACTIVATE POPUP
         CLOSE DATA
         RETURN
ENDCASE
RETURN

PROCEDURE FILE_PARA
barkey = bar()-2
DO CASE
    CASE BAR() = 3
         USE PAYMENTS
    CASE BAR() = 4
         USE RECEIPTS
    CASE BAR() = 5
         USE UNPRE
    CASE BAR() = 6
         USE UNCRE
    CASE BAR() = 7
         USE DISHO
ENDCASE
DEACTIVATE POPUP
RETURN

PROCEDURE RECORDS
ACTIVATE POPUP FILEMENU
ACTIVATE POPUP OPEMENU
RETURN

PROCEDURE REPORTS
ACTIVATE POPUP FILEMENU
DO REPORT
RETURN

Procedure ADDREC
 store 'Y' to ans
 set stat off
 do while ans ='Y'
  clear
  store space(10) to maccnum
  @1,10 Say "Enter Account Number: " get maccnum Pict "!!-999999"
  read
  locate all for accnum = maccnum
```

```
  if found()
    @8,20 say 'Record already exist'
  else
  store 0 to mopening, mamount
  store space (15) to mname
  store space (10) to mchequeno
  store date() to mdatetran
   DO GETDATA
   READ
    clear
    append blank
    replace accnum with maccnum, chequeno with mchequeno
    replace name with mname, datetran with mdatetran
    replace opening with mopening, amount with mamount
endif
  @10,10 to 12,50
  store 'N' to ans
  @11,12 say 'Are there more records? (Y/N)' get ans pict '!';
              valid ans $ 'YN' error 'Invalid entry !!!'
  read
enddo
CLEAR
close databases
return

Procedure DELREC
  store 'Y' to ans
  do while ans= 'Y'
    clea
    @2,15 to 4,55
    @3,20 say 'Deletion of record'
   store space(10) to maccnum
   @1,10 Say "Enter Account Number: " get maccnum Pict "!!-999999"
   read
    locate all for  accnum = maccnum
    if found()
   @10,10 to 12,50
    store 'N' to reply
   @11,12 say 'Are you sure? (Y/N)' get reply pict '!';
        valid reply $ 'YN' error 'Invalid entry!!!'
   read
   if reply = 'Y'
       dele
       pack
   endif
 else
    @8,20 say 'Record does not exist'
    endif
    @10,10 clea to 12,50
    @10,10 to 12,50
    store 'N' to ans
    @11,12 say 'Delete more records? (Y/N)' get ans pict '!!'
    read
 enddo
 CLEAR
 close data
 return
```

```
Procedure MODREC
  store 'Y' to ans
  do while ans = 'Y'
    clea
  store space(10) to maccnum
  @1,10 Say "Enter Account Number: " get maccnum Pict "!!-999999"
  read
    locate all for accnum = maccnum
    if found()
  store opening to mopening
  store name to mname
  store amount to mamount
  store chequeno to mchequeno
  store datetran to mdatetran
   DO GETDATA
   READ
   clear
    replace accnum with maccnum, chequeno with mchequeno
    replace name with mname, datetran with mdatetran
    replace opening with mopening, amount with mamount
else
    @8,20 say 'Record does not exist'
endif
    @10,10 to 12,50
    store 'N' to ans
    @11,12 say 'Modify more record? (Y/N)' get ans pict '!';
             valid ans $ 'Y/N' error 'Invalid entry!!!'
    read
enddo
CLEAR
close databases
return


Procedure REPORT
define window user from 1,1 to 22,78 none color W+,B
activate window user
set stat off
set alternate to 'bank.out'
set device to screen
      set alternate on
      set space on
      DO HEADING with barkey
      store 1 to couter
      go top
do while .not. eof()
do case,
  case barkey = 1
  ? '|',str(couter,4),'|',accnum,'|',datetran,'|',str(amount,9,2),'|',
  ?? str(opening,9,2),'|',str(opening-amount,9,2),'|'
  case barkey = 2
  ? '|',str(couter,4),'|',accnum,'|',datetran,'|',str(amount,9,2),'|',
  ?? str(opening,9,2),'|',str(opening+amount,9,2),'|'
  case barkey >= 3
  ? '|',str(couter,4),'|',accnum,'|',datetran,'|',str(amount,9,2),'|',
  ?? chequeno,'|',space(8),'|'
  *case barkey = 4
```

```
  *?
'|',str(couter,4),'|',accnum,'|',name,'|',datetran,'|',str(amount,9,2),'|'
,
  *?? chequeno,'|',space(8),'|'
  *case barkey = 5
  *?
'|',str(couter,4),'|',accnum,'|',name,'|',datetran,'|',str(amount,9,2),'|'
,
  *?? chequeno,'|',space(8),'|'
endcase
  couter = couter + 1
  ? replicate ('-',69)
  skip
enddo
?
set alternate off
wait
close data
deactivate window user
return

PROCEDURE GETDATA
CLEAR
@ 1,5 SAY "NAME :" GET MNAME PICT "@!"
@ 3,5 SAY "DATE OF TRANSACTION :" GET MDATETRAN
@ 5,5 SAY "OPENING BALANCE     :" GET MOPENING PICT "999999.99"
@ 7,5 SAY "AMOUNT              :" GET MAMOUNT PICT "999999.99"
@ 9,5 SAY "CHEQUE NUMBER       :" GET MCHEQUENO PICT "INBK-99999"
RETURN

PROCEDURE HEADING
PARAMETER K
? space(12),"***********************************************"
? space(12),"*           INTERCITY BANK PLC.               *"
? space(12),"*           MINNA, NIGER STATE.               *"
? space(12),"*  AUTOMATION OF BANK RECONCILIATION SYSTEM   *"
? space(12),"***********************************************"
?
DO CASE
CASE K = 1
? space(23),"************************"
? space(23),"* SUMMARY OF PAYMENTS  *"
? space(23),"************************"
?
? REPLICATE("*",68)
? "*      *   ACCOUNT  *          *   AMOUNT  *  OPENING  *    NEW    *"
? "* S/NO *   NUMBER   *   DATE   *    PAID   *  BALANCE  *  BALANCE  *"
? REPLICATE("*",68)
CASE K = 2
? space(23),"************************"
? space(23),"* SUMMARY OF RECEIPTS  *"
? space(23),"************************"
?
? REPLICATE("*",68)
? "*      *   ACCOUNT  *          *   AMOUNT  *  OPENING  *    NEW    *"
? "* S/NO *   NUMBER   *   DATE   *  RECEIVED *  BALANCE  *  BALANCE  *"
? REPLICATE("*",68)
```

```
CASE K = 3
? space(18),"*********************************"
? space(18),"* SUMMARY OF UNPRESENTED CHEQUES *"
? space(18),"*********************************"
?
? REPLICATE("*",68)
? "*      *   ACCOUNT  *          *           * UNPRESENT  *          *"
? "* S/NO *   NUMBER   *   DATE   *   AMOUNT  * CHEQUE-NO  *  REMARK  *"
? REPLICATE("*",68)
CASE K = 4
? space(18),"*********************************"
? space(18),"* SUMMARY OF UNCREDITED CHEQUES *"
? space(18),"*********************************"
?
? REPLICATE("*",68)
? "*      *   ACCOUNT  *          *           * UNCREDITED *          *"
? "* S/NO *   NUMBER   *   DATE   *   AMOUNT  * CHEQUE-NO  *  REMARK  *"
? REPLICATE("*",68)
CASE K = 5
? space(18),"*********************************"
? space(18),"* SUMMARY OF DISHONOURED CHEQUES *"
? space(18),"*********************************"
?
? REPLICATE("*",68)
? "*      *   ACCOUNT  *          *           * DISHONORED *          *"
? "* S/NO *   NUMBER   *   DATE   *   AMOUNT  * CHEQUE-NO  *  REMARK  *"
? REPLICATE("*",68)
ENDCASE
RETURN
```

INTERCITY BANK PLC.
MINNA, NIGER STATE.
AUTOMATION OF BANK RECONCILIATION SYSTEM

SUMMARY OF UNCREDITED CHEQUES

S/NO	ACCOUNT NUMBER	DATE	AMOUNT	UNCREDITED CHEQUE-NO	REMARK
1	SV-645234	25/11/98	5566.00	INBK-54232	
2	CR-235556	25/11/98	45665.00	INBK-21341	
3	SV-567776	25/11/98	44345.00	INBK-34554	
4	CR-467454	25/11/98	6677.00	INBK-56666	
5	CR-467454	25/11/98	6677.00	INBK-56666	

INTERCITY BANK PLC.
MINNA, NIGER STATE.
AUTOMATION OF BANK RECONCILIATION SYSTEM

SUMMARY OF RECEIPTS

S/NO	ACCOUNT NUMBER	DATE	AMOUNT RECEIVED	OPENING BALANCE	NEW BALANCE
1	SV-122122	25/11/98	2300.00	34000.00	36300.00
2	SV-233311	25/11/98	2300.00	12000.00	14300.00
3	CR-455555	12/11/98	34500.00	12677.00	47177.00
4	SV-121111	13/11/98	234.00	23355.00	23589.00
5	SV-121344	25/11/98	4000.00	3500.00	7500.00
6	SV-456666	25/11/98	4522.00	9000.00	4478.00
7	SV-122333	25/11/98	2300.00	7800.00	5500.00

INTERCITY BANK PLC.
MINNA, NIGER STATE.
AUTOMATION OF BANK RECONCILIATION SYSTEM

SUMMARY OF DISHONOURED CHEQUES

S/NO	ACCOUNT NUMBER	DATE	AMOUNT	DISHONORED CHEQUE-NO	REMARK
1	CR-121222	25/11/98	45355.00	INBK-45423	
2	SV-344334	12/11/98	6667.00	INBK-45445	
3	CR-345543	15/11/98	6567.00	INBK-45666	
4	SV-431211	14/11/98	5466.00	INBK-42311	
5	SV-121234	13/11/98	23323.00	INBK-44545	

INTERCITY BANK PLC.
MINNA, NIGER STATE.
AUTOMATION OF BANK RECONCILIATION SYSTEM

SUMMARY OF PAYMENTS

S/NO	ACCOUNT NUMBER	DATE	AMOUNT PAID	OPENING BALANCE	NEW BALANCE
1	SV-022223	25/11/98	1156.00	56000.00	54844.00
2	SV-344456	24/11/98	300.00	2000.00	1700.00
3	SV-431122	25/11/98	12345.00	34000.00	21655.00
4	CR-123333	25/11/98	23100.00	56500.00	33400.00
5	CR-341212	25/11/98	1222.00	45333.00	44111.00
6	SV-456666	25/11/98	4522.00	9000.00	4478.00
7	SV-122333	25/11/98	2300.00	7800.00	5500.00

****
* INTERCITY BANK PLC. *
* MINNA, NIGER STATE. *
* AUTOMATION OF BANK RECONCILIATION SYSTEM *
****

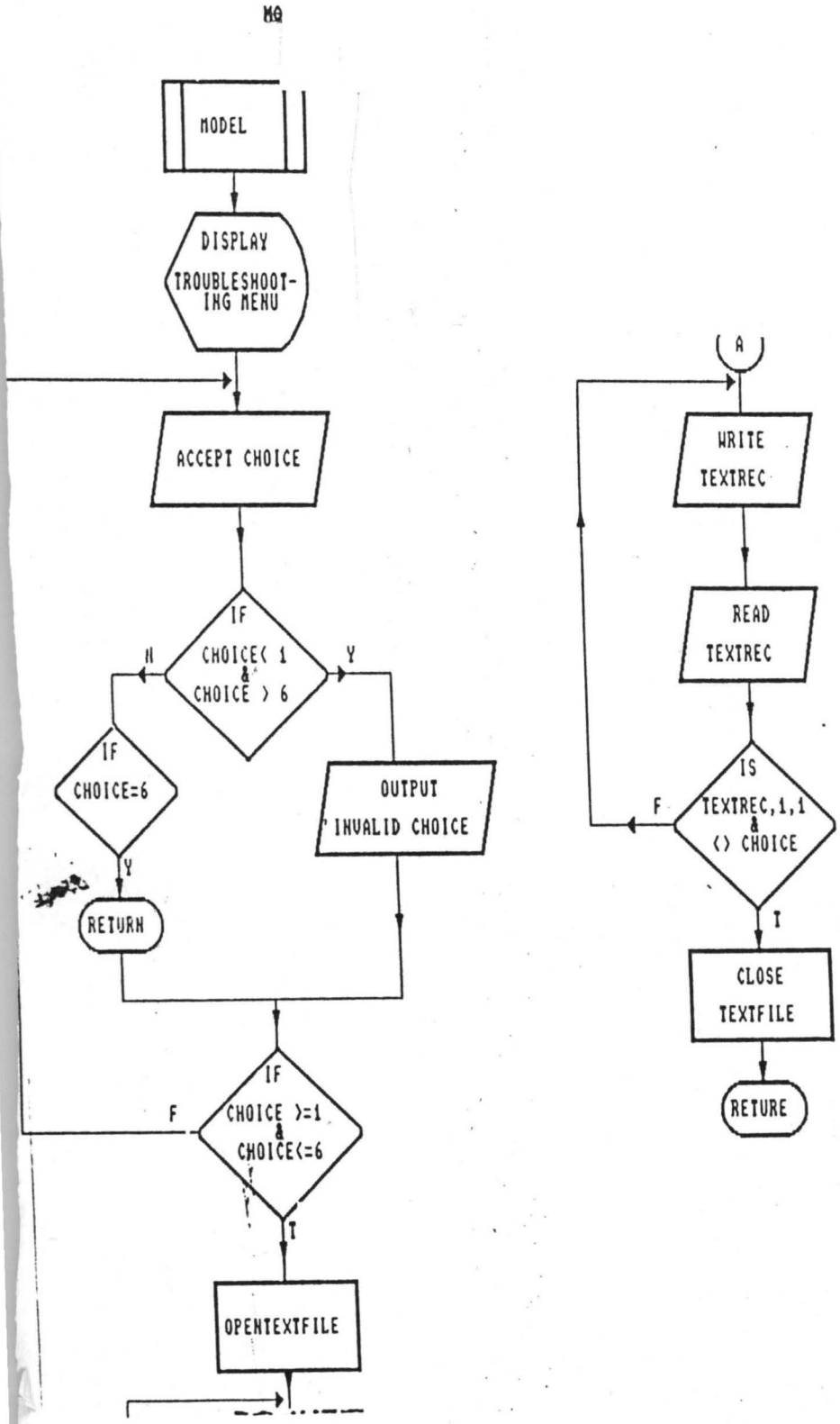
****
* SUMMARY OF UNPRESENTED CHEQUES *
****

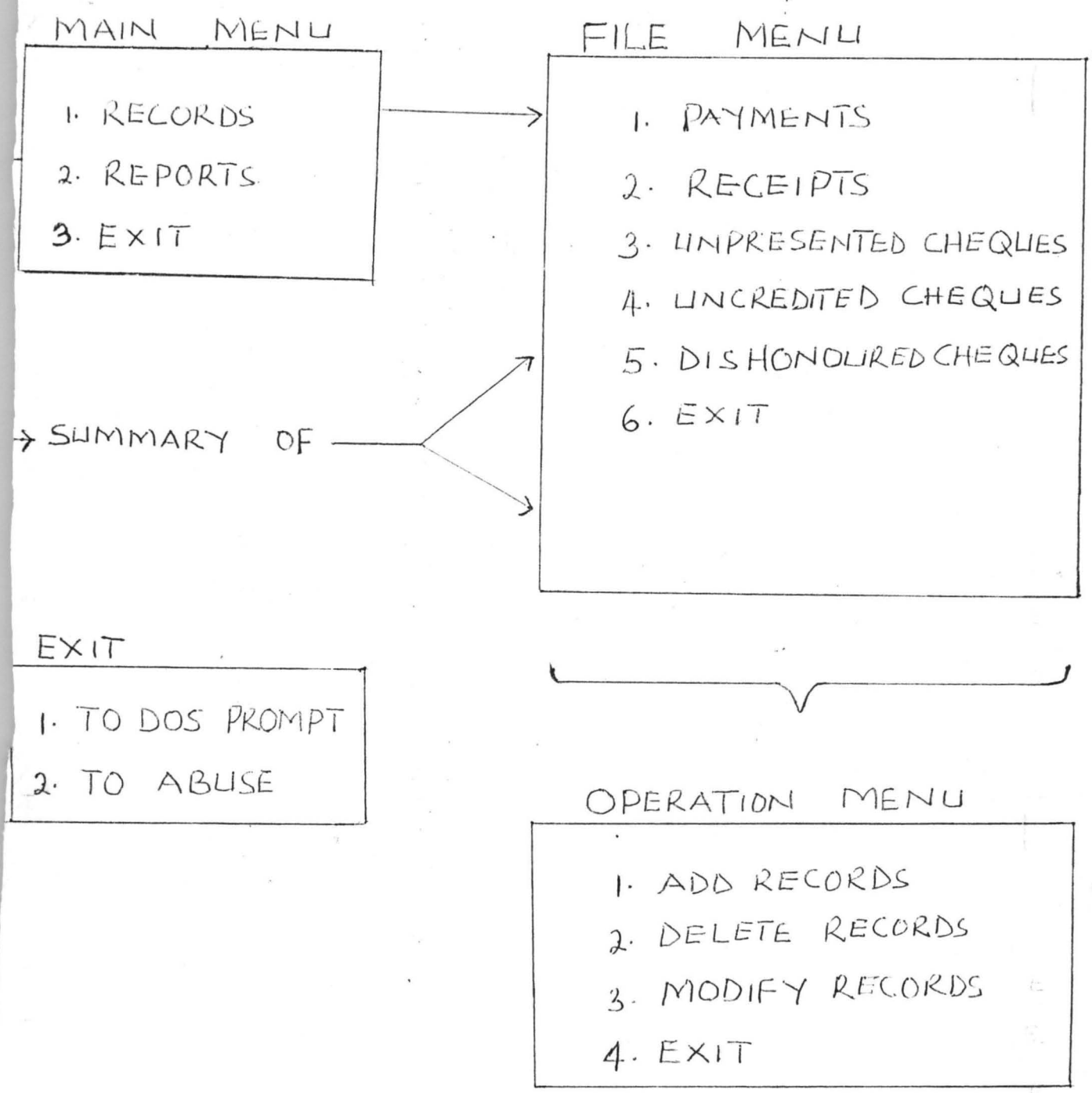
S/NO	ACCOUNT NUMBER	DATE	AMOUNT	UNPRESENT CHEQUE-NO	REMARK
1	SV-121233	25/11/98	3455.00	INBK-54344	
2	CR-222333	25/11/98	2300.00	INBK-45344	
3	SV-123344	25/11/98	23233.00	INBK-23333	

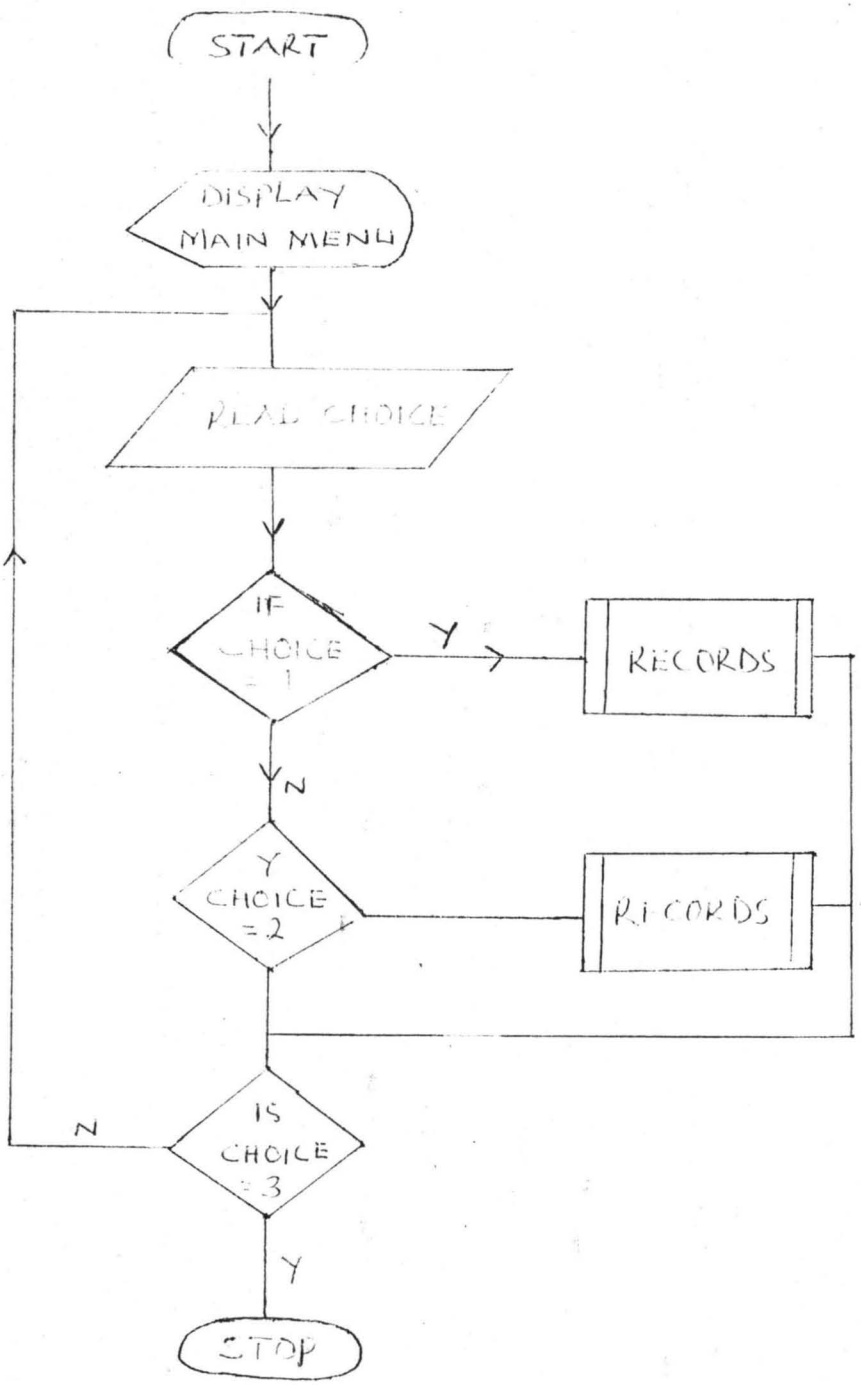
□

APPENDIX II : MODEL FLOW CHARTS

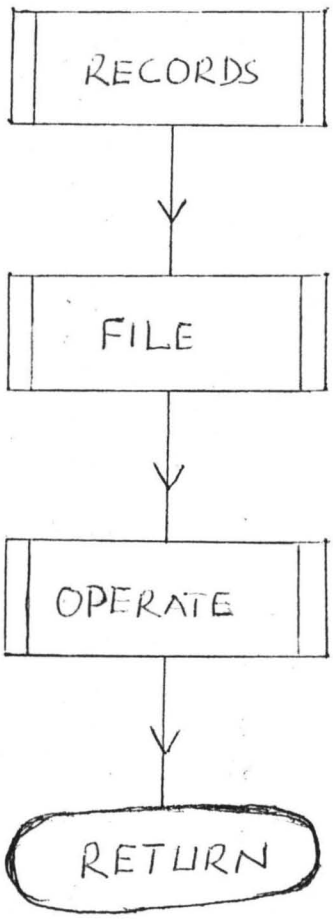
(i)

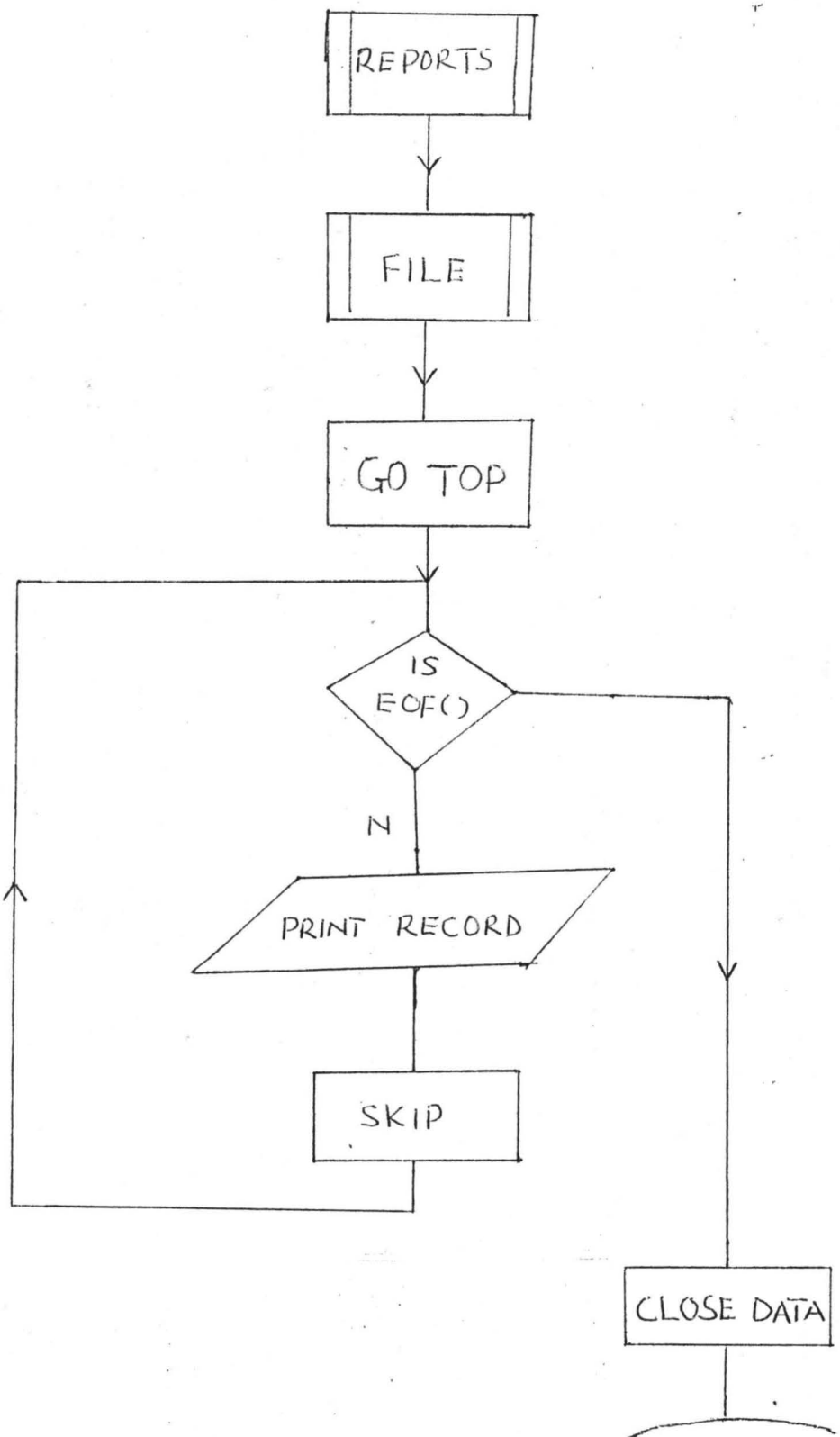


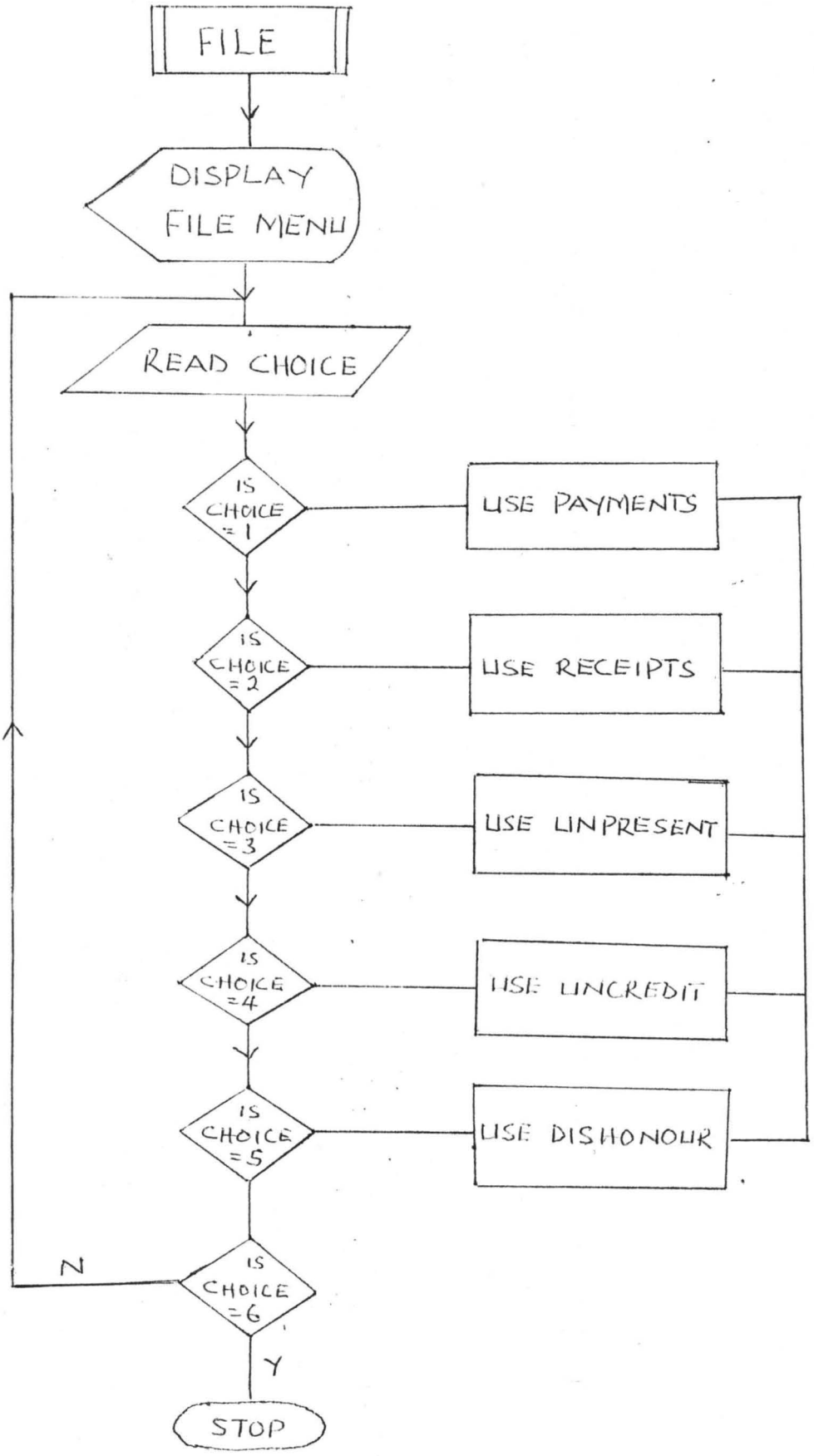

MAIN MENU
1. RECORDS
2. REPORTS
3. EXIT
FILE MENU
1. PAYMENTS
2. RECEIPTS
3. UNPRESENTED CHEQUES
4. UNCREDITED CHEQUES
5. DISHONOURED CHEQUES
6. EXIT
SUMMARY OF
EXIT
1. TO DOS PROMPT
2. TO ABUSE
OPERATION MENU
1. ADD RECORDS
2. DELETE RECORDS
3. MODIFY RECORDS
4. EXIT

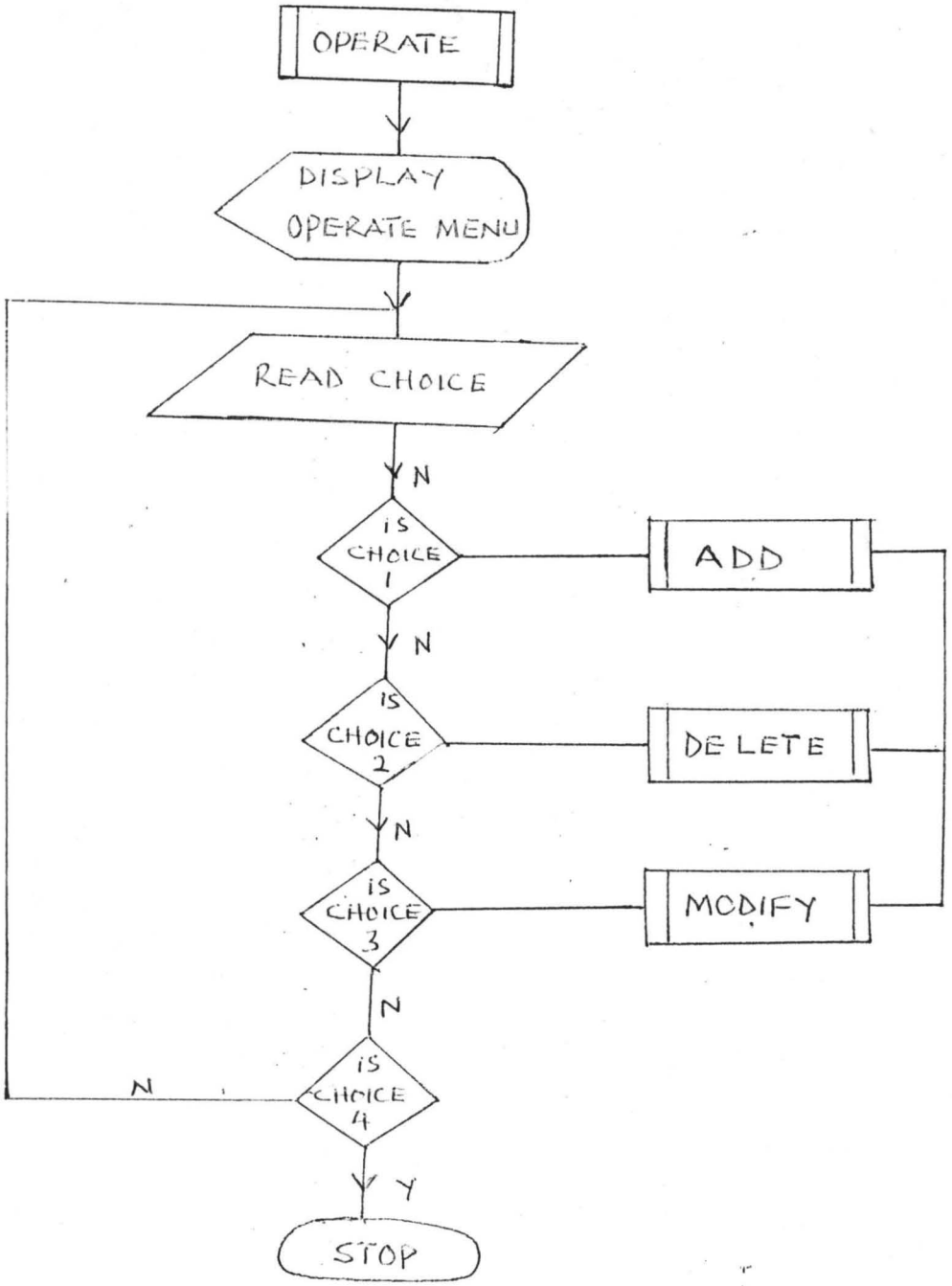

START
DISPLAY MAIN MENU
READ CHOICE
IF CHOICE = 1
Y
RECORDS
N
Y CHOICE = 2
RECORDS
IS CHOICE = 3
N
Y
STOP

(iv)




REPORTS
FILE
GO TOP
IS EOF()
N
PRINT RECORD
SKIP
CLOSE DATA


FILE
DISPLAY FILE MENU
READ CHOICE
IS CHOICE =1
USE PAYMENTS
IS CHOICE =2
USE RECEIPTS
IS CHOICE =3
USE UNPRESENT
IS CHOICE =4
USE UNCREDIT
IS CHOICE =5
USE DISHONOUR
IS CHOICE =6
N
Y
STOP


OPERATE
DISPLAY OPERATE MENU
READ CHOICE
N
IS CHOICE 1
ADD
N
IS CHOICE 2
DELETE
N
IS CHOICE 3
MODIFY
N
IS CHOICE 4
N
Y
STOP