

**APPLICATION OF COMPUTER IN  
MORTGAGE LOAN ADMINISTRATION  
(A CASE STUDY OF KEBBI STATE HOME SAVING LOANS LIMITED)**

**BY**

**MUKHTAR GARBA**

**PGD/MCS/98/99/771**

**A PROJECT SUBMITTED TO THE DEPARTMENT OF  
MATHEMATICS AND COMPUTER SCIENCE IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD  
OF POST-GRADUATE DIPLOMA IN COMPPUTER SCIENCE**

**THE FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA  
NIGER STATE**

**SEPTEMBER, 2000**

# **APPLICATION OF COMPUTER IN MORTGAGE LOANS ADMINISTRATION**

**(A CASE STUDY OF KEBBI STATE HOME SAVINGS AND LOANS LIMITED)**

BY

MUKHTAR GARBA  
PGD/MCS/98/99/771

DEPARTMENT OF MATHS/COMPUTER SCIENCE  
UNIVERSITY OF TECHNOLOGY, MINNA

*SEPTEMBER, 2000*

## CERTIFICATION

This is to certify that this research project, the Application of Computer in Mortgage Loans Administration was carried-out by Mukhtar Garba and has met the requirement of the Department of maths and Computer Federal University of Technology Minna for the award of Post-graduate Diploma in Computer Science.

.....  
SUPERVISOR (MR. L.N EZEAKO)

.....  
DATE

.....  
H.O.D (DR. S.A REJU)

.....  
DATE

.....  
EXTERNAL EXAMINER

.....  
DATE.

## **DEDICATION**

To God Who Gives Me Life

And

My Late Parents and Their Families



## ACKNOWLEDGEMENT

My whole hearted appreciation and gratitude to Almighty God for making this work a success and express also my profound gratitude to my supervisor Mr. **L.N EZEAKO** for his wise counselling and guidance from beginning to the end of the work.

My profound gratitude also goes to **H.O.D DR. S.A REJU**. I acknowledge with thanks to **PROF. K.R. ADEBOYE** and others.

I deeply appreciate the contribution of my colleagues in the department who helped me in one way or the other on the completion of the work.

More so, I must express my profound gratitude to **MAL. ALIYU ATIKU ZAGGA**  
**D.S.P IBRAHIM ABDULLAHI AND MAL. ABBAS MARAFA**

My final thanks also goes to my Brother **ALHAJI SHEHU HARUNA** and Friends in our Majalisa.

MUKHTAR GARBA  
(SEPTEMBER 2000)

## **ABSTRACT**

The National Housing Fund (established by NHF Decree 3, 1992) provides an enduring pool of funds for lending to contributors to enable them build, buy or renovate their own houses.

Mortgage Institutions such as Kebbi State Home Savings and Loans Limited provide means of access to this pool of funds through mortgage loans and other financial services to customers.

The Study analyses mortgage loan services provided by Kebbi State Home Savings and Loans limited. A computer program is also developed as an attempt to facilitate the effectiveness of such services. The study highlights the major benefits to be derived by automating the services.

Chapter One introduces the work and defines the boundary and limitations. Related literature is reviewed in chapter two. Chapter three presents the program design and development and the strategy for the design of the computer program. Chapter four examines the output of the result and the analysis of the program developed. In conclusion, recommendations are presented to Mortgage Institutions.

## **TABLE OF CONTENT**

### **CHAPTER ONE**

	Page
1.1 Introduction	1-3
1.2 Problem Encounter in Mortgage Loans Administration	3-4
1.3 The Way Forward.	4
1.4 Scope and Limitation of the Study	4-5
1.5 Scheme of Chapters	5

### **CHAPTER TWO**

2.1 Housing Problem	6-7
2.2 Development of Mortgage Instruction	7-10
2.3 Historical Development of Kebbi State Home Saving & Loans Limited	10-11
2.4 Analysis of Kebbi State Home Savings and Loans Limited Mortgage Operation	12-15

### **CHAPTER THREE**

3.1 Program Design	16
3.2 Program Implementation	16-18

### **CHAPTER FOUR**

4.1 Program output presentation	19-20
4.2 Analysis of Output	20-21
4.3 Significant Development	21-27

### **CHAPTER FIVE**

5.1 Summary	28
5.2 Conclusion	28-29
5.3 Recommendation	29

<b>Bibliography</b>	30
---------------------	----

Appendix



## CHAPTER ONE

### (OVERVIEW)

#### 1.1 INTRODUCTION

The basic needs of man include food, shelter and clothing. Shelter provides protection against harsh climatic conditions and ensures individual's territoriality. Thus, the need for a house is natural just as food is never sufficient for all so is shelter, thus creating the basic problem of housing i.e. housing quantity or deficit.

Housing quantity is only the most obvious housing problem however, housing quality and housing allocation are additional housing problems. That is to say the satisfactory nature of shelter and shelter being available to the most needy are significant issues of human shelter requirement. The dynamic nature of human life coupled with varying and unpredictable natural events have made housing problem intractable and persistent. The efforts designed to curb the problem today may be ineffective in days to come.

Various governments and nations have outlined measures to combat housing problem within their domains. This led to the world body's (United Nation, UN) declaration of year 2000AD as the target year for addressing all issues associated with human shelter.

In Nigeria, the National Housing Program (NHP) was initiated to insure complete implementation of mentioned programs on human shelter and also to confront housing problems of the nation in practice and in the face. Consequently, the program reviewed and highlighted major obstacles to housing at individual and



general levels. This led to the introduction of National Housing Fund (NHF) as a means of ensuring pool of funds for lending to contributors to enable them build, buy or renovate their own houses.

*THE NATIONAL HOUSING FUND (NHF):* - is a scheme whereby house-seekers that are contributors can borrow from the Fund through a mediator bank called Primary Mortgage Institution (PMI). Individuals who wish to borrow from NHF must register through FMBN and contribute 2.5% of their salary income to the Fund for at least six months. The loans sought by a home-seeker must be for building; purchasing or renovation of residential accommodation and 80% shall be provided by the Fund while 20% by the PMI involved. Interests charged on loans are low and fixed.

In addition to the NHF the (National Housing Program) NHP which was launched in 1991 took steps to re-organize, structure and strengthen Federal Mortgage Bank of Nigeria (FMBN). This bank is then expected to monitor and supervise the implementation of NHF and to ensure that PMI's perform their assigned rules. It is therefore axiomatic to say that Mortgage Institutions are central to the success of NHP. Kebbi State Home Savings and Loans Limited (KSHS&L) is a PMI (Primary Mortgage Institution) that provides mortgage services all aimed at contributing to the success of NHP. Just like any other PMI KSHS&L Provides access to NHF through Mortgage Administration services to the people of Kebbi State.

The study presented here reviews Mortgage Loans Administration in Kebbi State Home Savings and Loans Limited. Recommendations on how to improve its efficiency by the application of modern digital computers are also presented.

## 1.2 PROBLEMS ENCOUNTERED IN MORTGAGE LOANS ADMINISTRATION: KEBBI STATE HOME SAVINGS & LOANS LIMITED

Shelter is one of the basic needs of every individual. The building or buying of a residential house is the largest single investment and greatest ambition of many people. This dream cannot be accomplished by many because of shortage of finance. Finance being the most significant factor in housing, could be used to mobilize all other resources for housing. Individuals' savings do not always cater for their housing needs. Therefore loans especially long-term loans are obviously essential for most people in meeting housing needs. Consequently Mortgage Institutions do encounter several problems in mortgage loans administration.

In Kebbi state Home-Savings & Loan limited problem encountered consists of the following: -

### 1. *RELEASE OF NHF BY FMBN*

KSHS&L has been trying to link home-seekers to the NHF however, most often the Federal Mortgage Bank of Nigeria does not release their part of the loan i.e. 80% of the loan sought for. This is a major obstacle to the implementation of NHF.

### 2. *DELAY IN PROCESSING APPLICATION*

To get an application for loan approved, an applicant must present among other things two certificates i.e. *Statutory Certificate* and *Letter of Consent to Mortgage*. These documents are obtainable from the Governor's office and the



bureaucratic nature of public agencies makes it difficult for most applicants to obtain them in time. This therefore leads to delay in processing application.

### 3. *LOAN REPAYMENT PROBLEM*

All loans approved by FMBN have their repayment schedule computed by FMBN. Schedules include the interest charges on the loans. However, the FMBN leaves PMI's (in particular KSHS&L) in darkness as to what amount to pay back to the bank and how the interests will be shared. This therefore reduces the courage to render more mortgage services to customers.

#### 1.3 **THE WAY FORWARD**

It is extremely obvious that loanable funds are in short supply especially with the reluctant nature of FMBN to release funds collected through NHF. The demand for mortgage loans could not all be met by PMI's. In addition loans given must be strictly monitored.

To address problem encountered especially by KSHS&L efficient Mortgage Administration systems must be designed to ensure that available funds are optimally utilized. This can be facilitated by the use of computers. Applications of computers will fasten processing easily take-up approved applications when funds are released and help generate reports on awaiting application for easy persuasion of FMBN by KSHS&L.

#### 1.4 **SCOPE AND LIMITATION OF THE STUDY**

The study focused on mortgage loans administration particularly in the case study.

It is restricted to the following issues due to time and space: -

- (i) Mortgage services provided by the case study operating as PMI. It is understandable that borrower/home-seeker may acquire loan through other

banking services provided by KSHS&L; such loan sometimes are used in the process of solving housing problem.

- (ii) Administration of such Mortgage services to customers and how efficiency, accuracy and reliability could be improved in the process.

On the other hand, the study has some limitations one of such limitations is the total reliance on data provided by the institution. It would have been more expedient to interview some customers in the process of finding out how best to improve mortgage loans administrations. Another limitation imposed on the study is the fact that the case study i.e. KSHS&L is not solely a mortgage institution. The Bank operates other commercial banking services. Thus it is not easy to dedicate all loanable funds to mortgage services only. Obviously time and budgetary limitation made the researcher to manage whatever resources were available.

## 1.5 SCHEME OF CHAPTERS

This study is presented in five chapters. Overview of the work is the first chapter. Chapter two gives a brief review of related literature. Chapter three analyses Mortgage Administration in Kebbi State Home Savings and Loans Limited, and presents a computerized mortgage administration that could be used in the case study. Chapter four analyses the application of computers in mortgage administration. Chapter five gives a summary of the study draws conclusions and offers recommendations for improving the efficiency of mortgage administration in Kebbi State Home Savings and Loans Limited.



## CHAPTER TWO

### (LITERATURE REVIEW)

#### 2.1 HOUSING PROBLEM

Man since creation has been battling with the problem of adopting himself to his environment present solution become problem in the light of increasing knowledge and in the attendant changes in taste. The housing problem is part of man's bid to adapt himself to his environment. Housing is thus of utmost importance for every individual for a house is not only a place for living but also a machine for living and part of human life. Apart from providing shelter from the harsh microclimate, a house can also provide settings for certain activities; remind people of what these activities are; signify power, status or privacy; express and support cosmological beliefs, communicate information, help establish individual or group identity; and enforce value systems. A house can also separate domains and differentiate between here and there, sacred and profane men and women, front and back, private and public, habitable and inhabitable. The housing problem is complex, universal and perennial. Three (3) major problems of housing are generally, housing quantity, housing quality and housing allocation. Housing quantity described as housing shortage refers to the situation whereby the total number of households exceeds that of housing unit: This situation is worsened by the fact that:

- i. Population growth has continued rapidly.
- ii. Large households normally breakup into smaller unit needing a separate house.
- iii. Poverty continues to reduce investment in housing.
- iv. Several natural occurrences such as flooding, tornadoes, earthquakes etc. tend to destroy houses already built.

Housing quality on the other hand refers to the satisfactory nature of dwellings. For example a house could be unsatisfactory when the structures are defective or when a housing scheme is located in inhabitable environment etc.

Housing allocation problem arises mostly as a result of housing shortage. It is easily understandable that apart from food, shelter comes next in the scale of human needs and like food the allocation of shelter is not based on need but purchasing power. The less needy have access to the best housing while the needy are the homeless.

## **2.2. DEVELOPMENT OF MORTGAGE INSTITUTION**

Several factors affect housing problem and the delivery of housing services. These include, land, building materials and finance. And the factor of finance in housing development cannot be overemphasized. Finance is the main economic power that could be used to mobilize all the resources for housing. Indeed once fund is available all the other obstacles to housing delivery could be easily surmounted. However, house construction or purchase represents a very large capital outlay for individuals. This can rarely be met from incomes or savings thus, borrowing is necessary. The availability of long-term credit is therefore significant in making demand for housing effective. This is because the longer the repayment period, the lower the burden on the borrower and so the easier it is for one to borrow to own a house. However, the reality is that even as most people would need to borrow, finance is in short supply, more so for long-term lending. Mortgage Institutions by definition are those institutions which create mortgage to give a claim on property as a security for payment of a debt or loan) whether commercial or social loans. They are by law allowed to accept savings and deposits from customers.



### **2.2.1 MORTGAGE INSTITUTION IN NIGERIA**

Mortgage institutions developed in Nigeria in response to the demand for long-term lending for investment in housing. As early as 1971 Unaffordable interest rate on housing loans by the existing commercial banks and the limited long-term finance had been identified as the main constraints to housing delivery and the promotion of home-ownership.

In 1973, the Federal Government acquired the (then) Nigeria Building Society (NBS) from the commonwealth. The objective was that with the government as proprietor, the NBS would be made more effective instruments to address the identified constraints. The NBS was later transformed into Federal Mortgage Bank (FMBN) of Nigeria in 1977. FMBN was mandated to lead the multiplication of mortgage lending institutions of which FMBN continues to lead housing financing drive in the nation.

Concurrent with large oil revenues in the late 1970's there was a change of approach by the government. Government considered housing a social good and thus bent on constructing dwelling units that will be allocated to citizen at highly subsidized prices. This discouraged savings that could have been otherwise mobilized and which have relieved the public purse of its huge financial commitment to housing delivery moves. The strategy also sidelined the private sector in housing delivery attempts.

1991 saw the launching of new National Housing Policy. The move is to rationalize the intervention of government in housing finance the thrust of the policy is to widen the role of private sector as the chief means of addressing the

shortage of funds and materials with the government as an enabler and facilitator. The focus of the policy is the facilitation of accommodation of huge amount of cheap funds mainly by the private sector through a set of two mutually reinforcing measures.

The first measures was the establishment of a two-tier institutional structure, with Primary Mortgage Institution (PMI's) as the primary lending institution while FMBN is to supervise and regulate PMI's operations as well as to perform the role of a secondary lender.

The second measure was the establishment by decree 3 of 1992 of the National Housing Fund. (NHF) which is to be subscribed through compulsory monthly savings by individual earning ₦3, 000 or more per year. The NHF is essentially a window for soft loans that would complement the volume of savings freely mobilized by the PMI's to increase the resources available.

Thus the voluntary and mandatory sources of funds are private. Sector based. Since the first license was issued in 1991 over 287 PMI's have been licensed. In the first two three years of their emergency some PMI's patterned their operations after commercial banks. Thus some of them offered attractive interest rates on savings and accepted wholesale tenured deposits, which were clearly unsuitable for long-term lending. With the great distress in the larger financial service system, the Mortgage Industry also suffered a serious setback. Measures taken to sanitize the system found 97 PMI's to be irredeemable and had their licenses withdrawn. On the whole however, the performance of PMI's has continued to



improve over the five- (5) years. Also the NHF had by June 1997 mobilized some ₦1.16 billion.

### **2.3 HISTORICAL DEVELOPMENT OF KEBBI STATE HOME SAVINGS AND LOAN LIMITED**

Kebbi state Home Savings and Loans Limited (KSHS&L) is a PMI which was established under decree 3 of 1992. The institution was incorporated on 20<sup>th</sup> February 1995 and licensed in October 1995 to carry out mortgage operations in accordance with the provisions of the mortgage institution Decree 53 of 1989. The bank commenced operations at its corporate Head office in Birnin Kebbi on December 1, 1995.

KSHS&L was established to contribute to the NHF scheme through the provision of excellent mortgage facilities that would serve as a model to other Primary Mortgage Institution in Nigeria. The Bank is 100% owned by Kebbi State Government and all the 21 Local Government Councils in Kebbi State. The Bank has a share capital of ₦20 million fully paid and arrangements have almost been completed to raise the share capital to ₦100 million.

In addition to commercial banking services KSHS & L provides mortgage services (NHF) and commercial mortgage service to corporate and individual clients. These include:

#### **2.3.1 *Commercial Mortgage Loans***

These loans are given to individuals or corporate organization wishing to invest in properties for commercial/residential purpose with a maximum repayment period of 5 to 10 years.

### **2.3.2 *Employer Mortgage Loans scheme***

This is designed to assist corporate clients to meet their employee housing needs.

Employers can assess their employee and advice the bank on those qualified for the housing loans.

### **2.3.3 *Joint Project Finance scheme***

Under this scheme the bank in conjunction with other reputable mortgage institutions may construct residential houses in both urban and rural areas.

### **2.3.4 *Housing Scheme Management:***

This scheme takes the burden of administering staff housing programme off the shoulder of corporate employers.

### **2.3.5 *Property Enhancement Scheme***

Under this scheme individuals are given loans to enhance the value of existing property e.g. renovation or refurbishing or extension of property.

### **2.3.6 *Social Loans:***

This scheme is designed for contributing to NHF scheme and interest loan will be based on FMBN directives, with a maximum repayment period of 25 years. It is available only for owner-occupier dwelling houses.

### **2.3.7 *Mortgage Administration:***

This is designed to implement NHF scheme in conjunction with FMBN.

The focus of this study is Mortgage Loans Administration simply because of its national appeal and being the main mortgage service provided by the Bank and for which the Bank was established.

## 2.4 ANALYSIS OF KSHS&L's MORTGAGE OPERATION

Mortgage Administration is a collective term used to describe All the activities that take place in securing and adhering to mortgage loans and agreements.

Generally funds obtained by an individual from the case study in the NHF scheme have stipulated conditions and are repayable within 15 to 25 years. Thus we can analyze the operations of mortgage administration under two broad headings viz.

- i. Obtaining NHF loans and
- ii. Post NHF loans operations

### ***OBTAINING NHF LOANS***

The initial and most vital step of obtaining NHF loan is for one to be registered both with the FMBN and KSHS&L.

*Registration with FMBN:* - The employer of a home-seeker must fill a form called NHF1 (to be supplied by the Bank) and return. In case of self-employment the bank will register the person and issue an employer's registration number. The Bank will then issue NHF2 form(s) to employer for employees to fill. When completed and returned an employee is then registered and given employee's participation number. Employer will then commence deduction of contributions at source, which will be remitted to FMBN after which a passbook will be issued to a contributor where all contributions will be dully recorded.

*Registration with KSHS&L:* - This process begins by opening of an account (Savings). Then the Bank issues Mortgage Loan Application Form, which will be filled and returned. Items required to be submitted with the form include: -



- (i) Declaration of age (NHF) loan is only for those up to and above 21 years.
- (ii) NHF employee participation number
- (iii) Salary pay slip
- (iv) Certificate of occupancy (for new construction)
- (v) Offer for sale of property (for purchase)
- (vi) Governor's consent to mortgage (for new construction)
- (vii) Bill of quantities (for new construction)
- (viii) Approved building plan (for new construction).

The second stage of obtaining NHF commences with the completion of the initial or primary stage. This secondary stage deal with the processing of forms submitted to ensure that those who qualify are approved. In processing forms the things that are considered are:

- i. The amount registered/applied for: - The loan to be granted to an individual shall not exceed 90% of the cost or value of the property to be mortgage. In addition there is loan ceiling from the fund to an individual as may be specified periodically.
- ii. The genuineness of information provided in the PMI form completed by an individual.

## ***POST NHF LOANS OPERATIONS***

### ***Disbursement***

Whenever loans applications are considered, approved and loans granted other processes begin. Funds applied for are disbursed to a borrower in accordance with the rules of the scheme. Loans are mostly disbursed by installments except in case of purchasing where a lump-sum payment may be made. All disbursements are made by crossed cheques marked "account payee only".



### *Loan recovery*

Loan recovery is made by monthly installments as agreed by the borrower and the bank (KSHS&L). However, there is a grace period (moratorium) that must elapse before loan repayment commences. Repayment is mostly computed as:

$$\frac{\text{Sum repayable}}{\frac{12 \text{ months}}{\text{No. Of Years}}} \quad \text{or} \quad (\text{sum repayable}/12\text{months}/\text{Nos. of years})$$

The Bank monthly deducts repayment from borrower's personal account with Bank. Two accounts are observed by the Bank in respect of each loan, one (1) for the loan (mortgage) and the other account that belongs to the borrower (mortgagor).

Upon any mortgage falling in arrears, the causes of default are identified and appropriate course of action taken such as:

- (i) Mortgagor is reminded of default and advised to commence repayments. In addition discussions may be held with the mortgagor with a view to proffering solutions to the problem at hand.
- (ii) When monthly default persist, a grace of 60 days only will be given to a mortgagor after which the loan will be recalled in and procedure for auction sale set in motion.
- (iii) Debt rescheduling may be considered before auction sale is undertaken. This is done with the agreement of the mortgagor after interview to ascertain nature of difficulty that is responsible. For accumulation of arrears, the outstanding balance of loan is spread over a longer period i.e. the term of the loan is extended to arrive at a reduced monthly repayment that may be affordable to the mortgagor.

- (iv) Receivership is another action that the bank may consider before considering auction sale of the property. Here the Bank may undertake to manage the property so as to recover the loan's principal and interest accrued.
- (v) Interest Waiver is another action that may be taken by the bank where certain parts of interest are waived off the mortgagor so as to encourage him/her to redeem his/her accounts.
- (vi) Auction sale is the last action to be taken by the Bank where all other options fail. The property is sold by auction and loan recovered.
- (vii) In case of mortgagor death interest charges on the account are suspended for 3 months and his/her guarantor is invited to redeem the account within 3 months else the property is auctioned to recover the loan.

## **CHAPTER THREE**

### **PROGRAMME DESIGN AND IMPLEMENTATION**

#### **3.1 PROGRAM DESIGN**

The use of computer in Mortgage Loan Administration in Kebbi State Home Savings and Loans Limited brings about faster processing and better monitoring of loans granted. Thus the program developed here has the following objectives:

- a. To ensure faster processing of mortgage application
- b. To ensure secure and sound management of the funds
- c. To ensure accountability and
- d. To simplify mortgage Administration.

#### **3.2 PROGRAM IMPLEMENTATION**

The program designed was implemented using Ashton Tate dBase IV programming commands. Ashton Tate dBase is one of the most popular dBase packages. The package is available in several different PC's. It is also an efficient dBase package that simplifies creation and maintenance of database files. This therefore, outlines the significance of using this package. Many computer users are already familiar with the package. This suggests easy comprehension of the program designed. Another reason for implementing the program using the package is to allow the program to be used in DOS or 'WINDOWS' environment. The program can be completely compiled into object code by using "Clipper" program; another program known to several users. The complete Version of the program is attached in Appendix A.



In the implementation of the program some database files are involved.

### 3.2.1 *NHF Application*

This file stored all applications submitted or to be submitted. Forms are numbered and stored according to date of submission. A 'form' is designed for transfer of information directly to this file.

### 3.2.2 *Approved*

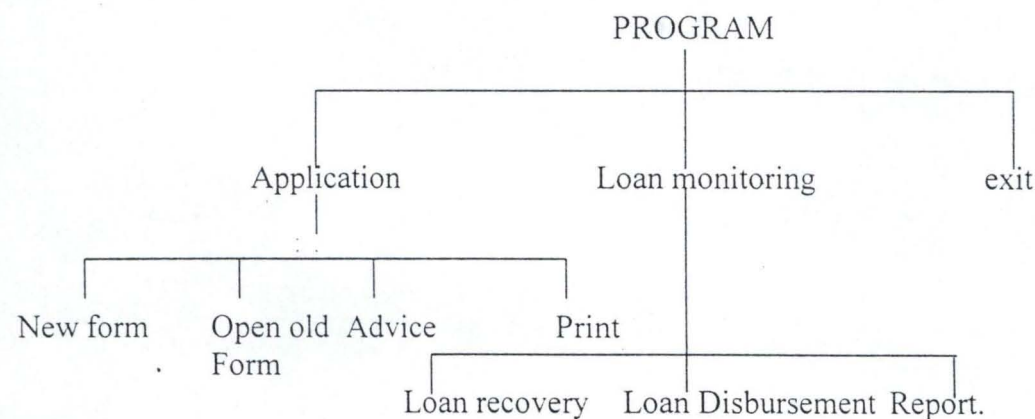
The file is used to store information on NHF loan approved detailing amount approved and the repayment schedule

### 3.2.3 *Disburse*

This file records loan disbursement information. When and how fund/loan was disbursed is recorded for each borrower.

### 3.2.4 *Recovery*

This file records loan repayment developments. Amount repayable, series repayments and if defaultment occurs.



#### Modules:

- (a) *New Form:*  
Objective: - to enable filling of NHF Application form.  
Procedure: - Create a new form for filling.
- (b) *Open old Form*  
Objective: - to enable modification of information provided in a form.  
Procedure: - Specify form number or employee participation number  
              - Use parameter given above to pullout the form.

- (c) *Advice:*  
Objective: - The system should be able to offer best possible advice on an application.  
Procedure: - Determine if all items needed are submitted in a form e.g.  
- Declaration of age, certificate of occupancy etc.  
- Compute 1/3 of (basic + allowance)  
- Show monthly repayments for different years  
- If Highest repayment  $\leq$  65% of 1/3 of total gross pay then that's the best; else Suggest one closest to 65%  
- Reject any repayment request that exceed 88% of the 1/3 of gross pay.
- (d) *Print:*  
Objective: to see applications received within a given period or for stated amount.
- (e) *Disbursement:*  
Objective: - To be able to handle funds disbursement.  
Procedure: - For any disbursement request, check eligibility.  
- Record disbursement and date.
- (f) *Loan Recovery*  
:  
- Determine if grace period for a loan has elapsed  
- Debit mortgagor account at the end of each month.  
- Check for any arrears  
- If 2 months arrears found, signal  
- If 3 months arrears found, give 3 months grace period  
- If no response, suggest Debt rescheduling/receivership/Auction sale.
- (g) *Report:*  
Objective: To provide feedback on loans performance.  
Procedure: -  
-Generate single mortgagor report on request on demand.  
-Or produce monthly report or containing loans

The full code of the program is attached in appendix 'A'.

- (c) *Advice:*  
Objective: - The system should be able to offer best possible advice on an application.  
Procedure: - Determine if all items needed are submitted in a form e.g.  
- Declaration of age, certificate of occupancy etc.  
- Compute 1/3 of (basic + allowance)  
- Show monthly repayments for different years  
- If Highest repayment  $\leq$  65% of 1/3 of total gross pay then that's the best; else Suggest one closest to 65%  
- Reject any repayment request that exceed 88% of the 1/3 of gross pay.
- (d) *Print:*  
Objective: to see applications received within a given period or for stated amount.
- (e) *Disbursement:*  
Objective: - To be able to handle funds disbursement.  
Procedure: - For any disbursement request, check eligibility.  
- Record disbursement and date.
- (f) *Loan Recovery*  
:  
- Determine if grace period for a loan has elapsed  
- Debit mortgagor account at the end of each month.  
- Check for any arrears  
- If 2 months arrears found, signal  
- If 3 months arrears found, give 3 months grace period  
- If no response, suggest Debt rescheduling/receivership/Auction sale.
- (g) *Report:*  
Objective: To provide feedback on loans performance.  
Procedure: -  
-Generate single mortgagor report on request on demand.  
-Or produce monthly report or containing loans

The full code of the program is attached in appendix 'A'.



## CHAPTER FOUR

### RESULT PRESENTATION AND ANALYSIS

#### 4.1 PROGRAM OUTPUT PRESENTATION

Upon running the program the introductory screen appears. The screen running contains the main menu with the 'status bar' display the function of each menu item selected. Activities that are related to filling of NHF Application Form' are placed under 'application' menu item. While those relating to monitoring of existing NHF loans are placed under monitor menu item. Fig. 1 present the screen.

Fig. 2 and 3 presents NHF Application forms. The result of selecting 'New' in 'Application' menu is presented in fig. 2 A new form is provided for completion by the user. Completed form can be retrieved by selecting 'open' This is shown in fig 3; To delete any, unwanted form; 'Delete' is selected in 'Application'.

NHF loan repayment years can be 5, 10, 15, 20 or 25. Monthly repayment must not be more than 1/3 of borrower's monthly income. The Bank deserves the right to reject monthly repayment selected by a borrower if it is more than 1/3 of his/her income. The higher the amount the shorter the period and vice versa. To see monthly repayments schedules for the amount indicated there. The program in addition also suggests best/worst repayment for a given amount.

Sometimes, it may be required to view all application form submitted on a given date or for same amount applied for. Selecting 'print' will display such information. Fig. 5 shows sample data printed base on date of application. This can be used to know applications received within a given period.

Fig. 6 shows printed information on loan approved and existing NHF loan reports are generated monthly or when required. Reports on individual borrower can be generated any time such is requested. This will show repayment information for a given borrower. A borrower is identified by his participation number.

#### 4.2 ANALYSIS OF OUTPUT

In the previous section 'program output' was presented as function(s) or accomplishment(s) of each menu item. It can be observed that NHF form filling or retrieving has been simplified. It is easier to fill and maintain application form than the normal paper work. On giving a borrower's participation number his/her form will quickly come to focus. This is a time/paper saver. Also forms to be discarded can easily be deleted.

The output also shows how an overview of NHF application forms can easily be obtained. It is understandable that the date of application as well as the amount applied for is crucial in the Bank's management loans decision making. The program quickly generates such information.

In the events of monitoring loan performance, it is required to have periodic overview of repayments and disbursements. The program output presented shows how such information can be available on request or on the 28<sup>th</sup> of each month. This can show who is complying and who's defaulting.

On the other hand, on report/printable output regarding funds disbursement is produced by the program. Disbursements are granted if approved or rejected. Also, the program output does not show beginning or when to begin the process of receivership or auction. The two phenomena were not made clear to the writer by



the case study. This therefore made the writer to make use of estimates and or observations. In the output of the program therefore processes leading to approval of loan are not shown. It is easier as a result of the following:

- 4.2.1 Observation of certain attachment cannot done by computer e.g determination of genuine or otherwise of declaration of age.
- 4.2.2 Computer cannot do the long process of application for disbursement and approval too.

Although some of the process involves in the two above may be computerized, the information provided by the case study makes such attempt impossible.

#### 4.3 **SIGNIFICANT DEVELOPMENT**

The National Housing Fund is a laudable attempt to provide shelter for millions of homeless Nigerians. Therefore the need to efficiently management the scheme must be emphasized. One significant development that this attempt to automate the operations of the scheme at Kebbi State Home Savings and Loans Limited has highlighted is that it is possible and in fact highly effective to automate NHF operations. The program has shown that management of application forms for the loan can best be done by computerization. The simplicity with which new forms can be produced and filled on the screen and partially processed makes PMI's services better available to those who need them.

The ability to easily and quickly print situation report on applications for loan makes Bank's management better informed about the operations of the loan and thus more responsive to NHF loan demands. It also helps the management to plan better for the loans' operations. In addition monthly reports produced show loan performance thereby making it easier to know actions to be taken quickly on some loan holders.



## **CHAPTER FIVE:**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 SUMMARY**

The aims of the study were to show the practicability and efficiency of the application of computers in mortgage loans administration in particular in the case study Kebbi State Home Savings and Loans Limited and to demonstrate this by developing a simple computer program.

The program was written using dBase IV application package using interactive (menu-driven program) approach. Information on the conduct of mortgage loans administration obtained from the case study was used to analyse the program.

In Chapter one, a general overview of the study together with the scope and limitation were presented. In Chapter two, review of literature related to the topic of the research was done. A brief discussion on the operations of National Housing Fund especially by the case study was also stated. In Chapter three, the stages of program development were presented. Various procedures followed in developing the program were also stated. Chapter four presents the program output and its analysis. Brief discussions on the significant development were also done.

#### **5.2 CONCLUSION**

The study embarked upon here reviewed mortgage loans administration with respect to primary mortgage institution (PMI's) specifically Kebbi State Home Savings and Loans Limited. Mortgage Loans administration have been seen to consist of series activities beginning with registration with FMBN and obtaining participation number up to applying for loan and repaying such loan. In

conclusion, it was observed that significant delays in the processing of NHF applications could be reduced by the application of computers to mortgage.

In addition application of computers will significantly improve the accuracy of data manipulation involved in the processes of mortgage loans administration. There are certain operations or activities that can only be done manually and though, significant, computerising the other activities will still increase the efficiency of the scheme if only the manual activities can be conducted in orderly manner. Successful implementation of NHF will increase the number of homeowners in Nigeria.

### 5.3 RECOMMENDATIONS

The study presented here focussed on the application of computer to mortgage loan administration and various activities that take place were reviewed as a result of which the following recommendations are hereby presented.

- (a) That all PMI's should apply computer in their mortgage loan administration for more efficiency.
- (b) That adequate step should be taken to reduce the delay on payment of amount requested by a borrower from FMBN to PMI's.
- (c) That PMI's should take steps to help borrower to obtain governor's letter of consent so as to reduce the overall difficulty in acquiring or owning shelter by citizen.
- (d) That mortgage operators should provide all details required by individuals carrying out a study of this nature so as to help them obtain better results.

## REFERENCES

1. GRAHAM C. LESTER (1991) "System Analysis And Design" Irwin Homewood
2. HAKIMI DANLADI (1999) Database Management System  
F.U.T Minna (Unpublished)
3. KEBBI STATE HOME SAVINGS & LOAN LIMITED (1996) "Customer's Bronchire"  
Published by KSH&L Information Unit
4. LEWES ARTHUR W. (1995) Development Planning the Essentials of  
Economic Policy Macdonald And Evans.  
London
5. HOUSING TODAY (1997) The journal of the association of Housing  
Corporation of Nigeria No. 01 Vol. 1
6. DIC DAVIS (1996) Information Technology at work Longman  
Group Limited, London.
7. FEDERAL MORTGAGE BANK OF NIGERIA (1992) Procedures for Registration  
Published by: F.M.B.N
8. FEDERAL MORTGAGE BANK OF NIGERIA (1992) Benefits under the National Housing Fund  
Published by: F.M.B.N
9. FEDERAL MORTGAGE BANK OF NIGERIA (1992) Terms and conditions for obtaining loans  
Published by: F.M.B.N
10. JAMES A. SENN (1989) Analysis and design of information  
Longman Group Limited, London.



## APPENDIX A

### liminary Settings

```
EA
T TALK OFF
T CLOCK ON
T STAT OFF
T CENTURY ON
T DATE BRITISH
```

### ening Messages

```
ORE "Welcome To" TO Msg1
ORE "MORTGAGE EXPERT" TO Msg2
ORE "... An Application of Computer in Mortgage Loans Administration" TO Msg3
ORE "Developed by Muktar Garba for KSHS&L LTD Birnin Kebbi" TO Msg4
```

### ndamental Functions

```
DAY(DATE())=28
DO REPORTGENERATION WITH "Monthly"    && Generate Monthly Report
DO CHECKINCOMPLETEFORMS                && Check for Forms Submitted but not Complete; delete if overstayed
DO SIGNAPPROVAL                        && Enter Forms Approved within the Month
DIF
```

### in Programm

```
DO BLINK
DO MENUDEF
DO POPUP1DEF
DO POPUP2DEF
```

### art Menu-Driven Operations

```
ACTIVATE MENU MGMENU
RETURN
```

### enu Design Definitions

```
PROCEDURE MENUDEF
DEFINE MENU MGMENU
DEFINE PAD APPLICS OF MGMENU PROMPT "Applications" AT 2,4
DEFINE PAD MONITOR OF MGMENU PROMPT "Monitoring" AT 2,24
DEFINE PAD FINITO OF MGMENU PROMPT "Quit" AT 2,49
ON PAD APPLICS OF MGMENU ACTIVATE POPUP MAIN
ON PAD MONITOR OF MGMENU ACTIVATE POPUP MISCELL
ON SELECTION PAD FINITO OF MGMENU DO LEAVE
```

```
TURN
```

### PROCEDURE POPUP1DEF

```
DEFINE POPUP MAIN FROM 3,4 TO 9,15
DEFINE BAR 1 OF MAIN PROMPT "New " MESSAGE "Fill New Form"
DEFINE BAR 2 OF MAIN PROMPT "Open " MESSAGE "Open Form"
DEFINE BAR 3 OF MAIN PROMPT "Delete " MESSAGE "Delete Form"
DEFINE BAR 4 OF MAIN PROMPT "Advice " MESSAGE "Show Repayments Schedule"
DEFINE BAR 5 OF MAIN PROMPT "Print " MESSAGE "Print Form Information"
ON SELECTION POPUP MAIN DO MAINITEM
```

```
RETURN
```

### PROCEDURE POPUP2DEF

```
DEFINE POPUP MISCELL FROM 3,24 TO 7,33
DEFINE BAR 1 OF MISCELL PROMPT "Recovery" MESSAGE "Loan Recovery"
DEFINE BAR 2 OF MISCELL PROMPT "Disburse" MESSAGE "Funds Disbursemet"
DEFINE BAR 3 OF MISCELL PROMPT "Report " MESSAGE "Loans Report"
ON SELECTION POPUP MISCELL DO MISCELLITEM
```

```
RETURN
```

### PROCEDURE MAINITEM

```
DO CASE
CASE BAR()=1
CLOSE ALL
DO MESSAGEBOX WITH "You are about to Fill New Form"
USE NHFApplcs
SET FORMAT TO NHFForm
APPEND
CLOSE ALL
CASE BAR()=2
CLOSE ALL
```

```

DO MESSAGEBOX WITH "You are about to Modify Form"
USE NHFApplies
SET FORMAT TO NHFForm
FNO=0
DO INPUTBOX WITH "Which Form",FNO
EDIT FOR FORMNO=FNO
CLOSE ALL
CASE BAR()=3
CLOSE ALL
DO MESSAGEBOX WITH "You are about to Delete Form"
USE NHFApplies
FNO=0
DO INPUTBOX WITH "Which Form",FNO
USE NHFBin
APPEND FROM NHFApplies FOR LTRIM(FORMNO)=LTRIM(FNO)
USE NHFApplies
DELETE FOR FORMNO=FNO
CLOSE ALL
CASE BAR()=4
CLOSE ALL
DO MESSAGEBOX WITH "Annuity Schedule to be Displayed"
DO ADVICE
CLOSE ALL
CASE BAR()=5
CLOSE ALL
DO MESSAGEBOX WITH "Printing Forms Information"
DO PRINTINMAIN
CLOSE ALL
ENDCASE
RETURN

```

#### PROCEDURE MISCELLITEM

```

DO CASE
CASE BAR()=1
CLOSE ALL
DO MESSAGEBOX WITH "Recovery Process"
DO RECOVERY
CLOSE ALL
CASE BAR()=2
CLOSE ALL
DO MESSAGEBOX WITH "Disbursement Process"
DO DISBURSEMENT
CLOSE ALL
CASE BAR()=3
CLOSE ALL
DO MESSAGEBOX WITH "Report Generation"
DO REPORTGENERATION WITH "Individual"
CLOSE ALL
ENDCASE
RETURN

```

#### Repeatedly used Procedures

#### PROCEDURE MESSAGEBOX

```

PARAMETERS Msg
@3,4 CLEAR TO 22,77
SET COLOR TO W+/N+
@3,18 to 11,68 PANEL
SET COLOR TO B+
@4,19 FILL TO 6,67 COLOR B
@5,20 SAY "Messages Box"
SET COLOR TO W+/B
@8,20 SAY Msg
WAIT ""
@3,18 CLEAR TO 11,68
@3,4 CLEAR TO 22,77
RETURN

```



# PROCEDURE INPUTBOX

PARAMETERS Msg,Varbl

```
@3,4 CLEAR TO 22,77
  SET COLOR TO N+W
  @3,18 TO 11,68 PANEL
  @4,19 FILL TO 6,67 COLOR B
  SET COLOR TO B+
  @5,20 SAY "Input Box"
  SET COLOR TO W+/B
  @8,20 SAY Msg
  @9,20 SAY CHR(16) GET Varbl
  READ
  @3,18 CLEAR TO 11,68
@3,4 CLEAR TO 22,77
TURN
```

# PROCEDURE BLINK

```
@1,1 TO 23,79 PANEL
SET COLOR TO W/G+*
@11,41-INT(LEN(Msg1)/2) SAY Msg1
@12,41-INT(LEN(Msg2)/2) SAY Msg2
@13,41-INT(LEN(Msg3)/2) SAY Msg3
@14,41-INT(LEN(Msg4)/2) SAY Msg4
SET COLOR TO G/R
TURN
```

# Main Menu Procedures

```
PROCEDURE LEAVE      && CASE BAR()=5
STORE SPACE(1) TO Ansa
DO WHILE UPPER(Ansa)<>"Y".AND. UPPER(Ansa)<>"N"
DO INPUTBOX WITH "Y-Quit; N-Cancel",Ansa
IF UPPER(Ansa)="Y"
  CLOSE ALL
  CLEAR
  DEACTIVATE MENU
ENDIF
ENDDO
RETURN
```

# Applications-submenu Procedures

```
PROCEDURE ADVICE
CLOSE ALL
STORE SPACE(1) TO Ans
DO INPUTBOX WITH "1:Show Table; 2:Show For Amount",Ans
DO CASE
  CASE VAL(Ans)=1
    STORE 50000 TO Amt
    DO MESSAGEBOX WITH "Annuity Table Will be displayed"
    @3,6 SAY "AMOUNT"+SPACE(20)+"Monthly Repayments"
    @5,16 SAY SPACE(7)+"5"+SPACE(10)+"10"+SPACE(7)+"15"+SPACE(8)+"20"+SPACE(10)+"25"
    CR=6
    DO WHILE Amt<=1000000
      @CR,6 SAY Amt
      Yr=5
      DO WHILE Yr<=25
        * Compute R-Factor
        RFactor=(1.09^Yr)*.09/(1.09^Yr-1)
        @CR,6+(Yr*2) SAY (RFactor*Amt)/12
        Yr=Yr+5
      ENDDO
      CR=CR+1
      IF CR>21
        WAIT ""
        DO MESSAGEBOX WITH "Press ENTER to see more!"
        CR=6
      ENDIF
      Amt=Amt+25000
    ENDDO
    WAIT ""
    @3,4 CLEAR TO 22,77
  CASE VAL(Ans)=2
    USE NHFApplies
```



```

FNO=0
DO INPUTBOX WITH "Which Form",FNO
LOCATE FOR FORMNO=FNO
STORE 0.333*(BASIC_SAL+ALLOWANCE) TO OneThird
DO MESSAGEBOX WITH "Repayments Schedule for the Applied Amount"
@3,6 SAY "AMOUNT"+SPACE(20)+"Monthly Repayments"
@6,6 SAY APPLIAMNT
Yr=5
Highest=0
DO WHILE Yr<=25
  * Compute R-Factor
  @5,6+(Yr*2) SAY Yr
  RFactor=(1.09^Yr)*.09/(1.09^Yr-1)
  @6,6+(Yr*2) SAY (RFactor*APPLIAMNT)/12
  Yr=Yr+5
  IF Highest<(RFactor*APPLIAMNT)/12
    Highest=(RFactor*APPLIAMNT)/12
  ENDIF
ENDDO
IF Highest<OneThird
  @20,6 SAY Highest
  ?? " is considered the Best Repayment"
ELSE
  @20,6 SAY (OneThird*0.88)
  ?? " is considered the Worst Repayment"
ENDIF
WAIT ""
@3,4 CLEAR TO 22,77
ND CASE
TURN

PROCEDURE PRINTINMAIN
LOSE ALL
SE NHFApplies
STORE SPACE(1) TO Varbl
DO INPUTBOX WITH "Print 1:By Date; 2:By Amount",Varbl
DO CASE
CASE VAL(Varbl)=1
  STORE CTOD(" / / ") TO PDate
  DO INPUTBOX WITH "Enter Date (dd/mm/ccyr)",PDate
  REPORT FORM MAINPRINT FOR APPLIDATE=PDate
CASE VAL(Varbl)=2
  STORE 0 TO Amt
  DO INPUTBOX WITH "Enter Amount",Amt
  REPORT FORM MAINPRINT FOR APPLIAMNT=Amt
END CASE
RETURN

Monitoring-submenu Procedures
PROCEDURE RECOVERY
CLOSE ALL
Check for all Loans due for Recovery
DO LOANS DUE
Check for Loans Repaid
DO LOANS REPAID
USE Recovery
IF DAY( DATE() ) <> 28
DO MESSAGEBOX WITH "Recovery on 28th of Month only."
ELSE
DO WHILE .NOT. EOF()
STORE FMBNNO TO FMBNN
STORE RECNO() TO RecdNo
USE Approved
LOCATE FOR FMBNNO=FMBNN
STORE MONTHLYPAY TO MPays
USE Recovery
LOCATE FOR RECNO()=RecdNo
REPLACE AMTSUPPOSD WITH AMTSUPPOSD+MPays
STORE .T. TO Resp
DO INPUTBOX WITH FMBNNO+" has paid Last month(y/n)?"
IF Resp
REPLACE NOOFPAYS WITH NOOFPAYS+1

```

```
REPLACE AMTREPAID WITH AMTREPAID+MPays
STORE "28/" TO DD
STORE LTRIM(STR(MONTH(DATE()))-1)) TO MM
STORE LTRIM(STR(YEAR(DATE())))) TO YY
STORE DD+MM+"/"+YY TO PDate
REPLACE REPAYDATE WITH CTOD(PDate)
ENDIF
DO CHECKFORDEFAULT
SKIP
ENDDO
ENDIF
RETURN
```

#### PROCEDURE DISBURSEMENT

```
CLOSE ALL
USE Disburse
STORE SPACE(10) TO FMBNN
DO INPUTBOX WITH "Give FMBN No. of Mortgagor",FMBNN
SUM AMTAPPLIED FOR FMBNNO=FMBNN TO ADis
USE Approved
LOCATE FOR FMBNNO=FMBNN
STORE AMTAPPROV TO Amt
USE Disburse
Applied=0
DO INPUTBOX WITH "State Amount Applied For",Applied
IF Amt-(Applied+ADis)>=0
  APPEND BLANK
  REPLACE AMTAPPLIED WITH Applied
  REPLACE DISDATE WITH DATE()
  REPLACE FMBNNO WITH FMBNN
  REPLACE LASTRECEIV WITH .F.
ELSE
  LOCATE FOR FMBNNO=FMBNN
  REPLACE LASTRECEIV WITH .T.
  DO MESSAGEBOX WITH "Approval only for"+str(Amt-ADis)
ENDIF
@3,4 CLEAR TO 22,76
RETURN
```

#### PROCEDURE REPORTGENERATION

```
PARAMETERS Msg
CLOSE ALL
IF Msg="Monthly"
  DO MESSAGEBOX WITH "Monthly Report to be generated"
  USE Recovery
  SET VIEW TO RECOVQUE
  DO MESSAGEBOX WITH "The Following is Recovery Report"
  REPORT FORM RECOVRPT
  WAIT ""
  DO MESSAGEBOX WITH "The Following is Disbursement Report"
  CLOSE ALL
  USE Disburse
  REPORT FORM DISBUSRP
  WAIT ""
  DO MESSAGEBOX WITH "The Following is Approved Loans Report"
  CLOSE ALL
  USE Approved
  REPORT FORM APPROVED
ELSE
  DO MESSAGEBOX WITH "Individual Report to be generated"
  STORE SPACE(10) TO FMBNN
  DO INPUTBOX WITH "Give FMBN No. of Mortgagor",FMBNN
  USE Recovery
  SET VIEW TO RECOVQUE
  REPORT FORM RECOVRPT FOR FMBNNO=FMBNN TO PRINT
  WAIT ""
  CLOSE ALL
  USE Disburse
  REPORT FORM DISBUSRP FOR FMBNNO=FMBNN TO PRINT
  WAIT ""
  CLOSE ALL
  USE Approved
```



REPORT FORM APPROVED FOR FMBNNO=FMBNN TO PRINT

ENDIF  
WAIT ""  
3.4 CLEAR TO 22,77  
RETURN

Subsidiary Procedures

PROCEDURE CHECKFORDEFAULT

IF INT(AMTSUPPOSD/AMTREPAID)=2

DO MESSAGEBOX WITH FMBNNO+" has Defaulted Twice"

DO MESSAGEBOX WITH "Please Initiate Contact"

ELSE

IF INT(AMTSUPPOSD/AMTREPAID)>2

DO MESSAGEBOX WITH FMBNNO+" has defaulted more than twice"

DO MESSAGEBOX WITH "Advised to begin Resheduling/Receivership/Auction"

ENDIF

ENDIF

RETURN

PROCEDURE CHECKINCOMPLETEFORMS

USE NHFApplies

GO TOP

DO WHILE .NOT. EOF()

\* Determine if items needed are submitted

IF FORMNO<>0

IF (SAL\_SLIP=.F. .OR. DEC\_OF\_AGE=.F. .OR. GOVCONSENT=.F.)

DO MESSAGEBOX WITH "Form No."+LTRIM(STR(FORMNO))+" submitted on "+DTOC(DATE())+" not COMPLETE"

DO DELOVERSTAYED

ELSE

IF (CERT\_OF\_OC=.F. .OR. SALE\_OFFER=.F.) .AND. (BOQ=.F. .OR. APPROVPLAN=.F.)

DO MESSAGEBOX WITH "Form No."+LTRIM(STR(FORMNO))+" submitted on "+DTOC(DATE())+" not COMPLETE"

ENDIF

ENDIF

ENDIF

SKIP

ENDDO

RETURN

PROCEDURE DELOVERSTAYED

IF (MONTH(DATE())+YEAR(DATE()))-(MONTH(APPLIDATE)+YEAR(APPLIDATE))=2 .OR.;

ABS((MONTH(DATE())+YEAR(DATE()))-(MONTH(APPLIDATE)+YEAR(APPLIDATE)))=9

DO MESSAGEBOX WITH "Form No."+LTRIM(STR(FORMNO))+" overstayed and is now deleted"

STORE RECNO() TO RecdNo

USE NHFBin

APPEND FROM NHFApplies FOR RECNO()=RecdNo

USE NHFApplies

DELETE RECORD RecdNo

ENDIF

RETURN

PROCEDURE LOANSREPAID

USE Recovery

SET VIEW TO RECOVQUE.QBE

GO TOP

DO WHILE .NOT. EOF()

LOCATE FOR INT(AMTAPPROV/Recovery->AMTREPAID)<=1

IF FOUND()

DO MESSAGEBOX WITH FMBNNO+" has repaid LOAN"

REPLACE PAIDALL WITH .T.

ENDIF

CONTINUE

ENDDO

CLOSE ALL

RETURN

PROCEDURE LOANS DUE

CLOSE ALL

USE Disburse

DO WHILE .NOT. EOF()

LOCATE FOR LASTRECEIV

STORE FMBNNO TO FMBNN

STORE RECNO() TO RecdNo



```

STORE DISDATE TO DueDate
USE Approved
LOCATE FOR FMBNNO=FMBNN
STORE GPERIOD TO Period
STORE MONTHLYPAY TO MPays
STORE MOD(Period,30)+DAY(DueDate) TO NDay
STORE INT(Period/30)+MONTH(DueDate) TO NMonth
STORE CTOD(STR(NDay)+"/"+STR(NMonth)+"/"+STR(YEAR(DueDate))) TO NDueDate
IF NDueDate>=DATE()
    USE Recovery
    APPEND BLANK
    REPLACE FMBNNO WITH FMBN
    REPLACE REPAYDATE WITH NDueDate
    REPLACE NOOFPAY WITH 1
    REPLACE AMTREPAID WITH 0.00
    REPLACE AMTSUPPOSD WITH MPays
    REPLACE PAIDALL WITH .F.
ENDIF
USE Disburse
LOCATE FOR RECNO()=RecdNo
ENDDO
RETURN

```

#### PROCEDURE SIGNAPPROVAL

```

USE Approved
DO MESSAGEBOX WITH "Enter Forms Approved btw 28/Last Month - Date"
STORE "Y" TO Ansa
STORE 3 TO FNO
STORE SPACE(10) TO FMBNN
STORE 0.00 TO AMT
STORE 1000.00 TO MPAY
STORE 25 TO NYRS
STORE 30 TO GP
DO WHILE Ansa$("Y/y")
    APPEND BLANK
    DO INPUTBOX WITH "Form No.",FNO
    REPLACE FORMNO WITH FNO
    DO INPUTBOX WITH "FMBN No.",FMBNN
    REPLACE FMBNNO WITH FMBNN
    DO INPUTBOX WITH "Amount Approved",AMT
    REPLACE AMTAPPROV WITH AMT
    DO INPUTBOX WITH "Monthly Repays",MPAY
    REPLACE MONTHLYPAY WITH MPAY
    DO INPUTBOX WITH "No of Years",NYRS
    REPLACE NOOFYRS WITH NYRS
    DO INPUTBOX WITH "Grace Perriod",GP
    REPLACE GPERIOD WITH GP
    REPLACE APPROVDATE WITH DATE()
    DO INPUTBOX WITH "More(y/n)?",Ansa
ENDDO
RETURN

```

Applications

Monitoring

Quit

New  
Open  
Delete  
Advice  
Print

Welcome to  
MORTGAGE EXPERT  
... an application of Computer in Mortgage Loans Administration  
for KSHS&L Ltd. B/K

Fill New Form

Fig. 1

Records Organize Go To Exit

7:01:37

NHF LOAN APPLICATION FORM

Date of Application: / / NHF Part. Number: FormNo: 0

Name of Applicant:  
Address of Applicant:

Name of First Guarantor:  
Address of First Guarantor:

Name of Second Guarantor:  
Address of Second Guarantor:

Basic Salary:\*\*\*\*\*0.00 Allowances:\*\*\*\*\*0.00 Savings A/C No:

Amount Applied For:\*\*\*\*\*0.00

Please Tick below Item submitted by Applicant:-

- |                               |                              |
|-------------------------------|------------------------------|
| 1. Declaration of Age         | 2. Salary Slip               |
| 3. Certificate of Occupancy   | 4. Gov's Consent to Mortgage |
| 5. Bills of Quantities        | 6. Approved building Plan    |
| 7. Offer for Sale of Property |                              |

||C:\dbaseiv\NHFAPPLI ||Rec 4/7 ||File || NumCaps

Fig. 2



6:59:10

NHF LOAN APPLICATION FORM

=====

Date of Application:01/01/2000 NHF Part. Number:1

FormNo:1001

Name of Applicant:ALIYU ATIKU

Address of Applicant:THE PQLYTECHNIC BIRNIN KEBBI

Name of First Guarantor:ALH. SAHABI ATIKU

Address of First Guarantor:MIN. OF WORKS HQTRS B/KEBBI

Name of Second Guarantor:ALH. USMAN ABUBAKAR ZAGGA

Address of Second Guarantor:DEP'T FOR CHIEFT. AFFAIRS, B/K

Basic Salary:\*\*\*5500.00 Allowances:\*\*12000.00 Savings A/C No:KBHSL1001

Amount Applied For:\*150000.00

Please Tick below Item submitted by Applicant:-

- |                                 |                                |
|---------------------------------|--------------------------------|
| 1. Y Declaration of Age         | 2. Y Salary Slip               |
| 3. Y Certificate of Occupancy   | 4. Y Gov's Consent to Mortgage |
| 5. Y Bills of Quantities        | 6. Y Approved building Plan    |
| 7. Y Offer for Sale of Property |                                |

||C:\dbaseiv\NHFAPPLI

||Rec 1/7

||File ||

|| NumCaps

Fig. 3

Applications

Monitoring

Quit

The Following is Repayments Table for the Applied Fund  
Amount Monthly Repayments

	5	10	15	20	25
170000.00	3642	2207	1757	1551	1442.26

1454 is the worst allowed

Suggest NHF Policy

Fig 4

Num

Yusuf Alkali	01/01/2000	1001	170000.00
Sardauna Attahiru Zagga	01/01/2000	1003	150000.00

Fig. 5



Applications

Monitoring

Quit

Repayments	Amount	Date
1	100000.00	13/12/2000
2	150000.00	13/12/2000
	/	/

Fig 6

?'TOTAL RECEIPT:',T\_RECEIPT  
 ?'TOTAL RETURNS OF ISSUE:',IRETURNS  
 ?'TOTAL TRANSFER OF ISSUE:',ITRANSFER  
 ?'TOTAL ADJUSTMENT OF ISSUE:',IADJUSTMENT  
 ?'TOTAL ISSUE:',T\_ISSUE  
 ?  
 ?'CLOSING STOCK:',C\_STOCK  
 ?  
 WAIT'Press any key to return to report menu'  
 RETURN  
 ELSE  
 @13,25 SAY ' '  
 WAIT 'INVALID STOCK NUMBER'  
 CLEAR  
 ENDIF  
 ENDDO  
 RETURN

\*PROCEDURE DELETETYRE  
 PROCEDURE DELETETYRE  
 STORE 'Y' TO ANS  
 SET STATUS OFF  
 @1,25 TO 3,55  
 @2,30 SAY 'DELETE STOCK SECTION'  
 @3,3 TO 21,77 DOUBLE  
 USE TYRE  
 DO WHILE ANS = 'Y'

STORE SPACE(5) TO MSTACK\_NUM  
 @4,5 SAY 'ENTER STOCK NUMBER :' GET MSTACK\_NUM PICT '@!'  
 READ  
 LOCATE ALL FOR STOCK\_NUM = MSTACK\_NUM  
 IF FOUND()

STORE O\_STOCK TO MO\_STOCK  
 STORE INVOICE TO MINVOICE  
 STORE SIZE\_NUM TO MSIZE\_NUM  
 STORE TYPE TO MTYPE  
 STORE DATE TO MDATE

```
STORE STOCK_NUM TO MSTACK_NUM
DO DISPLAY1
CLEAR GETS
@21,20 TO 23,60
STORE 'N' TO REPLY
@22,22 SAY 'ARE YOU SURE? (Y/N)' GET REPLY PICT '!!';
VALID REPLY $ 'YN' ERROR 'INVALID ENTRY!!!'
READ
IF REPLY = 'Y'
    DELE
    PACK
ENDIF
ELSE
    @10,20 SAY 'RECORD DOES NOT EXIST'
ENDIF
@21,20 CLEA TO 23,60
@21,20 TO 23,60
STORE 'N' TO ANS
@22,22 SAY 'DELETE MORE RECORD? (Y/N)' GET ANS PICT '!!'
READ
ENDDO
CLEAR
CLOSE DATA
RETURN
```

```
*PROCEDURE INPUTUBE
PROCEDURE INPUTTUBE
STORE 'Y' TO ANS
SET STATUS OFF
DO WHILE ANS = 'Y'
    CLEAR
    USE TUBE
    @1,25 TO 3,55
    @2,30 SAY 'DATA ENTRY SECTION'
    @3,3 TO 21,77 DOUBLE
```

```
STORE SPACE(5) TO MSTACK_NUM
@4,5 SAY 'ENTER STOCK NUMBER :' GET MSTACK_NUM PICT '@!'
```



(12)

```
READ
LOCATE ALL FOR STOCK_NUM = MSTACK_NUM
IF FOUND()
  CLEAR
  @11,35 SAY 'STOCK NUMBER EXIT BEFORE'
  WAIT ' '
  CLEAR
ELSE
```

```
STORE 0 TO MO_STOCK,MINVOICE,MRECEIPT,MRRETURNS,MIRETURNS,MITRANSFER
STORE 0 TO MRTRANSFER
STORE 0 TO MRDJUSTMENT,MIAJUSTMENT,MT_RECEIPT
STORE 0 TO MT_ISSUE,MC_STOCK,MO_STOTAL,MC_STOTAL
STORE SPACE(10) TO MSIZE_NUM,MTYPE,MDEPOT
STORE SPACE(20) TO MCUSTOMER,MTOWN
STORE SPACE(10) TO MLORRY
STORE 0 TO MV_NUMBER,MII_NUMBER,MNUM_R,MNUM_I
STORE CTOD(" / / ") TO MDATE
STORE SPACE(5) TO MSTACK_NUM
DO DISPLAY1
```

```
READ
APPEND BLANK
REPLACE TYPE WITH MTYPE
REPLACE SIZE_NUM WITH MSIZE_NUM
REPLACE INVOICE WITH MINVOICE
REPLACE O_STOCK WITH MO_STOCK
REPLACE STOCK_NUM WITH MSTACK_NUM
CLEAR
```

```
ENDIF
@13,25 SAY 'MORE STOCK OPENING ?(Y or press any key to end):' GET ANS
READ
CLEAR
ENDDO
CLOSE DATA
RETURN
```

```
*PROCEDURE DISPLAY1
PROCEDURE DISPLAY1
```

(a)

```
STORE 'Y' TO RREPLY, IREPLY
@6,5 SAY 'TYRE TYPE:' GET MTYPE PICT '@!'
@10,5 SAY 'SIZE NUMBER:' GET MSIZE_NUM
@14,5 SAY 'INVOICE NUMBER:' GET MINVOICE
@18,5 SAY 'OPENING STOCK:' GET MO_STOCK
RETURN
```

\*PROCEDURE UPDATETUBE

PROCEDURE UPDATETUBE

CLEAR

STORE 'Y' TO ANS

STORE 'Y' TO RREPLY, IREPLY

DO WHILE ANS = 'Y'

USE TUBE

GO TOP

@1,25 TO 3,65

@2,30 SAY 'UPDATE OF TUBE STOCK '

@3,3 TO 21,77 DOUBLE

STORE SPACE(5) TO MSTACK\_NUM

@4,5 SAY 'ENTER STOCK NUMBER :' GET MSTACK\_NUM PICT '@!'

READ

LOCATE ALL FOR STOCK\_NUM = MSTACK\_NUM

IF FOUND()

CLEAR

@2,2 SAY '\*\*\*\*\*RECEIPT\*\*\*\*\*'

@6,5 SAY 'DATE'

@6,20 SAY 'LORRY'

@6,40 SAY 'VOUCHER NO'

@6,60 SAY 'NUMBER'

DO WHILE RREPLY = 'Y'.OR.RREPLY = 'y'

STORE CTOD(" / / ") TO MDATE

STORE SPACE(10) TO MLORRY

STORE 0 TO MV\_NUMBER, MNUM\_R

@7,5 GET MDATE

@7,20 GET MLORRY

@7,40 GET MV\_NUMBER

@7,60 GET MNUM\_R

15

```
READ
REPLACE T_RECEIPT WITH (T_RECEIPT + MNUM_R)
REPLACE LORRY WITH MLORRY
REPLACE V_NUMBER WITH MV_NUMBER
REPLACE DATE WITH MDATE
```

```
CLEAR
```

```
STORE 0 TO MRTRANSFER
STORE 0 TO MRRETURNS
STORE 0 TO MRADJUSTMENT
```

```
@6,5 SAY 'TRANSFER'
@6,28 SAY 'RETURNS'
@6,40 SAY 'ADJUSTMENT'
```

```
@7,5 GET MRTRANSFER
@7,28 GET MRRETURNS
@7,40 GET MRADJUSTMENT
```

```
READ
```

```
REPLACE T_RECEIPT WITH (T_RECEIPT + MRTRANSFER+MRRETURNS+MRADJUSTMENT)
REPLACE RTRANSFER WITH MRTRANSFER
REPLACE RRETURNS WITH MRRETURNS
REPLACE RADJUSTMENT WITH MRADJUSTMENT
@19,15 SAY 'MORE RECEIPT ? (Y OR ANY KEY FOR NO):' GET RREPLY
READ
CLEAR
```

```
ENDDO
```

```
CLEAR
@2,2 SAY '*****ISSUES*****'
@6,5 SAY 'CUSTOMER'
@6,28 SAY 'TOWN'
@6,40 SAY 'INVOICE NO'
@6,60 SAY 'NUMBER'
```

```
DO WHILE IREPLY = 'Y'.OR. IREPLY = 'y'
STORE SPACE(20) TO MCUSTOMER
STORE SPACE(10) TO MTOWN
STORE 0 TO MII_NUMBER
```



(10)

STORE 0 TO MNUM\_I  
@7,5 GET MCUSTOMER  
@7,28 GET MTOWN  
@7,40 GET MII\_NUMBER  
@7,60 GET MNUM\_I  
READ  
REPLACE T\_ISSUE WITH (T\_ISSUE + MNUM\_I)  
REPLACE CUSTOMER WITH MCUSTOMER  
REPLACE TOWN WITH MTOWN  
REPLACE II\_NUMBER WITH MII\_NUMBER  
REPLACE NUM\_I WITH MNUM\_I  
CLEAR

STORE 0 TO MITRANSFER  
STORE 0 TO MIRETURNS  
STORE 0 TO MIADJUSTMENT

@6,5 SAY 'TRANSFER'  
@6,28 SAY 'RETURNS'  
@6,40 SAY 'ADJUSTMENT'

@7,5 GET MITRANSFER  
@7,28 GET MIRETURNS  
@7,40 GET MIADJUSTMENT

READ

REPLACE T\_ISSUE WITH (T\_ISSUE + MITRANSFER+MIRETURNS+MIADJUSTMENT)  
REPLACE ITRANSFER WITH MITRANSFER  
REPLACE IRETURNS WITH MIRETURNS  
REPLACE IADJUSTMENT WITH MIADJUSTMENT

@19,5 SAY 'MORE ISSUE ? (Y OR ANY KEY FOR NO):' GET IREPLY

READ

CLEAR

ENDDO

REPLACE C\_STOCK WITH (O\_STOCK+T\_RECEIPT-T\_ISSUE)  
REPLACE O\_STOTAL WITH (O\_STOTAL + O\_STOCK)  
REPLACE C\_STOTAL WITH (C\_STOTAL + C\_STOCK)

ELSE  
CLEAR  
@13,40 SAY 'NOT A VALID STOCK NUMBER'  
WAIT ' '  
ENDIF  
CLEAR  
@19,5 SAY 'MORE STOCK TO UPDATE ? (Y OR ANY KEY TO END):' GET ANS  
READ  
CLEAR  
ENDDO  
  
CLOSE DATA  
RETURN

\*PROCEDURE REPORTTUBE  
PROCEDURE REPORTTUBE

DO WHILE .T.  
CLEAR  
STORE 0 TO OP  
@3,15 TO 5,45  
@4,17 SAY 'REPORT OF TUBE STOCK '  
@6,15 TO 16,50 DOUBLE  
@7,25 SAY '1. GENERAL REPORT'  
@9,25 SAY '2. SPECIFIC REPORT'  
@11,25 SAY '3. EXIT '  
@13,25 SAY 'ENTER OPTION [ ]'  
@13,39 GET OP PICT '9'  
READ  
DO CASE  
CASE OP = 1  
DO REPORTT  
CASE OP = 2  
DO REPORTTT  
CASE OP = 3  
CLEAR  
EXIT  
OTHERWISE  
CLEAR

@13,40 SAY ' '  
WAIT 'Press any key to return to report menu '

ENDCASE  
ENDDO  
CLOSE DATA  
RETURN

\*PROCEDURE REPORTT  
PROCEDURE REPORTT  
CLEAR  
DO HEADER

? '-----						
? 'TYPE	SIZE	INVOICE	OPENING	TOTAL	TOTAL	CLOSING
? 'NUMBER		NUMBER	STOCK	RECEIPT	ISSUE	STOCK
? '-----						

USE TUBE  
GO TOP

DO WHILE .NOT.EOF()

?type,size\_num,str(invoice,10),str(b\_stock,10),str(t\_receipt,10),str(t\_issue,10)  
,str(c\_stock,10)

skip

ENDDO  
WAIT ' '  
SET ALTERNATE OFF  
CLOSE DATA  
RETURN

\*PROCEDURE REPORTTTT



PROCEDURE REPORTTT

CLEAR

USE TUBE

@1,25 TO 3,72

@2,30 SAY 'SPECIFIC REPORT TYRE STOCK '

@3,3 TO 21,77 DOUBLE

STORE SPACE(5) TO MSTACK\_NUM

@4,5 SAY 'ENTER STOCK NUMBER :' GET MSTACK\_NUM PICT '@!'

READ

DO WHILE .NOT. EOF()

LOCATE ALL FOR STOCK\_NUM = MSTACK\_NUM

IF FOUND()

CLEAR

DO HEADER

? 'STOCK NUMBER:', STOCK\_NUM

? 'TYPE :', TYPE

? 'SIZE NUMBER:', SIZE\_NUM

?

? 'INVOICE NUMBER:', INVOICE

?

? 'OPENING STOCK:', O\_STOCK

? 'TOTAL RETURNS OF RECEIPT:', RRETURNS

? 'TOTAL TRANSFER OF RECEIPT :', RTRANSFER

? 'TOTAL ADJUSTMENT OF RECEIPT:', RADJUSTMENT

? 'TOTAL RECEIPT:', T\_RECEIPT

? 'TOTAL RETURNS OF ISSUE:', IRETURNS

? 'TOTAL TRANSFER OF ISSUE :', ITRANSFER

? 'TOTAL ADJUSTMENT OF ISSUE:', IADJUSTMENT

? 'TOTAL ISSUE:', T\_ISSUE

?

? 'CLOSING STOCK:', C\_STOCK

?

WAIT 'Press any key to return to report menu'

RETURN

ELSE

@13,25 SAY ' '

WAIT 'INVALID STOCK NUMBER'

CLEAR  
ENDIF  
ENDDO  
RETURN

\*PROCEDURE DELETETUBE

PROCEDURE DELETETUBE

STORE 'Y' TO ANS

SET STATUS OFF

@1,25 TO 3,55

@2,30 SAY 'DELETE STOCK SECTION'

@3,3 TO 21,77 DOUBLE

USE TUBE

DO WHILE ANS = 'Y'

STORE SPACE(5) TO MSTACK\_NUM

@4,5 SAY 'ENTER STOCK NUMBER :' GET MSTACK\_NUM PICT '@!'

READ

LOCATE ALL FOR STOCK\_NUM = MSTACK\_NUM

IF FOUND()

STORE O\_STOCK TO MO\_STOCK

STORE INVOICE TO MINVOICE

STORE SIZE\_NUM TO MSIZE\_NUM

STORE TYPE TO MTYPE

STORE DATE TO MDATE

STORE STOCK\_NUM TO MSTACK\_NUM

DO DISPLAY1

CLEAR GETS

@21,20 TO 23,60

STORE 'N' TO REPLY

@22,22 SAY 'ARE YOU SURE? (Y/N)' GET REPLY PICT '!';

VALID REPLY \$ 'YN' ERROR 'INVALID ENTRY!!!'

READ

IF REPLY = 'Y'

DELE

PACK

ENDIF

ELSE

241

```
@10,20 SAY 'RECORD DOES NOT EXIST'  
ENDIF  
@21,20 CLEA TO 23,60  
@21,20 TO 23,60  
STORE 'N' TO ANS  
@22,22 SAY 'DELETE MORE RECORD? (Y/N)' GET ANS PICT '!'  
READ  
ENDDO  
CLEAR  
CLOSE DATA  
RETURN
```

```
*PROCEDURE HEADER  
PROCEDURE HEADER  
? SPACE(37), 'MICHELIN'  
? SPACE(30), 'MICHELIN NIGERIA LIMITED'  
RETURN
```

□



11:45:19 am

STOCK                      CONTROL  
                            AND

PROCESSING                SYSTEM

DEVELOPED                      BY

KINGSLEY                      ODIGIE

REG.NO:PGD/MCS/97/404

DEPARTMENT OF MATHS/CPT. SC.

any key to continue...

TIME: 11:46:21 am

STOCK CONTROL & PROCESSING SYSTEM

TYRE

TUBE

EXIT PROGRAM

USE ARROW KEYS TO CHOOSE AN OPTION Press Esc to return to main menu

TIME: 11:47:11 am

STOCK CONTROL & PROCESSING SYSTEM

TYRE

TUBE

EXIT PROGRAM

OPENNING STOCK  
DELETE STOCK  
UPDATE STOCK  
OUTPUT

USE ARROW KEYS TO CHOOSE AN OPTION Press Esc to return to main menu



11:54:00 am

REPORT OF TYRE STOCK

1. GENERAL REPORT
  2. SPECIFIC REPORT
  3. EXIT
- ENTER OPTION [0]

11:52:47 am

\*\*\*\*\*ISSUES\*\*\*\*\*

CUSTOMER  
MR AKANNI FATAI

TOWN  
IBADAN

INVOICE NO  
890

NUMBER  
120

11:51:45 am

TRANSFER  
20

RETURNS  
10

ADJUSTMENT  
5



UPDATE OF TYRE STOCK

11:50:06 am

ENTER STOCK NUMBER : D003

MICHELIN  
MICHELIN NIGERIA LIMITED

10:04:21 am

K NUMBER : C0001  
: MXE  
NUMBER: 163R13

ICE NUMBER: 137556

ING STOCK: 500

L RETURNS OF RECEIPT:	20
L TRANSFER OF RECEIPT :	20
L ADJUSTMENT OF RECEIPT:	20
L RECEIPT:	80
L RETURNS OF ISSUE:	10
L TRANSFER OF ISSUE :	10
L ADJUSTMENT OF ISSUE:	10
L ISSUE:	130

ING STOCK: 450

s any key to return to report menu

MICHELIN  
MICHELIN NIGERIA LIMITED

10:03:05 am

SIZE NUMBER	INVOICE NUMBER	OPENING STOCK	TOTAL RECEIPT	TOTAL ISSUE	CLOSING STOCK
163R13	137556	500	80	130	450
175R14	107400	50	185	180	55
6.70R14	3452	800	145	175	770
6.50R16	678543	350	1570	230	1690
11.00R20	765437	650	150	100	700
20	4567	175	150	50	275
16	5642	650	560	150	1060