COMPUTERIZATION OF PAYROLL STSTEM OF TERTIARY INSTITUTIONS IN KEBBI STATE

(A CASE STUDY OF COLLEGE OF AGRICULTURE, ZURU)

BY

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PGD/MCS/2000/2001/1038

A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF POSTGRADUATE DIPLOMA IN COMPUTER SCIENCE OF THE FEDERAL UNVERSITY OF TECHNOLOGY MINNA

APRIL 2002

CERTIFICATION SHEET

This research work by Mu'azu Haruna Aliyu has been read through and been approved as meeting the requirements for the Award of Postgraduate Diploma in Computer Science of the Federal University of Technology, Minna.

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DEDICATION

This project report is dedicated to my mother Hajiya Aishatu Mu'azu for her consistent words of prayers and encouragement.

ACKNOWLEDMENT

All thanks are due to Allah the lord of the worlds for granting me the ability to go through the program without a hitch.

I wish to acknowledge with thanks and high sense of appreciation the un-quantifiable, timely and valuable contributions of my supervisor Mal. Abubakar Usman Yusuf, for his constructive criticisms, valuable advice and consistent words of encouragement, which led to the successful completion of this research within the time limit.

Although any attempt to express my deep appreciation to any single individual lecturer and or group of lecturers for their genuine concern and support throughout the program's period, runs the risk of offending those that were omitted, there are however some lecturers who were of significant help to me notably among them are: Dr Yomi Aiyesimi, Prince R O Badmus, Mr. L N Ezeako, Mal. Danladi Hakimi and Mal. Isah Audu to mention but a few.

Also deserving acknowledgement and a demonstrative gratitude are my brothers, friends and colleagues such as: Alhaji Moh'd Mu'azu, Ibrahim Saidu, Yakubu Umar, Mahmud Abubakar, Umar O. Audu, Ibrahim Yusuf, Umar Ahmed, Nasiru Liman, Yusuf Kaka and Lawal Umar Kangiwa.

May Allah's bounty be yours always. Amen

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ABSTRACT

Payroll as a matrix of figures, which shows an organization's employees' monthly basic salary, earnings and deductions is tedious to prepare especially when processed manually. In this research, an attempt was made at computerizing the pay system of tertiary institutions in Kebbi state using dbase IV programming language. The results obtained proved effective since it not only generates all the needed reports but also provide a highly secured system accessible to legible users only.

CHAPTER ONE
INTRODUCTION

1.0 PREAMBLE

Studies have shown that, the preparation of an organization's payroll system through a manual means is boring, time consuming, resource gulping and above all may proved inefficient since it can lead to inaccurate and or irregular results.

Resulting from the obvious shortcoming of the existing manual payroll system, coupled with the rapid advancement in the computer technology and the benefits it offers, we intend to computerize the payroll system of Kebbi State Tertiary Institutions with College of Agriculture, Zuru as the case study area. In all, the study consists of five chapters as follows:

Chapter one which is the introductory chapter of the project dealt with the problems definition, scope of the project and its limitation.

Chapter two of the study offers a review of the literature of related subject matter. In this chapter, an attempt is made by the researcher to review what some authors have said about payroll and its computerization. The chapter also shed light on the College historical background.

Chapter three of the research mainly covers system analysis and design. In it, discussions were made regarding problems associated with the existing manual system of payroll processing in the College, input and output procedures and files maintained. The

chapter also covers new system requirements, new output requirement, new system procedure, files to be maintained, human element and changeover.

Chapter four of the work discusses program specification, program's features, operational procedure, implementation and program interface.

Finally in chapter five, which is the last chapter of the project report, conclusions were drawn and recommendations made.

1.2 STATEMENT OF THE PROBLEM

The Bursary department in the College charged with the responsibility of preparing payroll faces a lot of problems, which manifest themselves abundantly clear in the following forms:

i. **Waste of time**

The preparation of payroll in the College involves a lot of addition and subtraction of dues and taxes and all these activities consumes a lot of time before an individual's salary is computed.

ii. **Inaccuracy of data**

The complex nature of computing payroll system, which involves calculation of allowances as a percentage of basic salary and the deduction of loans, dues etc. all these tedious repetitive tasks when done manually makes it easy to have mistakes.

iii. **Lost of data**

In the present manual payroll system, each employee in the College staff list has a record card and voucher, which are used in processing the payroll the items of which are easily lost due to poor storage system.

iv. **Data insecurity**

The manual system allows many staff in both the bursary and audit departments of the College to go through the payroll and this renders the system open to possible alteration and irregularities.

v. **Uneconomical**

The manual system requires a considerable number of human labors to prepare the payroll, which cost the College to pay much. This, coupled with high demand for stationery makes the system uneconomical to operate when favorably compared with the modern computerized system.

1.3 OBJECTIVES OF THE STUDY

The objective of this research work is to provide solution to the problems posed by the existing manual system being operated in the College. Some of the objectives to be considered are:

i. To design a system which can produce accurate and correct data for the College's payroll system by avoiding all forms of irregularities in computing staff salary.
ii. To design a system that is timely.
iii. To produce a system that is cost effective by reducing the number of personnel used in the payroll preparation.

iv. To provide a system which is secured by reducing the number of personnel that process and or access staff pay records.

v. To have a system that offer standard method of data storage and processing. Thus, eliminating chances of data misplacement.

vi. To design a system capable of reducing to minimum materials required for payroll processing.

vii. To produce a system with a single file for all staffs, thereby simplifying the auditing process.

1.4 SCOPES AND LIMITATION OF THE STUDY

Apart from the bursary department which handles and process large volumes of monetary data especially in the area of payroll preparation, there are other departments/units in the College that equally process large spools of both monetary and or non-monetary data. Examples are the budget and revenue department, which preside over the College revenue and budget preparation and the academic office that handles data concerning students' examination results etc. Units like this, needs computerization in order to enhance their activities.

The scope of this study is however, only limited to the computerization of the College payroll system. The limitation is mainly due to time frame for the study and financial constraints.

CHAPTER TWO
LITERATURE REVIEW

2.1 HISTORICAL BACKGROUND OF THE COLLEGE

College of Agriculture, Zuru is sited in Zuru town and located at Km 3 along Zuru-Kontagora road. The former Sokoto State Government established the College in September 1976 as a School of Agriculture. The School was later upgraded to the status of a College and subsequently made autonomous in January 1984.

The College was established as a corporate body with powers to sue and to be sued in its corporate name. The objectives of the College should be (CAZ, 1984):

i. To provide courses of study, training and research in general agriculture, animal health and husbandry, poultry, range management, home economics, agricultural mechanization and forestry leading to the award of National and Higher National Diplomas.
ii. To provide avenues for workshops, in-service courses and curricular development.
iii. The College shall be both a teaching and examining body.
iv. The College as at present has a student population of over two thousand (2000) studying in the following fields of agriculture, which also constitutes the College academic departments:

i. Agricultural Technology
ii. Agricultural Engineering Technology
iii. Animal Health and Production
iv. Agricultural Extension and Management

v. Home Economics and Management
vi. Pre-National Diploma (science)
vii. Remedial Studies (science)

Apart from the above academic departments, the College has eight (8) supporting (i.e. non-academic) departments, and they are:

i. Registry Department
ii. Bursary Department
iii. Budget Planning and Revenue Department
iv. Audit Department
v. Library Department
vi. Estate Department
vii. Farm Management Department
viii. College Health Unit

The College Governing Board is the highest ruling body of the College. The body has eleven members, five (5) of which are appointed by the state government while the remaining six (6) are Ex-officio members including the Provost of the College.

The College depends mainly on Kebbi State government for it's funding. Presently, the College has staff strength of 420 made up of:

i. Academic staff
ii. Senior non-academic staff
iii. Junior staff

The College like the other tertiary institutions in Kebbi state has three principal departments, which are saddled with the

responsibilities of the College financial administration, budgetary planning and control activities. The three units are:

i. The bursary department
ii. The budget planning and revenue department
iii. The audit department

2.1.1 THE BURSARY DEPARTMENT

The College bursary department was formally established in 1984 and is currently headed by the College Bursar who is a trained accountant. From establishment in 1984 to 1995 when the audit department was set up, the bursary department combined the triple functions of general finance administration, internal checks and presides over the College financial planning and budgetary control activities.

However with the establishment of audit department in 1995 and budget and revenue department in 1997, the bursary department now serves the sole role of general finance administration and control of store activities.

2.1.2 THE BUDGET PLANNING AND REVENUE DEPARTMENT

The budget and revenue department is relatively new in the College. The department was established in 1997 and is headed by a budget officer. The budget officer is responsible for providing a system for adequate casting with respect to sales, prices, costs and other trends which provide information necessary for preparing budgets and suitable means for estimating departmental expenses,

checking with past periods and comparing current performance with budgeted levels (Mu'azu, 1999).

2.1.3 THE AUDIT DEPARTMENT

The audit department of the College was established in 1995 and is presently headed by Chief Internal Auditor. The objectives of establishing the internal audit department in the College includes:

i. Facilitation of orderly and smooth running of the College as regards to its daily routine and non-routine activities at minimum cost as possible.
ii. Ensures safety of assets not only from pilfering but also from physical factors like weather and disasters e.g. fire, storm and flood.
iii. Ensures reliability and accuracy of accounting information about the College transactions.

Basically, the internal audit department of the College is engaged in the performance of such control functions where they review things like:

i. Pre-numbering of security documents e.g. receipt and payment vouchers.
ii. Control of expenditure: this is exercised by the Chief Internal Auditor in conjunction with the 'vote book' against the head and subheads of expenditure as provided in the estimates.
iii. Checking and casting of all books of accounts like the local purchase orders (LPO), the cashbook, revenue cashbook and other ledgers and books of accounts.

2.2 THE EVOLUTION OF PAYROLL SYSTEM

There is no single way to do payroll, different countries and civilizations have had different processes and methods of paying people throughout history. Thus, payroll processing wasn't created overnight. It has been an evolutionary process, with individuals from diverse backgrounds adding to its success. The giant transformation in the way and manner in which payroll is processed across the globe in the recent past can be attributed to a host of factors such as the World War II, the great depression in the US, the contributions offered by the payroll professionals who have made it part of their life and above all technological advancements.

In the late 19th and early 20th century, payroll managers the world over relied heavily on manual wage tables to effect the pay related calculations and or processes. Virtually, throughout the century, the accounts departments of most private and public corporations have piloted and tested one new innovative payroll approach after another. At first, mechanical typewriters were deployed in making pay tables. Comptometers, card sorting devices and tabulating machines were used next. These were followed by a continuous stream of more sophisticated office equipment and by the greatest milestone of technology of the century -- the computers. Leonard (2002) inferred that way back in the 1950's, paymasters responsible for large payrolls began to utilize early versions of the electronic computers, like the Remington Rand Univac 60 with high-speed printers capable of printing 100 cheques per minute. The scholar went further to observed that the rate of technological advancement following a 1954 advertisement by IBM was mind

confusing as one generation of computer hardware is replaced with another through a never ending series of smaller, faster, and more powerful solutions. At last, the century was ended with a suite of hardware, software and communications devices and capabilities that have literarily transform how, where, and when all work (including payroll) is performed.

Owing to the rapid advancement in computer technology and the various benefits, which it offers to nearly, every conceivable human endeavor, computers are now widely used in payroll processing. Some software manufacturing industries offer for sale many types of application software in financial accounting, inventory control and the like. Application software by definition refers to pre-coded set of instructions or programs, which enable computer users to solve a problem or perform a useful task, based on need or want (Umoru, 1999). It is the application software or packages that most computer users have to work with virtually all the time. This is so because they enable users to directly request computers to perform specific personal, business or scientific tasks, such as payroll processing, stock control and financial analysis and produce results in the most accurate and timely manner.

Although it is relatively cheap and easy to buy and use a ready made application package, some organizations and or programmers often found these packages too restrictive and or incapable of solving their specific problems to satisfaction. As such, programmers of some organizations took to task, the burden to write a computer program capable of solving a specific

organization's problems e.g. generating payroll reports, inventory reports, students reports etc. For the programmers to effectively write a computer program capable of solving a specific problem in an organization, they normally conduct an in-dept analysis of the existing system and from the results generated; make a choice of a suitable programming language to use in writing the program. Some commonly used programming languages for application in data manipulation and or processing activities such as inventory control, payroll processing, library management, etc. include:

i. Dbase
ii. FoxPro
iii. Fortran
iv. Basic
v. Oracle

By the end of the 20th century, payroll professionals have piloted, tested converted and implemented millions of new systems; have applied virtually every new business tool coming on to the market; and have played a vital role in the evolution of office technology in general and payroll technology in particular. Conclusively, as in the words of Leonard (2002), it can be said that payroll's most noteworthy generic accomplishment during the 20th century has been its ability to deliver accurate and timely products and services consistently day in and day out, under the pressure of change and time.

CHAPTER THREE

SYSTEM ANALTSIS AND DESIGN

3.1.0 SYSTEM ANALYSIS

System analysis is mainly a procedural study of system's operation, with the view to discover its basic problems (Badmus, 2001). This section gives an overview of the processes involved in the existing manual payroll system, with weaknesses and problems highlighted. The analysis was achieved through interview and forms inspection.

3.1.1 ANALYSIS OF INPUT

During input analysis, the writer was able to analyzed the following:

i. Salary Record Cards
ii. Payment Vouchers

a. SALARY RECORD CARDS

The salary record card is horizontally divided into four parts. The first part contains the employee's personal data such as: name, sub-head number, grade level, step, date of employment, bank name, designation, etc.

The second part of the salary record card contains an employee's earnings for the month. Where his/her basic salary and taxable allowances are recorded. The taxable allowances are: acting allowance, industrial allowance, responsibility allowance, shift allowance, entertainment allowance and OT allowance. The summation of items of entries in this part, are recorded as gross pay.

The third part of the salary record card, is the section where all deductions pertaining to taxes, loan refund, touring advance, union dues and salary advance are made. When items of this section are added together and the sum deducted from gross pay, net pay is obtained.

Part four of the salary record card, which is the concluding part, is the section where non-taxable allowances, personal loans and annual leave grant are stated. The non-taxable allowances included in this section are: exam supervision allowance, journal allowance, learned society allowance, research allowance, utility allowance, meal subsidy allowance and miscellaneous allowance. When items of entries in this section are added to the net pay, the total amount payable to an employee is obtained.

b. PAYMENT VOUCHERS

The College uses payment voucher as a means of effecting cash payment to employees and as a bank list to employees that receives their pay in the banks. It consists of the following columns: net pay, name/employee's number and a column for employee's signature.

3.1.2. ANALYSIS OF OUTPUT

Analysis of output simply refers to the analysis of the report generated after payroll is processed. It is the end result of computing payroll or in a nutshell, output in payroll system refers to salary figures generated for each and every employee at the end of payroll processing.

As part of output, the employee's pay slips and bank list reports are also generated from payroll system as output.

3.1.3 EXISTING SYSTEM PROCEDURE

College of Agric, Zuru is currently using manual payroll system, which is processed by staffs in the Bursary Department and audited by staffs in the Audit Department. The Bursary Department of the College runs thus:

i. Bursar
ii. Accountant
iii. Salary clerks

A. THE COLLEGE BURSAR

When an employee accepts an offer of appointment in the College, it is the responsibility of the College Bursar to send order to the Accountant for the processing of the employee's payroll. The content of the order contains the employee's name, rank, grade level, step and basic salary per annum.

B. THE COLLEGE ACCOUNTANT

It is the duty of the College Accountant to notify the Salary Clerks to insert or delete an employee's name in the voucher. He also cross checks each voucher before passing it to the College Bursar.

C. THE SALARY CLERKS

The Salary Clerks in the College are the ones responsible for the actual processing of the manual payroll system. They make all the calculations of allowances and deductions of taxes, dues, and loans. After completing their tasks, they send the payroll to the College Accountant for necessary cross checking.

C. THE COLLEGE CHIEF INTERNAL AUDITOR

The Chief Internal Auditor of the College heads its Audit Department. He performs such tasks as cross checking of payment vouchers and pre-numbering of security documents. He is assisted in his tasks by a chain of staffs in the department.

3.1.4 FILES MAINTAINED

The College Registry Department maintained a file for each employee, which contains all the pertinent information about the employee. The files are kept in Cabot. In the Bursary Department however, the department maintains a file, which contains payment vouchers for all the individual employees on the College's employment list. The file is used in the processing of the employees salary every month.

3.1.5 THE SYSTEM'S PROBLEMS

In the existing manual payroll system, as is operated in the College, the following problems were discovered to inhibit its usefulness, hence the need for system's computerization:

A. TIME WASTE

In the manual payroll system, a lot of time was discovered to be expended in its processing due to the numerous columns which are filled with different figures of allowances and dues with additions and subtractions made before obtaining the actual net pay.

B. DATA INSECURITY

The processing of payroll system manually requires the used of many staffs that come together to process or to prepare it monthly. As such the system is prune to data insecurity, since a staff may choose to act fraudulently with little chance of being detected by either altering an individual's pay data or by inserting a ghost worker.

C. INACCURACY OF DATA

Resulting from the complex nature of computing a payroll system, which requires calculation of allowances as percentage of basic salary and deduction of loans, dues, and taxes, it became easy to have mistakes.

D. DATA MISPLACEMENT

In the current manual payroll system as operated in the College, each employee has a record card and payment vouchers, which are used monthly to process his/her pay. It is therefore easier to misplace records than the case would be when a single file is provided for the whole employees as in a computerized system.

E. LABOUR REQUIREMENT

A manual payroll system requires a good number of dedicated staffs to prepare it. This in return, causes the College to pay much salary. With a computerized system however, the number of staffs working in the Bursary Department having payroll preparation as the sole schedule, will become drastically reduced.

3.2.0 SYSTEM DESIGN

The analysis of the existing system problems is used at the beginning of system's design in developing the objectives of the proposed new system. In section one of this chapter, analysis of the existing manual payroll system operated in the College was made and some of the problems associated with it were identified and brought to light. Thus, the objective of this section (System Design) is to design a computer based system capable of implementing the manual system of computing employees' salary of the College of Agriculture, Zuru, with the view to overcome the identified problems as effectively and as efficiently as is possible.

In this section, a new system procedure is explained as regards the analysis of the new system components, such as inputs to the system, output from the system, procedure used to process documents and the files to be maintained. More so, equipments needed and manpower required was also highlighted.

In order to replace the existing system with the new system for processing payroll, a computerized system for payroll data processing is being proposed to facilitate data entry, processing, storage and retrieval. This will ensure efficient maintenance of data and production of timely reports at minimum cost. The system is expected to be flexible to allow for the retrieval of relevant information when required. The proposed new system requires the use of computer facilities to be installed in the Bursary and Audit Departments of the College in a Local Area Net (LAN) topology.

3.2.1 NEW SYSTEM PROCEDURE

In this section, a discussion is offered regarding the operational procedure for the proposed new computerized system. The discussion made covers the following:

i. Procedure to input data
ii. Output procedure
iii. Files to be maintained

A. PROCEDURE TO INPUT DATA

The new system is designed in such a way that it can accept valid data, which have been entered into the computer. All valid information concerning each employee on the college employment list as sourced from the employees' files are entered into a new file called new employee document. When the computer operator enters all the pertinent information needed about each employee, the system would automatically receive and store the information in this file – new employee document.

B. OUTPUT PROCEDURE

The new system employs this procedure in order to produce payroll reports generated by the system after processing the data entered into the system. The reports are also produced in the formats required.

C. FILES TO BE MAINTAINED

The new system maintained a payroll file with relevant information about each employee on the College employment list. The file's format is as shown below

Table 3.2.1. The New Payroll File

S/N	EMP-NO	NAME	DEPT	BASIC SALARY	EARNINGS	ALLOWANCES

The new payroll file when scan through, generates other needed reports such as:

i. Pay Slip Report

The College Bursary Department can use the new payroll file to issue pay slips to all the employees at the end of the month i.e. during payment. The slip has the following field names: Name, Employment Number, Account Number and Net Salary. Its format is as illustrated in table 2 below.

Table 3.2.2. Pay Slip

EMP-NO	NAME	DEPT	BANK	PAY MONTH	PAYMENT	DEDUC.	NET PAY

ii. Bank List Report

This is produced and sent to the employees' banks during a payment period. The file of this report has the following fields names: Employee number, name, account number and net pay. The file's format is as represented in the table below.

Table3.2.3 Bank Listing Report

S/N	ACCOUNT NUMBER	NAME	NET PAY
		TOTAL PAY	

iii. Bank Net Summary Report

This report indicates to the College, the Number of employees who receives their pay at the banks, the amount received by each employee and the total amount paid as salary in the specified bank. The file of this report consists of the following field names: employee number, name, bank, account number net pay and total pay.

iv. Tax List Report

This report can also be generated from the new payroll system. The report enable the concerned body charged with the responsibility of tax collection from employees in the state to know the actual amount of money deducted from each and every employee's salary. This makes verification of remittance easier. The format of the file is as illustrated below.

Table 3.2.4 Tax List Report

S/N	EMP-NO	NAMES	AMOUNT
		TOTAL PAY	

iv. H

o

v. Housing/Vehicle Loans

This report can be generated from the new payroll system. Where the College management seeks to know the number of staffs that have received loans, the type(s) of loan and the amount to be deducted from the employee's salary. The file has the following field names: employee number, name, grade

level, net pay, and loan(s) type and total deduction. Its format like the others is as shown below.

Table3.2.5. Housing Scheme/Vehicle Loan Report

EMPLO NUMBER	NAME	GRADE LEVEL	NET PAY	LOAN
			TOTAL LOAN RECOVERED	

3.3.0 EQUIPMENT REQUIRED

This refers to the equipment needed in order to put the new system into operation. For the successful implementation of the new system, four computer systems together with their peripheral devices would be required. The four computers are to be connected in LAN.

The central computer is to be installed in the salary clerk office with which he can use to process and update payroll when needed. The other three computers should be fully connected to the central computer. These computers are to be installed one each in the Bursar, Auditor's and Accountant's office. So that all the three, can have access to cross check the payroll for incorrect or irregular data if any as demanded by their respective schedule.

3.4. 0. HUMAN ELEMENT

Human element denotes the manpower required to manage the new computerized payroll system. The new system requires the following staffs to process, update and or to access:

i. A fully trained salary clerk with ability to operate a computer system as to process, access and update the new payroll system.

ii. The College Bursar who is the head of the Bursary department should have computer knowledge so as to enable him access and cross check the payroll as processed by the salary clerk.

iii. The College Auditor should also posse's computer knowledge to put him in a good stead to cross check payroll results and draw the attention of the Bursar for any incorrect data in the payroll for correction.

3.5. 0. CHANGEOVER

System changeover is usually carried out when the new designed system is tested and that the test results reflect the organization's requirements. Generally there are four methods of changeover worthy of utilization depending on their individual merit and needs of the user organization. They include:

i. **Direct Changeover**: This method requires absolute replacement of the old system with the new designed system at a blow. It is usually best adopted after thorough tests about the effectiveness of the new system were conducted, personnel training made and detailed changeover well planned.

ii. **Parallel Changeover**: This type of changeover requires running of the two systems i.e. the new and the old

simultaneously yet independently using current data with the view to cross-check the results generated by the new system when compared favorably with those generated by the old existing system. It main attractive feature being that the old system is kept operational until the new system's ability to produce required results has been ascertained. This system therefore, promotes user confidence.

iii. **Staged Changeover**: This method though tends to prolong the implementation period, reduces the risks associated with the direct changeover in case of new system failure and therefore enables both the analyst and users to learn the mistakes committed and design corrective measures to remedy same as the changeover progresses. The method requires a series of limited size direct changeovers (new system being introduced in piece meal). That is to say a complete section of the whole is fully committed to the new system while the remaining sections are processed by the old existing system. It is only when required results in the test section are obtained that the remainder of the sections are transferred to the new system.

iv. **Pilot Running Changeover**: this is an alternative to the parallel changeover where data from one or a number of periods for a part or whole system is run on the new system after results have been obtained from the old system. Comparison is then made between the results generated by the two systems. Pilot running is not as disruptive as the parallel changeover since timing is less critical. In essence,

pilot running changeover is more like an extended system test.

CHAPTER FOUR
PROGRAMMING

4.1.0 PROGRAM FEATURES

The program is written using a dbase IV programming language because it provides full relational database environment to users. Using a control center and without the use of command language you can design database, manipulate and edit records and files, generate reports, perform database query and browse database. Similarly, with it, programs and procedures can be compiled and saved as object codes for faster execution. Additional with database IV, users designable functions up of to 99 files can be opened at one time (Danladi, 2001).

4.2.0 OPERATIONAL PROCEDURE

The program has been compiled to an executable one with the name PAYROLL.EXE. On security grounds, when the program is loaded, it first takes the user into an interactive window for the user to enter his name and password. Correct user name and password will automatically take the user to the main menu of the program. Else it will give the user two more chances to enter the correct variables. If all the trail chances are exhausted it will take the user out of the dialogue window. The main menu of the program is as shown in the table below.

Table 4.2. Main Menus

MAIN MENU
a. New Staff Documentation
b. Enquiry Before Calculation
c. Amendments
d. Delete Staff from Payroll
e. Payroll Processing
f. Print Report
EXIT

a. New Staff Documentation. This menu allows the user to enter all the pertinent data about an employee needed to process his/her net pay.

b. Enquiry Before Calculation. The enquiry before calculation menu enables the user to view an employee's particulars prior to payroll processing.

c. Amendments: the amendments menu allows the user to make adjustments on an employee's existing particulars in the payroll.

d. Delete Staff from Payroll: This menu allows the user to cancel or erase any employee who has left the services of the College from the payroll.

e. Payroll Processing: This menu allows the user to process employees' pay after documentation so as to appear on the payroll.

f. Print Report: the print report menu is the menu through which the various reports relating to payroll are processed for printing.

g. System Maintenance: this menu is the one responsible for controlling the system's security. It allows the system's analyst to add additional users, change the users password and delete users from the system.

h. Exit: this is a quit menu i.e. it takes the user out of the system after performing a particular task

generally in order to run the program, the following steps need to be observed.

- At dos prompt, type cd dbasé
- You will be prompt with massage C: \ DBASE >
- Type copy A: \ DBF
- Press enter
- At C: \ DBASE >, type copy A: \ Payroll . DBO
- At C: \ DBASE >, type copy A: \ Payroll . Exe.
- At C: \ DBASE >, type DO Payroll.
- Enter user name
- Enter user password.

After correct user name and password are entered, you will be prompted with the question – are you processing for senior staff? (Y/N).

- Click Y if senior staff and N for junior staff.
- At the main menu, click at "New Staff Documentation."
- Enter employee particulars.
- Click payroll processing.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1.0. CONCLUSION

Based on this study conducted, problems associated with the old system were identified and a new system has been designed to address those problems. Where the recommendations, which follow shortly, are observed, the new system will generate payroll reports as efficiently and as accurately as would be required.

5.2.0 RECOMMENDATION

i. The new system should be implemented with four computers, one at the Audit department and three at the Bursary department. The computers should be connected together using local area network.

ii. The users should be trained on how to use and operate the new system with proficiency. Until such comprehensive training is acquired, parallel change over is hereby advocated.

iii. The maintenance of hardware and software should be done properly. For software maintenance, anti virus software should be provided to guard against any viral attack.

iv. For hardware, both preventive and corrective maintenance should be carried out regularly, with equipment such as peripheral devices, system unit and other component of the computer system properly maintained.

v. Adequate security should be provided especially to the central computer room with access privileges denied to unauthorized persons.

REFERENCES

Badmus, R. O. P (2001): System Analysis and Design. Unpublished work, Federal University of Technology, Minna. P. 22.

CAZ (1985): Staff Rules and Regulations. Sokoto Ilimi Industries Ltd. P. 16

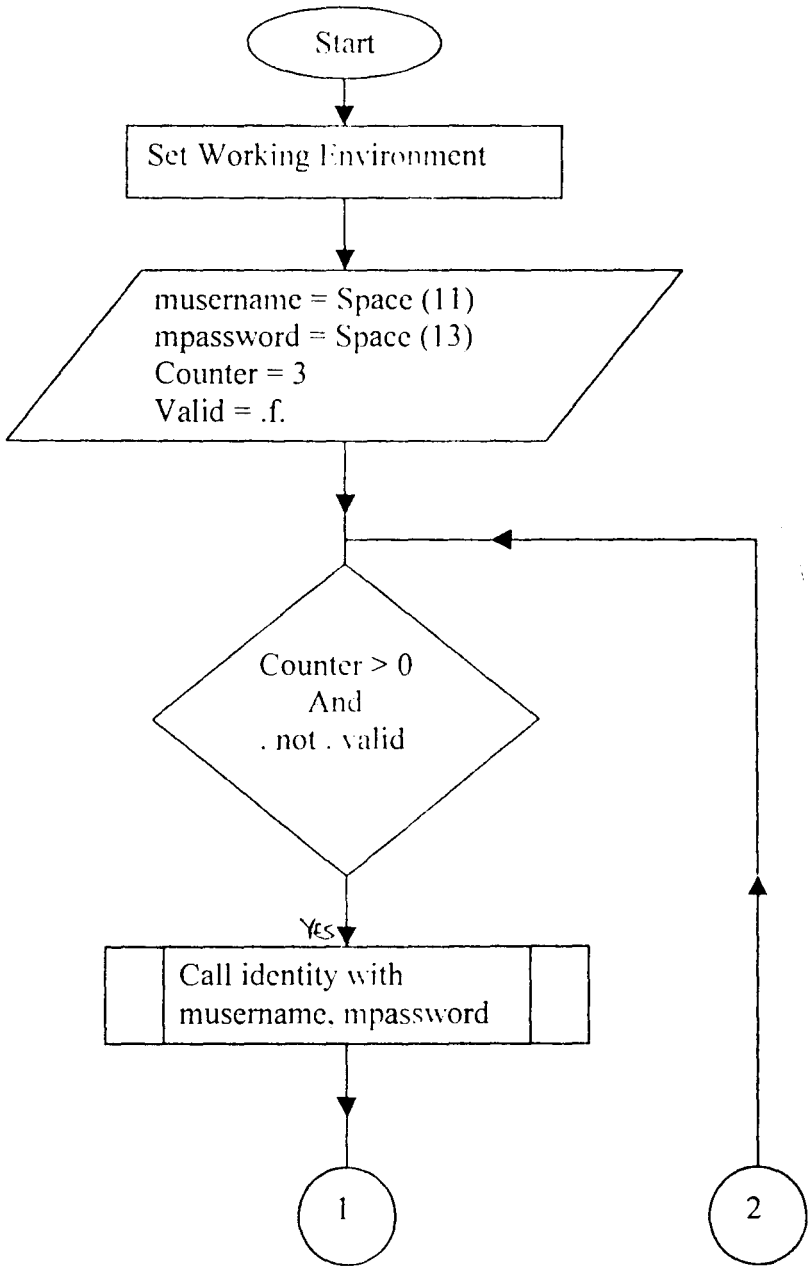
Danladi, H (2001): Database Management Systems. Unpublished work. Federal University of Technology, Minna. P. 24

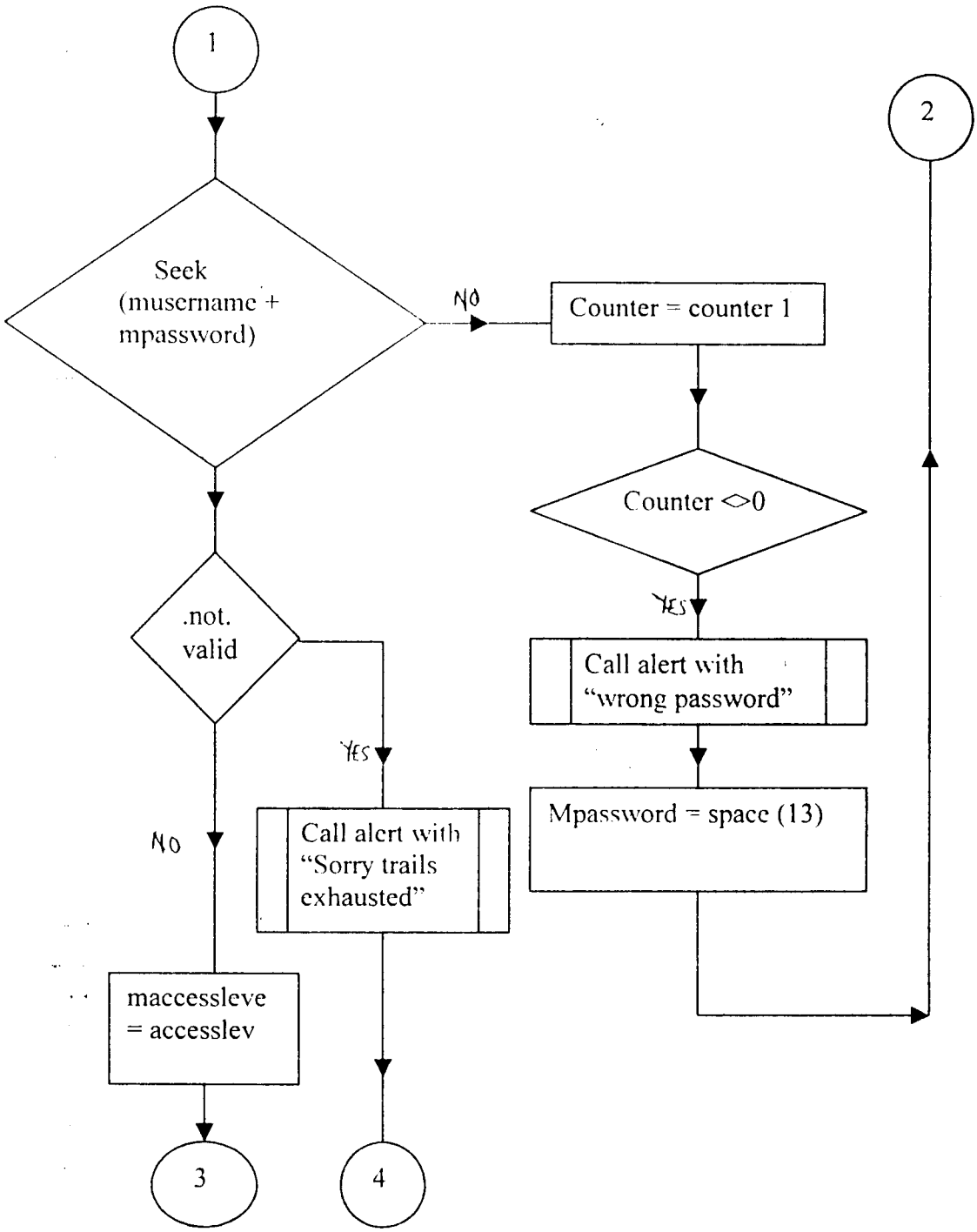
Leonard, A. H (2002): The Payroll Milestones of the 20th Century. APA'S Publication Quarterly, Massachusetts, USA. P. 30

Mu'azu, H. A (1999): Financial Planning and Budgetary Control in Tertiary Institutions in Kebbi State – A Case Study of CAZ. Unpublished work. Usman Danfodiyo University, Sokoto. P. 41

APPENDIX I

PROGRAM FLOWCHARTS




1
2
Seek
(musername +
mpassword)
NO
Counter = counter 1
Counter <>0
YES
Call alert with
"wrong password"
Mpassword = space (13)
.not.
valid
YES
Call alert with
"Sorry trails
exhausted"
NO
maccessleve
= accesslev
3
4

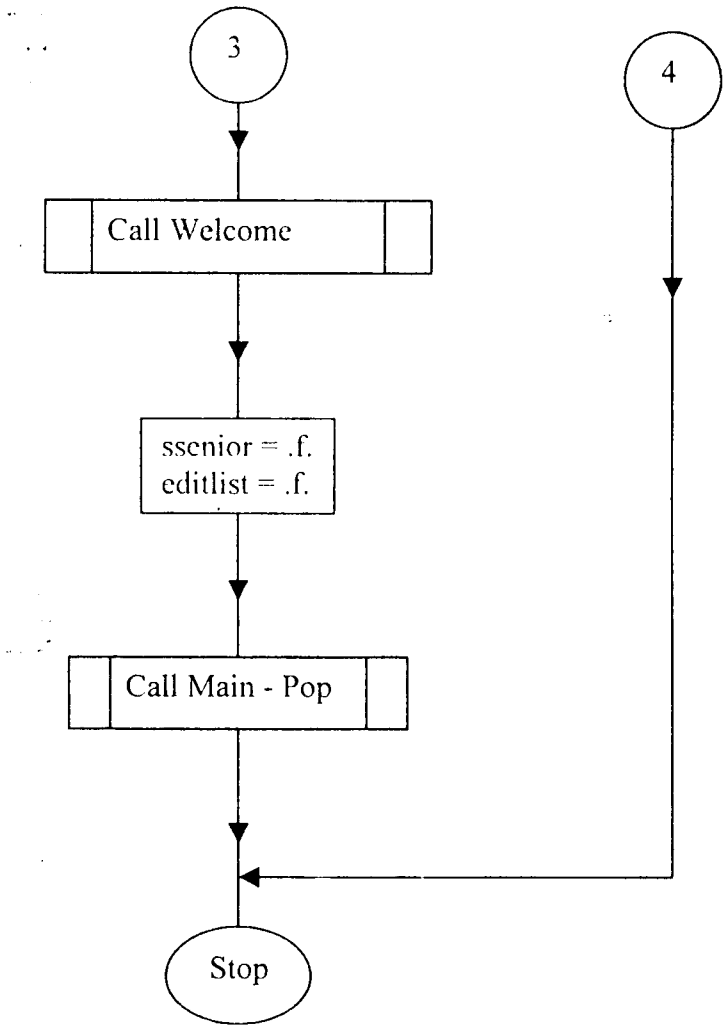
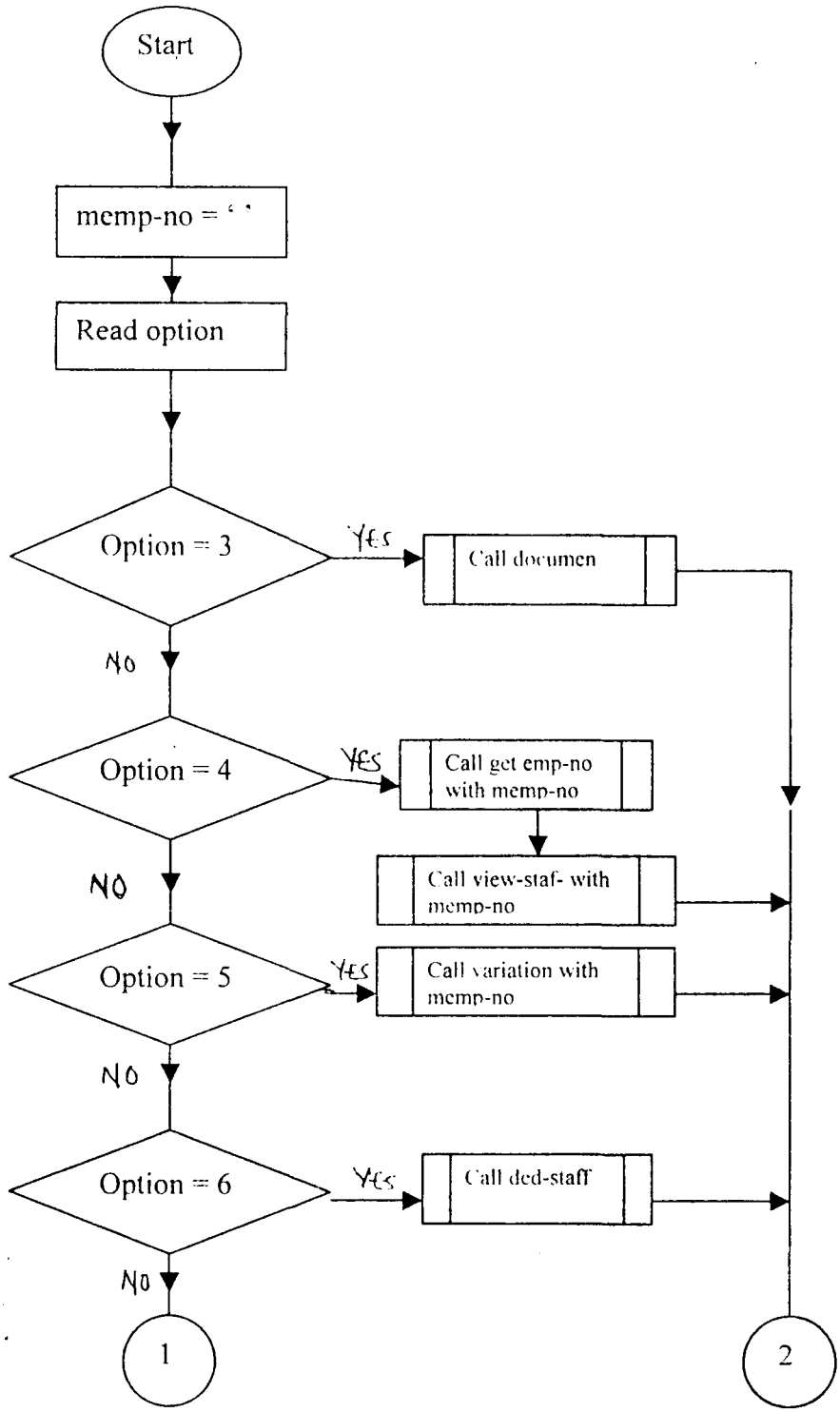


Figure 1: Flowchart for the overall program (Main Program)


Start
memp-no = ' '
Read option
Option = 3
YES
Call documen
NO
Option = 4
YES
Call get emp-no with memp-no
Call view-staf- with memp-no
NO
Option = 5
YES
Call variation with memp-no
NO
Option = 6
YES
Call ded-staff
NO
1
2

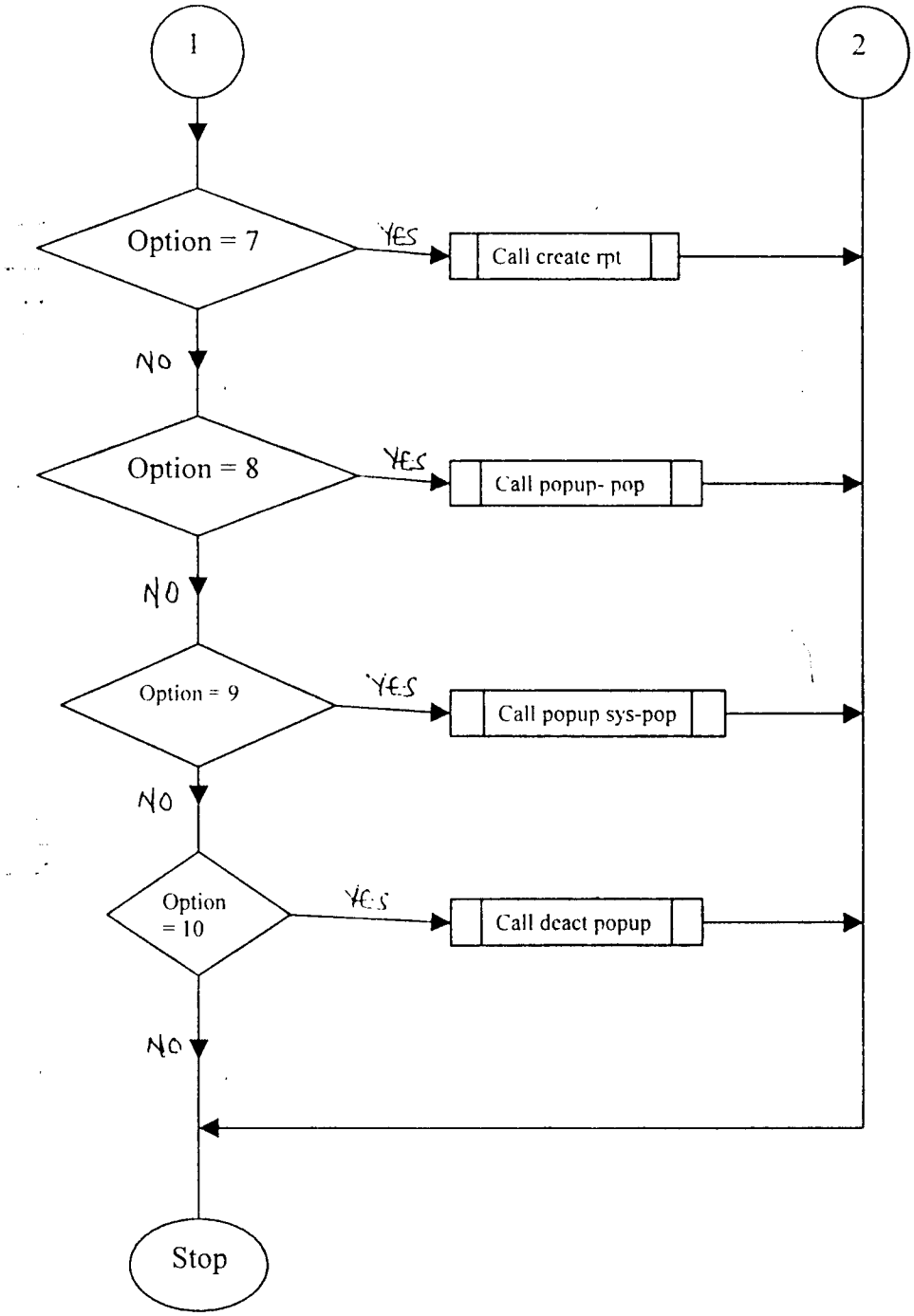


Fig. 2: Flowchart for Main – menu Procedure.

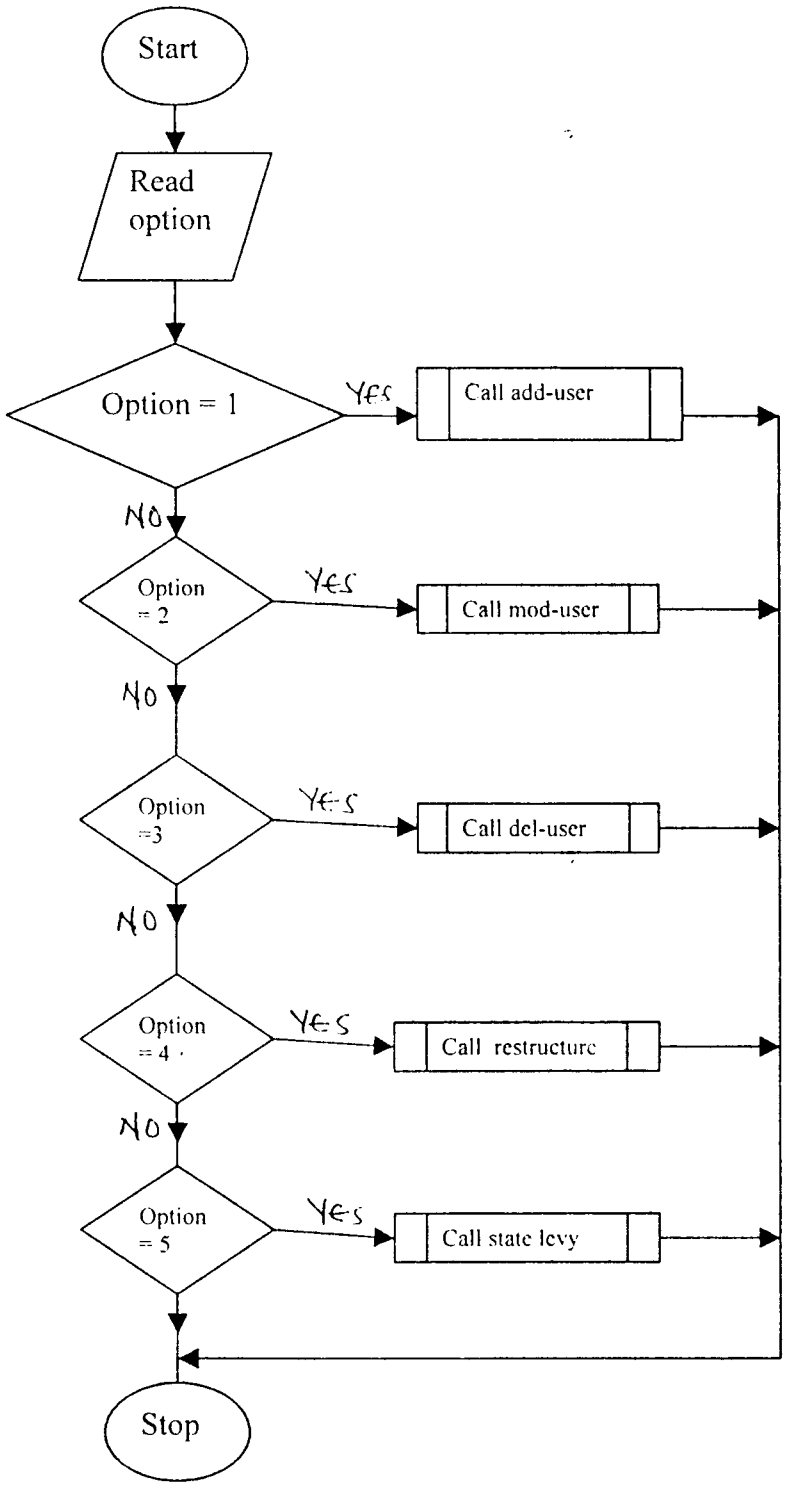


Figure 3: Flowchart for Sys - menu.

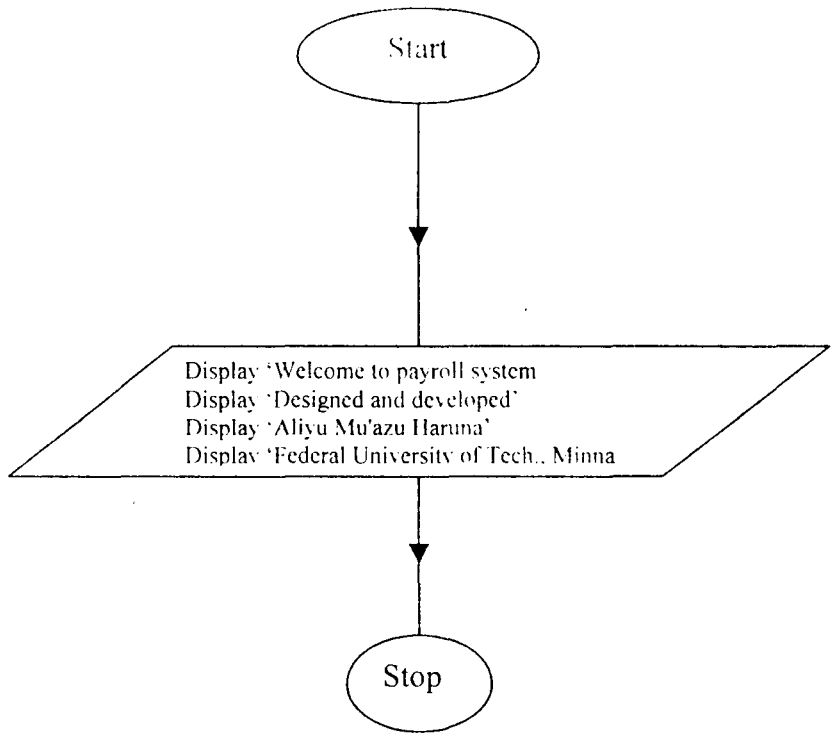


Figure 4: Flowchart for Welcome Procedure

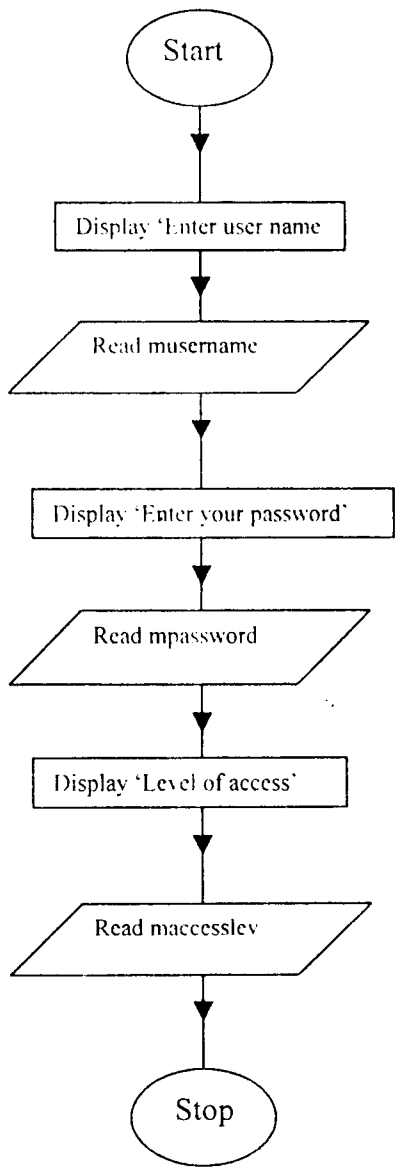


Figure 5: Flowchart for get-user Procedure.

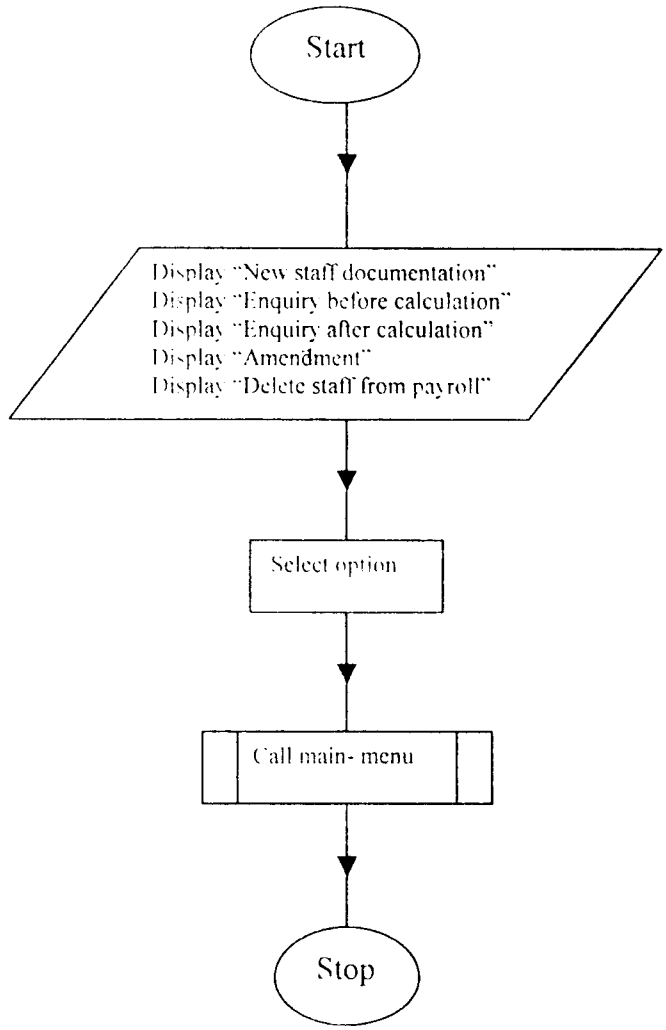


Figure 6: Flowchart for Main-Pop.

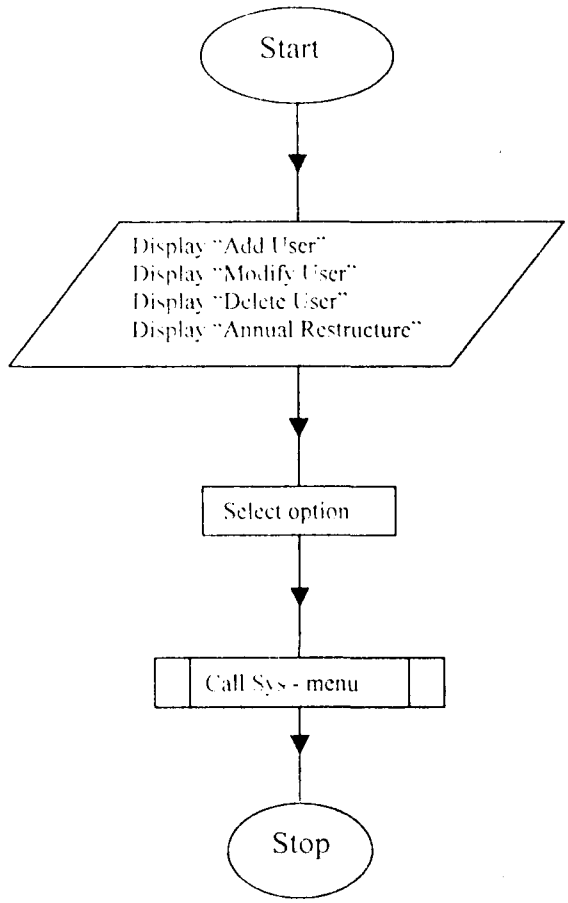


Figure 7: Flowchart for Sys – Pop.

APPENDIX 2

PROGRAM'S OUTPUT

COLLEGE OF AGRICULTURE, ZURU

STAFF MONTHLY SALARY REPORTS

MONTH: 3/2002

EMP-NO	NAME	DEPT	BASIC	HOUSING	SHIFT	LEAVE-GRT	CONT-ADD	HAZARD	TRANSPORT	ENTERTAINMENT	UTILITY	JOURNAL	LEARNED	RESEARCH	EXAMS	RESP-ALL	MEAL-SUB	DOMESTIC	OTHER-ALL
CAZ001	DR. HARUNA U	001	14444.00	16177.30	0.00	0.00	0.00	0.00	609.00	250.00	80.00	0.00	0.00	0.00	0.00	416.66	0.00	13616.60	0.00
CAZ002	USMAN ISAH	001	12886.00	14432.30	0.00	0.00	0.00	0.00	609.00	250.00	60.00	208.33	104.16	104.16	2577.20	166.66	66.00	10212.20	1932.90
CAZ003	FARUK MUSA	002	12886.00	14432.30	0.00	0.00	0.00	0.00	609.00	250.00	60.00	0.00	0.00	0.00	0.00	166.66	66.00	10212.20	0.00
CAZ006	ABDUL ABU	002	11371.20	12735.70	0.00	0.00	0.00	0.00	609.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	66.00	0.00	0.00
CAZ007	AISHATU I K	002	7429.00	9152.53	2451.57	0.00	742.90	200.00	609.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	66.00	0.00	0.00
ALS			59016.20	66930.13	2451.57	0.00	742.90	200.00	3045.00	750.00	280.00	208.33	104.16	104.16	2577.00	749.98	264.00	34041.00	1932.90

AND TOTAL: 173, 397.13

LLEGE OF AGRICULTURE, ZURU

P-NO:	CAZ001
ME:	DR HARUNA U.
T:	GENERAL ADMIN.
NK:	FIRST BANK
MONTH:	3/2002

TAXABLE PAYMENTS	
IC SALARY	14444.00
SUB TOTAL	14444.00
NON- TAXABLE PAYMENTS	
SING	16177.30
NSPORT	609.00
ERTAINMENT	250.00
ITY	80.00
PON-ALL	416.66
MESTIC	13616.60
JB TOTAL 2	31149.56
DEDUCTIONS/RECOVERIES	
TER RATE	100.00
USING SCHEME	361.10
E TAXES	451.81
JB TOTAL 3	912.91
AL PAYMENTS	45593.56
PAY	44680.65

COLLEGE OF AGRICULTURE, ZURU

EMP-NO:	CAZ002
NAME:	USMAN ISAH
DEPT:	SCIENCE
BANK:	PEOPLES' BANK
PAY MONTH:	3/2002

TAXABLE PAYMENTS	
BASIC SALARY	12886.00
SUB TOTAL	12886.00
NON- TAXABLE PAYMENTS	
HOUSING	14432.30
TRANSPORT	609.00
ENTERTAINMENT	250.00
UTILITY	60.00
JOURNAL	208.33
LEARNED	104.16
RESEARCH	104.16
EXAMS	2577.20
SIWES-SUPV	1932.90
RESPONS-ALL	166.66
MEAL SUBS	66.00
DOMESTIC	10212.20
SUB TOTAL 2	30722.91
DEDUCTIONS/RECOVERIES	
MOSQUE DUE	100.00
WATER RATE	50.00
HOUSING SCHEME	322.15
PAYE TAXES	369.33
ASSU DUES	50.00
SUB TOTAL 3	891.48
TOTAL PAYMENTS	43608.91
NET PAY	42717.43

COLLEGE OF AGRICULTURE, ZURU

EMP-NO:	CAZ003
NAME:	FARUK MUSA
DEPT:	GENERAL ADMIN.
BANK:	FIRST BANK
PAY MONTH:	3/2002

TAXABLE PAYMENTS	
BASIC SALARY	12886.00
SUB TOTAL	12886.00
NON- TAXABLE PAYMENTS	
HOUSING	14432.30
TRANSPORT	609.00
ENTERTAINMENT	250.00
UTILITY	60.00
RESPONS-ALL	166.66
MEAL SUBS	66.00
DOMESTIC	10212.20
SUB TOTAL 2	25796.16
DEDUCTIONS/RECOVERIES	
WATER RATE	50.00
HOUSING SCHEME	322.15
PAYE TAXES	369.33
SUB TOTAL 3	741.48
TOTAL PAYMENTS	38682.16
NET PAY	37940.68

COLLEGE OF AGRICULTURE, ZURU

EMP-NO:	CAZ004
NAME:	ABDUL ABU
DEPT:	GENERAL ADMIN
BANK:	FIRST BANK ZURU
PAY MONTH:	3.2002

TAXABLE PAYMENTS	
BASIC SALARY	11317.20
SUB TOTAL	11317.20
NON- TAXABLE PAYMENTS	
HOUSING	12735.70
TRANSPORT	609.70
UTILITY	40.00
MEAL SUBS	66.00
SUB TOTAL 2	13450.70
DEDUCTIONS/RECOVERIES	
BUS SERVICE	1600.00
WATER RATE	50.00
HOUSING SCHEME	284.28
PAYE TAXES	289.27
NASU DUES	20.00
SUB TOTAL 3	
TOTAL PAYMENTS	24821.90
NET PAY	22578.35

COLLEGE OF AGRICULTURE, ZURU

EMP-NO:	CAZ005
NAME:	AISHATU I. K.
DEPT:	GENERAL ADMIN.
BANK:	PEOPLES' BANK
PAY MONTH:	3/2002

TAXABLE PAYMENTS	
BASIC SALARY	7429.00
CONT-ADD	742.90
SUB TOTAL	8171.90
NON-TAXABLE PAYMENTS	
HOUSING	9152.53
SHIFT	2451.57
HAZARD	200.00
TRANSPORT	609.00
UTILITY	40.00
MEAL SUBS	66.00
SUB TOTAL 2	
DEDUCTIONS/RECIVERIES	
V-LOAN	291.15
V-INTEREST	7.28
ELECTRICITY	85.00
WATER RATE	50.00
HOUSING SCHEME	204.30
PAYE TAXES	186.59
NASU DUES	20.00
SUB TOTAL 3	844.32
TOTAL PAYMENTS	20691.00
NET PAY	19846.68

COLLEGE OF AGRICULTURE, ZURU
STAFF SALARY BANK LIST REPORT
PAY MONTH 3/2002
FIRST BANK

S/N	EMP-NO	ACCOUNT NO	NAME	AMOUNT
1	CAZ001	0039642	DR HARUNA U	44,680.65
2	CAZ003	0029000	FARUK MUSA	37,940.68
3	CAZ004	0045650	ABDUL ABU	22,578.35
	TOTAL PAY	105,199.68		

COLLEGE OF AGRICULTURE, ZURU
STAFF SALARY BANK LIST REPORT
PAY MONTH 3/2002
PEOPLES' BANK

S/N	EMP-NO	ACOUN NO	NAME	AMOUNT
1	CAZ002	015323	USMAN ISAH	42,717.43
2	CAZ005	015789	AISHA U T K	19,846.68
	TOTAL PAY	62,564.11		

APPENDIX 3
PROGRAM'S SOURCE CODE

```
set talk off
set exact on
set bell off
set safe off
set scor off
set stat off
```

```
CLOSE DATA
CLEAR


musername = space(11)
mpassword = space(13)

use security in 4
sele 4
index on username tag byname
index on username+password tag byuser

counter = 3
valid=.f.
do while (counter>0) .and. (.not. valid)
   do identify with musername,mpassword
   mpassword = encrypt(mpassword)

   valid = seek(musername+mpassword)
   if .not. valid
      counter = counter-1
      if counter<>0
       do alert with 'Wrong password! '+str(counter,1)+ ;
           ' trial left, press any key to try again'
       mpassword=space(13)
      endif
   endif
enddo

if .not. valid
    do alert with 'Sory trials exhausted, ACCESS DENIED! '
    do reset_env
    return
else
   maccesslev = accesslev
endif

header1 = 'COLLEGE OF AGRICULTURE, ZURU'

DO welcome

ssenior = .f.
```

```
editlst = .f.

USE STAFF IN 1
SELE 1
INDEX ON EMP_NO TAG BYNO
INDEX ON DEPT_CODE + EMP_NO TAG BYCODEMP

USE PAYFILE IN 2
SELE 2
INDEX ON EMP_NO TAG BYNO

USE EDITLIST IN 5
SELE 5
INDEX ON EMP_NO TAG BYNO

DEFINE WINDOW XY WAIT FROM 20,11 TO 23,65 COLOR N/BG,N/BG

DEFINE POPUP main_pop FROM 0,0
DEFINE BAR 1 OF main_pop PROMPT "       MAIN MENU"  SKIP
DEFINE BAR 2 OF main_pop PROMPT REPL(" ",26)  SKIP
DEFINE BAR 3 OF main_pop PROMPT "New Staff Documentation   >"
DEFINE BAR 4 OF main_pop PROMPT "Enquiry Before Calculation>"
*DEFINE BAR 4 OF main_pop PROMPT "Enquiry After Calculation>"
DEFINE BAR 5 OF main_pop PROMPT "Amendments                >"
DEFINE BAR 6 OF main_pop PROMPT "Delete Staff from Payroll>" SKIP FOR MACCESSLEV
<> 1
DEFINE BAR 7 OF main_pop PROMPT "Payroll Processing" SKIP FOR MACCESSLEV <> 1
DEFINE BAR 8 OF main_pop PROMPT "Print Reports             >" SKIP
DEFINE BAR 9 OF main_pop PROMPT "System Maintainance       >" SKIP FOR MACCESSLEV
<> 1
DEFINE BAR 10 OF main_pop PROMPT REPL("_",26) SKIP
DEFINE BAR 11 OF main_pop PROMPT "EXIT FROM MAIN MENU"
ON SELECTION POPUP main_pop DO main_menu

DEFINE POPUP print_pop FROM 2,15
DEFINE BAR 1 OF print_pop PROMPT "       PRINT MENU"  SKIP
DEFINE BAR 2 OF print_pop PROMPT REPL("_",24) SKIP
DEFINE BAR 3 OF print_pop PROMPT "Staff Salaries and Allowances"
DEFINE BAR 4 OF print_pop PROMPT "TV Journal Report"
DEFINE BAR 5 OF print_pop PROMPT "Payslip Report "
DEFINE BAR 6 OF print_pop PROMPT "Bank List Report "
DEFINE BAR 7 OF print_pop PROMPT "Banks Net Summary Report"
DEFINE BAR 8 OF print_pop PROMPT "Loans Report >"
DEFINE BAR 9 OF print_pop PROMPT "Union Dues Report >"
DEFINE BAR 10 OF print_pop PROMPT "Housing Scheme Report"
DEFINE BAR 11 OF print_pop PROMPT "Mosque Report"
DEFINE BAR 12 OF print_pop PROMPT "Water Rate Report"
DEFINE BAR 13 OF print_pop PROMPT "State Leavy Report"
DEFINE BAR 14 OF print_pop PROMPT "Paye Report"
DEFINE BAR 15 OF print_pop PROMPT "Edit List"
DEFINE BAR 16 OF print_pop PROMPT REPL("_",24) SKIP
DEFINE BAR 17 OF print_pop PROMPT "Exit To Main Menu"
ON SELECTION POPUP print_pop DO print_menu

DEFINE POPUP sys_pop FROM 7,27
DEFINE BAR 1 OF sys_pop PROMPT "Add User"
DEFINE BAR 2 OF sys_pop PROMPT "Modify User"
```

```
DEFINE BAR 3 OF sys_pop PROMPT "Delete User"
DEFINE BAR 4 OF sys_pop PROMPT "Annual Restructure"
DEFINE BAR 5 OF sys_pop PROMPT "State Leavy"
ON SELECTION POPUP sys_pop DO sys menu

do stamp with ssenior,'Are you processing for Senior Staff ? (Y/N)   '

SELE 1
if ssenior
   SET FILT TO SENIOR
   hd = 'SENIOR'
else
  set filt to .not. senior
  hd = 'JUNIOR'
endif

do stamp with editlst,'Clear editlist file ? (Y/N)   '
if editlst
   SELE 5
   zap

      [illegible] main_pop

do reset_env
*******************************END OF MAIN*********************

PROC welcome
priv oldscrn

     save screen to oldscrn
     clear
     @ 1,3 TO 23,75 DOUBLE color n/n
     @ 2,25 SAY "WELLCOME TO PAYROLL SYSTEM"
     @ 5,24 SAY HEADER1
     @ 9,27 SAY "DESINGNED AND DEVELOPED"
     @ 14,37 SAY "BY"
     @ 18,29 SAY "ALIYU MU'AZU HARUNA"
     @ 20,19 SAY "FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA"
     keypress = inkey(5)
     restcr screen from oldscrn
RETURN

PROC main menu
[illegible] memp_no
[illegible]

    DO CASE
       CASE bar() = 3
            stop =.f.
            do while .not. stop
               stop = (lastkey() = 27)
               DO DOCUMEN
            enddo
       CASE bar() = 4
            memp_no = space(6)
            msg = 'Select Number to View Staff Details'
```

```
            stop = .f.
            do while .not. stop
                 do getemp_no with memp_no,msg
                 stop = (lastkey() = 27)
                 if (.not. isbl(memp_no)) .and. (.not. stop)
                    DO VIEW_STAF WITH memp_no
                 endif
            enddo
       CASE bar() = 5
            memp_no = space(7)
            msg = 'Select Number to Modify Staff Variation'
            stop = .f.
            do while .not. stop
                 do getemp_no with memp_no,msg
                 stop = (lastkey() = 27)
                 if (.not. isbl(memp_no)) .and. (.not. stop)
                    DO VARIATION WITH memp_no
                 endif
            enddo
        CASE bar() = 6
            do del_staff
        CASE bar() = 7
            do create_rpt
        CASE bar() = 8
            acti popup print_pop
        CASE bar() = 9
            acti popup sys_pop
        CASE bar() = 11
            deact popup
    ENDCASE
RETURN

PROC sys_menu
   DO CASE
      CASE bar() = 1
        DO ADD_USER
      CASE bar() = 2
           DO MOD_USER
      CASE bar() = 3
           DO DEL_USER
      CASE bar() = 4
           DO restruc
        CASE bar() = 5
          DO state_levy
   ENDCASE
RETURN

PROC add_user
priv musername,mpassword,maccesslev,npassword,yesadd,ok
     musername = space(11)
     mpassword = space(13)
     maccesslev = 2
     npassword = space(13)
     yesadd = .f.
     ok = .f.
     do while (.not. ok)
          do get_user with musername,mpassword,maccesslev
```

```
            do g_confirm with npassword
            ok = (mpassword = npassword)
            if (.not. ok)
               do alert with 'Sory confirmation wrong, press any key to try
again!'
               mpassword=space(13)
            endif
         enddo
         yesadd = (.not. isbl(musername
         if yesadd
            msg = 'Sure to add '+trim(musername)+' ? (Y/N) '
            do stamp with yesadd,msg
            if yesadd
               sele 4
               append blank
               REPLACE USERNAME WITH musername,PASSWORD WITH encrypt(mpassword),;
                 ACCESSLEV WITH maccesslev
            endif
         endif
      RETURN

      PROC get_user
      para musername,mpassword,maccesslev
          define wind w_user from 7,19 to 11,65 color w/n
          acti wind w_user
          @ 2,3 SAY "ENTER USER NAME:"
          @ 2,19 GET musername PICTURE "@!"
          @ 4,3 SAY "ENTER YOUR PASSWORD:"
          @ 4,23 GET Mpassword PICTURE "@!" color w/w,w/w
          @ 6,3 SAY "LEVEL OF ACCESS:"
          @ 6,19 GET Maccesslev PICTURE "9"
          read
          deact wind w_user
          release wind w_user


          proc m_user
          musername,newpass,mpassword,maccesslev,stop,msg,msg1,yesmodify
          musername = space(11)
          mpassword = space(13)
          maccesslev = 0
          yesmodify = .f.
          stop = .f.
          msg = 'Select user name to modify his accessibility'
            do while .not. stop
               do get_uname with musername,msg
               stop = (lastkey() = 27)
               msg1 = 'Sure to modify '+trim(musername)+' ? (Y/N) '
               if (.not. isbl(musername)) .and. (.not. stop)
                  sele 4
                  set order to tag byname
                  if seek(musername)
                     do g_user with mpassword,maccesslev
                     if .not. isbl(mpassword)
                          newpass=encrypt(mpassword)
                          yesmodify = newpass<>PASSWORD;
                             .or. maccesslev<>ACCESSLEV
```

```
                    if yesmodify
                       do stamp with yesmodify,msg1
                       if yesmodify
                            REPLACE PASSWORD WITH newpass,ACCESSLEV WITH;
                            maccesslev
                       endif
                    endif
                endif
             endif
          endif
       enddo

PROC g_user
para mpassword,maccesslev
    define wind wm_user from 6,19 to 16,65 color w/n
    acti wind wm_user
    @ 0,10 TO 2,31
    @ 1,12 SAY "MODIFYING PASSWORD" color rg/gb+*
    @ 4,3 SAY "ENTER NEW PASSWORD:"
    @ 4,22 GET Mpassword PICTURE "@!" color w/w,w/w
    @ 6,3 SAY "NEW LEVEL OF ACCESS:"
    @ 6,23 GET Maccesslev PICTURE "9"
    read
    deact wind wm_user
    release wind wm_user
RETURN

PROC g_confirm
para npassword
     define wind n_pass from 8,15 to 9,70 color w/n
     acti wind n_pass
     @ 1,3 SAY "PLEASE CONFIRM YOUR PASSWORD:"
     @ 1,32 GET Npassword PICTURE "@!" color w/w,w/w
     read
     deact wind n_pass
     release wind n_pass
RETURN

PROC del_user
priv musername,stop,msg,msg1,yesdelete
     musername = space(11)
     yesdelete = .f.
     stop = .f.
     msg = 'Select user name to delete his accessibility'
       do while .not. stop
          do get_uname with musername,msg
          stop = (lastkey() = 27)
          if (.not. isbl(musername)) .and. (.not. stop)
             msg1 = 'Sure to delete  '+trim(musername)+' ? (Y/N) '
             do stamp with yesdelete,msg1
             if yesdelete
                  acti window xy_wait
                  @ 0,0 say 'Please Wait...'
                  @ 1,10 say 'Deleting '+trim(musername) color n/bg*
                sele 4
                  delete for USERNAME = musername
```

```
                pack
               deact wind xy_wait
            endif
          endif
      enddo
RETURN

PROC restruc

    acti window xy_wait
    @ 0,0 say 'Please Wait for few minutes...'
    @ 1,10 say 'Annual restructure in progress' color n/bg*

    sele 1
    go top
    repl gross_tdt with 0 all
    go top
    repl relief_amt with 3000 all

    use st_leave in 3
    sele 3
    zap

    use in 3
      deact wind xy_wait
      do alert with 'Annual Restructure Completed, press any key'
RETURN

PROC get_uname
PARA musername,msg
   SELE 4
   DEFINE POPUP user_pop FROM 8,39 PROMPT FIELD username MESSAGE msg
   ON SELECTION POPUP user_pop DO acc with musername
   ACTI POPUP user_pop
RETURN

PROC acc
PARA musername
  if lastkey() = 13
     musername = prompt()
  else
     musername = space(11)
  endif
  deac popup
RETURN

PROC DOCUMEN
priv
memp_no,msex,mname,mscale,mstep,mrank,mapptype,mappcode,msenior,mdept_code,;
   mbank_code,mact_no,mcont_add,mhouse_all,moth_taxbl,mshift,;
   mot_nontxb,mjournal,mlearn,mresearch,mexams,mrespons,mhazard,moth_ntxbll,;
   mtp_siwes,mentertn,mact_all,msal_adv,mover_time,mprimary,msports,;
   mcoop_soc,mwices,mssa,mnasu_dues,mcpeassu,moth_ded,mv_loan,mf_loan,;
   mref_lon,mh_loan,melec,mdomestic,mqtr_ded,mpri_staf,mmosque,msg,yesadd,;
   value,value1
   memp_no = space(6)
   do get_number with memp_no
```

```
   if .not. isbl(memp_no)
      sele 1
      set order to tag byno
      seek memp_no
      if found()
         do alert with 'Attention please!, '+memp_no+' already exist in the
database'
      else
         msex = ' '
           mname = space(21)
           mscale = space(9)
           mstep = space(6)
           mrank = space(15)
           mapptype = space(8)
           mappcode = space(3)
           msenior = .f.
           mdept_code = space(3)
           mbank_code = space(3)
           mact_no = space(15)
         mcont_add = .f.
         mhouse_all = .f.
         moth_taxbl = .f.
         mdomestic = .f.
         mshift = .f.
         mot_nontxb = .f.
         mjournal = .f.
         mlearn = .f.
         mresearch = .f.
         mexams = .f.
         mrespons = .f.
         mhazard = .f.
         moth_ntxbll = .f.
         mtp_siwes = .f.
         mentertn = .f.
         mact_all = .f.
         msal_adv = .f.
         mover_time = .f.
         mprimary = .f.
         msports = .f.
         mcoop_soc = .f.
         mwices = .f.
         mssa = .f.
         mnasu_dues = .f.
         mcoeassu = .f.
         moth_ded = .f.
         mv_loan = .f.
         mf_loan = .f.
         mref_lon = .f.
         mh_loan = .f.
         melec = .f.
         mqtr_ded = .f.
         mpri_staf = .f.
             mmosque = .f.
             yesadd = .n.
         value = 0
         value1 = 0
```

```
          DO g_staf1 with
memp_no,msex,mname,mscale,mstep,mrank,mapptype,mapcode,;
          msenior,mdept_code,mbank_code,mact_no,mcont_add,mhouse_all,;
          moth_taxbl,mshift,mot_nontxb,mjournal,mlearn,mresearch,;
          mexams,mrespons,mhazard,moth_ntxbl1,mtp_siwes,mentertn,mact_all,;
          msal_adv,mover_time,mprimary,msports,mcoop_soc,mwices,mssa,;
          mnasu_dues,mcoeassu,moth_ded,mv_loan,mf_loan,mref_lon,mh_loan,melec,;
          mdomestic,mqtr_ded,mpri_staf,mmosque

          yesadd = (.not. isbl(memp_no))
          if yesadd
             msg = 'Sure to include '+memp_no+' in Payroll ? (Y/N) '
             do stamp with yesadd,msg
             if yesadd
                SELE 1
                APPEND BLANK
                REPL EMP_NO WITH memp_no,SEX WITH msex,NAME WITH mname,SCALE
WITH mscale,;
                STEP WITH mstep,RANK WITH mrank,APPT_TYPE WITH mapptype,;
                APPT_CODE WITH mappcode,SENIOR WITH msenior,DEPT_CODE WITH;
                mdept_code,BANK_CODE WITH mbank_code,ACCT_NO WITH mact_no,;
                CONT_ADD WITH mcont_add,HOUSE_ALL WITH mhouse_all,OTH_TAXBL;
                WITH moth_taxbl,DOMESTIC WITH mdomestic,SHIFT WITH mshift,;
                OT_NONTXBL WITH mot_nontxb,JOURNAL WITH mjournal,LEARNERED;
                WITH mlearn,RESEARCH WITH mresearch,EXAMS WITH mexams,;
                RESPONSBLT WITH mrespons,HAZARD WITH mhazard,OTH_NTXBL1;
                WITH moth_ntxbl1,TP_SIWES WITH mtp_siwes,ENTERTNMNT WITH;
                mentertn,ACT_ALL WITH mact_all,SAL_ADV WITH msal_adv,;
                PRIMARY WITH mprimary,SPORTS WITH msports,COOP_SOC WITH;
                mcoop_soc,WICES WITH mwices,SSA_DUES WITH mssa,NASU_DUES WITH;
                mnasu_dues,COEASSU WITH mcoeassu,OTH_DED WITH moth_ded,V_LOAN;
                WITH mv_loan,F_LOAN WITH mf_loan,REF_LOAN WITH mref_lon,;
                H_LOAN WITH mh_loan,ELECTRIC WITH melec,SAL_STATUS WITH 1,;
                LEAVE WITH .f.,OVER_TIME WITH mover_time,QTR_DED WITH .
mqtr_ded,;
                PRI_STAF WITH mpri_staf,MOSQUE WITH mmosque

                sele 5
                append blank
                REPL EMP_NO WITH memp_no,SEX WITH msex,NAME WITH mname,SCALE
WITH mscale,;
                STEP WITH mstep,RANK WITH mrank,APPT_TYPE WITH mapptype,;
                APPT_CODE WITH mappcode,SENIOR WITH msenior,DEPT_CODE WITH;
                mdept_code,BANK_CODE WITH mbank_code,ACCT_NO WITH mact_no,;
                CONT_ADD WITH mcont_add,HOUSE_ALL WITH mhouse_all,OTH_TAXBL;
                WITH moth_taxbl,DOMESTIC WITH mdomestic,SHIFT WITH mshift,;
                OT_NONTXBL WITH mot_nontxb,JOURNAL WITH mjournal,LEARNERED;
                WITH mlearn,RESEARCH WITH mresearch,EXAMS WITH mexams,;
                RESPONSBLT WITH mrespons,HAZARD WITH mhazard,OTH_NTXBL1;
                WITH moth_ntxbl1,TP_SIWES WITH mtp_siwes,ENTERTNMNT WITH;
                mentertn,ACT_ALL WITH mact_all,SAL_ADV WITH msal_adv,;
                PRIMARY WITH mprimary,SPORTS WITH msports,COOP_SOC WITH;
                mcoop_soc,WICES WITH mwices,SSA_DUES WITH mssa,NASU_DUES WITH;
                mnasu_dues,COEASSU WITH mcoeassu,OTH_DED WITH moth_ded,V_LOAN;
                WITH mv_loan,F_LOAN WITH mf_loan,REF_LOAN WITH mref_lon,;
                H_LOAN WITH mh_loan,ELECTRIC WITH melec,SAL_STATUS WITH 1,;
```

```
                LEAVE WITH .f.,OVER_TIME WITH mover_time,QTR_DED WITH
mqtr_ded,;
                PRI_STAF WITH mpri_staf,MOSQUE WITH mmosque

                sele 1
                if oth_taxbl
                 value = 0
                     msg = 'Enter other taxable for '+memp_no+' :'
                     do g_numeric with value,msg
                     use oth_tax in 3
                     sele 3
                     append blank
                     repl emp_no with memp_no,oth_tax with value
                     use in 3
                     sele 1
                endif

                if ot_nontxbl
                 value = 0
                     msg = 'Enter other nontaxable for '+memp_no+' :'
                     do g_numeric with value,msg
                     use oth_ntax in 3
                     sele 3
                     append blank
                     repl emp_no with memp_no,amount with value
                     use in 3
                     sele 1
                endif

              if responsblt
                 value = 0
                     msg = 'Enter Responsibility Allowance for '+memp_no+' :'
                     do g_numeric with value,msg
                     use respons in 3
                     sele 3
                     appe blan
                     repl emp_no with memp_no,amount with value
                     use in 3
                     sele 1
                endif

              if oth_ntxbl1
                 value = 0
                 value1 = 0
                     msg = 'Enter Other Non-Taxable1 for '+memp_no+' :'
                 msg1 = 'Enter number of installments : '
                 do numeric with msg,value,msg1,value1
                     use ot_ntax1 in 3
                     sele 3
                     appe blan
                     repl emp_no with memp_no,amount with value,ins with
value1,;
                     ins_far with 0
                     use in 3
                     sele 1
                endif
```

```
if act_all
   value = 0
       msg = 'Enter Actin: Allowance for '+memp_no+' :'
       do g_numeric with value,msg
       use actn_all in 3
       sele 3
       appe blan
       repl emp_no wi' memp_no,amount with value
       use in 3
       sele 1
  endif

if sal_adv
       use staf_ln1 in 3
       sele 3
       appe blan
       repl emp_no with memp_no,desc with 'SAL_ADV',ins_far with

       use in 3
       sele 1
  endif

if over_time
   value = 0
       msg = 'Enter Overtime Amount for '+memp_no+' :'
       do g_numeric with value,msg
       use overtime in 3
       sele 3
       appe blan
       repl emp_no with memp_no,amount with value
       use in 3
       sele 1
  endif

if primary
   value = 0
   value1 = 0
   msg = 'Enter Primary Amount for '+memp_no+' : '
   msg1 = 'Enter number of installments : '
   do numeric with msg,value,msg1,value1
       use ln_ded in 3
       sele 3
       appe blan
       repl emp_no with memp_no,desc with 'PRIMARY',amount with;
       value,ins with value1
       use in 3

   use staf_ln1 in 3
   sele 3
   appe blan
   repl emp_no with memp_no,desc with 'PRIMARY',ins_far with 0
   use in 3
       sele 1
  endif

if coop_soc
   value = 0
```

```
        value1 = 0
        msg = 'Enter Co-operative Soc. Amount for '+memp_no+' : '
        msg1 = 'Enter number of installments : '
        do numeric with msg,value,msg1,value1
            use ln_ded in 3
            sele 3
            appe blan
            repl emp_no with memp_no,desc with 'COOP_SOC',amount with;
            value,ins with value1
            use in 3

        use staf_ln1 in 3
        sele 3
        appe blan
        repl emp_no with memp_no,desc with 'COOP_SOC',ins_far with 0
        use in 3
            sele 1
      endif

    if oth_ded
        value = 0
            msg = 'Enter Other Deduction for '+memp_no+' :'
            do g_numeric with value,msg
            use vrbl_ded in 3
            sele 3
            appe blan
            repl emp_no with memp_no,amount with value,desc with;
            'OTHE_DE'
            use in 3
            sele 1
      endif

    if v_loan
        value = 0
        value1 = 0
        msg = 'Enter vehicle loan amount for '+memp_no+' : '
        msg1 = 'Enter number of installments : '
        do numeric with msg,value,msg1,value1
            use lni_ded in 3
            sele 3
            appe blan
            repl emp_no with memp_no,desc with 'V_LOAN',amount with;
            value,ins with value1,int with 2.50
            use in 3

        use staf_ln1 in 3
        sele 3
        appe blan
        repl emp_no with memp_no,desc with 'V_LOAN',ins_far with 0
        use in 3
            sele 1
      endif

    if f_loan
        value = 0
        value1 = 0
        msg = 'Enter funiture loan amount for '+memp_no+' : '
```

```
    msg1 = 'Enter number of installments : '
    do numeric with msg,value,msg1,value1
        use lni_ded in 3
        sele 3
        appe blan
        repl emp_no with memp_no,desc with 'F_LOAN',amount with;
        value,ins with value1,int with 2.50
        use in 3

    use staf_lnl in 3
    sele 3
    appe blan
    repl emp_no with memp_no,desc with 'F_LOAN',ins_far with 0
    use in 3
        sele 1
  endif

if ref_loan
    value = 0
    value1 = 0
    msg = 'Enter refurbishing loan for '+memp_no+' : '
    msg1 = 'Enter number of installments : '
    do numeric with msg,value,msg1,value1
        use lni_ded in 3
        sele 3
        appe blan
        repl emp_no with memp_no,desc with 'REF_LOAN',amount with;
        value,ins with value1,int with 2.50
        use in 3

    use staf_lnl in 3
    sele 3
    appe blan
    repl emp_no with memp_no,desc with 'REF_LOAN',ins_far with 0
    use in 3
        sele 1
  endif

if h_loan
    value = 0
    value1 = 0
    msg = 'Enter housing loan for '+memp_no+' : '
    msg1 = 'Enter number of installments : '
    do numeric with msg,value,msg1,value1
        use lni_ded in 3
        sele 3
        appe blan
        repl emp_no with memp_no,desc with 'H_LOAN',amount with;
        value,ins with value1,int with 2.50
        use in 3

    use staf_lnl in 3
    sele 3
    appe blan
    repl emp_no with memp_no,desc with 'H_LOAN',ins_far with 0
    use in 3
        sele 1
```

```
      endif

    if electric
       value = 0
       value1 = 0
       msg = 'Enter Electricity Amount for '+memp_no+' : '
       msg1 = 'Enter number of installments : '
       do numeric with msg,value,msg1,value1
           use ln_ded in 3
           sele 3
           appe blan
           repl emp_no with memp_no,desc with 'ELECTRIC',amount with;
           value,ins with value1
           use in 3

       use staf_ln1 in 3
       sele 3
       appe blan
       repl emp_no with memp_no,desc with 'ELECTRIC',ins_far with 0
       use in 3
           sele 1
      endif

      if qtr_ded
       value = 0
           msg = 'Enter Rent Deduction for '+memp_no+' :'
           do g_numeric with value,msg
           use qtr_ded in 3
           sele 3
           append blank
           repl emp_no with memp_no,amount with value
           use in 3
           sele 1
      endif

    if mosque
       value = 0
       value1 = 0
       msg = 'Enter Mosque Deduction Amount for '+memp_no+' : '
       msg1 = 'Enter number of installments : '
       do numeric with msg,value,msg1,value1
           use ln_ded in 3
           sele 3
           appe blan
           repl emp_no with memp_no,desc with 'MOSQUE',amount with;
           value,ins with value1
           use in 3

       use staf_ln1 in 3
       sele 3
       appe blan
       repl emp_no with memp_no,desc with 'MOSQUE',ins_far with 0
       use in 3
           sele 1
      endif
   endif
endif
```

```
      endif
   endif
RETURN

PROC get_number
para memp_no
     define window w_number from 5,25 to 9,66 color w/n
     acti wind w_number
     @ 1,2 SAY "Enter Number for New Staff:"
     @ 1,30 GET memp_no PICTURE "@!"
     read
     deact wind w_number
     release wind w_number
RETURN

PROC g_staf1
PARA memp_no,msex,mname,mscale,mstep,mrank,mapptype,mappcode,msenior,;
     mdept_code,mbank_code,mact_no,mcont_add,mhouse_all,moth_taxbl,;
     mshift,mot_nontxb,mjournal,mlearn,mresearch,mexams,;
     mtutions,mhazard,moth_ntxbl1,mtp_siwes,mentertn,mact_all,msal_adv,;
     mtime,mprimary,msports,mcoop_soc,mwices,mssa,mnasu_dues,;
     mcreassu,moth_ded,mv_loan,mf_loan,mref_lon,mh_loan,melec,mdomestic,;
     mqtr_ded,mpri_staf,mmosque
     define window wg_staf1 from 0,0 to 24,79 color w/n
     acti wind wg_staf1
     @ 1,19 SAY "COLLEGE OF AGRICULTURE, ZURU"
     @ 3,1 SAY "EMP_NO:"
     @ 3,8 SAY m->Memp_no PICTURE "@!"
     @ 3,15 SAY "SEX:"
     @ 3,19 GET m->Msex PICTURE "!"
     @ 3,21 SAY "NAME:"
     @ 3,26 GET m->Mname PICTURE "@!"
     @ 3,49 SAY "SCALE:"
     @ 3,55 GET m->Mscale PICTURE "@!"
     @ 3,65 SAY "STEP:"
     @ 3,70 GET m->Mstep PICTURE "@!"
     @ 5,1 SAY "RANK:"
     @ 5,6 GET m->Mrank PICTURE "@!"
     @ 5,22 SAY "APPT_TYPE:"
     @ 5,32 GET m->Mapptype PICTURE "@!"
     @ 5,41 SAY "APPT_CODE:"
     @ 5,51 GET m->Mappcode PICTURE "@!"
     @ 5,55 SAY "SENIOR:"
     @ 5,62 GET m->Msenior PICTURE "L"
     @ 5,64 SAY "DEPT_CODE:"
     @ 5,74 GET m->Mdept_code PICTURE "@!"
     @ 7,1 SAY "BANK CODE:"
     @ 7,11 GET m->Mbank_code PICTURE "@!"
     @ 7,15 SAY "ACCT_NO:"
     @ 7,23 GET m->Mact_no PICTURE "@!"
     @ 7,39 SAY "CONT_ADD:"
     @ 7,48 GET m->Mcont_add PICTURE "L"
     @ 7,50 SAY "HOUSE_ALL:"
     @ 7,60 GET m->Mhouse_all PICTURE "L"
     @ 7,62 SAY "OTHER_TAXBL:"
     @ 7,74 GET m->Moth_taxbl PICTURE "L"
     @ 9,1 SAY "SHIFT:"
```

```
@ 9,1 GET m->Mshift PICTURE "L"
@ 9,3 SAY "OTHER_NONTAXBL:"
@ 9,24 GET m->Mot_nontxb PICTURE "L"
@ 9,26 SAY "JOURNAL:"
@ 9,34 GET m->Mjournal PICTURE "L"
@ 9,36 SAY "LEARNERED:"
@ 9,46 GET m->Mlearn PICTURE "L"
@ 9,48 SAY "RESEARCH_ALL:"
@ 9,61 GET m->Mresearch PICTURE "L"
@ 9,63 SAY "EXAMS_ALL:"
@ 9,73 GET m->Mexams PICTURE "L"
@ 11,1 SAY "RESPONSIBLTY:"
@ 11,14 GET m->Mrespons PICTURE "L"
@ 11,16 SAY "HAZARD_ALL:"
@ 11,27 GET m->Mhazard PICTURE "L"
@ 11,29 SAY "OTHER_NONTAXBL1:"
@ 11,45 GET m->Moth_ntxbl1 PICTURE "L"
@ 11,47 SAY "TP/SIWES:"
@ 11,56 GET m->Mtp_siwes PICTURE "L"
@ 11,58 SAY "ENTERTAINMENT:"
@ 11,72 GET m->Mentertn PICTURE "L"
@ 13,1 SAY "ACTING_ALL:"
@ 13,12 GET m->Mact_all PICTURE "L"
@ 13,14 SAY "SALARY_ADV:"
@ 13,25 GET m->Msal_adv PICTURE "L"
@ 13,27 SAY "OVER TIME:"
@ 13,37 GET m->Mover_time PICTURE "L"
@ 13,39 SAY "PRIMARY:"
@ 13,47 GET m->Mprimary PICTURE "L"
@ 13,49 SAY "SPORTS:"
@ 13,56 GET m->Msports PICTURE "L"
@ 13,58 SAY "COOP_SOC:"
@ 13,67 GET m->Mcoop_soc PICTURE "L"
@ 13,69 SAY "WICES:"
@ 13,75 GET m->Mwices PICTURE "L"
@ 15,1 SAY "SSA_DUES:"
@ 15,10 GET m->Mssa PICTURE "L"
@ 15,12 SAY "NASU_DUES:"
@ 15,22 GET m->Mnasu_dues PICTURE "L"
@ 15,24 SAY "COEASSU:"
@ 15,32 GET m->Mcoeassu PICTURE "L"
@ 15,34 SAY "OTHER_DED:"
@ 15,44 GET m->Moth_ded PICTURE "L"
@ 15,46 SAY "V_LOAN:"
@ 15,53 GET m->Mv_loan PICTURE "L"
@ 15,55 SAY "F_LOAN:"
@ 15,62 GET m->Mf_loan PICTURE "L"
@ 15,64 SAY "REF_LOAN:"
@ 15,73 GET m->Mref_lon PICTURE "L"
@ 17,1 SAY "H_LOAN:"
@ 17,8 GET m->Mh_loan PICTURE "L"
@ 17,10 SAY "ELECTRICITY:"
@ 17,22 GET m->Melec PICTURE "L"
@ 17,24 SAY "DOMESTIC:"
@ 17,33 GET m->Mdomestic PICTURE "L"
@ 17,35 SAY "RENT DEDUCTION:"
@ 17,50 GET m->Mqtr_ded PICTURE "L"
```

```
      @ 17,52 SAY "IPIM STAFF:"
      @ 17,63 GET m->Mpri_staf PICTURE "!"
      @ 17,65 SAY "MOSQUE_NED:"
      @ 17,76 GET m->Mmosque PICTURE "!"
      read
      deact wind wq_staf1
      release wind wq_staf1
RETURN
```